

Colorado School of Mines – GRADUATE COUNCIL MEETING MINUTES  
January 29, 4:00 – 5:00 pm, [Zoom](#)

**Attendees:**

**Voting Members:** 22 total (12 - majority needed for quorum). Quorum was present.

	John Spear (Chair)	P	Danielle Ostendorf (LB)	P	Andy Osborne (NSE)	P	Uwe Greife (PH)
	Ian Lange (EB)	P	Bettina Voelker (CH)		Jaeheon Lee (MN)	P	Pejman Tahmasebi (PE)
P	Jeff Shragge (GP)	P	Ebru Bozdog (EDS)		Adrienne Marshall (HSE)	P	Jim Ranville (GC)
P	Mehmet Belviranli (CS)	P	Adrianne C. Kroepsch (HASS)	P	Ryan Venturelli (GE)		
P	Lori Tunstall (CEE)	P	Nikki Farnsworth (CBE)	P	Ellie Miller (GSG)		
P	Rajavasanth Rajasegar (ME)	P	Yamuna Phal (EE)		Kip Findley (MME)		

**Other Regular Attendees and Guests**

P	Carl Frick (OGS)		Carolyn Freedman (OGS)	P	Jenny Briggs (OGS)		Roxane Aungst (OGS)
	Wendy Adams (HNRS)		D. Scott Heath (RO)	P	Paul Myskiw (RO)	P	Colin Schneider (RO)
P	Sam Spiegel (Mines Online)		Suzanne Beach (Payne)	P	Kristeen Serracino (AA)		Richard Krahenbuhl (GP)
P	Jon Johnson (Mines Online)		Peter Concepcion (Grad Admissions)		Luke Contreras (Grad Admissions)		Kelsie Diaz (CS)
P	Cadi Gillette (IGP)		Rachel McDonald (IGP)				

**Special Guest(s):** Zibo Wang, Josue Prado do Campos, Nick Thornburg, Juan Lucena, Alison Bodor

**Welcome**

Yamuna Phal for John Spear

**Briefings and Information Items**

*Office of Graduate Studies*

Carl Frick/Jenny Briggs

Criteria/Guiding Document for Graduate Level Cross-Listed Courses

No updates at this time.

- **Question:** Y. Phal asked for clarification on the backlog of online courses and the requirement for the portfolio dean approval.
- **Answer:** C. Frick answered that this is not a new requirement. For any online developed course, dean approval is needed. The key is that there are currently more requests than bandwidth. This may be a question to directly ask the deans. For any current requests from Graduate Council, we can see where these courses are in the queue for online offerings.

*Registrar's Office*

Paul Myskiw

Today is the deadline for the submission of new courses and course changes for the Fall 2025 catalog. In the last Faculty Senate, the Faculty Senate President reminded everyone of the importance of containing courses within terms. The rule of thumb is that courses offered in a semester should be contained entirely within that term. There is enough structure and measurement to assign a grade at the end of the term. Only under extreme, extenuating circumstances should faculty be giving Incomplete grades and not giving additional time outside of the term to later change the grade. There has been an increase in the last few semesters of INC grades and faculty giving additional time to students outside of the term.

*Graduate Student Government*

Ellie Miller

GRADS is scheduled for April 1-3. GSG is looking for faculty to be GRADS judges. Please sign up at

<https://forms.office.com/pages/responsepage.aspx?id=4AlymbMJI0aaTXavpEpnXOZzycCQyB5AqO7ySH>



[hcORhUQjQxOEcxRjhlUEg1UFYxSU1EQ0FUMFAzSC4u&route=shorturl](https://www.mines.edu/gsg/hcORhUQjQxOEcxRjhlUEg1UFYxSU1EQ0FUMFAzSC4u&route=shorturl) and distribute to colleagues and other professionals. This year, judge requirements have changed. To be a judge, a person does not have to have a PhD but must have professional experience in industry or academia. GSG is also working on pulling together resources to support the graduate student community due to the recent executive orders. Lastly, GSG is presenting to the Board of Trustees next week to give baseline updates on what GSG is working on, current initiatives, and the GSG perspective of the signature graduate student experience at Mines.

