YEARLY STATUS REPORT - 2020-2021

Part A	
Data of the Institution	
1.Name of the Institution	Govt Rajmohini Devi Girls PG College, Ambikapur
• Name of the Head of the institution	Dr Jyoti Sinha
• Designation	Principal
• Does the institution function from its own campus?	Yes
• Phone no./Alternate phone no.	07774235266
• Mobile no	9826879840
• Registered e-mail	ggpgcollege.ambikapur1@gmail.com
• Alternate e-mail	ggpgcollege.ambikapur@rediffmail.com
• Address	Near New Bus Stand Ambikapur
• City/Town	Ambikapur
• State/UT	Chhattishgarh
• Pin Code	497001
2.Institutional status	
• Affiliated /Constituent	Affiliated
• Type of Institution	Women
• Location	Urban

• Financial Status	UGC 2f and 12(B)
• Name of the Affiliating University	Sant Gahira Guru Surguja University Ambikapur
• Name of the IQAC Coordinator	Dr Akhilesh Kumar Dwivedi
• Phone No.	8319659697
• Alternate phone No.	7693891093
• Mobile	7693891093
• IQAC e-mail address	drakhileshdwivediap@gmail.com
• Alternate Email address	ggpgcollege.ambikapur@rediffmail.com
3.Website address (Web link of the AQAR (Previous Academic Year)	http://www.rmdgirlspgcollege.ac.in/alldocuments/908.pdf
4.Whether Academic Calendar prepared during the year?	Yes
• if yes, whether it is uploaded in the Institutional website Web link:	http://www.rmdgirlspgcollege.ac.in/alldocuments/910.pdf

5.Accreditation Details

Cycle	Grade	CGPA	Year of Accreditation	Validity from	Validity to
Cycle 1	C	1.82	2009	08/03/2009	07/03/2014
Cycle 2	B+	2.60	2016	05/11/2016	04/11/2021

6.Date of Establishment of IQAC	10/11/2020

7.Provide the list of funds by Central / State Government UGC/CSIR/DBT/ICMR/TEQIP/World Bank/CPE of UGC etc.,

Institutional/Department /Faculty	Scheme	Funding Agency	Year of award with duration	Amount
NA	NA	NA	NIL	NIL

8.Whether composition of IQAC as per latest NAAC guidelines	Yes

• Upload latest notification of formation of IQAC	View File
9.No. of IQAC meetings held during the year	**09**
• Were the minutes of IQAC meeting(s) and compliance to the decisions have been uploaded on the institutional website?	**Yes**
• If No, please upload the minutes of the meeting(s) and Action Taken Report	No File Uploaded
10.Whether IQAC received funding from any of the funding agency to support its activities during the year?	**No**
• If yes, mention the amount	

11.Significant contributions made by IQAC during the current year (maximum five bullets)

1. Conducting Examination for Regular Students through Assignments Mode. 2. Covid19 Protective Guidelines & Online Teaching Alternatives & Problems Discussion. 3. For Conducting Divisional Level Online Classes for Final Years students due to Covid19 spread. 4. NAAC 3rd Cycle Preparation. 5. Covid19 Vaccination Preparation in the College.

12.Plan of action chalked out by the IQAC in the beginning of the Academic year towards Quality Enhancement and the outcome achieved by the end of the Academic year

Plan of Action	Achievements/Outcomes
1. Committee were made by head of institutes	**Committee members followed and worked in the given committee as per instructions.**
2. Admission plan	**Admissions were given by the admission committee as per total seats allotted on merit basis, Reservation policy was followed as per state government rules.**
3. To prepare time table	**Time table prepared by the time table committee and instructions**

	provided to follow it by all faculty members.
4. To prepare attendance register and daily diary	All teaching faculty the attendance register and daily diary. Students were motivated to attend classes regularly.
5. To conduct extension activities	N.S.S. & Red Cross units & P.G. Departments conducted different extension programs
6. To plan for examination and evaluation	Unit test, Quarterly, Half yearly exam were taken and evaluation reports displayed to the students
7. To conduct youth festival and cultural, sports activities and prize distribution.	Students participated in different competitions with great interests and prizes were provided by the institutes to the merit holders and toppers.
8. To conduct practical timely	Practical were conducted timely and practical records were maintained by the students and evaluated by the teachers.
9. To complete the syllabus in proper time.	All faculty members completed their syllabus timely.
10. To encourage staff for attending and organising webinar/ seminar and participate in faculty development programs.	Half of the faculty organised webinar and all staffs along with students attended International / national webinars. Five teaching staff participated in faculty development
11. To encourage staff and students for online teaching-learning and academic competitions also.	Classes were conducted by Zoom, Google meets, Audio video prepared by all staffs and uploaded in CG portal also.
12. To create environmental awareness.	Plantation campaign organised.
13. To create health awareness during covid-19 for students.	Conducted health awareness for students through webinars.

13.Whether the AQAR was placed before statutory body?	No

- Name of the statutory body

Name	Date of meeting(s)
Nil	Nil

14.Whether institutional data submitted to AISHE

Year	Date of Submission
2020-21	15/02/2022

Extended Profile

1.Programme

1.1 Number of courses offered by the institution across all programs during the year	307

File Description	Documents
Data Template	View File

2.Student

2.1 Number of students during the year	2050

File Description	Documents
Institutional Data in Prescribed Format	View File

2.2 Number of seats earmarked for reserved category as per GOI/ State Govt. rule during the year	647

File Description	Documents
Data Template	View File

2.3 Number of outgoing/ final year students during the year	**683**

File Description	Documents
Data Template	View File

3.Academic

3.1 Number of full time teachers during the year	**15**

File Description	Documents
Data Template	View File

3.2 Number of sanctioned posts during the year	**26**

File Description	Documents
Data Template	View File

4.Institution

4.1 Total number of Classrooms and Seminar halls	**29**
4.2 Total expenditure excluding salary during the year (INR in lakhs)	**150000**
4.3 Total number of computers on campus for academic purposes	**72**

Part B

CURRICULAR ASPECTS

1.1 - Curricular Planning and Implementation

1.1.1 - The Institution ensures effective curriculum delivery through a well planned and documented process

In our institute we are running B.Sc. Biology, Mathematics, & Home

science, B.A. 3 year's degree program and newly 3 year degree course of B. Com. Added, in which central unified syllabus of U.G.C. has been followed. Under B.A. program the course are foundation course which include basics of English language, Hindi language & Environmental studies, under course of environmental studies, all graduate level student in the first year do project work. Topics related to environmental awareness are given by the concerning faculty. Other courses in B.A. arts program are Hindi literature, History, Sociology, Political science, Economics, Home science.

In our institute we are running P.G. program M.Sc. in chemistry Botany, Mathematics, M.Sc. (H. Sc.) in Food & Nutrition & Human development & M.A. in Sociology, Political science, History, Hindi literature. C.B.C.S. system has been introduced in this year 2015; under C.B.C.S. program 3 courses are compulsory i.e. Compulsory course & is OSC i. e. other supportive course in elective courses choice has been given for selection. B.O.S. chairman, BOS members of Sant Gahira Guru University, Ambikapur. University Ambikapur of our institutes has taken part in designing syllabus of CBCS Program. The entire CBCS program has 4 semesters under social outreach course project / study tour / field work is compulsory for all students. In the fourth semester dissertation work is compulsory. 30% of the course is decided by internal assessment i.e. seminar. 70% is external assessment. In science & home science program post graduation, practical of 100 marks in each semester is there all faculty divide the whole syllabus month wise in the lesson plan & complete the course respectively, practice of daily diary writing is followed by is each & every staff it has to be put in front of principal up to study of every month . Practicals are conducted in science & home science program regularly. Practical files are prepared by all students which are checked by concerning faculty. Courses are completed by the faculty members is proper time.

Five faculty members are B.O.S. Chairman, and two faculties are B.O.S. Members of the Sant Gahira Guru University, Ambikapur, Sarguja, C.G.

File Description	Documents
Upload relevant supporting document	View File
Link for Additional information	NA

1.1.2 - The institution adheres to the academic calendar including for the conduct of Continuous Internal Evaluation (CIE)

Govt. R. M. D. Girls P. G. College is affiliated to the Sant Gahira Guru University and college calendar of events is prepared in line with the university calendar and annual academic calendar of Higher Education Chhattisgarh, all events, including weekly working days and holidays, government holidays, internal assessment dates, practical exam dates, workshops schedule, technical seminars schedule, industrial visit dates, PTM schedule, sports day, cultural day, last working day of the semester and get approved in Governing council meeting. Approved calendar of events is circulated to all the staff & students and also uploaded in the college website for information & compliance. The academic calendar of the institute is planned well in advance based on the calendar provided by the Sant Gahira Guru University and Department of Higher Education, Raipur and the same is displayed on the notice boards for the benefit of the students.

The Strategic Perspective Plans prepared by the Departments and other activities are also in sync with the Sant Gahira Guru University Calendar of events. This also takes care of curriculum plans, activities like internship, industrial visits, community activities by departments of the College, besides Continuous Internal Evaluation strategies like tests, assignments, quiz, presentations etc.

- During session 2020-21 various other activities, internal assessment and tests could not be done as per the time table due to covid pandemic.
- The internal assessment of all postgraduate classes conducted by CBCS system was done in online mode.
- During covid pandemic, starting of each internal assessment test, assignments are given to the students for each subject which includes homework, problem solving, Group discussion and quiz through online mode.
- Online webinars are carried out by the students on particular topic in a subject during the respective subject hour.

The laboratory Schedule is prepared by the concerned faculty and batch-wise details are specified in laboratory schedule. Time Table of regular lectures for the semester is prepared as well and displayed on the notice board and website. There is an academic monitoring committee appointed by the Principal who monitors the day- to- day conduct of the lectures based on the time table.

File Description	Documents
Upload relevant supporting document	View File
Link for Additional information	NA

1.1.3 - Teachers of the Institution participate in following activities related to curriculum development and assessment of the affiliating University and/are represented on the following academic bodies during the year. Academic council/BoS of Affiliating University Setting of question papers for UG/PG programs Design and Development of Curriculum for Add on/ certificate/ Diploma Courses Assessment /evaluation process of the affiliating University

A. All of the above

File Description	Documents
Details of participation of teachers in various bodies/activities provided as a response to the metric	View File
Any additional information	View File

1.2 - Academic Flexibility

1.2.1 - Number of Programmes in which Choice Based Credit System (CBCS)/ elective course system has been implemented

1.2.1.1 - Number of Programmes in which CBCS/ Elective course system implemented

9

File Description	Documents
Any additional information	View File
Minutes of relevant Academic Council/ BOS meetings	View File
Institutional data in prescribed format (Data Template)	View File

1.2.2 - Number of Add on /Certificate programs offered during the year

1.2.2.1 - How many Add on /Certificate programs are added during the year. Data requirement

for year: (As per Data Template)

0

File Description	Documents
Any additional information	**No File Uploaded**
Brochure or any other document relating to Add on /Certificate programs	**No File Uploaded**
List of Add on /Certificate programs (Data Template)	View File

1.2.3 - Number of students enrolled in Certificate/ Add-on programs as against the total number of students during the year

0

File Description	Documents
Any additional information	**No File Uploaded**
Details of the students enrolled in Subjects related to certificate/Add-on programs	**No File Uploaded**

1.3 - Curriculum Enrichment

1.3.1 - Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

The Govt. R.M.D. Girls P.G. College runs the courses in Arts, Commerce, Science and Home Science stream. Curriculum is designed by Sant Gahira Guru University, Ambikapur which included various topics/chapters covering cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics. The College took care to focus on these issues. Environmental Studies is a compulsory subject for all under graduate first year students, related to Environment and Sustainability. Similarly, Cross cutting issues relevant to Gender, Human Values and Professional Ethics are covered in the prescribed syllabus of University in various subjects in the form of topics, chapters, poems and co-curricular activities.

Environment and Sustainability about Environment and Sustainability related issues, the students got knowledge of Environmental studies in first year of their degree program. The College took care to inculcate values related to environment and sustainability through

various practices and programs under NSS. The departments conducted following activities.

- Botany department organized Poster Competition, Essay Competition on Ozone Day,
- Home Science Department organized Science Day Celebration
- International Forest day etc. Botany department organized Water Bird Campaign.
- Chemistry department conducted No Vehicle Day, Plastic Eradication, Water Analysis,
- Paper Bag Making and Soil Testing. NSS Units conducted Tree Plantation, Lectures of Experts in this field,
- During lockdown Plantation by the students and staff near their home at large scale
- Swaccha Bharat Abhiyan and Street Plays on the issues of Environment. Physics Department involved in Awareness programme on Renewable Energy Sources and E-waste Management.
- Staff and student participated in disposable glass factory visit with collaboration of Aashirwad Industries.
- Rain water is stored and used as distilled water in Chemistry department.

Gender Equity

The prose, poetry and other chapters in certain courses addressed issues related to gender sensitivity and equity. Additionally, our institute organized special programs on gender equality and sensitization and a series of invited talks.

- Janani Suraksha
- Women Safety Programme
- Guidance lecture for female students
- Programme on Women Empowerment
- Self-Defense training for girls students

The college constituted the following committees for the promotion of gender equity as per norms laid by U.G.C.:

- College Grievance Redressal Committee, Sexual harassment prevention cell, Girls Welfare Committee for the well-being of students and staff in the college. There are separate washroom facilities for girls, female staff and male staff. Washrooms are provided with sanitary napkin vending and disposal machine for the safe and hygienic disposal of sanitary napkins.
- The College step towards waiver of tuition fee for girl

students at the time of admission to any of the academic programmes offered.

- Girl’s candidates are also exempted from the payment of registration fee and also have age relaxation for employment. Female employees also get maternity leave, child care leave and are also entitled to avail leave on adoption of child.
- Students apprised of the gender issues during the Orientation held for newly admitted students each year.
- The College has taken several measures to enhance safety & security on campuses by constituting Grievance Cell, installing CCTV cameras security. Faculty has been directed to keep the door of the lecture hall open during classes.
- The Grievance Cell ensures that posters promoting gender equity & sensitization are placed on the Notice Boards. A Complaint Box is placed outside the office. Telephone / Mobile numbers of the Chairperson and members are made available on the Notice Board of the office and College Website. Strict confidentiality is maintained by the Grievance Cell to encourage the complainant to lodge complaint without fear.
- Counselling is provided to the complainants and the respondents independently by the Grievance Cell. Career guidance & Placement cell also conducted special lectures, mock interviews etc. for career counselling of students.

The IQAC Cell of the College has organised various webinars during covid19 pandemic. On the occasion of National Girls Day at 24.01.2021 the IQAC cell organised lectures with department of sociology and poster presentation with the department of home science. The IQAC Cell has organised lecture on the occasion of International Women’s Day, On the Topic “Women Empowerment and Contemporary Issues” at 08.03.2021.

Human values

Beside the syllabus, the college organized programmes to inculcate human values in students and staffs.

- Blood Donation Camp is regularly organized.
- NSS volunteers are sent for Disaster management so that the students get familiar with their social responsibility.
- NSS unit is very active and regularly arranged social and cultural activities in the college and adopted village.

Professional Ethics

Ethical practices such as truthful information, facts, and

unprejudiced approach are taught in content of syllabus and certificate courses. Career Guidance and Placement Cell and Incubation Centre jointly organized placement activities including training, development of students, aptitude test etc. on a regular basis as per the requirements of industry.

File Description	Documents
Any additional information	View File
Upload the list and description of courses which address the Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum.	View File

1.3.2 - Number of courses that include experiential learning through project work/field work/internship during the year

9

File Description	Documents
Any additional information	View File
Programme / Curriculum/ Syllabus of the courses	View File
Minutes of the Boards of Studies/ Academic Council meetings with approvals for these courses	View File
MoU's with relevant organizations for these courses, if any	View File
Institutional Data in Prescribed Format	View File

1.3.3 - Number of students undertaking project work/field work/ internships

183

File Description	Documents
Any additional information	View File
List of programmes and number of students undertaking project work/field work/ /internships (Data Template)	View File

1.4 - Feedback System

1.4.1 - Institution obtains feedback on the syllabus and its transaction at the institution from the following stakeholders Students Teachers Employers Alumni	**A. All of the above**

File Description	Documents
URL for stakeholder feedback report	http://www.rmdgirlspgcollege.ac.in/student_section.aspx?page=Feedback%20Form&topicid=206
Action taken report of the Institution on feedback report as stated in the minutes of the Governing Council, Syndicate, Board of Management	View File
Any additional information	View File

1.4.2 - Feedback process of the Institution may be classified as follows	**B. Feedback collected, analyzed and action has been taken**

File Description	Documents
Upload any additional information	View File
URL for feedback report	http://www.rmdgirlspgcollege.ac.in/alldocuments/927.pdf

TEACHING-LEARNING AND EVALUATION

2.1 - Student Enrollment and Profile

2.1.1 - Enrolment Number Number of students admitted during the year

2.1.1.1 - Number of students admitted during the year

1033

File Description	Documents
Any additional information	View File
Institutional data in prescribed format	View File

2.1.2 - Number of seats filled against seats reserved for various categories (SC, ST, OBC, Divyangjan, etc. as per applicable reservation policy during the year (exclusive of supernumerary seats)

2.1.2.1 - Number of actual students admitted from the reserved categories during the year

883

File Description	Documents
Any additional information	View File
Number of seats filled against seats reserved (Data Template)	View File

2.2 - Catering to Student Diversity

2.2.1 - The institution assesses the learning levels of the students and organizes special Programmes for advanced learners and slow learners

The students admitted in our college are coming from various economic sections and communities of the society. Most of the students are from backward categories i.e. ST, SC, and OBC. The college is very much aware about their overall growth and social upliftment in the society.

Our college has a fair system for admission process. The students are admitted in our institution without considering caste, creed, and gender, and religion, social and economic status. After the completion of admission process regular classes commence as per the college time table.

After admissions college adopts a process to identify slow and advance learners among students. Advanced learners and slow learners are identified on as per their responses in the class room as well as the performance in the Unit test, internal examinations.

After knowing slow an advanced learner, the teachers prepare separate list of slow and advance learners and conduct extra lectures for weaker students. The teachers observe that whether the students easily understand the lesson. If they fail to understand the topic or teaching of a teacher, the same was having been

explained again in an easy way. This is the informal way to complete the teaching-learning process and it is also convenient to both teacher and students.

Advanced learners are encouraged to ask their concern freely and frequently with the teachers, in a formal way. Students are encouraged to refer advanced textbooks, journals and for their advanced studies. Gold medals are awarded to the toppers in the university convocation.

Home assignment and projects are taken prepared from the Students. They are also encouraged to apply for different competitive examinations.

They are motivated to participate in seminar presentation, Poster presentation, quiz competition etc.

File Description	Documents
Paste link for additional information	NA
Upload any additional information	View File

2.2.2 - Student- Full time teacher ratio (Data for the latest completed academic year)

Number of Students	Number of Teachers
2050	**15**

File Description	Documents
Any additional information	View File

2.3 - Teaching- Learning Process

2.3.1 - Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

The institute organizes workshops role-playing classes and exemplar courses to improve students reading skills. Workshops are organized by departments. The class gives students a sense of real-life. Different similes are used in different subjects that help the learner to make different situations and make a decision.

File Description	Documents
Upload any additional information	View File
Link for additional information	NA

2.3.2 - Teachers use ICT enabled tools for effective teaching-learning process. Write description in maximum of 200 words

2.3.2 - Teachers use ICT enabled tools for effective teaching-learning process. Write description in maximum of 200 words

The availability of Information and Communication Technology undoubtedly allows for new ways of learning for students and teachers and help students to communicate with students video presentation, digital class effects and spreadsheets courseware without the use of ICT tools source as internet, project, presentation etc.

Today it is essential for students to learn and master at latest technology in the order to be corporate Ready. College uses Information and Communication Technology in education to support and optimize the delivery of education. The following tools are used by the college.

ICT Tools:-

1. **Projectors:- 6 Projectors are available at different classroom/labs**
2. **Desktop: - Arranged at computer lab and faculty cabins all over the college.**
3. **Printer:-There are installed at labs, HOD cabins and office.**
4. **Photocopier Machine: - Multifunction printers are available at all prominent places in the college. There are Photostat machine available in College.**
5. **Scanner:-There are three scanners available in the college.**
6. **Seminar rooms:-1 seminar hall are equipped with the digital facilities**
7. **Smart board:- 1 smart board is installed in the college**
8. **Online classes through Google meet zoom etc.**
9. **MOOC Platform:- NPTEL etc.**
10. **Digital library resources.**
11. **Use of ICT by faculty:-**

1. **Video lecture: - recording of video lecture is made available**

to students for long term use.
2. Video conferencing: - students are consulted with the help of Zoom, Google meet applications
3. Industry connect seminar and conference room are digitally equip paid where guest lectures. Expert's talks are regularly organized for students.
4. Power Point Presentation: - Faculties are insured to use PPT in their teaching by using projectors. They are also used equip paid by online search engine and web site to prepare effective presentations.

File Description	Documents
Upload any additional information	View File
Provide link for webpage describing the ICT enabled tools for effective teaching-learning process	View File

2.3.3 - Ratio of mentor to students for academic and other related issues (Data for the latest completed academic year)

2.3.3.1 - Number of mentors

15

File Description	Documents
Upload, number of students enrolled and full time teachers on roll	View File
Circulars pertaining to assigning mentors to mentees	View File
Mentor/mentee ratio	View File

2.4 - Teacher Profile and Quality

2.4.1 - Number of full time teachers against sanctioned posts during the year

15

File Description	Documents
Full time teachers and sanctioned posts for year (Data Template)	View File
Any additional information	View File
List of the faculty members authenticated by the Head of HEI	View File

2.4.2 - Number of full time teachers with Ph. D. / D.M. / M.Ch. /D.N.B Superspeciality / D.Sc. / D.Litt. during the year (consider only highest degree for count)

2.4.2.1 - Number of full time teachers with Ph. D. / D.M. / M.Ch. /D.N.C Superspeciality / D.Sc. / D.Litt. during the year

11

File Description	Documents
Any additional information	View File
List of number of full time teachers with Ph. D. / D.M. / M.Ch./ D.N.B Super specialty / D.Sc. / D.Litt. and number of full time teachers for year (Data Template)	View File

2.4.3 - Number of years of teaching experience of full time teachers in the same institution (Data for the latest completed academic year)

2.4.3.1 - Total experience of full-time teachers

161

File Description	Documents
Any additional information	View File
List of Teachers including their PAN, designation, dept. and experience details(Data Template)	View File

2.5 - Evaluation Process and Reforms

2.5.1 - Mechanism of internal assessment is transparent and robust in terms of frequency and mode. Write description within 200 words.

Mechanism of internal assessment is transparent in terms of frequency and mode transparency initiative at Institute level. There

is a standard process of internal examination in the college. The schedule of the internal examination in decided at the beginning of the session in the format of academic calendar. According to the academic calendar a teacher have to take unit test, which may be in the form of written test, Blackboard presentation PowerPoint presentation, with the subject teacher decided. They can observe their test copies record of obtained mark in written in register. If there in any difference or discrepancy in their mark, it can immediately be corrected. The test copy of the unit test is shown to students for their observations. Some teacher analysis the solution and method of solving the paper in the classroom, especially in mathematics, further the test copy of the one student is allowed to interchange for the observation to other students at the time of distribution of the answer sheet in the classroom. The concerning subject teacher keeps the record of all internal exams in PG classes a student has to attend the internal examination compulsory.

File Description	Documents
Any additional information	View File
Link for additional information	NA

2.5.2 - Mechanism to deal with internal examination related grievances is transparent, time- bound and efficient

A transparent time round and efficient method is follows in terms of dealing with internal examination related grievance various internal examinations are performed throughout the semester. Some of them are unit test, assignments, and lab continuous evolutions, project evolutions etc.

Internal assessments:

After the unit test immediately the solutions as the test along with question wise marking scheme in displayed. The faculty evaluator the papers within a week of conduction of test. The evaluated answer sheet is shown to students in class.

All the end of semester the averages marks of the unit test in calculated and verified with the students. If any descriptions are reported by the students them they are resolve immediately.

Assignment: - faculty evaluates assignments which is also shares with the students. The evaluated assignments are given back to students.

Lab experiments:-

The experiments performed in lab by the students in immediately evaluated by the faculty and the performance marks are assigned. The lab is given in the lab manual which is shared with the students well in advance before the lab is conducted.

Project evaluation:-

In a semester one project in conducted in front of the panel consisting of group of faculties.

File Description	Documents
Any additional information	View File
Link for additional information	NA

2.6 - Student Performance and Learning Outcomes

2.6.1 - Programme and course outcomes for all Programmes offered by the institution are stated and displayed on website and communicated to teachers and students.

GOVERNMENT RAJMOHINI DEVI GIRLS POST GRADUATE COLLEGE, AMBIKAPUR, SURGUJA, CHHATTISGARH-497001

College Code :- 3402

Programme and course outcomes for all Programmes offered by the institution

- **SCIENCE**
- **ART**
- **COMMERCE**
- **HOME SCIENCE**

SCIENCE

DEPARTMENT OF MATHEMATICS

(1) It provides a base for higher studies and refines the brain of students in comparison to other students as study of mathematics helps to increase the act of logical thinking.

(2) Students can apply their knowledge in other branches of study as mathematics find application in every field of knowledge.

(3) Students of science have greater chance of employment e.g. in finance and investment. Teaching, keep up mathematical knowledge in the changing environment of technology.

(4) Study of mathematics enhances personal development. One learns to develop skills and time management.

COURSE OUTCOME

B.Sc. Part One

Calculus:

- **By learning the topics taught in this paper student learns how to tackle problems of successive differentiation in other branches of science. Topics like curvature and curve tracing find applications in a number of research fields. Vector calculus too is very useful in building the concepts of Physics.**
- **In integral calculus student learns to find length, area, volume and surface of revolution of standard curves. A student can apply his knowledge of calculus in physics, chemistry statistics and can also create mathematical models in order to arrive into an optimal solution.**
- **To Identify and solve the first order and first degree linear differential equations**
- **To find orthogonal trajectories.**
- **To solve exact and differential equation of second order simultaneous equations**

Algebra:

Student will be able to

- **Apply De Morgan’s theorem on functions properties of direct inverse and hyperbolic function.**
- **To find the logarithm of complex quantities.**
- **To expand trigonometric function.**
- **To solve the problem of roots and coefficient of polynomial of**

the variables.
- To solve the cubic equations.
- To transform different kinds of polynomials.

- To define mapping relations congruence modulo.
- To find gcd of problems based on congruence modulo.

- To define group, subgroup and properties.
- To find order and generator of group.
- To use of cosset decomposition in the langrage's theorem.
- To understand zoomorphism and isomorphism.
- To construct normal, quotient group.

- To find kernel of Homomorphism

B.Sc. Part Two

Advanced Calculus:

- The topics taught in this paper serve as pivot for other branches of science. For example partial differentiation, Laplace's transformations are few topics in which student must have a good knowledge to understand the concepts of Physics, Chemistry etc.
- Topics taught in this paper like envelope, evolutes, Beta function, Gamma function have been introduced to handle the topics in Physics.

Differential Equation:

Students will learn

- To solve the differential equation by power series frobeniens method.
- To solve Bessel's, Legendre's equation.
- Familiar with generating function recurrence relation.
- To solve orthogonality strum- Liouville problem.
- To find Laplace transform.
- To find inverse Laplace transform.
- To apply shifting theorem to solve problems.
- To solve differential equation with the help of Laplace transform.
- To solve differential equations of first order.
- To solve equation with Lagrange's and char pits method.
- To solve D. E of second and higher orders.
- To classify D. E, reducible to equation with constant

Coefficient.
- To define proximity, maximal's, externals.
- To solve boundary value problem with the help of Euler's Lagrange's equation.
- To find the externals.

B.Sc. Final

Analysis

Students will learn

- To perform basic mathematical operation on complex number
- To define continuity and differentiability..
- To define analycity, find CR equations.
- To find harmonic function.
- To formation of analytic function with the help of Mile Thomson method.
- To identify different type of Elementary function.
- To decide when and where are given function is analytic.
- To understand the metric space properties and able to verify whether a given function is metric.
- To explain the geometric meaning of metric.
- To distinguish between open and closed balls.
- To define convergence for sequence in a m s.
- Continuity of a function between two m s.
- To understand contraction principle, dense, subsets, separable space.
- To understand FIP, continuous function, compact set.

Abstract Algebra

Students will learn

- To explain linear transformation and their representation as matrices.
- To find the rank and mobility.
- To find the basis.
- To evaluate Eigen values at Eigen vector of LT
- To formation of inner product spaces
- To distinguish the orthogonal set
- To orthogonalize the finite dimensional vector spaces..
- To precise and accurate mathematical definition of object in ring theory.
- To use definition to identify and construct examples.
- To analyze and demonstrate example of Ideas and quotient

rings.
- To use rings like polynomial and modular rings.
- Use concept of homomorphism, isomorphism for rings.
- analyze finite and infinite dimensional vector space subspace over field ,including properties structures of vs.
- Compute Eigen values and eigenvectors and applied the basic diagonalization.
- Compute inner product including Graham Schmidt process.

M.SC. MATHEMATICS

PROGRAM OUTCOME

- There is a greater chance of self employment and variety of career opportunities like analyst, teaching, banking sector etc.
- Students can pursue research in mathematics and also in interdisciplinary subjects.
- There is an opportunity to fulfill academic hunger.

M.SC. MATHEMATICS

COURSE OUTCOME

M Sc. I Semester

Paper I – Advanced Abstract Algebra-I

- In Abstract Algebra, a composition series provides a way to breakup and algebraic structures that is group or a module into simple pieces.
- Modules are very closely related to the Representation theory of groups and are used widely in algebraic geometry and algebraic topology.
- Field theory widely used in Algebra, number theory and many cryptographic Protocols.

Paper II – Real Analysis -I

- Riemann Stieltjies Integral serves as an instructive and useful procedure of the living integral for the students and also they used it for discrete and continuous probability.
- Power series are useful tools that can be used to expand other functions solve equation and applied in all areas of engineering.

- In the mathematical field of analysis, uniform convergence of convergence is a mode of functions stronger than point wise convergence.

Paper III – Topology -I

- This paper gives the basic idea of topology and it serves as a foundation for future for future study in Analysis, geometry, fuzzy topology, algebraic topology etc.
- Continuity of function is of core concept of topology. Topology finds applications in Physics, Economics, Networking, Computer Science and many other branches of knowledge.

PaperIV- Research Methodology & Computer Application: Basic

Upon completion course, the student will be able to.

*** Discuss different methodologies and techniques used in research work**

*** Explain basic computer skill necessary for the conduct research.**

*** Assess the basic function and working of analytical instrument in research.**

*** Propose the required numerical skills necessary carry in research.**

Paper V - Complex Analysis-I

After completing the course students will be able to

- Carry out computations with the complex exponential, logarithm and root functions and know their definition.
- Calculate the image of circle and lines under mobius transformation.
- Find the harmonic conjugate to harmonic function.
- Express analytical function in terms of power series and Laurent’s series Taylor series.
- Calculate Complex line integrals and some infinite real integral using Cauchy's Residue theorem (contour integral).
- Find the number of zeros and poles within a given curve using argument principle, Rouche’s theorem.
- Work with multivalued function.

Paper VI – Advanced Discrete mathematics-I

- Boolean algebra is used to analyse and simplify the digital circuits. Boolean algebra also used to the design of switching circuits.
- Lattice theory is the use of Boolean algebra's in modelling and simplified switching circuits.
- The study of computability theory in computer science is closely related to the study of computability in mathematical logics.
- Descriptive complexity theory relates logics to computational complexity.

M Sc. II Semester

Paper-1 Advanced Abstract Algebra-II

- Noetherian and Artinian modules and rings are generalized finiteness conditions. Noetherian conditions prevents chains from piling up too much and artinian condition prevent them from infinitely shrinking.
- Smith normal form is useful in topology to compute the homology of a simplicial complex and also used in control them to compute transmission and blocking zeros of a transfer function matrix.
- In the field of abstract algebra, structure theorem for finitely generated modulus over PID is generalization of Fundamental Theorem of finitely generated abelian groups. It provides simple framework to understand various Canonical form results for square matrices over fields.

Paper II- Real Analysis-II

- Lebesgue spaces are used in the theoretical discussion of problems in Physics ,Statistics ,Finance, Engineering and other disciplines.
- LP space used to derived from the fact that they offer a partial but useful generalization of the fundamental L2 space of square integrable function.
- Function of bounded variation are used to define generalization solution of nonlinear problems involving functional ,ordinary and partial differential equation in mathematics ,Physics and engineering.

Paper III – Topology -II

- The topic dealt in this paper serve as a foundation to facilitate students for research work in various branches of

science.

Paper IV- Social outreach and Skill development

Students able to knowledge about social outreach and project.

Paper V - Complex analysis-II

- **The students should learn the basic techniques of contemporary Complex Analysis in various applications such as harmonic analysis differential equations as well as in the applied disciplines.**

- **formation of entire function with the help of weierstrass theorem , Rhungi and Mittag Leffler's theorem .**
- **analytic continuation along a path and curve.**
- **understand Green's theorem ,which help to solve differential equations.**
- **able to find the order and rank of entire function exponent of convergence.**
- **learn the range of analytic function.**

Paper V – Advanced Discrete Mathematics-II

- **Graph theory used in modeling transport networks activity networks and theory of games.**
- **Graphs can be used to model many types of relations and process in physical, biological, social and information system.**
- **Graphs are used to represent networks of communication, data organization, computational device, the flow of computation etc.**
- **In computer science, finite state machine are widely used in modeling of application behavior, design of hardware digital system , software engineering , compilers , network protocols and the study of computational and languages.**

M Sc. III Semester

Paper I - Integration theory and Functional analysis-I

- **Raydon Nikodym theorem can be used to prove the existence of conditional expectation for probability measures.**
- **Borel set are used in descriptive set theory.**
- **Baire measures are convenient framework for integration on locally compact hausdorff space.**

Paper II - PDE, Mechanics & Gravitation-I

Student will be able to

- **its widely used in formulating many fundamental law of Physics and Chemistry .**
- **gain the vast knowledge by using the application of Calculus of variation in biological and medical field.**
- **develop the skill while doing using the various problem by using integral equation in all engineering sciences.**
- **demonstrate their understanding of how physical phenomenon Are modeled by differential equation.**
- **be familiar with the Modelling assumption and derivation that lead to p d e .**
- **Be competent is solving linear PDE using classical solution method.**
- **find the fourier and Laplace transformation its application.**
- **solve bondary value problem using fourier and laplacetransform.**

Paper III - Operations research-I

- **Operations research utilised in allocation and distribution in project and production and facility planning, in marketing, in finance sector etc.**
- **Network analysis used in construction projects based on the knowledge and experience of the past project for predicting accurately the time required for various activities during execution of project.**
- **Application of dual simplex method is that it works even when values are zero, easily implemented to solve any type of transportation problem.**
- **Assignment problem does the allocation in such a way that cost or time involved in process is minimum and profit or sale is maximum.**

Paper IV-Intellectual Property, Human Right Environment: Basic

On completion of this course, the student will be able to:

1. **Identify key actors and norms in the fields of intellectual property (IP) and human rights, and appreciate the nature and significance of the relationship between intellectual property (IP) and human rights.**
2. **Identify and understand the tensions arising between IP and human rights and how those tensions are being addressed at**

domestic, regional and international levels.
3. Critically assess how IP rights may interact with and impact on civil, political, economic and social rights and further issues pertaining to indigenous peoples and the protection of traditional knowledge and traditional cultural expressions from a human rights perspective.
4. Be aware of current developments in the field and be able to contribute in an informed manner to ongoing debate.

PaperV- Numerical Analysis-I

This course is an introduction to a broad range of numerical methods for solving mathematical problems that arise in Science and Engineering. The goal is to provide a basic understanding of the derivation, analysis, and use of these numerical methods, along with a rudimentary understanding of finite precision arithmetic and the conditioning and stability of the various problems and methods. This will help you choose, develop and apply the appropriate numerical techniques for your problem, interpret the results, and assess accuracy. The problems cover (i) systems of linear equations, linear least squares problems, and eigenvalue calculation; (ii) interpolation, approximation, and integration of functions; (iii) initial values problems governed by ordinary differential equations; (iv) nonlinear scalar equations.

Paper VI – Fuzzy Sets and their applications-I

This paper gives an introductory idea of fuzzy sets and basic properties of fuzzy sets.This property has ben introduced so that a student can fuzzify all the concepts of a crisp set.this paper acts as a tool for serving all types of research concerned with fuzzy sets.

M Sc. IV Semester

Paper I -Integration theory and Functional analysis-II

- Hilbert space are used and functional analysis in quantum mechanics. Hilbert space support generalization of simple geometric concept like projection and change of basis from their usual finite-dimensional setting.
- Banach space allow us to transfer variable between the domain and codomain.
- Inner product space can be used to define Fourier coefficient for the series and that gives us a wide range of applications in boundary value problem(mainly heat and wave equation).

Paper II –PDE, Mechanics & Gravitation-II

- **have a deep understanding of Newton's Law.**
- **to solve statistical mechanics problems.**
- **familiar with experimental techniques used in elementary practical physics.**
- **to understand the discipline specific knowledge in classical mechanics that is concept and Newton's law and application oscillation, lagranges equivalent.**
- **to solve problem in Applied Physics .**
- **understand the Lagrange's and Hamiltonian approach in classical mechanics.**
- **get familiarized with Poisson and Lagrange's brackets and Hamilton Jacobi equations.**
- **kinematics and dynamics of right body in detail and ideas regarding Euler's equations.**
- **To apply calculus of variation to diverse problems in physics including isoperimetric problems, use of LaGrange multiplier in solving physics problems.**

Paper III - Operations research-II

- **Dynamic programming used in computer network, routing, graph problems, computer vision, artificial intelligence, machine learning etc.**
- **Valuable applications of queuing theory are traffic flow (vehicles, aircraft, people Communications, scheduling and facility design etc.). Queuing theory applicable to Healthcare settings where system have excess capacity to accommodate random variation.**
- **Nonlinear programming is the field of mathematical Optimization that deals with problem that is not linear.**

Game Theory is applied for determining different strategies in the business world

Paper IV-Dissertation

Students will able to

• Read mathematics independently and solve advanced mathematical problems.

• Demonstrate mastery of subject material, as evidenced by quality of performance in coursework, and on written and oral examinations in mathematics.

• Communicate mathematical ideas, results, context, and background effectively and professionally in written and oral form.

• Produce and defend an original contribution to knowledge, as evidenced by the writing and defence of a thesis involving significant original research

Paper IV- Numerical Analysis-II

This course is an introduction to a broad range of numerical methods for solving mathematical problems that arise in Science and Engineering. The goal is to provide a basic understanding of the derivation, analysis, and use of these numerical methods, along with a rudimentary understanding of finite precision arithmetic and the conditioning and stability of the various problems and methods. This will help you choose, develop and apply the appropriate numerical techniques for your problem, interpret the results, and assess accuracy. The problems cover (i) systems of linear equations, linear least squares problems, and eigenvalue calculation; (ii) interpolation, approximation, and integration of functions; (iii) initial values problems governed by ordinary differential equations; (iv) nonlinear scalar equations.

Paper V – Fuzzy Sets and their applications-II

- **In this paper students study the most successful application areas of fuzzy system called fuzzy control which finds extensive use in neural network.**
- **Decision making in fuzzy environment helps in how decisions are made involving single decision maker or multi decision makers. Students also learn fuzzy measure theory, probability theory, evidence theory which are used to characterize the various forms of uncertainty Students after attaining knowledge of fuzzy sets can apply her knowledge in research work in the field of medicine, economics, science and engineering , neural network and so on.**

B.SC. COMPUTER SCIENCE

PROGRAM OUTCOME

After Completing the Bachelors of Computer Science (B.Sc. Computer Science) Students are able to:

- Improve their computer literacy, their basic understanding of operative systems and a working knowledge of software commonly used in academic and professional environments.
- Develop criteria to organize and present different type of works in academic and professional environments.
- Learn how to organize information efficiently in the forms of outlines, charts, etc. by using appropriate software.
- Develop the skills to present ideas effectively and efficiently. Do Academic and Professional Presentations - Designing and delivering an effective presentation and developing the various IT skills to the electronic databases.
- Use the Systems Analysis Design paradigm to critically analyze a problem.

DEPARTMENT OF BOTANY

VISION

The vision of this Botany Department is to transform rural girl students into competent and empowered graduates and post graduates in botany by imparting quality education, practical skills, moral values and self confidence.

MISSION

- To create women entrepreneurs to confront the challenges.
- To impart quality education in botany such that they aim to become scientists in reputed research organization.
- To apply conventional tools to understand plant process and human resources development.
- To develop the capacity of students.
- To provide an academic environment.
- Apply the knowledge of botany for sustainable development useful for society.
- To function effectively as individual as well as a team.
- We focus on the patterns and process that enable predictive understanding of plants and their environment at local, regional and global scales.
- Our focus on fundamental research and teaching on plants as well as our study on population, communities and ecosystem of which they are the component.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO’s)

PEO 1

Professional skill development to become responsible person in the society.

PEO 2

Address the socio-economic challenges related to plant science.

PEO 3

Have awareness on conservation and sustainable use of plants.

PEO 4

Take up and shape a successful career in botany.

PEO 5

Inculcate through knowledge about various plants from primitive to highly evolved.

PEO 6

To promote ethical values and focus on the holistic development of students to become proficient, skilled, competent and socially responsible people.

PROGRAMME OUTCOMES (PO's)

PO 1

Knowledge and understanding-

1. **The range of plant diversity in terms of structure, function, and environmental relationships.**
2. **The evaluation of plant diversity.**
3. **Plant classification and Flora of C.G.**
4. **The role of plants in the functioning of global ecosystem.**
5. **A selection of more specialized optimal topics.**
6. **Statistics as applied to biological data.**

PO 2

Intellectual skills-

1. Able to think logically and organize tasks into a structural form.
2. Assimilate knowledge and ideas based on wide reading and through the internet.
3. Transfer of appropriate knowledge and methods from one topic to another within the subject.
4. Understand the evolving state of knowledge in a rapidly developing field.
5. Construct and test hypothesis.

PO 3

Practical skills-

Students learn to carry out practical work in the field and in the field. They gain introductory experience in applying each of the following skills and gain greater proficiency in selection of them depending on their choice of optimal modules.

1. Interpreting plant morphology and Anatomy.
2. Plant identification.
3. Vegetation Analysis techniques.
4. A range of physiochemical analysis of plant materials in the context of field and lab data obtained.
5. Plant Pathology to be added sharing of field and lab data obtained.

PO 4

Transferable Skills-

1. Use of Internet.
2. Communication of scientific ideas in writing and verbally.
3. Ability to work as a part of team.
4. Ability to use library resources.
5. Career Planning.

PO 5

Scientific Knowledge-

1. Apply the knowledge of basic science, life science and fundamental process of plants to study and analyze any plant form.

PO 6

Identify the Taxonomic position of plants.

PO 7

Design/Development of solution-

1. **Design solutions from medicinal plant for health problems, disorders and diseases of human beings.**

PO 8

Environment and sustainability-

1. **Understand the impact of the plant diversity in social and environmental context and demonstrate the knowledge the knowledge and need for sustainable development.**

PO 9

-

1. **Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.**

PO 10

Individual and team work

PO 11

Lifelong learning-

1. **Recognize the need for and have the preparation and ability to engage in independent and lifelong learning. Students will accumulate knowledge by continuous learning and leverage the past knowledge seamlessly to solve the problems in the future.**

PROGRAMME SPECIFIC OUTCOMES (PSO's)

B.Sc. I

Paper – I :Bacteria, Viruses, Fungi, Lichens and Algae.

