Sant Gadge Baba Amravati University, Amravati

FACULTY : Science and Technology

Scheme of Teaching, Learning, Examination & Evaluation leading to Two Years PG Degree Master of Science (Chemistry) following Three Years UG Programme wef 2023-24

(Two Years- Four Semesters Master's Degree Programme- NEPv23 with Exit and Entry Option

M.Sc. (Chemistry) First Year Semester- I Level 6.0

S. N.	Subject	Type of Course	Subject Code	Teaching & Learning Scheme							Duration Of Exam Hours	Examination & Evaluation Scheme							
				Teaching Period Per Week				Credits				Maximum Marks					Minimum Passing		
												Theory		Practical		Total Marks			
				L	T	P	Total	L/T	Practical	Total		Theory Internal	Theory +MCQ External	Internal	External		Marks Internal	Marks External	Grade
0	*Pre-Requisite Course(s) if applicable /MOOC / Internship/FieldWork cumulatively If students wish to opt Minor Course ofUG as Major for PG, **balance 12 Credits** Course will have to be completed **(As and when applicable)**	Th-Prq		0	0	0	0	Additional Credits to be earned = (1) minus(2) (1). Credits from MajorDSC Courses in UG (minus) (2).The Credits already earned from the Course as Minor at UG, now to be opted as Major at PG			2	15	35			50	06	14	P
1	Research Methodology and IPR in Chemistry	Th-Major	CHE 100	4			4	4		4	3	40	60			100	16	24	P
2	DSC-I.1 **(Structural Inorganic Chemistry)**	Th-Major	CHE 101	4			4	4		4	3	40	60			100	16	24	P
3	DSC-II.1 **(General Organic Chemistry)**	Th-Major	CHE 102	3			3	3		3	3	40	60			100	16	24	P
4	DSC-III.1 **(Physical Chemistry-I)**	Th-Major	CHE 103	3			3	3		3	3	40	60			100	16	24	P
5	DSE-I /MOOC **(Inorganic/Organic/Physical/ Analytical/Industrial Chemistry)**	Th-Major Elective	CHE 104 (i/ii/iii/iv/v)	4			4	4		4	3	40	60			100	16	24	P
																	Minimum Passing Marks		Grade
6	DSC-II.1 Lab (**Organic Chemistry Lab**)	Pr-Major	CHE 105			4	4		2	2	4			50	50	100	50		P
7	DSC-III.1 Lab **(Physical Chemistry Lab)**	Pr-Major	CHE 106			4	4		2	2	4			50	50	100	50		P
8	# On Job Training, Internship / Apprenticeship; Field projects **Related to Major @ during vacations cumulatively**	Related to DSC		120 Hours cumulatively during vacations of Semester I and II						4*									P*
9	**Co-curricular Courses: Health and wellness, Yoga Education, Sports and Fitness, Cultural Activities, NSS / NCC, Fine / Applied / Visual /Performing Arts During Semester I, II, III and IV**	Generic **Optional**		**90 Hours Cumulatively From Sem I to Sem IV**															
	TOTAL									22						700			

L: Lecture, T: Tutorial, P: Practical/Practicum

Pre-requisite Course mandatory if applicable: **Prq**, Theory : **Th**, Practical/Practicum: **Pr**, Faculty Specific Core: **FSC**, Discipline Specific Core: **DSC**, Discipline Specific Elective: **DSE**, Laboratory: **Lab**, **OJT:** On Job Training: Internship/ Apprenticeship; Field projects: **FP**; **RM:** Research Methodology; Research Project: **RP, Co-curricular Courses: CC**

Note : # On Job Training, Internship/ Apprenticeship; Field projects **Related to Major (During vacations of Semester I and Semester II) for duration of 120 hours mandatory to all the students, to be completed during vacations of Semester I and/or II. This will carry 4 Credits for learning of 120 hours. Its credits and grades will be reflected in Semester II credit grade report.**