4:20-4:30 pm **Curriculum Item(s) for Council Vote**

1.1

**MME**

[CIM 11/21]

**1 new course:**

Kip Findley

**MTGN540: MAGNETIC MATERIALS  
AND MODERN TECHNOLOGIES**

*Magnetism is a fundamental property of materials that is essential in their implementation in technology. However, few institutions incorporate magnetism into the curriculum for more than a single class period. By offering this course, Mines demonstrates the breadth of its expertise in materials to make it a top-of-mind institution for materials science and engineering. The Metallurgical and Materials Engineering department has thematic strengths in characterization of materials properties, and this course supports those areas, which also improves the scale and impact of Mines in these focus areas.*

**MOTION:** The motion to approve the MTGN540 new course was moved by A. Kroepsch and seconded by D. Ostendorf. The motion to approve the MTGN540 new course was approved with 13 approved, 0 opposed, and 1 abstention.

1.2

**CBE**

[CIM 11/26]

**1 new course:**

Nikki Farnsworth

**CBEN528: ADVANCED REACTOR  
DESIGN**

*Professor Thornburg, whose full-time role is as a Senior Reaction Engineer at the National Renewable Energy Laboratory (NREL), has created a highly unique senior undergraduate and graduate student elective course on chemical reaction engineering and its applications to the worlds of research & development and next-generation manufacturing. Reaction engineering has become an increasingly rare discipline due to retirement waves, and very few practitioners have the means or opportunity to teach a unifying course on such an challenging subject matter. This elective teaches a survey of over 16 different types of real-world chemical reactors—both traditional units as well as emerging, renewable-energy-powered reactors—synthesizing information from over 185 peer-reviewed research articles, papers and scholarly texts. For each reactor type, this one-of-a-kind course curriculum emphasizes conceptual chemical engineering design principles and practical scale-up strategies to teach students how to derive the information required to successfully deploy the technology. Overall, this course prepares Mines students for career paths in applied academic or industrial research & development environments that demand knowledge of the design and commercialization of cutting-edge chemistry technologies. The course has been taught to completion once in-person in Spring 2024 (cross-listed as a CBEN 498/598 Special Topics elective) with exceptional student reviews, and it is currently being taught for a second time in Spring 2025. We seek to make it a permanent part of the Mines course catalog to be offered annually to seniors and graduate students. To the best of the Chemical and Biological Engineering (CBE) Department's knowledge, no academic course like this exists anywhere else within U.S. chemical*

**MOTION:** The motion to approve the CBEN528 new course was moved by A. Kroepsch and seconded by D. Ostendorf. The motion to approve the CBEN528 new course was approved with 13 approved, 0 opposed, and 2 abstentions.

## CRTG-GISG: GRAD CERT IN GIS & GEOINFORMATICS

## XMS-GISG-NT: MSNT IN GIS & GEOINFORMATICS

**MOTION:** The motion to approve the two GE program changes was moved by E. Miller and seconded by A. Kroepsch. The motion to approve the two GE program changes was approved with 13 approved, 0 opposed, and 1 abstention.

**CEEN513: ADVANCED GEOMATERIAL MECHANICS**

To get more information from the CEE/GE department, this item will be tabled for voted during the next meeting.