On completion of the course students will be able to –

1. **Understand the diversity of Bacteria, viruses, Algae and Fungi.**
2. **General structure, ultra structure, multiplication, economic importance and life cycle of bacteria, virus, fungi Algae and lichen.**
3. **Understand the life cycle pattern of Algae and Fungi.**
4. **Understand the useful and harmful activities of bacteria, algae, fungi and lichens.**
5. **Understand the pathogenic and non-pathogenic bacteria.**
6. **Understand the biodiversity of fungi.**
7. **Understand the microbial biotechnology, mushroom biotechnology and bio-fertilizers (Rhizobium, Agrobacterium).**

PROGRAMME SPECIFIC OUTCOMES (PSO's)

B.Sc. I

Paper – II :Bryophytes, Pteridophytes, Gymnosperms and Palaeobotany.

On completion of the course students will be able to –

1. **Understand the morphological biodiversity of bryophytes, pteridophytes and gymnosperms.**

2. Understand the Anatomical structure of bryophytes, pteridophytes and gymnosperms.
3. Understand the economic and ecological importance of bryophytes, pteridophytes and gymnosperms.
4. Know the importance of Angolla as biofertilizer.
5. Understand the biodiversity of fossil gymnosperms.
6. Understand the types of fossil and fossilization.
7. Understand the uses of some fossils in daily life like coal, petroleum etc.

PROGRAMME SPECIFIC OUTCOMES (PSO’s)

B.Sc. II

Paper – I : Plant taxonomy, economic botany, plant anatomy and embryology.

On completion of the course students will be able to –

1. Understand the classification and nomenclature of plants.
2. Preservation methods of plant material and herbarium techniques.
3. Important botanical gardens and herbarium.
4. Systematic position of some important local plants (Angiosperms).
5. Economic importance of fibre yielding plants, medicinal plants, food plants, beverages, rubber, flowering plants and bio-diesel plants of C.G.
6. Anatomy and anatomical analmalous structure in seed growth.
7. Embryology of flowering plants.

PROGRAMME SPECIFIC OUTCOMES (PSO’s)

B.Sc. II

Paper – Ecology and plant physiology.

On completion of the course students will be able to –

1. Introduction and scope of ecology.
2. Enviromental factors.
3. Soil formation and profile.
4. Morphological and anatomical adaptation.
5. Characters of plant population and community.
6. Plant succession and evolution of plants.
7. Concept of Ecosystem.

8. Biogeochemical cycles.
9. Plant water relationship.
10. Mineral nutrition and absorption.
11. Mechanism of photosynthesis and respiration and related cycles.
12. Plant hormones and its activity in plant growth.
13. Flowering mechanism, photoperiodism and vernatiyation.
14. Seed structure, type and germination.
15. Plant movement.

PROGRAMME SPECIFIC OUTCOMES (PSO’s)

B.Sc. III

Paper – IAnalytical Technology, Plant Pathology, Experimental embryology, Elementary biostatistics, Environmental Pollution and conservation.

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PROGRAMME SPECIFIC OUTCOMES (PSO’s)

B.Sc. III

Paper – II Genetics, Molecular Biology, Biotechnology and Biochemistry.

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7.

NEW CURRICULUM

B.Sc.-I (BOTANY) PAPER-I : BACTERIA, VIRUSES, FUNGI, LICHENS AND ALGAE

UNIT-I

VIRUSES: General characteristics, types of viruses based on structure and genetic material. Multiplication of viruses (General account), Lytic and Lysogenic cycle. Economic importance. Structure and multiplication of Bacteriophages. General account of Viroids, Virusoids, Prions, and Cyanophages. Mycorrhiza-Types and Significance.

UNIT –II

BACTERIA: General characteristics and classification (on the basis of morphology), fine structure of bacterial cell, Gram positive and Gram negative bacteria, mode of nutrition and reproduction vegetative, asexual and recombination (Conjugation, transformation and transduction), Economic importance. Microbial Biotechnology, Rhizobium, Azatobactor, Anabena.

UNIT-III

FUNGI: General account of habit and habitat, structure (range of thallus organization), cell wall composition, nutrition and reproduction in fungi. Heterothallism and Parasexuality. Outlines of classification of fungi. Economic importance of fungi. Life cycles of Saprolegnia, Albugo,, Aspergillus, Peziza, Agaricus, Ustilago, Puccinia, Alternaria and Cercospora. VAM Fungi

UNIT-IV

ALGAE: Algae: General characters, range of thallus organization, Gaidukov phenomenon, reproduction, life cycle patterns and economic importance.Classification, Systematic position, occurrence, structure and life cycle of following genera : Nostoc, Gloeocaspsa, Volvox,, Oedogonium, Vaucheria, Chara, Ectocarpus, Polysiphonia.

UNIT –V

Lichens- General account, types, structure, nutrition, reproduction and economic importance. Mycoplasma: Structure and importance. Blue Green Algae (BGA) in nitrogen economy of soil and reclamation of Ushar land.Mushroom Biotechnology

Books Recommended:

- **Dubey R.C. and Maheshwari D.K. A text book of Microbiology, S. Chand Publishing, New Delhi**
- **Presscott, L. Harley, J.and Klein, D. Microbiology, 7th edition, Tata Mc Graw-Hill Co.New Delhi.**
- **Sharma P.D., Microbiology and Plant pathology, Rastogi Publication. New Delhi.**
- **Alexopolous, C.J. Mims, C.W. and Blackwell, MM. Introduction to Mycology, John Wiley & Sons.**
- **Dubey H.C. An Introduction to Fungi, Vikas Publishing, New Delhi**
- **Mehrotra R.S. & Agrawal A., Plant Pathology, Tata McGraw, New Delhi**
- **Sharma P.D. Plant Pathology, Rastogi Publishers, Meruth.**
- **Sristava, H.N. Fungi, Pradeep Publications, Jalandhar**
- **Webster, J. & Weber, R. Introduction to Fungi, Cambridge University Press, Cambridge**
- **Kumar H.D. Introduction to phycology, Aff. East-west Press, New Delhi**
- **Lee RE, Phycology, Cambridge University Press U.K.**
- **Srivastava, H.N., Algae, Pradeep Publications, Jalandhar**
- **Pandey S.K. Quick Concept of Botany, Lambert Academic publishing, Germany**
- **Pandey S.N., Mishra S,P. & Trivedi P.S. A Text Book of Botany (Vol.-I), Vikas Publishing, New Delhi**

- Singh, Pandey and Jain, A Text book of Botany, Rastogi Publication, Meerut.
- (Dr. J.N. Verma) (Dr. Rekha Pimpalgaonkar) (Dr.Ranjana Shristava)
- Proff. & Head Proff. & Head Proff. & Head
- Govt. D.B. Girls PG College Govt. N PG Science College Govt. VYTPG Science College
- Raipur, (C.G.) Raipur, (C.G.) Raipur, (C.G.)
- (Mrs. Sanchal Moghe) (Mr. Shivakant Mishra) (Mr Sudheer Tiwari)
- Govt. Bilasa Girls College, Bilaspur

B.Sc.-I (BOTANY) PAPER –II

(BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS AND PALAEOBOTANY)

UNIT –I

BRYOPHYTA: General characteristics, affinities, range of thallus organization, general classification and economic & ecological importance, Systematic position, occurrence, morphology anatomy and reproductive structure in Riccia, Marchantia, Pellia, Anthoceros, Funaria. Vegetative reproduction in Bryophytes, Evolution of sporophytes.

UNIT-II

PTERIDOPHYTES: General characteristics, affinities, economic importance and classification, Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy, Telome theory, Azolla as Biofertilizer.

UNIT-III

Systematic position, occurrence. Morphology, anatomy and reproductive structure of Psilotum, Lycopodium, selaginella, Equisetum, Marsilea.

UNIT-IV

Gymnosperm: General characteristics, affinities, economic importance and classification, Morphology, anatomy and reproduction in Cycas,

Pinus and Ephedra.

UNIT-V

PALAEOBOTANY: Geological time scale, types of fossils and fossilization, Rhynia, study of some fossil gymnosperms. Lygenopteris

Books Recommended:

- **Parihar, N.S. The Biology and Morphology of Pteridophytes, Central Book Depot, Allahabad.**
- **Parihar,N.S. An introduction to Bryophyta Vol.I:Bryophytes Central Book Depot, Allahabad.**
- **Sambamurty,AVSS, A textbook of Bryophytes, Pteridophytes, Gymnosperms and Palaeobotany, IK International Publishers.**
- **Pandey SN, Mishra SP and Trivedi PS A text Book of Botany (Vol.II), Vikas Publishing, New Delhi**
- **Bhatanagar, SP and Moitra, A. Gymnosperm, New Age International (P) Ltd., Publishers, New Delhi**
- **Biswas C. and Johri BM, The Gymnosperms, Springer-Verlag, Germany.**
- **Srivastava, HN, Palaeobotany, Pradeep Publications Jalandhar**
- **Srivastava, HN, Bryophyta, Pradeep Publications Jalandhar**
- **Singh, Pandey and Jain, A Text Book of Botany, Rastogi Publication, Meerut**
- **Sristava, HN, Fundamentals of Pteridophytes, Pradeep Publications, Jalandhar**

B.Sc. I (BOTANY) PRACTICAL

Study of external (Morphorgical) and internal (microscopic/anatomical) features of representative gerera given in the theory.

1. Algae: Gloeocapsa, Scytonema, Gloeotrichia, Volvox, Oedogonium, Vaucheria, Chara, Ectocarpus, Sargassum, Batrachosperrmum

2. Gram staining

3. Fungi: Albugo, Aspergillus, Peziza, Agaricus, Puccinia, Alternaria and Cercospora

4. Bryophyta: Riccia, Marchantia, Pellia, Anthoceros, Sphagnum,

Funaria

5. Pteridophyta: Lycopodium, Selaginella, Equsetum, Marsilea.

6. Gymnosperm: Cycas, Pinus, Epherda.

PRACTICAL SCHEME

TIME: 4 Hrs. M.M. : 50

1. Algae/Fungi/Gram Staining 10

2. Bryophyta/Pteridophyta 10

3. Gymnosperm 10

4. Spotting 10

5. Viva-Voce 05

6. Sessional 05

B.Sc.–II (BOTANY)

PAPER-I: (PLANT TAXONOMY, ECONOMIC BOTANY, PLANT ANATOMY AND EMBRYOLOGY)

UNIT-I

Bentham and Hooker system of classification.Binomial Nomenclature, International Code of

Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and

chemotaxonomy. Preservation of Plant material and Herbarium techniques.Important botanical

gardens and herbaria of India, Kew Botanical garden, England.

UNIT-II

Systematic position, distinguishing characters and economic importance of the following

families, Ranunculaceae, Magnoliaceae, Brassicaeae, Rosaceae, Papaveraceae, Caryophyllaceae,

Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solanaceae,

Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, verbenaceae, Lamiaceae, Asteraceae,

Fabaceae, Euphorbiaceae, Poaceae and Liliaceae.

UNIT-III

Economic Botany: Botanical name, family, part used and uses of the following economically

important plants, fiber yielding plants; Cotton, jute, sun, hemp, coir.Timber yielding plants: Sal,

Teak, Shisham and Pine.Medicinal plants: Kalmegh, Ashwangandha, Ghritkumari, Giloy,

Brahmi, sarpgandha, ---of medicinal plants of C.G. Food plants: Pearl millet, Buck of wheat,

Sorghum, Soyabean, gram, Ground nut, Sugarcane and Potato.Fruit plants: Pear, Peach, Litchi.

Spices: Cinnamon, Turmeric, Ginger, Asafoetida and Cumin.

Beverages : Tea, Coffee Rubber

Cultivation of important flowers: Chrysanthemum, Dahelia, Biodiesel plants Jatropha, Pongamia

Ethnobotany in context of Chhattisgarh.

UNIT-IV

Plant Anatomy: Root and shoot apical meristems theories of root and shoot apex organization,

permanent tissues, anatomy of root, stem and leaf of dicot and monocot, secondary growth in

root and stem, Anatomical anomalies in the primary structure of stems (Nyctanthes, Boerhaavia,

Casuarina), Anamolous secondary growth in Dracaena, Bignonia, Laptadenia.

UNIT-V

Embryology: Flower as a reproductive organ, anther, microsporogenesis, types of ovules,

megasporogenesis, development of male and female gametophyte, pollination, mechanisms, self

incompatibility, fertilization, endosperm, embryo, polyembryonoy, apomixes and parthenocarpy.

Books Recommended:

- **Singh, Pandey,Jain. Diversity and Systematics of Seed Plants, Rastogi Publications Merrut**
- **Sharma OP, Plant Taxonomy, Tata Mc Graw Hill, New Delhi**
- **Pandey BP, Taxonomy of Angiosperms, S. Chand Publishing, New Delhi**
- **Pandey, BP, Plant Anatomy, S.Chand Publishing, New Delhi**
- **Pandey, BP, Economic Botany, S.Chand Publishing, New Delhi**
- **Bhojwani, SS and Bhatanagar SP, Embryology of Angiosperm, Vikas Publication House, New**
- **Delhi**
- **Singh, Pandey, Jain, Embryology of Angiosperms, Rastogi Publication, Meerut**
- **Sharma, V, Alum, A. Ethnobotany, Rastogi Publications, Meerut**
- **Tayal, MS Plant Anatomy, Rastogi Publication, Meerut**
- **(Dr. J.N. Verma) (Dr.Rekha Pimpalgaonkar) (Dr.Ranjana Shristava)**
- **Proff. & Head Proff. & Head Proff. & Head**
- **Govt. D.B. Girls PG College Govt. N PG Science College Govt. VYTPG Science College**

- Raipur, (C.G.) Raipur, (C.G.) Raipur, (C.G.)
- (Mrs. Sanchal Moghe) (Mr. Shivakant Mishra) (Mr Sudheer Tiwari)
- Govt. Bilasa Girls College, Bilaspur

B.Sc.-II (BOTANY) PAPER-II

(ECOLOGY AND PLANT PHYSIOLOGY)

UNIT-I

Introduction and scope of ecology, environmental and ecological factors, Soil formation and soil

profile, Liebig’s law of minimum, Shelford’s law of tolerance, morphological and anatomical

adapataions in hydrophytes, xerophytes and epiphytes.

UNIT-II

Population and community characteristics, Raunkiaer’s life forms, population interactions (e.g.

Symbiosis, Amensalism etc.), succession, ecotone and edge effect, ecological niches, ecotypes,

ecads, keystone species

Concept of ecosystem, trophic levels, flow of energy in ecosystem, food chain and food web,

concept of ecological pyramids

Biogeochemical cycles:carbon cycle, nitrogen cycle and phosphorus cycle

UNIT-III

Plant water relations: Diffusion, permeability, osmosis, imbibitions, plasmolysis, osmotic

potential and water potential, Types of soil water, water holding capacity, wilting, Absorption of

water, theories of Ascent of sap, Mineral nutrition and absorption, Deficiency symptoms,

Transpiration, stomatal movement, significance of transpiration, Factors affecting transpiration,

guttation.

UNIT-IV

Photosynthesis: Photosynthetic apparatus and pigments, light reaction mechanism of ATP

synthesis. C3, C4 CAM pathway of carbon reduction, photorespiration, factors affecting

photosynthesis.

Respiration: Aerobic and anaerobic respiration, Glycolysis, Kreb's cycle, factors affecting

respiration, R.Q.

UNIT-V

Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene and Abscissic acid. Physiology

of flowering, Florigen concept, Photoperiodism and Vernalization. Seed dormancy and

germination, plant movement.

Books Recommended:

- Koromondy, EJ. Concepts of Ecology, Prentice Hall, USA
- Singh, JS Singh SP and Gupta SR. Ecology and Environmental Science and Conservation, S.
- Chand Publishing, New Delhi
- Sharma, PD. Ecology and Environment, Rastogi Publications,

Merrut
- Hopkins, WG and Huner, PA. Introduction to Plant Physiology, John Wiley and Sons.
- Pandey SN and Sinha BK, Plant Physiology, Vikas Publishing, New Delhi
- Taiz, L and Zeiger. E. Plant Physiology, 5th edition, Sinauer Associates Inc. M.A, USA
- Srivastava, HS Plant Physiology and Biotechnology, Rastogi Publications, Meerut

B.Sc. II (BOTANY)

Practical

1. Taxonomy: Detailed description and identification of locally available plants of the

1. families as prescribed in the theory paper.
2. Economic Botany: Identification and comment on the plants and plant products
3. belonging to different economic use categories
4. Preparation of Herbarium of local wild plants.
5. Quantitative vegetation analysis of a grassland ecosystem.
6. Anatomical characteristics of hydrophytes and xerophytes.
7. Demonstration of root pressure.
8. Demonstration of transpiration.
9. Demonstration of evolution of O2 in photosynthesis, factors affecting of photosynthesis.
10. Comparison of R.Q. of different respiratory substrates.
11. Demonstration of fermentation.
12. Determination of BOD of a water body.
13. Demonstration of mitosis.

PRACTICAL SCHEME

TIME: 4 Hrs. M.M. : 50

1. Anatomy 08

2. Economic Botany 04

3. Physiology 08

4. Ecology 10

5. Spotting 10

6. Viva-Voce 05

7. Project Work/ Field Study 10

B.SC.-III (BOTANY) PAPER –I

(ANALYTICAL TECHNOLOGY PLANT PATHOLOGY, EXPERIMENTAL EMBRYOLOGY, ELEMENTARY BIOSTATISTICS, ENVIRONMENTAL POLLUTION AND CONSERVATION)

UNIT-I

Structure, Principle and applications of analytical instrumentation.

Chromatography technique, Oven, Incubator, Autoclave, Centrifuge, Spectrophotometere

UNIT-II

Plant Tissue culture techniques, growth media, totipotency, protoplast culture, somatic hybrids and cybrids, micropropagation , somaclonal variations, haploid culture.

Analytical techniques: Microscopy-Light microscope, Electron microscope

UNIT-III

General principles of plant pathology, general symptoms of fungal, bacterial and viral diseases, mode of infection, diseases resistance and control measures, plant quarantine. A study of epidemiology and etiology of following plant diseases.

Rust diseases of wheat, Tikka diseases of groung nut, Red rot of sugar can, Bacterial blight of rice, Yellow vein mosaic of b hindi, Little leaf of brinjal.

UNIT-IV

Introduction to pollution, green house gases, Ozone depletion, Dissolve oxygen, B.O.D., C.O.D.

Bio magnification, Eutrophication, Acid precipitation, Phytoremediation, Plant indicators,. Biogeographical Zones of India, Concept of biodiversity, CBD, MAB, National parks and biodiversity Hot spots, Conservation strategies, Red Data Book, IUCN threat categories, invasive species, endemic species, concept of sustainable development.

UNIT-V

ELEMENTARY BIOSTATISTICS:

Introduction and application of Biostatics, measure of central tendency-Mean, Median, Mode, measures of dispersal-Standard deviation, standard error.

Books Recommended:

- **Singh, RS, Plant Diseases, Oxford & IBH, New Delhi.**
- **Pandey, BP, Plant Pathology, S.Chand Publishing, New Delhi**
- **Sharma, PD, Microbiology and Plant pathology, Rastogi Publications, Meerut**
- **Sharma PD, Mycology and Phytopathology, Rastogi Publications, Meerut**
- **Singh JS, Singh SP and Gupta, SR, Ecology Environmental Science and Conservation, S. Chand Publishing, New Delhi**
- **Sharma, PD. Ecology and Environment, Rastogi Publiications, Meerut**
- **Bhojwani, SS and Razdan, MK, Plant Tissue Culture:Theory and Practices, Elsevier**
- **Sharma AK, Text book of Biostatistics, Discovery Publishing House Pvt. Ltd.**
- **(Dr. J.N. Verma) (Dr. Rekha Pimpalgaonkar) (Dr.Ranjana Shristava)**
- **Proff. & Head Proff. & Head Proff. & Head**
- **Govt. D.B. Girls PG College Govt. N PG Science College Govt. VYTPG Science College**

B.Sc.-III (BOTANY) PAPER –II

(GENETICS, MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOCHEMISTRY)

UNIT-I

Cell and cell organelles, organization and morphology of chromosomes, giant chromosomes, cell division, Mendel's laws, gene interactions, linkage and crossing over, chromosomal aberration, polyploidy, sex linked inheritance, sex determination, cytoplasmic inheritance, gene concept: cistron, muton, recon.

UNIT-II

Nucleic acids, structure and forms of DNA and RNA, DNA/RNA as genetic material, replication of DNA, biochemical and molecular basis of mutation, genetic code and its properties, mechanism of transcription and translation in prokaryotes, regulation of gene expression, Operon model.

UNIT-III

Recombinant DNA, Enzymes in recombinant DNA technology, cloning vectors (Plasmid, Bacteriophages, Cosmids, Phagemids), gene cloning, PCR, Application of Biotechnology; G.M.Plants, Monoclonal antibodies, DNA finger printing

UNIT-IV

Protein: Chemical composition, primary, secondary and tertiary structure of Proteins.

Carbohydrate: general account of monosaccharides, disaccharids and Polysaccharides

Fat: Structure and properties of fats and fatty acids, synthesis and breakdown.

UNIT-V

ENZYMES: Nomenclature and classifaction, components of enzyme, theories of enzyme action, enzyme kinetics (Michaelis-Menten constant), allosteric enzymes, isozymes, Abzymes. Ribozymes, factors

affecting enzyme activity.

Books Recommended:

- Nelson, DL, Cox, MM, Lehninger Principles of Biochemistry, W.H. freeman and Company, New York, USA.
- Cooper, GM, The Cell: A Molecular Approach, ASM Press & Sunderland, Washington, D.C. Sinauer Associates, MA.
- Singh BD, Fundamental of Genetics, Kalyani Publication .
- Singh BD, Genetics, Kalyani Publication
- Gupta, PK, Cell and Molecular Biology, Rastogi Publications, Meerut
- Singh, BD, Biotechnology: Expanding Horizons, Kalyani publications
- Gupta, PK, Elements of Plant Biotechnology, Rastogi Publications, Meerut
- Gupta, SN, Concepts of Biochemistry, Rastogi Publications, Meeru
- Jain, JL., Jain S, Jain, N, Fundamentals of Biochemistry, S Chand Publishing, New Delhi

B.Sc.-III (Botany)

Practical

1. Study of host parasite relationship pf plant diseases listed above.

2. Demonstration of preparation of Czapek’s Dox medium and Potato dextrose agar medium, sterilization of culture medium and pouring.

3. Inoculation in culture tubes and petriplates.

4. Gram Staining.

5. Microscopic examination of Curd.

6. Study of plant diseases as listed in the theory paper.

7. Biochemical test of carbohydrate and protein.

8. Instrumentation techniques.

PRACTICAL SCHEME

TIME: 4 Hrs. M.M. : 50

1. Plant Disease/Symptoms 10

2. Instrumentation techniques 05

3. Staining of Microbes 05

4. Tissue Culture techniques 05

5. Spotting 10

6. Project Work/ Field Study 05

5. Viva-Voce 05

6. Sessional 05

DEPARTMENT OF CHEMISTRY

VISION

The vision of the Chemistry Department is to provide in proficiency both in depth understanding of principles and concept of Chemistry, theoretical and experimental Chemistry. The Department aims to enhance the students' knowledge in basic and applied Chemistry. To inculcate aptitude for a research career in academia or industry by introducing advanced ideas and techniques that are applicable while emphasizing the underlying concepts of Chemistry.

MISSION

- **To impart quality education in Chemistry such that they aim to become Scientists in reputed Research Organisations. To make the students effectively disseminate their knowledge in Chemistry to coming generations..**
- **Develop the capacity and know -how to apply principles/laws of Chemistry to solve the problems. The ability to do and interpret the data obtained in experiments. To become a center of excellence and extend research facilities.**
- **Apply the Chemistry knowledge for sustainable development useful for society. Assume responsibility and always practice ethical principles. To function effectively as individual as well as in a team.**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1

Professional Skill Development

To provide professional training and skill development to students in Chemical sciences, related disciplines and nurture them to become responsible persons in the society.

PEO 2

Core Competency Development

To augment their core-competencies and knowledge levels in science, humanities and inter-disciplinary areas by imparting education of high standards and advanced technological tools.

PEO 3

Innovative Curriculum of Global Relevance

To upgrade the curriculum periodically based on scientific advancements, innovations and societal relevance, so as to cater to the shifting global demands.

PEO 4

Environmental Sensitivity and Sustainability

To infuse environmental sensitivity in students through academic activities and hence equip them with technical skills and scientific knowledge required to protect and safeguard the environment for a sustainable future.

PEO 5

Ethical Principles and Holistic Development

To promote ethical values and focus on the holistic development of students to become proficient, skilled, competent and socially responsible people.

PEO 6

Accessibility and Academic Excellence

To provide an accessible learning environment of excellence and equal opportunity to students, enabling them to develop their creativity, critical thinking, and leadership and employability skills.

PROGRAMME OUTCOMES

PO-1: B.Sc. Chemistry curriculum is so designed to provide the students a comprehensive understanding about the fundamentals of chemistry covering all the principles and perspectives.

PO-2: The branches of Chemistry such as Organic Chemistry, Inorganic Chemistry, Physical Chemistry and Analytical Chemistry expose the diversified aspects of chemistry where the students experience a broader outlook of the subject.

PO-3: The syllabi of the B.Sc. Chemistry course are discretely classified to give stepwise advancement of the subject knowledge right through the three years of the term.

PO-4: The practical exercises done in the laboratories impart the students the knowledge about various chemical reagents and reactions. Thereby, hone their skills of handling the corrosive, poisonous, explosive and carcinogenic chemicals making themselves employable in any kind of chemical industries. They are also trained about the adverse effects of the obnoxious chemicals and the first aid treatment.

PROGRAMME SPECIFIC OUTCOMES

PSO-1: The students will understand the existence of matter in the universe as solids, liquids, and gases which are composed of molecules, atoms and sub atomic particles.

PSO-2: Students will learn to estimate inorganic salt mixtures and organic compounds both qualitatively and quantitatively using the classical methods of analysis in practical classes.

PSO-3: Students will grasp the mechanisms of different types of reactions both organic and inorganic and will try to predict the products of unknown reactions.

PSO-4: Students will learn to synthesize the chemical compounds by maneuvering the addition of reagents under optimum reaction conditions.

Graduate attributes in Chemistry

Skills that are transferable to a variety of pursuits in life, including not only the specific knowledge and skills that will equip students for a future in chemistry, and an awareness of the ethical, social and cultural dimensions of the study of chemistry, but also the ability to solve problems, to communicate effectively in writing and in speech, to manage their time effectively and to work successfully independently and in teams.

Bachelor of Science Chemistry graduates will be able to demonstrate:

An in-depth knowledge of the basic principles of Chemistry, and the ability to acquire new knowledge.

Awareness of the contribution of research to the development of the discipline of Chemistry, the limits of current knowledge and that all knowledge is contestable.

Understanding of the place of Chemistry as an enabling science and its relationship to other scientific and social disciplines.Awareness and understanding of the ethical, social and regulatory implications and obligations of Chemistry.

An ability to work successfully both independently and as part of a

group of peers, and with support and technical staff within the department.

Personal skills in written and oral communication; time management, critical thinking and analysis, problem solving and decision making, gathering and presenting information, imagination, openness, curiosity and creativity.

Skills important for research in Chemistry, including not only the practical skills required for effective and safe activity in the laboratory environment, but also familiarity with electronic information systems, databases and appropriate computer applications.

A Chemistry degree also contributes to the development of University of Otago Graduate Attributes.

Qualification descriptors for a UG programs in Chemistry

The qualification descriptors for a B.Sc. (CS), B.Sc. (PCM), B.Sc. (PEM), B.Sc. (PMC) program may include the following.

The graduates should be able to:

- Demonstrate

1. a fundamental/systematic or coherent understanding of the academic field of Chemistry, its different learning areas like AstroChemistry, Material science, Nuclear and Particle Chemistry, Condensed matter Chemistry, Atomic and Molecular Chemistry, Mathematical Chemistry, Analytical dynamics, Space science and applications, and its linkages with related disciplinary areas/subjects like Chemistry, Mathematics, Life sciences, Environmental sciences, Atmospheric Chemistry, Computer science, Information Technology;
2. procedural knowledge that creates different types of professionals related to different areas of study in Chemistry outlined above, including research and development, teaching and government and public service;
3. skills in areas related to specialization area relating the subfields and current developments in the academic field of Chemistry.

- Use knowledge, understanding and skills required for identifying problems and issues relating to Chemistry,

collection of relevant quantitative and/or qualitative data drawing on a wide range of sources from various Chemistry laboratories of the world, and their application, analysis and evaluation using methodologies as appropriate to Chemistry for formulating new theories and concepts.

- Communicate the results of studies undertaken accurately in a range of different contexts using the main concepts, constructs and techniques of Chemistry. Develop communication abilities to present these results in technical as well as popular science meetings organized in various universities and other private organizations.
- Ability to meet one’s own learning needs, drawing on a range of current research and development work and professional materials, and interaction with other physicists around the world.
- Apply one’s knowledge of Chemistry and theoretical and laboratory skills to new/unfamiliar contexts to identify and analyse problems and issues and solve complex problems in Chemistry and related areas with well-defined solutions.

Demonstrate Chemistry-related technological skills that are relevant to Chemistry-related job trades and employment opportunities.

The Program Learning Outcomes relating to B.Sc. Course in Chemistry

- Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistries.
- The students will be able to learn about fundamental basic concept of organic, in-organic and physical chemistry. Just like periodic table and elements, atoms, reaction machenism, regents, types of reactions, thermodynamics, Spectroscopy.
- Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments.
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
- Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
- Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of

chemicals, environmental issues and key issues facing our society in energy, health and medicine.
- Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
- Students will be able to function as a member of an interdisciplinary problem solving team.

NEW CURRICULUM OF B.Sc. PART I

CHEMISTRY

The new currlculam will comprise of Three theory papers of 33, 33 and 34 marks each and practical work of 50 marks. The curricuram is to be completed in 180 working days as per the UGC norms & conforming to the directives of the Govt. of Chhattisgarh.The theory papers are of 60 hrs each duration and the practical work of 180 hrs duration.

PAPER I

INORGANIC CHEMISTRY

UNIT-I

A. ATOMIC STRUCTURE

Bohr’s theory, its limitation and atomic spectrum of hydrogen atom. General idea of de-Broglie matter-waves, Heisenberg uncertainty principle, Schrödinger wave equation, significance of ? and ?2, radial & angular wave functions and probability distribution curves, quantum numbers, Atomic orbital and shapes of s, p, d orbitals, Aufbau and Pauli exclusion principles, Hund's Multiplicity rule, electronic configuration of the elements.

B. PERIODIC PROPERTIES

Detailed discussion of the following periodic properties of the elements, with reference to s and p-block. Trends in periodic table and applications in predicting and explaining the chemical behavior.

a) Atomic and ionic radii,

b) Ionization enthalpy,

c) Electron gain enthalpy,

d) Electronegativity, Pauling's, Mulliken's, Allred Rochow's scales.

e) Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table.

UNIT-II

CHEMICAL BONDING I

Ionic bond: Ionic Solids - Ionic structures, radius ratio & co-ordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy Born- Haber cycle, Solvation energy and solubility of ionic solids, polarising power & polarisabilitry of ions, Fajans rule, Ionic character in covalent compounds: Bond moment and dipole moment, Percentage ionic character from dipole moment and electronegatiity difference, Metallic bond-free electron, Valence bond & band theories.

UNIT-III

CHEMICALBONDING II

Covalent bond: Lewis structure, Valence bond theory and its limitations, Concept of hybridization, Energetics of hybridization, equivalent and non-equivalent hybrid orbitals. Valence shell electron pair repulsion theory (VSEPR), shapes of the following simple molecules and ions containing lone pairs and bond pairs of electrons: H2O, NH3, PCl3, PCl5, SF6. H3O+, SF4, ClF3, and ICl2- Molecular orbital theory. Bond order and bond strength, Molecular orbital diagrams of diatomic and simple polyatomic molecules N2, O2, F2, CO, NO.

UNIT-IV

A. s-BLOCK ELEMENTS

General concepts on group relationships and gradation properties,

Comparative study, salient features of hydrides, solvation & complexation tendencies including their function in biosystems and introduction to alkyl & aryls, Derivatives of alkali and alkaline earth metals

B. p-BLOCK ELEMENTS

General concepts on group relationships and gradation properties. Halides, hydrides, oxides and oxyacids of Boron, Aluminum, Nitrogen and Phosphorus. Boranes, borazines, fullerenes, graphene and silicates, interhalogens and pseudohalogens.

UNIT-V

A CHEMISTRY OF NOBLE GASES

Chemical properties of the noble gases, chemistry of xenon, structure, bonding in xenon compounds

B. THEORETICAL PRINCIPLES IN QUALITATIVE ANALYSIS (H2S SCHEME)

Basic principles involved in the analysis of cations and anions and solubility products, common ion effect. Principles involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II.

REFERENCE BOOKS:

1. Lee, J. D. Concise Inorganic Chemistry ELBS, 1991.

2. Douglas, B.E. and McDaniel, D.H. Concepts & Models of Inorganic Chemistry Oxford, 1970

3. Atkins, P.W. & Paula, J. Physical Chemistry, 10th Ed., Oxford University Press, 2014.

4. Day, M.C. and Selbin, J. Theoretical Inorganic Chemistry, ACS Publications, 1962.

5. Rodger, G.E. Inorganic and Solid State Chemistry, Cengage Learning India Edition, 2002.

6. Puri, B. R., Sharma, L. R. and Kalia, K. C., Principles of Inorganic Chemistry, Milestone Publishers/ Vishal Publishing Co.; 33rd Edition 2016

7. Madan, R. D. Modern Inorganic Chemistry, S Chand Publishing, 1987.

PAPER: II

ORGANIC CHEMISTRY

UNIT-I BASICS OF ORGANIC CHEMISTRY

Hybridization, Shapes of molecules, Influence of hybridization on bond properties. Electronic Displacements: Inductive, electromeric, resonance and mesomeric effects, hyperconjugation and their applications; Dipole moment. Electrophiles and Nucleophiles; Nucleophilicity and basicity; Homolytic and Heterolytic cleavage, Generation, shape and relative stability of Carbocations, Carbanions, Free radicals, Carbenes and Nitrenes. Introduction to types of organic reactions: Addition, Elimination and Substitution reactions.

UNIT-II INTRODUCTION TO STEREOCHEMISTRY

Optical Isomerism: Optical Activity, Specific Rotation, Chirality/Asymmetry, Enantiomers, Molecules with two or more chiral-centres, Diastereoisomers, meso compounds, Relative and absolute configuration: Fischer, Newmann and Sawhorse Projection formulae and their interconversions; Erythrose and threose, D/L, d/l system of nomenclature, Cahn-Ingold-Prelog system of nomenclature (C.I.P rules), R/S nomenclature. Geometrical isomerism: cis–trans, syn-anti and E/Z notations.

UNIT-III CONFORMATIONAL ANALYSIS OF ALKANES

Conformational analysis of alkanes, ethane, butane, cyclohexane and sugars. Relative stability and Energy diagrams. Types of cycloalkanes and their relative stability, Baeyer strain theory: Theory of strainless rings, Chair, Boat and Twist boat conformation of cyclohexane with energy diagrams; Relative stability of mono-substituted cycloalkanes and disubstituted cyclohexane.

UNIT-IV CHEMISTRY OF ALIPHATIC HYDROCARBONS

A. Carbon-Carbon sigma (?) bonds

Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fittig Reaction, Free radical substitutions: Halogenation-relative reactivity and selectivity.

B. Carbon-Carbon Pi (?) bonds:

Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cb reactions. Saytzeff and Hofmann eliminations.

Reactions of alkenes: Electrophilic additions and mechanisms (Markownikoff/ Anti - Markownikoff addition), mechanism of oxymercuration-demercuration, hydroboration- oxidation, ozonolysis, reduction (catalytic and chemical), syn and anti-hydroxylation (oxidation). 1,2-and 1,4-addition reactions in conjugated dienes and, Diels-Alder reaction; Allylic and benzylic bromination and mechanism, e.g. propene, 1-butene, toluene, ethyl benzene.

Reactions of alkynes: Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.

UNIT-V AROMATIC HYDROCARBONS

Aromaticity: Hückel’s rule, aromatic character of arenes, cyclic carbocations/ carbanions and heterocyclic compounds with suitable examples. Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft’s alkylation/acylation with their mechanism. Directive effects of the groups.

REFERENCE BOOKS:

1. Morrison, R. N. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd.(Pearson Education).

2. Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).

3. Finar, I. L. Organic Chemistry (Volume 2: Stereochemistry and the Chemistry of Natural Products), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).

4. Eliel, E. L. &Wilen, S. H. Stereochemistry of Organic Compounds, Wiley: London, 1994.

5. Kalsi, P. S. Stereochemistry Conformation and Mechanism, New Age International, 2005.

6. McMurry, J.E. Fundamentals of Organic Chemistry, 7th Ed. Cengage Learning India Edition, 2013.

7. Organic Chemistry, Paula Y. Bruice, 2nd Edition, Prentice-Hall, International Edition (1998).

8. A Guide Book of Reaction Mechanism by Peter Sykes.

PAPER - III

PHYSICAL CHEMISTRY M.M.34

UNIT-I

MATHEMATICAL CONCEPTS FOR CHEMIST

Basic Mathematical Concepts: Logarithmic relations, curve sketching, linear graphs, Properties of straight line, slope and intercept, Functions, Differentiation of functions, maxima and minima; integrals; ordinary differential equations; vectors and matrices; determinants; Permutation and combination and probability theory, Significant figures and their applications.

UNIT-II

GASEOUS STATE CHEMISTRY

Kinetic molecular model of a gas: postulates and derivation of the kinetic gas equation; collision frequency; collision diameter; mean free path; Maxwell distribution and its use in evaluating molecular velocities (average, root mean square and most probable) and average kinetic energy, law of equipartition of energy, degrees of freedom and molecular basis of heat capacities. Joule Thompson effect, Liquification of Gases.

Behaviour of real gases: Deviations from ideal gas behaviour, compressibility factor (Z), and its variation with pressure and temperature for different gases. Causes of deviation from ideal

behaviour. van der Waals equation of state, its derivation and application in explaining real gas behaviour, calculation of Boyle temperature. Isotherms of real gases and their comparison with van der Waals isotherms, continuity of states, critical state, relation between critical constants and van der Waals constants, law of corresponding states.

UNIT-III

A. LIQUID STATE CHEMISTRY

Intermolecular forces, magnitude of intermolecular force, structure of liquids, Properties of liquids, viscosity and surface tension.

B. COLLOIDS and SURFACE CHEMISTRY

Classification, Optical, Kinetic and Electrical Properties of colloids, Coagulation, Hardy Schulze law, flocculation value, Protection, Gold number, Emulsion, micelles and types, Gel, Syneresis and thixotrophy, Application of colloids.

Physical adsorption, chemisorption, adsorption isotherms (Langmuir and Freundlich). Nature of adsorbed state. Qualitative discussion of BET.

UNIT-IV

SOLID STATE CHEMISTRY

Nature of the solid state, law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry, symmetry elements and symmetry operations, qualitative idea of point and space groups, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, a simple account of rotating crystal method and powder pattern method. Crystal defects.

UNIT-V

A. CHEMICAL KINETICS

Rate of reaction, Factors influencing rate of reaction, rate law, rate constant, Order and molecularity of reactions, rate determining

step, Zero, First and Second order reactions, Rate and Rate Law, methods of determining order of reaction, Chain reactions. Temperature dependence of reaction rate, Arrhenius theory, Physical significance of Activation energy, collision theory, demerits of collision theory, non mathematical concept of transition state theory.

B. CATALYSIS

Homogeneous and Heterogeneous Catalysis, types of catalyst, characteristic of catalyst, Enzyme catatysed reactions, Micellar catatysed reactions, Industrial applications of Catalysis.

REFERENCE BOOKS:

1. Atkins, P. W. & Paula, J. de Atkin’s Physical Chemistry 10th Ed., Oxford University Press (2014).

2. Ball, D. W. Physical Chemistry Thomson Press, India (2007).

3. Castellan, G. W. Physical Chemistry 4th Ed. Narosa (2004).

4. Mortimer, R. G. Physical Chemistry 3rd Ed. Elsevier: NOIDA, UP (2009).

5. Engel, T. & Reid, P. Physical Chemistry 3rd Ed. Pearson (2013).

6. Puri, B.R., Sharma, L. R. and Pathania, M.S., Principles of Physical Chemistry, Vishal Publishing Co., 47th Ed. (2016).

7. Bahl, A., Bahl, B.S. and Tuli, G.D. Essentials of Physical Chemistry, S Chand Publishers (2010).

8. Rakshit P.C., Physical Chemistry, Sarat Book House Ed. (2014).

9. Singh B., Mathematics for Chemist, Pragati Publications.

PAPER – IV

LABOBATORY COURSE

INORGANIC CHEMISTRY

A. Semi-micro qualitative analysis (using H2S or other methods) of

mixtures - not more than four ionic species (two anions and two cations, excluding interfering, insoluble salts) out of the following:

Cations : NH4+, Pb2+, Bi3+, Cu2+, Cd2+, Fe3+, Al3+, Co2+, Ni2+, Mn2+, Zn2+, Ba2+, Sr2+, Ca2+, Na+ Anions : CO 2- , S2-, SO 2-, S O 2-, NO -, CH COO-, Cl-, Br-, I-, NO -, SO 2-

3 3 2 3 2 3 3 4

(Spot tests may be carried out wherever feasible)

B. Acid-Base Titrations

• Standardization of sodium hydroxide by oxalic acid solution.

• Determination of strength of HCl solution using sodium hydroxide as intermediate.

• Estimation of carbonate and hydroxide present together in mixture.

• Estimation of carbonate and bicarbonate present together in a mixture.

• Estimation of free alkali present in different soaps/detergents

C. Redox Titrations

• Standardization of KMnO4 by oxalic acid solution.

• Estimation of Fe(II) using standardized KMnO4 solution.

• Estimation of oxalic acid and sodium oxalate in a given mixture.

• Estimation of Fe(II) with K2Cr2O7 using internal (diphenylamine, anthranilic acid) and external indicator.

D. Iodo / Iodimetric Titrations

• Estimation of Cu(II) and K2Cr2O7 using sodium thiosulphate solution iodimetrically.

• Estimation of (a) arsenite and (b) antimony iodimetrically.

• Estimation of available chlorine in bleaching powder iodometrically.

• Estimation of Copper and Iron in mixture by standard solution of K2Cr2O7 using sodium thiosulphate solution as titrants.

ORGANIC CHEMISTRY

1. Demonstration of laboratory Glasswares and Equipments.

2. Calibration of the thermometer. 80o–82o (Naphthalene), 113.5o–114o (Acetanilide), 132.5o-133o (Urea), 100o (Distilled Water).)

3. Purification of organic compounds by crystallization using different solvents.

• Phthalic acid from hot water (using fluted filter paper and stemless funnel).

• Acetanilide from boiling water.

• Naphthalene from ethanol.

• Benzoic acid from water.

4. Determination of the melting points of organic compounds.

Naphthalene 80o–82o, Benzoic acid 121.5o–122o, Urea 132.5o–133o Succinic acid 184.5o– 185o, Cinnamic acid 132.5o–133o, Salicylic acid 157.5o–158o, Acetanilide 113.5o–114o, m-Dinitrobenzene 90o, p-Dichlorobenzene 52o, Aspirin 135o.

5. Effect of impurities on the melting point – mixed melting point of two unknown organic compounds.

• Urea – Cinnamic acid mixture of various compositions (1:4, 1:1, 4:1).

6. Determination of boiling point of liquid compounds. (boiling point lower than and more than 100 °C by distillation and capillary method).

• Ethanol 78o, Cyclohexane 81.4o, Toluene 110.6o, Benzene 80o.

i. Distillation (Demonstration)

• Simple distillation of ethanol-water mixture using water condenser.

• Distillation of nitrobenzene and aniline using air condenser.

ii. Sublimation

• Camphor, Naphthalene, Phthalic acid and Succinic acid.

iii. Decolorisation and crystallization using charcoal.

• Decolorisation of brown sugar with animal charcoal using gravity filtrations crystallization and decolorisation of impure naphthalene (100 g of naphthalene mixed with 0.3 g of Congo red using 1 g of decolorizing carbon) from ethanol.

