

PROGRAMME PROJECT REPORT (PPR)

M.Sc. CHEMISTRY

(A) Programme, Mission & Objectives-

Mission-

The Department of Chemistry at the University is dedicated to maintaining a reputation as an outstanding department on the basis of the rigorous curriculum, the quality of research conducted with bachelors and master-level students, and the caliber of its graduates. The department values teaching and research as equal and essential components of the education of our students and seeks to integrate research with teaching at every possible opportunity in the curriculum.

Objectives-

The Department offers UG & PG degrees in chemistry. Our graduates are expected to become articulate and creative individuals ready for careers or graduate studies in chemistry. To achieve this goal, all students involved in our programs should-

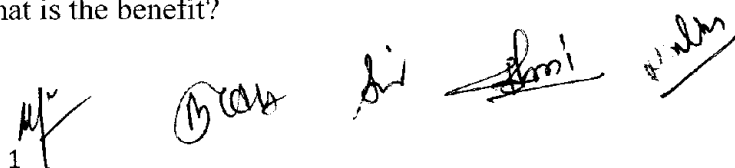
- Develop an understanding of the physical and chemical behaviour of matter, including the chemical basis of biological phenomena.
- Acquire mastery of the basic concepts of analytical, inorganic, organic and physical chemistry.
- Develop a knowledge of how to setup, and how to operate, various scientific apparatus used in the study of chemistry.
- Learn how to obtain and interpret data from various scientific instruments.
- Develop an ability to think logically and clearly, to articulate their thoughts, and to critically evaluate experimental data and the scientific literature.

(B) Relevance of programme with HEIs Mission and Goals-

The importance of an organization to develop a vision, mission, and values is important for strategic direction. Without the individual foundations of strong values illustrated by a vision to be undertaken by a mission, an organization cannot become an overly successful organization. Without developing a mission, vision, and values to assist in developing a strategy, an organization cannot identify, distinguish or explain itself to its employees and customers alike.

The Mission Statement-

A mission statement is important for an organization because it allows the organization to differentiate itself from competitors by answering three key questions- What do we do, for whom do we do it, and what is the benefit?

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The Vision Statement-

A vision statement describes how the future will look if the organization achieves its mission. An organizations vision or preferred future must contain information that is realistic, credible, and attractive for the organization in the future. According to Payne "Strategists try to focus the energies of the workforce on the institute vision". A realistic, credible, and attractive vision statement attracts commitment and energizes people, while creating meaning in workers' lives. In addition, a well thought out vision statement bridges the present with the future while establishing a standard for excellence.

(C) Nature of Prospective target group of learners-

Students who wish to pursue a more specialized course of study and become more competitive in their fields of employment may choose to get a Masters degree in a Chemistry field. These degrees can be obtained after undergraduate study, and generally take three years to complete. A Master of Science can generally be completed either in the classroom or through online study.

Post-graduate education in chemistry is generally pursued by students who have an undergraduate degree in the same field. However, a M.Sc. in Chemistry is often more specialized, allowing students to pursue a specific type or area in the field of chemistry.

Many top research and teaching positions require students to have at least a M.Sc. Chemistry in order to be considered. A Masters degree is also a gateway to all other types of post-graduate work, including a Doctoral degree in the field. Additionally, postgraduate students in chemistry often have access to equipment and facilities that are not available to those doing undergraduate work.

Most people with a M.Sc. Chemistry pursue careers in research, teaching, laboratory work, or medicine. The degree can also be useful for some engineers and people who work in industry, as well as people interested in certain areas of environmental science.

(D) Appropriateness of programme to be conducted in open and distance learning mode to acquire specific skills and competence-

One can explore and conquer greater heights in the realm of higher education without directly attending college or university. Distance learning allows one to widen their knowledge base and achieve success without moving to universities or colleges in distant lands or leaving your job.

Distance education provides a golden opportunity to balance education and Career without sacrificing any of the one.

Distance education helps them in earning a higher educational degree without altering or disrupting their work related assignments. Distance education can pave a way road for career advancements and promotions very easily.

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In India there has been a rapid expansion of campus centric higher education system in terms of number of institutions, student enrollments, growth rate etc. in the previous three decades and the same is visible in open and distance education (ODE). The system has undergone a unique transformation from an elitist to an egalitarian one. Therefore, all sections of the society have benefitted as a result of added access. However, the disparities between the disadvantaged and non disadvantaged groups have widened. Ours is a country with "eco-politico-socio" diversities, which also exist on the cultural, religious and geographical basis. The diversities resulted into psychological division among the people due to inequality of opportunities. Thus the line between the privileged and less privileged becomes more visible throwing a few social classes out of mainstream.

