

Colorado School of Mines – UNDERGRADUATE COUNCIL MEETING MINUTES  
 January 24, 4:00 – 5:00 pm, via Zoom

**Attendees:**

**Voting Members:** 15 total (10 needed for quorum). Quorum was present.

P	Ventzi Karaivanov (chair)	P	Andrew Pederson (EB)	P	Mike Nicholas (AMS)	P	Chuck Stone (PH)
P	Michael Barankin (CBE)	P	Jay Straker (HASS)	P	Gerald Bourne (MME)	P	Rennie Kaunda (MN)
P	Dylan Domaille (CH)	P	Ge Jin (GP)	P	Zibo Wang (CS)	P	Mathias Burisch Hassel (GE)
P	Linda Battalora (PE)	P	Hongyan Liu (CEE)	P	Jeff Wheeler (ME)		Mark Bowen (USG)
P	Jack Bringardner (EDS)	P	Brianna Buljung (LB)	P	Hisham Sager (EE)		

**Other Regular Attendees and Guests**

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

**Special Guest(s):** Allyce Horan, Sid Saleh, Christina Leedham, Katy Armstrong, Sabina Schill

**Welcome**

Ventzi Karaivanov

*Approval of Minutes – January 10, 2024*

Ventzi Karaivanov

**MOTION:** Motion to approve previous minutes was moved by Ge Jin and seconded by Gerald. The previous minutes were approved with 13 approved, 0 opposed, and 1 abstention.

**Briefings and Information Items**

*Registrar’s Office*

D. Scott Heath for  
Paul Myskiw

Today is Census Day, the last day for students to drop classes for the main part of term. We will be doing cleanup over the next couple of days. Sometime in the next few weeks, we are going to send out a roster discrepancy request for faculty to inform us if there are students that are registered that are not attending so we can drop them from those classes or if they are on the roster but not registered that need to be registered.

*“Don’t Cancel Class” program*

Christina Leedham  
Katie Armstrong

The Career Center and Vallejo Irvine Program (VIP) are joining efforts for “Don’t Cancel Class.” Both of our offices offer workshops by request with the Career Center being more career focused and VIP being more professional development focused. We wanted to share that offering for you all to know and communicate with faculty that this is available. If there is a reason a faculty member cannot teach a class (such as a conference), we are happy to come in and do a workshop by request on set topics that are already developed or tailor it around the department. For the Career Center, we can do topics like resumes, CVs, interview preparation, business communication, salary, negotiation, or anything a student would need with their job search or career exploration. For VIP, topic offerings are focused more on professional development as it relates to the first few years of career growth and success as an early



professional. Topics include how to collaborate in a team, self-advocacy in your early career, and an awkward person’s guide to small talk.

Please share this program with others, especially for those who might be trying to figure out class schedules. This is also available as an added benefit to any class. We do not have to come just when you are not having class. Currently, we have two separate request forms for VIP and the Career Center, but we are working to bridge those, so in the future, it should be one request form or one guide to be able to request the variety of topics between us.

We do ask for 7–10-days’ notice if you know you are going to be gone. If something comes up before that timeframe, please do submit a request anyway. We would love to accommodate all requests as best as we can.

**Question:** Is this available already or is this a future plan?

**Answer:** This is available now. The links that I provided are live and on our websites.

### Curriculum Item(s) for Council Vote

1.1

<b>CSM</b>		Allyce Horan
CIM 12/1/23		
<b>1 Course Change:</b>	CSM102: INTRODUCTION TO TECHNICAL WRITING	
	We are requesting that CSM102 count as a 1.0 credit toward the new core curriculum’s success and wellness category instead of a free elective. CSM102 provides foundational skills in technical writing that apply to a wide range of STEM disciplines. By exposing students to a variety of genres within technical writing, they will be able to more confidently and quickly understand the discipline-specific communication skills needed in their upper-level classes, giving them a stronger foundation for academic success. Furthermore, this class provides both writing and oral communication skills that are transferable to their internships and jobs post-graduation, promotion professional success as well. By taking this class, students will gain valuable communication skills that support the Mines@150 goal of creating differentiated and highly desired STEM-educated leaders.	

**MOTION:** Motion to approve the CSM102 course change was made by Jay and seconded by Ge Jin. The CSM102 course change was approved with 14 approved, 1 opposed, and 0 abstentions.

