Colorado School of Mines – UNDERGRADUATE COUNCIL MEETING MINUTES
March 8, 4:00 – 5:00 pm, via Zoom

_____

Attendees:
Voting Members: 19 total (10 needed for quorum). Quorum was present.

P	Joseph Horan (chair)	P	Andrew Pederson (EB)	P	Mike Nicholas (AMS)	P	Chuck Stone (PH)
P	Michael Barankin (CBE)	P	Cortney Holles (HASS)	P	Corinne Packard (MME)	P	Nicole Smith (MN)
P	Dylan Domaille (CH)	P	Ge Jin (GP)	P	Rob Thompson (CS)	P	Dave Benson (GE)
P	Linda Battalora (PE)	P	Hongyan Liu (CEE)	P	Oyvind Nilsen (ME)	P	Emmelia Ashton (USG)
P	Chelsea Salinas (EDS)	P	Brianna Buljung (LB)	P	Hisham Sager (EE)		

Other Regular Attendees and Guests

A	Sam Spiegel (Mines Online)	P	Dixie Cirillo (PA)	P	Mara Green (AA)	A	Kendra Stansbury (RO)
A	Karla Perez-Velez (CASA)	P	Vibhuti Dave (UGS)	P	Deb Jordan (Trefny Center)	P	Paul Myskiw (RO)
P	Katie Ludwin (CASA)	P	Danielle Boileau (CASA)	A	Cheryl Medford (GE)	A	Rachel McDonald (PE)
P	D. Scott Heath (RO)	A	Colin Terry (SL)				

Special Guest(s):

_____

Welcome   Joe Horan

Approval of Minutes – March 1, 2023   Joe Horan

MOTION: To approve the Undergraduate Council minutes of March 1, 2023 by Barankin, seconded by NAME. Motion passed unanimously.

Curriculum Item(s) for Vote – from 2/22/23

1.1   **METALLURGICAL & MATERIALS ENGINEERING**   Corinne Packard
             [CIM 2/16]
             1 program change: BS-CERE: Ceramic Engineering
             Changes reflect adaptation to new core requirements.

1.1.1   [CIM 2/17]
             1 program change: BS-MME: BS in Metallurgical and Materials Engineering
             Program grid changes to reflect updates in response to core changes.

1.1.2   [CIM 2/17]
             6 course changes: MTGN319: INTRODUCTION TO GLASS SCIENCE AND
                                          TECHNOLOGY
             *Correct oversight- this course will be increased by one credit to reflect more in-depth
             coverage compared to the existing elective.*
                                          MTGN334: CHEMICAL PROCESSING OF MATERIALS
             EDNS251 no longer required in our curriculum.
                                          MTGN445: MECHANIAL PROPERTIES OF MATERIALS

Adding prerequisites that used to be implicit to ensure proper sequencing. MTGN348 and CEEN241 and CEEN311.

<div align="center">MTGN465: MECHANICAL PROPERTIES OF CERAMICS</div>

Update to course prerequisites. MTGN310, CEEN241 and CEEN311.

<div align="center">MTGN467: MATERIALS DESIGN: SYNTHESIS, CHARACTERIZATION AND SELECTION</div>
<div align="center">MTGN468: MATERIALS DESIGN: SYNTHESIS, CHARACTERIZATION AND SELECTION</div>

Change to offered both semesters to support ahead of sequence students. Change of prerequisites to give appropriate in-major sequencing and makes prereqs compatible with both departmental degree programs.

1.1.3   [CIM 2/16; Provost 2/16]

1 new course: MTGN457: SOLIDIFICATION

Very few institutions offer solidification at the undergraduate level. By offering this course, Mines will be top of mind for students interested in pursuing casting, welding, and additive manufacturing related careers after graduation. The Metallurgical and Materials Engineering department has thematic strengths in welding and additive manufacturing, and this course supports those areas, which also improves the scale and impact of Mines in these focus areas.

This course has been piloted twice with good enrollment and needs to become an officially numbered course so that we can continue to offer it.

MOTION: To vote to approve items under 1.1 in an omnibus Council vote by Packard, seconded by Barankin. Motion passed unanimously.

1.2   **CIVIL & ENVIRONMENTAL ENGINEERING**   Hongyan Liu

[CIM 2/17]

2 course changes: CEEN210: INTRODUCTION TO CIVIL INFRASTRUCTURE

         CEEN315: CIVIL AND ENVIRONMENTAL ENGINEERING TOOLS

Credit update from half credits to whole credits.