## CEEN591: EROSION CONTROL AND LAND RESTORATION

## GEGN561: UNDERGROUND CONSTRUCTION ENGINEERING LABORATORY

*To conform with changes in the program, appeal to more students and move away from .5 credit offerings. Combining GEGN561 and GEGN562 into one, 1 credit class that meets weekly. The program has changed and so the co-requisites no longer make sense and should be removed. GEGN 562 would*



*then be removed from the catalog.*

**1 course deactivation:**

**GEGN562: UNDERGROUND  
CONSTRUCTION ENGINEERING  
LABORATORY 2**

*GEGN561 and GEGN562 will be combined into a single one-credit hour course so GEGN562 is no longer needed.*

2.3

**EE**

Yamuna Phal

[CIM 12/6, 12/17, 1/8]

**1 program change:**

**MSPHD-EE18: MS & PHD IN  
ELECTRICAL ENGINEERING**

*Changing credit hour requirement for PHD from 36 to 30.*

**4 course deactivations:**

**EENG508: ADVANCED TOPICS IN  
PERCEPTION AND COMPUTER VISION**

*The course has not been offered in several years and there are no plans to offer this course again.  
Deactivating this course will create opportunities for the development of new EE electives.*

**EENG31: ACTIVE NONLINEAR RF &  
MICROWAVE DEVICES**

*The course has not been offered in several years and there are no plans to offer this course again.  
Deactivating this course will create more opportunities for the development of new EE electives.*

**EENG571: MODERN ADJUSTABLE  
SPEED ELECTRIC DRIVES**

*The course has not been offered in several years and there are no plans to offer this course again.  
Deactivating this course will create more opportunities for the development of new EE electives.*

**EENG583: ADVANCED ELECTRICAL  
MACHINE DYNAMICS**

*The course has not been offered in several years and there are no plans to offer this course again.  
Deactivating this course will create more opportunities for the development of new EE electives.*

2.4

**QBE**

Cadi Gillette/John Spear

[CIM 12/17]

**1 course change:**

**BIOL500: CELL BIOLOGY AND  
BIOCHEMISTRY**

*Update contact hours to reflect 1 credit hour practicum instead of a lab.*

2.5

**GEOCHEMISTRY**

Jim Ranville

[CIM 1/8]

**2 program change:**

**CRTG-AG: GRAD CERT IN ANALYTICAL  
GEOCHEMISTRY**

*Updated course list to reflect current course offerings – removed CHGC508 from core courses changing certificate program to 9 credits; removed MNGN556 from elective course list.*

*Bringing the total course credits needed down (36 to 30) will make the degree more attractive and updating the course list to reflect current offerings which reduces confusion and frustration for students.*

## CHGN513: CHEMISTRY OF THE LANTHANIDES AND ACTINIDES

2.7 CS Mehmet Belviranli  
 [CIM 1/8]  
 1 program change: MSPHD-CS: MS & PHD IN COMPUT

**MSPHD-CS: MS & PHD IN COMPUTER SCIENCE**

*Updating core requirements – added CSCI582, CSCI565, and CSCI563 as alternative core courses; updated course requirements for grad cert program.*

4:30-5:00 pm **New Business**

Jeff Shragge

**MSPHD-GPE/GPH: MS & PHD IN GEOPHYSICS  
& GEOPHYSICAL ENGINEERING**

*The listed required "professional development" coursework cannot be completed by Geophysics PhD students as currently listed due to course deactivations or non-offerings. The Geophysics Department Faculty has discussed and approved an expansion and broadening of our definition of professional development to include relevant coursework in EBGN and EDNS, including topics related to entrepreneurialism and the socio-technical nexus. This strategy is consistent with the stated goals and mission of Mines@150.*

**3 course deactivations:**

## GPGN551: WAVE PHENOMENA SEMINAR

*This "course" is being removed since it is effectively run as a group s1 and seminar. The Geophysics Departmental Graduate Advisory Committee has developed new guidelines for differentiating between a course and group seminar. The organizers of this course agree that GPGN551 does not conform to these guidelines and would prefer to deactivate it at this point.*

**GPGN559: RESERVOIR  
CHARACTERIZATION SEMINAR**

*This "course" is being removed since it is effectively run as a group seminar. The Geophysics Departmental Graduate Advisory Committee has developed new guidelines for differentiating between a course and group seminar. The organizers of this course agree that GPGN559 does not conform to these guidelines and would prefer to deactivate it at this point.*