Note: **Co-curricular Courses:** In addition to the above, CC also include but not limited to Academic activities like paper presentations in conferences, Aavishkar, start-ups, Hackathon, Quiz competitions, Article published, Participation in Summer school/ Winter School / Short term course, Scientific Surveys, Societal Surveys, Field Visits, Study tours, Industrial Visits, online/offline Courses on Yoga (Yoga for IQ development, Yoga for Ego development, Yoga for Anger Management, Yoga for Eyesight Improvement, Yoga for Physical Stamina, Yoga for Stress Management, etc.). These can be completed cumulatively during **Semester I, II, III and IV. Its credits and grades will be reflected in semester IV credit grade report.**

Sant Gadge Baba Amravati University, Amravati

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(Two Years- Four Semesters Master's Degree Programme- NEPv23 with Exit and Entry Option

M.Sc. (Chemistry) First Year Semester- II [Level 6.0]

S. N.	Subject	Type of Course	Subject Code	Teaching & Learning Scheme							Duration Of Exam Hours	Examination & Evaluation Scheme							
				Teaching Period Per Week				Credits				Maximum Marks					Minimum Passing		
												Theory		Practical		Total Marks			
				L	T	P	Total	L/T	Practical	Total		Theory Internal	Theory +MCQ External	Internal	External		Marks Internal	Marks External	Grade
1	DSC-I.2 **(Physical Chemistry-II)**	Th-Major	CHE 201	4			4	4		4	3	40	60			100	16	24	P
2	DSC-II.2 **(Coordination Chemistry)**	Th-Major	CHE 202	3			3	3		3	3	40	60			100	16	24	P
3	DSC-III.2 **(Basic Analytical Chemistry)**	Th-Major	CHE 203	3			3	3		3	3	40	60			100	16	24	P
4	DSE-II/MOOC ((**Inorganic/Organic/Physical/ Analytical/Industrial Chemistry)**	Th-Major Elective	CHE 204 (i/ii/iii/iv/v)	4			4	4		4	3	40	60			100	16	24	P
																	Minimum Passing Marks		
5	DSC-I.2 Lab **(Inorganic Chemistry Lab)**	Pr-Major	CHE 205			4	4		2	2	3			50	50	100	50		P
6	DSC-II.2 Lab **(Analytical Chemistry Lab)**	Pr-Major	CHE 206			4	4		2	2	3			50	50	100	50		P
7	# On Job Training, Internship/ Apprenticeship; Field projects **Related to Major @ during vacations Cumulatively**	Related to Major		120 Hours cumulatively during vacations of Semester I and II						4*									P*
8	Co-curricular Courses: Health and wellness, Yoga Education, Sports and Fitness, Cultural Activities, NSS / NCC, Fine / Applied / Visual / Performing Arts, During Semester I, II, III and IV	Generic **Optional**		**90 Hours Cumulatively From Sem I to Sem IV**															
				Exit Option with a PG Diploma with 4 Credits On-the-job training/internship in the respective Major subject • **Student has to earn Total minimum 4 Credits cumulatively during Vacations of Semester I and Semester II from internship in order to exit after First Year with PG Diploma (42-44 Credits) after Three Year UG Degree**														
	TOTAL									**18+4* = 22**						**600**			

L: Lecture, T: Tutorial, P: Practical/Practicum

Pre-requisite Course mandatory if applicable: **Prq**, Theory : **Th**, Practical/Practicum: **Pr**, Faculty Specific Core: **FSC**, Discipline Specific Core: **DSC**, Discipline Specific Elective: **DSE**, Laboratory: **Lab**, **OJT:** On Job Training: Internship/ Apprenticeship; Field projects: **FP**; **RM:** Research Methodology; Research Project: **RP, Co-curricular Courses: CC**

Note : # On Job Training, Internship/ Apprenticeship; Field projects **Related to Major (During vacations of Semester I and Semester II) for duration of 120 hours mandatory to all the students, to be completed during vacations of Semester I and/or II.**

This will carry 4 Credits for learning of 120 hours. Its credits and grades will be reflected in Semester II credit grade report.