MOTION: To vote to approve the two (2) course changes in item 1.2 in an omnibus Council vote by Barankin, seconded by Liu. Motion passed unanimously.

1.3   **ELECTRICAL ENGINEERING**   Hisham Sager

[CIM 2/19]

5 course changes: EENG284: DIGITAL LOGIC

The previous course description focused on outdated technologies and practices. Industry no longer use PLAs, they use instead uses FPGAs. Likewise, we no longer have students wire together TTL logic gates on bread boards. Finally, the focus of the course needs to be on building complex functionality by combining state machines with building blocks.

<div align="center">EENG310: INFORMATION SYSTEMS SCIENCE I</div>

Remove the recitation and Matlab assignments from EENG310, reducing it from a 4-hour course to a 3-hour lecture-only course.

Introduce a new one-hour required Field Engineering (FE) course entitled Computational Methods for Electrical Engineering. All EE majors must still complete 2 FE courses; with

this one being required, students may select one other from a list of options.

This FE course will be a co-requisite for EENG310 (and vice versa), so students will need to take it concurrently with EENG310. This ensures that students will be prepared for courses such as EENG311 (Information Systems Science II), which has EENG310 as a prerequisite and assumes familiarity with Matlab.

This FE course will draw from the Matlab-focused signal processing curriculum from the former EENG310 recitation, with the addition of Simulink material.

EENG350: SYSTEMS EXPLORATION AND ENGINEERING LAB

Project involves a variety of sub-systems beyond control and embedded systems

EENG350 (SEED Lab) is a required course in the Electrical Engineering undergraduate curriculum. Currently, EENG 350 is offered every semester as a 2-credit hour course. This is an open-ended design lab.

Discussion with students and faculty have revealed that the workload is heavy for many students, by the standards of a 2-hour course.

Moreover, the current arrangement presents some staffing issues (related to assigning faculty loads) and scheduling challenges to course delivery in Electrical Engineering.

This proposal is to increase the credit hours for EENG (SEED Lab) from 2 credit hours to 3 credit hours. Faculty will ensure the workload is commensurate with a 3 credit-hour course.

EENG385: ELECTRONIC DEVICES AND CIRCUITS

The course description was incomplete and missing two important topics; opamps and frequency response. These are standard topics included in a devices class - for example, see the text by Sedra and Smith. In fact, the EENG 307 prerequisite is required precisely because students need to be familiar with the concepts of frequency response prior to taking the class. This update was long overdue and will bring the description in line with the actual topics covered in the class.

EENG386: FUNDAMENTALS OF ENGINEERING ELECTROMAGNETICS

Update to course description. Re-structuring all AWC courses to better fit student's education in the Antennas and Wireless Communications area.

EENG391: FE ON COMPUTATIONAL METHODS FOR ELECTRICAL ENGINEERING

We propose to:

Remove the recitation and Matlab assignments from EENG310, reducing it from a 4-hour course to a 3-hour lecture-only course.

Introduce a new one-hour required Field Engineering (FE) course entitled Computational Methods for Electrical Engineering. All EE majors must still complete 2 FE courses; with this one being required, students may select one other from a list of options.

This FE course will be a co-requisite for EENG310 (and vice versa), so students will need to take it concurrently with EENG310. This ensures that students will be prepared for courses such as EENG311 (Information Systems Science II), which has EENG310 as a prerequisite and assumes familiarity with Matlab.

This FE course will draw from the Matlab-focused signal processing curriculum from the former EENG310 recitation, with the addition of Simulink material.

EENG428: COMPUTATIONAL ELECTROMAGNETICS

Update to course description. Re-structuring all AWC courses to better fit student's education in the Antennas and Wireless Communications area.

1.3.1   [CIM 2/20]
1 program change: MINASI-EE: Minor/ASI in Electrical Engineering
Added specifics on what courses are needed to receive a minor.

MOTION: To separate item 1.3.2 from the omnibus Council vote by Barankin, seconded by Jin. Motion passed unanimously.

MOTION: To vote to approve the items in 1.3 and 1.3.1 in an omnibus Council vote by Sager, seconded by Barankin. Motion passed unanimously.

1.3.2   **ELECTRICAL ENGINEERING**   Hisham Sager
[CIM 2/19]
1 course change: EENG340: COOPERATIVE EDUCATION
Moving from A-F to pass/fail.

