THE UNIVERSITY OF WISCONSIN-MILWAUKEE
College of Engineering and Applied Science

F A C U L T Y M E E T I N G

Friday, April 22, 2022 10:30 A.M. Virtually by Microsoft Teams

A G E N D A

I. DEAN UPDATE

II. ANNOUNCEMENTS

A. 2022-23 CEAS Committee Representatives – See Attachment 1

B. Update on Diversity, Equity, and Inclusion (DEI) taskforce – Prof. Cheng

III. INFORMAL REPORTS – See Attachment 2

A. Opportunity for Questions regarding Informal Reports

IV. DETERMINATION OF THE PRESENCE OF A QUORUM FOR FACULTY MEETING

V. AUTOMATIC CONSENT BUSINESS

A. Minutes of the March 4, 2022 meeting

B. New Courses and Course Changes – See Attachment 3

C. Revision to Computer Engineering B.S. Program. – See Attachment 4

D. Revision to the Environmental Engineering B.S. Program – See Attachment 5

E. Revision to the Data Science B.S. Program – See Attachment 6

F. Computer Science M.S. Program Change – See Attachment 7

G. Graduation

"*The faculty recommends to the Board of Regents those students whose names are submitted by the Office of the Registrar as having completed the requirements for the degree of Bachelor of Science or Bachelor of Arts in their respective majors.*"

VI. SPECIAL ORDER OF BUSINESS – Nominations

A. Awards and Recognition Committee

Faculty: Only members of Civil and Environmental Engineering, Computer Science and Electrical Engineering, and Mechanical Engineering may be nominated. Two members are to be elected.

Nominations Already Received:

Professor Xiao Qin – Civil and Environmental Engineering
Professor Michael Nosonovsky – Mechanical Engineering

Continuing Members:

Professor Mahsa Dabagh – Biomedical Engineering

VII. NEW BUSINESS

A. Dissolution of the CEAS Curriculum Committee and the CEAS Graduate Program Committee – See Attachment 8

VIII. GENERAL DISCUSSION

IX. ADJOURNMENT

John R. Reisel, Secretary
CEAS Faculty

JRR
Attachments

ATTACHMENT 1

CEAS COMMITTEES FOR 2022-23

		TERM EXPIRES
1)	**COMMITTEE ON ACADEMICS**	
	Professor Habib Tabatabai – Civil and Environmental Engineering	2024
	Professor – Electrical Engineering	2024
	Professor Xiaoli Ma – Materials Science and Engineering	2024
	Professor – Biomedical Engineering	2023
	Professor – Computer Science	2023
	Professor – Industrial Engineering	2023
	Professor Nathan Salowitz – Mechanical Engineering	2023
2)	**QUALIFYING EXAM ASSESSMENT COMMITTEE**	
	Professor – Biomedical Engineering	2024
	Professor – Computer Science	2024
	Professor Ben Church – Materials Science and Engineering	2024
	Professor Xiao Qin – Civil and Environmental Engineering	2023
	Professor – Industrial Engineering	2023
	Professor Krishna Pillai – Mechanical Engineering	2023
3)	**ACADEMIC PLANNING COMMITTEE**	
	Professor – Industrial Engineering	2025
	Professor Ilya Avdeev – Mechanical Engineering	2025
	Professor Mahsa Dabagh – Biomedical Engineering	2024
	Professor Hugo Lopez – Materials Science and Engineering	2024
	Professor Brian Armstrong – Electrical Engineering	2024
	Professor Christine Cheng – Computer Science	2023
	Professor Xiao Qin – Civil and Environmental Engineering	2023
4)	**SCHOLASTIC APPEALS COMMITTEE**	
	Professor – Electrical Engineering	2024
	Professor Junjie Niu – Materials Science and Engineering	2024
	Professor Hani Titi – Civil and Environmental Engineering	2024
	Professor John Boyland – Computer Science	2023
	Professor Jaejin Jang – Industrial Engineering	2023
	Professor Nathan Salowitz – Mechanical Engineering	2023
5)	**AWARDS AND RECOGNITION COMMITTEE**	
	Professor	2024
	Professor	2024
	Academic Staff Representative	2024
	Professor Mahsa Dabagh – Biomedical Engineering	2023

ATTACHMENT 2

INFORMAL REPORTS

Office of Student Services – Todd Johnson
No Report

Career Services – Juli Pickering
No Report

Curriculum Committee – Prof. Church

The Curriculum Committee approved several changes to undergraduate programs and heard an update on the potential GER revisions at UWM.