### **GPGN681: GRADUATE SEMINAR – PHD**

*We are requesting that GPGN681 be removed since the Geophysics Department is consolidating our GPGN581 MSc and GPGN681 PhD seminar into a single GPGN581 graduate seminar course. This will remove redundancy and duplication of reporting across our graduate programs. The requested changes to GPGN581 have already been entered into CIM for GC consideration.*

#### **1 course change:**

### **GPGN581: GRADUATE SEMINAR**

*Consolidating MS (GPGN581) and PhD (GPGN681) Graduate Seminar courses into a single 500-level course.*

The professional development courses that were listed in the PhD program are no longer offered or offered infrequently. Therefore, the program change expands the list of courses that students can take to receive professional development credit such as courses in Economics & Business, Entrepreneurship, and EDS. The course deactivations (GPGN551 and GPGN559) included courses that were legacy research group for credit classes that had been on the books for a couple of decades but did not conform to modern course design. The third course deactivation (GPGN681) was a duplicate of GPGN581 and GPGN581 has been changed to consolidate into a single 500-level course.

- **Question:** Y. Phal asked, for the program change, is there a maximum credit requirement from EDNS as opposed to core courses?
- **Answer:** J. Shragge answered the requirement is that as students are designing their professional development portfolio, they have 4 credit hours that they can choose from. The GP department has consulted with EB and EDS and they are comfortable having GP students in their 500-level courses.

3.2

**ORWE**

Cadi Gillette

[CIM 1/16]

#### **1 program change:**

### **MSPHD-EBOR: MS & PHD IN OPERATIONS RESEARCH WITH ENGINEERING**

*Updating prerequisite course list by removing CSCI261 and CSCI262 and adding CSCI128, CSCI200, and CSCI220.*

P. Myskiw added that this program change, which is updating name changes for CSCI261 and CSCI262 (now CSCI200 and CSCI220), has been approved by the previous Graduate Council. This does not require additional approval by the Council.

3.3

**ME**

Rajivasanth Rajasegar

[CIM 1/24]

#### **14 course deactivations:**

**DTCN501: INTRODUCTION TO DATA CENTER ENGINEERING**  
**DTCN502: DATA CENTER INFRASTRUCTURE MANAGEMENT**  
**DTCN503: DATA CENTER ENGINEERING GRADUATE SEMINAR**  
**DTCN591: DATA CENTER ENGINEERING AND ANALYSIS**  
**MEGN512: ADVANCED ENGINEERING VIBRATION**  
**MEGN513: KINETIC PHENOMA IN MATERIALS**  
**MEGN520: BOUNDARY ELEMENT METHODS**

**MEGN521: INTRODUCTION TO DISCRETE ELEMENT METHODS (DEMS)**

**MEGN531: PROSTHETIC AND IMPLANT ENGINEERING**

**MEGN537: PROBABILISTIC BIOMECHANICS**

**MEGN583: ADDITIVE MANUFACTURING**

**MEGN584: MODELING MATERIALS PROCESSING**

**MEGN597: CASE STUDY – MATERIALS SCIENCE**

**MEGN671: RADIATION HEAT TRANSFER**

*These courses have not been offered in the past 5 years and we do not plan on offering this course anymore.*

3.4

EE

Yamuna Phal/  
Josue Prado

[CIM 1/27]

**1 course change:**

**EENG588: POWER SYSTEM  
ECONOMICS AND ELECTRICITY MARKETS**

*EENG588 – Power System Economics and Electricity Markets will be designed to replace the existing EENG588 – Energy Policy, Restructuring and Deregulation of Electricity Markets course with a shorter and more appealing title, and content modernization. More specifically, the proposed course will combine economic aspects of power systems with the design and operation of electricity markets. It will also integrate theoretical principles with hands on optimization tools that are widely used in the power engineering industry. The proposed course will advance Mines@150 Mission, Vision and Strategic Plans in several ways: The proposed course will significantly contribute to advancing the Mines@150 Mission, Vision, and Strategic Plans in the following ways:*