1.2

<b>EDNS</b>		Sid Saleh
CIM 11/10/23		
<b>1 Course Change:</b>	INNO444: INNOV8X CREATE	
	Changing name of course, adding the word “Create” to distinguish from new Innov8x introductory course. Correcting name of course description as Innov8x, not Innovate X. Also request change to course prefix INNO.	
<b>EDNS</b>		Sid Saleh
CIM 1/11/24		
<b>1 Course Deactivation:</b>	EDNS444: INNOV8X CREATE	



	Change to course prefix INNO.
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**MOTION:** Motion to approve the INNO444 course change was made by Micha and seconded by Gerald. The INNO444 course change was approved with 15 approved, 0 opposed, and 0 abstentions.

1.3

<b>EDNS</b>		Sid Saleh
CIM 11/10/23		
<b>1 New Course:</b>	INNO244: INNOV8X IGNITE	
	<p>This is an introductory course to our popular Innov8x course, allowing underclassmen the opportunity to learn about problem solving through innovation, thus triggering and developing their entrepreneurial mindset early.</p> <p>This aligns with the following Mines@150 goals:</p> <ul style="list-style-type: none"> <li>* Expand offerings and diversify delivery, in particular for professionally oriented pre and post graduate education.</li> <li>* Strengthen affinity for Mines among our students, alumni and external partners.</li> <li>* Be more innovative and entrepreneurial, especially in the use of our resources.</li> </ul>	

**MOTION:** Motion to approve the INNO444 course change was made by Micha and seconded by Gerald. The INNO444 course change was approved with 16 approved, 0 opposed, and 0 abstentions.

1.4

<b>QBE</b>		Josh Ramey
CIM 11/10/23		
<b>1 Program Change:</b>	BS-IBIO: BS IN QUANTATIVE BIOSCIENCES AND ENGINEERING	
	<p>Adding EDNS444/544 Innov8X as a Technical Elective, permitting undergraduate QBE students to have a hands-on learning experience for credit. Approved by Dr. Josh Ramey and the uQBE faculty during standing faculty meetings.</p>	

**MOTION:** Motion to approve the BS-IBIO program change was made by Jay and seconded by Micha. The BS-IBIO program change was approved with 16 approved, 0 opposed, and 0 abstentions.

1.5

<b>GE</b>		Mathias Burisch Hassel
CIM 12/5/23		
<b>1 Course Change:</b>	GEGN470: GROUND-WATER ENGINEERING DESIGN	
	<p>Updates to prerequisites due to changes made earlier in the GE program.</p>	

**MOTION:** Motion to approve the GEGN470 course change was made by Micha and seconded by Gerald. The GEGN470 course change was approved with 16 approved, 0 opposed, and 0 abstentions.

1.6

<b>MECH</b>		Jeff Wheeler
CIM 11/9/23		
<b>1 Course Change:</b>	MEGN479: OPTIMIZATION MODELS IN MANUFACTURING	
	This class is now an approved online course and is only offered online. Updating catalog to reflect the new modality.	

**MOTION:** Motion to approve the MEGN479 course change was made by Micha and seconded by Gerald. The MEGN479 course change was approved with 16 approved, 0 opposed, and 0 abstentions.

1.7

<b>HASS</b>		Jay Straker
CIM 12/6/23		
<b>1 New Course</b>	HASS430: PSYCHOLOGY FOR ENGINEERS	
	Expand offerings and diversify delivery, in particular for professionally oriented pre and post graduate education. This course contextualizes the study of humans to the learning and careers relevant to Mines students. Regularly, termed Engineering+++, Mines Student’s majors are continually applied and examined through the lenses of this course.	

**MOTION:** Motion to approve the HASS430 new course was made by Micha and seconded by Gerald. The HASS430 new course was approved with 16 approved, 0 opposed, and 0 abstentions.

1.8 **Minor Changes – to be considered as a single vote.**

<b>EBGN</b>		Andrew Pederson
CIM 12/11/23		
<b>1 Course Change:</b>	EBGN305: Survey of Accounting	
	Updating the course title and description to fit what is being taught in the course. We are only offering one accounting course with Financial and Managerial topics.	
<b>AMS</b>		Mike Nicholas
CIM 12/8/23		
<b>1 Course Changes:</b>	MATH436: Advanced Statistical Modeling	
	We are removing MATH335 as a prereq. This will open things up for AMS majors and the CS-Data Sci track.	

**MOTION:** Motion to approve the minor changes was made by Micha and seconded by Linda. The minor changes were approved with 15 approved, 0 opposed, and 0 abstentions.

**New Curriculum Item(s)**

2.1

<b>Electrical Engineering</b>		Hisham Sager
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CIM 1/3/24	
<b>4 Course Change:</b>	EENG307: INTRODUCTION TO FEEDBACK CONTROL SYSTEMS
	Adding Honors Differential Equations to prerequisites.
	EENG310: INFORMATION SYSTEMS SCIENCE I
	Adding Honors Differential Equations to prerequisites.
	EENG386: FUNDAMENTALS OF ENGINEERING ELECTROMAGNETICS
	Adding Honors Differential Equations to prerequisites.
	EENG437: INTRODUCTION TO COMPUTER VISION
	Updating modality to both in-person and online.

