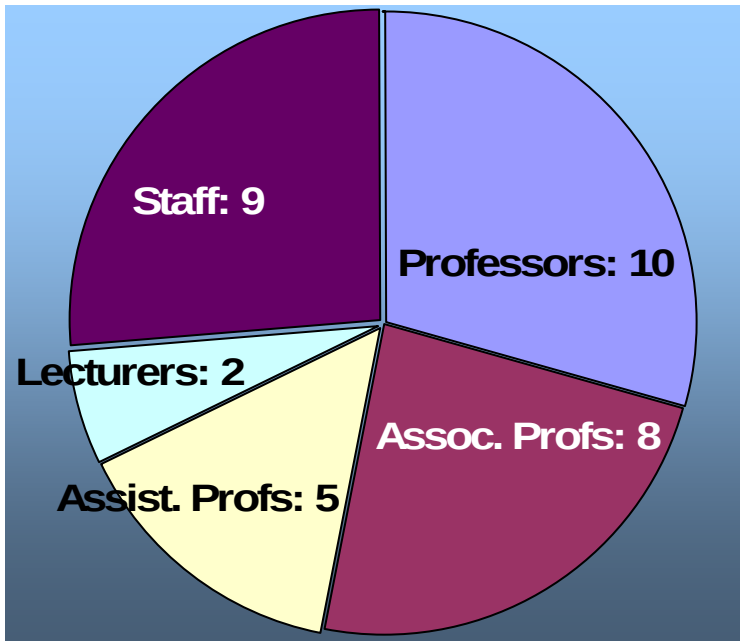
King Fahd University of Petroleum & Minerals

