

Chairs' & Center Directors' Meeting Minutes

Date: September 17, 2012 (12:00 to 2:00 pm)

Location: WCH – Room 443

Attendees: Abbaschian, Reza
Bhuyan, Laxmi
Farrell, Jay
Ge, Xin (for Nosang)
Garay, Javier
Haddon, Robert
Hartney, Pat
Matsumoto, Mark
Najjar, Walid
Ravi
Rodgers, Victor
Rice, Dennis
Stahovich, Tom
Vafai, Kambiz

Absent: Barth, Matt
Bhanu, Bir
Boretz, Mitch
Myung, Nosang
Tan, Sheldon
Wang, Albert

The agenda for the meeting is shown in Appendix 1.

1. Welcome and call for agenda items - Reza

Reza welcomed the group to the first meeting of the new academic year. Reza announced that Matt Barth was named as the President Elect of IEEE's ITS Society and that two GANN proposals (from Victor Rodgers and Yingbo Hua) were selected for funding. It was also noted that Jay is President Elect of IEEE's Controls System Committee. Reza stated that BCOE had over \$2M in contract/grant awards over the last two weeks and hoped that this trend would continue. Reza added the topic of the upcoming Erlangen Sister City visit to the agenda.

2. Approval of Minutes - Pat

The minutes of the June 13th Chairs/Directors meeting were unanimously approved.

3. Undergraduate Education – Ravi

The total number of expected incoming BCOE freshmen of 607 is about 43 less than the previous estimate of 650. Ravi noted that we may lose another 25 after the 3rd week enrollment numbers are available. Ravi distributed a summary of incoming BCOE freshmen and their levels of Math preparation. This summary indicates that about 67% of incoming BCOE freshmen are Calc-ready or have AP math credits. This percent

is higher than in previous years. An additional 13% have taken Pre-Calc so about 80% of incoming BCOE freshmen are prepared for Calculus classes.

Next, Ravi discussed the post-BS program being offered through UNEX. This one-year program is directed at international students that have completed a BS degree. UNEX receives \$25K for each student and pays its UCR academic unit partner \$18K/student. UNEX has established such a program with UCR's School of Business and expects to enroll 100 students. Ravi suggested that BCOE develop a one-year, 36 unit program for international students with BS degrees. BCOE would have to guarantee a certain number of seats for this program. More information about this program will be available from UNEX in about 30 days. Tohoku University is providing \$10M in funds for similar education programs.

4. Graduate Education – Mark

Mark stated that we recently received a \$3M IGERT award for fellowships in water quality research. He distributed a summary of BCOE grad student applicants, admits and declines for the 2012-13 cohort. The total number of incoming grad students of 158 is close to BCOE's target of 167. There were more total applicants this year but fewer domestic applicants. Next, he noted that BCOE's pilot of the campus' new grad student contact management program, Hobsons, will start in mid-October. Training for this program will be held on October 3-4, 2012. He requested that departmental grad student targets be sent to him at the same time as being provided to the Grad Division. It was noted that the total number of grad student admits increased but the number of accepts decreased. This is a result of attracting more high-quality grad student applicants (who have several choices). Mark believes that BCOE had more accepts than CHASS this year.

5. Faculty Recruitments for 2012-13 – Reza

Reza requested approval to search for 14 faculty this year, including five senior level faculty that would be joint appointments between departments. This joint appointment model is being successfully implemented at UCSB. The EVC/P approved junior level appointments for ME, EE and CSE. These were carryforward searches from last year. He also approved two senior level searches, one in sustainable engineering and one in energy storage and generation. No new faculty lines are being provided so BCOE will have to use five of its existing lines for these hires. Reza stated that ME, EE and CSE can start their searches immediately. There will be one committee formed to search for the two senior faculty. All BCOE departments will be represented on this committee. Chairs should send their membership recommendations to Reza within one week. He noted that departments should market these senior level positions by asking for referrals and inviting appropriate faculty for informal visits.

