COMSATS University Islamabad
Registrar Office, Academic Unit (PS)

No: CUI-Reg/Notif-4291/21/2955 November 22, 2021

NOTIFICATION

It is hereby notified that the Academic Council in its 32nd meeting held on October 6, 2021, on the recommendation of Board of Advance Studies and Research (BASAR) approved the revised Scheme of Studies of Master of Science in Chemical Engineering effective from Fall 2021.

Nomenclature of the program: Master of Science in Chemical Engineering

	Minimum No of Courses	Minimum No of Credit hour
1. MS Course Work		
I. No of Core Courses	4	12
II. Elective courses	4	12
Total credit hour of course work		**24**
2. MS Thesis		**06**
3. Total Credit hours of the Program		**30**

Note:
The Regulation related to MS Degree programs approved by BASAR/Academic Council from time to time shall also be applicable. This issue with the permission of Competent Authority

Muniba Nasir
Additional Registrar

Encl: (03 pages)

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List of Core Courses:

S. No.	Course Code	Course Title	Credits Hours	Pre-requisite(s)
1	CHE600	Engineering Research Methods	3(3,0)	
2	CHE601	Instrumental Analytical Techniques	3(3,0)	
3	CHE602	Advanced Chemical Kinetics & Reaction Engineering	3(3,0)	
4	CHE603	Advanced Chemical Engineering Thermodynamics	3(3,0)	

List of Elective Courses

S. No.	Course Code	Course Title	Credits Hours	Pre-requisite(s)
5	CHE660	Advanced Process Systems Engineering	3(3,0)	
6	CHE761	Advanced Process Economics	3(3,0)	
7	CHE665	Sustainable Energy Systems	3(3,0)	
8	CHE666	PINCH Technology	3(3,0)	
9	CHE662	Process Design and Optimization	3(3,0)	
10	CHE663	Process Modeling and Simulation	3(3,0)	
11	CHE664	Process Integration	3(3,0)	
12	CHE661	Advanced Process Control	3(3,0)	
13	CHE760	Artificial Neural Network	3(3,0)	
14	CSC762	Advanced Topics in Neural Networks	3(3,0)	
15	BIO719	Environmental Microbiology	3(3, 0)	
16	CHE604	Advanced Transport Phenomena	3(3,0)	
17	CHE605	Advanced Numerical and Statistical Analysis	3(3,0)	
18	CHE610	Petroleum Fluids	3(3,0)	
19	CHE611	Combustion Engineering	3(3,0)	
20	CHE620	Life Cycle Analysis	3(3,0)	
21	CHE621	Industrial Environmental Biotechnology	3(3,0)	
22	CHE640	Industrial Polymer Chemistry	3(3,0)	
23	CHE641	Rubber and Plastics Materials	3(3,0)	
24	CHE642	Composite Materials	3(3,0)	
25	CHE643	Polymer Physics	3(3,0)	
26	CHE644	Colloid and Surfactant Science	3(3,0)	
27	CHE645	Polymer Testing	3(3,0)	
28	CHE646	Plastic Technology	3(3,0)	
29	CHE630	Biochemical Engineering	3(3,0)	
30	CHE631	Bio-Chemical and Food Technology	3(3,0)	
31	CHE632	Biotechnology and Environmental Processes	3(3,0)	
32	CHE650	Technology of Textile Wet Processing	3(3,0)	
33	CHE651	Technical Textiles	3(3,0)	
34	CHE652	Pre-Chemical Treatment Processes of Textile	3(3,0)	
35	CHE653	Processes for Cotton Dyeing	3(3,0)	

