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 28, 2017 1:30 P.M. EMS E180

A G E N D A

I. ANNOUNCEMENTS

A. 2017-18 CEAS Committee Representatives – See Attachment 1

II. INTRODUCTIONS

A. Dr. Veysi Malkoc, Visiting Professor, Biomedical Engineering

III. INFORMAL REPORTS – See Attachment 2

A. Opportunity for Questions regarding Informal Reports

IV. AUTOMATIC CONSENT BUSINESS

A. Minutes of February 24, 2017 meeting

B. New Courses, Course Changes, and Course Discontinuation – See Attachment 3

C. Change to the Industrial Engineering Curriculum – See Attachment 4

D. Changes to the Web Development Certificate – See Attachment 5

E. 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 in their respective majors.*"

V. SPECIAL ORDER OF BUSINESS -- Nominations

A. Awards and Recognition Committee

Only members of Industrial Engineering and Mechanical Engineering may be nominated. One member is to be elected.

Already Nominated:

Prof. Naira Campbell-Kyureghyan – Industrial Engineering

Continuing members:

Prof. Hugo Lopez – Materials Science and Engineering
Prof. Ichiro Suzuki – Electrical Engineering and Computer Science

B. Secretary of the CEAS Faculty

VI. NEW BUSINESS

A. Ph.D. Qualifying Examination Guidelines – See Attachment 6

VII. GENERAL GOOD AND WELFARE

VIII. ADJOURNMENT

John R. Reisel, Secretary
CEAS Faculty

JRR
Attachments

ATTACHMENT 1

CEAS COMMITTEES FOR 2017-18

		TERM EXPIRES
1)	**CURRICULUM COMMITTEE**	
	Professor Wilkistar Otieno – Industrial Engineering	2019
	Professor Changsoo Kim – Materials Science and Engineering	2019
	Professor Guangwu Xu – Computer Science	2019
	Professor Roshan D'Souza– Mechanical Engineering	2018
	Professor Adeeb Rahman – Civil and Environmental Engineering	2018
	Professor Weizhong Wang – Electrical Engineering	2018
2)	**GRADUATE PROGRAM SUBCOMMITTEE**	
	Professor Jaejin Jang – Industrial Engineering	2019
	Professor ? – Civil and Environmental Engineering	2019
	Professor ? – Electrical Engineering	2019
	Professor Ichiro Suzuki – Computer Science	2018
	Professor Ryo Amano - Mechanical Engineering	2018
	Professor Hugo Lopez – Materials Science and Engineering	2018
	Professor– GFC Representative	
3)	**ACADEMIC PLANNING COMMITTEE**	
	Professor Hossein Hosseini – Computer Science	2020
	Professor ? – Civil and Environmental Engineering	2020
	Professor Matthew Petering – Industrial Engineering	2019
	Professor Deyang Qu – Mechanical Engineering	2019
	Professor Nidal Abu-Zahra – Materials Science & Engineering	2018
	Professor Dev Misra – Electrical Engineering	2018
4)	**SCHOLASTIC APPEALS COMMITTEE**	
	Professor Jaejin Jang – Industrial Engineering	2019
	Professor Ichiro Suzuki – Computer Science	2019
	Professor ? – Mechanical Engineering	2019
	Professor Yi Hu – Electrical Engineering	2018
	Professor Junjie Niu – Materials Science and Engineering	2018
	Professor Al Ghorbanpoor – Civil and Environmental Engineering	2018
5)	**AWARDS AND RECOGNITION COMMITTEE**	
	Professor	2019
	Professor Hugo Lopez – Materials Science and Engineering	2018
	Professor Ichiro Suzuki – Electrical Engineering and Computer Science	2018

ATTACHMENT 2

INFORMAL REPORTS

Office of Student Services – Todd Johnson
The latest undergraduate admission reports for Fall 2017 are found on the next two pages. Here are a few highlights:

Freshmen: Already exceeded last year's final admit number. Large increases in women and targeted minority students. Biomedical has 53 admitted students.