*1. Attracting Strategic Talent*

*As a new and forward-looking online course in an emerging engineering field, it will position Mines as a leader in power sector education. The course is expected to attract more non-thesis master's students from key sectors such as electric utilities, grid operators, national laboratories, and consulting firms, thereby strengthening Mines' appeal to working professionals seeking advanced, practical knowledge.*

*2. Expanding Research Scale and Impact*

*This course will foster growth in power engineering research by equipping students with the expertise needed to address real-world challenges in the energy sector. With Colorado utilities anticipated to join the Southwest Power Pool (SPP) market, the course will create opportunities for research funding and collaboration with local organizations. By addressing emerging industry trends, this course aligns with the strategic goals of enhancing Mines' research prominence.*

*3. Inspiring Innovation and Addressing Industry Challenges*

*The course will inspire students to tackle critical challenges in the power sector, including decarbonization, grid modernization, and market integration. It will actively promote Mines' core values—collaboration, respect, inspiration, and innovation—by encouraging creative problem-solving and fostering a culture of teamwork and respect for diverse perspectives.*

*Delivery: Online*

*The responsible faculty (Josue Campos do Prado) has completed the Foundations of Online Course Design (FOCD) in November of 2024.*

*Anticipated date for course development completion: Summer 2025.*

*Anticipated first semester of delivery: Fall 2025 or Spring 2026.*

This course has not been offered in 10 years. The EE department had the option to deactivate or



modernize the content, so this course change proposes a change in course title to make it shorter and more appealing and change the focus of the course to cover both theoretical aspects of electricity markets and power system economics and also some hands-on application using mathematical optimization. This course would be online with the goal of attracting more master's non-thesis students. This course is not expected to have any impact on courses in Energy or Economics & Business since they also have courses related to energy markets. Instead, this course will cover power flow modeling, so students are expected to have a good understanding of power grid modeling and engineering tools.

- **Question:** C. Frisk asked, is this course supporting the new EE online certificate programs and master's program? Was it included in the plan put forward last year or is this in addition to?
- **Answer:** J. Prado answered yes, this supporting the EE online programs. It is in addition to the original plan. Currently, one of the certificates is in power and energy systems, which offers three courses. Adding this course would provide more options for EE students.
- **Question:** C. Frisk asked, how many students are in the online program?
- **Answer:** J. Prado answered unsure of the exact number of students. Y. Phal will provide this at the next GC meeting.

5:00 pm

**Adjourn**

Yamuna Phal for  
John Spear

Next meeting:

February 5, 2:00-3:00 pm GC224/[Zoom](#). Please send all agenda items to John Spear ([jspear@mines.edu](mailto:jspear@mines.edu)) or Kristeen Serracino ([kristeen.serracino@mines.edu](mailto:kristeen.serracino@mines.edu)) 1 week in advance.

**Consent Agenda** The following proposals will not be discussed unless specifically requested by the Council. Please review the following items. With no objections, approval is implied, and items will be processed accordingly.

4.1 **Approval of Previous Minutes – January 15, 2025**

John Spear

4.3 **AMS**  
[CIM 1/8]  
**1 program change:**

Ebru Bozdog

**CR-DS: GRADUATE CERTIFICATE IN  
DATA SCIENCE**

*Changing DSCI530 to its cross-listed MATH 530 to conform with changes to the MSNT.*

4.2 **EE**  
[CIM 1/9]  
**2 course changes:**

Yamuna Phal

**EENG573: ELECTRIC POWER QUALITY**

*Added EENG480 and EENG470 or instructor consent as prerequisites.*

**EENG581: POWER SYSTEM OPERATION  
AND MANAGEMENT**

*Added EENG480 or instructor consent as prerequisite.*