7. Qualitative Analysis

Detection of elements (N, S and halogens) and functional groups (Phenolic, Carboxylic, CarbonyI, Esters, Carbohydrates, Amines, Amides, Nitro and Anilide) in simple organic compounds.

PHYSICAL CHEMISTRY

1. Surface tension measurements.

• Determine the surface tension by (i) drop number (ii) drop weight method.

• Surface tension composition curve for a binary liquid mixture.

2. Viscosity measurement using Ostwald’s viscometer.

• Determination of viscosity of aqueous solutions of (i) sugar (ii) ethanol at room temperature.

• Study of the variation of viscosity of sucrose solution with the concentration of solute.

• Viscosity Composition curve for a binary liquid mixture.

3. Chemical Kinetics

• To determine the specific rate of hydrolysis of methyl/ethyl acetate catalysed by hydrogen ions at room temperature.

• To study the effect of acid strength on the hydrolysis of an ester.

• To compare the strengths of HCl & H2SO4 by studying the kinetics of hydrolysis of ethyl acetate.

4. Colloids

• To prepare colloidal solution of silver nanoparticles (reduction method) and other metal nanoparticles using capping agents.

Note: Experiments may be added/ deleted subject to availability of time and facilities

PRACTICAL EXAMINATION

05 Hrs.

M.M. 50

Three experiments are to be performed

1. Inorganic Mixture Analysis, four radicals two basic & two acid (excluding insoluble, Interfering & combination of acid radicals) OR Two Titrations (Acid-Bases,Redox and Iodo/Iodimetry) 12 marks

2. Detection of functional group in the given organic compound and determine its MPt/BPt. 8 marks

O R

Crystallization of any one compound as given in the prospectus along with the determination of mixed MPt.

O R

Decolorisation of brown sugar along with sublimation of camphor/ Naphthlene.

3.Any one physical experiment that can be completed in two hours including calculations. 14 marks

4. Viva 10 marks

5. Sessionals 06 marks

In case of Ex-Students two marks will be added to each of the experiments

REFERENCE TEXT:

1. Mendham, J., A. I. Vogel’s Quantitative Chemical Analysis 6th Ed., Pearson, 2009.

2. Ahluwalia, V. K., Dhingra, S. and Gulati, A. College practical Chemistry, University Press.

3. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)

4. Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson (2012)

5. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011).

6. Garland, C. W.; Nibler, J. W. & Shoemaker, D. P. Experiments in Physical Chemistry 8th Ed.; McGraw-Hill: New York (2003).

7. Halpern, A. M. & McBane, G. C. Experimental Physical Chemistry 3rd Ed.; W.H. Freeman & Co.: New York (2003).

NEW CURRICULUM OF B.Sc. PART II

CHEMISTRY

The new curriculum will comprise of three papers of 33, 33 and 34 marks each and practical work of 50 marks. The Curriculum is to be completed in 180 working days as per UGC norms and conforming to the directives of Govt. of Chhattisgarh. The theory papers are of 60 hrs. each duration and practical work of 180 hrs duration.

Paper – I

INORGANIC CHEMISTRY 60 Hrs., Max Marks 33

UNIT-I

CHEMISTRY OF TRANSITION SERIES ELEMENTS

Transition Elements: Position in periodic table, electronic configuration, General Characteristics, viz., atomic and ionic radii, variable oxidation states, ability to form complexes, formation of coloured ions, magnetic moment μso (spin only) and μeff and catalytic behaviour. General comparative treatment of 4d and 5d elements with their 3d analogues with respect to ionic radii, oxidation states and magnetic properties.

UNIT-II

A. Oxidation and Reduction: Redox potential, electrochemical series and its applications, Principles involved in extraction of the elements.

B. COORDINATION COMPOUNDS: Werner’s theory and its experimental verification, IUPAC nomenclature of coordination compounds, isomerism in coordination compounds. Stereochemistry of complexes with 4 and 6 coordination numbers. Chelates, polynuclear complexes.

UNIT-III

COORDINATION CHEMISTRY

Valence bond theory (inner and outer orbital complexes), electroneutrality principle and back bonding. Crystal field theory, Crystal field splitting and stabilization energy, measurement of 10 Dq (?o), CFSE in weak and strong fields, pairing energies, factors affecting the magnitude of 10 Dq (?o, ?t). Octahedral vs. tetrahedral coordination.

UNIT-IV

A. CHEMISTRY OF LANTHANIDE ELEMENTS

Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.

B. CHEMISTRY OF ACTINIDES

General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from uranium, similarities between the later actinides and the later lanthanides

UNIT-V

A. ACIDS BASES : Arrhenius, Bronsted-Lowry, conjugate acids and bases, relative strengths of acids and bases, the Lux-flood, solvent system and Lewis concepts of acids and bases.

B. NON-AQUEOUS SOLVENTS

.Physical properties of a solvent, types of solvents and their general characteristics, reaction in non-aqueous solvents with reference to liquid ammonia and liquid sulphur dioxide, HF, H_2SO_4 , Ionic liquids.

REFERENCE BOOKS

1. Basic Inorganic Chemistry, F. A. Cotton, G. Wilkinson and P. L. Gaus, Wiley

2. Concise Inorganic Chemistry, J. D. Lee, ELBS

3. Concepts of Models of Inorganic Chemistry, B. Douglas, D. Mc Daniel and J. Alexander, John Wiley.

4. Inorganic Chemistry, D. E. Shriver, P. W. Atkins and C. H. Langford, Oxford.

5. Inorganic Chemistry, W. W. Porterfield, Addison – Wiley.

6. Inorganic Chemistry, A. G. Sharp, ELBS.

7. Inorganic Chemistry, G. L. Miessler and D. A. Tarr, Prentice Hall.

8. Advanced Inorganic Chemistry, Satya Prakash.

9. Advanced Inorganic Chemistry, Agarwal and Agarwal

10. Advanced Inorganic Chemistry, Puri, Sharma, S. Naginchand

11. Inorganic Chemistry, Madan, S. Chand

12. Aadhunik Akarbanic Rasayan, A. K. Shrivastav & P. C. Jain, Goel Pub

13. Uchchattar Akarbanic Rasayan, satya Prakash & G. D. Tuli, Shyamal Prakashan

14. Uchchattar Akarbanic Rasayan, Puri & Sharma

15. Selected topic in Inorganic Chemistry by Madan Malik & Tuli, S. Chand.

Paper – II

ORGANIC CHEMISTRY 60 Hrs., Max Marks 33

UNIT-I

CHEMISTRY OF ORGANIC HALIDES

Alkyl halides: Methods of preparation, nucleophilic substitution reactions – SN1, SN2 and S I mechanisms with stereochemical aspects and effect of solvent etc.; nucleophilic substitution, elimination reactions.

Aryl halides: Preparation, including preparation from diazonium salts, Nucleophilic Aromatic Substitution; SNAr, Benzyne mechanism. Relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.

UNIT-II

ALCOHOLS

A. Alcohols: Nomenclature, preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouvaelt-Blanc Reduction for the preparation of alcohols, Dihydric alcohols – methods of formation, chemical reactions of vicinal glycols, oxidative cleavage [Pb(OAc)4 and HIO4] and pinacol-pinacolone rearrangement.

B. Trihydric alcohols - Nomenclature, methods of formation, chemical reactions of glycerol.

PHENOLS

A. Structure and bonding in phenols, physical properties and acidic character, Comparative acidic strength of alcohols and phenols, acylation and carboxylation.

B. Mechanism of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Hauben-Hoesh reaction, Lederer-Manasse reaction and Reimer-Tiemann reaction.

UNIT-III

ALDEHYDES AND KETONES

A. Nomenclature, structure and reactivity of carbonyl group. General methods of preparation of aldehydes and ketones.

Mechanism of nucleophilic addition to carbonyl groups: Benzoin, Aldol, Perkin and Knoevenagel condensation. Condensation with ammonia and its derivatives, Wittig reaction, Mannich reaction, Beckmann and Benzil- Benzilic rearrangement.

B. Use of acetate as protecting group, Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones, Cannizzaro reaction, MPV, Clemmensen reduction, Wolf-Kishner reaction, LiAlH4 and NaBH4 reduction. Halogenation of enolizable ketones, An introduction to ?,?-unsaturated aldehydes and ketones.

UNIT-IV

A. CARBOXYLIC ACIDS

Preparation, Structure and bonding, Physical and chemical properties including, acidity of carboxylic acids, effects of substituents on acid strength, Hell-Volhard Zeilinsky reaction. Reduction of carboxylic groups, Mechanism of decarboxylation.

Di carboxylic acids: Methods of formation and effect of heat and dehydrating agents, Hydroxyacids.

B. CARBOXYLIC ACID DERIVATIVES

Structure of acid chlorides, esters, amides and acid anhydrides, Relative stability of acyl derivatives. Physical properties, inter-

conversion of acid derivatives by nucleophilic acyl substitution.

Mechanism of acid and base catalyzed esterification and hydrolysis.

UNIT-V

ORGANIC COMPOUNDS OF NITROGEN

A. Preparation of nitroalkanes and nitroarenes. Chemical reactions of nitroalkanes. Mechanism of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium.

B. Reactivity, structure and nomenclature of amines, physical properties. Stereochemistry of amines. Separation of mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds and nitriles), reductive amination of aldehydic and ketonic compounds. Gabriel-Phthalimide reaction, Hofmann- Bromamide reaction, Reactions of amines, electrophilic aromatic substitution of aryl amines, Reaction of amines with nitrous acid. Synthetic transformations of aryl diazonium salts, Azo coupling.

REFERENCE BOOKS

1. Organic Chemistry, Morrison and Boyd, Prentice-Hall.

2. Organic Chemistry, L. G. Wade Jr. Prentice Hall.

3. Fundamentals of Organic Chemistry, Solomons, John Wiley.

4. Organic Chemistry, Vol I, II, III S. M. Mukherjee, S. P. Singh and R. P. Kapoor, Wiley Easters (New Age).

5. Organic Chemistry, F. A. Carey, McGraw Hill.

6. Introduction to Organic Chemistry, Struiweisser, Heathcock and Kosover, Macmillan.

7. Organic Chemistry, P. L. Soni.

8. Organic Chemistry, Bahl and Bahl.

9. Organic Chemistry, Joginder Singh.

10. Carbanic Rasayan, Bahl and Bahl.

11. Carbanic Rasayan, R. N. Singh, S. M. I. Gupta, M. M. Bakidia & S. K. Wadhwa.

12. Carbanic Rasayan, Joginder Singh.

Paper – III

PHYSICAL CHEMISTRY 60 Hrs., Max Marks 34

UNIT-I

A. THERMODYNAMICS-I

Intensive and extensive variables; state and path functions; isolated, closed and open systems; Zeroth law of thermodynamics. First law: Concept of heat, work, internal energy and statement of first law; enthalpy, Relation between heat capacities, calculations of q, w, U and H for reversible, irreversible and free expansion of gases under isothermal and adiabatic conditions. Joule-Thompson expansion, inversion temperature of gases, expansion of ideal gases under isothermal and adiabatic condition

B. THERMO CHEMISTRY

Thermochemistry, Laws of Thermochemistry, Heats of reactions, standard states; enthalpy of formation of molecules and ions and enthalpy of combustion and its applications; calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data, effect of temperature (Kirchhoff's equations) and pressure on enthalpy of reactions, Adiabatic flame temperature, explosion temperature.

UNIT-II

A. THERMODYNAMICS-II

Second Law of Thermodynamics: Spontaneous process, Second law, Statement of Carnot cycle and efficiency of heat engine, Carnot's theorem, thermodynamic state of temperature. Concept of entropy: Entropy change in a reversible and irreversible process, entropy change in isothermal reversible expansion of an ideal gas, entropy

change in isothermal mixing of ideal gases, physical signification of entropy, Molecular and statistical interpretation of entropy.

B. Gibbs and Helmholtz free energy, variation of G and A with pressure, volume, temperature, Gibbs-Helmholtz equation, Maxwell relations, Elementary idea of Third law of Thermodynamics, concept of residual entropy, calculation of absolute entropy of molecule.

UNIT III

A CHEMICAL EQUILIBRIUM

Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical equilibria in ideal gases. Concept of Fugacity, Thermodynamic derivation of relation between Gibbs free energy of reaction and reaction quotient. Coupling of exergonic and endergonic reactions. Equilibrium constants and their quantitative dependence on temperature, pressure and concentration. Thermodynamic derivation of relations between the various equilibrium constants Kp, Kc and Kx. Le Chatelier principle (quantitative treatment). Equilibrium between ideal gas and a pure condensed phase.

B IONIC EQUILIBRIA

Ionization of weak acids and bases, pH scale, common ion effect; dissociation constants of mono protic acids (exact treatment). Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions; derivation of Henderson equation and its applications. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.

UNIT-IV

PHASE EQUILIBRIUM

A. Phase rule, Phase, component and degree of freedom, derivation of Gibbs phase rule, Clausius-Claperon equation and its applications to Solid-Liquid, Liquid-Vapor and solid- Vapor, limitation of phase rule, applications of phase rule to one component system: Water system and sulphur system.

Application of phase rule to two component system: Pb-Ag system, desilverization of lead, Zn-Mg system Ferric chloride-water system,

congruent and incongruent, melting point and eutectic point.

Three component system: Solid solution liquid pairs.

B. Nernst distribution law, Henry's law, application, solvent extraction

UNIT - V

PHOTOCHEMISTRY

Characteristics of electromagnetic radiation, Interaction of radiation with matter, difference between thermal and photochemical processes, Lambert-Beer's law and its limitations, physical significance of absorption coefficients. Laws of photochemistry: Grothus-Drapper law, Stark- Einstein law, quantum yield, actinometry, examples of low and high quantum yields, Photochemical equilibrium and the differential rate of photochemical reactions, Quenching, Role of photochemical reaction in biochemical process.

Jablonski diagram depicting various process occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), photosensitized reactions, energy transfer processes {simple examples), photostationary states, Chemiluminescence.

REFERENCE BOOKS

1. Physical Chemistry, G. M. Barrow, International student edition, McGraw Hill.

2. University General Chemistry, C. N. R. Rao, Macmillan.

3. Physical Chemistry, R. A. Alberty, Wiley Eastern.

4. The elements of physical chemistry, Wiley Eastern.

5. Physical Chemistry through problems, S. K. Dogra & S. Dogra, Wiley Eastern.

6. Physical Chemistry, B. D. Khosla,.

7. Physical Chemistry, Puri & Sharma.

8. Bhautik Rasayan, Puri, Sharma and Pathania, Vishal Publishing

Company.

9. Bhautik Rasayan, P. L. Soni.

10. Bhautik Rasayan, Bahl and Tuli.

11. Physical Chemistry, R. L. Kapoor, Vol I-IV .

12. Chemical kinetics, K. J. Laidler, Pearson Educations, New Delhi (2004).

Paper –IV

LABORATORY COURSE

INORGANIC CHEMISTRY

Qualitative semimicro analysis of mixtures containing 5 radicals. Emphasis should be given to the understanding of the chemistry of different reactions. The following radicals are suggested:

CO_3^{2-}, NO_2^- , S^{2-}, SO_3^{2-},$S_2O_3^{2-}$, CH_3COO^-, F^- ,Cl^- , Br^- , I^- , NO_3^- , BO_3^{3-}, $C_2O_4^{2-}$, PO_4^{3-}, NH_4^+ , K^+, Pb^{2+}, Cu^{2+}, Cd^{2+}, Bi^{3+}, Sn^{2+}, Sb^{3+}, Fe^{3+}, Al^{3+}, Cr^{3+}, Zn^{2+}, Mn^{2+}, Co^{2+}, Ni^{2+}, Ba^{2+}, Sr^{2+}, Ca^{2+}, Mg^{2+}.

Mixtures should preferably contain one interfering anion, or insoluble component ($BaSO_4$, $SrSO_4$, $PbSO_4$, CaF_2 or Al_2O_3) or combination of anions e.g. CO_3^{2-} and SO_3^{2-}, NO_2^- and NO_3^-, Cl^-, Br^-, and I^-.

Volumetric analysis

(a) Determination of acetic acid in commercial vinegar using NaOH.

(b) Determination of alkali content-antacid tablet using HCl.

(c) Estimation of calcium content in chalk as calcium oxalate by permanganometry.

(d) Estimation of hardness of water by EDTA.

(e) Estimation of ferrous & ferric by dichromate method.

(f) Estimation of copper using thiosulphate.

• Principles involved in chromatographic separations. Paper chromatographic separation of following metal ions: i. Ni (II) and Co (II) ii. Fe (III) and Al (III)

ORGANIC CHEMISTRY

• Detection of elements (X, N, S).

• Qualitative analysis of unknown organic compounds containing simple functional groups (alcohols, carboxylic acids, phenols, nitro, amine, amide, and carbonyl compounds, carbohydrates)

• Preparation of Organic Compounds:

(i) m-dinitrobenzene, (ii) Acetanilide, (iii) Bromo/Nitro-acetanilide, (iv) Oxidation of primary alcohols-Benzoic acid from benzylacohol, (v) azo dye.

PHYSICAL CHEMISTRY

Transition Temperature

• Determination of the transition temperature of the given substance by thermometric/ dialometric method (e.g. MnCl2.4H2O/SrBr2.2H2O).

Thermochemistry

• Determination of heat capacity of a calorimeter for different volumes using change of enthalpy data of a known system (method of back calculation of heat capacity of calorimeter from known enthalpy of solution or enthalpy of neutralization).

• Determination of heat capacity of the calorimeter and enthalpy of neutralization of hydrochloric acid with sodium hydroxide.

• To determine the solubility of benzoic acid at different temperature and to determine ?H of the dissolution process.

• To determine the enthalpy of neutralization of a weak acid/ weak base versus strong base/ strong acid and determine the enthalpy of ionization of the weak acid/ weak base.

• To determine the enthalpy of solution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

Phase Equilibrium

• To study the effect of a solute (e.g. NaCl, Succinic acid) on the critical solution temperature of two partially miscible liquids (e.g. phenol-water system) and to determine the concentration of that solute in the given phenol-water system.

• To construct the phase diagram of two component system (e.g. diphenylamine– benzophenone) by cooling curve method.

• Distribution of acetic/ benzoic acid between water and cyclohexane.

• Study the equilibrium of at least one of the following reactions by the distribution method:

(i) I2(aq) + I- ? I- (aq)2+

(ii) Cu2+(aq) + nNH3 ? Cu(NH3)n Molecular Weight Determination

Determination of molecular weight by Rast Camphor and Landsburger method.

Note: Experiments may be added/ deleted subject to availability of time and facilities.

Reference Books

1. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)

2. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. & Tatchell, A.R. Practical Organic Chemistry, 5th Ed. Pearson (2012)

3. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000). 22

4. Ahluwalia, V.K. & Dhingra, S. Comprehensive Practical Organic Chemistry: Qualitative Analysis, University Press (2000).

5. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011). Garland, C. W.; Nibler, J. W. & Shoemaker, D. P. Experiments in Physical Chemistry 8th Ed.; McGraw-Hill: New York (2003).

6. Halpern, A. M. & McBane, G. C. Experimental Physical Chemistry 3rd Ed.; W.H. Freeman & Co.: New York

PRACTICAL EXAMINATION

Hrs.5 M.M.50

Three Experiments are to be performed.

1. Inorganic – Qualitative semimicro analysis of mixtures. 12 marks

OR

One experiment from synthesis and analysis by preparing the standard solution.

2. (a) Identification of the given organic compound & determine its M.Pt./B.Pt.

6 marks

(b) Determination of Rf value and identification of organic compounds by paper chromatography. 6 marks

3. Any one physical experiment that can be completed in two hours including calculations. 12 marks

4. Viva 10 marks

5. Sessional 04 marks

In case of Ex-Students one marks will be added to each of the experiment.

NEW CURRICULUM OF B.Sc. PART III

CHEMISTRY

The new curriculum will comprise of three papers of 33, 33 and 34

marks each and practical work of 50 marks. The Curriculum is to be completed in 180 working days as per UGC norms and conforming to the directives of Govt. of Chhattisgarh. The theory papers are of 60 hrs. each duration and practical work of 180 hrs duration.

Paper – I

INORGANIC CHEMISTRY 60 Hrs., Max Marks 33

UNIT-I

METAL-LIGAND BONDING IN TRANSITION METAL COMPLEXES

(A) Limitations of valence bond theory, Limitation of Crystal Field Theory, Application of CFSE, tetragonal distortions from octahedral geometry, Jahn–Teller distortion, square planar geometry. Qualitative aspect of Ligand field and MO Theory.

(B) Thermodynamic and kinetic aspects of metal complexes. A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes, Trans- effect, theories of trans effect. Mechanism of substitution reactions of square planar complexes.

UNIT-II

MAGNETIC PROPERTIES OF TRANSITION METAL COMPLEXES

Types of magnetic behavior, methods of determining magnetic susceptibility, spin only formula, L-S coupling, correlation of μso(spin only) and μeff. values, orbital contribution to magnetic moments, application of magnetic moment data for 3d metal complexes.

Electronic spectra of Transition Metal Complexes.

Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states, spectro-chemical series. Orgel-energy level diagram for d1 and d2 states, discussion of the electronic spectrum of [Ti(H2O)6]3+ complex ion.

UNIT-III

ORGANOMETALLIC CHEMISTRY

Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic ligands. Metal carbonyls: 18-electron rule, electron count of mononuclear, polynuclear and substituted metal carbonyls of 3d series. General methods of preparation (direct combination, reductive carbonylation, thermal and photochemical decomposition) of mono and binuclear carbonyls of 3d series.

Structures of mononuclear and binuclear carbonyls of Cr, Mn, Fe, Co and Ni using VBT. ?- acceptor behavior of CO (MO diagram of CO to be discussed), Zeise's salt: Preparation and structure.

Catalysis by Organometallic Compounds –

Study of the following industrial processes and their mechanism :

1. Alkene hydrogenation (Wilkinsons Catalyst)

2. Polymeration of ethane using Ziegler – Natta Catalyst

UNIT-IV

BIOINORGANIC CHEMISTRY

Essential and trace elements in biological processes, Excess and deficiency of some trace metals, Toxicity of some metal ions (Hg, Pb, Cd and As), metalloporphyrins with special reference to hemoglobin and myoglobin. Biological role of alkali and alkaline earth metals with special reference to Ca2+ and Mg2+, nitrogen fixation.

UNIT-V

HARD AND SOFT ACIDS AND BASES (HSAB) Classification of acids and bases as hard and soft. Pearson's HSAB concept, acid-base strength and hardness and softness. Symbiosis, Applications of HSAB principle.

INORGANIC POLYMERS

Types of inorganic polymers, comparison with organic polymers, synthesis, structural aspects and applications of silicones. Silicates, phosphazenes and polyphosphate.

REFERENCE BOOKS

1. Basic Inorganic Chemistry, F. A. Cotton, G. Wilkinson and P. L. Gaus, Wiley.

2. Concise Inorganic Chemistry, J. D. Lee, ELBS.

3. Concepts of Models of Inorganic Chemistry, B. Douglas, D. Mc Daniel and J. Alexander, John Wiley.

4. Inorganic Chemistry, D. E. Shriver, P. W. Atkins and C. H. Langford, Oxford.

5. Inorganic Chemistry, W. W. Porterfield, Addison – Wiley.

6. Inorganic Chemistry, A. G. Sharp, ELBS.

7. Inorganic Chemistry, G. L. Miessler and D. A. Tarr, Prentice Hall.

8. Advanced Inorganic Chemistry, Satya Prakash.

9. Advanced Inorganic Chemistry, Agarwal and Agarwal.

10. Advanced Inorganic Chemistry, Puri, Sharma, S. Naginchand.

11. Inorganic Chemistry, Madan, S. Chand.

12. Aadhunik Akarbanic Rasayan, A. K. Shrivastav & P. C. Jain, Goel Pub.

13. Uchchattar Akarbanic Rasayan, satya Prakash & G. D. Tuli, Shyamal Prakashan.

14. Uchchattar Akarbanic Rasayan, Puri & Sharma.

15. Selected topic in Inorganic Chemistry by Madan Malik & Tuli, S. Chand.

Paper – II

ORGANIC CHEMISTRY 60 Hrs. Max Marks 33

UNIT-I

HETEROCYCLIC COMPOUNDS

Classification and nomenclature, Structure, aromaticity in 5-membered and 6-membered rings containing one heteroatom; Synthesis, reactions and mechanism of substitution reactions of: Furan, Pyrrole (Paal-Knorr synthesis, Knorr pyrrole synthesis, Hantzsch synthesis), Thiophene, Pyridine (Hantzsch synthesis), Indole (Fischer indole synthesis and Madelung synthesis), Quinoline and isoquinoline, (Skraup synthesis, Friedlander's synthesis, Knorr quinoline synthesis, Doebner- Miller synthesis, Bischler-Napieralski reaction, Pictet- Spengler reaction, Pomeranz-Fritsch reaction).

UNIT II

A. ORGANOMETALLIC REAGENT

Organomagnesium compounds: Grignard reagents formation, structure and chemical reactions. Organozinc compounds: formation and chemical reactions.

Organolithium compounds: formation and chemical reactions.

B. ORGANIC SYNTHESIS VIA ENOLATES

Active methylene group, alkylation of diethylmalonate and ethyl acetoacetate, Synthesis of ethyl acetoacetate: The Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate. Robbinson annulations reaction.

UNIT-III

BIOMOLECULES

A. CARBOHYDRATES

Occurrence, classification and their biological importance. Monosaccharides: relative and absolute configuration of glucose and fructose, epimers and anomers, mutarotation, determination of ring size of glucose and fructose, Haworth projections and conformational structures; Interconversions of aldoses and ketoses; Killiani Fischer synthesis and Ruff degradation; Disaccharides – Structural comparison of maltose, lactose and sucrose. Polysaccharides – Elementary treatment of starch and cellulose.

B. AMINO ACIDS, PROTEINS AND NUCLEIC ACIDS

Classification and Nomenclature of amino acids, Configuration and acid base properties of amino acids, Isoelectric Point, Peptide bonds, Protein structure, denaturation/ renaturation, Constituents of nucleic acid, DNA, RNA nucleoside, nucleotides, double helical structure of DNA.

UNIT-IV

SYNTHETIC POLYMERS

A. Addition or chain growth polymerization, Free radical vinyl polymerization, Ziegler-Natta polymerization, Condensation or Step growth polymerization, polyesters, polyamides, phenols- formaldehyde resins, urea-formaldehyde resins, epoxy resins and polyurethanes, natural and synthetic rubbers.

B. SYNTHETIC DYES

Colour and constitution (Electronic Concept). Classification of Dyes. Chemistry of dyes. Chemistry and synthesis of Methyl Orange, Congo Red, Malachite Green, Crystal Violet, phenolphthalein, fluorescein, Alizarine and Indigo.

UNIT-V

A. INFRA-RED SPECTROSCOPY

Basic principle, IR absorption Band their position and intensity, IR spectra of organic compounds.

B. UV-VISIBLE SPECTROSCOPY

Beer Lambert's law, effect of Conjugation, Types of electronic transitions ?max, Chromophores and Auxochromes, Bathochromic and Hypsochromic shifts, Intensity of absorption Visible spectrum and colour.

C. NMR SPECTROSCOPY

Basic principles of Proton Magnetic Resonance, Tetramethyl silane (TMS) as internal standard, chemical shift and factors influencing

it; Spin – Spin coupling and coupling constant (J); Anisotropic effects in alkene, alkyne, aldehydes and aromatics, Interpretation of NMR spectra of simple organic compounds. 13CMR spectroscopy: Principle and applications.

REFERENCE BOOKS

1. Organic Chemistry, Morrison and Boyd, Prentice-Hall.

2. Organic Chemistry, L. G. Wade Jr. Prentice Hall.

3. Fundamentals of Organic Chemistry, Solomons, John Wiley.

4. Organic Chemistry, Vol I, II, III S. M. Mukherjee, S. P. Singh and R. P. Kapoor, Wiley Easters (New Age).

5. Organic Chemistry, F. A. Carey, McGraw Hill.

6. Introduction to Organic Chemistry, Struiweisser, Heathcock and Kosover, Macmillan.

7. Acheson, R.M. Introduction to the Chemistry of Heterocyclic compounds, John Wiley & Sons (1976).

8. Graham Solomons, T.W. Organic Chemistry, John Wiley & Sons, Inc.

9. McMurry, J.E. Fundamentals of Organic Chemistry, 7th Ed. Cengage Learning IndiaEdition, 2013.

10. Kalsi, P. S. Textbook of Organic Chemistry 1st Ed., New Age International (P) Ltd. Pub.

11. Clayden, J.; Greeves, N.; Warren, S.; Wothers, P.; Organic Chemistry, Oxford University Press.

Paper – III

PHYSICAL CHEMISTRY 60 Hrs., Max Marks 34

UNIT-I

QUANTUM MECHANICS–I

Black-body radiation, Planck's radiation law, photoelectric effect, Compton effect. Operator: Hamiltonian operator, angular momentum operator, Laplacian operator, postulate of quantum mechanics, eigen values, eigen function, Schrodinger time independent wave equation, physical significance of ? & ?2, application of Schrodinger wave equation to particle in a one dimensional box, hydrogen atom (separation into three equations) radial and angular wave functions.

UNIT-II

A. QUANTUM MECHANICS–II

Quantum Mechanical approach of Molecular orbital theory, basic ideas-criteria for forming

M.O. and A.O., LCAO approximation, formation of H2+ ion, calculation of energy levels from wave functions, bonding and antibonding wave functions, Concept of ?, ?*, ?, ?* orbitals and their characteristics, Hybrid orbitals-sp,sp2,sp3 Calculation of coefficients of A.O.'s used in these hybrid orbitals.

Introduction to valence bond model of H2, comparison of M.O. and V.B. models. Huckel theory, application of Huckel theory to ethene, propene, etc.

UNIT III

SPECTROSCOPY

Introduction: Characterization of Electromagnetic radiation, regions of the spectrum, representation of spectra, width and intensity of spectral transition, Rotational Spectrum of Diatomic molecules. Energy levels of a rigid rotor, selection rules, determination of bond length, qualitative description of non-rigid rotator, isotopic effect.

Vibrational Spectroscopy: Fundamental vibration and their symmetry vibrating diatomic molecules, Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, determination of force constant, anharmonic oscillator

Raman spectrum: Concept of polarizability, quantum theory of Raman spectra, stokes and antistokes lines, pure rotational and pure vibrational Raman spectra. Applications of Raman Spectra.

Electronic Spectroscopy: Basic principles, Electronic Spectra of diatomic molecule, Franck- Condon principle, types of electronic transition, application of electronic spectra.

UNIT-IV

ELECTROCHEMISTRY-I

A. Electrolytic conductance: Specific and equivalent conductance, measurement of equivalent conductance, effect of dilution on conductance, Kohlrausch law, application of Kohlrausch law in determination of dissociation constant of weak electrolyte, solubility of sparingly soluble electrolyte, absolute velocity of ions, ionic product of water, conductometric titrations.

B. Theories of strong electrolyte: limitations of Ostwald’s dilution law, weak and strong electrolytes, Elementary ideas of Debye-Huckel-Onsager’s equation for strong electrolytes , relaxation and electrophoretic effects.

C. Migration of ions: Transport number, Determination by Hittorf method and moving boundary method, ionic strength.

UNIT-V

ELECTROCHEMISTRY-II

A. Electrochemical cell and Galvanic cells – reversible and irreversible cells, conventional representation of electrochemical cells, EMF of the cell and effect of temperature on EMF of the cell, Nernst equation Calculation of ?G, ?H and ?S for cell reactions.

B. Single electrode potential : standard hydrogen electrode, calomel electrode, quinhydrone electrode, redox electrodes, electrochemical series

C. Concentration cell with and without transport, liquid - junction potential, application of concentration cells in determining of valency of ions , solubility product and activity coefficient

D. Corrosion-types , theories and prevention

REFERENCE BOOKS

1. Physical chemistry, G.M.Barrow. International Student Edition McGraw Hill.

2. University General Chemistry, CNR Rao, Macmillan.

3. Physical Chemistry R.A.Alberty, Wiley Eastrn.

4. The elements of Physical Chemistry P.W.Alkin,Oxford.

5. Physical Chemistry through problems, S.K.Dogra, Wiley Eastern.

6. Physical Chemistry B.D.Khosla.

7. Physical Chemistry, Puri & Sharma.

8. Bhoutic Rasayan, Puri & Sharma.

9. Bhoutic Rasayan, P.L.Soni.

10. Bhoutic Rasayan, Bahl & Tuli.

11. Physical Chemistry, R.L.Kapoor, Vol- I-IV.

12. Introduction to quantum chemistry,A.K.Chandra,Tata McGraw Hill.

13. Quantum Chemistry,Ira N.Levine, Prentice Hall.

B.Sc. Part- III PRACTICAL

Max. Marks-50

INORGANIC CHEMISTRY

Gravimetric analysis:

• Estimation of nickel (II) using Dimethylglyoxime (DMG).

• Estimation of copper as CuSCN

• Estimation of iron as Fe2O3 by precipitating iron as Fe(OH)3.

• Estimation of Al (III) by precipitating with oxine and weighing as Al(oxine)3 (aluminium oxinate).

• Estimation of Barium as BaSO4 Inorganic Preparations:

• Tetraamminecopper (II) sulphate, [Cu(NH3)4]SO4.H2O

• Cis and trans K[Cr(C2O4)2. (H2O)2] Potassium dioxalatodiaquachromate(III)

• Tetraamminecarbonatocobalt (III) ion

• Potassium tris(oxalate)ferrate(III)/ Sodium tris(oxalate)ferrate(III)

• Cu(I) thiourea complex, Bis (2,4-pentanedionate) zinc hydrate; Double salts (Chrome alum/ Mohr's salt)

ORGANIC CHEMISTRY

1. Preparation of organic Compounds

• Acetylation of one of the following compounds: amines (aniline, o-, m-, p- toluidines and o-,m-, p-anisidine) and phenols (?-naphthol, vanillin, salicylic acid)

• Benzolyation of one of the following amines (aniline, o-, m-, p-toluidines and o-, m-, panisidine) and one of the following phenols (?-naphthol, resorcinol, p cresol) by Schotten-Baumann reaction.

• Bromination of any one of the following: a. Acetanilide by conventional methods b.Acetanilide using green approach (Bromate-bromide method)

• Nitration of any one of the following: a. Acetanilide/nitrobenzene by conventional method b. Salicylic acid by green approach (using ceric ammonium nitrate).

• Reduction of p-nitrobenzaldehyde by sodium borohydride.

• Hydrolysis of amides and esters.

• Semicarbazone of any one of the following compounds: acetone, ethyl methyl ketone, cyclohexanone, benzaldehyde.

• Benzylisothiouronium salt of one each of water soluble and water insoluble acids (benzoic acid, oxalic acid, phenyl acetic acid and phthalic acid).

• Aldol condensation using either conventional or green method.

• Benzil-Benzilic acid rearrangement.

• Preparation of sodium polyacrylate.

• Preparation of urea formaldehyde.

• Preparation of methyl orange.

The above derivatives should be prepared using 0.5-1g of the organic compound. The solid samples must be collected and may be used for recrystallization, melting point and TLC.

2. Qualitative Analysis Analysis of an organic mixture containing two solid components using water, NaHCO3, NaOH for separation and preparation of suitable derivatives.

3. Extraction of caffeine from tea leaves.

4. Analysis of Carbohydrate: aldoses and ketoses, reducing and non-reducing sugars.

5. Identification of simple organic compounds by IR spectroscopy and NMR spectroscopy. (Spectra to be provided).

6. Estimation of glycine by Sorenson’s formalin method.

7. Study of the titration curve of glycine.

8. Estimation of proteins by Lowry’s method.

9. Study of the action of salivary amylase on starch at optimum conditions.

10. Effect of temperature on the action of salivary amylase.

PHYSICAL CHEMISTRY

Conductometry

• Determination of cell constant

• Determination of equivalent conductance, degree of dissociation

and dissociation constant of a weak acid.

• Perform the following conductometric titrations:

i. Strong acid vs. strong base

ii. Weak acid vs. strong base

iii. Mixture of strong acid and weak acid vs. strong base

iv. Strong acid vs. weak base

• To determine the strength of the given acid conductometrically using standard alkali solution.

• To determine the solubility and solubility product of a sparingly soluble electrolyte conductometrically

• To study the saponification of ethyl acetate conductometrically.

Potentiometry/pH metry

Perform the following potentio/pH metric titrations:

i. Strong acid vs. strong base

ii. Weak acid vs. strong base

iii. Dibasic acid vs. strong base

iv. Potassium dichromate vs. Mohr's salt

v. Determination of pKa of monobasic acid UV/ Visible spectroscopy

• Verify Lambert-Beer’s law and determine the concentration of $CuSO_4$/$KMnO_4$/$K_2Cr_2O_7$ in a solution of unknown concentration

• Determine the concentrations of $KMnO_4$ and $K_2Cr_2O_7$ in a mixture.

• Study the kinetics of iodination of propanone in acidic medium.

• Determine the amount of iron present in a sample using 1,10-phenathroline.

• Determine the dissociation constant of an indicator

(phenolphthalein).

• Study the kinetics of interaction of crystal violet/ phenolphthalein with sodium hydroxide.

• Study of pH-dependence of the UV-Vis spectrum (200-500 nm) of potassium dichromate.

• Spectral characteristics study (UV) of given compounds (acetone, acelaldehyde, acetic acid, etc.) in water.

• Absorption spectra of KMnO4 and K2Cr2O7 (in 0.1 M H2SO4) and determine ?max values.

Note: Experiments may be added/deleted subject to availability of time and facilities

REFERENCE BOOKS:

1. Vogel, A.I. Quantitative Organic Analysis, Part 3, Pearson (2012).31

2. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)

3. Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson (2012)

4. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000).

5. Ahluwalia, V.K. & Dhingra, S. Comprehensive Practical Organic Chemistry: Qualitative Analysis, University Press (2000)

6. Manual of Biochemistry Workshop, 2012, Department of Chemistry, University of Delhi.

8 Hrs. PRACTICAL EXAMINATION M.M.50

Five experiments are to be performed.

1. Inorganic - Two experiments to be performed. Gravimetric estimation compulsory

08 marks. (Manipulation 3 marks)

Anyone experiment from synthesis and analysis 04 marks.

2. Organic - Two experiments to be performed. Qualitative analysis of organic mixture containing two solid components. compulsory carrying 08 marks (03 marks for each compound and two marks for separation).

One experiment from synthesis of organic compound (Single step) 04 marks.

3. Physical-One physical experiment 12 marks.

4. Sessional 04 marks.

5. Viva Voce 10 marks.

In case of Ex-Students one mark each will be added to Gravimetric analysis and Qualitative analysis of organic mixture and two marks in Physical experiment.

COURSE OUTCOMES BSc CHEMISTRY

BSc- I

Paper- I Inorganic Chemistry

- **Students able to know ATOMIC STRUCTURE Bohr's theory, its limitation and atomic spectrum of hydrogen atom. General idea of de-Broglie matter-waves, Heisenberg uncertainty principle, Schrödinger wave equation.**
- **Students able to know Periodic Properties Detailed discussion of the periodic properties of the elements, with reference to s and p-block.**
- **Students able to know Ionic bond: Ionic Solids - Ionic structures, radius ratio & co-ordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy Born- Haber cycle, Solvation.**
- **Students able to know Covalent bond: Lewis structure, Valence bond theory and its limitations, Concept of hybridization, Energetics of hybridization, equivalent and non-equivalent hybrid orbitals. Valence shell electron pair repulsion theory (VSEPR).**
- **Students able to know s-BLOCK ELEMENTS - General concepts on group relationships and gradation properties, Comparative study, salient features of hydrides, solvation & complexation**

tendencies including their function in biosystems and introduction to alkyl & aryls, Derivatives of alkali and alkaline earth metals.
- P-BLOCK ELEMENTS General concepts on group relationships and gradation properties. Halides, hydrides, oxides and oxyacids of P Block element.
- NOBLE GASES Chemical properties of the noble gases, chemistry of xenon, structure, bonding in xenon compounds, THEORETICAL PRINCIPLES IN QUALITATIVE ANALYSIS (H2S SCHEME)

Paper- II Organic Chemistry

- Students able to know BASICS OF ORGANIC CHEMISTRY Hybridization, Shapes of molecules, Influence of hybridization on bond properties.
- STEREOCHEMISTRY Optical Isomerism: Optical Activity, Specific Rotation, Chirality/Asymmetry, Enantiomers, Molecules with two or more chiral-centres, Diastereoisomers, meso compounds etc.
- CONFORMATIONAL ANALYSIS OF ALKANES Conformational analysis of alkanes, ethane, butane, cyclohexane and sugars. Relative stability and Energy diagrams.
- Carbon-Carbon sigma (?) bonds Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fittig Reaction, Free radical substitutions.
- Carbon-Carbon Pi (?) bonds: Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cb reactions. Saytzeff and Hofmann eliminations.
- Students able to know AROMATIC HYDROCARBONS.

Paper- III Physical Chemistry

- Students able to know mathematical concepts for chemistry Basic Mathematical Concepts: Logarithmic relations, curve sketching, linear graphs, Properties of straight line, slope and intercept, Functions, Differentiation of functions, maxima and minima.
- Gaseous state chemistry kinetic molecular model of a gas: postulates and derivation of the kinetic gas equation; collision frequency; collision diameter.
- students able to know liquid state chemistry Intermolecular forces, magnitude of intermolecular force, structure of liquids, Properties of liquids, viscosity and surface tension.
- Students able to know COLLOIDS and SURFACE CHEMISTRY Application of colloids.

- **SOLID STATE CHEMISTRY Bragg's law, a simple account of rotating crystal method and powder pattern method. Crystal defects etc.**
- **CHEMICAL KINETICS Rate of reaction, Factors influencing rate of reaction, rate law, rate constant, Order and molecularity of reactions, rate determining step, Zero, First and Second order.**
- **About CATALYSIS and their application.**

Course Outcome B.Sc. PART II

Paper- I Inorganic Chemistry

- **CHEMISTRY OF TRANSITION SERIES ELEMENTS and their Applications.**
- **Oxidation and Reduction: Redox potential, electrochemical series and its applications, Principles involved in extraction of the elements.**
- **COORDINATION COMPOUNDS: Werner's theory and its experimental verification, IUPAC nomenclature of coordination compounds, isomerism in coordination compounds. Stereochemistry of complexes with 4 and 6 coordination numbers.**
- **COORDINATION CHEMISTRY Valence bond theory (inner and outer orbital complexes), electroneutrality principle and back bonding. Crystal field theory.**
- **CHEMISTRY OF LANTHANIDE ELEMENTS Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation and application and ACTINIODS.**
- **ACIDS BASES : Arrhenius, Bronsted-Lowry, conjugate acids and bases, relative strengths of acids and bases, the Lux-flood, solvent system and Lewis concepts of acids and bases.**
- **NON-AQUEOUS SOLVENTS.**

Paper- II Organic Chemistry

- **ORGANIC HALIDES, SN1, SN2 and elimination reactions.**
- **Alcohols: Nomenclature, preparation, properties and relative reactivity of 1°, 2°, 3° alcohols.**
- **Structure and bonding in phenols, physical properties and acidic character, Comparative acidic strength of alcohols and phenols, acylation and carboxylation.**
- **Nomenclature, structure and reactivity of carbonyl group. General methods of preparation of aldehydes and ketones.**
- **Use of acetate as protecting group, Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones,**

- **CARBOXYLIC ACIDS Preparation, Structure and bonding, Physical and chemical properties including, acidity of carboxylic acids, effects of substituents on acid strength.**
- **CARBOXYLIC ACID DERIVATIVES**
- **ORGANIC COMPOUNDS OF NITROGEN Preparation of nitroalkanes and nitroarenes. Chemical reactions of nitroalkanes. Mechanism of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium.**

Paper- III Physical Chemistry

- **THERMODYNAMICS-I Intensive and extensive variables; state and path functions; isolated, closed and open systems; law of thermodynamics. First law: Concept of heat, work, internal energy and statement of first law; enthalpy, Relation between heat capacities, calculations of q, w, U and H for reversible, irreversible and free expansion of gases under isothermal and adiabatic conditions. Joule-Thompson.**
- **Thermo chemistry, Laws of Thermo chemistry, Heats of reactions, standard states; enthalpy**
- **THERMODYNAMICS-II Second Law of Thermodynamics: Spontaneous process, Second law, Statement of Carnot cycle.**
- **Gibbs and Helmholtz free energy, variation of G and A with pressure, volume, temperature.**
- **CHEMICAL EQUILIBRIUM Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical equilibria in ideal gases.**
- **IONIC EQUILIBRIA Ionization of weak acids and bases, pH scale, common ion effect; dissociation constants of mono protic acids (exact treatment). Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions.**
- **Phase rule, Phase, component and degree of freedom, derivation of Gibbs phase rule, Clausius-Claperon equation and its applications.**
- **PHOTOCHEMISTRY Characteristics of electromagnetic radiation, Interaction of radiation with matter, difference between thermal and photochemical processes.**

COURSE OUTCOMES OF B.Sc. PART III

Paper- I Inorganic Chemistry

- **METAL-LIGAND BONDING IN TRANSITION METAL COMPLEXES Limitations**

of valence bond theory, Limitation of Crystal Field Theory, Application of CFSE.