Transfer: 5 students down from last year at this point. But only about half way through the admission cycle for transfers. This number has changed a lot week-to-week.

Weekly Comparison of Applications & Admission Dashboard
Refresh Date: 4/17/2017
Selected Filter(s): Fall, New Freshmen, Admitted, CEAS,

	2016	2017	- Diff.	% Diff	Prior Year Final
CEAS	534	587	53	9.9%	560
UWM	6844	6777	-67	-1.0%	7124

Field of Study	**2016**	**2017**	**- Diff.**	**% Diff**	**Prior Year Final**
Biomedical	3	53	50	1666.7%	7
Civil	66	73	7	10.6%	69
CompEng	59	64	5	8.5%	63
CompSci	82	93	11	13.4%	85
Electrical	52	40	-12	-23.1%	55
Industrial	17	19	2	11.8%	18
Materials	12	9	-3	-25.0%	11
Mechanical	167	150	-17	-10.2%	179
Undecided	74	81	7	9.5%	71

ACT Score	**2016**	**2017**	**- Diff.**	**% Diff**	**Prior Year Final**
18-22	59	66	7	11.9%	63
23-27	292	322	30	10.3%	298
28-36	173	177	4	2.3%	180
Not Reported	10	22	12	120.0%	19

Gender	**2016**	**2017**	**- Diff.**	**% Diff**	**Prior Year Final**
Female	93	119	26	28.0%	96
Male	441	468	27	6.1%	464

Targeted	**2016**	**2017**	**- Diff.**	**% Diff**	**Prior Year Final**
Not Targeted	441	471	30	6.8%	465
Targeted	93	116	23	24.7%	95

Weekly Comparison of Applications & Admission Dashboard
Refresh Date: 4/17/2017
Selected Filter(s): Fall, New Transfer, Admitted, CEAS,

	2016	2017	- Diff.	% Diff	Prior Year Final
CEAS	120	115	-5	-4.2%	199
UWM	1243	1172	-71	-5.7%	2253

Field of Study	**2016**	**2017**	**- Diff.**	**% Diff**	**Prior Year Final**
Biomedical	4	12	8	200.0%	9
Civil	15	23	8	53.3%	30
CompEng	6	6	0	0.0%	8
CompSci	11	15	4	36.4%	29
Electrical	22	13	-9	-40.9%	42
Industrial	8	2	-6	-75.0%	13
Materials	5	5	0	0.0%	4
Mechanical	43	36	-7	-16.3%	58
Undecided	6	2	-4	-66.7%	5

Gender	**2016**	**2017**	**- Diff.**	**% Diff**	**Prior Year Final**
Female	20	19	-1	-5.0%	30
Male	100	96	-4	-4.0%	169

Targeted	**2016**	**2017**	**- Diff.**	**% Diff**	**Prior Year Final**
Not Targeted	108	92	-16	-14.8%	181
Targeted	12	23	11	91.7%	18

Career Services – Juli Pickering
No Report

Curriculum Committee – Prof. Church
No Report

Graduate Program Subcommittee – Prof. Lopez
No Report

Academic Planning Committee – Prof. Misra
APC met twice since last informal report and the following is a summary of the actions.
• CEAS Marketing team made a detailed presentation of its activities that include promoting the programs and the research.
• A long discussion was held on the self-assessment of programs and/or departments that aligns with the institutional mission and goals.
• APC continues to monitor the status and the impact of potential SPC spending reduction requirements.

Biomedical and Health Informatics – Prof. McRoy
No Report

Faculty Senate – Prof. Reisel
In March, some routine changes to campus-wide committees were approved, and Provost Britz gave a report on the budget planning.

In April, the Senate considered changes to the criteria for graduate faculty membership and the major professor on master's thesis and Ph.D. dissertation committees; however these were not passed and the document was referred back to committee. In addition, a "Fund the Freeze" resolution was passed, which urges legislatures to offset funds lost through a tuition freeze with additional state support for the UW System.

