



THE BEGUM NUSRAT BHUTTO WOMEN UNIVERSITY, SUKKUR

Scheme of Studies

BS Chemistry (4 Years)

Course Code	First Year	Credit Hours	Pre-Requisites
	First Semester		
ECC101	English composition & comprehension	3+0	None
PST-101	Ideology & Constitution of Pakistan	2+0	None
SSC102	Introduction to Philosophy	2+0	None
NSC101 / MTH104	Introduction to Biology / College Mathematics I	3+0	None
ICH101	Inorganic Chemistry I	3+1	None
	Credit hours	14	
	Second semester		
ISL101/ ETH101	Islamic Studies / Ethics	2+0	None
ITC101	Introduction to information & communication technologies	2+1	None
MOB201 /MTH105	Molecular Biology / College Mathematics II	3+0	None
BST301	Biostatistics	3+0	None
OCH101	Organic Chemistry I	3+1	None
	Credit Hours	15	

Course Code	Second Year	Credit Hours	Pre-Requisites
	Third Semester		
TWP201	Technical Writing & Presentation Skills	3+0	None



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SSC101	Sociology	3+0	None
PHY101	Physics I	3+0	None
ENV 201	Environmental Chemistry I	3+0	None
PCH201	Physical Chemistry I	3+1	None
	Credit Hours	16	
	Fourth Semester		
BSP301	Behavioral Sciences (Psychology & Ethics)	3	None
ACH201	Analytical Chemistry & Instrumentation I	3+1	None
CHM201	Applied Chemistry I	3	None
BCH201	Biochemistry I	3	
	Credit Hours	16	

Course Code	Third Year	Credit Hours	Pre-Requisites
	Fifth Semester		
ICH301	Inorganic Chemistry II	3+1	None
OCH301	Organic Chemistry II	3+1	None
PCH301	Physical Chemistry II	3+1	None
ACH301	Analytical Chemistry & instrumentation II	3+1	None
	Credit Hours	16	
	Sixth Semester		
ICH302	Inorganic Chemistry III	3+1	None



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OCH302	Organic Chemistry III	3+1	None
PCH302	Physical Chemistry III	3+1	None
ACH302	Analytical Chemistry III	3+1	None
	Credit Hours	16	

1. Inorganic Chemistry (Fourth Year)

Semester VII

Course Code	Subject	Credit Hours
ICH401	Advanced Inorganic Chemistry-I	3+0
ICH402	Advanced Inorganic Chemistry-II	3+0
ICH403	Advanced Inorganic Chemistry-III	3+0
ICH411	Advanced Inorganic Lab-I	0+2
CHM401	Applied Engineering Chemistry	2+0
ICH598	Research/Review report	3
TotalCredit Hours		16

Semester VIII

Course Code	Subject	Credit Hours
ICH404	Advanced Inorganic Chemistry-IV	3+0
ICH405	Advanced Inorganic Chemistry-V	3+0
ICH406	Advanced Inorganic Chemistry-VI	3+0
ICH412	Advanced Inorganic Lab -II	0+2
ENV401	Environmental Chemistry II	2+0
ICH599	Research / Review Report	3
TotalCredit Hours		16



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2. Organic Chemistry (Fourth Year)

Semester VII

Course Code	Subject	Credit Hours
OCH401	Advanced Organic Chemistry-I	3+0
OCH402	Advanced Organic Chemistry-II	3+0
OCH403	Advanced Organic Chemistry-III	3+0
OCH598	Advanced Organic Lab -I	0+2
CHM401	Applied Engineering Chemistry-II	2+0
OCH598	Research / Review Report	3
TotalCredit Hours		16

Semester VIII

Course Code	Subject	Credit Hours
OCH404	Advanced Organic Chemistry-V	3+0
OCH405	Advanced Organic Chemistry-VI	3+0
OCH406	Advanced Organic Chemistry-VII	3+0
OCH412	Advanced Organic Lab-II	0+2
ENV401	Environmental Chemistry II	2+0
OCH599	Research / Review Report	3
TotalCredit Hours		16