**Question:** Is this an “or” situation, not a requirement?

**Answer:** Yes, it is. It is adding “or MATH235.”

**Question:** How does the prerequisite system or structure work?

**Answer:** Most of the courses, when they have prerequisites and there is a different version of the class, we must add it as an “or” option, otherwise, students will have to complete an override. Even though students are taking the Honors version. it will not automatically count towards fulfilling that requirement with the way that our prerequisite system is currently set up. Hopefully in the future, we can update how we read prerequisites. We run into this problem a lot with HASS requirements and Honors courses. This might be considered a minor update.

**Comment:** Because these courses are cross-listed in other programs, they would not be considered minor changes. Just a reminder, there is a template of what must be submitted in CIM. The template was updated last semester by the Online Standards Committee which asks for more information when we propose online modality to make sure there is an appropriate planning process in terms of allowing enough time for course development and approval before the course is listed.

## 2.2

<b>CBE</b>		Michael Barankin
CIM 1/17/24		
<b>1 New Course:</b>	CBEN424: COMPUTER-AIDED PROCESS SIMULATION	
	This course will add an elective to our UG program which already exists in the Grad program (but has not been offered in many years) and enable undergrads to take a course along with graduate and certificate students. This course has direct applications in industry.	

We have CBEN524 that has not been offered for years, so I am resurrecting that course and creating a parallel undergraduate version that will have some lesser requirements. For example, the graduate course will have a presentation and possibly an extra assignment. This is an elective course and will be offered online only. The graduate course will be offered as an elective to some online certificate programs, and this undergraduate course will be used for our program.

## 2.3

<b>CEE</b>		Hongyan Liu
CIM 1/11		
<b>1 Course</b>	CEEN471: WATER AND WASTEWATER TREATMENT SYSTEMS ANALYSIS AND	

<b>Deactivation:</b>	DESIGN
	Changed this course number to CEEN478 to cross-list with CEEN578.
<b>1 New Course:</b>	CEEN478: WATER TREATMENT DESIGN AND ANALYSIS
	This is not a new course; I am attempting to change the course number of CEEN 471 to CEEN 478 which necessitates this form. The course educates students on advanced aspects of water treatment engineering with a focus on system design. Students will learn core aspects of water system design enabling success in industry.

This is a course number change and will be cross-listed with the graduate course (CEEN578). We also shortened the course title.

2.4

<b>EDNS</b>		Jack Bringardner
CIM 1/11/24		
<b>1 Course Change:</b>	EDNS251: CORNERSTONE DESIGN II	
	This change is part of the revitalization of Cornerstone Design II to align with Mines@150 and the integration of business acumen into the curriculum. The course description addresses the inclusion of some introductory business tools in the real-world client-sponsored student team projects. Discipline specific versions of EDNS251. Corresponding to the EDNS26X courses, will be deactivated. Prerequisite changes include removing EDNS192, a course no longer offered, and adding HNRS120 to recognize both honors tracks that satisfy EDNS151 and NHV.	
<b>8 Course Deactivations:</b>	EDNS261: DESIGN II: GIS	
	This change is part of the revitalization of Cornerstone Design II to align with Mines@150 and the integration of business acumen into the curriculum. Discipline specific versions of EDNS 251, corresponding to the EDNS 26X courses, will be deactivated.	
	EDNS262: DESIGN II: AUTOCAD	
	This change is part of the revitalization of Cornerstone Design II to align with Mines@150 and the integration of business acumen into the curriculum. Discipline specific versions of EDNS 251, corresponding to the EDNS 26X courses, will be deactivated.	
	EDNS263: DESIGN II: MATERIALS	
	This change is part of the revitalization of Cornerstone Design II to align with Mines@150 and the integration of business acumen into the curriculum. Discipline specific versions of EDNS 251, corresponding to the EDNS 26X courses, will be deactivated.	
	EDNS264: DESIGN II: GEOLOGY GIS	
	This change is part of the revitalization of Cornerstone Design II to align with Mines@150 and the integration of business acumen into the curriculum. Discipline specific versions of EDNS 251, corresponding to the EDNS 26X courses, will be deactivated.	
	EDNS269: DESIGN II: ENGINEERING PHYSICS	
	This change is part of the revitalization of Cornerstone Design II to align with Mines@150 and the integration of business acumen into the curriculum.	