More information on University Committee and Senate activities can be found at http://uwm.edu/ucnews.

Graduate Faculty Committee – Prof. Hosseini
No Report

ATTACHMENT 3

NEW COURSES

COMPSCI 241 C PROGRAMMING FOR EMBEDDED SYSTEMS, 3 cr. U
Problem solving with structured programming techniques, using the C programming language; Topics include using Arrays & Pointers; Memory Management; Unions, Structures; Files & Low Level IO; Process's & Inter-process Communication
Prereq: C or better in CompSci 240(C)

MECHENG 635 SUSTAINABLE DESIGN FOR COMMUNITY DEVELOPMENT, 3 cr., U/G
Transdisciplinary students will work on sustainable projects and designs to address complex societal problems that require listening to the systems to leverage community-based knowledge. Counts as repeat of MechEng 490 & Nurs 779 with similar topics. MechEng 635, Nurs 635, & Frshwtr 635 are jointly offered; they count as repeats of one another.
Prereq: jr st; MechEng 320(P); cons instr.

COURSE CHANGES

COMPSCI 711 INTRODUCTION TO MACHINE LEARNING, 3 cr., G
Introduction to machine learning techniques and applications, including optimal classification, regression, support vector machines, boosting, deep learning, and clustering. Not open to students who have cr in Eleceng 711 which is identical to Compsci 711.
Prereq: grad st

had been

COMPSCI 711 PATTERN RECOGNITION – STATISTICAL, NEURAL, AND FUZZY APPROACHES, 3 cr., G
Theoretical analysis of statistical, neural, and fuzzy techniques for pattern classification and clustering. Study of learning algorithms; and applications. Not open to students who have cr in Eleceng 711 which is identical to Compsci 711.
Prereq: grad st

ELECENG 474 INTRODUCTION TO CONTROL SYSTEMS, 4 cr., U/G
Modeling of continuous systems; stability considerations, analysis and design of feedback control systems in time and frequency domains.
Prereq: jr st; ElecEng 310(P), CompSci 240 (P); or grad st.

had been

ELECENG 474 INTRODUCTION TO CONTROL SYSTEMS, 4 cr., U/G
Modeling of continuous systems; stability considerations, analysis and design of feedback control systems in time and frequency domains.

Prereq: jr st; ElecEng 310(P), CompSci 240 (P), Civ Eng 202(P) or cons instr; or grad st.

ELECENG 711 INTRODUCTION TO MACHINE LEARNING, 3 cr., G
Introduction to machine learning techniques and applications, including optimal classification, regression, support vector machines, boosting, deep learning, and clustering. Not open to students who have cr in Compsci 711 which is identical to Eleceng 711.
Prereq: grad st

had been

ELECENG 711 PATTERN RECOGNITION – STATISTICAL, NEURAL, AND FUZZY APPROACHES, 3 cr., G
Theoretical analysis of statistical, neural, and fuzzy techniques for pattern classification and clustering. Study of learning algorithms; and applications. Not open to students who have cr in Compsci 711 which is identical to Eleceng 711.
Prereq: grad st

IND ENG 550 CONTROL OF AUTOMATED MANUFACTURING SYSTEMS, 3 cr., U/G
Gain theoretical and practical skills to design and control automated manufacturing systems and industrial processed through science-based theoretical advancements and state-of-the-art industrial applications.
Prereq: jr st; Elec Eng 234; Elec Eng 301

had been

IND ENG 550 CONTROL OF AUTOMATED MANUFACTURING SYSTEMS, 3 cr., U/G
Concepts of manufacturing control systems, manufacturing process control, shop floor control, measuring devices in manufacturing systems, automated inspection, and manufacturing automation protocol.
Prereq: jr st; Ind Eng 450(R).

COURSE DISCONTINUATION

IND ENG 702 ENGINEERING SYSTEMS ECONOMY

ATTACHMENT 4

Change to the Industrial Engineering Curriculum

All non-required IND ENG courses numbered between 400 and 699 are approved technical electives in the Industrial Engineering curriculum.