3. Physical Chemistry (Fourth Year)

Semester VII

Course Code	Subject	Credit Hours
PCH401	Advanced Physical Chemistry-I	3+0
PCH402	Advanced Physical Chemistry-II	3+0
PCH403	Advanced Physical Chemistry-III	3+0
PCH598	Advanced Physical Lab-I	0+2
CHM401	Applied Engineering Chemistry	2+0
OCH598	Research / Review Report	3
TotalCredit Hours		16

Semester VIII

Course Code	Subject	Credit Hours
PCH411	Advanced Physical Chemistry-V	3+0
PCH405	Advanced Physical Chemistry-VI	3+0
PCH406	Advanced Physical Chemistry-VII	3+0
PCH412	Advanced Physical Lab-II	0+2
ENV401	Environmental Chemistry II	2+0
PCH599	Research / Review Report	3
TotalCredit Hours		16

Analytical Chemistry (Fourth Year)



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Semester VII

Course Code	Subject	Credit Hours
ACH401	Advanced Analytical Chemistry-I	3+0
ACH402	Advanced Analytical Chemistry-II	3+0
ACH403	Advanced Analytical Chemistry-III	3+0
ACH598	Advanced Analytical Lab-I	0+2
CHM401	Applied Engineering Chemistry-II	2+0
ACH599	Research / Review Report	3
TotalCredit Hours		16

Semester VIII

Course Code	Subject	Credit Hours
ACH401	Advanced Analytical Chemistry-V	3+0
ACH402	Advanced Analytical Chemistry-VI	3+0
ACH403	Advanced Analytical Chemistry-VII	3+0
ACH598	Advanced Analytical Lab-II	0+2
CHM401	Environmental Chemistry II	2+0
ACH598	Research / Review Report	3
TotalCredit Hours		16

Special Paper I & II 3 (0+0) Departments will offer special papers/courses according to the expertise available. (Each special paper will comprise of 3 credit hours and the codes will be as defined in the curriculum of respective departments).

List of Elective Course

1. Solid State Chemistry	29. Electronics & Chemistry Instrumentation
2. Photochemical Reactions of Transition Metals	30. Polymer Chemistry
3. Applied Transition Metal Catalytic Chemistry	31. Surface Analytical Chemistry
4. Chemistry of Organometallic Compounds	32. Food Analytical Chemistry
5. Inorganic Electronic Spectroscopy	33. Bioanalytical Chemistry
6. Kinetics and Mechanisms of Inorganic Reactions	34. Modern Name Reactions in Organic Synthesis
7. Bio-Inorganic Chemistry	35. A programmed introduction to the synthon approach
8. Extractive Metallurgy	36. Protecting Groups in Organic Synthesis
9. Medicinal Inorganic Chemistry	37. Advanced Stereochemistry
10. Nano Chemistry	38. Nuclear magnetic resonance in organic chemistry
11. Metal Complexes in Cancer Chemotherapy	39. Chemistry of Isoprenoids, Steroids and Glycosides
12. Inorganic Cage Compounds	40. Computational Chemistry/Molecular Modeling in
13. Photochemistry	



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| <ol style="list-style-type: none">14. Polymers and Advanced Composite Materials15. Advanced Chemical Kinetics16. Group Theory and Symmetry17. Advanced Quantum Chemistry18. Luminescence Spectroscopy19. Radio and Nuclear Chemistry20. Computational Chemistry21. Colloidal Chemistry22. Chemistry of Supra-molecules in Physical Chemistry23. Green Chemistry24. Atomic Spectroscopy25. Differential Scanning Calorimetry and Thermo Gravimetry26. Electroanalytical Techniques27. Environmental Chemistry28. Mass Spectrometry in Analytical Chemistry | <ol style="list-style-type: none">41. Organic Chemistry42. Chemistry of Organometallic Compounds43. Reactive Intermediates in Organic Chemistry44. Pericyclic Reactions45. Special Topics in Organic Chemistry46. Medicinal ChemistryAnd etc. |
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