	Discipline specific versions of EDNS 251, corresponding to the EDNS 26X courses, will be deactivated.
	EDNS325: CULTURAL ANTHROPOLOGY
	Mines Faculty Senate Fall 2023 request to deactivate courses no longer offered.
	EDNS375: ENGINEERING CULTURES
	Mines Faculty Senate Fall 2023 request to deactivate courses no longer offered.
	EDNS475: ENGINEERING CULTURES IN THE DEVELOPING WORLD
	Mines Faculty Senate Fall 2023 request to deactivate courses no longer offered.

The course change is a minor update to the description to EDNS251, which is a sophomore project-based course. We added some details about some of the introductory business skills that are now incorporated into the course as part of the revitalization of the class. The other courses will be deactivated because they have rarely been used in recent semesters. The goal is to have students focus on EDNS251. The last three courses (EDNS325, EDNS375, and EDNS475) are courses that have not been offered in a long time.

**Comment:** As a reminder, please provide how transfer credits are being evaluated as Senate asks for this information.

**Comment:** I would like to renew my objection to deactivating EDNS325. With three PhD anthropologists on campus as faculty, I think it is ridiculous that we cannot find a way to offer this course. For example, we just approved a Psychology course with only one PhD in Psychology on the faculty.

**Comment:** I will relay this back to the department. I think the removal of EDNS325 was due to a change in the design of curriculum and the goal of the curriculum for the Humanitarian Engineering track within EDNS, not related to whether or not we could staff that particular course.

**Question:** What is the reason for deactivating the EDNS325 AutoCAD course? Was it due to low enrollment?

**Answer:** There is still a first-year level course for AutoCAD. The second-year design-specific course has not been offered in awhile due to lack of interest.

2.5

<b>MECH</b>		Jeff Wheeler
	CIM 1/11/24	
<b>1 Course Deactivation:</b>	MEGN361: THERMODYNAMICS I	
	Changing the course number to MEGN 261 to reflect that this is a sophomore level class. The new MEGN 261 is already proposed in CIM. per Dr. Jeffrey Wheeler 01/11/2024 - rib	
<b>1 New Course:</b>	MEGN261: THERMODYNAMICS I	
	This is a course number change proposal. This new course proposal should be considered one change with the MEGN 361 deactivation. This is a sophomore level course and ME students are advised to take it in their section year. A 261 course number establishes the expectation that this is a sophomore class.	

<b>1 Course Deactivation:</b>	MEGN458: INTRO TO SPACE EXPLORATION AND RESOURCES
	This is a course number change. Deactivate MEGN 458 and replace with MEGN 452. Intro to Space Exploration is the first course in a series but currently has the highest course number of those classes. The new course number will convey that this is the start of a sequence
<b>1 New Course:</b>	MEGN452: INTRO TO SPACE EXPLORATION AND RESOURCES
	This is a course number change. Deactivate MEGN 458 and replace with MEGN 452. Intro to Space Exploration is the first course in a series but currently has the highest course number of those classes. The new course number will convey that this is the start of a sequence
<b>1 Course Change:</b>	MEGN441: INTRODUCTION TO ROBOTICS
	EEGN307 recommended but not required as a prerequisite per the course instructors. Added clarification to show that one programming course (MEGN200, CSCI200, or CSCI261) and one circuits course (EEGN281, EEGN282, or PHGN215) are required as prerequisites.

We are proposing a course number change for Thermodynamics I because it is really a sophomore level class. We encourage all of our majors to take it as sophomores, so we want to have a 200-level number on it. We are changing the course number for Space Exploration and Resources because this is the first course in a series, but it currently has the highest course number even though it is a prerequisite to the other courses. To make the progression more obvious, we would like to change the course number to MEGN452. The last change is cleaning up the prerequisites for MEGN441 per the instructor's request. We want to remove Intro to Feedback as a required prerequisite. The instructors felt that they could cover everything to the point where they needed to be without the course being a hard prerequisite. We also clarified the course to show that one programming and one circuits course are required. There are three options for each of the courses.