Chemical Engineering Department

An Overview

March 2007

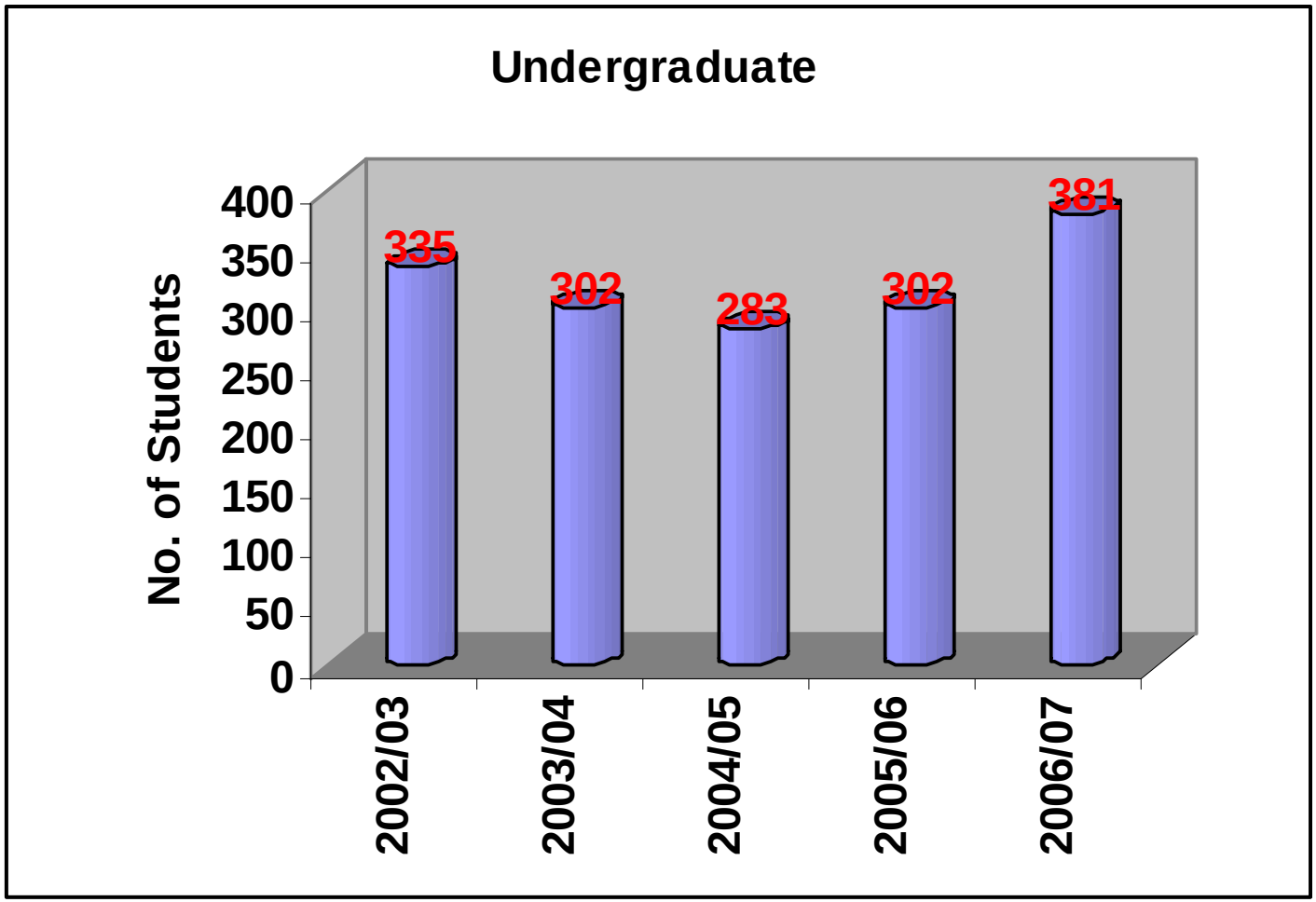
Faculty Strength



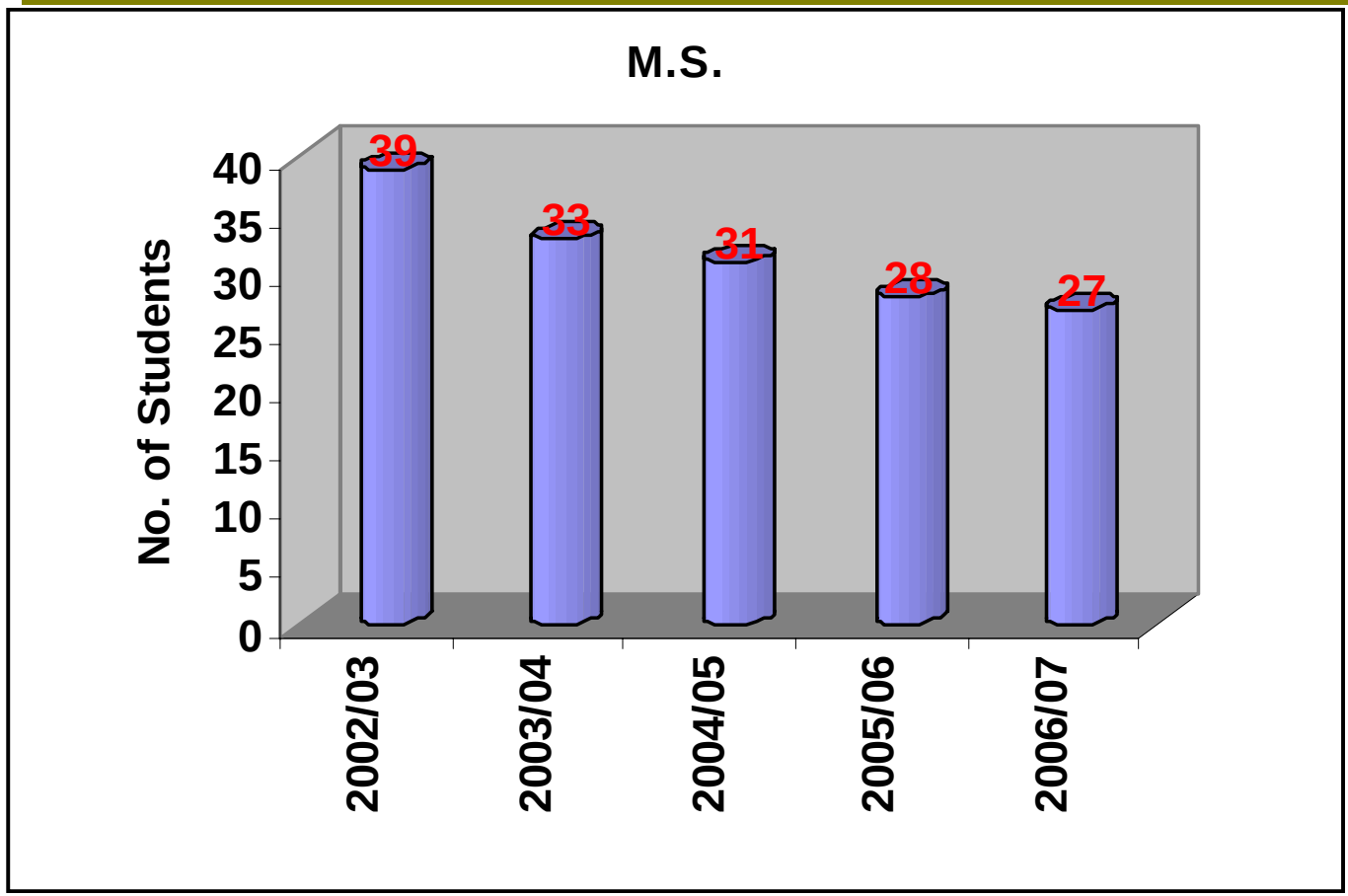
Expertise in

- ✓ Catalysis
- ✓ Reactor Design
- ✓ Refining
- ✓ Petrochemicals
- ✓ Composite Materials
- ✓ Polymers
- ✓ Corrosion
- ✓ Thermodynamics
- ✓ Process Control
- ✓ Separation Processes
- ✓ Process Simulation
- ✓ Transport Phenomena
- ✓ Electrochemical Eng.