Graduate Program Subcommittee – Prof. Law

GPC met on 3/4 and approved the Computer Science change for transfer from Professional to Regular Track and two new courses (CS 715 and MAT 783). There was also an informal discussion of assessing English competency (considered by the GFC) before considering the PhD qualifying exam results for spring 2022.

Academic Planning Committee – Prof. Petering
No Report

Faculty Senate – Prof. Reisel

In its March meeting, the Senate continued to approve changes to P&P to reflect allowing schools to exist within colleges, approved name changes for units unrelated to CEAS, and approved changing the English Language Proficiency Requirements for Graduate School applicants.

ATTACHMENT 3

NEW COURSES

COMPSCI 715 PROGRAMMING FOR MACHINE LEARNING, 3 cr., G
This course is an introduction to Python for machine learning. The topics include Python constructs, imperative, functional, and object-oriented programming using Python, Python's concurrency models, and its applications in machine learning and scientific computing.
Prereq: None

MATLENG 783 ELECTROCHEMISTRY OF FUEL CELLS AND BATTERIES, 3 cr., G
This course covers the electrochemistry of fuel cells, batteries and electrolytic methods. The contents include thermodynamics and kinetics of electrode reactions and associated mass transport in electrochemical systems, and measurement techniques in electrochemical systems.
Prereq: MatlEng 483 (P), MatlEng443 or MatlEng 316 (P), or consent of instructor

COURSE CHANGES (Additions made in Green. Deletions Indicated in Red.)

MECHENG 320 INTRODUCTION TO FLUID MECHANICS, 3 cr., U
Basic law of fluid mechanics with applications to engineering problems and with discussion.
Prereq: ElecEng 234(P) and Physics 209(P) and Civ Eng 202 (P)

COMPUTER ENGINEERING, BS

History

1. Aug 18, 2018 by clmig-jwehrheim
2. Mar 12, 2019 by John Boyland (boyland)
3. Nov 15, 2019 by John Boyland (boyland)
4. Nov 25, 2019 by Emily Kuhnen (ebilicki)
5. Mar 20, 2020 by Emily Kuhnen (ebilicki)

Changes saved but not submitted

Viewing: Computer Engineering, BS

Last approved: Fri, 20 Mar 2020 21:46:54 GMT

Last edit: Mon, 28 Feb 2022 14:44:49 GMT

Is this a new sub-major, minor, area of interest, specialization, area, concentration, emphasis, field, focus, option, sequence, or track?
No

Title of program:
Computer Engineering, BS

Program Level:
Undergraduate Only

Program Type:
Major

College, School, or Functional Equivalent

Units:
College of Engineering and Applied Science

Proposed Effective Catalog:
2022-2023

Proposed Effective Term:
Fall 2022

Summary of proposed changes or request:
Remove EE 354, EE 367. Move CS 337, 357 to Tech Electives, Group A; and add EE 140 / 240 / 340 / 440.
Update CS and EE 2-semester Capstone course sequences.

Program Curriculum (for the Catalog)

Computer Engineering Curriculum

The minimum number of credits required to complete the Bachelor of Science in Computer Engineering is 120.