6. ABET – Dennis

Dennis distributed a detailed schedule of meetings and events for the November 4-6, 2012 ABET Review visit. The Review team will be transported to BCOE on Sunday (11/4) at 1pm. The Review team will be given tours of BCOE facilities and labs that afternoon and will be transported back to the hotel at 5pm. The team arrives back at BCOE at 8:30am on Monday and meets with faculty staff, students and others for most of Monday. There will be an Institutional Luncheon on Monday at noon in WCH 205/206 and will include industry supporters and student representatives. The team presents its findings to the Chancellor on Tuesday afternoon at 2:30pm. It was suggested that departmental Lab Managers accompany Chairs on the Sunday tours of facilities and labs. Also, it was advised that both the Chair and ABET Coordinator be available on Sunday afternoon between 1-5pm to answer questions from team members and that the ABET Coordinator accompany the Chair in all meetings with Review team members. Dennis distributed a listing of potential ABET Review participants (faculty, staff, student, industry supporters, etc) and asked that any suggested additions be sent to Reza.

Dennis noted that all student transcripts requested by ABET were received. Each Chair will receive transcript training before the ABET visit. Lastly, Dennis asked that he be informed of any feedback given by ABET Team members to Chairs or ABET Coordinators.

7. ABET Visit Training, October 11 – Dennis

Dennis announced that an ABET Visit Training session has been scheduled on October 11th from noon – 2pm by Dr. Raman Unnikrishnan, Dean of Engineering and Computer Science at CSUF. All BCOE faculty should plan to attend this training session.

8. MS Online – Kambiz

Kambiz gave a Powerpoint presentation on BCOE's new MS Online degree program. This program has received all needed approvals and will be undertaking pilot testing of its Core and Specialization courses during AY 12/13. The initial Core courses are: ENGR 200 (Engineering in the Global Environment), ENGR 201 (Technology Innovation and Strategy for Engineers); ENGR 202 (Introduction to Systems Engineering) and ENGR 203 (Principles of Engineering Management). The program expects to initiate its first Specialization (Bioengineering) in the Fall of 2013. The MSOL oversight committee consists of Jianlin Liu (EE), Walid Najjar (CS), David Cocker (CEE), Heejung Jung (ME) and Victor Rodgers (BIEN). Kambiz presented scenarios of revenue to departments for enrollments of 5, 12 and 16 new MSOL students per year. Revenue to departments offering MSOL Specializations ranged from \$2,855 to \$229,287 for the first three years, not including direct support for course TAs. Kambiz stated that he will be scheduling meetings with individual Chairs to discuss the offering of additional MSOL Specializations.

9. BCOE Cell Culture Facility Protocol – Reza

Reza announced that Victor Rodgers will Chair a committee to develop protocols for BCOE cell culture facilities. Two subgroups (Mammalian and Bacterial) will be formed in this committee. Victor will be contacting Chairs for names of representatives for this committee.

10. TA Allocation Model – Pat

Pat distributed a draft TA Funding Allocation Model with Service Weight Scenarios. Pat stated that this model also includes the effect of changing the previous model's grad student (.25) factor from incoming to total number of grad students as requested by the Chairs at a previous Chairs/Directors meeting. These combined changes (using a .75 weight factor for service courses) would result in loss of TA funding to BIEN, CSE and MSE and increased TA funding for CEE, EE and ME. The Chairs requested additional TA Allocation scenarios be presented at a future Chairs/Directors meeting.

11. Other Matters

Due to time constraints, the topic of the upcoming Erlangen Sister City visit was postponed to the next Chairs/Directors meeting.



Chairs' & Center Directors' Meeting

September 17, 2012

Agenda

Winston Chung Hall – Room 443

- | | | |
|-----|---|--------|
| 1. | Welcome - Request for Agenda Items from the Floor | Reza |
| 2. | Approval of Minutes from June 13, 2012 Meeting | Pat |
| 3. | Undergraduate Education | Ravi |
| 4. | Graduate Education | Mark |
| 5. | Faculty Recruitment for 2012-13 | Reza |
| 6. | ABET | Dennis |
| 7. | ABET Visit Training, October 11 | Dennis |
| 8. | MS Online | Kambiz |
| 9. | BCOE Cell Culture Facility Protocol | Reza |
| 10. | TA Allocation Model | Pat |
| 11. | Other Matters | |