## 2.6

<b>CS</b>		Zibo Wang
CIM 1/18/24		
<b>10 Course Changes:</b>	CSCI220: DATA STRUCTURES AND ALGORITHMS	
	Updating learning outcome language.	
	CSCI303: INTRODUCTION TO DATA SCIENCE	
	Cleaning up prerequisites – CSCI128 is the necessary prerequisite. Currently leaving CSCI101 for historical/existing students.	
	CSCI404: ARTIFICIAL INTELLIGENCE	
	Prerequisite update: Adding MATH201 or MATH334 for flexibility.	
	CSCI425: COMPILER DESIGN	
	Cleaning up prerequisites – Removing explicit CSCI210 prerequisite since it is already a prerequisite for both CSCI306 and CSCI341.	
	CSCI432: ROBOT ETHICS	



	Downgrading prerequisites from CSCI220 to CSCI200
	CSCI437: INTRODUCTION TO COMPUTER VISION
	Updating modality.
	CSCI442: OPERATING SYSTEMS
	Cleaning up prerequisites – Removing CSCI210 as an explicit prerequisite since it is already a prerequisite for CSCI341.
	CSCI470: INTRODUCTION TO MACHINE LEARNING
	Updating prerequisites for added flexibility.
	CSCI475: INFORMATION SECURITY AND PRIVACY
	Prerequisite update; Adding new CSCI210 as alternative to CSCI274.
	CSCI478: INTRODUCTION TO BIOINFORMATICS
	Cleaning up prerequisites – CSCI128 is the necessary prerequisite. Currently leaving CSCI101 for historical/existing students.

All changes are prerequisite changes except for the first one (CSCI220) which is updating the learning outcome language. The prerequisite changes are being proposed to offer more flexibility to the students and to align with previous course changes.

## 2.7

<b>MT</b>	Metallurgical & Materials Engineering (MT)	Gerald Bourne
CIM 1/19/24		
<b>1 New Course:</b>	MTGN480: ADVANCED WELDING METALLURGY	
	<p>Very few institutions offer welding metallurgy courses at all, and even fewer offer courses focused on microstructure and property prediction of welds. By offering this course, Mines will be top of mind for students interested in 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.</p> <p>This course will explore microstructural development that occurs during welding. Solidification in the fusion zone as well as solid-state microstructural changes in the heat affected zone will be discussed. We will use the understanding of microstructural changes during welding to interpret cracking mechanisms and unique behaviors of specific alloy systems. The interrelationship between modeling/simulation and experiments will be emphasized. Throughout the course, we will think about how the people to who actually weld (welders) can provide critical insight to solve welding metallurgy problems.</p>	

This is a course that has been historically taught as a graduate course. We have a new instructor working in the area of welding and proposed to the department to offer it as an undergraduate offering. He has piloted the course twice as a special topics (498), cross-listed with old 580 course. We would like to formalize a course number for future offerings.

**Minor Changes – to be considered as a single vote**



<b>CBE</b>		Michael Barankin
CIM 11/16		
<b>1 Course Change:</b>	CBEN472: INTRODUCTION TO ENERGY TECHNOLOGIES	
	Semester varies	

<b>Electrical Engineering</b>		Hisham Sager
CIM 1/3/24		
<b>1 Course Change:</b>	EENG391: FE ON COMPUTATIONAL FUNDAMENTALS OF ENGINEERING ELECTROMAGNETICS	
	Adding Honors Differential Equations to prerequisites.	

**Continuing Curriculum Item(s) – from 11/8/23**

3.1

<b>AMS</b>		Mike Nicholas
CIM 12/8/23		
<b>2 Program Changes:</b>	BS-AMS: BS in Applied Mathematics and Statistics	
	<p>We are introducing a Data Science (DS) emphasis to go along with our Computational Applied Mathematics (CAM) and Statistics (STAT) emphases. Data Science is an important component of applied mathematics and statistics and is therefore a good fit for AMS. The emphasis overlaps in various courses with the CS track in Data Science; having this emphasis allows students the flexibility of building DS skills on a mathematics foundation rather than a CS foundation. This flexibility reflects the breadth of the field of data science. Since this emphasis relies on already existing courses, we do not anticipate a need for additional resources (beyond the resources we already need, of course).</p> <p>This also includes flowchart changes to get EB321 into the junior year.</p>	
	MINASI-AMS: Minors/ASIs in AMS – CAM and Statistics	
	<p>We have had three minors: Computational and Applied Math, Statistics, and General Math. This leads to a lot of override requests from people in one minor who are interested in courses from another. We have decided to simplify and just offer a single Applied Mathematics and Statistics Minor. Students will be able to build that minor with flexibility.</p> <p>We are also cutting the ASI. Students are not doing the ASI anyway.</p>	

3.2

<b>AMS</b>		Mike Nicholas
CIM 12/8/23		
<b>3 Course Changes:</b>	MATH433: Time Series and Its Applications	

	We ran this three times as a topics course. When we made the permanent course, we used 533 because it was not taken. We now need MATH433 for the undergrad, cross-listed version. We are repurposing this number, as the old MATH433 has been inactive for over a decade.
	MATH482: Statistics Practicum (Capstone)
	This course was moved up to 4 CHs a few years ago but still meets only 3 hours per week. We need to move it back down to 3 to be in line with the handbook.
	MATH484: Mathematical and Computational Modeling (Capstone)
	This course was moved up to 4 CHs a few years ago but still meets only 3 hours per week. We need to move it back down to 3 to be in line with the handbook.