Myskiw reported the item had been brought up to the Faculty Senate President, but official discussion had not begun. Myskiw noted benefit in creation of a policy for a new grading scheme. Councilor noted CBE feels there should not be a pass/fail option and noted an A or F should be issued. Council voiced concerns over voting on a grading scheme policy that does not exist; Council recognized MEGN340 had already been approved for the same grading scheme.

MOTION: To vote to approve the course change to EENG340: Cooperative Education by Barankin, seconded by Jin. Ten (10) for, two (2) against, six (6) abstentions. Motion passed.

1.4   **GEOPHYSICS**   Ge Jin
[CIM 2/16]
1 course change: GPGN409: INVERSION
Prerequisite and co-requisite house cleaning. Minor updates to Catalog description. Removed GPGN229, MATH332, CSCI250 from prerequisites; updated to GPGN329, GPGN404. Removed GPGN435 co-requisite.

1.4.1   [CIM 2/17]
3 course deactivations: GPGN350: SCIENCE AND COMMUNICATION SKILLS
Course no longer part of undergraduate curriculum and had last been taught Fall 2021.
                                 GPGN419: INTRODUCTION TO FORMATION EVALUATION AND WELL LOGGING
This course is no longer offered in the GP undergraduate curriculum. Petroleum offers PEGN 419, which was equivalent to GPGN 419 in the past and will remain as an elective for our undergraduate students to select.
                                 GPGN435: GEOPHYSICAL COMPUTING
GPGN435 is a duplicate course of GPGN436, GPGN435 was offered one time to students in Fall 2019. GPGN436 is the current class being offered by the GP department.

MOTION: To vote to approve items in 1.4 in an omnibus Council vote by Barankin, seconded by Jin. Motion passed unanimously.

1.5   **PETROLEUM ENGINEERING**   Linda Battalora
[CIM 2/22]

3 program changes: BS-PTE: BS in Petroleum Engineering
Changes to the PE Major to incorporate the changes in core curriculum. Highlights include removing two PEGN courses, moving around several core curriculum and elective courses, and bring the total required credits down to 131.
                              MIN-PTDA: Minor in Petroleum Data Analytics
Updating the PE Data Analytics minor to reflect removing PEGN305 from the PE major required courses and the discontinuation of courses in other departments that were part of the minor.
                              MINASI-PE: Minor in Petroleum Engineering
Updating the PE minor to simply it and make more accessible to students from other majors.

MOTION: To vote to approve the three (3) program changes in item 1.5 in an omnibus Council vote by Battalora, seconded by Barankin. Motion passed unanimously.

Briefings and Information Items

<u>Office of Undergraduate Studies</u>   Vibhuti Dave
No updates from the Office of Undergraduate Studies; Dave yielded the remainder of the time for feedback and discussion on the proposed core curriculum Catalog language.

- **Question** if HASS200 and EBGN201 will no longer exist after 2023-2024 and, if so, if it is to be replaced by CASES/STFutures without an economics requirement for students; Dave reported HASS200 will remain in the Catalog with consideration that it may count as a mid-level elective or technical elective. EBGN201 and HASS200 remain in the core for 2023-2024. The use of the new interdisciplinary course is contingent on piloting. EBGN201 and HASS200 would no longer be required within the core, but would still be offered should CASES/STFutures be implemented.

Dave reported the alternative name to H&SS has been proposed as Culture and Society (CAS). Language had been added to notify continuing students of the credit decrease. The proposed language:

"For students completing degree requirements under a catalog prior to 2023-2024, the credits of some courses may have decreased. For example, HASS 100 (4 to 3CH) and PHGN100 (4.5 to 4 CH). The new versions of those updated courses will still fulfill the previous course requirements, but students may need to enroll in additional elective credits to meet the minimum overall Credit Hours needed to complete their degree."

- **Question** if Council will be voting on the full, ideal implementation or what has been presented; Dave noted the table containing information on the full ideal implementation of the new core may be deleted to avoid confusion. Dave reported removal of the requirement of core courses HASS200 and EBGN201 would be contingent on CASES/STFutures.
- **Question** if the core course requirements list with the five categories is what would be voted on by Council and any further changes to HASS200 and EBGN201 would require an additional vote; Dave confirmed further changes to HASS200 and EBGN201 would go to Council.

The second column discussed in Council outlines the interim version of the core for 2023-2024 and not ideal implementation. Council discussed removal of the ideal implementation column to avoid confusion of students.