Our university observed and stated, "One of the important social objective of education is to equalize opportunities enabling the backward and rural classes and individuals to use education as a lever for the improvement of their conditions. Every society that values social justice and is anxious to improve the lot of talent must ensure equality of opportunity to all sections of society".

(E) Instructional Design-

Curriculum Design, Detailed Syllabi & Duration of Program-

M.Sc. Chemistry program offered in Institute of Open & Distance Education for the period of 24 months (2 years). It offers specialization to be opted by student in 2nd year of programs. Specialization (elective paper) as given in scheme.

Credit Points-

All courses offered by us carry a certain value in terms of credit-points. A credit point is a way of expressing the learning hours required to study a certain unit, in a book or a course. Generally, one credit point is considered equivalent to about 30 learning hours. These learning hours could mean the time you spend in face to face counseling, self study, practical, assignment, project, participating in discussions on the topic, listening to audios, viewing especially prepared videos, etc. Programme structure for M.Sc. chemistry are clearly mention below-

MASTER OF SCIENCE (M.Sc.) – CHEMISTRY

Course Code	Name of the Course	Credit	Total Marks	Theory		Practical/Project Report		Assignments/Viva Vice	
				Max	Min	Max	Min	Max	Min
First Semester									
1MSC1	Inorganic Chemistry.-I	3	100	70	25			30	11
1MSC2	Organic Chemistry.-I	3	100	70	25	-	-	30	11
1MSC3	Physical	3	100	70	25			30	11

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	Chemistry-I								
1MSC4	Analytical Chemistry-I	3	100	70	25	-	-	30	11
1MSC5	Lab-Inorganic Chemistry.-I	2	100			70	25	30	11
1MSC6	Lab-Physical Chemistry.-I	2	100			70	25	30	11
		16	600	280	112	140	56	180	72
Second Semester									
2MSC1	Inorganic Chemistry - II	3	100	70	25	-	-	30	11
2MSC2	Organic Chemistry.- II	3	100	70	25			30	11
2MSC3	Physical Chemistry-II	3	100	70	25	-	-	30	11
2MSC4	Analytical Chemistry-II	3	100	70	25			30	11
2MSC5	Lab-Organic Chemistry.- II	2	100			70	25	30	11
MSC6	Lab-Analytical Chemistry-II	2	100			70	25	30	11
Total		16	600	280	112	140	56	180	72
Third Semester									
3MSC1	Application of Spectroscopy	3	100	70	25			30	11
3MSC2	Bio-organic & Bio-inorganic Chemistry	3	100	70	25			30	11
3MSC3	Elective-I	3	100	70	25	-	-	30	11
3MSC4	Elective-II	3	100	70	25	-	-	30	11
3MSC5	Lab General	2	100			70	25	30	11
3MSC6	Lab Special	2	100			70	25	30	11
		16	600	280	112	140	56	180	72
Fourth Semester									
4MSC1	Environmental Chemistry	3	100	70	25	-	-	30	11
4MSC2	Photo	3	100	70	25	-	-	30	11

	Chemistry & Solid State Chemistry								
4MSC3	Elective-III	3	100	70	25	-	-	30	11
4MSC4	Elective-IV	3	100	70	25	-	-	30	11
4MSC5	Project Work	4	200	-		140	50	60	22
		16	600	280	112	140	56	180	72

ELECTIVE PAPERS FOR III & IV SEMESTER

Organic Chemistry	Elective-I	Applied Organic Chemistry
Organic Chemistry	Elective-II	Drug and Heterocyclic Compd.
Inorganic Chemistry	Elective-I	Chemistry of Inorganic Materials
Inorganic Chemistry	Elective-II	Co-ordination Chemistry
Physical Chemistry	Elective-I	Advanced Chemical Kinetics
Physical Chemistry	Elective-II	Electro Chemistry
Organic Chemistry	Elective-III	Chemistry of Natural Products
Organic Chemistry	Elective-IV	Stereo Chemistry
Inorganic Chemistry	Elective-III	Separation Science
Inorganic Chemistry	Elective-IV	Organometallic Chemistry
Physical Chemistry	Elective-III	Surface Chemistry
Physical Chemistry	Elective-IV	Chemistry of Materials

Evaluation Scheme -

1. 36% in each theory, practical, project, dissertation & internal assessment but the total Aggregate for passing is 40%.
2. Total project mark is 200 in which 140 marks for project report and 60 marks will be for project viva.

Duration-

This programme has duration of two years although student may complete the programme gradually within a maximum period of five years.

Medium-

English/Hindi shall be the medium of instruction and the examination may be written in Hindi or English.

