Mangalore University

Department of Studies in Chemistry

M. Sc. Degree Programmes

(CHOICE BASED CREDIT SYSTEM – SEMESTER SCHEME)

Syllabi for M.Sc. Programme in

APPLIED CHEMISTRY

(From the Academic Year 2016-17 onwards)

Mangalore University

M. Sc. Degree Programme in Applied Chemistry:

CHOICE BASED CREDIT SYSTEM (CBCS) SEMESTER SCHEME

C O U R S E P A T T E R N AND S C H E M E OF E X A M I N A T I O N

(Year 2016-2017 onwards)

PREAMBLE

Revision of Syllabi for the Two years Master Degree (Choice Based Credit System-Semester Scheme) Programmes in Chemistry, Applied Chemistry, Organic Chemistry and Analytical Chemistry.

PG BOS in Chemistry has revised and prepared the Syllabi (CBCS based) for all the Four Courses -Chemistry, Applied Chemistry, Organic Chemistry and Analytical Chemistry in its meeting held on 24th July 2014 and the University implemented it from the same academic year. Now the University has asked the PG BOS in Chemistry to revise the syllabi by giving certain Guidelines (Ref:-No: MU/ACC/CR.38/ CBCS (PG)/2015-16 dt.05-05-2016 bse on UGC letter) for all the four Courses (Programmes) to offer Hard Core, Soft Core and Open Elective course papers with credits to each course amounting to 92 credits for the entire programme.

Accordingly, the PG BOS in Chemistry prepared the syllabi for all the four programmes. It has prepared course pattern by proposing 12 Hard Core theory courses (3 in each semester) and 5 practical courses (in 3rd and 4th semester), one Project work (in 4th Semester with 4 credits)with a provision to have One Project Work in lieu of one of the practicals in 4th semester in each programme with 3 credits each(project work - 4 credits) with total of **55 Credits**). BOS is offering 3, 2, 2 and 3 (Total 10 courses) Soft core courses respectively in 1st , 2nd, 3rd and 4th semesters of a programme. Student shall opt any 2, 1, 1 and 2(Total 6 courses) courses respectively in 1st , 2nd , 3 rd, 4th Semesters. All the soft core papers are of 3 credits. Programme consists of 6 Soft Core practical courses (3 courses each in 1st and 2nd semesters of the Programme with 2 credits each) with a total of **30 credits** (6 theory x 3 credits + 6 practicals x 2 credits). BOS has also proposed 2 open electives (1 each in 2nd& 3rd Semesters of the programme) with 3 credits each (**6 credits)**. All together **total credits** come to 91from teaching. I have prepared a draft course pattern by considering all the points mentioned in the above said letter from the Registrar and placing it before the BOS meeting.

Detailed syllabi for 1st and 2nd Semesters are prepared and enclosed, whereas the syllabi for the 3rd and 4th Semesters will be prepared in forthcoming BOS meeting.

Course/credit pattern:

Semester Credits	Hard Core(H)(T)	Soft Core (S)(T)	Elective E)(T)	Practical	Tutorial	Total Credits
First	9	6	--	6 (S)	--	21
Second	9	3	3	6 (S)	--	21
Third	9	3	3	9 (H)	--	24
Fourth	9	6	--	10(H)	--	25
Total	36	18	6*	12(S) + 19(H)	--	91

Total Credits from all the Four Semesters (1st , 2nd , 3rd and 4th) : 21+21+24+25 = 91

Total Hard Core credits = 36 (T) + 19 (P) = 55 = 60.4%

Total Soft Core credits = 18 (T) + 12(P) = 30 = 33.0%

*Open Elective Credits = 6 = 6.6% (Not to considered for calculating the CGPA) H= Hard Core, S= Soft Core, P =Pratical/Project

Consolidated Course Code and Title
Programme: M.Sc. in Applied Chemistry

1st Semester **2nd Semester**

Course Code	Course Title	Course Code	Course Title
AC H 401	Inorganic Chemistry	AC H 451	Advanced Inorganic Chemistry
AC H 402	Organic Chemistry	AC H 452	Advanced Organic Chemistry
AC H 403	Physical Chemistry	AC H 453	Advanced Physical Chemistry
AC S 404 Or AC S 405	Inorganic Spectroscopy and Analytical Techniques Or Environmental Chemistry	AC S 454 Or AC S 455	Organic Spectroscopic Techniques Or Chemistry of Bio-molecules
AC S 406	Molecular Spectroscopy and Diffraction Techniques	AC E 456	Environmental, Electro- and Polymer Chemistry
AC P 407	Inorganic Chemistry Practicals-1	AC P 457	Inorganic Chemistry Practicals-II
AC P 408	Organic Chemistry Practicals-1	AC P 458	Organic Chemistry Practicals-II
AC P 409	Physical Chemistry Practicals-1	AC P 459	Physical Chemistry Practicals-II