Code	Title	Credits
Engineering Core - 17 Credits		
ELECENG 140	Intro to Embedded Computing I: Digital Logic and Microprocessors	3
ELECENG 240	Intro to Embedded Computing II: C Programming for Embedded Applications	4
COMPSCI 250	Introductory Computer Programming	3
EAS 200	Professional Seminar	1
ELECENG 301	Electrical Circuits I	3
IND ENG 367	Introductory Statistics for Physical Sciences and Engineering Students	3
Major Requirements - 44 Credits		
COMPSCI 251	Intermediate Computer Programming	3
COMPSCI 317	Discrete Information Structures	3
COMPSCI 351	Data Structures and Algorithms	3
COMPSCI 361	Introduction to Software Engineering	3
COMPSCI 395	Social, Professional, and Ethical Issues	3

COMPSCI 458	Computer Architecture	3
COMPSCI 520	Computer Networks	3
COMPSCI 535	Algorithm Design and Analysis	3
ELECENG 305	Electrical Circuits II	4
ELECENG 310	Signals and Systems	3
ELECENG 330	Electronics I	4
ELECENG 340	Embedded Systems I: C and C++ Programming for Embedded Applications	3
ELECENG 440	Embedded Systems II: Advanced Embedded Systems	3
ELECENG 457	Digital Logic Laboratory	3
Mathematics Requirement - 16 Credits [1]		
MATH 231	Calculus and Analytic Geometry I	4
MATH 232	Calculus and Analytic Geometry II	4
MATH 233	Calculus and Analytic Geometry III	4
ELECENG 234	Analytical Methods in Engineering	4
Chemistry or Biology Requirement - 4-5 Credits		
Select one of the following:		4-5
CHEM 105	General Chemistry for Engineering	
CHEM 102	General Chemistry	
BIO SCI 150	Foundations of Biological Sciences I	
BIO SCI 202	Anatomy and Physiology I	
Physics Requirement - 8 Credits		
PHYSICS 209 & PHYSICS 210	Physics I (Calculus Treatment) and Physics II (Calculus Treatment)	8
Technical Electives - 13 Credits		**13**
Group A Technical Electives - Select 6 to 9 credits from the following list. All COMPSCI and ELECENG courses numbered 300-699 that are not explicitly listed as Engineering Core, Major, Group B or Group C		
COMPSCI 315	Introduction to Computer Organization and Assembly Language Programming	
COMPSCI 318	Topics in Discrete Mathematics	
COMPSCI 337	System Programming	
COMPSCI 411	Machine Learning and Applications	
COMPSCI 417	Introduction to the Theory of Computation	
COMPSCI 422	Introduction to Artificial Intelligence	
COMPSCI 423	Introduction to Natural Language Processing	
COMPSCI 425	Introduction to Data Mining	
COMPSCI 431	Programming Languages Concepts	
COMPSCI 443	Intelligent User Interfaces and Usability Assessment	
COMPSCI 459	Fundamentals of Computer Graphics	
COMPSCI 469	Introduction to Computer Security	
COMPSCI 511	Symbolic Logic	
COMPSCI 522	Computer Game Design	
COMPSCI 530	Computer Networks Laboratory	
COMPSCI 536	Software Engineering	
COMPSCI 537	Introduction to Operating Systems	
COMPSCI 545	FPGA Embedded CPUs & Firmware Development	
COMPSCI 547	User-Centered Interaction Design	
COMPSCI 557	Introduction to Database Systems	
COMPSCI 654	Introduction to Compilers	
COMPSCI 655	Compiler Implementation Laboratory	
COMPSCI 657	Topics in Computer Science:	
COMPSCI 699	Independent Study	
ELECENG 335	Electronics II	
ELECENG 361	Electromagnetic Fields	
ELECENG 362	Electromechanical Energy Conversion	
ELECENG 410	Digital Signal Processing	
ELECENG 420	Random Signals and Systems	