Requirement of faculty and support staff-

For M.Sc. Chemistry programme we have two faculty members (full time-dedicated for ODL courses) has the level of Associate and Assistant Professor. Supporting staffs will be deputed at the learner support centre as per need of the course curriculum.

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Instructional delivery Mechanism & Usage of media for distance learning-

The methodology of instruction in the distance learning mode in the University is different from that of the conventional regular programs. The system adopted for this is more learner-oriented and the learner is an active participant in the pedagogical (teaching & learning) process. Most of the instructions are imparted through distance education methodology and face-to-face mode as per requirement.

The programme delivery methodology used in the distance learning mode follows a multimedia approach for instruction, which comprises-

- **Self-Instructional Written Material-** The printed study material (written in self instructional style) for both theory and practical components of the programs is supplied to the learners in batches for every course.
- **Audio-Visual Material Aids-** The learning package contains audio and video CDs which have been produced/adopted by the University for Better Clarification and enhancement for understanding of the course material given to the learners. A video programme is normally of 25-30 minutes duration. The video cassettes are screened at the learner support centre during specific sessions which are duly notified for the benefit of the learners.
- **Counseling Session-** Normally counseling sessions are held as per schedule drawn by the IODE DR. CV RAMAN UNIVERSITY. These are mostly held outside the regular working hours of the learner support centre.
- **Teleconferences-** Live teleconferencing sessions are conducted via Internet/satellite through interactive Video Conferencing facility (available at some places) from the University studios, the schedule of which is made available at the learner support centre.
- **Industrial Training/ Practical's/ Project Work-** Some programmes have industrial training/practical/ project component also. Practical's are held at designated institutions for which schedule is provided by the learner support centre. Attendance at practicals is compulsory. For Project Work, comprehensive project guide, in the form of booklet, is provided to the student along with the study material.
- The printed study materials will be dispatched periodically to the enrolled students for each paper of study. These materials will be as guide for the students for effective learning. The assignment for internal assessment shall also be dispatched along with the study material. Online modules are also available for some courses. These are in progress and as and when available, these will be available on the website of the students for registered candidates.
- The counseling sessions will be of 30 days duration for a course in a year. The actual schedule and place of contact program shall be announced and communicated to students in time.

Nature of Contact Classes-

During the contact sessions, the counselors are supposed to guide/discuss with the learners, based on the course material. The learners can solve their difficulties by discussing with their

colleagues as well as with the counselor during contact sessions. A part from this contact sessions, learners will have to attend practical as well as various training schedule conducted by the respective learner support centre.

Learner Support Services-

Dr. C. V. Raman University Institute of Open And Distance Education has a fully fledged Learner Support Division (LSD) to provide guidance and help to its students. Necessary information is passed on to the registered student through modern means of communication as SMS, website and e-mail. For the convenience of learner, computer, photocopy machine, internet, WIFI facilities have also been provided. The learner support division has a web centre and SMS No. 56161 where learner can message their problems and seek answer. Bulk SMS are sent to learners regarding their registration detail, dispatch of study, material time table for contact class, submission of examination forms, examination schedule etc. from time to time. Important information and necessary material are also sent through e-mail and through regular post. University website www.cvru.ac.in also provides information about the various programmes being offered by the institute of open and distance education, the syllabus, assignment, programme guide.

Counseling & Study Structure-

The counseling & study structure for M.Sc. Chemistry programme is as below-

COUNSELING AND STUDY STRUCTURE

Sl.No.	Course Code	Title of the Course	Credit	Total Hours of Study	Face to Face Counseling	Self study	Practical/Project	Assignments
Semester I								
1	1MSC1	Inorganic Chemistry.-I	3	90	12	51		27
2	1MSC2	Organic Chemistry.-I	3	90	12	51		27
3	1MSC3	Physical	3	90	12	51		27
4	1MSC4	Analytical	3	90	12	51		27
5	1MSC5	Lab-Inorganic Chemistry-I	2	60	8		52	
6	1MSC4	Lab-Physical Chemistry	2	60	8		52	
Semester II								
7	2MSC1	Inorganic Chemistry - II	3	90	12	51		27
8	2MSC2	Organic	3	90	12	51		27

9	2MSC3	Physical	3	90	12	51		27
10	2MSC4	Analytical	3	90	12	51		27
11	2MSC5	Lab-Organic Chemistry.-II	2	60	8		52	
12	2MSC6	Lab-Analytical Chemistry-II	2	60	8		52	
Semester-III								
13	3MSC1	Application of	3	90	12	51		27
14	3MSC2	Bio-organic & Chemistry	3	90	12	51		27
15	3MSC3	Elective-I	3	90	12	51		27
16	3MSC4	Elective-II	3	90	12	51		27
17	3MSC5	Lab General	2	60	8		52	
18	3MSC6	Lab Special	2	60	8		52	
Semester-IV								
19	4MSC1	Environmental Chemistry	3	90	12	51		27
20	4MSC2	Photo Chemistry & Solid State Chemistry	3	90	12	51		27
21	4MSC3	Elective-III	3	90	12	51		27
22	4MSC4	Elective-IV	3	90	12	51		27
23	4MSC5	Project Work	4	120	16		104	