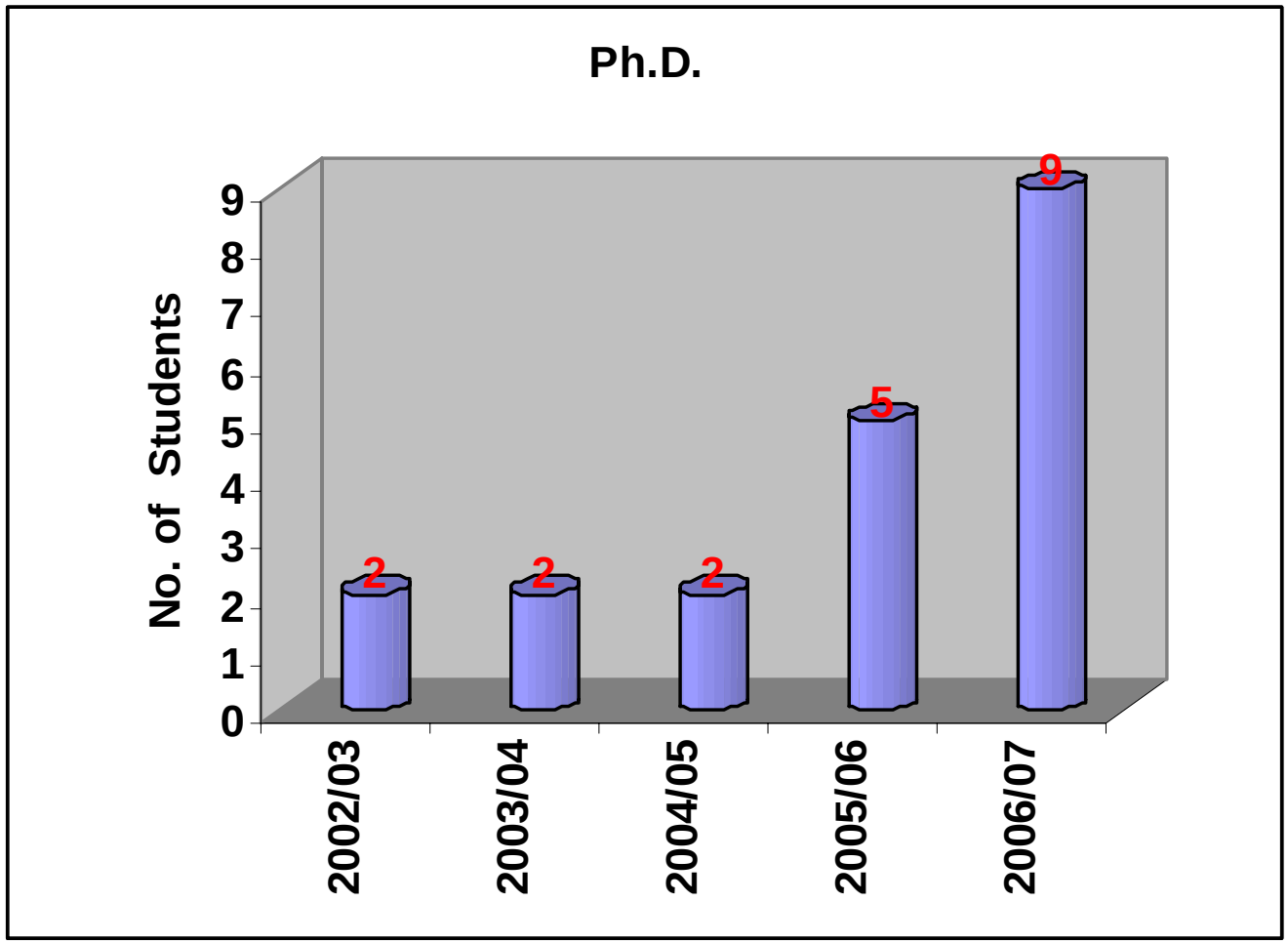
Student Enrollment



Student Enrollment



Student Enrollment



Chemical Engineering Undergraduate Program

Preparatory Year

COURSE TITLE	LT	LB	CR	COURSE TITLE	LT	LB	CR
First Year (Preparatory)							
ENGL 001 Preparatory English I	15	5	8	ENGL 002 Preparatory English II	15	5	8
MATH 001 Preparatory Mathematics I	3	1	4	MATH 002 Preparatory Math II	3	1	4
ME 001 Preparatory Graphics	0	2	1	ME 002 Preparatory Workshop	0	2	1
PE 001 Preparatory Physical Educ. I	0	2	1	PE 002 Preparatory Phys. Educ. II	0	2	1
	18	**10**	**14**		**18**	**10**	**14**

Total credit hours required in Preparatory Program: 28

King Fahd University of Petroleum & Minerals

Chemical Engineering B.Sc. Program

CHEMICAL ENGG DEPT

COURSE TITLE	LT	LB	CR	COURSE TITLE	LT	LB	CR
Second Year (Freshman)							
MATH 101 Calculus I	4	0	4	MATH 102 Calculus II	4	0	4
CHEM 101 General Chemistry I	3	4	4	CHEM 102 General Chemistry II	3	4	4
PHYS 101 General Physics I	3	3	4	PHYS 102 General Physics II	3	3	4
ENGL 101 English Composition I	3	0	3	ENGL 102 English Composition II	3	0	3
IAS 111 Belief and its Consequences	2	0	2	ICS 101 Computer Programming or			
PE 101 Physical Education I	0	2	1	ICS 103 Computer Program. in C	2	3	3
	15	**9**	**18**		**15**	**10**	**18**
Third Year (Sophomore)							
CHE 201 Intro. to Chemical Engineering	3	0	3	CHE 203 Chem. Eng. Thermo. I	3	0	3
CHEM 201 Organic Chemistry I	3	4	4	CHE 204 Transport Phenomena I	3	0	3
MATH 201 Calculus III	3	0	3	CHEM 202 Organic Chemistry II	3	4	4
EE 204 Fund Electric Circuits	2	3	3	MATH 202 Elem. Diff. Equations	3	0	3
CE 201 Statics	3	0	3	ME 205 Materials Science	2	3	3
IAS 101 Practical Grammar	2	0	2	IAS 211 Ethics in Islam	2	0	2
PE 102 Physical Education II	0	2	1				
	16	**9**	**19**		**16**	**7**	**18**
Fourth Year (Junior)							
CHE 300 Transport Phenomena II	3	0	3	CHE 306 Stagewise Separations	3	0	3
CHE 303 Chem. Eng. Thermo. II	3	0	3	CHE 309 Chem. Eng. Lab I	0	6	2
CHE 304 Transport Phenomena III	3	0	3	CHE 325 Chem. Eng. Comp. Lab	1	3	2
STAT 319 Statistics for Engineers	2	3	3	CHEM 311 Physical Chemistry II	3	4	4
ENGL 214 Technical Report Writing	3	0	3	SE 301 Numerical Methods	3	0	3
IAS 201 Objective Writing	2	0	2	IAS 322 Human Rights in Islam	2	0	2
	16	**3**	**17**		**12**	**13**	**16**
Summer Session				CHE 399 Summer Indus. Training	0	0	0
Fifth Year (Senior)							
CHE 401 Process Dynamics & Control	3	0	3	CHE 495 Integrated Design Course	1	6	3
CHE 402 Kinetics & Reactor Design	3	0	3	CHE 409 Chem. Eng. Lab II	0	6	2
CHE 425 Eng. Econ. & Design Prin.	3	0	3	CHE 4xx Chem. Eng. Elective I	3	0	3
CHEM 323 Analytical Chemistry	2	4	3	CHE 4xx Chem. Eng. Elective II	3	0	3
IAS 301 Literary Styles	2	0	2	IAS 4xx IAS Elective	2	0	2
	13	**4**	**14**		**9**	**12**	**13**