Councilors provided anecdotal feedback from departments on the proposed Catalog language for the core curriculum.

A synopsis of PE feedback was provided: there was comments on the language containing too much information that may be deemed unnecessary for entering students and parents, faculty did not see a need to describe what is different from the current Catalog and previous Catalog, and descriptions were considered too wordy and may be confusing for students. Department noted that most do not devote pages to students that consider changed catalogs. Note had been made that some language may be considered insulting for those who have already worked in engineering.

A comment was raised on an informal discussion in Faculty Senate and consideration of phased rollout of CSCI128 rather than full implementation for Fall 2023. Horan noted Faculty Senate has not met officially to discuss further. Myskiw reported preparation to offer over 650 student seats with good projections for full rollout in Fall 2023; several Councilors voiced concern regarding phased rollout if program changes have been submitted with CSCI128. Myskiw reported twelve sections are carved out with sixty seats each, totaling 720 seats for Fall 2023. Several sections are on standby for now. There is intent to enroll students in CSCI128 and MATH112 together; CS reported ability to offer the same number of sections in the spring semester. Myskiw noted the incoming freshmen class size is unknown with an estimation between 1,400 and 1,500 students; Myskiw reported the number of students that have taken CSCI101 varies from year to year at about 100 students.

Councilors expressed confidence in CS' ability to offer the programming course at a large scale. Institution prepared for a full rollout of CSM201 and CSCI128 as compared to CASES/STFutures. Several Councilors raised concerns regarding phased rollout of CSCI128 for students' sequencing.

Comment raised on the lack of EB courses in the core as compared to the original framework.

Dave notified Councilors for consideration of a core curriculum committee through Council that would vet courses, concerns regarding the core and courses that may fit into core requirements, and additional discussions around the core. Dave recognized the core curriculum would continue to be tweaked in coming years.

The department heads of HASS, EDS, and EB were invited to present on the status of CASES/STFutures to both Faculty Senate and Council in future meetings.

<u>Registrar's Office</u>   Paul Myskiw
Myskiw provided an update on the updated user interface of Trailhead, starting 3/20. Myskiw reported the same Trailhead links remain, the modules provide a new look and feel while navigating the system. Myskiw asked faculty report any important links that should be listed in the modules and provide any feedback to Myskiw. Information on the new user interface would be distributed to faculty.

- **Question** if the customization of the modules is remembered by the system; Myskiw confirmed the order the modules and cards are arranged in will remain the same.
- **Question** if frequently used links can be added into a single box by the individual faculty member; Myskiw confirmed different links can be added into a single, customizable box as a custom card to-do list that can be added to the top of the Trailhead page.

New Curriculum Item(s)

COLORADOSCHOOLOFMINES
EARTH • ENERGY • ENVIRONMENT

2.1	**ECONOMICS AND BUSINESS**	Becky LaFrancois

2.1   **ECONOMICS AND BUSINESS**   Becky LaFrancois
[CIM 3/1]
2 program changes: BS-BEMS: BS in Business Engineering and Management Science
     BS-ECO: BS in Economics
Core revision; course flowchart updated.

2.1.1   **1 course change**:   EBGN403: ECONOMICS CAPSTONE
Starting in 2023, we will begin to offer a 2 semester, 2 credit hour field session that runs during the school year, rather than during the summer. Students will complete a year-long capstone project and engage in seminar sessions. We want the title of the course to better align with the new structure of the course.

Students would integrate content from all other classes into a project. The course would then be more project-based.

2.2   **CIVIL & ENVIRONMENTAL ENGINEERING**   Hongyan Liu
[CIM 3/6]
3 program change: BS-CE: BS in Civil Engineering
     BS-CONSTR: BS in Construction Engineering
     BS-EVE: BS in Environmental Engineering
Change along with new core requirements.

2.3   **GEOLOGY & GEOLOGICAL ENGINEERING**   Dave Benson
[CIM 3/1]
1 program change: BS-GLE: BS in Geological Engineering
Changes are related to meeting the changes in core curriculum being implemented in 2023-24, also reducing required credit hours to 133 from 137.5.

The program change is an adjustment to the new core revision and the credit hours had been reduced by eliminating thermodynamics.