ELECENG 421	Communication Systems	
ELECENG 430	Energy Modeling	
ELECENG 436	Introduction to Medical Instrumentation	
ELECENG 437	Introduction to Biomedical Imaging	
ELECENG 439	Introduction to Biomedical Optics	
ELECENG 451	Introduction to VLSI Design	
ELECENG 461	Microwave Engineering	
ELECENG 462	Antenna Theory	
ELECENG 464	Fundamentals of Photonics	
ELECENG 465	Broadband Optical Networks	
ELECENG 474	Introduction to Control Systems	
ELECENG 482	Introduction to Nanoelectronics	
ELECENG 490	Topics in Electrical Engineering:	
ELECENG 541	Integrated Circuits and Systems	
ELECENG 545	FPGA Embedded CPUs & Firmware Development	
ELECENG 562	Telecommunication Circuits	
ELECENG 568	Applications of Digital Signal Processing	
ELECENG 572	Power Electronics	
ELECENG 574	Intermediate Control Systems	
ELECENG 575	Analysis of Electric Machines and Motor Drives	
ELECENG 588	Fundamentals of Nanotechnology	
ELECENG 699	Independent Study	
IND ENG 475	Simulation Methodology	
IND ENG 572	Reliability Engineering	
Group B Technical Electives - 4-5 credits		
Select one of the following sequences:		
COMPSCI 594 & COMPSCI 595	Capstone Project Preparation and Capstone Project	
ELECENG 596 & ELECENG 597	Capstone Design I and Capstone Design II	
Group C Technical Electives - Select 0 to 3 credits from the following list		
BIO SCI 150	Foundations of Biological Sciences I [2]	
BIO SCI 152	Foundations of Biological Sciences II	
BUS ADM 292	Introduction to Entrepreneurship and Small Business Formation	
BUS ADM 447	Entrepreneurship	
COMPSCI 481	Server-side Internet Programming	
COMPSCI 482	Rich Internet Applications	
COMPSCI 581	Web Languages and Standards	
COMPSCI 658	Topics in Applied Computing:	
EAS 1	Engineering Co-op Work Period [3]	
EAS 497	Study Abroad:	
ELECENG 471	Electric Power Systems	
ELECENG 472	Introduction to Wind Energy	
ELECENG 481	Electronic Materials	
ENGLISH 206	Technical Writing	
IND ENG 360	Engineering Economic Analysis	
MATLENG 481	Electronic Materials	
MECHENG 301	Basic Engineering Thermodynamics	
MECHENG 321	Basic Heat Transfer	
MECHENG 542	Introduction to Technology Entrepreneurship	
MECHENG 543	Introduction to Technology Management and Innovation	
GER Distribution Requirement - 15 Credits		
Arts		3
Humanities		3
Social Science		6
ENGLISH 310	Writing, Speaking, and Technoscience in the 21st Century	3

Cultural Diversity - Arts, Humanities, or Social Science course must also satisfy UWM Cultural Diversity Requirement

English Composition Requirement	
Select one of the following:	0-6
Earning a satisfactory score on the English placement test, or other appropriate test as determined by the English Department; or	
Earning a grade of C or higher in ENGLISH 102; or	
Transferring a grade of C or higher in a course equivalent to ENGLISH 102 or higher expository writing course	
Foreign Language Requirement	
The foreign language requirement can be completed with one of these options:	0-8
Two years of a single foreign language in high school	
Two semesters of a single foreign language in college	
Demonstrate ability by examination	
Total Credits	117-118

1 MATH 221, MATH 222, and 2 credits of Free Electives may substitute for MATH 231, MATH 232 and MATH 233

2 Cannot be counted as a technical elective if taken to fulfill Chemistry or Biology Requirement above

3 Students who earn 3 or more credits of EAS 1 may use 3 of those credits as technical electives

Key: 195

ENVIRONMENTAL ENGINEERING, BSE

History

1. Oct 30, 2019 by Natalie Chin (chinn)
2. Nov 15, 2019 by Emily Kuhnen (ebilicki)
3. Apr 17, 2020 by Emily Kuhnen (ebilicki)
4. Mar 2, 2021 by Todd Johnson (johnsont)
5. Apr 22, 2021 by Todd Johnson (johnsont)
6. Jun 23, 2021 by Emily Kuhnen (ebilicki)