Note: **Co-curricular Courses:** In addition to the above, CC also include but not limited to Academic activities like paper presentations in conferences, Aavishkar, start-ups, Hackathon, Quiz competitions, Article published, Participation in Summer school/ Winter School / Short term course, Scientific Surveys, Societal Surveys, Field Visits, Study tours, Industrial Visits, online/offline Courses on Yoga (Yoga for IQ development, Yoga for Ego development, Yoga for Anger Management, Yoga for Eyesight Improvement, Yoga for Physical Stamina, Yoga for Stress Management, etc.). These can be completed cumulatively during **Semester I, II, III and IV. Its credits and grades will be reflected in semester IV credit grade report.**

Sant Gadge Baba Amravati University, Amravati
FACULTY : Science and Technology
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(Two Years- Four Semesters Master's Degree Programme- NEPv23 with Exit and Entry Option
M.Sc. (Chemistry) Second Year Semester- III` [Level 6.5]

S. N.	Subject	Type of Course	Subject Code	Teaching & Learning Scheme							Duration Of Exam Hours	Examination & Evaluation Scheme							
				Teaching Period Per Week				Credits				Maximum Marks					Minimum Passing		
												Theory		Practical		Total Marks			
				L	T	P	Total	L/T	Practical	Total		Theory Internal	Theory+ MCQ External	Internal	External		Marks Internal	Marks External	Grade
1	DSC-I.3 **(Contemporary topics in Chemistry)**	**Th-Major**	**CHE 301**	**4**			**4**	**4**		**4**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
2	DSC-II.3 (**Spectroscopy-I**	**Th-Major**	**CHE 302**	**4**			**4**	**4**		**4**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
3	DSC-III.3 (**Physical Organic Chemistry)**	**Th-Major**	**CHE 303**	**3**			**3**	**3**		**3**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
4	DSE-III /MOOC **(Inorganic/Organic/Physical/ Analytical/Industrial Chemistry)**	**Th-Major Elective**	**CHE 304 (i/ii/iii/iv/v)**	**3**			**3**	**3**		**3**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
																	Minimum Passing Marks		
5	Lab 5 (**based on DSC I.3, II.3 and III.3)**	**Pr-Major**	**CHE 305**			**4**	**4**		**2**	**2**	**6**			**50**	**50**	**100**	**50**		**P**
6	Lab 6 **(based on DSE III)**		**CHE 306**			**4**	**4**		**2**	**2**	**6**			**50**	**50**	**100**	**50**		
7	**Lab 7 Research Project Phase-I**	**Major**	**CHE 307**		**2**	**4**	**6**	**2**	**2**	**4**	**3**			**50**	**--**	**50**	**25**		**P**
8	Co-curricular Courses: Health and wellness, Yoga Education, Sports and Fitness, Cultural Activities, NSS/NCC, Fine /Applied / Visual /Performing Arts During Semester I, II, III and IV	Generic **Optional**		**90 Hours Cumulatively From Sem I to Sem IV**															
	TOTAL									**22**						**650**			

L: Lecture, T: Tutorial, P: Practical/Practicum
Pre-requisite Course mandatory if applicable: **Prq**, Theory : **Th**, Practical/Practicum: **Pr**, Faculty Specific Core: **FSC**, Discipline Specific Core: **DSC**, Discipline Specific Elective: **DSE**, Laboratory: **Lab**, **OJT:** On Job Training: Internship/ Apprenticeship; Field projects: **FP**; **RM:** Research Methodology; Research Project: **RP, Co-curricular Courses: CC**

Note: **Co-curricular Courses:** In addition to the above, CC also include but not limited to Academic activities like paper presentations in conferences, Aavishkar, start-ups, Hackathon, Quiz competitions, Article published, Participation in Summer school/ Winter School / Short term course, Scientific Surveys, Societal Surveys, Field Visits, Study tours, Industrial Visits, online/offline Courses on Yoga (Yoga for IQ development, Yoga for Ego development, Yoga for Anger Management, Yoga for Eyesight Improvement, Yoga for Physical Stamina, Yoga for Stress Management, etc.). These can be completed cumulatively during **Semester I, II, III and IV. Its credits and grades will be reflected in semester IV credit grade report.**