2.3.1   **5 course changes**:   GEGN401: MINERAL DEPOSITS
Update prerequisites to remove thermodynamics. Correct contact hours and lecture/lab breakdown.
     GEGN403: MINERAL EXPLORATION DESIGN
     GEGN439: PETROLEUM EXPLORATION DESIGN
     GEGN469: ENGINEERING GEOLOGY DESIGN
     GEGN470: GROUND-WATER ENGINEERING DESIGN
Change to prerequisites due to change in program requirements.

2.4   **MECHANICAL ENGINEERING**   Oyvind Nilsen
[CIM 3/1]
1 program change: BS-MECH: BS in Mechanical Engineering
1. Changes according to Mines CORE adjustment.
2. Electives list updated (added/removed).
3. GPA calculation course list trimmed down.
4. Tracks courses updated.

5. Minors and ASI text and credit hours corrections.

The credits had been reduced from 134.5 to 126. Errors were removed from course listings, x98 courses were provided with official numbers, and electives no longer offered were removed from course listings. General cleanup was done.

2.4.1   [CIM 2/28]
2 course changes: MEGN441: INTRODUCTION TO ROBOTICS
Added EENG307, MEGN200 to prereq list. Also clean up "modality".
List as 2 credit lecture and 1 credit studio, instead of lecture and lab.
                        MEGN453: AEROSPACE STRUCTURES
Remove CEEN241 as a prereq.
(CEEN is a prereq for MEGN212)

2.5   **MINING ENGINEERING**   Nicole Smith
         [CIM 3/1]
         1 program change: BS-MNE: BS in Mining Engineering
         Updates to the course flowchart reflecting core revisions.

2.6   **CHEMICAL & BIOLOGICAL ENGINEERING**   Michael Barankin
         [CIM 3/1]
         1 course change: CBEN360: BIOPROCESS ENGINEERING
         Re-aligning format/description with how the course is currently taught.
                        CBEN412: INTRODUCTION TO PHARMACOKINETICS
         Updating title (more accurate to how course is taught) and updating pre-reqs.
                        CBEN415: POLYMER SCIENCE AND TECHNOLOGY
         Updating pre-reqs (removing redundancy and enabling juniors to take this course)
                        CBEN460: BIOCHEMICAL PROCESS ENGINEERING
         Making req's consistent with CBEN360 (to facilitate later substitution of the two courses).

2.7   **PHYSICS**   Tim Ohno
         [CIM 3/3]
         1 program deactivation: MIN-BPHYS: Minor in Biophysics
         No longer offering this program.

-   **Question** on how many students had completed the minor in prior years; Myskiw reported one student had been rewarded the minor since 2015.

Continuing Curriculum Item(s) – from 3/1/23

3.1   **APPLIED MATHEMATICS & STATISTICS**   Mike Nicholas
         [CIM 2/27]
         1 program change: BS-AMS: BS in Applied Mathematics and Statistics
         NOTE: THE FOLLOWING ARE NEW CORE CHANGES: We will drop 3 hours of free elective credit. Not much else will change for us in the new core. I've input a new flow chart (inserting placeholders for the new STF and CSM classes and changing the credit hours of other classes).

COLORADOSCHOOLOFMINES.
EARTH • ENERGY • ENVIRONMENT

At the same time, we will remove MATH530 from the elective lists for the CAM and STAT BS degrees (that is a service course containing material already required in other major classes)

3.1.1   [CIM 2/27]
               6 course changes: MATH112: CALCULUS FOR SCIENTISTS AND ENGINEERS II
                                         MATH213: CALCULUS FOR SCIENTISTS AND ENGINEERS III
                                         MATH225: DIFFERENTIAL EQUATIONS
                                         MATH223: CALCULUS FOR SCIENTISTS AND ENGINEERS III HONORS
                                         MATH307: INTRODUCTION TO SCIENTIFIC COMPUTING
                                         MATH332: LINEAR ALGEBRA
                                         MATH334: INTRODUCTION TO PROBABILITY
               Adding the new CS course, CS128, as a co-req. We would like to take advantage of the intro to programming and to offer support for it in Calc II, Calc III, DiffEQ, Linear Algebra, Scientific Computing, and Probability.
               About half of our current incoming class takes Calc I in the Fall, and the other half starts in Calc II or III, so this should be reasonable from a scheduling perspective.

Nicholas reported the department would like to delay the presented changes in item 3.1.1. Questions had been provided to Nicholas regarding students with AP credit, Nicholas reported CSCI128 would be listed as a co-requisite as students come from ranging backgrounds. The use of CSCI128 as a prerequisite was done for Linear Algebra, Scientific Computing, and Probability as these courses are taken by transfer students. The rationale from AMS had been provided to Council.

