<u>PRC01</u>

• General course information

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General course information

BIEN175A - 001 SI	ENIOR DESIGN				WAITLIST					
Call Number :	Call Number: 10735		tor: Park B	Units: 2.00	Max Enrollment: 78					
Class Activities :	LEC W 09:10 a.m 10:00 a.m.	INTN 1002	CHASS Interdisciplinary Bldg-North (INTN) view		Available Seats: 0					
	PRC M 03:10 p.m 06:00 p.m.	TBA TBA	To Be Announced (TBA) view		Wait List Max : 5					
Co-requisites :	n/a									
Prerequisites :	BIEN130L with a grade of "D-" or better				# on Wait List: 0					
Restrictions :	This course has no restrictions at the course wide level									
Cross-Listed with :	n/a									
Grade Type :										
Final Exam Date : Final Exam Time :	12/11/2015 08:00A.M 11:00A.M.									
Schedule Note(s) :	Course Material Fee required.									
Catalog Description :	BIEN 175A Senior Design, 2 units, Lecture, 1 hour; practicur	n, 3 hours. Prerequisite(s): Bl	EN 130L. Covers the entire design process for bioengineering. Explores intellectual property, qualit	y control, and regulatory and ethical conside	rations. Requires working in small teams effectively					
	to prepare formal engineering reports, web pages notebooks, oral presentations, a project demonstration, and a business plan. Graded In Progress (IP) until BIEN 175A, BIEN 175B, and BIEN 175C are completed, at which time a final letter grade is assigned.									

- Instructor
 - B. Hyle Park
 - MSE 243 / Bourns B232
 - <u>hylepark@engr.ucr.edu</u>
 - Christina Birch
 - Bourns A127
 - <u>birch@mit.edu</u> (change to ucr.edu later)

- Teaching assistants
 - Christian M. Oh
 - Bourns B232
 - coh004@ucr.edu
 - Chris Hale
 - Bourns A135
 - chale003@ucr.edu

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Course objectives

"BIEN 175A Senior Design, 2 units, Lecture, 1 hour; practicum, 3 hours. Prerequisite(s): BIEN 130L. Covers the entire design process for bioengineering. Explores intellectual property, quality control, and regulatory and ethical considerations. Requires working in small teams effectively to prepare formal engineering reports, web pages notebooks, oral presentations, a project demonstration, and a business plan. Graded In Progress (IP) until BIEN 175A, BIEN 175B, and BIEN 175C are completed, at which time a final letter grade is assigned."

- 1. Work in small (4-5) groups to develop working prototypes of bioengineering design projects
- 2. Effective written and verbal communication
- 3. Competition!
- 4. Learn topics not covered in other portions of undergraduate curriculum
 - Business / entrepreneurship
 - Intellectual property
 - Ethical considerations
 - Quality control
 - Regulatory affairs

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BMEStart

bmestart is the first competition in the u.s. designed specifically for undergraduate biomedical and bioengineering students

- The world needs more effective, functional and affordable technology solutions to clinical medical problems. Our BMEStart competition recognizes undergraduate excellence in biomedical innovation. We challenge undergraduates to pioneer a health-related technology that addresses a real clinical need. Competition entries are judged on:
 - Technical, economic and regulatory feasibility
 - Contribution to human health and quality of life
 - Technological innovation
 - Potential for commercialization

bmestart competition deadline:

- May 2016
- Winners announced in September at 2016 BMES Annual Meeting

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NIH DEBUT (last year's competition)

- DEBUT is NIBIB's challenge to teams of undergraduate students to design solutions to unmet clinical needs.
 - 1st Prize: \$20,000
 - 2nd Prize: \$15,000
 - 3rd Prize: \$10,000
 - 6 Honorable Mentions
- Winning teams will be honored at an award ceremony during the Annual Meeting of the Biomedical Engineering Society.
- Submission Period: March 16, 2015 to June 1, 2015, 11:59 PM EDT
- Judging Period: June 10, 2015 to July 31, 2015
- Winners announced: August 21, 2015
- Award ceremony: October 9, 2015, Biomedical Engineering Society Conference, Tampa, Florida



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LIMBS International will host a Design Competition at the 4th Annual LIMBS Summit in cooperation with The University of Texas at El Paso-College of Engineering on Friday, June 3, 2016. The Summit provides a platform where research students from around the world can gather to share the progress they have made over the past year toward developing low-cost prosthetic devices of various kinds. The summit is a one of a kind an opportunity to learn, collaborate and discover opportunities for ongoing research and development of Prosthetic & Orthotic devices for the world's neediest people with disabilities.

Competition Details

Projects for the Design Competition shall be low-cost Prosthetic or Orthotic technologies for developing countries. These projects must be developed by a student or team of students in a BS or MS program during the 2015-2016 academic year. At least one student from the design team must attend the Summit on the campus of UTEP on June 3, 2016 and present the project at the event. Project submissions are subject to approval.

Register your team by October 1, 2015 to enter a design in the competition

To register, send the following information:

- 1. School Name
- 2. Project Contact Name
- 3. Project Contact Email
- 4. Brief Project Description

Additional Information:

All teams must address the limitations and needs of low income patients around the world and produce a prototype that meets the technological, economic and social requirements of patients in developing nations. Designs will be judged by attending students and professors with cash prizes awarded to the winners.