Total credit hours required in Degree Program: 133

King Fahd University of Petroleum & Minerals

CHEMICAL ENGG DEPT

Applied Chemical Engineering B.Sc. Program

COURSE TITLE	LT	LB	CR	COURSE TITLE	LT	LB	CR
Second Year (Freshman)							
MATH 101 Calculus I	4	0	4	MATH 102 Calculus II	4	0	4
CHEM 101 General Chemistry I	3	4	4	CHEM 102 General Chemistry II	3	4	4
PHYS 101 General Physics I	3	3	4	PHYS 102 General Physics II	3	3	4
ENGL 101 English Composition I	3	0	3	ENGL 102 English Composition II	3	0	3
IAS 111 Belief and its Consequences	2	0	2	ICS 101 Computer Programming or			
PE 101 Physical Education I	0	2	1	ICS 103 Computer Program. in C	2	3	3
	15	**9**	**18**		**15**	**10**	**18**
Third Year (Sophomore)							
CHE 201 Intro. to Chemical Engineering	3	0	3	CHE 203 Chem. Eng. Thermo. I	3	0	3
CHEM 201 Organic Chemistry I	3	4	4	CHE 204 Transport Phenomena I	3	0	3
MATH 201 Calculus III	3	0	3	CHEM 202 Organic Chemistry II	3	4	4
EE 204 Fund Electric Circuits	2	3	3	MATH 202 Elem. Diff. Equations	3	0	3
ME 205 Materials Science	2	3	3	ENGL 214 Technical Report Writing	3	0	3
IAS 101 Practical Grammar	2	0	2	IAS 211 Ethics in Islam	2	0	2
PE 102 Physical Education II	0	2	1				
	15	**12**	**19**		**17**	**4**	**18**
Fourth Year (Junior)							
CHE 300 Transport Phenomena II	3	0	3	CHE 306 Stagewise Separations	3	0	3
CHE 303 Chem. Eng. Thermo. II	3	0	3	CHE 309 Chem. Eng. Lab I	0	6	2
CHE 304 Transport Phenomena III	3	0	3	CHE 325 Chem. Eng. Comp. Lab	1	3	2
STAT 319 Statistics for Engineers	2	3	3	CHEM 323 Analytical Chemistry	2	4	3
CHEM 311 Physical Chemistry II	3	4	4	SE 301 Numerical Methods	3	0	3
IAS 201 Objective Writing	2	0	2	IAS 322 Human Rights in Islam	2	0	2
	16	**7**	**18**		**11**	**13**	**15**
Summer Session				CHE 350 Coop Work Program	0	0	0
Fifth Year (Senior)							
CHE 351 Cont. of Coop Work	0	0	9	CHE 401 Process Dynamics & Cont.	3	0	3
				CHE 402 Kinetics & Reactor Design	3	0	3
				CHE 425 Eng. Econ. & Design Prin.	3	0	3
				CHE 409 Chem. Eng. Lab II	0	6	2
				CHE 495 Integrated Design Course	1	6	3
				IAS 301 Literary Styles	2	0	2
				IAS 4xx IAS Elective	2	0	2
	0	**0**	**9**		**14**	**12**	**18**