Next meeting scheduled
Monday – October 1, 2012

	Calc-ready or AP	Pre-Calc (or close)	Pre-Pre- Calc	Algebra	No Information	Total	Counts
Bioengineering	58.1%	18.1%	6.7%	8.6%	8.6%	100.0%	105
Bioengineering BS + MS	66.7%	33.3%	0.0%	0.0%	0.0%	100.0%	3
Business Informatics	50.0%	21.4%	14.3%	14.3%	0.0%	100.0%	14
Chemical Engineering	64.2%	10.4%	6.0%	9.0%	10.4%	100.0%	67
Computer Engineering	64.3%	14.3%	4.3%	12.9%	4.3%	100.0%	70
Computer Engineering BS+MS	50.0%	50.0%	0.0%	0.0%	0.0%	100.0%	2
Computer Science	85.1%	13.4%	0.0%	0.0%	1.5%	100.0%	67
Computer Science BS + MS	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	4
Electrical Engineering	66.7%	12.8%	1.3%	11.5%	7.7%	100.0%	78
Environmental Engineering	53.5%	14.0%	2.3%	23.3%	7.0%	100.0%	43
Environmental Engineering BS + MS	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	1
Materials Science and Engineering	70.0%	0.0%	30.0%	0.0%	0.0%	100.0%	10
Mechanical Engineering	72.3%	9.2%	3.5%	7.1%	7.8%	100.0%	141
Mechanical Engineering BS + MS	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	2
Grand Total	67.1%	13.0%	4.3%	9.1%	6.6%	100.0%	607

	Comm. Col.			Math008A or		Math008B or		Transfer	No	Grand Total
	AP credit	Referral	Math008A	Math005	Math008B	Math009A	credit	Information		
Bioengineering	34.3%	8.6%	6.7%	18.1%	11.4%	11.4%	1.0%	8.6%		100.0%
Bioengineering BS + MS	33.3%	0.0%	0.0%	33.3%	0.0%	33.3%	0.0%	0.0%		100.0%
Business Informatics	28.6%	14.3%	14.3%	21.4%	0.0%	21.4%	0.0%	0.0%		100.0%
Chemical Engineering	37.3%	9.0%	6.0%	10.4%	13.4%	13.4%	0.0%	10.4%		100.0%
Computer Engineering	37.1%	12.9%	4.3%	14.3%	11.4%	14.3%	1.4%	4.3%		100.0%
Computer Engineering BS+MS	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%		100.0%
Computer Science	50.7%	0.0%	0.0%	13.4%	11.9%	22.4%	0.0%	1.5%		100.0%
Computer Science BS + MS	75.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%		100.0%
Electrical Engineering	30.8%	11.5%	1.3%	12.8%	16.7%	19.2%	0.0%	7.7%		100.0%
Environmental Engineering	37.2%	23.3%	2.3%	14.0%	11.6%	4.7%	0.0%	7.0%		100.0%
Environmental Engineering BS + MS	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%		100.0%
Materials Science and Engineering	40.0%	0.0%	30.0%	0.0%	0.0%	30.0%	0.0%	0.0%		100.0%
Mechanical Engineering	48.9%	7.1%	3.5%	9.2%	10.6%	12.8%	0.0%	7.8%		100.0%
Mechanical Engineering BS + MS	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%		100.0%
Grand Total	40.2%	9.1%	4.3%	13.0%	11.5%	15.0%	0.3%	6.6%		100.0%

Sept 17, 2012: 2012-13 COHORT (TOTAL)

	Applicants			Targets			Admits			Accepts			Declines			Pending			In Process		
	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL
BIEN	70	58	128	20	19	39	32	22	54	16	12	28	15	10	25	1	0	1	1	2	3
CEE	66	130	196	3	14	17	22	47	69	2	11	13	20	36	56	0	0	0	0	0	0
CPSC	411	233	644	20	20	40	91	53	144	27	23	50	64	30	94	0	0	0	0	0	0
ELEN	376	290	666	15	15	30	26	49	75	10	25	35	16	24	40	0	0	0	0	0	0
MSE	35	83	118	6	10	16	4	21	25	2	12	14	2	9	11	0	0	0	0	0	0
MCEN	82	70	152	13	12	25	17	14	31	8	10	18	9	4	13	0	0	0	0	0	0
BCOE	1040	864	1904	77	90	167	192	206	398	65	93	158	126	113	239	1	0	1	1	2	3