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M.Sc. (Chemistry) Second Year Semester- IV [Level 6.5]

S. N.	Subject	Type of Course	Subject Code	Teaching & Learning Scheme							Duration Of Exam Hours	Examination & Evaluation Scheme							
				Teaching Period Per Week				Credits				Maximum Marks					Minimum Passing		
												Theory		Practical		Total Marks			
				L	T	P	Total	L/T	Practical	Total		Theory Internal	Theory+ MCQ External	Internal	External		Marks Internal	Marks External	Grade
1	DSC-I.4 **(Principles of Organic Synthesis)**	**Th-Major**	**CHE 401**	**4**			**4**	**4**		**4**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
2	DSC-II.4 (Spectroscopy-II)	**Th-Major**	**CHE 402**	**3**			**3**	**3**		**3**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
3	DSC- III.4 **(Separation Techniques)**	**Th-Major**	**CHE 403**	**4**			**4**	**4**		**4**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
4	DSE-IV /MOOC **(Inorganic/Organic/Physical/ Analytical/Industrial Chemistry)**	**Th-Major Elective**	**CHE 404 (i/ii/iii/iv/v)**	**3**			**3**	**3**		**3**	**3**	**40**	**60**			**100**	**16**	**24**	**P**
																	Minimum Passing Marks		
5	Lab 8 **(based on DSC I..4,II.4 and III.4)**		**CHE 405**			**4**	**4**		**2**	**2**	**3**			**50**	**50**	**100**	**50**		**P**
6	**Lab 9 Research Project Phase-II**	**Major**	**CHE 406**		**2**	**8**	**10**	**2**	**4**	**6**	**3**			**75**	**75**	**150**	**75**		**P**
7	**Co-curricular Courses: Health and wellness, Yoga Education, Sports and Fitness, Cultural Activities, NSS / NCC, Fine / Applied / Visual / Performing Arts During Semester I, II, III and IV**	Generic **Optional**		**90 Hours Cumulatively From Sem I to Sem IV**															
	TOTAL									**22**						**650**			

L: Lecture, T: Tutorial, P: Practical/Practicum

Pre-requisite Course mandatory if applicable: **Prq**, Theory : **Th**, Practical/Practicum: **Pr**, Faculty Specific Core: **FSC**, Discipline Specific Core: **DSC**, Discipline Specific Elective: **DSE**, Laboratory: **Lab**, **OJT:** On Job Training: Internship/ Apprenticeship; Field projects: **FP**; **RM:** Research Methodology; Research Project: **RP, Co-curricular Courses: CC**

Note: **Co-curricular Courses:** In addition to the above, CC also include but not limited to Academic activities like paper presentations in conferences, Aavishkar, start-ups, Hackathon, Quiz competitions, Article published, Participation in Summer school/ Winter School / Short term course, Scientific Surveys, Societal Surveys, Field Visits, Study tours, Industrial Visits, online/offline Courses on Yoga (Yoga for IQ development, Yoga for Ego development, Yoga for Anger Management, Yoga for Eyesight Improvement, Yoga for Physical Stamina, Yoga for Stress Management, etc.). These can be completed cumulatively during **Semester I, II, III and IV. Its credits and grades will be reflected in semester IV credit grade report.**

Table: Comprehensive Credits distribution amongst the type of Courses over Two Years (Four Semesters) PG Programme and Minimum Credits to be earned for PG Degree [M.Sc. (Chemistry)]