3.3

<b>University Honors and Scholars Programs (HN)</b>		Sabina Schill
CIM 12/15/23		
<b>1 New Program:</b>	Minor in Teaching with Licensure	
	<p>In order to provide attractive pathways for current (and future) Mines students and alumni to pursue teaching science, mathematics, and computer science as a career, we would like to create a new minor that is an update on the existing Teach@Mines Minor in Teaching and includes 24 credits rather than 18, which provides students with the option to receive the minor plus the necessary credits required for a teaching license. By offering a minor with licensure option, it will provide clear communication to the campus about the necessary coursework to meet the Colorado Department of Education requirements for initial teacher licensure.</p> <p>Creating an opportunity for Mines students to become highly-qualified and licensed science, math, and computer science teachers addresses the heart of the Mines@150 goals. Bringing students with technical backgrounds into our local classrooms allows these students to share their passion in a way that meets societal needs and at the same time builds their leadership and communication skills. Providing an option for Mines students to pursue teaching as a career will increase retention and recruitment, both by bringing in and retaining those who decide they want to teach as well as by placing informed Mines ambassadors into K-12 classrooms which will create a better prepared and larger candidate pool for the next generation of Mines incoming students.</p> <p>The coursework for this program is delivered both online and in person with a substantial K-12 classroom component.</p>	

3.4

<b>University Honors</b>		Sabina Schill
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<b>and Scholars Programs (HN)</b>		
CIM 12/15/23		
<b>1 Program Change:</b>	MIN-TEACH: Minor in Teaching	
	<p>Creating an opportunity for Mines students to become highly-qualified science, engineering, mathematics, computer science, or STEM teachers lies at the heart of the Mines@150 goals. Providing an option for Mines students to pursue teaching as a career will increase retention and recruitment, both by bringing in and retaining those who decide they want to teach as well as by placing informed Mines ambassadors into K-12 classrooms.</p> <p>Updates to the Teaching Minor are: 1) The addition of Computer Science Education courses under the new course prefix CSED, which will provide clarity for students who choose to pursue a teaching minor and are focused on Computer Science. 2) The addition of more options for the required Capstone I course, which will provide students in the minor options for engaging in classroom teaching focused within their STEM discipline of choice: Science (SCED464), Math (MAED464), or Computer Science (CSED464).</p>	

3.5

<b>HN</b>		Sabina Schill
CIM 12/12/23		
<b>4 New Course:</b>	CSED430: Computer Science Practices and Technological Impacts on Society	
	<p>Providing Computer Science Teacher Education aligns with Mines@150 goals to produce differentiated and highly desired STEM education leaders and to become a leader in educating STEM students and professionals. Computer Science (CS) professionals are the most needed STEM professional in the workplace. Engineers, scientists, and mathematicians who know CS will be able to provide more effective expertise. Currently, Mines leads in Colorado innovatively providing needed pre-service teacher training for CS teacher educators. CS teachers with Mines degrees will be more likely to encourage students to attend Mines, creating a pipeline of students for the second most popular degree at Mines, CS. The proposed course will assist future CS teachers and engineers applying CS to understand the ethical implications of optimal and poor code. Students will also develop strategies to include ethical discussions in the software or engineering design cycle, as well as teach K-12 students CS professional practices and ethics.</p> <p>This is a residential course, meeting in-person 3 times each week.</p>	
	CSED435: Computer Science Teaching Techniques	
	<p>As a new pre-service Teach@Mines course for undergraduate students, CS Teaching Techniques aligns with Mines@150 plans regarding being an innovative STEM education leader, top of mind university, developing graduates who will have a profound and innovative impact on society. Currently, Mines offers the only CS undergraduate pre-service teacher licensure program in Colorado and one of the only programs nationally. In Colorado and nationally, an estimated 40 – 60% of all K-12 students have</p>	