Technical Electives – Industrial Engineering Major

The Industrial Engineering program requires a total of 12 credits of technical electives, chosen from the following list. At least 6 credits must be in courses from Ind Eng.

all non-required Ind Eng. courses numbered 400-699 are Technical Electives.

		Credits	Prerequisite
Ind Eng 390	Senior Thesis	1- 3	Sr St, Cons Instr
Ind Eng 405	Product Realization	3	Jr St, Ind Eng 350, 360, 370
Ind Eng 555	Manufacturing Systems Integration	3	Jr St, Ind Eng 450(R)
Ind Eng 572	Reliability Engineering	3	Jr St, Ind Eng 467
Ind Eng 582	Ergonomic Job Evaluation Techniques	3	Sr St, Ind Eng 580
Ind Eng 584	Biodynamics of Human Motion	3	Jr St, Civ Eng 202(C), ElecEng 234
Ind Eng 587	Lean Production Systems	3	Ind Eng 350
Ind Eng 590	Topics in Industrial & Systems Engineering	1-3	Sr St
Ind Eng 699	Independent Study	1-3	Jr St, Cons Instr
Bus Adm 330	Organizations	3	Jr St
Bus Adm 473	Business Logistic Management	3	Jr St, Bus Adm 370
EAS 001	Co-op Work Period	3[2]	Prior Cons Co-op Dir
MechEng 301	Basic Engineering Thermodynamics	3	Math 233, Physics 209
MechEng 474/ ElecEng 474	Introduction to Control Systems	4	Sr St, Civ Eng 202*, ElecEng 234*, 301

[2]This option is only open to students who earn **3 or more** credits of Co-Op.

Approved Natural Science Elective Courses

Atmospheric Science (100 level or above)
Biological Sciences (150 or above)
Physics (300 level or above)
Conservation & Environment Studies 210
Geosciences (100, 102, 150 or above)
Math (240, 300 or above)

***C or better in prerequisite** **(C) Concurrent Enrollment in Designated Course**

(New addition)

Ind Eng 550 Control of Automated Manufacturing Systems

3cr.

Prerequisite: jr st; Ind Eng 450(R)

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Office of Student Services (414) 229-4667
Engineering & Mathematical Science Building (EMS) Room E386

Department of Industrial and Manufacturing Engineering (414) 229-4967
Engineering & Mathematical Science Building (EMS) Room 584

Web Site: www.ceas.uwm.edu

Effective Spring 2016

ATTACHMENT 5

Action **CHANGE**
Certificate **Web Development Certificate**
Level of Certificate **Undergraduate Only**
New Level of Certificate **Same**

UW-MILWAUKEE ONLINE PROGRAM CHANGE FORM

I. Current

Web Development Certificate. The Web Development Certificate is designed to offer students the opportunity to complement their major field of study with an additional concentration in web programming. This certificate is also available to those who have already graduated. The 15-credit certificate requires CompSci 481 and 482; one course to be selected from CompSci 113, CompSci 581, or InfoSt 685. The remaining 6 credits are selected from Art 218, 224, 325, Bus Adm 531, 532, Commun 313, 413, CompSci 112, 351, 361, 425, 444, CurrIns 530, 547, English 439, HCA 444, 542, L&I Sci 110, 240, 310, 410. No more than 6 credits may overlap with a student's undergraduate major. At least 8 credits must be completed at UWM. The student must maintain a minimum GPA, as specified by department, in courses used to complete the certificate.

II. Proposed Change Summary

We add an explicit programming requirement (rather than treating it as an assumed prerequisite) and change the list of elective courses.

III. Effects

Additional Faculty Required
0
Four-Year Faculty Needs
0
Library Resources
0
Required Additional Facilities and Equipment
0
Program Costs
0
Resource Reallocation
0

IV. Justification

These changes should make the program more accessible and attractive to students from outside of computer science.

