CURRICULUM SHEETS FOR

BIOMEDICAL, CHEMICAL AND ENVIRONMENTAL ENGINEERING MS-BS AND GRADUATE PREPARATION (GPST) S-STEM TRACKS

BIOMEDICAL ENGINEERING (BME) S-STEM BS+MS and GSPT Changes Indicated

Fall 2014	Spring 2015	Summer 2015
CHEM 1040L Gen Chem Lab I ENED 1020 Engrg Foundations ENED 1090 Engineering Models I ENGL 1001 English Composition MATH 1061 Calculus I	ENED 1091 Engineering Models II 2 MATH 1062 Calculus II 4	
Fall 2015	Spring 2016	Summer 2016
Bok3BIOL*1081Biology 13BIOL1081LBiology I Lab1BME2000CBME in the Clinic3ENVE2093CEngr Apps of Diff Eqns 22MATH2074Dynamical Systems 33COOP2011Practice Evaluation15TotalSH15		BOK 3 BME 2010 Research Methods 3 TECH ELEC 3 BME 3071C Basic Electric Circuits 4 ENVE 4051 Stats & Reliability 3 COOP 2012 Practice Evaluation 16 Total SH 16
Fall 2016	Spring 2017	Summer 2017
Cooperative Education Work Semester	BOK 3 BME Focus Elective 3 TECH ELEC 3 BME 3020C Sensing & Measure. 4 ENGL 2089 Intermediate Comp. 5 COOP 3011 Practice Evaluation 5 ENFD 3020 Undergrad Res I 2 Total SH 18	Cooperative Education Work Semester
Fall 2017	Spring 2018	Summer 2018
BOK 3 BME Focus Elective 3 TECH ELEC 3 BME 4020C Control & Lab. 4 PD 4001 Prof. Development 1 COOP 4011 Practice Evaluation 1 ENFD 4020 Undergrad Res II 1 Total SH 15		ENFD 5030 Prep Grad Research 1-12 OR ENFD 5020 Undergrad Res III 1-12 Other Coursework 0-11 Total SH 12
Fall 2018	Spring 2019	
SELE ELEC 3 SELE ELEC 3 BME ELEC 4 BME 5001 BME Sr. Capstone 6 COOP 4012 Practice Evaluation		
Total SH 16	Total SH 12	

BOK = Breadth of Knowledge -- General Education Requirements

UC's College of Engineering and Applied Science BOK requirements are as follows:

Take one course from any two of the following

- FA Fine Arts HP Historical Perspectives
- HU Humanities
- SS Social Sciences AND Take one course from each of the following
 - DC Diversity and Culture
 - SE Social and Ethical Issues

CHEMICAL ENGINEERING (CHE) Section 1: S-STEM BS+MS and GSPT Changes Indicated

Fall 2014		Spring	2015		1	Summ	er 2015	5	
CHEM 1040 Gen Chemistry I CHEM 1040L Gen Chem Lab I ENED 1020 Engrg Foundations ENED 1090 Engineering Models I ENGL 1001 English Composition MATH 1061 Calculus I Total SH	1 2 2	ENED ENED	1041L 1030	Statics & BSOM Static	4 1 3 2 4 1 5			OFF	
Fall 2015		Spring	2016		1	Summ	er 2016	3	
Cooperative Education Work Semest	er		2040L 2093C 2074	Matl & Energy Balance Organic Chemistry Organic Chem Lab Engr Apps of Diff Eqns	<mark>3</mark> 4 1 2 3	Соор	erative	Education Work Sem	nester
Fall 2016		Spring	2017		1	Summ	er 2017	1	
BME 3071C Basic Electric Circuits CHE 3022 Transport I P CHEM 2041 Organic Chemistry II P CHEM 2041L Organic Chem Lab II P CHEW 2041L Organic Chem Lab II P ENVE 4051 Stats & Reliability P COOP 2012 Practice Evaluation P Total SH SH SH SH	4 4 1 3		erative	Education Work Semester		BoK BoK CHE CHE ENGL COOP CHE Total		Transport II Chem Engn Thermo. Technical Writing Practice Evaluation Undergrad Res I	▶ 3 ▶ 3 ▶ 4 3 ▶ 4 3 ▶ 2 18
Fall 2017		Spring	2018			Summ	er 2018	3	
Cooperative Education Work Semest	er	TECH CHE CHE CHE CHE CHE PD COOP Total	ELEC 4075 4001 4061 4062 4071 4001 4001 SH	Undergrad Res IIUG-SeminarSeparation ProcessesChem React Engn	1 3 3 3 1	ENFD ENFD Other (Total	5030 5020 Coursew SH	Prep Grad Research OR) Undergrad Res III /ork	1-12 1-12 0-11 12
Fall 2018		Spring	2019		T				
BoK CHE 4037 ChE Lab CHE 5045 Proc Design I CHE 5082 Ind Chem Processes CHEM 3030 Instrumental Analysis COOP 4012 Practice Evaluation Total SH	4 4 3 3	CHE CHE	ELEC 5046 4001	Proc Design II 400 Proc Design II 400 Processor Processo	3 3 4 1 2 6				

BOK = Breadth of Knowledge -- General Education Requirements

UC's College of Engineering and Applied Science BOK requirements are as follows:

Take one course from any two of the following

- FA Fine Arts ΗP
- Historical Perspectives HU Humanities
- SS Social Sciences

AND Take one course from each of the following

- DC Diversity and Culture
- SE Social and Ethical Issues
- Implementation of S-STEM Curriculum changes from CHE faculty