- MAGNETIC PROPERTIES OF TRANSITION METAL COMPLEXES Types of magnetic behavior, methods of determining magnetic susceptibility, spin only formula, L-S coupling.
- ORGANOMETALLIC CHEMISTRY Definition and classification of organometallic compounds on the basis of bond type. Concept of hapticity of organic ligands. Metal carbonyls: 18-electron rule, electron count of mononuclear, polynuclear Zeise's salt.
- BIOINORGANIC CHEMISTRY Essential and trace elements in biological processes, Excess and deficiency of some trace metals, Toxicity of some metal ions (Hg, Pb, Cd and As), metalloporphyrins with special reference to hemoglobin and myoglobin. Biological role of alkali and alkaline earth metals with special reference to Ca2+ and Mg2+, nitrogen fixation.
- HARD AND SOFT ACIDS AND BASES (HSAB) and Types of inorganic polymers,.

Paper- II Organic Chemistry

- HETEROCYCLIC COMPOUNDS Classification and nomenclature, Structure, aromaticity in 5-membered and 6-membered rings containing one heteroatom.
- ORGANOMETALLIC REAGENT Organomagnesium compounds: Grignard reagents formation, structure and chemical reactions.
- ORGANIC SYNTHESIS VIA ENOLATES Keto-enol tautomerism of ethyl acetoacetate. Robbinson annulations reaction etc.
- CARBOHYDRATES Occurrence, classification and structure their biological importance.
- AMINO ACIDS, PROTEINS AND NUCLEIC ACIDS Classification and Nomenclature of amino acids, Configuration and acid base properties of amino acids, Isoelectric Point etc.
- SYNTHETIC POLYMERS and Application,
- SYNTHETIC of DYES and Application
- INFRA-RED SPECTROSCOPY

Basic principle, IR absorption Band their position and intensity, IR spectra of organic compounds.

- UV-VISIBLE SPECTROSCOPY NMR SPECTROSCOPY and Application.

Paper- III Physical Chemistry

- QUANTUM MECHANICS–I Black-body radiation, Planck's radiation

law, photoelectric effect, Compton effect. Operator: Hamiltonian operator, angular momentum operator, physical significance of ? & ?2 etc.

- QUANTUM MECHANICS–II Quantum Mechanical approach of Molecular orbital theory, basic ideas-criteria for forming M.O. and A.O., LCAO approximation, formation of H2+ ion, calculation of energy levels from wave functions, wave functions.
- SPECTROSCOPY Introduction: Characterization of Electromagnetic radiation, regions of the spectrum, representation of spectra, width and intensity of spectral transition, Rotational Spectrum of Diatomic molecules.
- Vibrational Spectroscopy and Application.
- Raman spectrum and Application.
- ELECTROCHEMISTRY-I Elementary ideas of Debye-Huckel-Onsager's equation for strong electrolytes , relaxation and electrophoretic effects.
- ELECTROCHEMISTRY-II Electrochemical cell and Galvanic cells – reversible and irreversible cells, conventional representation of electrochemical cells, EMF of the cell and effect of temperature on EMF of the cell, Nernst equation Calculation of ?G, ?H and ?S for cell reactions.
- Corrosion-types , theories and prevention.

M.SC. CHEMISTRY COURSE OUTCOME

1. Semester-I

Paper I- Inorganic Chemistry

Knowledge the concept of coordination Chemistry, stability of the complexes and stereochemistry of complexes. Knowledge about structure and bonding.

Paper II- Organic Chemistry

Students able to learn the concepts of stereochemistry, conformational analysis and their application in the determination of reaction mechanism. To understand the nucleophilic and electrophilic substitution.

Paper III- Analytical Chemistry

Students able to learn about the chemical analysis, solvent extraction,separation technique and spectroscopic technique.

Paper IV- Group Theory Spectroscopy and Diffraction method

Knowledge of the diffraction techniques and to learn about group theory and spectroscopy.

Paper V- RESEARCH METHODOLOGY & COMPUTER APPLICATION

- Understands the concept and place of research in concerned subject

- Gets acquainted with various resources for research

- Becomes familiar with various tools of research

- Gets conversant with sampling techniques, methods of research and techniques of analysis of data

- Achieves skills in various research writings

- Gets acquainted with computer Fundamentals and Office Software Package .

1. Semester-II

Paper I- Inorganic Chemistry

Knowledge about the theories of coordination complexes, Chemistry of lanthanides, to learn about Nanotechnology and use of Inorganic Compounds in Biological Chemistry.

Paper II- Organic Chemistry

Students able to learn the various types of reactions, rearrangements and their synthetic utility.

Paper III- Physical Chemistry

Knowledge of the various types of spectroscopy and radio chemistry.

Paper IV- Applied Chemistry

Students able to gain the knowledge in the preparation, properties, characterization and Uses of polymers.

Paper V- Social outreach and Skill development

Students able to knowledge about social outreach and project.

Semester-III

Paper I- APPLICATIONS OF SPECTROSCOPY-INORGANIC CHEMISTRY

Knowledge about application of Spectroscopy in various field of In organic Chemistry.

Paper II - APPLICATIONS OF SPECTROSCOPY-ORGANIC CHEMISTRY

Knowledge about application of Spectroscopy in various field of Organic Chemistry.

Paper III - PHOTOCHEMISTRY

Students able to learn about principle and application of Photochemistry in various fields.

Paper IV- HETEROCYCLIC CHEMISTRY

Knowledge of Nomenclature, Preparations, Characteristics and Structure of Heterocyclic.

Paper V- INTELLECTUAL PROPERTY RIGHTS, HUMAN RIGHTS & ENVIRONMENT: BASICS

- Understands the concept and place of research in concerned subject

- Gets acquainted with various resources for research

- Becomes familiar with various tools of research

- Gets conversant with sampling techniques, methods of research and techniques of analysis of data.

Semester-IV

Paper I- BIOINORGANIC CHEMISTRY

Knowledge about Trace metal ions, Enzymes and medicinal bio inorganic chemistry.

Paper II - ENVIRONMENTAL CHEMISTRY

Knowledge about Earth, Biosphere and Pollution and its Control.

Paper III - SOLID STATE CHEMISTRY

Knowledge of Solid States and their structure and application.

Paper IV - PHOTO INORGANIC CHEMISTRY

Knowledge about Photochemistry, Excited States and Ligand field Photochemistry.

Paper V- Dissertation

Students able to orient about minor project and research in different field of chemistry.

DEPARTMENT OF ZOOLOGY

B Sc Under graduate

Zoology Program Outcomes, Program Specific Outcomes and Course Outcomes Zoology Program Outcomes:

ProgramOut Come-

PO-1. After studying this program,student will be more equipped to learn and know about different biological system.Drawing upon this knowledge. PO-2.They will be able to give specific examples of the physiological adaptations, development, reproduction and behaviour of different forms of life.

PO-3.Student will be able to expain how organisms function at the level of the gene,genome,cell,tissue and organ-system.

Course out Come-B.Sc.-I(Paper –I) Cell Biology and Non-Chordata Unit-I.

CO-1.To understand the structural organization and function of Intracellular Organelles.

CO-2.To study the structure, Composition and functions of DNA and RNA. CO-3.Students will understand the structures, Positions and functions of Plasma membrane, Endoplasmic reticulum, Mitochondria and Golgi complex.

Unit-II.

CO-1.Students will acquire knowledge about Chromosomes and cell

divisions.

CO-2.They will also know about cancer cell.

CO-3.Studets will understand the elementary idea about Immunity.

Unit-III.

CO-1. Students will have learning about the basic taxonomy and systematic and classification of Protozoa, Porifera ,Coelenterata.

CO-2.To study the Sexual and asexual reproduction in unicellular Paramecium.

CO-3.Students will acquire knowledgeof structure and life cycle ofSycon and Obelia.

CO-1.Students will have learning about the basic taxonomy and systematic and classification of Platyhelminthes, Nemathelminthes, Annelida and Arthopoda up to Order.

CO-2.Students will understand the life cycle and pathogenesis of Parasite Fasciola and Ascaris.

CO-3.They will also know about Pheretima and Palaemon.

Unit-V.

CO-1.Students will have learning about the basic taxonomy ,systematics and classification of Phylum Mollusca and Echinodermata up to Order.

CO-2.They will learn details of external feature, digestive system, respiratory system and reproductive system in Pila.

CO-3.To study the various system of Starfish.

Course out Come-B.Sc.-I (Paper –II) Chordata and Embryology Unit-I

CO-1.To study the classification, structural pecularities of Hemichordata

,protochordata and their evolutionary Importance.

CO-2.Students will be able to analyse the Comparative knowledge to

Petromyzon and Myxine.

CO-3.Students will be able to understand the principles oftaxonomy

,systematics and classification of Chordata.

Unit-II

CO-1.Students will be able to gain a comprehensive knowledge of Poisonous and non poisonous snakes.

CO-2.Students will understand about snake venom and poison apparatus.

CO-3.Students will be able to analyse the process of metamorphosis of amphibians.

Unit-III.

CO-1.Students will be able to gain a comprehensive knowledge about Migration, Flight adaptation and Perching mechanism in Bird .

CO-2.Students will be able to evaluationofPrototheria,Metatheria ,Eutheria and their affinities.

CO-3.Students will understand adaptation of aquatic Mammals.

CO-1.Understand the concepts of embryology.

CO-2.Gains comprehensive knowledge about gametogenesis, cleavage mechanisms, gastrulation,parthenogenesis and role of hormones in metamorphosis and regeneration.

Unit-V

CO-1.Students willunderstandsthe concepts of Embryonic induction and Differentiation.

CO-2.To understands the formation of three germinal layers in Frog.
CO-3.Students will be able to analysis the concept of regeneration.

Course out Come-B.Sc.-II (Paper –I) Anatomy and Physiology Unit-I

CO-1.Students will have understood the structure of different Integument and its derivatives.

CO-2.They will also understand the Comparative anatomy ofvarious organ systems of vertebrates.

CO-3.Understands about structure composition of Scales hair and feathers .

Unit-II

CO-1.Student will understand the various type of Endoskeleton.
CO-2.Course provides students comprehensive understanding about Circulatory system and Urinogenital system.

CO-3.students gain evolutionary knowledge about Heart and Aortic arches.

Unit-III

CO-1.Course provides students comprehensive understanding about neurobiology, neurophysiology, molecular neurobiology.

CO-2.Comparative animal physiology is a comprehensive subject that gives in depth knowledge of various physiological processes Ear and Eye.

CO-3.Describing structural and functional knowledge of gonad and ducts.

Unit-IV

CO-1.After going through this course on Animal Physiology(Vertebrates)', the students have a good

Understanding of how vertebrate animals work.

CO-2.The students will be able to explore an original query of blood Coagulation.

CO-3.Students will be able to understand the Cardiac cycle of heart.

Unit-V

CO-1.After successfully completing this course, the students will be

able to Understand Synaptic transmission to Nerve impulse.

CO -2.Students gain knowledge of physiology of Muscle contraction.

CO-3.After successfully completing this course, the students will be able to understand regulation of processes of Excretion.

Course out Come-B.Sc.-II(Paper –II) Vertebrate Endocrinology, Reproductive biology, Behavior, Evolution and Applied Zoology Unit-I

CO-1.They will learn detail of endocrinology with classification of hormones, their biosynthesis.

CO-2.Learn basic principles of Hormone.

CO-3.Understand the basic organization of the Endocrine disorder of Pituitary,Thyroid,Adrenal and Pancreas.

Unit-II

CO-1.Students of this class will be able to understand the importance of hormones in the Gametogenesis.

CO -2.After successfully completing this course, the students will be able to understand to Mechanism of parturition.

CO-3.Gain knowledge about the Reproductive cycle in vertebrates.

Unit-III

CO -1.Description of Variation.

CO-2.Understanding the current Evidences of organic evolution.
CO-3.Conceptualization and theories of organic evolution.

Unit-IV

CO-1.After successfully completing this course, the students will be able to demonstrate knowledge of key concepts in animal behavior.

CO-2.Learn a wide range of theoretical and practical techniques used to study animal behavior.

CO-3.Thinkingability , flexibly and apply knowledge to new behavior problem.

Unit-V

CO-1.Understands concepts of fisheries, fishing tools and site selection. CO-2.Students will be able to biological and chemical pest control.

CO-3.Gives knowledge of silk worm rearing andMulberry cultivation.

Course out Come-B.Sc.-III (Paper –I) Ecology, Environmental Biology: Toxicology, Microbiology and Medical Zoology

Unit-I

CO-1.Students will understand the various features and aspects of population ecology, community ecology and ecosystem ecology.

CO-2.They will acquire knowledge about environmental biology in details. CO-3.To studies the various pollution and their harmful effect.

Unit-II

PO-1.Student will be learning the various issues related to biodiversity loss and conservation as well as status, conditions and conservation of forest and wild life.

CO-2.After successfully completing this course, the students will be able to Understands concepts of energy flow in ecosystem.

CO-3.Understands laws of limiting factor of environment.

Unit-III

CO-1.The study of this paper students gain knowledge in the basic concept of Toxicology.

CO-2.Imparts knowledge regarding the various Heavy metal toxicity.

CO-3.It provides opportunities for student’s research projects, internships in assessing the effects of poisonous animal.

Unit-IV

CO-1.They will also know the various tools and techniques related to industrial microbiology.

CO-2.Understanding of Industrial microbiology and production of penicillin

.CO-3.Student's gains knowledge about microbiology of milk and milk production.

Unit-V

CO-1.They also will acquire knowledge about some parasites for their life cycle, pathology, diagnosis, symptoms and treatment.

CO-2.They will also have knowledge about the basics of parasite, host interaction etc.

CO-3. To study about pathogenic protozoan's and helminthes and their vector and treatment.

Physiology,Biochemistry,Biotechniques Unit-I

CO-1.Students will learn the fundamental genetics like linkage and linkage map.

CO-2.Understanding the chromosome anomalies and associated diseases.
CO-3.Knowledge about gene and chromosomal mutation.

Unit-II

CO-1.To studies the mechanism of active transport and its role in mitochondria and Endoplasmic reticulum.

CO-2.Understanding of general idea about pH and buffer.

CO-3.To understands about the amino acid and peptides and its structure and biological function.

Unit-III

CO-1.Students will understand the basic and fundamental biochemistry of carbohydrates, proteins, lipids and nucleic acids.

CO-2.Students will understand the metabolism of carbohydrates, lipids and protein in detail.

CO-3.They will also understand the nature, mechanism of protein and their metabolism.

Unit-IV

CO-1.Student will acquire knowledge about recombinant DNA and gene therapy.

CO-2.To understands the scope and importance of tissue ulture,hybridoma,transgenic animals and gene library.

CO-3.Students gain knowledge about various tools & techniques used in gene cloning.

Unit-V

CO-1.Students will acquire knowledge some instrumentation such as light microscope, compound, phase contrast and electron microscopes.

CO-2.Studentsgain knowledge about various tools & techniques used in biological systems and gives them insight about their use in research.

CO-3.To study principles and Acquired skills the separation methods of centrifugation,chromatography and electrophoresis.

DEPARTMENT OF PHYSICS

B.Sc. I Year

Paper-I: Mechanics, Oscillations and Properties of matters

Course Outcomes: After completing the course the students will able to : -

1. **Understand laws of motion and their application to various dynamical situations, motion of inertial frames and concept of Galilean invariance. He / she will learn the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.**
2. **Understand the analogy between translational and rotational dynamics, and application of both motions simultaneously in analyzing rolling with slipping.**
3. **Write the expression for the moment of inertia about the given axis of symmetry for different uniform mass distributions.**
4. **Understand the phenomena of collisions and idea about center of mass and laboratory frames and their correlation.**

5. Understand the principles of elasticity through the study of Young Modulus and

modulus of rigidity.

1. Understand simple principles of fluid flow and the equations governing fluid dynamics.
2. Apply Kepler’s law to describe the motion of planets and satellite in circular orbit, through the study of law of Gravitation.
3. Explain the phenomena of simple harmonic motion and the properties of systems executing such motions.
4. In the laboratory course, the student shall perform experiments related to mechanics (compound pendulum), rotational dynamics (Flywheel), elastic properties (Young Modulus and Modulus of Rigidity) and fluid dynamics (verification of Stokes law, Searle method) etc.

B.Sc. I Year

Paper-II: Electricity, Magnetism and Electromagnetic Theory

Course Outcomes: After completing the course the students will able to : -

1. Demonstrate Gauss law, Coulomb’s law for the electric field, and apply it to systems of point charges as well as line, surface, and volume distributions of charges.
2. Explain and differentiate the vector (electric fields, Coulomb’s law) and scalar (electric potential, electric potential energy) formalisms of electrostatics.
3. Apply Gauss’s law of electrostatics to solve a variety of problems.
4. Articulate knowledge of electric current, resistance and capacitance in terms of electric field and electric potential.
5. Demonstrate a working understanding of capacitors.
6. Describe the magnetic field produced by magnetic dipoles and electric currents.
7. Explain Faraday-Lenz and Maxwell laws to articulate the relationship between electric and magnetic fields.
8. Understand the dielectric properties, magnetic properties of materials and the

phenomena of electromagnetic induction.

1. Describe how magnetism is produced and list examples where its

effects are observed.
2. Apply Kirchhoff's rules to analyze AC circuits consisting of parallel and/or series combinations of voltage sources and resistors and to describe the graphical relationship of resistance, capacitor and inductor.
3. Apply various network theorems such as Superposition, Thevenin, Norton, Reciprocity, Maximum Power Transfer, etc. and their applications in electronics, electrical circuit analysis, and electrical machines.
4. In the laboratory course the student will get an opportunity to verify various laws in electricity and magnetism such as Lenz's law, Faraday's law and learn about the construction, working of various measuring instruments.
5. Should be able to verify of various circuit laws, network theorems elaborated above, using simple electric circuits.

B.Sc. II Year

Paper-I: Thermodynamics, Kinetic Theory and Statistical Physics
Course Outcomes: After completing the course the students will able to:

Comprehend the basic concepts of thermodynamics, the first and the second law of thermodynamics, the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations.

1. Learn about Maxwell's thermodynamic relations.
2. Learn the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equitation of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion and Brownian motion.
3. Learn about the real gas equations, Van der Waal equation of state, the Joule-Thompson effect.
4. In the laboratory course, the students are expected to do some basic experiments in thermal Physics, viz., determinations of Stefan's constant, coefficient of thermal conductivity, temperature coefficient of resistant, variation of thermo-emf of a thermocouple with temperature difference at its two junctions and calibration of a thermocouple.
5. Understand the concepts of microstate, macrostate, ensemble, phase space, thermodynamic probability and partition function.
6. Understand the combinatoric studies of particles with their distinguishably or

indistinguishably nature and conditions which lead to the three different distribution laws e.g. Maxwell-Boltzmann distribution, Bose-Einstein distribution and Fermi-Dirac distribution laws of particles and their derivation.

1. Comprehend and articulate the connection as well as dichotomy between classical statistical mechanics and quantum statistical mechanics.
2. Learn to apply the classical statistical mechanics to derive the law of equipartition of energy and specific heat.
3. Understand the Gibbs paradox, equipartition of energy and concept of negative

temperature in two level system.

1. Learn to derive classical radiation laws of black body radiation. Wiens law, Rayleigh

B.Sc. II Year

Paper-II: Waves, Acoustics and Optics

Course Outcomes: After completing the course the students will able to : -

1. Recognize and use a mathematical oscillator equation and wave equation, and derive these equations for certain systems.
2. Apply basic knowledge of principles and theories about the behaviour of light and the physical environment to conduct experiments.
3. Understand the principle of superposition of waves, so thus describe the formation of standing waves.
4. Explain several phenomena we can observe in everyday life that can be explained as wave phenomena.
5. Use the principles of wave motion and superposition to explain the Physics of

polarisation, interference and diffraction.

1. Understand the working of selected optical instruments like biprism, interferometer, diffraction grating, and holograms.
2. In the laboratory course, student will gain hands-on experience of using various optical instruments and making finer measurements of wavelength of light using Newton Rings experiment, Fresnel Biprism etc. Resolving power of optical equipment can be learnt firsthand.

3. The motion of coupled oscillators, study of Lissajous figures and behaviour of

transverse, longitudinal waves can be learnt in this laboratory

course.

1. Understand the spontaneous and stimulated emission of radiation, optical pumping and population inversion. Three level and four level lasers. Ruby laser and He-Ne laser in details. Basic lasing.

B.Sc. III Year

Paper-I: Relativity, Quantum Mechanics, Atomic Molecular and Nuclear Physics

Course Outcomes: After completing the course the students will able to : -

1. Know main aspects of the inadequacies of classical mechanics and understand historical development of quantum mechanics and ability to discuss and interpret experiments that reveal the dual nature of matter.
2. Understand the theory of quantum measurements, wave packets and

uncertainty principle. 27

1. Understand the central concepts of quantum mechanics: wave functions, momentum and energy operator, the Schrodinger equation, time dependent and time independent cases, probability density and the normalization techniques, skill development on problem solving e.g. one dimensional rigid box, tunneling through potential barrier, step potential, rectangular barrier.
2. Understanding the properties of nuclei like density, size, binding energy, nuclear forces and structure of atomic nucleus, liquid drop model and nuclear shell model and mass formula.
3. Ability to calculate the decay rates and lifetime of radioactive decays like alpha, beta, gamma decay. Neutrinos and its properties and role in theory of beta decay.
4. Understand fission and fusion well as nuclear processes to produce nuclear energy in nuclear reactor and stellar energy in stars.

5. In the laboratory course, the students will get opportunity to perform the following experiments
6. Measurement of Planck's constant by more than one method.
7. Verification of the photoelectric effect and determination of the work Function of a metal.
8. Determination of the charge of electron and e/m of electron.
9. Determination of the ionization potential of atoms.
10. Determine the wavelength of the emission lines in the spectrum of Hydrogen atom.
11. Plan and Execute 2-3 group projects in the field of Atomic, Molecular and Nuclear Physics in collaboration with other institutions, if, possible where advanced facilities are available.

B.Sc. III Year

Paper-II: Solid State Physics, Solid State Devices and Electronics
Course Outcomes: After completing the course the students will able to : -

1. A brief idea about crystalline and amorphous substances, about lattice, unit cell, miller indices, reciprocal lattice, concept of Brillouin zones and diffraction of X-rays by crystalline materials.
2. Knowledge of lattice vibrations, phonons and in depth of knowledge of Einstein and Debye theory of spe2c7ific heat of solids. At knowledge of different types of magnetism from diamagnetism to ferromagnetism and hysteresis loops and energy loss.
3. Secured an understanding about the dielectric and ferroelectric properties of materials.
4. Understanding above the band theory of solids and must be able to differentiate insulators, conductors and semiconductors.
5. Understand the basic idea about superconductors and their classifications.
6. N- and P- type semiconductors, mobility, drift velocity, fabrication of P-N junctions; forward and reverse biased junctions.
7. Application of PN junction for different type of rectifiers and voltage regulators.
8. NPN and PNP transistors and basic configurations namely common base, common emitter and common collector, and also about current and voltage gain.
9. Biasing and equivalent circuits, coupled amplifiers and feedback in amplifiers and oscillators.
10. To characterize various devices namely PN junction diodes,

LEDs, Zener diode, solar cells, PNP and NPN transistors. Also construct amplifiers and oscillators using discrete components.

11. Basic working of an oscilloscope including its different components and to employ the same to study different wave forms and to measure voltage, current, frequency and phase.
12. Secure first-hand idea of different components including both active and passive components to gain a insight into circuits using discrete components and also to learn about integrated circuits.
13. About analog systems and digital systems and their differences, fundamental logic gates, combinational as well as sequential and number systems.
14. Synthesis of Boolean functions, simplification and construction of digital circuits by employing Boolean algebra.
15. In the laboratory he is expected to construct both combinational circuits and sequential circuits by employing NAND as building blocks and demonstrate Adders, Subtractors, Shift Registers, and multivibrators using 555 ICs.

ARTS

HINDI LANGUAGE

COURSE OUTCOME

UG

- fgUnh Hkk’kk vkSj fyfi dk KkuA
- O;ogkfjd rkSj ij fgUnh dk iz;ksx o lS)kafrd le> fodflr djukA
- rduhdh “kCnkoyh ,oa vuqoknA
- dEI;wVj esa fgUnh ds vuqiz;ksxA
- fgUnh Hkk’kk vkSj mlds fofo/k #iks+ ¼ ltZukRed Hkk’kk] lapkj Hkk’kk] dk;kZy;hu Hkk’kk] foRr] of.kT; dh Hkk’kk vkfn½ dk ifjp;A
- lekpkj ys[ku ls ifjp;A
- fgUnh Hkk’kk] dkS”ky fodkl ds varxZr vuqokn dh le> jkstxkj ds volj iznku djukA

ENGLISH LANGUAGE

COURSE OUTCOME

UG

- **Proficiency in reading and writing.**
- **To develop effective skills better social interaction and incalculable self directed learning.**
- **Analyze language at different language levels.**
- **Teach them the zeal of creativity by teaching them how to write.**

ENVIRONMENTAL STUDIES

COURSE OUTCOME

UG

- **To acquire awareness of the environment as a whole and its related problems.**
- **To know ecology and environment of India and world.**
- **Effect of pollution on environment.**
- **Conservation of Flora and Fauna.**

Program Outcomes

Student completing the requirements for B.A degree in political science will be able to :

1. **Write clearly and with purpose on issue of National and International and domestic politics and public policy:**
2. **Participate as a civically engaged member of society:**
3. **Analyze political and policy problem and formulate policy options:**
4. **Use of electronic and traditional library resource to research key local, state, national international policy issues and present results:**
5. **Demonstrate competency with basic tools underling modern social research including competency in statistics and qualities analysis**
6. **Demonstrate critical thinking including the ability to form an argument, detect fallacies, and martial evidence, about key issues of public policy and politics;**
7. **Discus the major theory and concept of political science and its subfields; and**

8. Deliver thoughtful and well articulated presentation of research finding,

DEPARTMENT OF POLITICAL SCIENCE

Vision

The department of Political science conducts continuous evaluation of girl students regularly due to which the intellectual understanding of the girl students, of writing ability and question in relation to nature etc. Information received. The girls who excelled in this with this the department ensures its level of success. So that the examination results of the girl students can be improved.

On the implementation of Semester system, Seminars and project work, social learning research work is done by the students on the prescribed time period. Having experience in research work.

Mission

Programmes Specific outcome

The Department is running two programmes namely M.A and PhD political science in the research center. Programme have been designed in a manner so as provide a holistic approach to the study of political science. The core of the discipline is maintained with courses on political philosophy both western and Indian and key concepts of politics. These course provide a solid grounding to the learners on the history of ideas and the larger issues of epistemology in social science. They also try to integrate the concepts with the practices and government and to understand their relevance in totality. The second set of paper on Indian politics including study of constitution, institutions, processes and political economy entail a detailed study and analysis of morphology and anatomy of politics in India. While familiarizing the students with legal framework of government institution, the courses tent to engage them with the undercurrents of political practice and

developments process. By learning the evolution of concepts and theories of Indian politics the students are able to critically reflect on the contemporary development the courses on comparative politics and international relations provide an overview of political developments at the global level. Comparative analysis not only helps in understanding the patterns of institutionalism, democratization and development in various polities. But also provide a framework for explaining variations. In addition specialized course like . Human rights peace and conflict studies and state politics introduce the students to certain new dimensions of politics. By doing these courses students develop a solid footing over the vast field of knowledge in the discipline that also in a way encourage them to undertake future research in these unconventional areas of political science. Through them they also tend to develop an interdisciplinary focus without deviation from the core of the discipline.

Research methodology is taught both in M.A and PhD political science in the research center. While providing an epistemological and philosophical grounding on the subject the course familiarizes the students with specialized techniques of qualitative and quantitative research in social sciences. The field work component of the course further trains the students to undertake field research and write research reports. Advance paper in political theory. Global politics and women and politics further enhance the knowledge of students in these areas and also help them identify their areas of research.

B.A I Year Political Science

Course Outcomes

Course Title:- Political Theory

Course Code:- 46

Paper First

Course Outcome:- By doing this course student will have develop theoretical insight on political concept. This will have undertaking demonstrative knowledge of the leading theory, literature, and approach in the political science and develop the student with the knowledge related to political theory and concept and other new trends under this subject also have knowledge of the events and changes related to the new political process. Apart from this student are also aware of the concept of right, justice freedom, Equality and Sovereignty and law.

Course Title:- Indian Government and Politics

Course Code:- 47

Paper:- II

Course Outcome:- upon completion of this paper student will develop a comprehensive understanding of Indian political institution and their function in India additional ,they will also be familiarized with the evolution and working of political party and the political parties in India and pressure group has taken shape under diverse social setting. This course on the state politics in India will develop an understanding in the student about the historical and emerging trends in political process in the Indian state. The student will understand the federal process in India.

B.A II Year Political Science

Course Title:- Political Thought

Paper:- I

Course Code:- 61

Course Outcome:- This purpose of this course expressed in the title itself. As many western poltical thinkers provide various thought that is important in new scenario.

Course Title:- Comparative Government and Politics

Paper:- II

Course Code:- 62

Course Outcome:- After completing the course student will develop a detailed understanding of theory and methods of comparative politics. They will be familiar with different models of political system and they way political dynamics have changed and shaped society from time to time. Discus the theory and apply the other countries institution , political behavior and political ideas as America, Britain, china and Switzerland countries their institute and government function and political process.

B.A III Year Political Science

Course Title:- International Politics and foreign policy India

Paper:- I

Course Code:- 103

Course Outcome:- This course enables student to development an understanding of the international politics identify names and geography location of most contemporary state. Describe the role of individual and cultural value and perception, and the important of empirical evidence in analyzing international problems. An understanding of the fundamentals of foreign policy making in India . An understanding of the foreign policy challenges faced by India.

Course Title:- Public Administration

Course Code:- 104

Paper:- II

Course Outcome:- After completing this course, the students will have a clear understanding of traditional and emerging theories and principle of public administration . This would also acquaint them with changing management practices in the light of expanding public works and need for greater collaboration with non-state agencies.

M.A IN POLITICAL SCIENCE

Program Outcome

The department is dedicated to promote teaching and research in diverse fields of political science including Indian politics, comparative politics, international relation and human rights. Presently the department is offering Master’s programmes and PhD research center in Political Science the program outcomes of the programmes are as follows:

- **To develop comprehensive understanding of the subject by teaching both conventional and new areas of relevance in the domain of political theory and philosophy, Indian politics, comparative politics, public administration and international politics.**
- **To develop comprehensive and interdisciplinary knowledge by emphasizing inter-linkages between various political, economic and social issues and challenges.**
- **To generate socially-informed knowledge and cater to the educational upliftment of marginalized communities through papers like Human Rights, Political Ideas in Modern India and**

Women and Political in India.

- To develop theoretically rich and empirically grounded knowledge
- To motivate and inform students about the opportunities and future prospects in the field.
- To develop the overall personality of students and prepare them to compete and succeed in their endeavours.
- To provide a progressive, healthy and vibrant environment to its students as well as teachers for the purpose of developing a department known for its academic and intellectual pursuit.
- To inculcate the values of tolerance, progressiveness and fraternity that contributes towards the making of a healthy and prosperous society.
- An M.A Dissertation and its viva –voce was also introduced to train the students in writing research paper and knowledge of research process.

M.A IN POLITICAL SCIENCE

1ST SEMESTER

1- Course title- Debates in political theory

Course code- MAP101

Course type- CCC

Course outcome - This course enables students to develop an understanding of the basic concepts in political theory and engages in critical analysis of the subject. It also gives an opportunity to the students to develop upon contemporary theories and views of scholars creating a deeper understanding and gain knowledge.

2-Course title- Comparative political analysis

Course code- MAP102

Course type- CCC

Course outcome - One of the important aim of this course students will develop a detail understanding of theory and method of comparative politics and of developing countries as well as advance industrialized countries. They will familiar with different model of political system and the way political dynamics have change and shaped society for time to time.

3-Course title- India government and politics

Course code- MAP103

Course type- CCC

Course outcome - One of the important aim of this course is to equip students of various disciplines with a basic understanding of the political system in India through the study of constitution and government of this paper .students will develop on understanding of constitution of India and the political system that exists in India. Further the student will have a general understanding about the relation of constitution as a guiding document will the functioning of various governance institutions at central, state and local level.

4-Course title- Research methodology and computer application basics

Course code- MAPS01

Course type- OSC

Course outcome - This page trains the students to undertake research by familiarizing them with the basic and advance tools and technique of field studies. So after competing it the students will be able to design research project and programmers in diverse area of political science. In course helps to develop various research writing skills. And also help to get acquainted with computer fundamentals and office software package. We will familiar with computer basic knowledge in future.

5 -Course title- Theories of international relations

Course code- MAP A01

Course type- ECC/CB

Course outcome - By doing the course, students will have to develop theoretical might on international relation and global politics. This will help them undertaking academic assignment and research projects related will international issue which are becoming very salient in today’s globalized world.

6 -Course title- Interpreting Modern India

Course code- MAP A02

Course type- CCC/CB

Course outcome - After completing this course student will be familiar with India's rich intellectual tradition and its relevance in today's time. This course is give idea of what India is today where it might be heading .The course also focus on various related discourses of the cultural social, political and economic that is the site of intense debate today.

7 -Course title- Contemporary debates in political theory

Course code- MAP A03

Course type- ECC/CB

Course outcome - After completion of paper the students will be able to grasp the various aspects and perspective related to contemporary political philosophy. The students will also be able to reflect the issues and problems that they confront in their duty to day life. The paper will enrich and deepen their understanding of the subject with more rigor and clarity.

M.A IN POLITICAL SCIENCE

2nd SEMESTER

1- Course title- Administration theory: Principles and

Approaches

Course code- MAP201

Course type- CCC

Course outcome - After completing this course, the studens wil have a clear understanding of traditional and emerging theories and principal of public administration. This would also acquaint them with changing management practices in the light of expanding public work and the need for greater collaboration with non-state agencies.

2-Course title- Theme in Indian political thought

Course code- MAP202

Course type- CCC

Course outcome - One of the important aim of this course is to introduce students to the richness and variety of the tradition of Indian political thought .knowledge gain about the political Ideas of in Indian thinkers covering both ancient and modern political thinkers form renaissance to modernity.

3-Course title- Western political thought

Course code- MAP203

Course type- CCC

Course outcome - This course will let to know the students about the importance of political philosophy in shaping and influencing the state and society at large, students are expected to appreciate the idea and thoughts which are rich and insightful.

4-Course title- Social outreach and skill development

Course code- MAP221

Course type- PRJ/FST/EST

Course outcome - This course helps the student to understand the concept and place of research in concerned subject. Student will get familiar with various tools of research its gets acquainted with various resources for research. Through this course student will able to do project work easily .This course design a survey to collect political science data. And perform content analysis on a document.

5 -Course title- Ethics and Politics

Course code- MAP B01

Course type- ECC/CB

Course outcome - This course help the student to know about ethics, the ethics is inseparable from all domains of life from the issues of hunger and poverty to maters of violence and war to the problems of family decency to political virtues to the ethics of professional behaviour.

6 -Course title- Critical traditions in political theory

Course code- MAP B02

Course type- ECC/CB

Course outcome - This paper trains the student in the subject and relate the world outside class room. It provide the necessary and main stream bedrock of political theory, ancient and modern. The paper would bring out the best of the student to comprehend the day to day society critically.

7 -Course title- Social movement and revolutions

Course code- MAP B03

Course type- ECC/CB

Course outcome -This course gives the details to students about the ideology practice and social bases of different movement emphasizing the conceptual, historical and empirical distinction between revolution and social movement .Knowledge gain of student about controversies regarding Indian tradition and about social movement in colonial and independent India.

M.A IN POLITICAL SCIENCE

III- SEMESTER

1- Course title- Democracy and political institution in India

Course code- MAP301

Course type- CCC

Course outcome - One of the important aims of this course is to equal students of various discipline with a basic understanding of democratic system in India .Through the study of constitution and government at different levels.

2-Course title- Parties, election and political process in India

Course code- MAP302

Course type- CCC

Course outcome - Through this course students will develop a comprehensive understanding of political parties system and their

function in India. It also helps to know electoral process in India

3-Course title- Indian political thought

Course code- MAP303

Course type- CCC

Course outcome - Through this course students will be able to know the importance of Indian political thought in shaping and influencing the state and society at large. This course aims to familiarize students will the theory and practice concerning ancient and modern political thoughts in India.

4-Course title- Intellectual property rights, human rights and environment basic.

Course code- MAP S02

Course type- O3C

Course outcome - This course is convenient for student to understand the concept and place of research in concerned subject. It get acquainted with various resources for research and become familiar with various tools of research.

5 -Course title- Tribal studies

Course code- MAP C01

Course type- ECC/CB

Course outcome - First primary outcome of the course is to allow the students to gain understanding of an appreciation of Indian tribal people, their sovereign status, along with their cultural, spiritual, aesthetic, literacy philosophical, social political and economic condition on research work and student become familiar with various tools of research in tribal community.

6 -Course title- Democracy of human rights in India

Course code- MAP C02

Course type- ECC/CB

Course outcome -This course enables students to develop a

theoretical understanding of the concept of human right. Insofar as human rights are a crucial sub set of this discourse. They require a specific yet comprehensive treatment.

7 -Course title- Administrative theory

Course code- MAP C03

Course type- ECC/CB

Course outcome - This course will help the student to have a clear understanding of traditional and emerging theories and principal of administration theory. The focus of this course is on the theories that have shaped the emergence of modern system of governance and their related structure and process. These include western and non western tradition so that the student will get more knowledge and idea about administration theories.

M.A IN POLITICAL SCIENCE

IV- SEMESTER

1- Course title- Principle of international politics

Course code- MAP401

Course type- CCC

Course outcome - The aim of this course is to give students a through introduction to the literature on international politics, both theoretical and policy oriented. It give idea about main international relations theories and the value implicit in each of their different ways of looking at the world this course gives them the tools necessary to understand the day to day event reported in the media and basic structure of the contemporary international system.

2-Course title - India and the world

Course code- MAP402

Course type- CCC

Course outcome - The course provides a comprehensive understanding of contemporary issues in global politics by doing this course student will be able to learn the dynamic of larger issues in global

politics like state, human right, nuclear security, human security and environment and the way the global institution are responding to their different social and economic concerns. This course tells also about the foreign policy and domestic determinates.

3-Course title- Political history of Chhattisgarh

Course code- MAP403

Course type- CCC

Course outcome - This paper is about the political history and role in freedom struggle of C.G. This course gives idea about historical geographical and culture back ground of C.G and also about the role of C.G. in India's freedom struggle and give knowledge about present political system in C.G.

4-Course title- Dissertation

Course code- MAP 421

Course type- SSC/PRJ

Course outcome - This paper trains the student to undertake research work as a dissertation on a political issue and political incidents analysis as a major research project work.

5 -Course title- foreign policy of major power

Course code- MAP D01

Course type- ECC/CB

Course outcome - Upon successful completion, students will have the knowledge and skill to a sound group of key elements of international relation and foreign policy of major power and develop capacity to presently strong arguments in world politics and their concept and theories it also give idea about foreign economic policy and world power countries namely, us, Russia, china, Germany and Japan.

6 -Course title- Development process and politics in India

Course code- MAP D02

Course type- ECC/CB

Course outcome - This course help the students to develop a clear and comprehensive understanding of fundamental theories and practice concerning development tissue in India, this paper serves to familiarize students with the contemporary issue and tender of political economy.

7 -Course title- International security

Course code- MAP D03

Course type- ECC/CB

Course outcome - The aim of this course is to give students a through introduction to the literature on international security, both theoretical and policy oriented. It deploys the use of sectors to understand the new international security agenda and emphasizes the salience of levels of analysis on thinking about international security. The course begins with the mainstream IR literature on the subject and then works its way towards understanding the security problematic of third world countries and especially the way south Asians theories security.

DEPARTMENT OF SOCIOLOGY

Vision

The vision of the sociology department is to provide proficiency both in depth understanding of principles and concept of sociology, theoretical and empirical sociology the department aims to enhance the student’s knowledge in basic and applied sociology. To inculcate for a research career in academia and society by introducing advanced ideas and techniques that are applicable while emphasizing the underlying concept of sociology.

Mission

- **To impart quality education in sociology such that they aim to became social scientists in reputed research organizations. To make the students effectively disseminate their knowledge in sociology to coming generation.**
- **Develop the capacity and know- how to apply principles of sociology to solve the problems,**
- **Apply the social knowledge for sustainable development useful for society. Assume responsibility and always practice. To function effectively as individual as well as in a team.**

Program Outcomes (POS)

PO1:- Disciplinary and inter- disciplinary knowledge for capacity building . Students will acquire improved knowledge of the laws governing society through classroom teaching and fieldwork .the will develop a sense of interdisciplinary approach to identity and social institutions.

PO2:- Skills of effective and efficient communication. Students will be able to improve and enhance their communication skill such as reading, writing, listening, and speaking. This will help them to express their ideas clearly and effectively and subsequently empower them to became agents of social change and hence.

PO3:- Sence of inquiry and problem – solving skill. Students will demonstrate the core cam potencies of their discipline through analytical reasoning, problems solving and research related skill, cooperation, team work, scientific reasoning and thinking that would make them emerge as entrepreneurs or administrative personnel.

PO4:- Skill to impact society – student will develop leadership, team spirit and other skills which will help them to identity. Approach and analyze the exiting societal problems with an eye to look beyond gender, age, caste, creed or matianity. and work for the ernancipation and empowerment of humanity

PO5:- Energy, ethics and environment – they will be able to involve themselves in framing policies and development scientific temper to harness energy and work on alternate resources. They will be aware of the environmental issues and imbibe the spirit of ethical values in establishing a self – sustained environment for a healthy society

PO6:- Self – directed and lifelong learning – through digital

literacy students will engage in self – paced and curious learning with limitless knowledge acquisition and hence develop motivation for a sustained lifelong learning capability students will accumulate knowledge by continuous learning and leverage the past knowledge seamlessly to solve the problems in the future.

PO7:- National and international priorities preference and perspectives -

Students will be able to prioritize national and global issue with an aim to build a nation and an integrated world through contributions that imbibe the spirit of multicultural competency, creative thinking, critical analysis, political awareness and the much- needed international politics.

Program educational objects (PEOs)

PEO-1 Professional skill development -

To provide professional training and skill development to students in social sciences related disciplines and nurture them to became responsible persons in the society.

PEO-2 Core competency development -

To augment their core competencies and knowledge levels in social science, humanities and inter disciplinary areas b y importing education of high standards and advanced technological tools.

PEO-3 Innovative curriculum of global relevance –

To upgrade t he curriculum periodically based on scientific advancement,. Research and societal relevance, so as to cater to the shitting global issues.