Sept 17, 2012: 2012-13 COHORT (DOMESTIC)

	Applicants			Targets			Admits			Accepts			Declines			Pending			In Process		
	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL
BIEN	51	36	87	18	16	34	29	18	47	16	9	25	13	9	22	0	0	0	1	2	3
CEE	19	40	59	1	9	10	10	28	38	0	5	5	10	23	33	0	0	0	0	0	0
CPSC	50	41	91	5	12	17	26	21	47	9	12	21	17	9	26	0	0	0	0	0	0
ELEN	22	27	49	5	3	8	7	13	20	6	4	10	1	9	10	0	0	0	0	0	0
MSE	10	17	27	2	3	5	4	11	15	2	6	8	2	5	7	0	0	0	0	0	0
MCEN	22	18	40	10	10	20	14	9	23	6	6	12	8	3	11	0	0	0	0	0	0
BCOE	174	179	353	41	53	94	90	100	190	39	42	81	51	58	109	0	0	0	1	2	3

Sept 17, 2012: 2012-13 COHORT (INTERNATIONAL)

	Applicants			Targets			Admits			Accepts			Declines			Pending			In Process		
	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL
BIEN	19	22	41	2	3	5	3	4	7	0	3	3	2	1	3	1	0	1	0	0	0
CEE	47	90	137	2	5	7	12	19	31	2	6	8	10	13	23	0	0	0	0	0	0
CPSC	361	192	553	15	8	23	65	32	97	18	11	29	47	21	68	0	0	0	0	0	0
ELEN	354	263	617	10	12	22	19	36	55	4	21	25	15	15	30	0	0	0	0	0	0
MSE	25	66	91	4	7	11	0	10	10	0	6	6	0	4	4	0	0	0	0	0	0
MCEN	60	52	112	3	2	5	3	5	8	2	4	6	1	1	2	0	0	0	0	0	0
BCOE	866	685	1551	36	37	73	102	106	208	26	51	77	75	55	130	1	0	1	0	0	0

FINAL: 2011-12 COHORT

Program	Applicants			Targets			Admits			Accepts			Declines			Pending			In Process		
	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL	MS	PHD	TOTAL
BIEN	69	60	129	20	15	35	31	28	59	13	16	29	18	12	30	0	0	0	0	0	0
CEE	70	129	199	5	16	21	14	33	47	2	11	13	12	22	34	0	0	0	0	0	0
CPSC	254	251	505	15	20	35	72	57	129	19	26	45	53	31	84	0	0	0	0	0	0
ELEN	273	228	501	13	32	45	50	44	94	10	13	23	40	31	71	0	0	0	0	0	0
MSE	33	67	100	4	8	12	9	14	23	4	8	12	5	6	11	0	0	0	0	0	0
MCEN	77	59	136	15	10	25	19	9	28	8	7	15	11	2	13	0	0	0	0	0	0
BCOE	776	794	1570	72	101	173	195	185	380	56	81	137	139	104	243	0	0	0	0	0	0

Sunday, Nov. 4, 2012

[illegible]

Monday, Nov. 5, 2012

[illegible]

[illegible]

ABET Visit November 4-6, 2012

Potential Participants

ABET							
Last Name	First Name	Association	Sunday Tour	Sunday Course Review	Monday Luncheon (Table)	Monday Interviews	Other
Vian	John	ABET EAC Team Chair	X	X	X	X	
Smith	Todd	ABET Chemical Engineering PEV	X	X	X	X	
Mullenax	Carol	ABET Bioengineering PEV	X	X	X	X	
Fiez	Carol	ABET Computer Engineering PEV	X	X	X	X	
Cabeza	Luis	ABET Electrical Engineering PEV	X	X	X	X	
Germain	Anne	ABET Environmental Engineering PEV	X	X	X	X	
Fisher	Cary	ABET Mechanical Engineering PEV	X	X	X	X	
Bieler	Thomas	ABET Materials Science & Engineering PEV	X	X	X	X	
Duben	Anthony	ABET CAC Team Chair	X	X	X	X	
Horton	Thomas	ABET Computer Science PEV	X	X	X	X	