(F) Procedure for admissions Curriculum transaction and evaluation-

Admission Policy for M.Sc. Chemistry with minimum eligibility & fee structure-

Admission to M.Sc. Chemistry programme shall be through merit and/or, entrance test as per rules of the university. A candidate after passing graduation with B.Sc. from either mathematics or biology stream of any recognized university and college. All the procedure of admission for the programme will be done through online mode. Application will be invited by the university with it stipulated time period where students have to apply for the same with all their testimonials and required fees.

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Fees-

SI.	Programme	Duration	Fee charged for complete programme
1.	M.Sc. Chemistry	2 Years	32800

Financial Assistance-

E-scholarship is provided to SC/ST students as per norms of the Govt. of Chhattisgarh authorized schemes.

Evaluation system-

The system of evaluation in Open & Distance Learning System is also different from that of conventional system. CVRU has a multi-tier system of evaluation given as follows-

1. Self-assessment exercises within each unit of study.
2. Continuous evaluation mainly through assignment which is tutor marked, practical assignments & seminar/workshops/ extended contact programmes.
3. Term end examinations.
4. Project works.

The evaluation of learners depends upon various instructional activities undertaken by them. A learner has to write assignment responses compulsorily before taking term-end examination from time to time to complete an academic programme. A learner has to submit TMA responses to the learner support centre established by IODE Dr.C.V. Raman University. A learner should keep duplicate copies of assignment responses of TMA that may be required to be produced at Student Evaluation Division on demand. Term-end examination will be conducted at various examination centre approved by institute of open and distance education Dr..C.V. Raman university spread all over the Chhattisgarh. The weightage for Term End Examination will be 70% and weightage for Internal Assessment will be 30% for this programme.

Evaluation Procedure-

(A) Internal Assessment (Continuous Assessment i.e. Home Assignment)- 30% weightage.

(B) Term End Examination - 70% weightage.

Term End Examination	70
Internal Assessment	30
Total Marks	100

The University conducts Term-end Examination in semester system & held in the month of Nov/Dec and May/June every year. Students will be permitted to appear in term-end examination subject to the conditions that-

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- 1) Registration for the courses, in which they appeared is valid.
- 2) Minimum time to pursue these courses is elapsed.
- 3) Submission of required number of assignment in respective courses by the due date.

(C) Project Work

Project work carrying 200 marks has to be done under the guidance of a Project supervisor. Learners have to prepare project report under the guidance of project guide allotted by the university. Viva-voce will be conducted in the presence of an external examiner.

(G) Requirement of the laboratory support and library resource-

Taught the learners in laboratory develop their competency, confidence and practical skill. Our University have well equipped laboratory. The learners are engaged in the laboratory as per the time schedule. Resources in the form of reference books and journal will be made available to the learner in the reference library (IODE) and university central library which they can access for gaining knowledge.

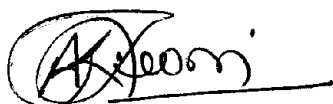
(H) Cost estimates of the programme and the provision-


This programme was already designed and developed in the year 2009-10. In this process of development considering today's scenario, the current cost estimate which includes developmental cost, delivery cost & maintenance cost for this programme comes to amount of Rs.990970 & provision is made of 1000000.

(I) Quality assurance mechanism and expected programme outcomes-

The Centre for Internal Quality Assurance & Board of Studies of the University is accountable for regular monitoring of programme by continuous updating of the curriculum and syllabus. According to feedback provided by stakeholders including learners on continuous basis, a suitable action plan for M.Sc. Chemistry programme will be developed and duly incorporated into the teaching and delivery system. The Feedback from all stakeholders in terms of its relevance and appropriateness in catering to the need of the society, economy and environment are also considered in these key aspects. "At the end of the programme expected outcomes"-

- To acquired a general knowledge, principles and mechanisms of chemistry.
- To acquired a basic knowledge of subject.
- To acquired techniques relevant of subjects taught.
- To provide the practical expose and knowledge acquiring skill.
- To crate and develop the presentation skill in seminar/conferences.
- To develop skill to e-library software and internet resources independently.


(Anand Tiwari)

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(Gaurav Shukla)


(D R P Dahiya)