Total credit hours required in Degree Program: 133

CHEMICAL ENGG DEPT

Chemical Engineering M.Sc. Program

Course #		Title	LT	LB	CR	
FIRST SEMESTER						
CHE	501	Transport Phenomena	3	0	3	
CHE	513	Advanced Thermodynamics	3	0	3	
MATH	513	Mathematical Methods for Engineers	3	0	3	
XXX	5xx	Elective I - CHE or Technical	3	0	3	
			12	**0**	**12**	**12**
SECOND SEMESTER						
CHE	530	Advanced Reaction Engineering	3	0	3	
CHE	560	Numerical Methods in Chemical Engineering	3	0	3	
CHE	5xx	CHE Elective	3	0	3	
XXX	5xx	Elective II - CHE or Technical	3	0	3	
CHE	599	Seminar	1	0	0	
			13	**0**	**12**	**12**
THIRD SEMESTER						
CHE	610	Thesis	0	0	IP	
FOURTH SEMESTER						
CHE	610	Thesis (continued)	0	0	6	
			0	**0**	**6**	**6**
						30

King Fahd University of Petroleum & Minerals

CHEMICAL ENGG DEPT

Chemical Engineering Ph.D. Program

Course #		Title	LT	LB	CR	
FIRST SEMESTER						
CHE	5xx	CHE Elective I	3	0	3	
CHE	5xx	CHE Elective II	3	0	3	
CHE	5xx	CHE Elective III	3	0	3	
			9	**0**	**9**	**9**
SECOND SEMESTER						
CHE	5xx	CHE Elective IV (core M.S. excluded)	3	0	3	
CHE	5xx	CHE Elective V (core M.S. excluded)	3	0	3	
CHE	6xx	CHE Elective VI	3	0	3	
XXX	5xx	Technical Elective I	3	0	3	
			12	**0**	**12**	**12**
THIRD SEMESTER						
CHE	6xx	CHE Elective VII	3	0	3	
XXX	5xx	Technical Elective II	3	0	3	
XXX	5xx	Technical Elective III	3	0	3	
			9	**0**	**9**	**9**
FOURTH SEMESTER						
CHE	599	Seminar	1	0	0	
CHE	710	Dissertation	0	0	IP	
FIFTH SEMESTER						
CHE	710	Dissertation (Continued)	0	0	IP	
SIXTH SEMESTER						
CHE	599	Seminar	1	0	0	
CHE	710	Dissertation (Continued)	0	0	12	
			1	**0**	**12**	**12**
						42

Chemical Engineering Undergraduate Course List

CORE COURSES

CHE	201	Introduction to Chemical Engineering	(3-0-3)
CHE	203	Chemical Engineering Thermodynamics I	(3-0-3)
CHE	204	Transport Phenomena I	(3-0-3)
CHE	300	Transport Phenomena II	(3-0-3)
CHE	303	Chemical Engineering Thermodynamics II	(3-0-3)
CHE	304	Transport Phenomena III	(3-0-3)
CHE	306	Stagewise Operations	(3-0-3)
CHE	309	Chemical Engineering Laboratory I	(0-6-2)
CHE	325	Chemical Engineering Computing Laboratory	(1-3-2)
CHE	351	Applied Chemical Engineering Cooperative Work	(0-0-9)
CHE	399	Summer Industrial Training	(0-0-0)
CHE	401	Process Dynamics and Control	(3-0-3)
CHE	402	Kinetics and Reactor Design	(3-0-3)
CHE	409	Chemical Engineering Laboratory II	(0-6-2)
CHE	422	Properties of Fluids	(3-0-3)
CHE	425	Engineering Economics and Design Principles	(3-0-3)
CHE	495	Integrated Design Course	(1-6-3)

Chemical Engineering Undergraduate Course List (Cont)