PEO-4 Environmental sensitivity and sustainability to infuse environmental sensitivity in student though academic activities and hence equip them with technical skill and scientific knowledge required to protect and safe guard the environment for a sustainable future.

PEO-5 Ethical principles and holistic development to promote ethical values and focus on t he holistic development of student to become proficient skilled, competent and socially responsible people.

PEO-6 Accessibility and academic excellence- To provide an accessible learning environment of excellence and equal opportunity to students, enabling them to develop their creativity, critical thinking and leadership and employability skills.

Program Specific Outcomes (PSOS)

PSO1 Acquire scientific temper leading to critical thinking and research motivation in sociology and its allied areas.

PSO2 Gain knowledge and the skills to measure urban-rural linkage and issues. And understand the underlying principles governing the dynamics of their institution and structure.

PSO3 Appreciate the role of family, marriage, kinship institution and status of woman.

PSO4 Structure and function of society.

PSO5 Comparative study of society, and their institution.

GRADUATE ATTREBUTES IN SOCIOLOGY

GOOD Knowledge and understanding of major concept theoretical principle and subfiend like political.

Sociology rural urban sociology and trible sociology understand.

Ability to modern thought of social thinkers.

Ability to employ critical thinking and efficient problem solving skills in all the basic problem of sociology.

Capability for asking relevant question relating to the issues and problems in the field of sociology and planning executing and repriting the results of a theatrical investigation.

Capable of working effectively in direrse team in both classrooms library and fieldbasd situation.

Capable of identifying appropriste resources reguird for a project and manage a project thought to completion while observing responsible and ethical social conduct.

Capable of using computer for simulation studies in sociology and compution and appropriate software for numerical statistical

analysis of data.

The graduate should be capable of demonstrating ability to think and analyse rationally with modern and scientithic outlook and ideantity ethical issues related to ones work avoid unethical behavior such as fabricant falsification or misreprention of data or commiting plagiarism.

The B.A.(Sociology) programme is a three years course . The syllabus and schemes of examination are detailed herewith

Academic programs

B.A. Part -I

PAPER

PAPER CODE

COURSE PAPER

MAX. MARKS

MIN.MARKS

Paper 1st

Introduction To Sociology

75 Marks

25 Mark

Paper 2nd

Contemporary Indian Society

75 Marks

25 Mark

B.A. Part -II

PAPER

PAPER CODE

COURSE PAPER

MAX. MARKS

MIN.MARKS

Paper 1st

Sociology Of Tribal Society

75 Marks

25 Mark

Paper 2nd

Crime And Society

75 Marks

25 Mark

B.A. Part -III

PAPER

PAPER CODE

COURSE PAPER

MAX. MARKS

MIN.MARKS

Paper 1st

Foundation of Sociological Thought

75 Marks

25 Mark

Paper 2nd

Methods of Social Research

75 Marks

25 Mark

B.A. Part-I. Course Out Comes

OBJECTIVE

- **To give a basic understanding of sociology.**
- **To know the meaning and subject matter of sociology.**
- **To understand the nature or scientific study.**
- **To know the nature and scope of sociology.**

B.A. Part-II. Course Out Comes

OBJECTIVE

- **To understand the role of tribe in Indian society and there problem.**
- **To know the socio cultural profile of tribe.**
- **To know the changing profile of crime and criminals particularly in India.**
- **Prison reformsin India.**

B.A. Part-II. Course Out Comes

OBJECTIVE

Objective to study the contribution of early thinkers toward the

development of sociology.

- To give a basic understand of sociology.

- To know the fundamental of various research technique and methods.

M.A. FIRST SEMESTER

Course Title: - classical sociological tradition

Course code: - MAS 101

Course type: - CCC

Out Comes:-

To give a basic understanding of sociology. To know the meaning and subject matter of sociology. To understand the natures of scientific study.To know the nature and scope the sociology.

Course Title: - Social anthropology

Course code: - MAS 102

Course type: - CCC

Out Comes:-

Elaborate on meaning, nature and scope of social anthropology. Explain anthropology thinkers, evolutionary and functional thinkers. Understand tribal economy, law and justices.

Course Title: - SOCIAL CHANGE IN INDIA

Course code: - MAS 103

Course type: - CCC

Out Comes:-

The mandate of the course is to introduce the society and culture of India. This paper is expected to bring familiarity in a student about India society. It will present is comprehensive, integrated and empirically based profile of Indian society. Explain the meaning and types of social change.

Course Title: - Research methodology & computer application basics

Course code: - MAS S01

Course type: - OSC

Out Comes:-

Student understands the importance of research in social science. Achievers skills in various research writing. Gets acquainted with computer fundaments and office software packages.

Course Title: - Urban Sociology

Course code: - MAS A05

Course type: - ECC/CB

Out Comes:-

Explain unemployment type and remedies. Analysis the urban ecology and its theories. Understand relation between rural-urban continuums.

M.A. II (SEMESTER)

Course Title: - Classical Sociological Thinkers

Course code: - MAS 201

Course type: - CCC

Out Comes:-

Appreciation of the classical concepts and theories to develop awareness of the limits of current knowledge.

Course Title: - Quantitive Research Techniques in Sociology

Course code: - MAS 202

Course type: - CCC

Out Comes:-

Students understand the differences between quantitive and qualitative research. Student learns the basic techniques of quantitive research.

Course Title: - Theoretical Perspectives in Sociology

Course code: - MAS 203

Course type: - CCC

Out Comes:-

To give basic understandings of sociology.To know the meaning and subject matter of sociology. To understand the nature of scientific study.

Course Title: - Outreach and Skill Developments

Course code: - MAS S02

Course type: - OSC

Out Comes:-

Social the aim of the project work or field works is to introduce students with the research methodology in the subject and to prepare them for pursuing research in theoretical, Experimental or computational areas of the subject.

Course Title: - Indian Rural Society

Course code: - MAS B05

Course type: - ECC/CB

Out Comes:-

Describe nature and scope of rural society .Develop on understanding of rural system concepts of village, characteristics or rural social society .Describe rural reconstruction and planning.

M.A. III (SEMESTER)

Course Title: - Classical sociological theories

Course code: - MAS 301

Course type: - CCC

Out Comes:-

To give a basic understanding of sociology .To knows the meaning and subject matter of sociology. To understand the nature of scientific study.

Course Title: - Perspectives on Indian society

Course code: - MAS 302

Course type: - CCC

Out Comes:-

The mandate of the course is to introduce the society and culture of India. This paper focuses on the vana, karm, dharm, and ashran and cost system.

Course Title: - Criminology-I

Course code: - MAS 303

Course type: - CCC

Out Comes:-

To give a basic understanding of the criminology. To know the victim logical perspectives and victim responsibility in crime.

Course Title: - Intellectual property human rights and environment: basic

Course code: - MAS S03

Course type: - CCC

Out Comes:-

Understands the concepts and place of research in concerned subject. Gets acquainted with various resources of research

Course Title: - Tribal studies

Course code: - MAS C01

Course type: - ECC/CB

Out Comes:-

Introduce them with the concepts of tribe. Develop an understanding about classification of tribal people. Learn about tribal movements.

M.A. IV (SEMESTER)

Course Title: - Modern Sociological Theory

Course code: - MAS 401

Course type: - CCC

Out Comes:-

To give a basic understanding of more modern sociological theories. To study the Origen and development of modernism and postmodernism.

Course Title: - Comparative Sociology

Course code: - MAS 402

Course type: - CCC

Out Comes:-

To know the historical and social contexts of emerges of sociology in the west. To understand the nature of theoretical of methodological approaches in sociology. To study the current debets and contextualization and indianization.

Course Title: - Criminology –II

Course code: - MAS 403

Course type: - CCC

Out Comes:-

To give a basic understanding of the criminology To know the victim logical perspectives and victim responsibility in crime. Rootes of correction to prevent crime

Course Title: - Dissertation

Course code: - MAS S04

Course type: - PRJ/SSC

Out Comes:-

The course in an introductory course on how research is actually done. Field work is an applied parts of social research methods. The paper aims to against students with empirical filed data collection, analysis, and writing analytical and standard dissertation or research report in sociology.

Course Title: - Urban society in India

Course code: - MAS DO3

Course type: - ECC/CB

Out Comes:-

Understanding the urban community meaning and characteristics. Explain migration and urbanization emigration trends factors in India. Analyze the urban ecology and its theories.

DEPARTMENT OF HISTORY

PROGRAMME OUTCOME [P.O]

1. **History is a true teacher of man which shows proper path to the future.**
2. **History makes us aware of various aspects of human nature and provides gradual development of civilization.**
3. **The study of history is important to every nation and its citizen to remain alive, prosperous and dynamic.**
4. **Through the study of history,one gets to know the circumstances of the rise and fall of a nation.**

5. Study of history makes us understand past mistakes of our ancestor and gives a stern warning not to repeat them.
6. Study of history is considered to be a region of human civilization.
7. History provides a clear picture of all known things of ethics, religious life, economic life, cultural life, political system, governance etc. of any erstwhile society.
8. Study of history as a provident fund is necessary otherwise a nation has no future.
9. The necessity , concept, purpose, importance and usefulness of history is very broad and far reaching.

PROGRAMME SPECIFIC OUTCOME [P.S.O]

1. Analyze relationship between past and present.
2. To develop practical skills helpful in the study and activities related to historical events.
3. Understand present existing social ,political ,religious and economic conditions of the people.
4. To develop interest in the study of history and activities related to history
5. Understand background of our religion, administration.
6. Critical analysis – student will produce their own historical analysis of documents and develop the ability to think critically and historically when discussing the past.
7. Student will demonstrate in written work and class discussions and the ability to recognize and articulate the diversity of human experience, including ethnicity, race language as well as political, economic, social and cultural structures are time and space.
8. Application - Student will employ full range of techniques and methods used to gain historical method to make comparision across time space and culture.
9. Student will understand and evaluate historical ideas, arguments and point of view.
10. Knowledge – An understanding of the major trends of historical knowledge.
11. Construct and communicate historical arguments in both oral and written form.

SEMESTER ONE PAPER 1

HISTORICAL METHOD

Outcome

Identity the major historiagraphical paradigms that have impacted on the writings of History.

- **Distinguish between the major arguments of different types of historiographical interventions.**
- **Identify the important contexts of these historiographical interventions.**
- **Within each of these historiographies-like Marxism, gender or environmental historythe student will be able to identify the debates and shifts amongst historians. They will be able to avoid flattening their rich complexities within rudimentary typologies of schools.**
- **Learn that the simple recounting of facts is always imbedded in particular historiographical narratives, subject to which they will be introduced in this course**

PAPER TWO HISTOGRAPHY OUTCOME

1. **Understand the past and present of the disciplines of history and public history by exploring their purpose, practice, and philosophy**
2. **. Reflect on the purposes, goals, motives, and assumptions historians bring with them to the study of history.**
3. **Understand the privileges and obligations associated with a career as a professional historian.**
4. **Understand historical trends in theory and method and be able to identify and explain major trends and issues in historiography.**

SEMESTER 1

PAPER 2

MODERN WORLD OUTCOME

1 Explain and analyze a key historical event or process in the area and during the period under study

1. **Understand the diversity of the human experience as influenced by geographical location, race, ethnicity, cultural traditions, gender and class**
2. **Analyze historical processes that shape individuals and communities, drawing on detailed knowledge about the history of the area under study**

3. Think critically about the varieties of experience found in the historical record of the United States, exploring diversity as a critical component of history
4. Distinguish between primary and secondary sources, and understand how each are used to make historical arguments.

SEMESTER 2 PAPER 2 CONTEMPORARY WORLD OUTCOME

1. Students gained knowledge about political history of modern world.
2. Students traced and analyzed the main development of contemporary world and explored the important developments of 20th century world.
3. Students acquired the knowledge of the principles, forces, processes and problems of the recent times.
4. Students were able to explain the various political movements and growth of nationalism in different parts of the world.

SEMESTER 1 PAPER 3

ANCIENT AND MEDIEVAL HISTORY OF CHHATTISGARH

Outcomes:

- How was Chhattisgarh at the time of Kalchuri dynasty? Informs the students of the glorious history of Chhattisgarh.
- How did Chhattisgarh come under the monopoly of Maratha rule? In formulation related to the relationship between Maratha in Chhattisgarh.
- Students understood about national movement and publicity participation in Chhattisgarh
- Important topics to be told to the students about workers and tribal struggle in Chhattisgarh.
- Provide the Knowledge of the glorious tradition, history and development of Chhattisgarh to the students.

SEMESTER 2 PAPER 3 MODERN CHHATTISGARH

The Early history of Chhattisgarh.

- They would also be able to know the different dynasties ruled in Chhattisgarh.
- .They would learn about the national movements in Chhattisgarh.
- They would have a comprehensive knowledge of the administration changes in Chhattisgarh through nineteenth

century.

- It will help to understand the history of Chhattisgarh which became important in the course of history.
    - It understands the geographical background that the characteristics of that particular place can be explained to the students.
        - Students understood the local culture and art of Chhattisgarh, how it is different from other states, it is unique
        - Became aware of the tribal traditions of the life of the tribals
        - Studied economic development.
        - Took information about archaeological site and information about tourist place

[SEMESTER 1 PAPER 4] HISTORY OF CHINA AND JAPAN 1800- 1911

1. Will be able to understand the political historical activities of the Far East Asia.
2. Will be able to understand the victory of Japan over the bigger countries due to his military power.

SEMESTER 2 PAPER 4 HISTORY OF CHINA AND JAPAN 1911 - 1950

- To locate these historical transitions in light of other contemporaneous trajectories into a global modernity
- Analyse significant historiographical shifts in Chinese history, especially with reference to

the discourses of nationalism, imperialism, and communism

- Investigate the political, economic, social and cultural disruptions caused by the breakdown of the centuries old Chinese institutions and ideas, and the recasting of tradition to meet modernist challenges

. • Describe the genesis and trace the unique trajectories of the Chinese Communist

Revolution.

- Locate the rise of China in the spheres of Asian and world politics respectively.

MA THIRD SEMESTER PAPER 1 HISTORY OF MODERN INDIA POLITICAL AND ADMINISTRATION 1757-1857

Students will develop a holistic critical understanding of the social, economic, political, military and cultural conditions prevalent in India (1757-1857).

- **The course will enable the students to understand the evolution of British policy in India withreference to the key concepts of modern Indian colonial history like Colonialism, Indology, Paramounty, Orientalism and Utilitarianism.**
- **While examining the Indian responses to the establishment of British power in India the students will learn more about the central concerns of social reform initiatives, popular protest, military organization and education.**

THIRD SEMESTER PAPER 2 HIISTORY OF MODERN INDIA ECONOMIC SOCIAL AND CULTURAL 1757- 1857

Students will develop a holistic critical understanding of the social, economic, political, military and cultural conditions prevalent in India (1757-1857).

- **The course will enable the students to understand the evolution of British policy in India with reference to the key concepts of modern Indian colonial history like Colonialism,**

Indology ,Paramountcy, Orientalism and Utilitarianism.

- **While examining the Indian responses to the establishment of British power in India the students will learn more about the central concerns of social reform initiatives, popular protest, military organization and education**
- **Know the objectives of Utilitarian towards Indian Society**
- **Know the activities of Christian missionaries during the British Period**
- **Know how the modern education in India was developed.**
- **Know the different phases of growth press in India**

THIRD SEMESTER OPTIONAL PAPER 3 PAPER HISTORY OF NATIONAL MOVEMENT 1857-1922

1. **To developed an understanding of social religious reform movements salving British India.**
2. **Nationalistic approaches of National Moments.**
3. **Causes responsible for partition of India.**

THIRD SEMESTER OPTIONAL OPTIONAL PAPER 4 CULTURAL HISTORY OF INDIA BEGINING TO 1526

1. Sources – History as a social science – Influence of Geography on Indian History
2. Harappan Culture – Vedic Civilisation
3. Importance o;;f 6th Century B.C. in Indian History Buddhism and Jainism.
4. Alexender’s invasion and its effects
5. Mauryan – Asoka’S Dhamma – Mauryan Administration – Decline and Down fall –

cultural conditions in the Mauryan Age.

1. Kushans – Kanishka – Cultural Contributions – Satavahanas – Social Economic, political and Religious conditions.
2. Imperial Guptas – Samudragupta – Contribution to Culture- Fahien. Harsha and his achievements- Yuan chawing Rajput Heritage.
3. India’s Cultural contacts with neighbouring Countries – Central South East and East Asia.
4. Pallavas and their Contribution to culture and Arts. Western Chalukyas o;f Badami –

Pulakesin II. Eastern Chalukyas of Vengi.

1. Imperial Cholas – Administration – Cultural Contributions.
2. Turke – Afgan invasions – Arab Conquest of sind Invasions of Ghazni and Ghori –

establishment of sultanate- Alauddin.

1. Khilji Mohammad Bin Tugluq - Influence of Islam on Indian Culture Bhakti Movement.
2. The Kakatiyas – Socio – economic condition – their cultural contributions.
3. Vijayanagar Empire – Krishna devaraya - socio – economic and Cultural conditions.

FOURTH SEMESTER PAPER 1 MODERN INDIA POLITICAL AND ADMINISTRATIVE 1858-1964’

1. To understand and appreciate Indian administration properly.
2. To get some knowledge about the Indian constitution.

3. To trace the importance of Indian cabinet system in independent India.
4. To know the administrative services from the British rule to independent India.
5. State the importance and development of local self government

FOURTH SEMESTER PAPER 2 MODERN INDIA ECONOMIC SOCIAL AMD CULTURE 1858- 1964

The Colonial State

- Consolidation of the British Rule: New Administrative Apparatus;
- Relations with the Native States UNIT-II Economy under the British Rule -I
- Railways, Transport & Communication;
- Commercialization of agriculture: the Making of a Colonial Economy;
- Famine Policy UNIT-III Economy under the British Rule -II
- Indian Capitalist Development: Industry & Finance;
- Changing Nature of External Trade

; ? Monetary Policy, Credit System and Price Movements Socio-cultural Profile of British India

- Socio-legal Intervention by the Raj
- Revivalist & Reform Movements;
- Education a& the Emergence of Middle Class; & Vernacular

; ? Women?s Organizations & Struggle for Women?s Rights

FOURTH SEMESTER OPTIONAL PAPER 3 PAPER HISTORY OF NATIONAL MOVEMENT 1922-1947

1. Students will learn about Mahatma Gandhi, the development of nonviolent mass action, and the Indian movement for independence. Students will retain strong mental images of Gandhi and the origins of nonviolent mass action.

1. Rationale: Knowledge of nonviolent mass action and of the Indian independence movement is important for any student of modern world history.
2. describes six occasions in which nonviolent mass action changed governments or promoted social reform.

FOURTH SEMESTER [PAPER 4] CULTURAL HISTORY OF INDIA 1526-1950

1. Demonstrate knowledge of the chronology, narrative, major events, personalities and turning points of the history of the United States, Europe, and at least one non-Western area.
2. Offer multi-causal explanations of major historical developments based on a contextualized analysis of interrelated political, social, economic, cultural and intellectual processes.
3. Correctly extract evidence from primary sources by analyzing and evaluating them in relation to their cultural and historical context (avoiding anachronism, ethnocentrism, and (Ethnomorphism) and use that evidence to build and support an argument.
4. Evaluate secondary historical sources by analyzing them in relation to the evidence that supports them, their theoretical frameworks, and other secondary historical literature.
5. Write an original research paper that locates and synthesizes relevant primary and secondary sources and has a clear, coherent and plausible argument, logical structure, correct grammar and proper references (footnotes and bibliography).
6. BA PART ONE

HISTORY OF INDIA (UPTO 1206 A.D.) PAPER 1

Course Outcomes

1. Political History of ancient India. The life-Story of the Indian people in their formative stage, struggling to find happiness both here & hereafter.
2. Reconstruction of that past history through a selection of significant facts.

OUTCOME

I- Understand the salient features of Indus valley civilization II- Evaluate the features of Buddhism and Jainism

Visualize the administration of Mauryas and the art and architecture of Mauryas IV- Identify the administration of Guptas and their contribution to Nalanda University V Examine the Arab conquest of Sindu and the battle of Tarain.

PAPER 2 WORLD HISTORY 1453 -1890 AD OUTCOME

- Describe the Geographical discoveries and the Renaissance

movement in Europe.

- Assess the causes and effects of Reformation and Counter-Reformation movements.
- Narrate the enlightened despotism in Europe, especially in France ,Prussia and Austria.
- Learn the causes and results of Thirty years war. V- Discuss the reforms of Peter the Great and Catherine II of Russia.

BA PART TWO

PAPER 1 INDIAN HISTORY [MEDIEVAL HISTORY] 1206 -1761 AD

1. Study Indian society that subjected to a variety of impacts under which the Indian people had to learn to adopt themselves to an ever changing environment.
2. Study of Social organization in India which is often remarked as the caste system. Ancient Indian Polity: - 1. All forms of Human organization that of the state.
    1. Understand the foundation of the Delhi sultanate and the Sultanate administration.
    2. Recognise the Socio, economic and religious conditions under Vijayanagar Empire.
    3. Identify the condition of India under the Mughal Empire.
    4. Explain the Administration and art and architecture of Mughal.
    5. Analyse the rise of the Marathas and the contribution of Shivaji.

PAPER TWO [WORLD HISTORY] 1890 -1964

- Identify what is meant by the French Revolution.
- Trace short-term and long-term repercussions of revolutionary regimes and Empire-building by France.
- Explain features of revolutionary actions and reactionary politics of threatened

monarchical regimes.

- Delineate diverse patterns of industrialization in Europe and assess the social impact of capitalist industrialisation.
- Analyse patterns of resistance to industrial capital and the emerging political

assertions by new social classes.

BA PART 3 PAPER 1 HISTORY OF INDIA (MODERN INDIA) 1761 – 1950

B.A.-III

1. **Study the Indian art tradition which one of the oldest living art traditions in the world.**
2. **The art of country with its history social & economical perspective.**
3. **Excavation of the sites of the old towns like Harappa Mohenjo-Daro & Taxila information of the other ancient monuments.**

OUTCOME

- **Outline key developments of the 18th century in the Indian subcontinent**

. ? Explain the establishment of Company rule and important features of the early colonial regime

. ? Explain the peculiarities of evolving colonial institutions and their impact.

- **Discuss the social churning on questions of tradition, reform etc, and during first century of British Colonial rule.**
- **Assess the issues of landed elite, and those of struggling peasants, tribals and artisans during the Company Raj.**

APER 2 WORLD HISTORY 1871-1945

OUTCOME

: • Identify how different regional, religious and linguistic identities developed in the late 19th and early 20th centuries.

- **Outline the social and economic facets of colonial India and their influence on**

different trends of politics.

- **Explain the various forms of anti-colonial struggles in colonial India.**
- **Analyse the complex developments leading to communal violence and Partition.**
- **Discuss the negotiations for independence, the key debates on**

the Constitution

and need for socio-economic restructuring soon after Independence.

Course Outcome of History The main focus in the History Course at UNDERGRADUATE LEVEL is on the stages the growth of human civilizations and the evolution of social systems and on cultural and scientific development. The main aims outlined for history teaching are:

CO1. To promote an understanding of the processes of change and development through which human societies have evolved to their present stage of development.

CO2. To promote an understanding of the common routes of human civilizations and an appreciation of the basic unity of mankind.

The outcomes of this Course are as follows: Students who complete the History POST GRADUATE LEVEL might come up the following knowledge and skills:

CO 1 Learn a basic narrative of historical events in a specific region of the world in a specific time frame

CO 2 Distinguish between primary and secondary sources

CO3. Understand and evaluate different historical ideas, various arguments, and points of view.

CO4 . Evaluate competing interpretations and multiple narratives of the past. CO 5. Gather and assess primary historical evidence.

CO 6. Compile a composite bibliography.

CO7. Present clear and compelling arguments, based on critical analysis of diverse historical sources.

CO 8. Articulate factual and contextual knowledge of specific places and times, to make careful comparisons (across time, space, and culture) and to discern how each generation (including theirs) uses the past for present purposes.

CO 9. Students should understand academic honesty, a concept presented to them in all history classes.

CO10. Students should understand the basic skills that historians

use in research. CO11. Students should understand the basic skills that historians use in writing. CO12. Students should understand the basic tools of historical analysis.

CO13. Students should understand the value of diversity.

CO14. Students should develop a secular outlook towards society.

CO15. Students should believe in the equality of man irrespective of caste, creed, religion and colour.

CO.16 . Students should learn to believe in the ideas of religious toleration

B.A. ECONOMICS

SESSION – 2021- 22

Outcome Base Education

Vision

"Be the very pinnacle of academic and research excellence in Economics”

Mission As a Department’ We are committed to

- Achieve academic excellence in Economics through innovative teaching and learning processes.
- To prepare the student to be professionally competent to face the challenges in the industry.
- Promote inter-disciplinary research among the faculty and the students to create state of art research facilities.
- Motivate the students to acquire entrepreneurial skills to become global leaders.

Programme Education Objective (PEO)

BA Economics Program will be

PEO 1. Utilizing strong technical aptitude and domain knowledge to Develop Economic Environment

PEO 2. Applying research and entrepreneurial skills augmented with a rich set of communication, teamwork and leadership skills to excel in their profession.

PEO 3. Showing continuous improvement in their professional career through life-long learning, appreciating human values and ethics..

Graduate Attributes for BA Economics

GA 1. An ability to apply Knowledge of Economics

GA 2. An ability to design and conduct experiments, an well as analyze and interpret data

GA 3. An ability to design an Economic system with realistic constraint such as economic environmental sonnet, ethical, health and safely

GA 4. An ability to indentify formulate and solve economic problem
GA 5. An ability to function on multidisciplinary teams.

GA 6. An ability to communicate effectively

GA7. An understanding of professional and ethical responsibility

GA 8. The broad education necessary to understand the impact of

Economic solution in a global economic environmental and social context

GA 9. An ability to engage in life long learning

GA 10. A knowledge of contemporary issues in technologies related to economic activities of country

GA 11. An ability to use the modern techniques tools necessary for economic research and development

GA 12. AN ability to develop economic environment in society

Programme outcome for BA Economic (PO)

Programme Outcomes:

The Bachelor of Arts programme in Economics has been designed with the objective to develop in-depth knowledge of students in frontier areas of economic theory and methods, so that they are able to use the knowledge to study real world economic problems.

The course has a strong focus on theoretical and quantitative skills and train students in the collection and analysis of the data using their software skills. The programme offers specialised optional courses, which allow student to pursue their studies in their area of interest. The students are required to submit report and present their findings of field-study. Besides, to hone the student's writing and analytical skills they are required to submit a term paper on current economic problem. Thus, the Bachelor in Economics programme seek to

PO 01- Prepare students to develop critical thinking to carry out investigation about various socio-economic issues objectively while bridging the gap between theory and practice.

PO 02- Equip the student with skills to analyse problems, formulate an hypothesis, evaluate and validate esults and draw reasonable conclusions thereof.

PO 03- Prepare students for pursuing research or careers that provide employment through entrepreneurship and innovative methods. Because today's unemployment problem can also be solved by developing the micro and small entrepreneurship

PO 04- Prepare students to develop own thinking /opinion regarding current national or international policies and issues

PO 05- Create awareness to become a rational and an enlightened citizen so that they can take the responsibility to spread the governments' initiatives/schemes to the rural areas for the upliftment of the poor or vulnerable section of the society for inclusive growth

Programme Learning Outcome:

At the end of the programme, the students will have adequate competency in the frontier areas of economic theory and methods. The students will acquire additional specialisation through optional courses. They will be able to use common software for analysis of economic data. Besides, students will be able to execute in-depth analysis of economic issues based on their understanding of economic theory, which will not only widen their opportunities for employment, but also help them to pursue their doctoral studies. Keeping the programme objectives in view, the specific learning outcomes of Bachelor in Economics are:

PL 01- Understanding the basic assumptions in various economic theories and enhance capabilities of developing ideas based on them.

PL 02- Prepare and motivate students for research studies in Economics especially by developing questionnaire, collecting primary data through field surveys.

PL 03- Provide knowledge of a wide range of econometric techniques using excel or other statistical software.

PL 04- Motivate students to extract or utilize different websites for secondary data collection, generating concepts for various facets of economic studies and gather latest informations provided by various Universities, UGC, or ICSSR.

PL 05- Motivate students in preparing for various competitive examinations, B.Ed etc, by developing or gaining value addition day by day by giving assignments, by following a routine or developing discipline / concentration etc.

1. A. Part-1 (Economics)

Subject: Micro Economics, Paper-I

COURSE OUTCOME

CO 01. To understand how market works, identify the various determinants of firms demand for factor services, monopoly and oligopoly in factor market and market equilibrium.

CO 02. To introduce the student to the basic micro economic concepts like demand, supply, production, cost and revenue and the theories explaining their determination.

CO 03. To enable the student to apply the theories in analyzing real

world micro issues.

CO 04. To get a basic understanding about micro economics.

CO 05. To provide basic understanding on micro economic concepts, relating to markets, factor pricing, distribution and economies of uncertainty.

B. A. Part-1 (Economics)

Subject: Indian Economy, Paper-II

COURSE OUTCOME

CO 1. To enable the students to have an understanding of the various issues of the Indian Economy.

CO 2. Te enable the students to comprehend and critically appraise current issues and problems of Indian economy.

CO 3. The focus of this course is on the development of Indian Economy since Independence.

CO 4. To understand the importance of planning undertaken by the government of India.

CO5.To provide a detailed treatment of issues in agricultural economics.

CO 6. To familiarize students with policy issues those are relevant to Indian Agricultural Economics.

CO 7. To enable them analyse the agricultural issues using the economic concepts

B.A. Part-II (Economics)

Subject: Macro Economics, Paper-I

COURSE OUTCOME

CO 01.To give an insight to the students about the basic concepts used in Macro economics.

CO 02.To enable the students to understand the theoretical framework and the working of an economy as a whole.

CO 03. To suggest the policy alternatives used in controlling the economy.

CO 04.To explain the process of calculating national income, identify its components, demonstrate green accounting and social accounting.

CO 05. To enable the students to.

CO 06. It also provides an ins

CO 07. This paper gives an insight to the students about the basic concepts used in macro economics and policy alternatives.

CO 08. To enable the students to understand the theoretical framework and the working of an economy as a whole.

CO 09. To illustrate the meaning of inflation, deflation and stagflation, identify different kind of inflation, causes and effects of inflation on the different sectors of the economy.

CO 10. To understand the basic concepts of international trade.

CO 11. To enable the students to have a basic understanding of the emerging trend, issues and policies per in the field of international economic system..

B.A. Part-II (Economics)

Subject: Money, Banking and Public Finance, Paper-1l

COURSE OUTCOME

CO 01. To enable the students to know the evolution and role of money in the economy.

CO 02. It also provides an insight into the innovative role of banks in the changing economic set up.

CO 03. It provides basic understanding about the nature and significance of money.

CO 04. It gives a narration about the banking structure and its

functioning of an economy.

CO 05. To provide basic information to students on the scope, significance and functions of government.

CO 06. A general understanding about fiscal policy and its various instruments.

CO 07. To give u awareness about budgeting with special reference to India.

B. A. Part-III (Economics)

Subject : Development and Environmental Economics, Paper-1

COURSE OUTCOME

CO 01. To enable the students to understand the basic concepts of Development and Growth.

CO 02 It also intends to provide the theoretical framework for growth and development discourses under different schools of economic thought and a better insights and knowledge on issues and challenges on economic development.

CO 03. To understand the significance for life enrichment and career orientation.

CO 04.The course also teaches the basic principles of strategic human resource management and the various aspects of Human Resource Planning.

CO 05.The main objective is to provide a basic understanding of economic concepts and theories.

To understand the market structures and is various features.

B.A. Part-III (Economics)

Subject: Statistical Methods, Paper-II,

COURSE OUTCOME

CO 0 1. The course also aims to create an enthusiasm among students about different schools of Economic thought and various aspects of

social science research, methodology, concepts, tools and various issues.

CO 02. To get a closer understanding of the subject Social Sciences with all its prominent branches.

CO 03. The course intends to familiarize the students with the broad contours of Social Sciences,Economics and its methodologies, tools and analysis procedures.

CO 04. To introduce the basic methods and methodology used in Economics.

CO 05. To provide a broad understanding about the contributions made by the economists over the decades.

CO 06. To enrich the students awareness about Research Techniques.

PROGRAMME OUTCOME B.A. HINDI

1. fo|kFkhZ fgUnh Hkk’kk ds mn~Hko]fodkl ,oa mldh fofo/k cksfy;ksa dk Kku izkIr djrs gSaA
2. fo|kfFkZ;ksa dks fgUnh O;kdj.k ,oa “kq/n orZuh dk Kku gksrk gSA
3. fo|kfFkZ;ksa fgUnh lkfgR; ds bfrgkl]fodkl ,oa ys[ku ijaijk Kku djkukA
4. fo|kfFkZ;ksa esa fgUnh lkfgR; ds izfr HkkokRed vfHk:fp dk fodkl gksrk gSA
5. fo|kFkhZ lkfgR; dh fofo/k fo/kkvksa ls ifjfpr gksrs gSa A

PROGRAMME SPECIFIC OUTCOME

vk/kkj ikB~;Øe & Lukrd

Hkkx ,d& fganh Hkk’kk] isij dksM & 0101

Hkkx nks& fganh Hkk’kk] isij dksM & 0171

Hkkx rhu& fganh Hkk’kk] isij dksM & 0231

1. fgUnh Hkk’kk ,oa O;kdj.k dk cks/k izkIr gksxk gSA
2. fo|kfFkZ;ksa dks fgUnh lkfgR; ds bfrgkl dk Kku izkIr gksxk A
3. fgUnh Hkk’kk vkSj lkfgR; dh fofo/k izo`fRr;ksa ,oa Lo:iksa dk Kku izkIr gks ldsxkA

4. Hkk’kk Kku ds ek/;e ls lkaLd`frd ,oa HkkokRed ,drk ds lw= fodflr gks ldsaxsA

vk/kkj ikB~;Øe

Course Outcome B.A.Ist

- izFke iz”u i=&izkphu fgUnh dkO;½ isij dksM& 0103

1. fo|kFkhZ izkphu ,oa e/;dkyhu dkO; dk Kku izkIr dj ldassxsA
2. fgUnh lkfgR; ds ¼Lo.kZdky ½ HkfDrdky ds izeq[k dfo;ksa ,oa mudh dkO; izo`fRr;ksa ls ifjp; izkIr dj ldsaxs A
3. fo|kFkhZ lkfgfR;d vfHk:fp dk fodkl dj l`tukRed ys[ku gsrq izsfjr gksaxsA

Course Outcome B.A.Ist

- f}rh; iz”u i=& fgUnh dFkk lkfgR;½ isij dksM& 0104

1. fo|kFkhZ dFkk lkfgR; dh fofo/k izo`fRr;ksa ls ifjfpr gksrs gSaA
2. fo|kfFkZ;ksa esa izeq[k miU;klksa ,oa dgkfu;ksa ds ikB ds ek/;e ls dFkk lkfgR; ds izfr vfHk:fp dk fodkl gksrk gSA
3. fo|kfFkZ;ksa esa Hkk’kk ds jpukRed igyw dh le÷k dk fodkl gksrk gSA
4. fo|kFkhZ fgUnh dgkuh vkSj miU;kl ds fodklØe ls ifjfpr gksrs gSaA

Course Outcome B.A.IInd

- vokZphu fgUnh dkO;½&izFke iz”u i=] isij dksM& 0173

1. fo|kFkhZ fgUnh dfork ds vk/kqfud dky dh fofo/k izo`fRr;ksa dk Kku izkIr djrs gSaA
2. fo|kFkhZ fgUnh lkfgR; ds vk/kqfud dky ds izeq[k dkO; vkUnksyuks ls ifjfpr gksrs gSaA
3. fo|kFkhZ dks fgUnh ds dk;kZyf;u ,oa O;ogkfjd Lo:Ik ls ifjfpr gksrs gSaA
4. fo|kfFkZ;ksa esa l`tukRed {kerk dk fodkl gksrk gSA

Course Outcome B.A.IInd

- f}rh; iz”u i=&fgUnh fuca/k rFkk vU; x| fo/kk,a½ isij dksM& 0174

1. fo|kFkhZ fgUnh fuca/k ,oa vU; x| fo/kkvksa ls ifjfpr gksrs

gSaA
2. ukVddkj] ,dkadhdkj rFkk mudh jpukvksa ls ifjfpr gksrs gSaA
3. fo|kFkhZ ukVd ,oa ,dkafd;ksa ds ek/;e ls lkekftd leL;kvksa dk Kku izkIr dj muds lek/kku gsrq izsfjr gksrsA
4. fo|kfFkZ;ksa esa ys[kdksa ds ys[ku “kSyh ds izfr vkykspukRed n`f’V dk fodkl gksrk gSA

Course Outcome B.A.IIIrd

- izFke iz”u i=&NRrhlx<+h Hkk’kk ,oa lkfgR;½& isij dksM& 0233

1. fo|kfFkZ;ksa esa NRrhlx<+h Hkk’kk ,oa lkfgR; ds izfr vfHk:fp dk fodkl gksrk gSA
2. fo|kFkhZ NRrhlx<+h Hkk’kk ,oa O;kdj.k dk Kku izkIr dj] NRrhlx<+h esa lkfgR; l`tu ds fy, izsfjr gksaxsA
3. NRrhlx<+h Hkk’kk ds izeq[k jpukdkjksa ls ifjfpr gksrs gSaA
4. NRrhlx<+h Hkk’kk dh dfork ,oa x| dh fofo/k fo/kkvksa ifjfpr gksrs gSaA
5. fo|kfFkZ;ksa esa NRrhlx<+h lkfgR; ds izfr vkykspukRed n`f’V dk fodkl gksrk gSA

Course Outcome B.A.IIIrd

- f}rh; iz”u i=&fgUnh Hkk’kk ,oa lkfgR; dk fodkl rFkk dkO;kax foospu½ isij dksM& 0234

1. fo|kfFkZ;ksa eas fgUnh Hkk’kk ds ys[ku]iBu vkSj okpudyk dk fodkl gksrk gSA fgUnh Hkk’kk ds fofo/k :iksa ls ifjfpr gksrs gSaA
2. fo|kfFkZ;ksa dks fgUnh lkfgR; ds lHkh dky[k.Mksa vkfndky] HkfDrdky] jhfrdky ,oa vk/kqfud dky½ dh i`’BHkwfe] ijaijk] izo`fRr ,oa jpukdkjksa rFkk mudh izeq[k jpukvksa dk Kku izkIr gksrk gSA
3. fo|kfFkZ;ksa esa fgUnh lkfgR; ds bfrgkl ys[ku dh ijaijk vkSj mlds izfr vkykspukRed n`f’V dk fodkl gksrk gSA

PROGRAME OUTCOME M.A. (HINDI)

1. fo|kFkhZ lkfgR; dh le> fodflr dj jpukRed {kerk dk fodkl djsaxsA
2. lkfgR; dh ;qxhu ifjfLFkfr;ksa vkSj lkfgfR;d izo`fRr;ksa ds vk/kkj ij fgUnh lkfgR; ds bfrgkl ds dky foHkktu rFkk ukedj.k ls ifjfpr gksaxsA
3. fo|kfFkZ;ksa esa leh{kkRed n`f’V dk fodkl gksxkA
4. fo|kFkhZ Hkk’kk foKku ds lS)akfrd i{k ls voxr gksaxsA

5. fo|kFkhZ fgUnh dh vk/kqfud dkO; izo`fRr;ksa dk ifjp; izkIr djsaxs
6. fo|kFkhZ Hkkjrh; ,oa ik”pkR; dkO;“kkL= ls ifjfpr gksaxsA
7. fganh izfr;ksxh ijh{kk dh rS;kjh esa] ns”k&fons”k esa jkstxkj] vuqokn] i=dkfjrk] gsrq mi;ksxh gSA fganh vius fofo/k :iksa esa izfrf’Br gksus ds dkj.k vius O;ogkj djus okyksa ds fy, izfr’Bknk;d gSA

PROGRAMME SPECIFIC OUTCOME M.A. (HINDI)

1. fo|kfFkZ;ksa esa fgUnh Hkk’kk vkSj lkfgR; ds izfr jpukRed n`f’V dk fodkl gksxkA
2. fgUnh jkstxkjijd gksrh gS A
3. fo|kfFkZ;ksa esa fgUnh dh fofo/k fo/kkvksa ds izfr vkykspukRed n`f’V dk fodkl gksxkA
4. fo|kfFkZ;ksa esa yksd lkfgR; ds fodkl vkSj laj{k.k dh {kerk dk fodflr gksxhA
5. fo|kfFkZ;ksa esa “kks/k dh vfHk:fp tkx`r gksxhA
6. fo|kFkhZ lkfgR; ds uohu foe”kksZa ls voxr gksaxsA

Course Outcome M.A. Ist sem.

(izFke iz”u iz=&fgUnh lkfgR; dk bfrgkl½ isij dksM &101

1. fo|kfFkZ;ksa dks fgUnh lkfgR; ds bfrgkl dk foLr`r Kku izkIr gksrk gS A
2. vkfndky]HkfDrdky]fjfrdky vkSj vk/kqfud dky dh fofo/k izo`fRr;ksa ls ifjfpr gksrs gSaA
3. fo|kfFkZ;ksa dks fgUnh x| ds mnHko]fodkl vkSj fofo/k fo/kkvksa dk Kku izkIr gksrk gSA
4. fo|kfFkZ;ksa dks vk/kqfud fgUnh dfork ds fodklØe dh tkudkjh izkIr gksrh gSA A

Course Outcome M.A.Ist Sem.

- **f}rh; iz”u i=&izkphu ,oa e/;dkyhu dkO;½ isij dksM&102**

1. fo|kfFkZ;ksa dks vkfndky ,oa HkfDrdky dh izo`fRr;ksa dk Kku izkIr gksrk gSA
2. fo|kFkhZ xkSjo”kkyh e/;dky ds izeq[k dfo;ksa dh jpukvksa ls ifjfpr gksrs gSaA
3. fo|kfFkZ;ksa esa e/;dkyhu dkO; ds izfr vkykspukRed ,oa O;kogkjkRed n`f’V dk fodkl gksrk gSA

Course Outcome M.A.Ist Sem.

(r`rh; iz”u i=&fgUnh Hkk’kk ,oa Hkk’kk foKku) isij dksM&103

1. fo|kfFkZ;ksa dks fgUnh ds fofo/k :iksa dh tkudkjh izkIr gksrh gSA
2. lkfgR; ds v/;;u esa Hkk’kk foKku dh mi;ksfxrk ds izfr le> fodflr gksrh gSA
3. fo|kFkhZ Hkkjrh; vk;Z Hkk’kkvksa ds ,sfrgkfld fodklØe ls voxr gksrs gSaA
4. fo|kFkhZ Hkk’kk foKku ds lS)kafrd i{k ls voxr gkrss gSasA
5. fo|kFkhZ fgUnh ds “kCn Hksnksa ds fodklØe ls ifjfpr gksrss gSaA

Course Outcome M.A.Ist Sem.

(prqFkZ iz”u i=&”kks/k izfof/k ,oa dEI;wVj ,Iyhds”ku dh i`’BHkwfe) isij dksM&221

1. fo|kFkhZ “kks/k izfof/k dh ewyHkwr vo/kkj.kk ls ifjfpr gkrs gSas A
2. fo|kfFkZ;ksa esa “kks/k dh vfHk:fp fodflr gksrh gSA
3. fo|kfFkZ;ksa esa dEI;wVj ,Iyhds”ku dh le> fodflr gksrh gSA
4. “kks/k ds lqO;ofLFkr Lo:Ik dh tkudkjh feyrh gSA

Course Outcome M.A.Ist Sem.