ABET Visit November 4-6, 2012

Potential Participants

Bourns College of Engineering Dean's Office							
Last Name	First Name	Association	Sunday Tour	Sunday Course Review	Monday Luncheon (Table)	Monday Interviews	Other
Abbaschian	Reza	Dean, Engineering	X	X	X	X	
Ravishankar	Ravi	Associate Dean, Undergraduate Education	X	X	X	X	
Parker	Linda	Assistant Dean, Development			X		
Hartney	Pat	Assistant Dean, Finance & Admin			X		
Souder	Maggie	Safety & Facilities Coordinator			X		
Boretz	Mitch	Technical Communication Specialist			X		
Rice	Dennis	ABET Coordinator	X	X	X		
Wang	Jun	Professional Development Officer			X	X	
Taylor	Orlando	Asst. Dir, Special Prog. [Career Ctr]			X	X	

ABET Visit November 4-6, 2012

Potential Participants

EAC Program Chairs							
Last Name	First Name	Association	Sunday Tour	Sunday Course Review	Monday Luncheon (Table)	Monday Interviews	Other
Garay	Javier	MSE Program Chair	X	X	X	X	
Stahovich	Tom	ME Program Chair	X	X	X	X	
Myung	Nosang	Chem & Envir Engr Programs Chair	X	X	X	X	
Najjar	Walid	Comp Engrg Program Chair	X	X	X	X	
Farrell	Jay	EE Program Chair			X	X	
Rodgers	Victor	Bioengineering Program Chair	X	X	X	X	
Roy Chowdhury	Amit	Professor & Elec. Engrg ABET Coordinator	X	X			

CAC Program Chair							
Last Name	First Name	Association	Sunday Tour	Sunday Course Review	Monday Luncheon (Table)	Monday Interviews	Other
Bhuyan	Laxmi	CS Program Chair	X	X	X	X	

ABET Visit November 4-6, 2012

Potential Participants

Industry Support							
Last Name	First Name	Association	Sunday Tour	Sunday Course Review	Monday Luncheon (Table)	Monday Interviews	Other
Bourns	Gordon	Chair, Council of Advisors			X	X	
Levister	Ernie	Vice Chair, Council of Advisors			X	X	
Campbell	Mike	CS Advisory Board (alumnus)			X	X	
Todd	Mike	CE-CERT Development Engineer			X	X	
Albanna	Amro	CEO Technology Forum			X	X	
Kasetty	Rajan	CEO Technology Forum			X	X	
Mafra-Neto	Agenor	CEO Technology Forum			X	X	
Hawley	Brian	CEO Technology Forum			X	X	

ABET Visit November 4-6, 2012

Potential Participants

Campus Support							
Last Name	First Name	Association	Sunday Tour	Sunday Course Review	Monday Luncheon (Table)	Monday Interviews	Other
Sandoval	Jim	Vice Chancellor, Student Affairs				X	
Lundgren	Larae	Assoc. VC Enrollment Management				X	
Daily	Bracken	Registrar				X	
Engelschall	Emily	Director of Admissions (Interim)				X	
Jackson	Ruth	Campus Librarian				X	
Potter	Michele	Science Reference Librarian				X	
Rowley	Charles	Interim Vice Chancellor Finance and Business Operations and CIO			X	X	
Cleary	John	Systems Administrator, Engineering			X	X	
Hill	Victor	Systems Administrator, CS			X	X	
Allen-Ortega	Susan	Dean, Student Life				X	
Roque	Gina	Interim Director Acad Res & Analysis				X	
Kidder	William	Assistant Executive Vice Chancellor				X	
Gierz	Gerhard	Math Chair				X	
Johnson	Martin	PEC Chair (Political Science)				X	
Mohideen	Omar	Physics Chair				X	
Hyman	Brad	Biology				X	
Larive	Cynthia	Chemistry Chair				X	
Gauvain	Mary	Psychology				X	
Cogswell	Tom	History Chair				X	
Briggs	John	English				X	

Potential Participants

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September 13, 2012
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Potpourri

- Transcripts were all received
- Transcript training will be set up for Chairs
- Feedback from PEVs??