	<p>access to CS education. Our CS majors who pursue a Teaching minor with a focus on CS will be able to earn CS teaching licensure and also be academically qualified to teach K-12 math, science, and engineering.</p> <p>This is a residential course, meeting in-person 1 time each week.</p>
	<b>CSED464: Capstone Curriculum Design I - Practicum</b>
	<p>Creating an opportunity for Mines students to become highly-qualified science, engineering, math, computer science or STEM teachers lies at the heart of the Mines@150 goals. Bringing students with technical backgrounds into our local classrooms allows these students to share their passion in a way that meets societal needs and at the same time builds their leadership and communication skills. Providing an option for Mines students to pursue teaching as a career will increase retention and recruitment, both by bringing in and retaining those who decide they want to teach as well as by placing informed Mines ambassadors into K-12 classrooms. Additionally, these courses are attractive to career changers who are looking to transition from technical careers into the teaching profession. This course is face-to-face so that students may experience the classroom firsthand.</p>
	<b>CSED465: Capstone Curriculum Design II – Student Teaching</b>
	<p>Creating an opportunity for Mines students to become highly-qualified science, engineering, mathematics, computer science, or STEM teachers lies at the heart of the Mines@150 goals. Bringing students with technical backgrounds into our local classrooms allows these students to share their passion in a way that meets societal needs and at the same time builds their leadership and communication skills. Providing an option for Mines students to pursue teaching as a career will increase retention and recruitment, both by bringing in and retaining those who decide they want to teach as well as by placing informed Mines ambassadors into K-12 classrooms. This course is face-to-face so that students may experience the classroom firsthand.</p>

3.6

<b>HN</b>		Sabina Schill
CIM 12/12/23		
<b>1 Course Deactivation:</b>	MAED435: Computer Science Teaching Techniques	
	<p>We are also proposing some new Computer Science Education (CSED) courses that are currently being taught under the Math Science Education (MAED) course prefix. We are simply aiming to separate Computer Science from Math via a new course code prefix.</p>	

3.7

<b>HN</b>		Sabina Schill
CIM 12/12/23		

<b>2 Course Change:</b>	MAED464: Capstone Curriculum Design I
	Updating pre- and co-requisites so that they match across T&M Capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T&M courses at once. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.
	MAED465: Capstone Curriculum Design II
	Updating pre- and co-requisites so that they match across T&M Capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T&M courses at once. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.

3.8

<b>HN</b>		Sabina Schill
CIM 12/12/23		
<b>2 Course Change:</b>	SCED464: Capstone Curriculum Design I	
	Updating pre- and co-requisites so that they match across T&M Capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T&M courses at once. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.	
	SCED465: Capstone Curriculum Design II	
	Updating pre- and co-requisites so that they match across T&M Capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T&M courses at once. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.	

**Question:** Why offer a minor in licensure and one without?

**Answer:** We have found that many of our students want to eventually get the licensure. However, some students just want to learn how to teach, but only at the university level. It would not make sense for these students to go through the extra capstone course and do the additional work for licensing at the K-12 level if they have no intention of heading in that direction.

**Question:** How many students are in this program?

**Answer:** We currently do not have an exact number because students do not have to declare the minor until they are ready to graduate. However, we think there are around 35 to 45 students in the minor



program that took Teach@Mines courses last year. From advising, we know that around 50 students were seriously considering pursuing teaching. We have a handful of students that are enrolled in the master's program rather than the minor program. From course surveys, about a third of the students taking courses were intending to pursue a minor in teaching.

**Question:** Are the additional six credits for obtaining the licensure related to capstone courses?

**Answer:** They are related to Capstone II which is the student teaching course where students spend more hours in the classroom and have a leadership role in the classroom. This completes the hours that students need for field experience to get their license.

Question: I am still concerned about the new course codes/prefixes. Is it necessary to have all these new codes created? I imagine this might be confusing as to who is responsible for these courses in the future.

Answer: We are trying to make a specific path that students interested in Computer Science Education can follow. It matches that we would have three paths for Math, Science, and CS Education to match the three teaching licenses offered. You are correct that we will have to be careful when advising students to ensure that they enroll under the course code that matches their preferred education path.

### 3.9

<b>CSM</b>		Colin Terry
CIM 12/11/23		
<b>1 New Course:</b>	CSM301: Introduction to Public Speaking & Communication Skills	
	This new course - taught and facilitated through the Vallejo Irvine Program for Professional Development (VIP) - advances Mines aspiration to equip all graduating students with the necessary professional readiness competencies to positively distinguish themselves in their professional and graduate pursuits. This course introduces students to fundamental public speaking and verbal communications skills and advances Mines' commitment to professional development.	