(iape iz”u i=&i;kZoj.k ,oa okfudh fof/k½ isij dksM &,01

1. fo|kFkhZ i;kZoj.k ,oa ou laj{k.k ,oa lao/kZu ds izfr tx:d gksaxsA
2. fo|kFkhZ i;kZoj.k ,oa txr ds varlZaca/kksa dks le> ldsaxaA
3. fo|kfFkZ;ksa esa /kkj.kh; fodkl ds izfr lpsrurk dk fodkl gks ldsxkA

Course Outcome M.A.Ist Sem.

- iape iz”u i=&lar dfo dchjnkl) isij dksM &,02

1. Lakr dfo dchjnkl ds O;fDrRo ,oa d`frRo dh foLr`r tkudkjh izkIr gksrh gSA
2. fo|kFkhZ dchjnkl ds lkfgR; dh O;kid izklafxdrk ls voxr gksrs gSa
3. fo|kfFkZ;ksa esa dchj ds lkfgR; ds izfr vkykspukRed n`f’V fodflr gks ldsaxhA
4. fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksrh gSA

Course Outcome M.A.Ist Sem.

- **iape iz”u i=&egkdfo lwjnkl) isij dksM &,03**

1. **fo|kfFkZ;ksa dks egkdfo lwjnkl ds O;fDrRo ,oa d`frRo dh foLr`r tkudkjh izkIr gksrh gSA**
2. **fo|kFkhZ vU; HkfDrdkyhu dfo;ksa ds lkFk lwjnkl dk rqYkukRed v/;;u djus dh ;ksX;rk izkIr djrs gSaA**
3. **fo|kFkhZ lwj lkfgR; dh O;kid izklafxdrk ls voxr gksrs gSa A**
4. **fo|kfFkZ;ksa esa lwj lkfgR; ds izfr vkykspukRed n`f’V fodflr gks ldsxhA**
5. **fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksrh gSA**

Course Outcome M.A.Ist Sem.

(iape iz”u i=&egkdfo rqylh nkl) isij dksM &,04

1. **fo|kfFkZ;ksa dks egkdfo rqylhnkl ds O;fDrRo ,oa d`frRo dh foLr`r tkudkjh izkIr gksrh gSA**
2. **fo|kFkhZ vU; HkfDrdkyhu dfo;ksa ds lkFk rqylhnkl dk rqYkukRed v/;;u djus dh ;ksX;rk izkIr djrs gSaA**
3. **fo|kFkhZ rqylh lkfgR; dh O;kid izklafxdrk ls voxr gksrs gSa A**
4. **fo|kfFkZ;ksa esa rqylh lkfgR; ds izfr vkykspukRed n`f’V fodflr gks ldsaxhA**
5. **fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksrh gSA**

Course Outcome M.A.Ist Sem.

(iape iz”u i=&egkdfo rqylh nkl) isij dksM &,05

1. **fo|kFkhZ t;”kadj izlkn ds O;fDrRo ,oa d`frRo dh foLr`r tkudkjh izkIr dj ldsaxsA**
2. **Nk;kokn ,oa mldh fo”ks’krkvksa dks le> ldsxsA**

03 fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksrh gSA

Course Outcome M.A.Ist Sem.

(iape iz”u i=&vkpk;Z jkepanz “kqDy) isij dksM &,06

1. **fo|kFkhZ rRdkyhu lkekftd] lkaL—frd] jktuSfrd] vkfFkZd ifjfLFkr;ksa ls jpukvksa ds ek/;e ls voxr gks ldsaxsA**

Course Outcome M.A.IInd Sem.

(izFke iz”u i=&vk/kqfud dkO;) isij dksM&201

1. **fo|kFkhZ vk/kqfud fgUnh dkO; dh izeq[k izo`fRr;ksa ls ifjfpr gks ldsaxsA**
2. **fo|kfFkZ;ksa dks vk/kqfud dky ds izca/k vkSj eqDrd dkO; ds rkfRod Lo:i dh tkudkjh izkIr gksxhA**
3. **fo|kFkhZ vk/kqfud ;qx ds mDr dkO; izdkjksa ds fodklØe ls ifjfpr gks ldsaxsA**
4. **fo|kfFkZ;ksa dks vk/kqfud dkO; izdkjksa ds rkfRod Lo:i ,oa fodklØe ds ifjizs{; esa jpukvksa ds vkLoknu]v/;;u vkSj ewY;kadu dh n`f’V feysxhA**

Course Outcome M.A.IInd Sem.

(f}rh; iz”u i=&dFkk lkfgR;) isij dksM&202

1. **fo|kFkhZ x| fo|kvksa ds rkfRod Lo:i ls ifjfpr gks ldsaxsA**
2. **fo|kfFkZ;ksa dks izeq[k x| fo|kvksa ds fodklØe dh tkudkjh gks ldsaxhA**
3. **fo|kfFkZ;ksa esa fo|k fo”ks’k ds rkfRod Lo:i ,oa ,sfrgkfld fodkl ds ifjizs{; esa jpuk fo”ks’k dk egRo le>us ,oa ewY;kadu dh {kerk dk fodkl gks ldsxkA**
4. **jpuk ds vkLoknu ,oa leh{k.k dh {kerk dk fodkl gks ldsxkA**

Course OutcomeM.A.IInd Sem.

- **r`rh; iz”u i=&Hkkjrh; dkO; “kkL=) isij dksM&203**

1. **fo|kfFkZ;ksa dks Hkkjrh; lkfgR;“kkL= dh ewyHkwr vo/kkj.kkvksa dk Kku gks ldsxkA**
2. **fo|kFkhZ Hkkjrh; dkO;”kkL= ds fodklØe dks le> ldsaxsA**
3. **fo|kFkhZ Hkkjrh; lkfgR;”kkL= ds izeq[k fl)karksa ,oa jpukvksa ls ifjfpr gks ldsaxsA**
4. **fo|kfFkZ;ksa dks Hkkjrh; dkO;”kkL= ds fl)karksa esa lkE;]oS’kE; ,oa mlds dkj.kksa dk Kku gks ldsxkA**

Course Outcome M.A.IInd Sem.

- **prqFkZ iz”u i=&lkekftd vf/kxe ,oa dkS”ky fodkl) HND-S o1**

1. **fo|kFkhZ {ks= vk/kkfjr dk;Z ds fy, izsfjr gksrs gSaA**
2. **fo|kfFkZ;ksa eas dkS”ky fodkl ds izfr tkx:drk iSnk gksrh gSA**
3. **fo|kfFkZ;ksa esa i;kZoj.k dh psruk fodflr gksrh gSA**
4. **fo|kfFkZ;ksa esa lkekftd mRrjnkf;Roksa ds izfr tkx:d vkrh gSA**

Course Outcome M.A.IInd Sem.

¼iape iz”u i=&Hkkjrh; jktuSfrd O;oLFkk ,oa laoS/kkfudrk½ isij dksM&ch 01

1. **fo|kfFkZ;ksa esa Hkkjr dh jktuSfrd O;oLFkk dks le>us dh –f’V dk fodkl gks ldsxk A**
2. **fo|kFkhZ lafo/kku esa iznRr vf/kdkjksa ls voxr gks ldsaxsA**
3. **fo|kfFkZ;ksa esa vius drZO;ksa dks le> dj ,d ftEesnkj ukxfjd gksus dk cks/k tkx`r gks ldsxkA**

Course Outcome M.A.IInd Sem.

¼iape iz”u i=&vkfndkO;½ isij dksM&ch 02

1. **fo|kFkhZ fganh lkfgR; dh vkfndkyhu lkekftd&lkaLd`frd i`’BHkwfe ls voxr gks ldsaxsaA**
2. **rRdkfyd izeq[k dfo;ksa ,oa d`fr;ksa ls ifjfpr gks ldsaxsA**
3. **fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksxhA**

Course Outcome M.A.IInd Sem.

¼iape iz”u i=&lardkO;½ isij dksM&ch 03

1. **fo|kFkhZ rRdkfyd lkekftd&lkaLd`frd i`’BHkwfe ls voxr gks ldsaxsaA**
2. **lardkO; dh izo`fr;ksa ,oa vU; dfo;ksa dh d`fr;ksa ls voxr gks ldsaxsA**
3. **fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksxhA**

Course Outcome M.A.IInd Sem.

¼iape iz”u i=&jhfrdkO;½ isij dksM&ch 04

1. **jhfrdkO; dh izo`fr;ksa ,oa vU; dfo;ksa dh d`fr;ksa ls voxr gks ldsaxsA**
2. **fo|kFkhZ rRdkfyd lkekftd&lkaLd`frd i`’BHkwfe ls voxr gks ldsaxsaA**
3. **fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksxhA**

Course Outcome M.A.IInd Sem.

¼iape iz”u i=&Nk;koknh dkO;½ isij dksM&ch 05

1. fo|kFkhZ Nk;koknh dkO; vkanksyu ls ifjfpr gksaxs gSaA
2. fo|kFkhZ Nk;kokn dh izeq[k izo`fRr;ksa dks le> ldsaxsA
3. fo|kFkhZ Nk;kokn ds izeq[k dfo vkSj mudh izeq[k d`fr;ksa ls ifjfpr gks ldsaxsA
4. rRdkyhu dfo;ksa dh ikB~; d`fr;ksa dks i<+dj fo|kfFkZ;ksa esa d`fr;ksa ds izfr vkykspukRed n`f’V dk fodkl gks ldsxkA

Course Outcome M.A.IInd Sem.

¼iape iz”u i=&Lokra=;ksRrj fganh dkO;½ isij dksM&ch 06

1. fo|kFkhZ ubZ dfork ls ifjfpr gksaxsA
2. Lokra=;ksRrj fganh dkO; izfo`fr;ksa ]dfo;ksa ,oa d`fr;ksa ,oa ls ifjfpr gks ldsaxsA
3. fo|kFkhZ rRdkfyd lkekftd&lkaLd`frd i`’BHkwfe ls voxr gks ldsaxsA
4. fo|kfFkZ;ksa esa ikB~;d`fr;ksa ds lanHkZ esa leh{kkRed {kerk fodflr gksxhA

Course Outcome M.A.IIIrd Sem.

- izFke iz”u i=&fgUnh fuca/k ,oa vU; x| fo|k,a) isij dksM&301

1. fo|kFkhZ fgUnh x| lkfgR; ds fodklØe dks le> ldsaxsA
2. fo|kFkhZ fgUnh x| dh izeq[k fo|kvksa ds rkfRod Lo:i ls ifjfpr gks ldsaxsA
3. x| fo|kvksa dks i<+dj fo|kfFkZ;ksa esa mlds ewY;kadu djus dh {kerk dk fodkl gks ldsxkA
4. fo|kfFkZ;ksa esa jpuk ds vkLoknu ,oa lHkh dh {kerk dk fodkl gks ldsxkA

Course Outcome M.A.IIIrd Sem.

- f}rh; iz”u i=&Nk;koknksRrj fgUnh dkO;) isij dksM&302

1. fo|kFkhZ Nk;koknksRrj fgUnh dkO; dh izeq[k izo`fRr;ksa ls ifjfpr gks ldsaxsA
2. fo|kFkhZ Nk;koknksRrj fgUnh dkO; ds fodklØe dks le> ldsaxsA
3. fo|kFkhZ Nk;koknksRrj dkO; dh izeq[k d`fr;ksa ls ifjfpr gks ldsaxsA
4. fo|kfFkZ;ksa esa Nk;koknksRrj fgUnh dkO; ds rRdkyhu Lo:i ,oa fodklØe ds ifjizs{; esa jpukvksa ds vkLoknu v/;;u vkSj ewY;kadu dh n`f’V dk fodkl gks ldsxkA

Course Outcome M.A.IIIrd Sem.

(r`rh; iz”u i=&ik”pkR; dkO; “kkL=) isij dksM&303

1. fo|kFkhZ ik”pkR; dkO; “kkL= dh ewy vo/kkj.kk ls ifjfpr gks ldsaxsA
2. fo|kFkhZ ik”pkR; dkO;”kkL= ds fodklØe dks le> ldsaxsA
3. fo|kFkhZ ubZ leh{kk ds fl)karksa ls ifjfpr gks ldsaxsA
4. fo|kfFkZ;ksa esa vkykspuk dh fofo/k iz.kkfy;ksa ,oa ubZ vo/kkj.kkvksa ds izfr ewY;kadu n`f’V dk fodkl gks ldsxkA

Course Outcome – M.A.IIIrd Sem.

(prqFkZ iz”u i=&ckSf)d lEink ekuokf/kdkj ,oa i;kZoj.k% i`’BHkwfe) isij dksM&,l 02

1. fo|kFkhZ ckSf)d lEink dh vo/kkj.kk ls ifjfpr gks ldsaxsA
2. fo|kFkhZ ekuokf/kdkj ls ifjfpr gks ldsaxsA
3. fo|kfFkZ;ksa esa Ik;kZoj.kh; psruk dk fodkl gks ldsxkA
4. fo|kFkhZ Ik;kZoj.k ls tqM+s fofo/k igyqvksa ls ifjfpr gks ldsaxsA

Course Outcome M.A.IIIrd Sem.

(iape iz”u i=&tutkrh; v/;;u) isij dksM&lh 01

1. fo|kFkhZ Hkkjr dh fofHkUu tutkfr;ksa ls ifjfpr gks ldsaxsA
2. tutkrh; lekt vkSj mudh laLdfr ,oa vU; lekt ls varlZaca/kksa ls voxr gks ldsaxsA
3. fo|kFkhZ tutkrh; lekt ,oa laLd`fr ds egRo ls voxr gks ldsaxsA

Course Outcome M.A.IIIrd Sem.

(iape iz”u i=&fganh vkykspuk) isij dksM&lh02

1. fo|kfFkZ;ksa esa lkfgfR;d d`fr;ksa dh vkykspuk dh leh{kk dh [kerk fodflr gks ldsxhA
2. lkfgfR;d d`fr;ksa ds rqyukRed v/;;u dh {kerk fodflr gks ldsxhA
3. fo|kfFkZ;ksa esa rdZ”kfDr fodflr gks ldsxhA

Course Outcome M.A.IIIrd Sem.

(iape iz”u i=&fganh lkfgR; vkSj Hkkjrh; laLd`fr) isij dksM&lh03

1. fo|kFkhZ fganh lkfgR; esa Hkkjrh;rk dh igpku dj ldsaxsA
2. lkfgR; esa fufgr ekuoh; ewY;ksa dh igpku dj ldsaxsA
3. lkfgR; ds ek/;e ls Hkkjrh; laLd`fr dk fo”kn Kku iziIr dj ldsaxsA

Course Outcome M.A.IIIrd Sem.

(iape iz”u i=&n`”; JO; ek/;e ys[ku) isij dksM&lh04

1. **fo|kFkhZ n`”; JO; ek/;eksa dk fo”kn Kku izkIr dj ldsaxsA**
2. **v/;;u mijkar jkstxkj izkfIr ds volj izkIr gks ldsaxsA**
3. **fganh&vaxzsth Hkk’kk ds O;kogkfjd Kku dh izkfIr gks ldsxh A**

Course Outcome M.A.IIIrd Sem.

(iape iz”u i=&fganh ukVd ,oa jaxeap) isij dksM&lh05

1. **fo|kFkhZ fganh lkfgR; dh izkjafHkd x| fo/kk jaxeap ds fodklØe ls voxr gks ldsaxsA**
2. **egRoiw.kZ ukV~; jpuk fo”ks’k ds egRo dks le>us ,oa ewY;kadu djus dh {kerk fodflr gks ldsxh A**
3. **ukV~; jpuk ds vkLoknu ,oa leh{kk dh {kerk dk fodkl gks ldsxkA**

Course Outcome M.A.IIIrd Sem.

(iape iz”u i=&yksd lkfgR;) isij dksM&06

1. **fo|kFkhZ yksd thou ,oa yksd laLd`fr ls ifjfpr gks ldsaxsA**
2. **fo|kfFkZ;ksa esa yksd laLd`fr dh le> fodflr gks ldsxh A**
3. **fo|kfFkZ;ksa dk yksd thou ds izfr tqM+ko gks ldsxkA**
4. **fo|kfFkZ;ksa esa yksd lkfgR; ds l`tu dh #fp tkx`r gks ldsxh A**

Course Outcome M.A.IVth Sem.

(izFke iz”u i=&Hkkjrh; lkfgR;) isij dksM&401

1. **fo|kFkhZ fgUnh lkfgR; ds vf[ky Hkkjrh; ifjizs{; ls ifjfpr gks ldsaxsA**
2. **fo|kFkhZ fgUnhrj Hkk’kkvksa esa fy[ks lkfgR; ls ifjfpr gks ldsaxsA**
3. **fo|kfFkZ;ksa dks Hkkjrh; lkfgR; esa O;Dr Hkkjrh;rk dh igpku djus dh {kerk fodflr gks ldsxhA**
4. **fo|kfFkZ;ksa esa lkfgfR;d vuqokn ds vkLoknu ,oa ewY;kadu dh {kerk fodflr gks ldsxhA**

Course Outcome M.A.IVth Sem.

(f}rh; iz”u i=&fgUnh i=dkfjrk) isij dksM&402

1. **fo|kFkhZ fgUnh i=dkfjrk dh ewy vo/kkj.kkvksa ,oa ewy LFkkiukvksa ls ifjfpr gks ldsaxsA**

2. fo|kFkhZ fgUnh i=dkfjrk ds mn~Hko vkSj fodklØe dks le> ldsaxsA
3. fo|kfFkZ;ksa esa fgUnh esa dEI;wVj ds iz;ksx dh fof/k dh {kerk dk fodkl gks ldsxkA
4. fo|kfFkZ;ksa esa fofHkUu {ks=ksa esa fgUnh ds dk;Zlk/kd iz;ksx dh dq”kyrk dk fodkl gks ldsxkA

Course Outcome M.A.IVth Sem.

- r`rh; iz”u i=&iz;kstuewyd fgUnh) isij dksM&403

1. fo|kfFkZ;ksa esa iz;kstuewyd fgUnh ds izfr vfHk:fp dk fodkl gks ldsxkA
2. fo|kFkhZ iz;kstuewyd fgUnh ds fofo/k :iksa ls ifjfpr gks ldsaxsA
3. fo|kFkhZ dk;kZy;hu fgUnh ds Lo:Ik ls ifjfpr gks ldsaxsA
4. ehfM;k ys[ku ds fofo/k Lo:iksa dks tkudj fo|kFkhZ ehfM;k ys[ku ds izfr tkx:d gks ldsaxsA

Course Outcome M. A. IVth Sem.

- prqFkZ iz”u i=&y?kq”kks/k izca/k) isij dksM&421

1. fo|kfFkZ;ksa esa “kks/k dh vfHk:fp dk fodkl gksxkA
2. fo|kfFkZ;ksa esa “kks/kijd n`f’Vdks.k dk fodkl gks ldsxkA
3. fo|kFkhZ fo’k;&fo”ks’k ij “kks/k djrs gq, ml fi’k; ij foLr`r v/;;u dj ldsaxsA
4. y?kq”kks/k izca/k ds ek/;e ls fo|kFkhZ vkxs ds “kks/k ,e-fQy@ih-,p-Mh- gsrq rS;kj gks ldsaxsA

Course Outcome M.A.IVth Sem.

(iape iz”u i=&izk;ksfxdh ,oa ekSf[kdh) isij dksM Mh&01

1. fo|kfFkZ;ksa esa fo’k; ds lS)kafrd ,oa O;kogkfjd i{kksa dh le> fodflr gks ldsxh A
2. Hkk’kk vkSj vfHkO;fDr dkS”ky dk fodkl gks ldsxkA
3. Hkfo’; esa fofHkUu inksa gsrq gksusokys lk{kRdkj ds fy, visf{kr Kku vkSj le> dk fodkl gks ldsxk A

Course Outcome M.A.IVth Sem.

(iape iz”u i=&Hkkjrh; ewyHkk’kk ikfy) isij dksM Mh&02

1. fo|kFkhZ e/;dkyhu Hkkjrh; ewyHkk’kk ikfy ds lkfgR; ,oa rRdkyhu lkekftd&lkaLd`frd i`’BHkwfe ls voxr gks ldsaxsA
2. Hkkjrh; vk;ZHkk’kkvksa ds fodklØe dks le> ldsaxsA

3. ikfy Hkk’kk ds O;kdjf.kd fu;eksa ls voxr gks fganh Hkk’kk ds O;kdj.k dks le>us dh {kerk dk fodkl gks ldsxkA

Course Outcome M.A.IVth Sem.

(iape iz”u i=& vuqokn foKku) isij dksM Mh&03

1. fo|kfZFkZ;ksa esa vuqokn ds fofo/k :i rFkk vuqokn izfØ;k dks le>us dh {kerk dk fodkl gks ldsxkA
2. fo|kFkhZ vuqokn ds lkekftd &lkaLd`frd i{kksa ls voxr gkssaxsA
3. fo|kfZFkZ;ksa esa vuqokn djus dh {kerk fodflr gks ldsxhA

Course Outcome M.A.IVth Sem.

(iape iz”u i=& dks”k foKku) isij dksM Mh&04

1. fo|kFkhZ dks”k foKku dh O;qRifRr ,oa bfrgkl ls voxr gks ldsaxsA
2. fo|kFkhZ fganh dh ikfjHkkf’kd “kCnkoyh fuekZ.k] ladsrk{kj] dwV”kCn dk Kku izkIr dj ldsaxsA

Course Outcome M.A.IVth Sem.

(iape iz”u i=& ikBkykspu) isij dksM Mh&05

1. fo|kFkhZ ikBkykspu dh if)r;ksa] “kSfy;ksa ls voxr gks ldsaxsA
2. fofHkUu xzaFkksa ds foospu] fo”ys’k.k dh {kerk dk fodkl gks ldsxkA
3. ikB dh vo/kkj.kk] ikB fu/kkZj.k dh izfØ;k] laiknudyk dk fodkl gks ldsxkA

Course Outcome M.A.IVth Sem.

(iape iz”u i=&Hkk’kk f”k{k.k) isij dksM&06

1. fo|kFkhZ Hkk’kk f”k{k.k ds fofo/k Lo:iksa ls ifjfpr gks ldsaxsA
2. fo|kfFkZ;ksa dks Hkk’kk f”k{k.k ds egRo vkSj mi;ksfxrk dk Kku izkIr gks ldsxkA
3. fo|kfFkZ;ksa esa Hkk’kk f”k{k.k ds izfr ewY;kduijd n`f’V fodflr gks ldsxh A

Programme Learning Outcomes (B.A. English Literature)

The programme learning outcomes relating to B.A. programme in English Literature:

- **demonstrate a set of basic skills in literary communication and explication of literarypractices and process with clarity**
- **demonstrate a coherent and systematic knowledge of the field of English literature and Bhasha literatures in English showing an understanding of current theoretical and literary developments in relation to the specific field of English studies.**
- **display an ability to read and understand various literary genres and stylistic variations and write critically**
- **cultivate ability to look at and evaluate literary texts as a field of study and as part of the wider network of local and global culture**
- **demonstrate a critical aptitude and reflexive thinking to systematically analyze the existing scholarship and expand critical questions and the knowledge base in the field of English studies using digital resources.**
- **display knowledge to cultivate a better understanding of values**

– both literary values that aide us in literary judgment and also values of life at all stages. apply appropriate methodologies for the development of the creative and analytical faculties of students, their overall development of writing, including imaginative writing.

- **recognize employability options in English studies programme as part of skill development and as career avenues open to graduates in today’s global world such as professional writing, translation, teaching English at different levels, mass media, journalism, aviation communication and personality development**
- **channelize the interests of the students and analytical reasoning in a better way and make more meaningful choices regarding career after completion of graduate programme**
- **to enable students to develop an awareness of the linguistic-cultural richness of India as an important outcome of English literary studies in India**

B.A. I Year English Literature

Paper –I (Literature in English :1550-1750)

Course outcome

After completing the Course the students will able to demonstrate:

CO 01- a Comprehensive knowledge of the literary works in English produced by British writers this knowledge will include the various literary forms fictional as well as non- fictional employed by the British writers and Historical and Literary topics as well.

CO 02- a critical understanding of the poets like Shakespeare, Milton and John Donne,John Dryden and Alexander Pope, playwrights like Shakespeare, non fictional writers like Bacon, Addison, and Steele and the novelists like Swift

CO 03- a capacity to compare and contrast the different literary qualities of the writers with the critically rank them in evaluative terms.

CO 04- a critical inclination to read literature as a socio-cultural document.

CO 05- a research tendency to go for innovative studies English Literature in the postcolonial light of the latest research insights.

CO 06- a socio- political sense of responsibility to stand up against colonizing human tendencies.

CO 07- a visible literary- critical bent towards understanding life through literately and vice versa .

B.A. Part- I English Literature

There will be two literatures in English- 1550-1750 Papers, each carrying maximum marks-75 . Nine questions are to be attempted in each peper. Each question carries the marks according to the scheme mentloned in each paper

English Literature Paper-I

Literature In English-1550-1750

(i) Unit – 1 of Annotation is compulsory, and passages to be set from Units (Ii to V) atleast one from each unit, 3 to be attempted. 3x5=15

(iii) Multiple choice/objective type questions to be set Unit vii, 15 to be set 10 be attempted. 1x1 = 10

(iii) From Unit-II to VI-8 questions to be setatleast one from each unit- 5 to be attempted.

10x5=50

Word Limit for each answer 300 to 400 words.

UNIT-1 ANNOTATIONS.

UNIT-2 POETRY

1. **Shakespeare- sonnet No. 1 From Fairest Creatures, Sonnet No. 154 The little Love God.**
2. **Milton- How Soon Hath Time the subtle of Youth....**
3. **John Donne- Sweetest Love I Don't go, This is my Play's Last Scene.**

UNIT-3 POETRY

1. **John Dryden- Portrait of shadwell.**
2. **Alexander- Pope- From An Essy on Criticism (True case in writing...) and the world's Victor Stood subdned by sound.**

UNIT-4 PROSE

1. **Bacon Of Studies, Of Health, Of Friendship**
2. **Addison-Sir Roger at Home**
3. **Steele Of the Club.**

UNIT-5 DRAMA

Shake spear- The Merchant of Venice

UNIT-6 Fiction- Swift- The Battle of the Books.

UNIT-7 Historical and Literary Topics

1. **The Renaissance.**
2. **Humanism.**
3. **Reformation.**
4. **The Restoration.**
5. **The Earlier Drama**

6. Petrachism and the Sonnet Cycle.
7. The Influence of Seneca an Classical Dramatic Theory
8. The Elizabethan and Jacobean stage.
9. Restoration Drama
10. The Rise of Periodcal Essay

BOOKS RECOMMENDED for Unit VII in Papers I and II

1. Edward Albert - A History of English Literature
2. Ifor Evans - A short History of English Literature.
3. Hudson - An Outline History of English Literature

Both the papers of B.A. Part- I are included in the anthologies prescribed in the previous syllabus for B.A. Part-I and B.A. Part-II

Course outcome

After completing the Course the students will able to demonstrate:

CO 01- a Comprehensive knowledge of the literary works in English produced by British writers this knowledge will include the various literary forms fictional as well as non- fictional employed by the British writers and Historical and Literary topics as well.

CO 02- a critical understanding of the poets like Blake, Wordsworth, Coleridge, Shelley, Keats, Tennyson and Browning and non fictional writers like Lamb and Hazlit and the novelists like Jane Austen and Charles Dickens.

CO 03- a capacity to compare and contrast the different literary qualities of the writers with the critically rank them in evaluative terms.

CO 04- a critical inclination to read literature as a socio-cultural document.

CO 05- a research tendency to go for innovative studies of English Literature in the postcolonial light of the latest research insights.

CO 06- a socio- political sense of responsibility to stand up against colonizing human tendencies.

CO 07- a visible literary- critical bent towards understanding life

through literately and vice versa

Note- (i) Unit – 1 of Annotation is compulsory, 6 Passages be set from Units (II to IV) atleast one from each unit, 3 to be attempted

3x5=15

1. Multiple choice/objective type questions

to be set from unit- VII,

25 to be set 10 to be attempted .

1 x1= 10

1. From Unit-II to VI-8 questions to be set atleast one from each unit- 5 to be attempted.

10x5=50

Word Limit for each answer 300 to 400 words.

UNIT-1 ANNOTATIONS.

UNIT-2 POETRY

1. Blake- Tiger, Tiger Burning Bright.
2. Wordsworth- Daffodils and Solitary Reaper.
3. Coleridge – Frost at Midnight.

UNIT-3 POETRY

1. Shelley- Ode to a Skylark.
2. Keats- Ode to Autumn.
3. Tennyson- Crossing the Bar.
4. Browing- Prospice.

UNIT-4 PROSE

1. Lamb- Dream Children: A Reverie
2. Hazlit- One Actors and Acting

UNIT-5 Fiction Jane Austen – Pride and prejudice. UNIT-6 Fiction Charles Dickens- David Copperfield UNIT-7 Historical and Literary

Topics

1. The Reform Acts.
2. The Impact of Industrial Ization .
3. Colonialism and Imperialism.
4. Scientific the ughts and discoveries
5. Faith and Doubt.
6. Classical and Romantic Concepts of Imagination.
7. Varieties o f Romantic and Victorian Poetry.
8. The Victorian Novel.
9. Realism and the Novel.
10. Aestlheticism

Course outcome

After completing the Course the students will able to demonstrate:

CO 01- a Comprehensive knowledge of the literary works in English produced by British writers this knowledge will include the various literary forms fictional as well as non- fictional employed by the British writers and Literary topics as well.

CO 02- a critical understanding of the poets like Yeats, Eliot ,Dylan Thomas and and Larkin, playwrights like J. B. Shaw, non fictional writers like Russel, and Oscar Wilde and the novelists like Kipling and short Story writer like Mansfield.

CO 03- a capacity to compare and contrast the different literary qualities of the writers with the critically rank them in evaluative terms.

CO 04- a critical inclination to read literature as a socio-cultural document.

CO 05- a research tendency to go for innovative studies of English Literature in the postcolonial light of the latest research insights.

CO 06- a socio- political sense of responsibility to stand up against colonizing human tendencies.

CO 07- a visible literary- critical bent towards understanding life through literately and vice versa .

B.A. II Year English Literature

Paper –I (Modern English Literature) All Questions are compulsory.

Note- (i) Unit – I is compulsory. Two passages from each of the units I to be set and three to be attempted. 3x5=15

(iii) Short answer questions from Unit VII, seven to be set and live to be attempted 5 x2= 10

(iii) Long answer question from unit II to VI Five questions from each unit with internal choice to be set. 5x2=10

Word Limit for each answer 300 to 400 words.

UNIT-I Annotations

UNIT-II (Poetry)

W.B. Yeats-' A Prayer for my Daughter, The Second Coming

T.S. Eliot- Love Song of J. Alfred Prufrock'

UNIT-III (Poetry)

Dylan Thomas- Lament A Refusal to Mourn the Death Larkin- Toads, At Grass.

UNIT-IV (Prose)

Bertrand Russell- On the Value of Scepticism Qscar Wilde Happy Prince.

UNIT-V (Drama)

G.B. Shaw- Pygmalion.

UNIT-VI (Fiction and short- stories)

Rudyard Kipling- Kim Short Stories

Katherine mansfield- A Cup of Tea

UNIT-VII 1. Elegy,

1. **Sonnet,**

2. Ode
3. Morality & Miracle Play,
4. Interlude

BOOKS RECOMMENDED:

1. An Introduction to the study of English Lit. B. Prasad
2. A Glossart of Literary Terms M.H. Abrahamas
3. Prose of Today- M. Millan Pub
4. Short stories of Yesterday and To day M. Millan

Course outcome

After completing the Course the students will able to demonstrate:

CO 01- a Comprehensive knowledge of the literary works in English produced by British writers this knowledge will include the various literary forms fictional and non- fictional employed by the British writers and literary terms as well.

CO 02- a critical understanding of the poets like Sassoon, Owen, Auden and Ted Hughes, playwrights like John Galsworthy and J.M. Synge, non fictional writers like Robert Lynd and the novelists like William Golding

CO 03- a capacity to compare and contrast the different literary qualities of the writers with the critically rank them in evaluative terms.

CO 04- a critical inclination to read literature as a socio-cultural document.

CO 05- a research tendency to go for innovative studies of English Literature in the postcolonial light of the latest research insights.

CO 06- a socio- political sense of responsibility to stand up against colonizing human tendencies.

CO 07- a visible literary- critical bent towards understanding life through literately and vice versa .

All question are compulsory

Note:- 1.Unit I is compulsory, Two passages from each of the unit II to v to be set and three to be attempted

(3x5+15)

1. **Short answer questions from unit VII, seven to be set and live to be attempted**

(5x2=10)

1. **Long- answer question from unit II or VI, Five question from each unit with internal choice to be set.**

(Words limit for each answer is 300-400 words)

UNIT-I Annotation

UNIT-II (Poetry)

Sasson- At the Grove of Henry Vaughan Owen, W.H.- Strange Meeting.

UNIT-III (Poetry)

Auden- Seascape

Ted Hughes The Howling of Wolves

UNIT-IV (Prose)

Robert Lynd- Forgetting

H. Belloc- A conversation with A Reader

UNIT-V (Drama)

Johan Galsworthy- Strife

OR J.M. Synge- Riders of the sea

UNIT-VI – William Golding – Lord of the Flies (Fiction)

UNIT- VII 1. Simlle 2. Metaphor 3. Alliteration 4. Onomatopoeia 5. Ballad

6. Epic 7. Dramatic Monologuc.

BOOk RECOMMENDED-

1. **Golden Treasury – Palgrave**
2. **A Glossary of Literary Terms- M.H. Abrams**
3. **An Introduction of the study of English Literature- B. Prasad**

Course outcome

After completing the Course the students will able to demonstrate:

CO 01- a Comprehensive knowledge of the literary works in English produced by Indian writers this knowledge will include the various literary forms fictional as well as non- fictional employed by the Indian writers in English and Historical and Literary topics as well.

CO 02- a critical understanding of the poets like Toru Dutt, Tagore and Sarojini Naidu, playwrights like Girish Karnad and Tendulkar, non fictional writers like Nirad C Choudhary and Dr. S. Radhakrishnan and the novelists like R.K. Narayan

CO 03- a capacity to compare and contrast the different literary qualities of the writers with the critically rank them in evaluative terms.

CO 04- a critical inclination to read literature as a socio-cultural document.

CO 05- a research tendency to go for innovative studies of Indian writing in English in the postcolonial light of the latest research insights.

CO 06- a socio- political sense of responsibility to stand up against colonizing human tendencies.

CO 07- a visible literary- critical bent towards understanding life through literately and vice versa .

B.A. III Year English Literature

Paper –I (A) Indian Writing in English

All question are compulsory

Note:- 1.Unit I is compulsory, Two passages from each of the unit II to v to be set and three to be attempted

(3x5+15)

1. **Short answer questions from unit VII, seven to be set and live to be attempted**

(5x2=10)

1. **Long- answer question from unit II to VI, Five question from each unit with internal choice to be set.**

(Words limit for each answer is 300-400 words)

UNIT-I Annotation and short answer questions

UNIT-II (Poetry)

Toru Dutt - Our Casurina Tree

Tagore - Songs 1 & 103 from Gitanjali Sarojini Naidu - The Ecstasy; The Lotus'

UNIT-III Kamla Das

-

The Old Playhouse

Gauri Deshpandey

or

The female of the species

Jayant Mahapatra

-

Dawn at Purl

K.N. Daruwala

or

Death by Burial'

Shiv K. Kumar

Indian Women

UNIT-IV Prose-

Nirad C. Choudhary - My Birth Place

Dr. S. Radhakrishnan - The call of the suffering

H. Belloc- A conversation with A Reader

UNIT-V (Drama)

Girish Karnad - Hayavadana or

Tendulkar - Silence The court is in session

UNIT-VI Fiction

R.K.Narayan - Gulde

UNIT- VII 1. Lyric, 2. Subjective Poetry 3. Couplet 4. Fable 5. Hymn 6.

Allegory 7. Autobiography.

BOOk RECOMMENDED-

1. **Indian Poetry in English, Ed Hari Mohan prasad, Sterllng Publication**
2. **An Introduction to the study of English Literature, B. Prasad.**
3. **A Glossary of Literary Terms- M.H. Abrams.**
4. **Prose of To day- M.C. Millan**

B.A. III Year English Literature

PAPER-I (B) - American Literature Course outcome

After completing the Course the students will able to demonstrate:

CO 01- a Comprehensive knowledge of the literary works in English produced by American writers. This knowledge will include the various literary forms fictional as well as non- fictional employed by the American writers in English.

CO 02- a critical understanding of the poets like Sylvia Whitman, Carl Sandberg, Dickinson and Cummings, playwrights like O'Neil and Miller, non fictional writers like Emerson and Thoreau , the novelists like Faulkner and Hemmingway

CO 03- a capacity to compare and contrast the different literary qualities of the writers with the critically rank them in evaluative terms.

CO 04- a critical inclination to read literature as a socio-cultural document.

CO 05- a research tendency to go for innovative studies of American writing in English in the postcolonial light of the latest research insights.

CO 06- a socio- political sense of responsibility to stand up against colonizing human tendencies.

CO 07- a visible literary- critical bent towards understanding life through literately and vice versa .

B.A. III Year English Literature

PAPER-I (B) - American Literature

All question are compulsory

Note:- 1.Unit I is compulsory, Two passages from each of the unit II to v to be set and three to be attempted

(3x5+15)

1. **Short answer questions from unit VII, seven to be set and live to be attempted**

(5x2=10)

1. **Long- answer question from unit II to VI,(Word limit for each answer is 300-400 words.) internal choice to be set.**

UNIT-I Annotation and short answer questions

UNIT-II (Poetry)

Wait whitman - O Captain ! My Captain , when the

Lilacs Last in the Dooryard

Bloomed.

Carl Sandberg - ' Who Am I ? ; 'I am the people, The Mob'

UNIT-III Emily Dickinson - 'Hope is the thing with Feather' I f=Felt a Funeral in My Brain'

E.E. Cummings - ' The Cambridge Ladies'

As Freedom is a Breakfast food'

UNIT-IV Prose-

William Faulkner - Nobel Award Acceptance Speech

W. Carlos Williams - In the American Grain Walt Whitman - Preface to " Leaves of Grass '

H. Belloc- A conversation with A Reader

UNIT-V (Drama)

Miller - All My Sons or

Eugene O' Neill - The Hairy Ape

UNIT-VI Fiction

E. Hemingway - A Farewell to Arms Or

W. Faulkner - The Sound and the Fury

UNIT- VII 1. Naturalism, 2. Realism 3 Art for Art's sake 4. Poetic-Drama,

5. Symbolism 6. American Renaissance 7. Existentialism.

BOOk RECOMMENDED-

1. **American Literature , An Anthology, Ed. Fr. Egbert S. Oliver.**
2. **A Glossary of Literary Terms – M.H. Abrams.**

B.A. III Year English Literature

Paper –II (20th Century Literature In English)

Course outcome

After completing the Course the students will able to demonstrate:

CO 01- a Comprehensive knowledge of the literary works in English produced by British writers this knowledge will include the various literary forms fictional and non- fictional employed by the British writers and historical terms as well.

CO 02- a critical understanding of the poets like Sassoon, Owen, Auden and Brooke , playwrights like Shaw and Beckett, non fictional writers like Virginia Woolf and Greene and the novelists like Conrad and Chinua Achebe.

CO 03- a capacity to compare and contrast the different literary qualities of the writers with the critically rank them in evaluative terms.

CO 04- a critical inclination to read literature as a socio-cultural document.

CO 05- a research tendency to go for innovative studies of English Literature in the postcolonial light of the latest research insights.

CO 06- a socio- political sense of responsibility to stand up against colonizing human tendencies.

CO 07- a visible literary- critical bent towards understanding life through literately and vice versa .

B.A. III Year English Literature

Paper –II (20th Century Literature In English)

The Paper will be taught as an optional paper to paper- II (A) which is a paper on American Literature. The Principle focus will be to probe the students a general background and cultural history of this period and also to make them aware of the Literary trends of the twentieth century. The Paper Will comprise six units sand in all six questions are to be attempted, one from each unit.

UNIT-I The following historical and literary topics will be included in this unit, Students are required to write short notes of not more than three hundred words on any two of the following topics.

1. **The Two world wars.**
2. **The Russian Revolution.**
3. **The Great Depression**
4. **The Vietnam war.**
5. **Freudian Thought.**
6. **Existentialism.**
7. **Absurdism.**
8. **Modernism and Post Modernism.**

x) New Development in fiction and Drama.

UNIT-II Ten Objective type questions on the life History and major poetical work of the following poets of the twentieth century will be asked in this unit (10 Marks)

i) W.B. Yeats (1865-1939)

1. **Siegfried Sasson (1886- 1967)**
2. **Rupert Brooke (1887-1918) iv) T.S. Eliot (1888-1965)**

v) wilfred Owen (1893- 1918) vi) W.H. Auden (1907- 1937)

1. **Louis Maceneice (1907-1963).**
2. **Stephen spender (19096-)**
3. **Dylan Thomas (1914- 1953)**
4. **Philip Larkin (1922- 1985) (15 marks)**

UNIT-IV Prose-

Joseph Conrad - 'Heart of Darkness' or

Chinua Achebe – 'Things Fall Apart'

UNIT-V (Non Fictional Prose)

Virginal Woolf - 'The Death of the Moth' Graham Greene - 'The Lost Childhood'

UNIT-VI (Drama)

Bernard Shaw

-

' Pygmalion'

Or

Samuel Beclett

-

'Waiting for Godot'

B.A./B.Sc./ B.Com/ BHSC Part –I Paper –II (Foundation Course – English

Language)

Course Out come

After completing the Course the students will able to demonstrate:

CO-01 Correct usage of Grammar, application of vocabulary and composition skill.

CO-02 Effective Communication Skill /ability in English in terms of fluency and comprehensive ability.

CO-03 efficiently in oral prostration and convincing reading and comprehensive skill .

CO-04 Compatible knowledge variety of subjects related to Indian culture, literature, religions scripture, freedom movement, Indian constitutions, fundamental duties, and several other literacy and issues of practical wisdom.

CO-05 Skill in effective writing and communication skill on different occasion and in different situation .

CO-06 Sensitive approach in regional national and global issues with deep insight and perception and viable amicable solutions .

CO-07 ability of critical insight on social , cultural, economic and other subjects .

CO-08 Social accountability towards the prospect and challenges impending and and so been transformed into a good human being.

B.A./B.Sc./ B.Com/ BHSC Part –III

Paper –II (Foundation Course – English Language)

Course Out come

After completing the Course the students will able to demonstrate:

CO-01 basic grammatical skill in tens, voice narration conditional sentences, conjunctions, Gerund and participles and its application in different walks of life .

CO-02 good convince and reading, writing and communication ability in logical and convincing manner

.

CO-03 Understanding of different scientific, medical and technological issues related to day today life an awareness towards healthy physical, mental and social set up .

CO-04 Compatible knowledge and understanding in the field of modern communicative devices, its applications and its healthy and

unhealthy repercussions.

CO-05 Comprehensive composition skill on different issues, practical and ethical .

CO-06 effective listening, reading, uniting and communications on different occasion and situation occasion and situations.

CO-07 sensuous comprehension of different personal social and national issues with convincing suggestions .

CO-08 attitude as a balanced human basic, anticipation their duties and responsibility towards society and nation.

B.A./B.Sc./ B.Com/ BHSC Part –II

Paper –II (Foundation Course – English Language)

Course Out come

After completing the Course the students will able to demonstrate:

CO-01 Advance grammatical skill in tens, voice, narration, conditionals, gerunds, particles and its applications on different occasions and in different situations .

CO-02 Competency in reading writing and conversation ability and interactions of in logical and convincing manner and understanding the different social, economics and developmental aspects competently.

CO-03 Skill in accessing different literacy, historical and economic issues like New Economic policy, Globlisation and privatisaion, Democratic decentralization, gender discourse and application.

CO-04 Compatible knowledge in understanding religion and university of religion management skill and short stories of modern writers in English.

CO-05 Comprehensive skill in Essay writing, summary writing and comprehensive of passages asked in different competitive .

CO-06 Awareness of global economic issues transformed in pertinent personal and socio- economic situations with amiable shorts solutions.