Changes saved but not submitted

Viewing: Environmental Engineering, BSE

Last approved: Wed, 23 Jun 2021 19:28:08 GMT

Last edit: Mon, 28 Feb 2022 14:34:56 GMT

Is this a new sub-major, minor, area of interest, specialization, area, concentration, emphasis, field, focus, option, sequence, or track?
No

Title of program:
Environmental Engineering, BSE

Program Level:
Undergraduate Only

Program Type:
Major

Mode of Delivery:
Face-to-Face

Department or Functional Equivalent

Units:
Civil & Environmental Engineering

College, School, or Functional Equivalent

Units:
College of Engineering and Applied Science

College, School, or Functional Equivalent Contact Information:
Todd Johnson, Assistant Dean of Student Services, johnsont@uwm.edu

Proposed Effective Catalog:
2021-2022

Proposed Effective Term:
Fall 2021

Minimum Credit Hours Required:
120

Summary of proposed changes or request:
Administratively removing an elective course option that was approved for inactivation effective Summer 2021.
Replacing Mech Eng 301 with Civ Eng 202.

Program Curriculum (for the Catalog)

Environmental Engineering Curriculum

The minimum number of credits required to complete the Bachelor of Science in Engineering with a major in environmental engineering is 120.

Code	Title	Credits
Engineering Core (27 credits)		
CIV ENG 203	Introduction to Solid Mechanics	4
EAS 200	Professional Seminar	1
IND ENG 111	Introduction to Engineering [1]	3
IND ENG 112	Engineering Drawing & Computer Aided Design/Drafting [1]	3
IND ENG 360	Engineering Economic Analysis	3
IND ENG 367	Introductory Statistics for Physical Sciences and Engineering Students	3
MATLENG 201	Engineering Materials [2]	4
CIV ENG 202	Dynamics	3
MECHENG 320	Introduction to Fluid Mechanics	3
Environmental Engineering Major (25 credits)		
CIV ENG 311	Introduction to Energy, Environment and Sustainability	3
CIV ENG 411	Engineering Principles of Water Resources Design	3
CIV ENG 412	Applied Hydrology	3
CIV ENG 413	Environmental Engineering	3
CIV ENG 521	Water Quality Assessment	3
CIV ENG 610	Introduction to Water and Sewage Treatment	3
CIV ENG 614	Hazardous Waste Management	3
CIV ENG 494	Principles of Civil Engineering Design	1
CIV ENG 495	Senior Design	3
Mathematics Requirement (16 credits) [3]		
MATH 231	Calculus and Analytic Geometry I	4
MATH 232	Calculus and Analytic Geometry II	4
MATH 233	Calculus and Analytic Geometry III	4
ELECENG 234	Analytical Methods in Engineering	4
Chemistry Requirement (5 credits) [4]		
CHEM 105	General Chemistry for Engineering	5
Physics Requirement (8 credits)		
PHYSICS 209	Physics I (Calculus Treatment)	4
PHYSICS 210	Physics II (Calculus Treatment)	4
Other Natural Sciences (7 credits)		
BIO SCI 150	Foundations of Biological Sciences I	4
Select one of the following:		3
Any ATM SCI course 150 level or above		
Any BIO SCI course 150 level or above		
Any GEO SCI course 150 level or above		
GER Distribution Requirement (15 credits)		
Select 3 credits in Art		3
Select 3 credits in Humanities		3
Select 6 credits of Social Science		6
ENGLISH 310	Writing, Speaking, and Technoscience in the 21st Century	3
Cultural Diversity - Arts, Humanities, or Social Science course must also satisfy UWM Cultural Diversity Requirement		
Students must also satisfy Oral and Written Communication (OWC) Part A [5]		0-6
Students must also Satisfy the UWM Foreign Language requirements [5]		0-8
Free Electives (2 credits)		**2**
Technical Electives (15 credits)		**15**
CIV ENG 303	Strength of Materials	
CIV ENG 335	Soil Mechanics	
CIV ENG 480	Software Applications for Civil Engineering	
CIV ENG 490	Transportation Engineering	
CIV ENG 492	Environmental Impact Assessment	
CIV ENG 511	Water Supply and Sewerage	
CIV ENG 555	Sustainable Construction Materials and Technologies	
CIV ENG 616	Computational Hydraulics and Environmental Flows	
COMPSCI 240	Introduction to Engineering Programming	
ELECENG/MECHENG 430	Energy Modeling	