Sr. No.	Type of Course		Total Credits Offered	Minimum Credits Required
1	**MAJOR**			
	i. DSC	**56**		**56**
	ii. DSE	**16**		**16**
		TOTAL	**72**	**72**
2	**Research Methodology and IPR (FSC/DSC: Major)**	**04**	**04**	**04**
2	On Job Training, Internship/ Apprenticeship; Field projects **Related to Major**	**04**	**04 for 120 Hours OJT/FP cum.**	**02 (Minimum 60Hours OJT / FP is mandatory)**
3	**Research Project**	**10**	**10**	**10**
	OPTIONAL			
4	**Co-Curricular Courses (offline and/or online as applicable): Co-curricular Courses: Health and wellness, Yoga Education, Sports and Fitness, Cultural Activities, NSS/NCC, Fine/Applied/Visual/Performing Arts,** CC also include but not limited to Academic activities like paper presentations in conferences, Aavishkar, start-ups, Hackathon, Quiz competitions, Article published, Participation in Summer school/ Winter School / Short term course, Scientific Surveys, Societal Surveys, Field Visits, Study tours, Industrial Visits, online/offline Courses on Yoga (Yoga for IQ development, Yoga for Ego development, Yoga for Anger Management, Yoga for Eyesight Improvement, Yoga for Physical Stamina, Yoga for Stress Management, etc.).		**Limited to Maximum 03 only** **(For 90 Hours of CC cumulatively)**	**00**
	TOTAL			
		TOTAL	**93**	**88**

Table A: Comprehensive Credit Distribution for CC

S. N.	Activities (offline/online as applicable)	Credits at Levels						Letter Grade
		College	University	State	Zone if exist	National	International if exist	
1	Health and wellness, Yoga* Competitions *If a Course (online/offline) on Yoga is completed for 60 Hours, 2 credits will be awarded to the student (1 Credit = 30 Hours)	1	2	3	4	5	6	P (Pass)
2	Unnat Bharat Abhiyan [UBA]	1	2	3	4	5	6	P (Pass)
3	Sports and fitness activities (see separate **Table B**)	1	1 / 2	2 / 3	3 / 4	4 / 5	5 / 6	P (Pass)
4	Cultural activities, Fine/Applied/Visual/Performing Arts	1	2	3	4	5	6	P (Pass)
5	N.S.S. activities Camps	1	2	3	4	5	6	P (Pass)
6	Academic activities like Research Paper/Article/Poster presentations, Aavishkar, start-up, Hackathon, Quiz competitions, other curricular, co-curricular activities, students exchange programme etc. Research Paper/Article published	1 --	2 1	3 2	4 -	5 4	6 6	P (Pass) P (Pass)
7	Participation in Summer school/ Winter School / Short term course (not less than 30 hours 1 or 2 weeks duration) (not less than 60 hours 2 or 3 weeks duration) Scientific Surveys, Societal Surveys Field Visits, Study tours, Industrial Visits,	2 Credits 4 Credits 2 Credits 1 Credit						P (Pass) P (Pass) P (Pass) P (Pass)
8	NCC Activities	As given in **Table C**						

Table B: Credit Distribution for Sports and Fitness

Sr. No.	Particulars of Sports Status (Individual/ Team)	Credits	Letter Grade
1	College Level Participation	1	P (Pass)
2	University Level Participation	1	P (Pass)
3	University Level Rank 1, 2, 3	2	P (Pass)
4	State Level Participation	2	P (Pass)
5	State Level Rank 1, 2, 3	3	P (Pass)
6	Zonal Level Participation	3	P (Pass)
7	Zonal Level Rank 1, 2, 3	4	P (Pass)
8	National Level Participation	4	P (Pass)
9	National Level Rank 1, 2, 3	5	P (Pass)
10	International Level Participation	5	P (Pass)
11	International Level 1,2,3	6	P (Pass)

Table C: Credit Distribution for NCC activities

Sr. No.	Particulars of NCC Activities	Credits	Letter Grade
1	Participation in NCC activities	1	P (Pass)
2	'B' Certificate obtained	2	P (Pass)
3	'C' Certificate obtained	3	P (Pass)
4	State Level Participation	4	P (Pass)
5	National level Participation	5	P (Pass)
6	International Level Participation	6	P (Pass)