36	CHE654	Textile Printing	3(3,0)	
37	CHE667	Energy Audit and Management	3(3,0)	
38	CHE668	Plasma Chemical Engineering	3(3,0)	
39	CHE700	Advanced Treatment of Simultaneous Heat and Mass Transfer	3(3,0)	
40	CHE701	Computational Fluid Dynamics	3(3,0)	
41	CHE702	Advanced Catalytic Processes	3(3,0)	
42	CHE703	Fluidization Engineering	3(3,0)	
43	CHE704	Novel Separations	3(3,0)	
44	CHE710	Oil and Gas Economics	3(3,0)	
45	CHE711	Surface Petroleum Operations	3(3,0)	
46	CHE712	Petroleum Transmission	3(3,0)	
47	CHE713	Natural Gas Transmission	3(3,0)	
48	CHE720	Chemicals Emission and Control	3(3,0)	
49	CHE721	Fate and Transport of Chemical in Environment	3(3,0)	
50	CHE722	Industrial Environmental Microbiology	3(3,0)	
51	CHE723	Industrial Environmental Chemistry	3(3,0)	
52	CHE724	Hazardous and Toxic Chemical Waste Treatment	3(3,0)	
53	CHE725	Bioremediation of Toxic Chemicals	3(3,0)	
54	CHE726	Solid Waste Engineering	3(3,0)	
55	CHE740	Polymer Rheology	3(3,0)	
56	CHE741	Principles of Polymer Conversion Operations	3(3,0)	
57	CHE742	Polymer Membranes	3(3,0)	
58	CHE743	Sol-Gel Processing	3(3,0)	
59	CHE730	Bio-Reaction Engineering	3(3,0)	
60	CHE731	Bio-Process Design	3(3,0)	
61	CHE732	Production of Biofuels	3(3,0)	
62	CHE733	Metabolic and Cell Engineering	3(3,0)	
63	CHE734	Manufacturing Practices for Bioprocesses	3(3,0)	
64	CHE750	Textile Quality Assurance	3(3,0)	
65	CHE751	Mechanics of Textiles	3(3,0)	
66	CHE752	Advanced Yarn Engineering	3(3,0)	
67	CHE753	Fiber Forming Polymers	3(3,0)	
68	CHE754	Fiber Engineering Science	3(3,0)	
69	PST621	Polymer Processing Technologies	3(3,0)	
70	PST611	Fundamental of Polymer Science and Technology	3(3,0)	
71	PST671	Environment Impacts of Plastics and Recycling Technologies	3(3,0)	
72	PST651	Characterization and Testing of Polymeric Materials	3(3,0)	
73	PST781	Applied Mathematical Methods for Scientists and Engineers	3(3,0)	
74	PST752	Advanced Polymer Characterization	3(3,0)	
75	PST732	Advanced Polymer Synthesis and Processes	3(3,0)	
76	PST762	Emulsion Polymers	3(3,0)	
77	PST733	Polymer Reaction Technology	3(3,0)	

78	PST641	Engineering Behavior of Polymers	3(3,0)	
79	PST623	Polymer Blends and Composites	3(3,0)	
80	PST725	Advanced Polymer Processing	3(3,0)	
81	PST726	Plastic Products Manufacturing	3(3,0)	
82	PST622	Elastomers Technology	3(3,0)	
83	PST653	Polymeric Coatings	3(3,0)	
84	PST661	Polymeric Biomaterials	3(3,0)	
85	PST754	Polymers Surfaces and Interfaces	3(3,0)	
86	PST724	Polymer Process Machinery Technology	3(3,0)	
87	PST629	Polymer Textile Fibers	3(3,0)	
88	PST631	Polymer Chemistry	3(3,0)	
89	PST655	Special Topics in Polymer Science and Technology	0(0,0)	
90	MME611	Nano-materials	3(3,0)	
91	MME651	Corrosion Engineering	3(3,0)	
92	MME616	Advanced Materials Science	3(3,0)	
93	MME641	Surface Engineering	3(3,0)	
94	MME621	Materials for Solar Energy	3(3,0)	
95	MME622	Materials for Energy and Environment	3(3,0)	
96	MME612	Fracture, Creep, and Fatigue of Materials	3(3,0)	
97	MME613	Metals and Alloys	3(3,0)	
98	MME614	Thin Film Processing and Characterization	3(3,0)	
99	MME615	Advanced Ceramics and Composites	3(3,0)	
100	MME617	Superalloys and High Performance Materials	3(3,0)	
101	MME618	Product Design and Development	3(3,0)	
102	MME631	Biological Materials	3(3,0)	
103	MME619	Materials for Sensors and Electronics	3(3,0)	
104	MME661	Special Topics in Materials Engineering	0(0,0)	
105	ENE611	Nanotechnology and Energy	3(3,0)	
106	ENE621	Air Pollution Control	3(3,0)	
107	ENE622	Water and Wastewater Treatment	3(3,0)	
108	ENE613	Renewable Energy Technologies	3(3,0)	
109	ENE612	Clean Coal Technologies	3(3,0)	
110	ENE623	Solid Waste Management	3(3,0)	
111	ENE731	Energy and Environmental Policies	3(3,0)	
112	ENE714	Advanced Energy Engineering	3(3,0)	
113	ENE715	Waste to Energy	3(3,0)	
114	ENE624	Environmental Pollution Control	3(3,0)	
115	ENE732	Special Topics in Energy and Environment	0(0,0)	
116	ENV753	Climate Change and Global Politics	3(3, 0)	
117	ENV751	International Environmental Governance	3(3, 0)	
118	ENV605	Environmental Impact assessment	3(3, 0)	
119	ENV606	Environmental Policies, Planning and Laws	3(3, 0)	
120	ENV622	Waste Water Treatment	3(3, 0)	