Competition Judging:

Judging will be based on innovation of the design and adherence to the design criteria including the robustness and completeness of the final report. Teams are strongly urged to consider the judging criteria while develop their abstract and presentation.



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Deliverables and grading

<u>Major (group)</u>

- BIEN175A (Fall)
 - Team/project proposal (functional blocks)
 - Elevator pitch competition
- BIEN175B (Winter)
 - Written business plan
 - Business plan competition
- BIEN175C (Spring)
 - Final competition (demonstration)
 - Final written report

Minor (group)

- Web page
- Notebook

Major (individual)

- Written progress reports
- In-person interviews
- Faculty assessment (can include quizzes)

Minor (individual)

Peer assessment

General course information **Schedule**

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Monday			Tuesday	Wednesda	Wednesday		Thursday	Friday
0							9/24	9/25
1 9/28	3:10-5pm	CHUNG205	9/29	9/30	9:10-10am	INTN1002	10/1	10/2
PRC01		Park		LEC01		Park		
Overview	v, team format	tion		Identifyin	g a project go	al		
2 10/5	3:10-5pm	CHUNG205	10/6	10/7	9:10-10am	INTN1002	10/8	10/9
PRC02		TA		LEC02		Guest		
Solidwor	ks, 3D printer			ldentifyin	Identifying a project goal			
3 10/12	3:10-5pm	CHUNG205	10/13	10/14	9:10-10am	INTN1002	10/15	10/16
PRC03		TA		LEC03		TA		
Basic Ard	uino programi	ming		Basic Ardu	Basic Arduino programming			
4 10/19	3:10-5pm	CHUNG205	10/20	10/21	9:10-10am	INTN1002	10/22	10/23
PRC04		TA		LEC04		TA		
Biological sensors			Biological	sensors				
5 10/26	3:10-5pm	CHUNG205	10/27	10/28	9:10-10am	INTN1002	10/29	10/30
PRC05		TA		LEC05		TA		
Data anal	Data analysis with Matlab			Data analy	Data analysis with Matlab			
6 11/2	3:10-6pm	MSE243	11/3	11/4	9:10-10am	INTN1002	11/5	11/6
PRC06		Park		LEC06		Park		
Project vetting				Bioengine	ering ethics			



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Monday			Tuesday		Wednesday		Thursday	Friday
5 10/26	3:10-5pm	CHUNG205	10/27	10/28	9:10-10am	INTN1002	10/29	10/30
PRC05		ТА		LEC05		TA		
Data anal	lysis with Matl	ab		Data analy	Data analysis with Matlab			
6 11/2	3:10-6pm	MSE243	11/3	11/4	9:10-10am		11/5	11/6
PRC06	5.10-0pm	Park	11/3	LEC06	9.10-10am	Park	11/5	11/0
		Park			Bioengineering ethics			
Project ve	etting			вюенуте	ering ethics			
7 11/9	3:10-6pm	MSE243	11/10	11/11	9:10-10am	INTN1002	11/12	11/13
PRC07		Park		LEC07		Park		
Project ve	etting			Intellectu	Intellectual property			
8 11/16			11/17	11/18	9:10-10am	INTN1002	11/19	11/20
0 11, 10			11/1/	LEC08	5.10 100	Park	11/15	
					entrenreneur			
			Business/entrepreneurship					
9 11/23			11/24	11/25	9:10-10am	INTN1002	11/26	11/27
				LEC09		Park/Jasso		
				Elevator p	Elevator pitch competition			
10 11/30			12/1	12/2	9:10-10am	INTN1002	12/3	12/4
10 11, 00				LEC10	5.10 100	Jasso	12/5	
					undamentals			
ls 12/7			12/8	12/9			12/10	12/11

BIEN 175A : Senior Design

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Project parameters

- Group formation
 - 4-5 BIEN students enrolled in BIEN175A
 - 1-2 SoBA consultants (assigned at end of BIEN175A)
 - 1 BIEN faculty advisor
 - Limit of 2 projects for Assistant Professors
- Project objective(s)
 - Must be an original design project, not a research project
- Project budget
 - \$1000 per group
 - Total budget for all 3 quarters

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• Course objectives	 From <u>http://st</u> 		ngineering	We	Engineer	Excellence	MySoftware STUDENT SOFTWARE SYSTEM	15		See the Mr.				
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			COMSOL Multiphysics	Windows Version Ma: Version Windows Version	Windows Version Mac Version Windows Version			*	Mathematica	Mathematica is available for Mac, Windows, Linux <u>System Requirements</u> <u>More info</u>	Version 10.2	Nov 07	Annual License Key	
			SPSS Statistics	No Mac Version Available Windows Version Mac Version Mac Version	No Mac Version Available No Windows Version Available No Mac Version Available			ArcGIS	ArcGIS	ArcGIS is available for Window System Requirements More info	^S Version 10.3	N/A	Annual EVA Authorization Code	
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			Respondus LockDown Browser	Windows Version Mac Version Windows Version	No Windows Version Available No Mac Version Available No Mac Version Available			MATLAB*	Lockdown Browser	for Windows, MAC <u>System Requirements</u> <u>More info</u> MATLAB is available for Windows, MAC, Linux	Version 1.0.7	N/A	N/A Annual	
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BIEN 175A : Senior Design

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