**ABET Visit Training
October 11, 2012
1:00pm* Bourns 205/206**



**Dr. Raman Unnikrishnan
Dean, College of Engineering & Computer Science
California State University, Fullerton, CA
ABET EAC Commissioner**

Subject: Interfacing with ABET Program Evaluators (PEVs)

**Objective: Provide information and recommendations to
faculty and staff to aid in optimum communication
with the ABET team leaders and PEVs during the
November 4-6 visit**

***Preceded with a buffet luncheon**

Introduction

- BCOE has established an Online Master of Science Program in Engineering at UCR.
- This program has been reviewed by the Graduate Council at UCR and has been fully reviewed and approved by the CCGA with a final approval from UCOP.
- This is a self-supporting program, which has been set up for highly qualified employed engineers who, for professional and personal reasons, are not able to attend traditional M.S. programs, yet are very interested in obtaining the latest knowledge base of engineering and technology related to their area of work.
- The applicants for the Online Master of Science Program in Engineering at UCR will be primarily from engineering companies.

Purpose

- The purpose of BCOE' s online M.S. in Engineering Program is to enable engineers to advance their professional education as well as enhance their value to their employers.
- It is at the Master' s level that engineers have the opportunity to learn a specialization in depth, and to renew and update their knowledge of technological advances.

Goals

- Further the mission of the University.
- Provide UCR and BCOE with an entre into online education.
- Serve the need of working professionals and the industrial community.
- Provide industrial contacts with faculty members to establish research collaborations.
- Provides support funds for PhD students.
- A study conducted by the U.S. Department of Education from 1996 to 2008 found that, on average, students in online learning conditions performed better than those receiving face-to-face instruction.

Uniqueness

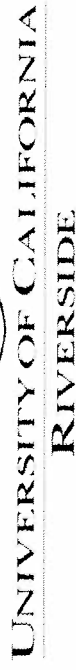
- Our MSOL program is unique amongst the competing online programs since it offers an effective and well-balanced blend of professional core engineering management and specialization courses.
- The design experience, the exposure to a set of core professional courses related to engineering management, as well as a set of specialization courses in different areas for employed engineers, and the availability of blended multidisciplinary programs of study are what distinguish our program from other online as well as traditional programs.

Program Plans

- We plan to start the program with a specialization drawn from Bioengineering.
- At the beginning of the second year, we intend to offer one new area of study. Likely possibilities are Water-Quality Control Systems, Integrated Circuits, Electronic Materials and Signal Processing.
- At the end of each quarter, students will be asked, via online questionnaires for their opinion of the effectiveness of the teaching medium. Since these students are full time employed engineers, their feedback will be invaluable for improvements to the program.

Distinct Features

- Program will be self supporting.
- Program will be college-wide.
- Program will be delivered over the internet.
- Program profits will be mainly used to support PhD students within BCOE.
- Program incorporates a significant design experience that draws from the knowledge gained from courses taken (ENGR 296A). We believe this experience will attract students who complete the online M.S. program to our Ph.D. programs.



Admission Requirements

- GPA of 3.0 or better in engineering or related fields.
- 3 letters of reference.
- Project statement.
- Evaluation and acceptance by a departmental graduate committee.
- Registration, similar to on-campus students.
- No residency is required (similar to UCLA model).
- GPA requirements will be the same as other graduate programs.



Traditional vs. Online Program

- All course material from the online M.S. program is equivalent to the material in the traditional MS/PhD program.
- Online M.S. program emphasizes technical skills. Traditional M.S. program emphasizes research.
- No operational relationship between both programs. (e.g. students in online program cannot enroll in courses from the traditional program).
- Online graduate courses may be offered more than once per year as opposed to traditional graduate courses.
- Student in the online M.S. program may not switch to the traditional program and vice versa.

Traditional vs. Online Program

- Students who have completed the online M.S. program may apply to the traditional Ph.D. program.
- Students who have completed a traditional M.S. or Ph.D. program may be admitted to the online M.S. program, but their coursework will not count towards the online M.S. program.