3rd Semester **4th Semester**

AC H 501	Bioinorganic Chemistry	AC H 551	Coordination Chemistry
AC H 502	Synthetic Reagents and Heterocyclic Chemistry	AC H 552	Synthetic & Natural Product Chemistry
AC H 503	Polymers & Photo Chemistry	AC H 553	Solid State Chemistry & Nanomaterials
AC S 504 Or AC S 505	Organometallic Chemistry Or Inorganic Photochemistry	AC S 554	Synthetic Polymers, Dyes and Pesticides
AC E 506	Analytical and Green Chemistry	AC S 555 Or AC S 556	Applied Electrochemistry Or Reaction Kinetics & Nuclear Chemistry
AC P 507	Inorganic Chemistry Practicals-III	AC P 557	Inorganic Chemistry Practicals-IV
AC P 508	Organic Chemistry Practicals-III	AC P 558	Physical Chemistry Practicals-IV
AC P 509	Physical Chemistry Practicals-III	AC P 559	Project Work & Dissertation

Detailed distribution of Course & Credits:

Programme: **Chemistry:**

1st Semester

Course Code	Course Title	No of UNITs	Evaluation IA + Exam	Teaching hr week	Sem	Exam Hrs	Credits
ACH 401	Inorganic Chemistry	3	30 + 70	3	45	3	3
AC H 402	Organic Chemistry	3	30 + 70	3	45	3	3
AC H 403	Physical Chemistry	3	30 + 70	3	45	3	3
AC S 404 Or AC S 405	Inorganic Spectroscopy and Analytical Techniques Or Environmental Chemistry	3 3	30 + 70 30 + 70	3 3	36 36	3	3
AC S 406	Molecular Spectroscopy and Diffraction Techniques	3	30 + 70	3	36	3	3
AC P 407	Inorganic Chemistry Practicals-1	4 Hrs	30 + 70	4		4	2
AC P 408	Organic Chemistry Practicals-1	4 Hrs	30 + 70	4		4	2
AC P 409	Physical Chemistry Practicals-1	4 Hrs	30 + 70	4		4	2

Total credits from 1St Semester**: 21** (Hard Core-9, Soft Core-12)

2nd Semester

Course Code	Course Title	No of UNITs	Evaluation IA+ Exam	Teaching hr week	Sem	Exam Hrs	Credits
AC H 451	Advanced Inorganic Chemistry	3	30 + 70	3	45	3	3
AC H 452	Advanced Organic Chemistry	3	30 + 70	3	45	3	3
AC H 453	Advanced Physical Chemistry	3	30 + 70	3	45	3	3
AC S 454 Or AC S 455	Organic Spectroscopic Techniques Or Chemistry of Bio-molecules	3 3	30+70 30 + 70	3 3	36 36	3	3
AC E 456	Environmental, Electro- and Surface Chemistry	3	30 + 70	3	36	3	3
AC P 457	Inorganic Chemistry Practicals-II	4 Hrs	30 + 70	4		4	2
AC P 458	Organic Chemistry Practicals-II	4 Hrs	30 + 70	4		4	2
AC P 459	Physical Chemistry Practicals-II	4 Hrs	30 + 70	4		4	2

3rd Semester

Course Code	Course Title	No of UNITs	Evaluation IA +Exam	Teaching hr week	Sem	Exam Hrs	Credits
AC H 501	Bioinorganic Chemistry	3	30 + 70	3	45	3	3
AC H 502	Synthetic Reagents and Heterocyclic Chemistry	3	30 + 70	3	45	3	3
AC H 503	Polymers & Photo Chemistry	3	30 + 70	3	45	3	3
AC S 504 Or	Organometallic Chemistry	3	30 + 70	3	36	3	
AC S 505	Or Inorganic Photochemistry	3	30 + 70	3	36		3
AC E 506	Analytical & Green Chemistry	3	30 + 70	3	36	3	3
AC P 507	Inorganic Chemistry Practicals-III	6 Hrs	30 + 70	6		6	3
AC P 508	Organic Chemistry Practicals-III	6 Hrs	30 + 70	6		6	3
AC P 509	Physical Chemistry Practicals-III	6 Hrs	30 + 70	6		6	3

Total Credits = **24** (Hard Core-18, Soft Core-3 and Elective-3)

4th Semester

Course Code	Course Title	No of UNITs	Evaluation IA + Exam	Teaching hr week	Sem	Exam hrs	Credits
ACH 551	Coordination Chemistry	3	30 + 70	3	45	3	3
AC H 552	Synthetic & Natural Product Chemistry	3	30 + 70	3	45	3	3
AC H 553	Solid State Chemistry& Nanomaterials	3	30 + 70	3	45	3	3
ACS 554	Synthetic Polymers, Dyes and Pesticides	3	30 + 70	3	36	3	3
AC S 555 Or	Applied Electrochemistry Or	3	30 + 70	3	36	3	
AC S 556	Reaction Kinetics & Nuclear Chemistry	3	30 + 70	3	36		3
AC P 557	Inorganic Chemistry Practicals -IV	6 Hrs	30 + 70	6		6	3
AC P 558	Physical Chemistry Practicals -IV	6 Hrs	30 + 70	6		6	3
AC P 559	Project Work & Dissertation	8 Hrs	30 + 70	8		--	4

Total Credits = **25** (Hard Core-18, Soft Core-6 + Seminar- 1)

Total Credits: 21+21+24+25 = 91.