CO-07 Overall incumbent of personality with different theoretical knowledge and its practical application as a balanced and accountable human beings.

B.A./B.Sc./ B.Com/ BHSCPart –I

Paper –II (Foundation Course – English Language)

Learning Out come

This course will give to the students:-

CO-01 a solid foundational grounding in correct grammatical usage of the English language.

CO-02 a large working vocabulary related with socio- cultural and political areas of human life.

CO-03 an adequate familiarity with and understanding of the various aspects of Indian history, culture and democratic functioning.

CO-04 Skills of short composition in English.

CO-05 a sense of civic responsibility toward the Indian nation.

CO -06 an inclination toward further and deeper readings into the vastness of Indian history and cultural- civilization aspects.

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B.A./B.Sc./ B.Com/ BHSC Part –II

Paper –II (Foundation Course – English Language)

Learning Out come

This course will give to the students:-

CO-01 a solid foundational grounding in correct grammatical usage of the English language.

CO-02 a large working vocabulary related with the rich intellectual history of India, particularly of her achievements in the field of scientific thoughts and discoveries.

CO-03 an adequate familiarity with the ancient and pre- independence phases of the Indian scientific history focussed on the great scientists and their achievements.

CO-04 Skill of short composition in English.

CO-05 a sense of national pride of belonging to the Indian nation with great scientific heritage.

CO- an inclination towards gaining more and deeper Knowledge about science as practised and researched by Indian minds .

B.A./B.Sc./ B.Com/ BHSC Part –III

Paper –II (Foundation Course – English Language)

Learning Out come

This course will give to the students:-

CO-01 a solid foundational grounding in correct grammatical usage of the English language.

CO-02 a large working vocabulary related with the socio- historical and developmental aspects of Indian and world society.

CO-03 an adequate familiarity with some of the very important Indian historical personalities who form a part of our rich heritage .

CO-04 Skill of large composition in English.

CO-05 an inclination toward understanding the complete rules of higher English grammar .

CO- 6 a tendency to make reading in diverse fields of knowledge a habit for life . Programme outcome

PO-01

Disciplinary Knowledge of English

Literature and Literary Studies

PO- 02

Communication Skills

PO- 03

Critical Thinking

PO-04

Analytical Reasoning

PO-05

Problem Solving

PO-06

Research-Related Skills

PO-07

Self-Directing Learning

PO-08

Multicultural Competence

PO-09

Values: Moral and Ethical, Literary and Human

PO-10

Digital Literacy

COMMERCE

B. COM. PROGRAM OUTCOME

- After completion of three years for bachelors in commerce program students would gain a thorough grounding in the fundamentals of commerce and finance.
- Learners will gain thorough systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing.
- The commerce and finance focused curriculum offers a number of specializations and practical exposures which would equip the students to face the modern-day challenges in commerce and business.
- The all-inclusive outlook of the course offer a number of values based and job oriented courses ensures that students are trained into up-to-date.
- Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
- Learners will acquire the skills like effective communication, decision making, problem solving in Day to day business affairs

COURSE OUTCOME

B.COM. PART-I

GROUP – I; PAPER – I: - FINANCIAL ACCOUNTING

- Demonstrate an appropriate mastery of knowledge, skill and tools of financial accounting.
- On successful completion of this course the students are enabled with the knowledge in the practical applications of accounting.
- To impart the knowledge of various accounting concepts

GROUP – I; PAPER – II: -BUSINESS COMMUNICATION

- To understand the concept, process and importance of communication
- To develop awareness regarding new trends in business communication.
- To develop effective business communication skills among the students.

GROUP – II; PAPER – I: - BUSINESS MATHEMATICS

- To Develop Abstract, logical & critical thinking ability to reflect critically upon their work.

- To prepare for competitive examinations
- To understand the concept of Simple interest, compound interest and the concept of EMI.
- To understand the concept and application of profit and loss in business

GROUP – II; PAPER – II: – BUSINESS REGULATORY FRAMEWORK

- To provide a brief idea about the framework of Indian business laws.
- To develop the awareness among the students regarding these laws affecting business, trade and commerce
- To acquaint students with the basic concepts, terms & provisions of Mercantile and Business Laws.

GROUP – III; PAPER – I: – BUSINESS ENVIRONMENT

- On successful completion of this subject the students should have Knowledge on the meaning conveyed by the word 'Business‘ , understand the various forms of business , types of business and impact of various aspects on business environment
- To make the students aware about the Business Environment.
- To make students understand about the internal and external factors that affects the business.

GROUP – III; PAPER – II: – BUSINESS ECONOMICS

- To expose Students of Commerce to basic micro economic concepts and inculcate an analytical approach to the subject matter.
- To stimulate the student interest by showing the relevance and use of various economic theories.

B.COM. PART-II

GROUP – I; PAPER – I: CORPORATE ACCOUNTING

- To enable the students to develop awareness about Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards.
- To make aware the students about the conceptual aspect of corporate accounting.

GROUP – I; - PAPER – II: COMPANY LAW

- To provide basic knowledge of the provisions of companies act

1956 along with relevant case law.
- To update the knowledge of provisions of the Companies Act of 2013.
- To acquaint the students with the duties and responsibilities of Key Managerial Personnel.

GROUP – II; PAPER – I: COST ACCOUNTING

- To expose the students to the basic concepts on the tools used in cost accounting.
- To familiarize students with various methods and techniques of costing.

GROUP – II; - PAPER – II: PRINCIPLES OF MANAGEMENT

- To familiarize the students with the basics of principles of management.
- To provide an understanding about various functions of management.

GROUP – III; - PAPER – I: BUSINESS STATISTICS

- To gain understanding of statistical techniques as are applicable in business.
- To impact the basis in Statistics to help students acquire new skills on the application of statistical tools and techniques in Business decision-making.

GROUP – III; PAPER – II: FUNDAMENTALS OF ENTREPRENUERSHIP

- To provide exposure to the students to the entrepreneurial culture and industrial growth so as to preparing them to set up and manage their own small units.
- To motivate students lo make their mind set for taking up entrepreneurship as career
- On successful completion of this course, the student should be well versed in Concept relating to entrepreneur, Knowledge in the finance institution, project report incentives and subsidies.

B.COM. PART-III

GROUP-I; - PAPER – I: - INCOME TAX

- To enable the students to know the basics of Income tax and its applications.

- This course aims to provide an in-depth knowledge on the provisions of Income Tax.
- To familiarize the students with recent amendments in Income-tax.

GROUP-I; - PAPER – II: AUDITING

- To impart the knowledge about the principle and methods of auditing and their applications.
- On successful completion of this course, the student should be well versed in the fundamental concepts of Auditing.

GROUP-II; - PAPER – I: - INDIRECT TAX

- Aims at imparting basic knowledge about major indirect taxes levied by central and state government.
- To understand the basic concepts and to acquire knowledge about computation of indirect taxes.
- Enable the student to understand the Principles of Indirect Taxes Calculation of Tax, Tax Authorities, Procedures

GROUP-II; - PAPER – II: MANAGEMENT ACCOUNTING

- To develop the understanding of accounting tools and information and their uses in Decision making.
- To introduce students to the various tools and techniques of management Accounting.
- To enlighten students on Financial Statement Analysis with the emphasis on the preparation of fund flow and cash flow statement.

OPTIONAL GROUP B (MARKETING AREA)

PAPER – I: PRINCIPLES OF MARKETING

- To enable the students to know the importance of marketing as a business function and in the economy.
- To make the Students aware of the marketing concepts: traditional and modern; selling vs. marketing etc.
- To understand the consumer Behaviour and market Segmentation.
- To develop the understanding of recent development in marketing; social marketing, online marketing, direct marketing, services marketing, and green marketing etc.

OPTIONAL GROUP B (MARKETING AREA)

PAPER – II: INTERNATIONAL MARKETING

- **To make the Students aware of the international marketing: nature, definition, and scope of international marketing.**
- **To understand the domestic marketing vs. international marketing.**
- **Identifying and Selecting Foreign Market: Foreign market entry mode decisions.**
- **To enable the students to know the EXIM policy - an overview; Trends in India's foreign trade etc.**
- **On successful completion of this course the student should be well versed in the fundamental concepts of export policy and practices in India.**

HOME SCIENCE

B.SC.HOME SCIENCE I

GROUP II PAPER - A

BASIC NUTRITION

OBJECTIVE-

- **To understand the function of food, the role of various nutrients, their requirements & the effect of deficiency & excess.**
- **To learn about the structure, composition, nutritional contribution & selection of different food stuffs.**
- **To make the students familiar with different methods of cooking their advantages & disadvantages, develop an ability to improve nutritional quality of food.**

Course outcome-

- **The course helps the students to understand the function of food, the role of various nutrients, their requirements & the effect of deficiency & excess.**
- **In this course student s learn about the structure, composition, nutritional contribution & selection of different**

food stuffs.
- This enables the students to be familiar with different methods of cooking their advantages & disadvantages, develop an ability to improve nutritional quality of food.

PRACTICAL EXPERIMENT

Through practical's student prepare & present different nutritious recipes& know the nutritive value of different food & recipe

- **EXPERIMENT NO. 1. Weight Measures for raw and cooked food.**
- **EXPERIMENT NO. 2. Using different cooking methods Boiling, Steaming, Baking, Roasting, Frying**
- **VEGETABLES -**

1. **Simple salads and sprouting**
2. **Curries**

- **FRUITS –**

1. **Fruits preparations using fresh and dried fruits**

- **MILK –**

1. **Porridges**
2. **Curds, paneer and their commonly made preparation.**
3. **Milk based simple desserts and puddings – custards , kheer, ice-cream.**

- **SOUPS-**

1. **Basic ,clear and cream soups**

- **Peanut chikki, Paushtik ladoo**

B.SC.HOME SCIENCE I

GROUP III PAPER – B

TEXTILE & CLOTHING

OBJECTIVES

1. **To acquaint with proper notion regarding choice of fabrics.**

2. To develop skills in clothing construction.
3. To acquaint with different textiles and their performances.

COURSE OUTCOME

1. This course helps the students to develop skills in clothing construction how to choose fabrics & acquaint with the different textile fiber, types of fibers, yarn making, types of yarn, yarn count, weaving patterns, loom, handloom, parts of loom, finishes , printing, dyeing, stain removal etc.

PRACTICAL EXPERIMENT

Through practical students learn identification of textile fibres, weaving , printing, dyeing, etc.& basics of drafting , stitching also.

EXPERIMENT NO. 1. Identification of yarn

EXPERIMENT NO. 2. Identification of textile fibers

1. Visual test/ Microscopic test
2. Burning test/ Chemical test

EXPERIMENT NO. 3. Weaves and their variations

1. Plain weave/ Twill weave
2. Satin & Sateen weave
3. Honeycomb & Birdseye weave

EXPERIMENT NO. 4. Printing

1. Block printing/ Screen printing/ Stencil printing

EXPERIMENT NO. 5. Tie & Dye

EXPERIMENT NO. 6. Simple dyeing of different fabrics

EXPERIMENT NO. 7. Finishing of fabric before dyeing & printing

1. Scouring
2. Bleaching
3. Designing

EXPERIMENT NO. 8. Bleaching & whitening

EXPERIMENT NO. 9. Starching

EXPERIMENT NO. 10. Laundering of cotton, silk, wool and synthetic fabric

EXPERIMENT NO. 11. Batik

B.sc. Home science I

GROUP IV

PAPER A

COMMUNITY DEVELOPMENT

OBJECTIVES

- **To aware the approaches to development**
- **Develop faith in the capacity of the people , to take responsibility of their own development.**
- **Understand the existing support structures for development efforts.**
- **Understand the role of non govt. Organizations in community development.**
- **Understand the socio economic structure &systems that make up the rural and urban communities.**
- **Understand the meaning of social change through development plans and programs in the context of the existing socio economic structures and systems.**
- **Recognize one’s own role in the development process.**

COURSE OUT COME

This course enables students be aware of approaches to the develop faith in the capacity of people, to take responsibilities for their own development.

This enable students to under stand the role of N.G.O. in community development to understand the socio economic structure & systems that make up the rural & urban communities TO Recognize one’s own role in the development process.

PRACTICAL EXPERIMENT: - Through practical's students prepare different audio visual aids, chart, posters, cartoons, pamphlets, puppets etc. In this course student conduct survey regarding socio economic condition of the communities.

PRACTICAL EXPERIMENT – 1. Field Experience in Village(s) / Urban Slum

1. **Practical use of RRA / PRA Method**
2. **Reporting on Socio- economic analysis of the rural / urban community**
3. **To select, plan, preparation & and use of different – audio visual aids, i.e.**
4. **Chart –Educational, Tree Chart, Flow Chart , Suspense Chart.**
5. **Posters- Cartoons, Pamphlets, Puppets.**
6. **Conduct of survey based on Unit IV & V of theory Papers,**
7. **Organizing group demonstration**

B.SC.HOME SCIENCE I

GROUP IV PAPER – B

PERSONAL EMPOWERMENT AND COMPUTER BASICS

OBJECTIVES:-

The student will

1. **Become aware of the need, competencies and skils to be development for empowerment and be motivated for self improvement / self enhancement**
2. **Become aware of the role of empowerment of women from the perspectives of personal and national development**
3. **Become aware of the inter disciplinarily of Home Science education and its potential for personal and professional enhancement**
4. **Become sensitized to some pertinent contemporary issues that affect the quality of life of individuals, families and community.**
5. **Know the basics of computers.**
6. **To be able to use computers for education, information and research**

COURCE OUTCOME :- This course motivate students for self improvement

& self enhancement & develop empowerment of women and role of H. Sc. Education in empowerment to know the basic of computer & make then to be able to use computers for education in formation & research.

PRACTICAL EXPERIMENT :- Through practical work computer basics, use of M.S. Word & M.S. Excel how to create file, editing, formatting, printing, preparing, worksheet, formula function, chart preparation etc. They learn how to use internet

PRACTICAL EXPERIMENT – 1. Computer Basics

PRACTICAL EXPERIMENT – 2. MS Word – Creating, editing and formatting document word art, mail merge, page set-up, page preview printing a document

PRACTICAL EXPERIMENT – 3. MS – Excel – Work sheet, Generating graphs, chart , print preview, printing worksheets

PRACTICAL EXPERIMENT – 4. Internet

B.SC.HOME SCIENCE I

GROUP II PAPER – B

INTRODUCTION OF RESOURCE MANAGEMENT

- To create an awareness among the students about, management in the family as well as the other systems.
- To recognize the importance of wise use of resources in order to achieve goals.
- The impact of human, activities on environment.
- The action needed for checking environmental threats.

COURCE OUTCOME :- Students Learn and to help them take individual/ household/ community level decision for making the physical environment conducive for family living.

PRACTICAL:-

- Identify and formulate various types of standard that student can have.
- Five goals that a student will have.
- Various type of decision process of decision making.
- To work out minimum and maximum working approach.

B.SC.HOME SCIENCE I

GROUP III PAPER – A

INTRODUCTION OF HUMAN DEVELOPMENT

OBJECTIVES:-

1. To introduction student to the field of Human Development concept dimensions and interrelations.
2. To sensitize student to social and cross- culture contexts in human development.
3. To sensitize student to interventions in the field of human development.
4. Become aware of her changing role and relationship with the family.

COURCE OUTCOME :-

1. Student understands the dynamics of families in distress and crisis.
2. Student understands the factors important for growth and development, different dimensions of development across the life span namely, physical and motor, cognition, language, social-emotional and personality and finally relevant issues in human development and social change.

PRACTICAL:-

1. Visit to a pediatric ward to observe a new born body and a premature baby.
2. Preparing average height weight chart of five children from (1-3) year.
3. Study of immunization schedule.
4. Survey of parent’s regulative awareness about weaning food, toys, clothes.
5. Preparation of body kit- baby carries bag, bib, jhabla.

B.SC.HOME SCIENCE III

GROUP II PAPER - A

NUTRITIONAL BIOCHEMESTRY

OBJECTIVES :-

1. To study about importance of biochemistry

2. To learn about chemistry classification sources function metabolism of protein, fat, carbohydrate, energy

3. To study structure & function of nucleoprotein

4. to study about enzyme & hormones blood, body liquids & their biological role

COURSE OUTCOME:-This course enables students to learn about carbohydrate, protein, fat, enzymes, hormones. Nucleoproteins, blood & urine different metabolic process etc.

PRACTICAL EXPERIMENT – Through practical they learn how to identify different carbohydrate protein.

PRACTICAL EXPERIMENT – 1. Identification of glucose, fructose, maltose, lactose, sucrose, starch

PRACTICAL EXPERIMENT – 2. Colour and precipitation reaction of protein

PRACTICAL EXPERIMENT – 3. Estimation of glucose by benedict’s method

PRACTICAL EXPERIMENT – 4. Estimation of haemoglobin

PRACTICAL EXPERIMENT – 5. Estimation of Glycine by Titration

PRACTICAL EXPERIMENT – 6. Estimation of ascorbic acid .

PRACTICAL EXPERIMENT – 7. Visit to pathological lab.

HOME SCIENCE III

GROUP II PAPER - B

FOOD PRESERVATION

OBJECTIVE

- **To know the importance & principles of food preservation**
- **To study different methods of food preservation**
- **To learn how to make Jam, Jelly, pickles, Squashes, Chutney, Ketchups etc.**

COURSE OUTCOME :- This course enable student to learn how to preserve different food methods of preservation, principles of preservation theory & practical both Jam, Jelly, Pickles, Candy, Dehydrated bari , Papad, chips are prepared in the practical's

PRACTICAL EXPERIMENT – 1. Preparation of Jam, Jellies, Marmalades

PRACTICAL EXPERIMENT – 2. Preparation of Pickles & chutney

PRACTICAL EXPERIMENT – 3. Dehydration of Vegetables & fruits

PRACTICAL EXPERIMENT – 4. Preparation of papad. Badi. Chips

PRACTICAL EXPERIMENT – 5. Preparation of synthetic syrups & squashes

PRACTICAL EXPERIMENT – 6. Survey of market product and packaging

B.SC.HOME SCIENCE I

GROUP IV PAPER – B

EXTENSION EDUCATION

OBJECTIVES

- **To know the concept of education extension education process**
- **To study meaning & purpose of adult/non formal education**
- **To study five year plans in India**
- **To study how to enhance food production**
- **To know the programs & polices for woman & children, poverty alleviation**

COURSE OUTCOME :- This course enables students to learn extension

education process, home science extension & community development , importance of adult education, planning of schemes at different level poverty alleviation program, 5 year program, food production program etc. Visits to I.C.D.S. unit conducted advertisement are prepared; audio visual aids are prepared in the practical work.

PRACTICAL EXPERIMENT – 1.Visits to Radio / T.V. stations.

PRACTICAL EXPERIMENT – 2. Script writing for Radio.

PRACTICAL EXPERIMENT – 3. Visit to Extension Education Unit.

PRACTICAL EXPERIMENT – 4. Write slogan about Adult- Education

PRACTICAL EXPERIMENT – 5. Designing an Advertisement for any product with relevant slogan at least two

PRACTICAL EXPERIMENT – 6. Study of program for women as target group and children

B.Sc. (HOME SCIENCE) III

Group -III Paper -A

EARLY CHILDHOOD EDUCATION

OBJECTIVES:-

- To know importance of early childhood care and significance of intervention programmes for early child development.
- To understand major theoretical approaches and implication for early child development.
- To become acquainted with current policies and programs in ECCE.
- To recognize role of play in children’s development.
- To understand goals, principle, factors and approaches used in programme planning.
- The recognize the advantages of project method and learn to use integrated approach in the development od daily programme.

COURSE OUTCOME :-

- Students learn about various early childhood care and education facilities througf different programmes, for early childhood education.
- Students develop the concept of curriculum for all round

development of children.

PRACTICAL:-

- Plan three activities for children : list objectives, analyst tasks to achieve goals, select and organize instructional and learning materials, teacher's role, preparation of evaluation sheets i.e. chick list, rating scale.
- Prewriting activities.
- (a) Mathematics

(b) Readiness

(c) Materials for classifying, comparing, serrations, pattering, counting shapes, fractions, list vocabulary related to mathematical concepts.

(d) Material for addition, subtraction, multiplication and divisions.

(e) Graphs.

(f) Experiences for understanding time distance weight, capacity and money.

- Prepare a lesson for early childhood education.
- Plan a project based on lesson of first and second standard, plan activities which children can do at home.
- Visit to nursery school.

M.SC. HOME SCIENSCE FOOD & NUTRITION COURSE OUTCOME FIRST SEMESTER- PHYSIOLOGY- TO UNDER STAND THE STRUCTURE & FUNCTION IN VARIOUS ORGANS & SYSTEMS & DISEASES RELATD TO VARIOUS SYSTEMS FOOD MICROBIOLOGY- TO UNDERSTAND THE RELEVANT ISSUES & TOPICS OF FOOD MICROBIOLOGY PROBLEMS IN HUMAN NUTRITION- TO UNDERSTAND RELEVANT ISSUES & TOPICS RELATED TO NUTRITIONAL PROBLEMS RESEARCH

METHODOLOGY& COMPUTER APPLICATION- TO GIVE BASIC KNOWLEDGE OF FUNDAMENTAL OF COMPUTER. TO STUDY SAMPLING TECHNIQUES, METHODS OF RESEARCHES & TECHNIQUES & ANALYSIS OF DATA. CONSTITUTIONALISM & INDIAN POLITICAL SYSTEM- TO UNDERSTAND THE CONCEPT OF CONSTITUTIONALISM & BECOME FAMILIAR WITH UNION EXECUTIVE. PUBLIC NUTRITION - TO UNDERSTAND NATIONAL HEALTH CARE DELIVERY SYSTEM. TO UNDERSTAND THE COURSES &CONSEQUENCES OF NUTRITIONAL PROBLEM IN THE COMMUNITY, SECOND SEMESTER FOOD SCIENCE, FOOD CHEMISTRY,& FOOD PROCESSING- TO UNDERSTAND STRUCTURE & COMPOSITION OF VARIOUS FOOD STUFFS. TO IMPACT BASIC & APPLIED ASPECTS OF FOOD PROCESSING &TECHNOLOGY THERAPEUTIC NUTRITION- TO UNDERSTAND NUTRITIONAL ASSESSMENT TECHNIQUE TO UNDERSTAND NUTRITIONAL MANAGEMENT IN DIFFERENT DISEASES. SOCIAL OUTREACH – TO PREPARE PROJECT WORK & DO FIELD WORK IN INDUSTRIES ,SOCIETIES. THIRD SEMESTER ADVANCED NUTRITION- TO STUDY THE ADVANCES IN NUTRITION AT ADVANCED LEVEL. NUTRITIONAL BIOCHEMISTRY- TO IDENTIFY DIFFERENT COMPOUNDS & UNDERSTAND METABOLISM OF VARIOUS NUTRIENTS. METHODS OF INVESTIGATION- TO STUDY THE VARIOUS TECHNIQUES OF INVESTIGATIONI . CHROMATOGRAPHY, ELECTROPHORESIS ETC, INTELLECTUAL PROPERTY & HUMAN RIGHTS- TO STUDY ABOUT HUMAN RIGHTS & INTELLECTUAL PROPERTY RIGHTS NUTRITION FOR HEALTH OF WOMEN & CHILDREN- TO UNDERSTAND THE IMPORTANCE OF NUTRITION & HEALTH OF WOMEN & CHILDREN & RELATED ISSUES. FOURTH SEMESTER NUTRITION FOR HEALTH & FITNESS- TO DEVELOP THE ABILITY TO EVALUATE FITNESS & WELL BEING. GERIATRIC NUTRITION TO STUDY THE NUTRITION & HEALTH CARE OF GERIATRICS. INSTITUTIONAL MANAGEMENT – TO STUDY ABOUT ACCOUNT KEEPING , COST CONTROL, FOOD SERVICE MANAGEMENT. STATISTICS & COMPUTER APPLICATION TO UNDERSTAND THE STATISTICS & RESEARCH METHODOLOGY DISSERTATION & CURRENT TRENDS IN NUTRITION TO DO COMMUNITY WORK , SURVEY & INNOVATIVE RESEARCHES IN THE FIELD OF FOOD,NUTRITION & HEALTH. FOOD SCIENCE LAB WORK RELATED RESEARCHES

File Description	Documents
Upload any additional information	View File
Paste link for Additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/920.pdf
Upload COs for all Programmes (exemplars from Glossary)	View File

2.6.2 - Attainment of Programme outcomes and course outcomes are evaluated by the institution.

The assessment tools and process used for measuring the attainment of each of the programme outcomes and programme specific outcomes are as follows;-

Method of assessment of POs/PSOs

POs/PSOs are assessed with the help of course outcomes of the relevant courses through direct and indirect methods.

Direct methods are provided through direct exams .The knowledge and skill described by the course outcomes are mapped to specific problems on university exam, internal exam and assignment.

At the end of each semester university conducts examinations based on the result published by university.

Assignments are given at the end of each module. The assignments are provided to students and they refer the text books and reference books.

Alumni survey in an important attainment tool to find out following important factors;-

Employer surveys are conducted for find out whether the knowledge, skill and attitude learned from this institution.

The object conducting the student exit survey is to identity several factors for future. To understand the impact of training they understand the strength and weakness.

File Description	Documents
Upload any additional information	View File
Paste link for Additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/932.pdf

2.6.3 - Pass percentage of Students during the year

2.6.3.1 - Total number of final year students who passed the university examination during the year

668

File Description	Documents
Upload list of Programmes and number of students passed and appeared in the final year examination (Data Template)	View File
Upload any additional information	View File
Paste link for the annual report	NA

2.7 - Student Satisfaction Survey

2.7.1 - Student Satisfaction Survey (SSS) on overall institutional performance (Institution may design its own questionnaire) (results and details need to be provided as a weblink)

http://www.rmdgirlspgcollege.ac.in/alldocuments/928.pdf

RESEARCH, INNOVATIONS AND EXTENSION

3.1 - Resource Mobilization for Research

3.1.1 - Grants received from Government and non-governmental agencies for research projects / endowments in the institution during the year (INR in Lakhs)

3.1.1.1 - Total Grants from Government and non-governmental agencies for research projects / endowments in the institution during the year (INR in Lakhs)

0

File Description	Documents
Any additional information	No File Uploaded
e-copies of the grant award letters for sponsored research projects /endowments	No File Uploaded
List of endowments / projects with details of grants(Data Template)	View File

3.1.2 - Number of teachers recognized as research guides (latest completed academic year)

3.1.2.1 - Number of teachers recognized as research guides

6

File Description	Documents
Any additional information	View File
Institutional data in prescribed format	View File

3.1.3 - Number of departments having Research projects funded by government and non government agencies during the year

3.1.3.1 - Number of departments having Research projects funded by government and non-government agencies during the year

0

File Description	Documents
List of research projects and funding details (Data Template)	View File
Any additional information	No File Uploaded
Supporting document from Funding Agency	No File Uploaded
Paste link to funding agency website	NA

3.2 - Innovation Ecosystem

3.2.1 - Institution has created an ecosystem for innovations and has initiatives for creation and transfer of knowledge

Government Rajmohini Devi Girls Post Graduate College, Chhattisgarh is a tribal-dominated college of Sarguja located in a remote forest. Where tribal children of rural areas take education. In the ecosystem here, it is the endeavor of the college that keeping in mind the local needs and their commercial use, employment generation and innovation ideas should be given prominence.

At the local level, tribal food habits, dresses, static goods, medicinal food habits and their uses etc. are included in their subject curriculum and their practical and commercial studies are done. Local delicacies, which have high medicinal value, are manufactured and sold through canteens by the Department of Home Science in the college.

Various paintings and local print styles, embroidery, documentaries etc. are printed on clothes, their handkerchiefs, dupatta and children's clothes and their commercial use is also taught by the

students of Department of Human Development. Along with this, therapeutic diets training, low cost recipes, food preservation training, making soft toys etc. are also taught by the Department of Home Science.

The Department of Political Science inspires its girl students to understand their local needs by studying the schemes run at the Panchayat level and to make salable goods from the raw materials available there.

Items of daily use like baskets, soups, brooms etc. are made from bamboo by the students of Botany Department. Along with this, making Dona Pattal from Sal leaves, Mahua leaves, Palas leaves and making mats, brooms, etc. from Chhind leaves, date palm leaves.

Jaundice is treated with ornamental plants, medicinal plants like Giloy to increase immunity and Punarnava local names like Khadoos or gadah pundo etc. It is used in the areas of villages after learning water and soil training by the students of Department of chemistry. The Food Adulteration Awareness Program is taught by the Department of chemistry.

File Description	Documents
Upload any additional information	View File
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/933.pdf

3.2.2 - Number of workshops/seminars conducted on Research Methodology, Intellectual Property Rights (IPR) and entrepreneurship during the year

3.2.2.1 - Total number of workshops/seminars conducted on Research Methodology, Intellectual Property Rights (IPR) and entrepreneurship year wise during the year

8

File Description	Documents
Report of the event	View File
Any additional information	View File
List of workshops/seminars during last 5 years (Data Template)	View File

3.3 - Research Publications and Awards

3.3.1 - Number of Ph.Ds registered per eligible teacher during the year

3.3.1.1 - How many Ph.Ds registered per eligible teacher within the year

0

File Description	Documents
URL to the research page on HEI website	NA
List of PhD scholars and their details like name of the guide , title of thesis, year of award etc (Data Template)	View File
Any additional information	No File Uploaded

3.3.2 - Number of research papers per teachers in the Journals notified on UGC website during the year

3.3.2.1 - Number of research papers in the Journals notified on UGC website during the year

4

File Description	Documents
Any additional information	View File
List of research papers by title, author, department, name and year of publication (Data Template)	View File

3.3.3 - Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during the year

3.3.3.1 - Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year wise during year

0

File Description	Documents
Any additional information	No File Uploaded
List books and chapters edited volumes/ books published (Data Template)	View File

3.4 - Extension Activities

3.4.1 - Extension activities are carried out in the neighborhood community, sensitizing students to social issues, for their holistic development, and impact thereof during the year

Govt. R.M.D. Girls P.G. College organizes and participates in various extension activities to promote College-Neighborhood-Community network. Major emphasis is given on student engagement, service orientation and holistic development of students contributing to good citizenship. Students actively participated in abused girl child and womens welfare programs which run throughout the year in collaboration with NGO – MSSVP (Manav Sansadhan Sanskriti Vikas Parishad). Students provides counselling to the girl child, adolescent and womens.

Students also participate in various patriotic events with enthusiasm, be it celebration of Independence Day, Republic Day. College & departments organizes regular activities on social & environment issues including seminars, tree plantation drives, invited talks by social figures, celebration of Yoga day etc.

The problems in old age homes are ascertained by survey by the students of Department of Home Science, Department of Human Development, Food and Nutrition and Department of Sociology. Along with this, for what reason do people come here to the ashram. Find out about it too.

Information about the rules, laws and procedures of the old age home is also obtained by the students. Health and nutrition related information is also provided by the girl students. Fruit, biscuits etc. are also given by the students and the department.

The work of Adarsh ??Anganwadi visit and education of those children is done. Teach children along with teaching aids such as soft toys. Public awareness is spread by the students of the college such as eradication of superstition, sorcery, witchcraft, witch, Tony, etc. Along with this, public awareness is spread by the students of the college through wall writing, street plays, song music, slogans, banner posters, and notice boards etc.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/934.pdf
Upload any additional information	View File

3.4.2 - Number of awards and recognitions received for extension activities from government / government recognized bodies during the year

3.4.2.1 - Total number of awards and recognition received for extension activities from Government/ Government recognized bodies year wise during the year

0

File Description	Documents
Any additional information	No File Uploaded
Number of awards for extension activities in last 5 year (Data Template)	View File
e-copy of the award letters	No File Uploaded

3.4.3 - Number of extension and outreach programs conducted by the institution through NSS/NCC/Red cross/YRC etc., (including the programmes such as Swachh Bharat, AIDS awareness, Gender issues etc. and/or those organized in collaboration with industry, community and NGOs) during the year

3.4.3.1 - Number of extension and outreach Programs conducted in collaboration with industry, community and Non- Government Organizations through NSS/ NCC/ Red Cross/ YRC etc., during the year

11

File Description	Documents
Reports of the event organized	View File
Any additional information	View File
Number of extension and outreach Programmes conducted with industry, community etc for the during the year (Data Template)	View File

3.4.4 - Number of students participating in extension activities at 3.4.3. above during year

3.4.4.1 - Total number of Students participating in extension activities conducted in collaboration with industry, community and Non- Government Organizations such as Swachh Bharat, AIDs awareness, Gender issue etc. year wise during year

711

File Description	Documents
Report of the event	View File
Any additional information	View File
Number of students participating in extension activities with Govt. or NGO etc (Data Template)	View File

3.5 - Collaboration

3.5.1 - Number of Collaborative activities for research, Faculty exchange, Student exchange/ internship during the year

3.5.1.1 - Number of Collaborative activities for research, Faculty exchange, Student exchange/ internship year wise during the year

1

File Description	Documents
e-copies of related Document	View File
Any additional information	View File
Details of Collaborative activities with institutions/industries for research, Faculty	View File

3.5.2 - Number of functional MoUs with institutions, other universities, industries, corporate houses etc. during the year

3.5.2.1 - Number of functional MoUs with Institutions of national, international importance, other universities, industries, corporate houses etc. year wise during the year

1

File Description	Documents
e-Copies of the MoUs with institution./ industry/corporate houses	View File
Any additional information	View File
Details of functional MoUs with institutions of national, international importance, other universities etc during the year	View File

INFRASTRUCTURE AND LEARNING RESOURCES

4.1 - Physical Facilities

4.1.1 - The Institution has adequate infrastructure and physical facilities for teaching- learning. viz., classrooms, laboratories, computing equipment etc.

Govt. R.M.D. Girls P.G. College has a well-developed campus of 16.59 acres. The college continuously strives to create and enhance infrastructure both in terms of buildings and other facilities to provide a good teaching-learning environment. The infrastructure facilities and learning resources are categorized as under:

1. **Utilities include safe drinking water. Classes are scheduled for optimal utilization of the available physical infrastructure. College have a Seminar Hall, 13 Department Rooms, 23 Teaching rooms including 7 Class rooms with overhead projector Facilities and 14 Classrooms with ICT facilities.**
2. **Learning Resources include resources and infrastructure required for 10 laboratories, 1 Computer lab and Fully automated Liabrary.**
3. **Support facilities include canteens, seminar halls, sports grounds, and total 60 computors in the college for ICT facilities and all classrooms & departments are fully connected with wifi facilities.**

Govt. R.M.D. Girls P.G. College has sophisticated equipment available in the laboratories is not redundantly duplicated and availability is ensured by sensible time-sharing. Sharing of laboratory facilities is also encouraged between faculties. Apart from the central facilities, such as, Computer Center, College Library and there are many laboratories that cater to students from other faculties.

File Description	Documents
Upload any additional information	View File
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/915.pdf

4.1.2 - The Institution has adequate facilities for cultural activities, sports, games (indoor, outdoor), gymnasium, yoga centre etc.

The Govt. R.M.D. Girls P.G. College, with its compulsory Core Courses and the continuous evaluation scheme, integrates sports and extra-curricular activities as essential components. This is done not only for participation but also for assessment of students. It has adequate facilities for sports, games and cultural activities. The total area of college is 16.59 acres with large fields for sports and games. The entire campus has secured boundry wall. The college has three large playgrounds with provision for multiple games, such as, Athletics, Cricket, Football, Hockey, Volleyball, and Kho-kho. Indoor badminton courts is available. All faculties have assembly open ground for organizing annual functions and cultural events. Intra-faculty and inter-faculty games and sports competitions are organized regularly every year for students. Students are specially trained for participation in Zonal and Inter-Zonal National Youth Festivals competitions organized by the sports and youth welfare department. The college has excelled at these events by winning prizes and awards in individual and group events. National Independence Day and Republic Day are celebrated in the College.

File Description	Documents
Upload any additional information	View File
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/916.pdf

4.1.3 - Number of classrooms and seminar halls with ICT- enabled facilities such as smart class, LMS, etc.

13

File Description	Documents
Upload any additional information	View File
Paste link for additional information	NA
Upload Number of classrooms and seminar halls with ICT enabled facilities (Data Template)	View File

4.1.4 - Expenditure, excluding salary for infrastructure augmentation during the year (INR in Lakhs)

4.1.4.1 - Expenditure for infrastructure augmentation, excluding salary during the year (INR in lakhs)

0

File Description	Documents
Upload any additional information	No File Uploaded
Upload audited utilization statements	No File Uploaded
Upload Details of budget allocation, excluding salary during the year (Data Template	View File

4.2 - Library as a Learning Resource

4.2.1 - Library is automated using Integrated Library Management System (ILMS)

College Library is one of the oldest girls degree college library in Surguja Division. It spreads in an area of 4800 sq ft. The library is located in a separate building. The collection includes more than 39000 books, 5 magazines. During the last five years 2500 books were bought. The collection of books include documents covering a wide range of subjects from English literature, pure sciences, arts, history and social sciences, languages etc. The library is automated, and has a spacious reading hall and reference section. The reading area can accommodate 125 users at any point of time. The library is automated with integrated library management software KOHA (OPEN SOURCE). The various housekeeping activities of the library such as data entry, issue and return and renewal of books, member logins etc are done through the software. The Books are classified according to Dewey decimal classification with main

class. OPAC (Online public access catalogue) service is also provided where the users can search the collection of books by title, author, publisher etc. The books are being bar coded and the users are given unique barcode ID. Apart from the printed books the library is having access to e resources of NLIST which is a part of e shodhsindhu consortium of INFLIBNET, where the users are given awareness and made to access browse and download e books, e journals, databases etc. The new books are displayed on the OPAC. User orientation is provided at the beginning of the year regarding the various facilities services and resources available in the library. The library provides reprographic service and internet service. The Internet room is provided with 10 systems with 100 Mbps. For Enhancing security 06 closed circuit cameras have been installed. Fire safety units are also available. The Library is provided with Wi-fi facility.

File Description	Documents
Upload any additional information	View File
Paste link for Additional Information	http://www.rmdgirlspgcollege.ac.in/alldocuments/917.pdf

4.2.2 - The institution has subscription for the following e-resources e-journals e-ShodhSindhu Shodhganga Membership e-books Databases Remote access toe-resources

B. Any 3 of the above

File Description	Documents
Upload any additional information	View File
Details of subscriptions like e-journals,e-ShodhSindhu, Shodhganga Membership etc (Data Template)	View File

4.2.3 - Expenditure for purchase of books/e-books and subscription to journals/e- journals during the year (INR in Lakhs)

4.2.3.1 - Annual expenditure of purchase of books/e-books and subscription to journals/e-journals during the year (INR in Lakhs)

0.82834

File Description	Documents
Any additional information	View File
Audited statements of accounts	View File
Details of annual expenditure for purchase of books/e-books and journals/e- journals during the year (Data Template)	View File

4.2.4 - Number per day usage of library by teachers and students (foot falls and login data for online access) (Data for the latest completed academic year)

4.2.4.1 - Number of teachers and students using library per day over last one year

50

File Description	Documents
Any additional information	View File
Details of library usage by teachers and students	View File

4.3 - IT Infrastructure

4.3.1 - Institution frequently updates its IT facilities including Wi-Fi

DEI continuously strives to provide state-of-the-art technologies and update its ICT facilities to ensure efficient functioning. Extensive infrastructure has been setup during the last five years:

1. IP based Surveillance System

2. IP based Telephony

3. Remote Laboratories

4. Cadence Design Software The infrastructure includes:

• Desktops (Xeon, Intel i5, Dual Core, AMD processor based with 4 to 32 GB RAM and 500 GB to 8TB HDD)

• Laptops (i7, i5- 6th generation, Core2 Duo based 2.4 GHz with 4 to 8 GB RAM • Total number of systems =15

• 2 rack servers (Xeon 4.2 GHz, 32 GB RAM) The IP Surveillance system and phone system was established in 2016 with the following configuration:

• IP camera (1.2 to 12 MP, sony, vivitek, Axis , canon, cp-plus) = 300

• IP phone = 200

• 8 NVR with 156 TB of storage

• 50 Cisco Switches

• 20 Km of Fiber Optic Cable.

The additional Fiber Optic Cable laid in 2016 also connects various units of DEI such as the International Guest House and Seminar Hall Complex, Outer Boys Hostel, Tannery Campus, Girls Hostel II, Electrical Engineering Laboratory at Faculty of Engineering and Technical College, Library building in Faculty of Engineering, Shatabdi Bhawan, Faculty of Architecture and Psychology Department to the Institute LAN and for Internet access. Associated equipment such as ethernet and fiber switches were also installed at different locations. In 2017, WIFI facility was installed with latest Cisco wireless controller 5520 and 30 Cisco Aironet 2802 series Wireless Access Points. All buildings, hostels, Seminar halls, conference rooms and common areas in the campus are now wi-fi enabled. Additional 16 Mbps MPLS VPN Connectivity has been taken from BSNL for DEI Dayalbagh and ICT Centers at Amritsar, Murar, Timarni and MTVPuram and 8 Mbps Connectivity to IC Derhgaon. More than 250 desktops have been added to create new laboratories and to replace legacy systems. These systems range from Intel i5 to i7 based systems. Desktop Computers and Displays have also been purchased for Information Centers. Significant investment has been made to upgrade classrooms to e-classrooms/smart classrooms with the purchase of the following equipment:

• Sony VPL EW 536 With IQ Board

• Sony VPL-SW-536C Interactive Projector with White board

• Sony VPL EW 246 LCD Projector

• Digital Lectern with face plate KPS KPC 900 with Audio System

• Sony SRG-120DH Camera

• Network Controller KP-600U2 Microsoft MS Dreamspark license has been purchased for licenses to Microsoft products. Site License for Microsoft Office 365 has also been obtained for students and staff

of DEI. The base SPSS package has also been purchased. Tenders for purchase of Cisco ASA Firepower 2140 Firewall and Cisco Core Switch N9K-C9508 to upgrade the networking infrastructure in the Central Computer Center, GPON Network with accessories, BIOVIA Discovery Studio Teaching Suite, Mathematica, Robotmaster Education Bundle, Virtual Classroom solution, Multitouch Interactive Displays and Video Walls have been uploaded.

File Description	Documents
Upload any additional information	View File
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/936.pdf

4.3.2 - Number of Computers

72

File Description	Documents
Upload any additional information	View File
List of Computers	View File

4.3.3 - Bandwidth of internet connection in the Institution

A. ? 50MBPS

File Description	Documents
Upload any additional Information	View File
Details of available bandwidth of internet connection in the Institution	View File

4.4 - Maintenance of Campus Infrastructure

4.4.1 - Expenditure incurred on maintenance of infrastructure (physical and academic support facilities) excluding salary component during the year (INR in Lakhs)

4.4.1.1 - Expenditure incurred on maintenance of infrastructure (physical facilities and academic support facilities) excluding salary component during the year (INR in lakhs)

5.94333

File Description	Documents
Upload any additional information	View File
Audited statements of accounts	View File
Details about assigned budget and expenditure on physical facilities and academic support facilities (Data Templates)	View File

4.4.2 - There are established systems and procedures for maintaining and utilizing physical, academic and support facilities - laboratory, library, sports complex, computers, classrooms etc.