CHEMICAL ENGG DEPT

ELECTIVE COURSES

CHE	311	Chemical Process Industries	(3-0-3)
CHE	312	Surface Petroleum Operations	(3-0-3)
CHE	430	Separation Processes	(3-0-3)
CHE	432	Principles of Heat Exchanger Design	(3-0-3)
CHE	440	Catalysis & Catalytic Processes	(3-0-3)
CHE	449	Biochemical Engineering	(3-0-3)
CHE	453	Mathematical Methods in Chemical Engineering	(3-0-3)
CHE	455	Chemical Process Simulation	(3-0-3)
CHE	461	Petroleum Refining	(3-0-3)
CHE	462	Petrochemical Industries	(3-0-3)
CHE	463	Polymer Technology	(3-0-3)
CHE	470	Process Air Pollution Control	(3-0-3)
CHE	471	Process Water Pollution Control	(3-0-3)
CHE	472	Corrosion	(3-0-3)
CHE	473	Desalination	(3-0-3)
CHE	480	Energy Technology	(3-0-3)
CHE	491	Materials Evaluation and Selection	(3-0-3)
CHE	498	Special Topics in Chemical Engineering I	(3-0-3)
CHE	499	Special Topics in Chemical Engineering II	(3-0-3)

King Fahd University of Petroleum & Minerals

Chemical Engineering Graduate Course List

CHEMICAL ENGG DEPT

Fluid and Thermal Sciences

CHE 501	Transport Phenomena ----------(MS program core course)	(3-0-3)
CHE 503	Advanced Fluid Mechanics	(3-0-3)
CHE 505	Computational Fluid Dynamics	(3-0-3)
CHE 507	Advanced Heat Transfer	(3-0-3)
CHE 603	Turbulence Modeling	(3-0-3)
CHE 605	Process Heat Transfer	(3-0-3)

Thermodynamics

CHE 513	Advanced Thermodynamics----------(MS program core course)	(3-0-3)
CHE 515	Statistical Thermodynamics	(3-0-3)
CHE 517	Phase Equilibria	(3-0-3)
CHE 617	Non-Equilibrium Thermodynamics	(3-0-3)

Separations

CHE 521	Diffusion Principles	(3-0-3)
CHE 523	Advanced Mass Transfer	(3-0-3)
CHE 525	Rate Controlled Separation Processes	(3-0-3)
CHE 625	Adsorption	(3-0-3)

Reaction Engineering

CHE 530	Advanced Reaction Engineering------(MS program core course)	(3-0-3)
CHE 532	Heterogeneous Catalysis	(3-0-3)
CHE 534	Bioreaction Engineering	(3-0-3)
CHE 536	Process Analysis in Semiconductor Manufacture	(3-0-3)
CHE 637	Advanced Reactor Analysis	(3-0-3)

CHEMICAL ENGG DEPT

Chemical Engineering Graduate Course List (Cont)

Materials Science and Engineering

CHE 541	Processing in the Materials Industry	(3-0-3)
CHE 543	Polymeric Materials	(3-0-3)
CHE 545	Corrosion Science and Engineering	(3-0-3)
CHE 547	Applied Surface Analysis	(3-0-3)

Process Modeling & Control

CHE 560	Numerical Methods in Chemical Engineering---(MS core course)	(3-0-3)
CHE 561	Process Optimization	(3-0-3)
CHE 562	Advanced Process Dynamics and Control	(3-0-3)
CHE 564	Digital Process Control	(3-0-3)
CHE 565	Non-linear Dynamics in Chemical & Biochemical Systems	(3-0-3)
CHE 566	Process Synthesis	(3-0-3)
CHE 569	Simulation of Chemical Processes	(3-0-3)

General Courses

CHE 571	Process Water Pollution Control	(3-0-3)
CHE 573	Process Air Pollution Control	(3-0-3)
CHE 575	Pollution Prevention in Process Industry	(3-0-3)
CHE 580	Research Report	(3-0-3)
CHE 590	Special Topics in Chemical Engineering	(3-0-3)
CHE 599	Seminar	(1-0-0)
CHE 610	M.S. Thesis	(0-0-6)
CHE 710	Ph.D. Dissertation	(0-0-12)

Faculty Scholarly Activities (cont.)

Total number of publications and funded projects for 2002-2005.

	2002	2003	2004	2005
Number of Journal Papers	35	30	57	58
Number of Conference Papers	9	26	41	19
Number of Funded Projects	7	18	17	20

THANK YOU