ATTACHMENT 5

V. New Copy

Web Development Certificate. The Web Development Certificate is designed to offer students the opportunity to complement their major field of study with an additional concentration in web programming. This certificate is also available to those who have already graduated. The 18-credit certificate requires one course selected from CompSci 202 and CompSci 351; one course selected from CompSci 113, InfoSt 320, and ART 325; one course selected from CompSci 361 and CompSci 481; and CompSci 482. The remaining 6 credits are selected from Art 218, 224, 325, BusAdm 531, 532, Commun 313, 413, CompSci 112, 425, 444, 552, CurrIns 530, 547, English 439, HCA 444, 542, INFOST 325, 370, 430. At least 8 credits must be completed at UWM. The student must maintain a minimum GPA, as specified by department, in courses used to complete the certificate.

VI. Proposed Effective Date **Fall 2017**

VII. Comment

VIII. Approval

Vice Chancellor's Signature _____
Date _____

ATTACHMENT 6

Ph.D. Qualifying Examination Guidelines

Original Text

Qualifying Examination

A qualifying examination must be taken to determine whether the individual is qualified for doctoral-level work. For students entering with a bachelor's degree, this examination, which will be written, may be taken after 18 credits of graduate work have been earned and must be satisfactorily completed before 30 credits of graduate work have been completed. Students admitted after completing an appropriate master's degree must take this examination in the semester immediately after 18 credits of graduate course work have been earned at UWM.

The examination will be for a given area, but will also include material on basic engineering principles. The examination will normally be offered twice a year during the regular academic year. A student may take the examination twice; if a passing grade is not obtained on the second attempt the applicant will not be permitted to proceed toward the Doctor of Philosophy degree.

Proposed Revision

Qualifying Examination

Each student in the program must take and pass a Qualifying Examination to demonstrate that the student is qualified for doctoral-level work. The Qualifying Examination is a written exam and is structured in two parts: Part 1 and Part 2. The examination is offered twice a year during the regular academic year. The content of the examination varies among the major areas of the Ph.D. in Engineering program.

Students entering with only a bachelor's degree or with a master's degree in an area unrelated to their major area may take the Qualifying Examination for the first time after earning 12 credits of graduate work at UWM and must successfully pass the exam before earning 30 credits of graduate work at UWM. Students admitted after completing an appropriate master's degree must take this examination no later than the semester immediately after 18 credits of graduate work have been earned at UWM.

A student may take the Qualifying Examination twice. On the first attempt, the student must attempt both Part 1 and Part 2 of the examination.

- If the student passes both parts, then the student has passed the entire examination and will be permitted to proceed toward the Doctor of Philosophy degree.
- If the student fails both parts, then the student must take the entire exam again at its next offering.
- If a student passes only one of the two parts, then the student must take the examination again at its next offering, but may choose to take only the part of the examination that was not passed on the first attempt.

If a passing grade is not obtained on the second attempt of the Qualifying Examination, the student will not be permitted to proceed toward the Doctor of Philosophy degree.

A student who fails the qualifying exam twice is subject to dismissal from the PhD in Engineering program. A student may appeal the failure and dismissal within 30 days of being

notified of the failure. If the student does not appeal or the appeal is not granted, the College will recommend to the graduate school that the student be dismissed.

A student who is dismissed from the PhD in Engineering program because of failing the qualifying exam may not be enrolled in the PhD in Engineering program for a complete calendar year. This does not preclude the student from being enrolled in any other degree program offered by the University. A student who wishes to re-enroll in the program after a calendar year has passed must apply as any other student would, including payment of fees.

A student readmitted after having failed the qualifying exam twice must take the qualifying exam in the first semester of matriculation and this will count as the student's first attempt at the exam. The student may appeal this requirement prior to the first scheduled day of classes. If the student fails the qualifying exam on this first attempt, the student is permitted the customary second attempt as described above.

All appeals must be in writing and directed to the CEAS Associate Dean for Academic Affairs.