AMS reported the use of CSCI128 would modernize calculus instruction with increased computation and application, build on the programming foundations provided in CSCI128, establish a more common first year for students, and allow all courses following Calc II to assume students have a familiarity with basic Python programming.

AMS proposed a year delay on the proposed changes to provide additional time for the new core, experimentation with scheduling, and providing departments time to consider pros and cons of the co-requisite and prerequisite structure and how it may look within their own curriculum.

Councilors agreed with the presented delay in changes.

-   **Question** on implementation of a new structure based on Python programming aid with courses that may be taught primarily by adjuncts; Nicholas reported several of the total sections in calculus are taught by adjunct faculty in the AMS department. The courses are coordinated by fulltime faculty, changes implemented would occur gradually over years.

Item 3.1.1 tabled.

3.2   **CHEMISTRY**   Dylan Domaille
             [CIM 2/24]
             1 program change: BS-CHM: BS in Chemistry
             Updated flowchart to include new core requirements.

| 3.3 | **ENGINEERING, DESIGN, AND SOCIETY** | Chelsea Salinas |

ENGINEERING, DESIGN, AND SOCIETY   Chelsea Salinas

3.3   **ENGINEERING, DESIGN, AND SOCIETY**   Chelsea Salinas
[CIM 2/24]
1 program change: BS-EGN: BS in Design Engineering
Updates to program due to core revisions.

3.3.1   [CIM 2/21]
2 course changes: EDNS200: INTRODUCTION TO DESIGN ENGINEERING
Updating catalog description to better align with course content as recently adjusted to meet needs of incoming Design Engineering students. This course serves as the gateway to our major, newly named BS in Design Engineering.

            EDNS392: DESIGN ENGINEERING APPLICATIONS

Update catalog description to better align with recently adapted course materials to better suit programmatic outcomes and student progress through degree. Course originated as design engineering identity building, but has developed into a culmination of design theory and hands-on engineering project design.

3.4   **HUMANITIES, ARTS, AND SOCIAL SCIENCES**   Cortney Holles
[CIM 2/22; Provost 2/22]
2 new courses: HASS417: INDIGENOUS LITERATURE
One of the stated goals of Mines@150 is to expand offerings and diversify delivery. Mines and HASS students would gain a better understanding of cultural diversity and the world through the literature of the native descendants of those who inhabited regions before settlers colonized them. Their exposure to other cultures and ways of life add cultural and historical knowledge and awareness of the diversity of human experiences.

            HASS465: THE GOOD LIFE, FROM ARISTOTLE TO THE ANTHROPOCENE

This course will strengthen student affinity with Mines by giving them a distinctive and transformative learning experience. My goal when designing this course was not just to teach students about the history of ideas, but to provide students with opportunities to use course content to explore big questions of enduring importance in the semesters before they graduate; What do I want my life to look like? How can I be happier? What things matter most to me? What makes a life meaningful or "good"? I have done this by pairing readings on philosophy and history with complimentary readings and lectures on happiness from modern psychologists and cognitive scientists, and by designing several experiential assignments in which students put some of the theories of happiness we study into practice over two-week periods. Their final project also requires them to design a month-long experiment to test a hypothesis about some aspect of living a good life. The first group of students who took this class responded very positively to these experiences. Most reported that they found the class not just interesting, but useful, and some told me it was among the most impactful classes they had taken during their time at Mines.

This course also compliments other Mines at 150 goals. HASS lost one of our philosophy professors last year, and our other philosopher is currently department chair. As a result, students with an interest in philosophy have fewer curricular options. Since this course draws heavily upon philosophy, it helps fill this void, and in doing so makes Mines more attractive to students with these interests. Further, the first group of students who took this class reported that they had gotten to know their peers better in this class than in

many other classes they taken because they spent so much time discussing questions that were personal, meaningful, and relevant. In this sense, this course also helps create a stronger sense of community among the students.

3.4.1   [CIM 2/27]
1 core course change: HASS100: NATURE AND HUMAN VALUES
Core course change, credits reduced from 4 to 3.