Traditional Program Completion Requirements

- M.S. Plan I (36 units of course and thesis)
- M.S. Plan II (36 units of courses and exam)
- Ph.D. (XX units post B.S. + dissertation)
- Ph.D. (YY units post M.S. + dissertation)

-or-

Online Program Completion Requirements

- Program is structured to be completed in two academic years plus one summer quarter.
- Program will consist of nine courses (36 units), six of which must be at the 200 level.
- Courses include:
 - At least four core courses from the professional engineering series.
 - ENGR 200:Engineering in the Global Environment
 - ENGR 201: Technology Innovation and Strategy for Engineers
 - ENGR 202: Introduction to Systems Engineering
 - ENGR 203:Principles of Engineering Management
 - Four from the chosen specialization. (e.g. BIEN 223, 224, 249, 264)
 - ENGR 296A (preparation for M.S. Comprehensive Examination).
- Each student will also be required to take a comprehensive examination or complete a M.S. design project (supervised by the faculty).



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Degree Designation

- Single designation as Master of Science in Engineering, followed by the specialization.
- Tentative Examples:
 - Master of Science in Engineering (Nanotechnology)
 - Master of Science in Engineering (Sustainable Development)
 - Master of Science in Engineering (Business Information)
 - Master of Science in Engineering (Advanced Materials)
 - Master of Science in Engineering (Energy Management)

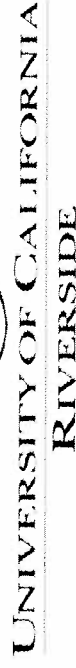


The “Classroom” Environment

- Classes will be taught by either BCOE faculty or practicing professionals.
- Classes will be taught as regular classes to on-campus MS and PhD students whiles being stored (video, DVD, or streaming) for online M.S. students.
- The lectures and associated course materials will be delivered over the Internet. The lectures will have the instructor visible and speaking directly to the remote audience.
- Office hours will be done through software such as Skype and VNC to allow for audio and visual contact between both parties.
- Examinations are not online. Students will take their exams either on campus or in the presence of a designated proctor.
- Grading will be the same as normal graduate programs.

Video Equipment

- We will be using the Echo 360 unit. It is capable of capturing one video feed (camera on instructor) and one RGB feed. The RGB is whatever the instructor is showing the class through the projection system.
- Initial three years estimated cost of Echo 360 unit compared to alternative systems:
 - **Echo 360 - \$27,440**
 - Panopto - \$64,040
 - Opencast Matterhorn - \$56,280

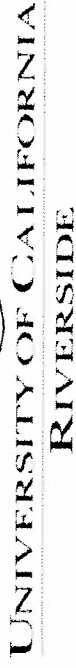


Costs/Benefits

- ## Online-Course Develop/Mgmt Fees

- ## Instructional Support

- [illegible]



Governance

- The program consists of an oversight committee appointed by the Dean and consists of representatives from various BCOE departments and programs. The committee will be chaired by the program director.
- Program Director : Kambiz Vafai
- Online M.S. Committee:
 - Jianlin Liu (EE)
 - Walid Najjar (CS)
 - David Cocker (CEE)
 - Heejung Jung (ME)
 - Victor Rodgers (BIEN)



Governance

- Each year, the Program Director will appoint at least two faculty members, associated with each corresponding specialization, to act as admission committee. The committee will recommend applicants to the Director, who fill forward them to the Graduate Division.
- Each year, the Program Director will appoint two faculty members, associated with each corresponding specialization, to oversee students' programs.
- The Director will recommend to the Graduate Division a committee of three faculty members, associated with the corresponding specialization, to be the comprehensive examination committee for the students in that specialization.



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Summary of Estimated Departmental Income for BCOE On-Line MS Engr Program

Initial 3 Year Totals			
*assumes 4 core courses each year and 5 specialization courses in years 2 and 3			
Number of Incoming Students per Year			
	5	12	16
TA Support to Depts offering Core & Specialization Courses	138,621	138,621	138,621
Revenue net of Program Expenses*:	6,979	365,179	560,479
Revenue to Dept offering Specialization Courses (90%)	2,855	149,391	229,287
Core Course Revenue:			
Dept offering Core Courses (20%)	761	39,838	61,143
Split with all 5 other BCOE depts (50%)	1,903	99,594	152,858
Dean's Office Portion	1,459	76,356	117,191

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