CHEMICAL ENGINEERING (CHE) Section 2: S-STEM BS+MS and GSPT Changes Indicated

Fall 2014		Spring 2015	Summer 2015
CHEM 71040 CHEM 10401 ENED 71020 ENGL 71090 ENGL 71001 MATH 71061 Total SH	Gen Chem Lab I Engrg Foundations Engineering Models I English Composition Calculus I	CHEM*1041Gen Chemistry II4CHEM1041LGen Chem Lab II1ENED*1030Statics & BSOM3ENED*1091Engineering Models II2MATH*1062Calculus II4PD*1011COOP for CEAS1TotalSH15	OFF
Fall 2015		Spring 2016	Summer 2016
	Matl & Energy Balance 4 Organic Chemistry 4 Organic Chem Lab 5 Engr Apps of Diff Eqns 4		BME 3071C Basic Electric Circuits 4 CHE ⁵ 3022 Transport I 4 CHEM ⁵ 2041 Organic Chemistry II 4 CHEM 2041L Organic Chem Lab II 1 ENVE ⁴ 4051 Stats & Reliability 3 COOP ⁵ 2012 Practice Evaluation 1
Fall 2016		Spring 2017	Summer 2017
	Education Work Semester	BoK 3 BoK 3 CHE 3023 Transport II 3 CHE 3062 Chem Engn Thermo. 4 ENGL 4092 Technical Writing 3 COOP 3011 Practice Evaluation 2 CHE 4075 Undergrad Res I 2 Total SH	
Fall 2017		Spring 2018	Summer 2018
TECH ELEC CHE 4075 CHE 4001 CHE 4061 CHE 4062 CHE 4071 PD 4001 COOP 4011 Total SH	Undergrad Res II1UG Seminar4Separation Processes3		ENFD 5030 Prep Grad Research 1-12 OR ENFD 5020 Undergrad Res III 1-12 Other Coursework 0-11 Total SH 12
Fall 2018		Spring 2019	
BoK CHE 4037 CHE 5045 CHE 5082 CHEM 3030 COOP 4012 Total SH	ChE LabZProc Design IZInd Chem ProcessesZInstrumental AnalysisZPractice EvaluationZ	TRACK ELEC 3 CHE 5046 Proc Design II 4	

BOK = Breadth of Knowledge -- General Education Requirements

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Take one course from any two of the following

- FA Fine Arts
- HP Historical Perspectives
- HU Humanities
- SS Social Sciences

AND Take one course from each of the following

- DC Diversity and Culture
- SE Social and Ethical Issues
- Implementation of S-STEM Curriculum changes from CHE faculty

ENVIRONMENTAL ENGINEERING (ENVE) S-STEM BS+MS and GSPT Changes Indicated

Fall 2014		ł	Spring 201	15			Summer 2015
ENED 102	0L Gen Chem Lab I * 00 Engrg Foundations * 00 Engineering Models I * 11 English Composition *	1 2 2 3 4	CHEM 104 CHEM 104 ENED 103 ENED 109 MATH 106 PD 101 Total SH	41L 30 91 62 11	Gen Chemistry II Gen Chem Lab II Statics & BSOM Engineering Models II Calculus II COOP for CEAS	4 1 3 2 4 1	1 3 2 4 1
Fall 2015		_	Spring 201	16			Summer 2016
			Spring 201	10			Summer 2010
CHE 200 ENFD 200 ENVE 209 MATH 2	1 Biology 1 1L Biology I Lab	3 1 4 2 3 18	Cooperat	ive	Education Work Sem	ester	CHEM *2040 Organic Chem I * 4 CHEM 2040L Organic Chem Lab I * 4 CHE *3022 Transport I * 4 ENGL *4092 Technical Writing * 3 ENVE *4010 Water & Waste * 3 ENVE *4010 Envir & Radiolog * 2 ENVE *4010 Envir & Radiolog * 3 COOP *2012 Practice Eval # * 3 Total SH * 16
Fall 2016		:	Spring 201	17			Summer 2017
Cooperat	ive Education Work Semeste		CHE 407	40L 75 02C 22 40 11 11	Organic Chem I Organic Chem Lab I Undergrad Res I Soil Mech & Lab Transport I C&E System Anal Air Pollution Cont Practice Eval #	4 1 2 4 4 3 3 3	4 4 3 3
Fall 2017		;	Spring 201	18			Summer 2018
	1 Economics (BOK) 3 Hydraulic Systems 3L Flu Mech & Hyd Sy 1C Geog Informa Syst 1 Prof. Development 5 Undergrad Res II	3 3 2 3 1 1	Cooperat	ive	Education Work Sem	ester	ENFD 5030 Prep Grad Research 1-12 OR 0R ENFD 5020 Undergrad Res III 1-12 Other Coursework 0-11 Total SH 12
Total SH		<mark>16</mark>					
Fall 2018		1	Spring 201	19			
BOK BOK ENVE 500 ENVE 500 ENVE 600 GEOG 600 COOP 400 Total SH	3 Capstone Seminar4 Sol &Haz Waste9 Environ Geochem	3 2 1 3 3	BoK ENVE ELI ENVE ELI ENVE 500 ENVE 500 ENVE 605 Total SH	EC 02 04 58C	Capstone Design II Capstone Seminar Environ Instrumentn	3 3 2 1 3	3 3 2 1 3

BOK = Breadth of Knowledge -- General Education Requirements

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Take one course from any two of the following

- Fine Arts Historical Perspectives FA HP
- HU Humanities
- SS Social Sciences
- AND Take one course from each of the following
 - DC Diversity and Culture SE Social and Ethical Issues
- Implementation of S-STEM Curriculum changes from ENVE faculty