3.5   **MECHANICAL ENGINEERING**   Oyvind Nilsen
[CIM 2/26]
7 course changes: MEGN200: INTRODUCTION TO MECHANICAL ENGINEERING: PROGRAMMING AND HARDWARE INTERFACE
Removed one pre-req EDNS151, added HNRS198
MEGN201: INTRODUCTION TO MECHANICAL ENGINEERING: DESIGN & FABRICATION
Add HNRS105 or HNRS198 are pre-req
MEGN315: DYNAMICS
Add MATH225 as co-req, remove MATH307 as co-req.
MEGN381: MANUFACTURING PROCESSES
Add MEGN212 ad a pre-req (Solid Mechanics)
MEGN417: VEHICLE DYNAMICS & POWERTRAIN SYSTEMS
Remove MEGN361 as prereq. Add MEGN391.
Change from 3 credit hour lecture to 2 credit hour lecture and 1 credit hour studio, to support project-based learning.
MEGN451: AERODYNAMICS
Name change, remove Fluid Mechanics II, keep only "Aerodynamics"
MEGN485: MANUFACTURING OPTIMIZATION WITH NETWORK MODELS
Add MATH112 as prereq.

- **Question** if there had been clarification on Council's need to vote on modality changes, in reference to the 3/1 vote on MEGN412; Horan noted there are overlapping authorities. Mines Online provides a complex diagram of the process of changing modality. Myskiw cautioned modality changes within the undergraduate curriculum to avoid the creation of a fully only undergraduate degree.

3.5.1   [CIM 2/27]
1 program change: MIN-AERO: Aerospace Engineering Minor
Added courses to minor.

3.6   **PETROLEUM ENGINEERING**   Linda Battalora
[CIM 2/22]
1 course change: PEGN438: PETROLEUM DATA ANALYTICS
We want to add CSCI128 as a pre-req for PEGN438. This will ensure students have the skills need to be successful in this course. As CSCI128 is part of the core curriculum, this will not require additional course credits or create an undue barrier to students taking it

3.7   **PHYSICS**   Chuck Stone

[CIM 2/24]
1 program change: BS-PHE: BS in Engineering Physics
These changes will better match our undergraduate Engineering Physics degree with the larger campus changes in our Core Curriculum.

3.8   **GEOLOGY & GEOLOGICAL ENGINEERING**   Dave Benson
[CIM 2/24]
1 course change: GEGN307: PETROLOGY
Removing Thermodynamics (GEGN330 or equivalent) as it is being removed from our BS in Geological Engineering. Increasing to 4 CH (from 3) to add a 3rd hour of lecture, allowing content to be delivered more effectively and also to balance out a historic mismatch in defined credit hours between our two tracks.

3.9   **GEOPHYSICS**   Ge Jin
[CIM 2/24]
18 course changes: GEGN307: PETROLOGY
Removing Thermodynamics (GEGN330 or equivalent) as it is being removed from our BS in Geological Engineering. Increasing to 4 CH (from 3) to add a 3rd hour of lecture, allowing content to be delivered more effectively and also to balance out a historic mismatch in defined credit hours between our two tracks.
                        GPGN228: INTRODUCTION TO GEOPHYSICS
Updates made to catalog description; removed topics covered portion and minor updates to the rest of the description.
                        GPGN229: MATHEMATICAL GEOPHYSICS
                        GPGN268: GEOPHYSICAL DATA ANALYSIS
                        GPGN318: APPLIED GEOPHYSICS I
                        GPGN319: APPLIED GEOPHYSICS II
                        GPGN328: PHYSICS OF THE EARTH – I
                        GPGN329: PHYSICS OF THE EARTH – II
                        GPGN404: DIGITAL SIGNAL PROCESSING
                        GPGN411: GRAVITY AND MAGNETIC METHODS
                        GPGN420: ELECTRICAL AND ELECTROMAGNETIC METHODS
                        GPGN436: GEOPHYSICAL COMPUTING
                        GPGN438: GEOPHYSICS PROJECT DESIGN
                        GPGN455: EARTHQUAKE SEISMOLOGY
                        GPGN458: SEISMIC INTERPRETATION
                        GPGN461: SEISMIC DATA PROCESSING
                        GPGN470: APPLICATIONS OF SATELLITE REMOTE SENSING
                        GPGN474: HYDROGEOPHYSICS
                        GPGN486: GEOPHYSICS FIELD CAMP
Prerequisite and co-requisite house cleaning.

Adjourn   Joe Horan
Meeting adjourned: 5:02 pm.
Next meeting: March 15, 4:00-5:00 pm via Zoom. Please send agenda items to Mara Green (mgreen1@mines.edu) one week prior.