### 3.10

<b>CS</b>		Zibo Wang/ Christine Liebe
CIM 12/13/23		
<b>1 Course Change:</b>	CSCI128: Computer Science for STEM	
	This online course is considered part of the new Mines Core, and thus designated an essential class for all students studying at Mines. Increasingly each year, our society relies on computing technology to accomplish daily tasks. This is even more true for scientists and engineers in STEM fields. However, simply knowing how to use computers is not enough. Capable professionals must also know how to program computers to make the best use of them. This course will teach the basics of computer programming, targeting students with no prior experience. It will teach fundamentals that are	

	<p>necessary to program in any language, as well as data analysis techniques that will be applicable to all STEM students, regardless of their intended major.</p> <p>OL version: Liebe completed FOCD in Spring 2021. We expect the online CSCI128 version to be completed in April 2024 for the Summer 2024 semester. We plan to offer the course on June 24, 2024, as an 8-week version. We would like the course to be open for registration in April or early May.</p>
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3.11

<b>EBGN</b>		Andrew Pederson
CIM 1/3/24		
<b>1 New Course:</b>	EBGN309: FUNDAMENTALS OF MANAGEMENT	
	<p>This course will be a required course in the BEMS degree program, as well as an elective course for the Economics degree and Business &amp; Entrepreneurship minor. Part of EB's continued effort to offer more business courses, and this fills a hole in the current curriculum.</p> <p>Catalog: This course provides a survey of fundamental principles of management and their application to the operations of a complex, modern organization. Topics covered include managerial functions (planning, organizing, leading, and controlling) as well as organizational behavior, human resources, and operations management.</p>	

3.12

<b>EBGN</b>		Andrew Pederson
CIM 1/3/24		
<b>1 Program Change:</b>	MIN-BUEN: Minor in Business and Entrepreneurship	
	<p>Editing the list of electives for the minor due to course additions and subtractions and changing the requirement for EBG201 and replacing that requirement with EBG360, Introduction to Entrepreneurship.</p>	

3.13

<b>EBGN</b>		Andrew Pederson
CIM 1/3/24		
<b>1 Program Change:</b>	BS-BEMS : BS in Business Engineering and Management Science	
	<p>This version includes the change that was passed F23 to require EBG201. This version also includes a program change adding a Management course to the Business core, reducing the tracks by 3CH each, and increasing Free Electives from 9-12.</p>	

3.14

<b>EE</b>		Hisham Sager
CIM 1/3/24		
<b>1 Program Change:</b>	BS-EE: BS in Electrical Engineering	



	Adding language about approval to count EE graduate courses as undergraduate EE electives. Clarifying language for the combined program.
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3.15

<b>CEE</b>		Hongyan Liu
CIM 1/9/24		
<b>2 Course Deactivations:</b>	CEEN441: INTRODUCTION TO THE SEISMIC DESIGN OF STRUCTURES	
	Cross-list with graduate course, so need new numbers. I was instructed to deactivate this course and propose a new course for Seismic Design.	
	CEEN446: STRUCTURAL LOADS	
	Cross-list with graduate course and need a new number. I was instructed to deactivate this course and propose a new course for Structural Loads.	

3.16

<b>CEE</b>		Hongyan Liu
CIM 1/9/24		
<b>2 New Courses:</b>	CEEN449: INTRODUCTION TO THE SEISMIC DESIGN OF STRUCTURES	
	Mines need to have a viable MS program in structural engineering. This class will be cross-listed with CEEN 549, which has the same name. Originally graduate students can take CEEN441 to count towards their MS and PhD degree, but now that is not allowed. Thus, this class need to have a 5XX level cross listing component.	
	CEEN448: STRUCTURAL LOADS	
	Structural Engineers will learn about various loads and how they are applied to buildings. Many graduate students took "CEEN446: Structural Loads" as part of their degree requirements. A graduate level course is proposed that builds off this undergraduate offering.	

#### 4. Open Announcement

Andrew Pederson

We have had a couple of students realize when they switch catalogs that they are required to take EBG321 suddenly even though they have already taken EBG201. We see this as a potential issue when students go to apply for graduation, not realizing that there is a new class.

Comment: This was just brought up and I will bring it to Faculty Senate. The question is more of who is approving the substitution? Is there a substitution or not? From what I have heard, there is advising in place.

Comment: We do have advising guidelines in place, we were just not able to get them in the catalog given the timing of when all of this happened last year. I think there would be few questions from the students if these advising guidelines were articulated in the catalog like they are CS and the Success and Wellness requirements. In the rare occurrence that there needs to be an exception, who is going to sign off on that? That is a discussion that needs to happen.

Comment: I will start this discussion with Faculty Senate and continue the discussion during our next meeting.

## **5. Adjourn**

Meeting adjourned: 4:58 pm.

Next meeting: February 14, 4:00-5:00 pm via Zoom. Please send agenda items to Ventzi Karaivanov (vkaraiva@mines.edu) and Kristeen Serracino (kristeen.serracino@mines.edu) one week prior.