FRSHWTR 502	Aquatic Ecosystem Dynamics
FRSHWTR 504	Quantitative Freshwater Analysis
FRSHWTR 506	Environmental Health of Freshwater Ecosystems
FRSHWTR 510	Economics, Policy and Management of Water
GEOG 400	Population, Environment, Development
GEOG 403	Remote Sensing: Environmental and Land Use Analysis
GEO SCI/FRSHWTR 464	Chemical Hydrogeology
GEO SCI 562	Environmental Surface Hydrology
IND ENG 455	Operations Research I
MATLENG 460	Nanomaterials and Nanomanufacturing
MECHENG 321	Basic Heat Transfer
MECHENG 436	Solar Engineering
PH 303	Climate Change, the Environment and Human Health
URBPLAN 591	Introduction to Urban Geographic Information Systems (GIS) in Planning
Total Credits	120

1 MECHENG 110 and MECHENG 111 may substitute for IND ENG 111 and IND ENG 112 for students transferring from another engineering major.

2 Environmental engineering majors may take CIV ENG 431 (https://catalog.uwm.edu/search/?P=CIV%20ENG%20431) (with proper prerequisites) in place of MATLENG 201 (https://catalog.uwm.edu/search/?P=MATLENG%20201).

3 MATH 221, MATH 222 and two free electives may substitute for MATH 231, MATH 232 and MATH 233.

4 CHEM 102 and CHEM 104 may substitute for CHEM 105.

5 See General Education Requirements (http://catalog.uwm.edu/policies/undergraduate-policies/#generaleducationtext) for details.

Honors

Honors in the Major

Students in Environmental Engineering who meet all of the following criteria can be awarded honors in the major upon graduation:

1. A 3.000 cumulative GPA in all UWM graded credits;
2. A 3.500 GPA over all upper-division (300-level and higher) Civ Eng courses;
3. Participation in the Accelerated MS program with successful completion of 6 credits that can apply towards the MS degree program.

Attach File

Request for Authorization November 2 2018.pdf
Env Eng financial projections 08-31-18.pdf
3228 Transmittal Form.pdf
IMPL 19June MIL Environmental Engineering BSE.pdf
AUTH 19June MIL Environmental Engineering BS.pdf
2018-08-30 UW System APEI Result Environmental Engineering BS.pdf
NOI Environmental Engineering BS.pdf

Key: 606

ATTACHMENT 6

REVISION TO THE DATA SCIENCE B.S. PROGRAM

Modify “MTHSTAT 215 or MTHSTAT 216"
to "MTHSTAT 215 or INDENG 367, and MTHSTAT 216”

ATTACHMENT 7

COMPUTER SCIENCE M.S. PROGRAM CHANGE
TRANSFER BETWEEN THE REGULAR AND PROFESSIONAL TRACKS

A student in the regular track may switch to the professional track at any time. However, such a student will no longer be eligible for research/teaching/project assistantships or any other financial aid from Computer Science department. A student admitted under the professional track may switch to the regular track after completing at least ~~15~~ 9 credits of ~~the professional track~~ 700-level CompSci courses or CompSt 751 with at least 3.5 cumulative GPA. Note that not all courses acceptable under the professional track may be acceptable under the regular track.

ATTACHMENT 8

DISSOLUTION OF THE CEAS CURRICULUM COMMITTEE AND THE CEAS GRADUATE PROGRAM COMMITTEE

Motion: Effective August 19, 2022, the CEAS Curriculum Committee and the CEAS Graduate Program Committee will be dissolved. Their responsibilities will be handled by the CEAS Committee on Academics and the CEAS Qualifying Examination Assessment Committee beginning on August 22, 2022.