- **Maintenance of Library Facilities: The books and journals are maintained against disfiguring. Book binding is carried out on regular basis for damaged books to avoid further damage. Stock verification is done as a part of regular monitoring and control. Pest control is done on regular basis for maintaining books safe from termites. Library Committee has been constituted for co-ordination in respect of learning resources. Procurement of new books & renew of journals and recommendation for additional books, Updating and maintaining of all library records.**
- **Update and upgrade the library contents, periodically as per updates in curriculum Computers: The college has an adequate number of computers with internet connections and utility softwares. Computer systems, UPS, Softwares and Servers are maintained by outsourced technicians, Lab Assistants and Lab-In Charges. IT infrastructure is maintained by the head, IT Coordinator along with department of Mathematics coordinator.**
- **Classrooms, Conference Hall: Classrooms and Conference hall are provided with enough seating capacity and LCD projectors. Cleanliness of class rooms and Conference hall is maintained on regular basis.Working condition of audio system, LCD projectors etc. is done on regular basis.**
- **Laboratory: Laboratories are regularly maintained by the Laboratory teacher.All Records are maintained in Register. Equipments are maintained properly, calibrated and serviced periodically. Major breakdown maintenance if required, is carried out by external agencies.**
- **Maintenance of other support systems: Housekeeping for regular cleanliness of corridors, washrooms, classrooms, laboratories and premises is done by available employee & temporary employee. Sanitizing of washrooms is done on regular basis. Greenery is maintained by the college staff. Power backup facilities like inverters are maintained by external agencies.**

Clean and hygienic drinking water is available in the Campus. Water coolers are maintained and cleaned on regular basis. Overhead water tanks and water coolers are cleaned periodically. Quality of drinking water is checked by measures pH and Hardness through department of chemistry. Sports facilities are maintained by the sports officer and the JBS staff. The below mentioned points are inspected before start of every academic session.

1. Classroom facilities such as lights and fans, LCD projector and sound system, availability of internet connections are inspected before start of every academic session.
2. Working condition of computers, devices, and equipments is ensured.
3. Working condition of machines in the laboratory is ensured.
4. Stock checking activity is done in the end of every academic session.
5. Establishment section incharge of the College inspects the facilities like toilets, classrooms, corridors and maintained by the available staff & Temporary employees of the college.
6. Food committee supervises the cleanliness and hygiene in the canteen and monitors the food quality.
7. Library committee collects specific needs of the students and staff.
8. Sports committee ensures the availability of sports equipments and monitors the usage of the ground, courts and indoor games facilities.

File Description	Documents
Upload any additional information	View File
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/937.pdf

STUDENT SUPPORT AND PROGRESSION

5.1 - Student Support

5.1.1 - Number of students benefited by scholarships and free ships provided by the Government during the year

5.1.1.1 - Number of students benefited by scholarships and free ships provided by the Government during the year

1062

File Description	Documents
Upload self attested letter with the list of students sanctioned scholarship	View File
Upload any additional information	View File
Number of students benefited by scholarships and free ships provided by the Government during the year (Data Template)	View File

5.1.2 - Number of students benefitted by scholarships, free ships etc. provided by the institution / non- government agencies during the year

5.1.2.1 - Total number of students benefited by scholarships, free ships, etc provided by the institution / non- government agencies during the year

0

File Description	Documents
Upload any additional information	No File Uploaded
Number of students benefited by scholarships and free ships institution / non- government agencies in last 5 years (Date Template)	View File

5.1.3 - Capacity building and skills enhancement initiatives taken by the institution include the following: Soft skills Language and communication skills Life skills (Yoga, physical fitness, health and hygiene) ICT/computing skills	**B. 3 of the above**

File Description	Documents
Link to Institutional website	http://www.rmdgirlspgcollege.ac.in/Media.aspx?title=Media
Any additional information	View File
Details of capability building and skills enhancement initiatives (Data Template)	View File

5.1.4 - Number of students benefitted by guidance for competitive examinations and career counseling offered by the institution during the year

95

5.1.4.1 - Number of students benefitted by guidance for competitive examinations and career counseling offered by the institution during the year

95

File Description	Documents
Any additional information	View File
Number of students benefited by guidance for competitive examinations and career counseling during the year (Data Template)	View File

5.1.5 - The Institution has a transparent mechanism for timely redressal of student grievances including sexual harassment and ragging cases Implementation of guidelines of statutory/regulatory bodies Organization wide awareness and undertakings on policies with zero tolerance Mechanisms for submission of online/offline students' grievances Timely redressal of the grievances through appropriate committees

C. Any 2 of the above

File Description	Documents
Minutes of the meetings of student redressal committee, prevention of sexual harassment committee and Anti Ragging committee	View File
Upload any additional information	View File
Details of student grievances including sexual harassment and ragging cases	View File

5.2 - Student Progression

5.2.1 - Number of placement of outgoing students during the year

5.2.1.1 - Number of outgoing students placed during the year

0

File Description	Documents
Self-attested list of students placed	No File Uploaded
Upload any additional information	No File Uploaded
Details of student placement during the year (Data Template)	View File

5.2.2 - Number of students progressing to higher education during the year

5.2.2.1 - Number of outgoing student progression to higher education

57

File Description	Documents
Upload supporting data for student/alumni	View File
Any additional information	View File
Details of student progression to higher education	View File

5.2.3 - Number of students qualifying in state/national/ international level examinations during the year (eg: JAM/CLAT/GATE/ GMAT/CAT/GRE/ TOEFL/ Civil Services/State government examinations)

5.2.3.1 - Number of students qualifying in state/ national/ international level examinations (eg: JAM/CLAT/NET/ SLET/ GATE/ GMAT/CAT/GRE/ TOEFL/ Civil Services/ State government examinations) during the year

0

File Description	Documents
Upload supporting data for the same	No File Uploaded
Any additional information	No File Uploaded
Number of students qualifying in state/ national/ international level examinations during the year (Data Template)	View File

5.3 - Student Participation and Activities

5.3.1 - Number of awards/medals for outstanding performance in sports/cultural activities at university/state/national / international level (award for a team event should be counted as one) during the year

5.3.1.1 - Number of awards/medals for outstanding performance in sports/cultural activities at university/state/ national / international level (award for a team event should be counted as one) during the year.

0

File Description	Documents
e-copies of award letters and certificates	No File Uploaded
Any additional information	No File Uploaded
Number of awards/medals for outstanding performance in sports/cultural activities at university/state/national/international level (During the year) (Data Template)	View File

5.3.2 - Institution facilitates students' representation and engagement in various administrative, co-curricular and extracurricular activities (student council/ students representation on various bodies as per established processes and norms)

Due to Covid-19, various activities of the college could not be done in 2020-21. In which the formation of student union has not been done. Sports activities, cultural activities, everything remained banned due to Covid-19. Therefore, this academic year, no work has been done related to students and student organizations.

File Description	Documents
Paste link for additional information	NA
Upload any additional information	View File

5.3.3 - Number of sports and cultural events/competitions in which students of the Institution participated during the year (organized by the institution/other institutions)

5.3.3.1 - Number of sports and cultural events/competitions in which students of the Institution participated during the year

0

File Description	Documents
Report of the event	No File Uploaded
Upload any additional information	No File Uploaded
Number of sports and cultural events/competitions in which students of the Institution participated during the year (organized by the institution/other institutions (Data Template)	View File

5.4 - Alumni Engagement

5.4.1 - There is a registered Alumni Association that contributes significantly to the development of the institution through financial and/or other support services

The College has alumni association. Its registration is under process at Government District Registration Office Ambikapur. Members of the alumni always guides the junior students and support in college development.

File Description	Documents
Paste link for additional information	NA
Upload any additional information	View File

5.4.2 - Alumni contribution during the year (INR in Lakhs)	**E. <1Lakhs**

File Description	Documents
Upload any additional information	No File Uploaded

GOVERNANCE, LEADERSHIP AND MANAGEMENT

6.1 - Institutional Vision and Leadership

6.1.1 - The governance of the institution is reflective of and in tune with the vision and mission of the institution

To better serve students, the college follows its vision and mission. The college's governance reflects the college's vision and mission. Our vision and the mission are as follows:

MISSION

- To uplift society as a whole, providing quality education to all pupils, regardless of caste, creed, religion, or socioeconomic status.
- To maintain a high academic quality in a fun environment through innovation and effective teaching learning methods.
- To develop pupils into golden citizens.
- To encourage scientific skills and academic brilliance in this rural area by creating a learner-friendly environment that makes learning enjoyable and fruitful.

VISION

Empowering common rural students through high-quality education so that they can address global issues at the lowest possible cost.

GOALS AND OBJECTIVES

- To strive for academic excellence
- To compete in all spheres of life at a national and international level.
- To improve one's leadership abilities.
- To help kids develop their entire personalities.
- To equip students with knowledge orientation.
- To encourage faculty to do high-quality research and examinations.

CORE VALUES

1. Education as a means of achieving excellence
2. Honesty and ethical decency
3. Social Responsibility and Civic Awareness
4. Education as a source of empowerment
5. Belief in one's own skills
6. Observance of Life and Creation
7. Academic competence
8. Continuous Improvement in Education
9. Institutional Awareness and Practicability
10. Value and Outcome-Based Education (VOBE)
11. Inspiring Campus Climate

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/aboutus.aspx?page=Mission%20and%20Vision
Upload any additional information	View File

6.1.2 - The effective leadership is visible in various institutional practices such as decentralization and participative management.

The College is a firm believer in decentralisation and participatory management. Decentralisation is a management practice with its own significance. It reflects policymaking, planning, and administration, as well as office management. The College improves quality at several levels, including the Principal, the IQAC Committee, the NAAC Committee, numerous committees, the NSS, and all stakeholders involved in decentralisation and participatory management.

Hierarchy of the Committee: The Chairperson of the committee, who is nominated by the committee members, is in charge of all committees. The Internal Quality Assurance Cell keeps track of all actions. Academic Calendar is rigorously planned and prepared in advance by the Academic Committee, which ensures the academic calendar's appropriate execution. Academic activity must be confirmed and observed by the academic coordinator. The department heads ensure that the department's activities run smoothly. Academic activities are overseen by faculty members. Lectures, practicals, attendance, examinations, and results are all conducted by faculty, who also provide input for future improvements.

Outcome: The College’s principal has regular meetings to discuss issues and challenges related to the institute's development. As a result, the college's principal invites faculty, students, non-teaching staff, alumni, and coordinators to contribute their thoughts, comments, and proposals through the appropriate channels. For future decision-making, the input from various committees and feedback analysis are taken into account.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/938.pdf
Upload any additional information	View File

6.2 - Strategy Development and Deployment

6.2.1 - The institutional Strategic/ perspective plan is effectively deployed

Because the college is a government institution, it complies with the policies of the Department of Higher Education of the Government of Chhattisgarh. The college still has a prospective plan in place that takes into account the following points.

- **Annual Calendar by CCE**
- **Annual Institutional Plan,**
- **Annual Academic Plan**
- **AQAR**
- **Academic Audit – Action Taken Report**
- **Vision and Mission of the college**
- **Departmental Action Plan**
- **Students' needs and**
- **Future plans of the college**

Deployment

In this regard, the college takes the initiative by planning and creating a course of action to make better use of available human resources and facilities. Academic achievement, empowerment, and welfare of students are of paramount concern. All of these considerations are taken into account by the department leaders when planning various operations.

- **Extension activities were carried out through NSS**
- **More students from the socially deprived society. The Govt. RMD Girls P.G. College adopted a tuition fee waiver program for all students and the government provides SC/ST/OBC scholarship**
- **To motivate the youth from rural areas in sports activities in the second campus**
- **To Improve the employability skills of the students**
- **To encourage the students participating in co-curricular/ extracurricular activities**

File Description	Documents
Strategic Plan and deployment documents on the website	View File
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/939.pdf
Upload any additional information	View File

6.2.2 - The functioning of the institutional bodies is effective and efficient as visible from policies, administrative setup, appointment and service rules, procedures, etc.

Governing Body: The Higher Education Department is in charge of all areas of government colleges' operations, including financing, human resources, instructional curricula, and infrastructure. It can create policies and deliberate on academic, financial, and administrative initiatives for the future, guiding the government college to serve its stakeholders in accordance with the colleges' mission statements.

Academic Council: The Academic Council is the college's governing body and is responsible for upholding educational, teaching, and training standards, as well as interdepartmental coordination, research, examinations, and tests within the college. It also has the authority to exercise any other powers and perform any other duties and functions imposed or conferred by the Department of Higher Education. Academic council's major goal is to maintain educational standards, admissions procedures, teaching-learning and evaluation methodologies, research initiatives, and student support services.

Finance Committee: The finance committee is responsible for safeguarding and renewing the college's resources as well as supporting the board in meeting its financial obligations. The committee oversees the financial resources for academic and infrastructural facilities, student support, administrative, and welfare operations, as well as ensuring that resources (human, material, information, and financial) are secured, effectively distributed, and adequately preserved. Under the leadership of the principal, the committee evaluates and creates a budget plan, which is then forwarded to the Governing Body for approval.

Board of Studies: The University's academic system is built around the Board of Studies (BoS) (Sant Gahira Guru University, Ambikapur).

The BOS is made up of a handful of our professors. The university's curriculum should be adhered to by all colleges. The Govt. R.M.D. Girls P.G. College is likewise associated with the aforementioned institution and follows the university's academic standards. Its responsibilities will include framing the content of various programs/courses, periodically reviewing and updating the content, and offering new programs/courses of study, among others. It examines and revises the curriculum as well as other academic-related issues. The academic council reviews and approves the suggestions. The academic council must approve the proposals before they may be implemented.

Principal: A principal's job is to steer the college in the right direction. With the help of senior faculty who are delegated roles and responsibilities, the principal looks into the standardisation of curricula, assesses teaching methods, monitors student progress and achievement, encourages parent involvement, revises policies and procedures, administers the budget, hires and evaluates staff, and oversees facilities.

Research Committee: The College maintains a research advisory board that keeps track of and addresses issues including research promotion and ethics. Within and outside of the college, the college aspires to foster and promote research and research training. The committee is made up of PhD candidates who are research-oriented, driven, and gifted in order to develop minds with a research bent. The group will work to encourage faculty members to seek for research funds and to promote research within the institution.

Certificate Course Committee: The committee is in charge of overseeing the value-added courses that will be delivered to students in various disciplines, with a focus on skills and entrepreneurship. It is their responsibility to complete certificate courses in cooperation with the Principal, to follow processes for obtaining MoUs, to schedule and supervise course conduct, to administer feedback, to generate reports, and to distribute certificates to students.

Curriculum Review Committee: In collaboration with the institution's IQAC, the committee collects feedback from stakeholders and prepares suggestions for review, as well as ideas for adding, enlarging, removing, or altering courses provided by the college. The committee is crucial in the introduction of new programmes.

Counseling Cell: The cell promotes students to have a better understanding of themselves and the issues that concern them, as

well as provide guidance on how to handle their difficulties. In today's world, a counselling cell in a school performs an increasingly important role. Education refers to a student's whole growth. In this regard, the college created a Counseling Cell on campus, in accordance with UGC rules, to assist staff and students with their psychological well-being. The goal of the Department of Counseling is to provide students with a holistic understanding of values, self-care, interpersonal skills, and self efficacy. Students can openly express and address their difficulties in the friendly environment offered at the counselling cell.

ST/SC/OBC Cell: The College is dedicated to the well-being of its students and strives to create an environment that values diversity and respect for all people, regardless of their background or culture. While preserving variety, the SC/ST/OBC cell ensures equal opportunity in accordance with India's constitution.

Alumni Committee: The alumni directory has been the focus of the committee's efforts. The alumni committee has a Face book group with about 300 members, including alumni and faculty members who are members of the committee.

Website Committee: The website committee's major goal is to guarantee that the college website is updated, upgraded, and well maintained on a regular basis. Members of this committee gather information on recent events at the college, as well as achievements, and post it on the website in the form of write-ups, photos, and other media. Updated communications alerts, and announcements are posted on the internet for everyone's convenience.

Library Committee: The Library Committee's primary role is to serve as a liaison between the library and its patrons. It is in charge of the library's general upkeep in terms of reading materials and infrastructure. This committee is responsible for obtaining requisitions from departments for the acquisition of books and journals, as well as encouraging employees and students to read. To meet the needs of both UG and PG students, the college library offers a large collection of texts and general literature, international and national journals, and online databases. There are separate sections for General, Reference books, Journals and Periodicals, and Magazines, as well as free Internet access to online databases and academic information.

Sports: The College features a good collection of indoor and outdoor sporting goods. Volleyball, Kho-Kho, Archery, Running, Cricket, Kabbaddi, and Indoor sports like Carroms, Chess, Badminton, and

Table Tennis are among the activities available on campus.

Extra-Curricular Activities Committee: The committee's major goal is to encourage and organise extracurricular activities that will allow students to showcase their talents in the performing arts. The committee members are involved in and accountable for all intra- and intercollegiate cultural events at the college. They organise and plan cultural events during the academic year. It entails coordinating events and programmes for employees and students with Student Coordinators.

Students Grievance and Redressal Cell: The Grievance and Redressal Cell strives to create and maintain a welcoming and nonjudgmental atmosphere for all of its constituents. It handles any grievances or complaints filed by anyone regarding the Institution's operations, particularly those filed by students. The cell guarantees that grievances are resolved effectively and fairly. The Grievance and Redressal Cell allows students to air their issues by initiating and pursuing the grievance procedure as outlined by the college's rules and regulations. The cell meets on a regular basis to assess the nature and pattern of the issues and to address them appropriately.

Academic Department: The academic department is the core unit within the college that is responsible for all academic, research, co-curricular, and extra-curricular activities that contribute to the students' overall growth.

Head of the Department: The Head of Department's major responsibility is to provide good academic leadership. The department's head is responsible for leading, managing, and developing the department in order to ensure that it meets the highest possible standards of excellence in all of its activities. Planning all of the department's general activities, keeping track of academic progress, and reporting to the principal of the college.

Teaching Staff: Professional individuals directly involved in educating students, such as classroom instructors and other teachers who engage with students' growth, make up the teaching staff. Faculty members are expected to keep up to date by attending seminars, workshops, and conferences after gaining authorization from the department head and the principal.

Lab Maintenance: The College has 07 full fledged labs with the latest state of the art, Computer lab (Hardware and Software), Chemistry lab, Home science lab, Physics Lab with attached Dark room is provided with most modern equipment needed for conducting

practical's. Mathematics Lab aims to provide students with improved methods of conceptualization. Botany and Zoology labs are taken care of by technically qualified staff and appraise the requirements as and when needed to the Head of the Department.

Examination Committee: The Examination committee shall conduct the internal and external examinations. They are responsible for preparing invigilation duties chart, seating arrangement, Question paper distribution and smooth conduction of the examinations. Any decisions concerning the smooth conduction of examinations are done in consultation with the Principal.

Result Review Committee: The fundamental role of the result review is to verify the results of the examinations conducted.

IQAC: The goal of the Govt. R.M.D. Girls P.G. College is to maintain and improve educational quality. The college's quality standards were being monitored by the Internal Quality Assurance Cell (IQAC). The college sends an Annual Quality Assurance Report to NAAC every year. The committee was formed in response to the National Assessment & Accreditation Council's recommendations. The quality assurance provides stakeholders with the certainty that qualified graduates will be developed in an efficient and effective manner. The IQAC Coordinator is in charge of creating a system for the institute's overall performance to be improved consciously and consistently. She/he is in charge of developing, implementing, and monitoring quality criteria for the institution's numerous academic and administrative activities.

Staff Grievance and Redressal Cell: Allows employees to air their problems by initiating and following the College's grievance procedure in accordance with its rules and regulations. The cell meets on a regular basis to assess the nature and pattern of the issues and to address them appropriately.

Office Assistant: Office assistants are in charge of clerical and organisational support. This comprises, among other things, file organisation, appointment scheduling, drafting copy, typing, and filing, taking inventory, maintaining records, and sorting checks.

Fee Counter: College has an in-campus fee counter open for the students on all working days from 10:30 am to 5:30p.m.

Accounts Office: The College offers an accounts office that assists with billing statements, answering inquiries about various charges, assisting with payments, and answering any other issues about

student accounts.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/940.pdf
Link to Organogram of the institution webpage	http://www.rmdgirlspgcollege.ac.in/student_section.aspx?page=Cell%20and%20Committees&topicid=184
Upload any additional information	View File

6.2.3 - Implementation of e-governance in areas of operation Administration Finance and Accounts Student Admission and Support Examination	**A. All of the above**

File Description	Documents
ERP (Enterprise Resource Planning)Document	View File
Screen shots of user inter faces	View File
Any additional information	View File
Details of implementation of e-governance in areas of operation, Administration etc(Data Template)	View File

6.3 - Faculty Empowerment Strategies

6.3.1 - The institution has effective welfare measures for teaching and non- teaching staff

Govt. R.M.D. Girls P. G. College has effective welfare measures in place for its teaching and non-teaching staff. The various welfare schemes as per department of higher education Chhattisgarh are as follows:

1. **Medical Allowance**
2. **Child Educational Allowance**
3. **Maternity benefits as per norms**
4. **Child Care**
5. **Opportunities for international exposure, as per norms**

The following facilities are also provided to employees for efficient functioning:

1. Medical leave
2. Yoga classes
3. Psychological counseling
4. Wi-Fi facility.
5. Workspace
6. Computing facility
7. Cafeteria
8. Identity cards
9. Shopping outlets managed by students
10. Sports facilities

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/941.pdf
Upload any additional information	View File

6.3.2 - Number of teachers provided with financial support to attend conferences/ workshops and towards membership fee of professional bodies during the year

6.3.2.1 - Number of teachers provided with financial support to attend conferences/workshops and towards membership fee of professional bodies during the year

0

File Description	Documents
Upload any additional information	No File Uploaded
Details of teachers provided with financial support to attend conference, workshops etc during the year (Data Template)	View File

6.3.3 - Number of professional development /administrative training programs organized by the institution for teaching and non-teaching staff during the year

6.3.3.1 - Total number of professional development /administrative training Programmes organized by the institution for teaching and non teaching staff during the year

1

File Description	Documents
Reports of the Human Resource Development Centres (UGCASC or other relevant centres).	View File
Reports of Academic Staff College or similar centers	View File
Upload any additional information	View File
Details of professional development / administrative training Programmes organized by the University for teaching and non teaching staff (Data Template)	View File

6.3.4 - Number of teachers undergoing online/face-to-face Faculty development Programmes (FDP) during the year (Professional Development Programmes, Orientation / Induction Programmes, Refresher Course, Short Term Course etc.)

6.3.4.1 - Total number of teachers attending professional development Programmes viz., Orientation / Induction Programme, Refresher Course, Short Term Course during the year

9

File Description	Documents
IQAC report summary	View File
Reports of the Human Resource Development Centres (UGCASC or other relevant centers)	View File
Upload any additional information	View File
Details of teachers attending professional development programmes during the year (Data Template)	View File

6.3.5 - Institutions Performance Appraisal System for teaching and non- teaching staff

Govt. R.M.D. Girls P.G. College strictly follows the UGC Regulations on Performance Appraisal System for teaching and non-teaching staff. Principal of the college has collected all filled PBAS forms and sent them to the department of higher education Raipur for evaluation. Along with PBAS form the principal of the college also sent a CR report form for each staff member.

Non-Teaching Staff all non-teaching staff are also assessed through annual confidential reports and annual performance appraisal. The various parameters for staff members are assessed under different categories i.e. Character and Habits, Departmental Abilities, Capacity to do hard work, Discipline, Reliability, Relations/Cooperation with superiors, subordinates, colleagues, students and public, Power of Drafting (where applicable), efficient organization of documents (in case of Ministerial Staff) and technical abilities (in case of workshop staff). The Annual Confidential Report and the Performance Appraisal System has significantly helped in the evaluation of the performance of employees, in motivating them, analyzing their strengths and weaknesses and ensuring better performance.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/942.pdf
Upload any additional information	View File

6.4 - Financial Management and Resource Mobilization

6.4.1 - Institution conducts internal and external financial audits regularly Enumerate the various internal and external financial audits carried out during the year with the mechanism for settling audit objections within a maximum of 200 words

College regularly conducts internal and external financial audits. It has had a full-time Treasurer and Accounts Department since inception to ensure maintenance of annual accounts and audits.

1. **The following agencies conduct regular financial audit in the Institute: External Audit: External Audit is conducted by the following:**
    1. **AG office through Accountant General (Audit) Raipur.**
    2. **Chartered Accountant of the Institute Internal Audit: Internal Audit is conducted by an Internal Auditor.**
2. **Accountant General (Audit) Raipur conducts statutory audits covering all financial and accounting activities of the Institute. This includes scrutiny of the following:**
    1. **All receipts from fee, donations, grants, contributions, interest earned and returns on investments;**
    2. **All payments to staff, vendors, contractors, students and other service providers.**

Chartered Accountant of the Institute conducts regular accounts

audit and certifies its Annual Financial Statements. All Utilization Certificates to various grant giving agencies are also countersigned by the CA. All Financial Statements upto 2020-21 have been certified by the CA.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/943.pdf
Upload any additional information	View File

6.4.2 - Funds / Grants received from non-government bodies, individuals, philanthropers during the year (not covered in Criterion III)

6.4.2.1 - Total Grants received from non-government bodies, individuals, Philanthropers during the year (INR in Lakhs)

27.32

File Description	Documents
Annual statements of accounts	View File
Any additional information	View File
Details of Funds / Grants received from of the non-government bodies, individuals, Philanthropers during the year (Data Template)	View File

6.4.3 - Institutional strategies for mobilization of funds and the optimal utilization of resources

Sources of funds are as follows:

1. **Fees: Admission Fees charged as per the state government norms from students of various granted and self financed courses.**
2. **Salary: The College receives salary from the Chhattisgarh State Government. For this, we prepare and send teaching and non teaching staff data for salary required to the state government. This includes salaries of the full time permanent teachers and non teaching staff as well as part-time teachers working on lecture wise payment posts.**
3. **UGC Grants: Our College is under 2F and 12B as per UGC Act and Permanent Affiliation of the University. So we receive grants from the UGC for the development and maintenance of Infrastructure, upgrade of the Learning Resources and Research**

(including grants for Minor and Major Research Projects).
4. We received funds from Stakeholders, non-government bodies, individuals and Philanthropists.
5. We received funds from the special annual membership of the Library.

Our resource mobilization policy and procedures are as follows:

1. The institution set up a RUSA Committees per the directions of the Ministry of Human Resource Development, Government of India.
2. The UGC & RUSA Committee, in close coordination with the CDC (Central Development Committees) and IQAC, monitors the mobilization of funds and makes sure that the funds are spent for the purpose for which they have been allocated.
3. The Purchase Committee takes care that purchases are done properly and in accordance with the rules.
4. The College Development Committee takes a review of the mobilization of funds and the utilization of these sources periodically in their meetings.
5. Regular internal audits from the Chartered Accountant and external audits from the state government make sure that the mobilization of the resources is being done properly.
6. The time-table committee looks after the proper utilization of classrooms and laboratories.
7. The Library Advisory Committee takes care that the resources in the library are utilized optimally.
8. Our Botanical garden is maintained by the Department of Botany.
9. Campus cleanliness and its utilization is monitored by the Campus Cleanliness and Beautification Committee.
10. To ensure the optimum utilization of resources, the Principal issues directions.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/944.pdf
Upload any additional information	View File

6.5 - Internal Quality Assurance System

6.5.1 - Internal Quality Assurance Cell (IQAC) has contributed significantly for institutionalizing the quality assurance strategies and processes

The IQAC Cell of the college works towards improving and maintaining the quality of education, identifying and suggesting new ways of using teaching aids, developing suitable infrastructure, and offering suggestions for the new self-finance courses. IQAC is an effective and efficient internal coordinating and monitoring mechanism. The IQAC plays a vital role in maintaining and enhancing the quality of the college and suggests quality enhancement measures to be adopted. The IQAC meets every quarterly to plan, direct, implement and evaluate the teaching, research, and publication activities in the College. The sub-committees dealing with various activities and departments implement the IQAC guidelines and report the feedback. The IQAC strives to spread quality culture through quality enhancement initiatives and best practices. Significant improvements in quality have been made by institutionalizing the following IQAC initiatives: Strategic planning of key areas and assigning responsibilities -

1. Academic results
2. Student technical training
3. Student soft skills development
4. Faculty development programs
5. Research and development
6. Interaction with industry

Monitoring and mentoring of academic and administrative activities. Academic inspections are carried out periodically to assess the quality of academics. The inspections involve:

1. Review of healthy academic practices
2. Mechanisms to identify and reform academic practices
3. Review of departmental facilities
4. Facilitate implementation of innovative methods

Upload two examples of best practices institutionalized as a result of IQAC initiatives

IQAC is one of the major policy making and implementing unit in our college. It strives hard for upgrading the college infrastructure and all support facilities to meet the standards of higher education and growing need of students. It assesses and suggests the parameters of quality education.

1. During Covid Pendemic Conduct Online Education: In order to overcome the problems being faced in teaching and learning during the COVID pandemic, IQAC has decided to conduct

teaching in online mode. For which internet facility and ICT equipments were installed in the classrooms. All the faculties were asked to conduct online classes by giving training. Study material, exam paper and lecture videos were provided to the students till their homes through internet.

2. Use and enrichment of ICT infrastructure: IQAC prepares the plan to include the use and enrichment of ICT infrastructure expecting from each departments. The IQAC has advised the administration to enrich ICT infrastructure by purchasing advanced ICT tools, broadband internet Wi-Fi facility. Periodically IQAC has trained teachers and non- teaching staff to use ICT by arranging different workshop i.e. Google Apps, Video conference, use of e-mail, handling ICT instrument etc. IQAC organised various webinars, lectures and workshops in online mode to provide quality education. In which quality education was spread in most backward tribal areas like Surguja with the cooperation of eminent scholars from across the country and institutions established at the top of higher education.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/945.pdf
Upload any additional information	View File

6.5.2 - The institution reviews its teaching learning process, structures & methodologies of operations and learning outcomes at periodic intervals through IQAC set up as per norms and recorded the incremental improvement in various activities

The IQAC continuously reviews and takes steps to improve the quality of the teaching-learning process. The Academic Calendar is prepared by Department of Higher education, Raipur in advance, displayed and circulated in the college and strictly followed. Admission to various programmes, summer, winter and mid-term vacations, examination schedule and declaration of results are notified in the Academic Calendar prepared by Department of Higher education, Raipur and followed by Sant Gahira Guru University, Ambikapur, Surguja. All newly admitted students have to attend the Orientation Programme, in which they are made aware of the philosophy, the uniqueness of the Education system, the teaching learning process, the system of continuous evaluation, compulsory core courses, various cocurricular activities, discipline and culture of the College. All students are also given a guided tour of the campus and the various facilities.

Students are apprised of the Time-Table, Programme structure, syllabi of the courses before the semester commences.

Feedback from students is taken individually by teachers for their respective courses, and directly through IQAC. Students are also free to approach the principal of the college for feedback and suggestions. Feedback is properly analyzed and shared with the principal, HODs and individual faculty members. The teaching-learning processes are reviewed, and improvements implemented, based on the IQAC recommendations. The following initiatives are to be taken:

- **Automation of Admission Processes - Provision for online fee payment**
- **Automation of Examination Processes**
- **Green initiatives in Campus – tree plantation.**
- **MoUs with prestigious Colleges, Universities, Govt. agencies**
- **College Student exchange programmes**

In addition to IQAC the college also considers the recommendations of the Advisory Committee on Education, a think tank comprising eminent and renowned educationists and academicians from within and outside the college, which regularly reviews the progress and makes necessary recommendations in an advisory capacity.

File Description	Documents
Paste link for additional information	http://www.rmdgirlspgcollege.ac.in/alldocuments/946.pdf
Upload any additional information	View File

6.5.3 - Quality assurance initiatives of the institution include: Regular meeting of Internal Quality Assurance Cell (IQAC); Feedback collected, analyzed and used for improvements Collaborative quality initiatives with other institution(s) Participation in NIRF any other quality audit recognized by state, national or international agencies (ISO Certification, NBA)	**D. Any 1 of the above**

File Description	Documents
Paste web link of Annual reports of Institution	http://www.rmdgirlspgcollege.ac.in/photo_gallery.aspx
Upload e-copies of the accreditations and certifications	View File
Upload any additional information	View File
Upload details of Quality assurance initiatives of the institution (Data Template)	View File

INSTITUTIONAL VALUES AND BEST PRACTICES

7.1 - Institutional Values and Social Responsibilities

7.1.1 - Measures initiated by the Institution for the promotion of gender equity during the year

Gender equity and sensitization

The college constituted the following committees for the promotion of gender equity as per norms laid by U.G.C.:

- **College Grievance Redressal Committee, Sexual harassment prevention cell, Girls Welfare Committee for the well-being of students and staff in the college. There are separate washroom facilities for girls, female staff and male staff. Washrooms are provided with sanitary napkin vending and disposal machine for the safe and hygienic disposal of sanitary napkins.**
- **The College step towards waiver of tuition fee for girl students at the time of admission to any of the academic programmes offered.**
- **Girl’s candidates are also exempted from the payment of registration fee and also have age relaxation for employment. Female employees also get maternity leave, child care leave and are also entitled to avail leave on adoption of child.**
- **Students apprised of the gender issues during the Orientation held for newly admitted students each year.**
- **The College has taken several measures to enhance safety & security on campuses by constituting Grievance Cell, installing CCTV cameras security. Faculty has been directed to keep the door of the lecture hall open during classes.**
- **The Grievance Cell ensures that posters promoting gender equity & sensitization are placed on the Notice Boards. A Complaint Box is placed outside the office. Telephone / Mobile**

numbers of the Chairperson and members are made available on the Notice Board of the office and College Website. Strict confidentiality is maintained by the Grievance Cell to encourage the complainant to lodge complaint without fear.
- Counselling is provided to the complainants and the respondents independently by the Grievance Cell. Career guidance & Placement cell also conducted special lectures, mock interviews etc. for career counselling of students.

The IQAC Cell of the College has organised various webinars during covid19 pandemic. On the occasion of National Girls Day at 24.01.2021 the IQAC cell organised lectures with department of sociology and poster presentation with the department of home science. The IQAC Cell has organised lecture on the occasion of International Women's Day, On the Topic "Women Empowerment and Contemporary Issues" at 08.03.2021.

The IQAC cell has also organized following webinars:

- On the topic "Gender Justice & Human Rights" jointly organised by Govt. Degree College, Unnao, U.P. & Govt. RMD Girls PG College, Ambikapur (C.G.) at 04 July 2021.
- On the Topic "Gender Dynamics in Covid19 & Women Rights" Jointly organised by Govt. RMD Girls PG College, Ambikapur (C.G.) & Govt RBR NES PG Collge Jashpur at 06 July 2021.

The college promotes gender sensitization through co-curricular activities like workshops, seminars, guest lectures, street plays, poster exhibitions, counselling etc. Awareness programs like importance of human rights, Rights of Girls in Domestic problems, Cyber security awareness programs related to the safety and security of female staffs and students are conducted periodically.

File Description	Documents
Annual gender sensitization action plan	NA
Specific facilities provided for women in terms of:a. Safety and security b. Counseling c. Common Rooms d. Day care center for young children e. Any other relevant information	NA

7.1.2 - The Institution has facilities for alternate sources of energy and energy	D. Any 1 of the above

conservation measures Solar energy Biogas plant Wheeling to the Grid Sensor-based energy conservation Use of LED bulbs/ power efficient equipment	

File Description	Documents
Geo tagged Photographs	View File
Any other relevant information	View File

7.1.3 - Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste (within 200 words) Solid waste management Liquid waste management Biomedical waste management E-waste management Waste recycling system Hazardous chemicals and radioactive waste management

1. SOLID WASTE COLLECTION

Solid waste collection points are distributed at the multiple corners of the campus. With the cooperation of Ambikapur nagar nigam total solid waste are collected, recycled and disposed off.

REDUCE AND REUSE STRATEGIES

These are the very effective strategies implemented with full support of the students. The non-renewable energy is reduced to a minimum with rationalization of the staff and students. The plastic wastes reduced considerably with plastic ban. The single use items are discouraged for all functions and steel plates and Templers are used in the campus. The Note book reuse is encouraged. Dust bin is distributed with Green Clean campus awareness.

File Description	Documents
Relevant documents like agreements / MoUs with Government and other approved agencies	View File
Geo tagged photographs of the facilities	View File

7.1.4 - Water conservation facilities available in the Institution: Rain water harvesting Bore well /Open well recharge Construction of tanks and bunds Waste water recycling Maintenance of water bodies and distribution system in the campus	**B. Any 3 of the above**

File Description	Documents
Geo tagged photographs / videos of the facilities	View File
Any other relevant information	View File

7.1.5 - Green campus initiatives include

7.1.5.1 - The institutional initiatives for greening the campus are as follows: 1. **Restricted entry of automobiles** 2. **Use of bicycles/ Battery-powered vehicles** 3. **Pedestrian-friendly pathways** 4. **Ban on use of plastic** 5. **Landscaping**	**C. Any 2 of the above**

File Description	Documents
Geo tagged photos / videos of the facilities	View File
Various policy documents / decisions circulated for implementation	View File
Any other relevant documents	View File

7.1.6 - Quality audits on environment and energy are regularly undertaken by the institution

7.1.6.1 - The institutional environment and energy initiatives are confirmed through the following 1.Green audit 2. Energy audit 3.Environment audit 4.Clean and green campus recognitions/awards 5. Beyond the campus environmental promotional activities	**C. Any 2 of the above**

File Description	Documents
Reports on environment and energy audits submitted by the auditing agency	View File
Certification by the auditing agency	View File
Certificates of the awards received	View File
Any other relevant information	View File

7.1.7 - The Institution has disabled-friendly, barrier free environment Built environment with ramps/lifts for easy access to classrooms. Disabled-friendly washrooms Signage including tactile path, lights, display boards and signposts Assistive technology and facilities for persons with disabilities (Divyangjan) accessible website, screen-reading software, mechanized equipment 5. Provision for enquiry and information : Human assistance, reader, scribe, soft copies of reading material, screen reading

D. Any 1 of the above

File Description	Documents
Geo tagged photographs / videos of the facilities	View File
Policy documents and information brochures on the support to be provided	View File
Details of the Software procured for providing the assistance	No File Uploaded
Any other relevant information	View File

7.1.8 - Describe the Institutional efforts/initiatives in providing an inclusive environment i.e., tolerance and harmony towards cultural, regional, linguistic, communal socioeconomic and other diversities (within 200 words).

The college organizes and conducted several activities to build and promote an environment for ethical, cultural, and spiritual values among the students and staff. To develop the emotional and religious feelings among the students and the faculty, commemorative days are celebrated on the campus with the initiative and support of the

management for not only recreation and amusement but also to generate the feeling of oneness and social harmony. The college and its teacher and staff jointly celebrate the cultural and regional festivals, like New-year's day, Fresher/ welcome Party , teacher's day, orientation and farewell program, rally, oath, plantation, Youth day, Women's day, Yoga day, festivals like Diwali celebration, Holi Milan celebration, New Year celebration, Karma celebrations, chherta celebrations, sarhul celebrations, nawakhaee celebrations, christmas gathering celebrations, etc. religious ritual activities are performed in the campus. Motivational lectures of eminent persons of the field are arranged for all-round development of the students for their personality development and to make them responsible citizens following the national values of social and communal harmony and national integration. Besides academic and cultural activities, we have built up many strong infrastructures for a variety of sports activities like indoor and outdoor games (carom, chess, badminton, kho-kho, kabaddi, handball, volleyball, basketball, cricket, archery) for the physical development of the students. In this way, the college works to create an inclusive atmosphere for everyone, with tolerance and harmony toward cultural, regional, language, communal socioeconomic and other differences.

File Description	Documents
Supporting documents on the information provided (as reflected in the administrative and academic activities of the Institution)	View File
Any other relevant information	View File

7.1.9 - Sensitization of students and employees of the Institution to the constitutional obligations: values, rights, duties and responsibilities of citizens

Chhattisgarh, as a state, includes individuals from tribal area with different backgrounds viz., cultural, social, economic, linguistic, and ethnic diversities governed and guided by the Constitution irrespective of caste, religion, race sex. To equip students with the knowledge, skill, and values that are necessary for sustaining one's balance between a livelihood and life by providing an effective, supportive, safe, accessible, and affordable learning environment. The students are inspired by participating in various programs on culture, traditions, values, duties, and responsibilities by inviting prominent people. The institute conducted awareness programs on the ban on plastics, cleanliness, Swachh Bharat, etc. involving students. The college establishes policies that reflect core values. Code of conduct is prepared for

students and staff and everyone should obey the conduct rules. A separate NSS unit is started exclusively to encourage the students and the unit is successfully conducting activities to serve the society. Beti Bachao, Beti Padhao, Jan Aandolan Rally, SWEEP related Rally at Ambikapur. Ethical Values, rights, duties, and responsibilities of citizens are some of the topics that are enlisted in Elocution, debates, and class presentation.

File Description	Documents
Details of activities that inculcate values; necessary to render students in to responsible citizens	NA
Any other relevant information	NA

7.1.10 - The Institution has a prescribed code of conduct for students, teachers, administrators and other staff and conducts periodic programmes in this regard. The Code of Conduct is displayed on the website There is a committee to monitor adherence to the Code of Conduct Institution organizes professional ethics programmes for students, teachers, administrators and other staff 4. Annual awareness programmes on Code of Conduct are organized	**B. Any 3 of the above**

File Description	Documents
Code of ethics policy document	View File
Details of the monitoring committee composition and minutes of the committee meeting, number of programmes organized, reports on the various programs etc., in support of the claims	View File
Any other relevant information	View File

7.1.11 - Institution celebrates / organizes national and international commemorative days, events and festivals

The College celebrates/ organizes national and international commemorative days, events and festivals. National festivals play an important role in planting seed of Nationalism and Patriotism among

people of India. Our college celebrates these events with great enthusiasm to commemorate the ideology of nationalism and to pay tribute to our great National Leaders. The Faculty, Staff and Students of the college all come together under one umbrella to celebrate these occasions and spread the message of Unity, Peace, Love and Happiness throughout.

- Republic day- The College celebrates Republic day on 26thJanuary every year, commemorating the adoption of Indian constitution and spreading the message that India is the largest democratic country in the world. This is a day to remind the students about the constitution of the country and the need to abide by it at all times. The celebration includes the hoisting of national flag and spreading a warm message of nationalism in a speech by the Principal.
- Independence Day is celebrated every year on 15th of August, parades and flag hoisting is organized and is celebrated to mark freedom of India from British rule. The college encourages students to remember our national leaders and their sacrifices.
- Gandhi Jayanti is celebrated every year on 2nd October to understand the ideology of our great leader Mahatma Gandhi wherein pledge is taken by students and staff. In today's times we inspire students of our college to follow the Gandhian ideologies of truth and nonviolence and inspire them to contribute towards the peace and prosperity of the Nation.
- Martyr's Day is observed to salute the Father of the Nation and the other martyr soldiers on 31st October every year.
- Sadbhavana Diwas celebrated on 20thAugust every year to commemorate the birth Anniversary of Sardar Vallabh Bhai Patel.
- International Yoga day is celebrated on 21st June every year. The yoga Instructor organizes the yoga camp and a speech is conducted to make everyone aware on how Yoga embodies unity of mind and body; thought and action; restraint and fulfilment.
- Voters Day is celebrated on 25th January wherein the students are given awareness on their duties and rights as a loyal citizen.
- Rajmohini Devi Jayanti is celebrated on 7th July every year. Mata Rajmohini Devi was a local philanthropist tribal woman. As a mark of respect, his name has been associated with the name of the college. The Government of India awarded Devi the fourth highest civilian award of Padma Shri in 1989.
- National Youth Day is celebrated on January 12 every year to honor the birthday of Swami Vivekananda. Swami Vivekananda was born on January 12, 1863, in Kolkata. The day is observed

across the country and the college with processions, speeches, seminars etc.

- **Nirala Jayanti is celebrated by department of Hindi on 21st February every year. Suryakant Tripathi "Nirala" (21 February 1896 – 15 October 1961) was an Indian poet, novelist, essayist and story-writer who wrote in Hindi.**
- **World Environment Day is celebrated by college, student and staff on June 5 every year to remind people about the importance of nature. Janbhagidhari Committee and various NGOs, Nagar Nigam is celebrated this day as plantation in the campus each year.**

File Description	Documents
Annual report of the celebrations and commemorative events for the last (During the year)	View File
Geo tagged photographs of some of the events	View File
Any other relevant information	View File

7.2 - Best Practices

7.2.1 - Describe two best practices successfully implemented by the Institution as per NAAC format provided in the Manual.

BEST PRACTICE

OBJECTIVES OF THE PRACTICE

1. **Plastic Free Zone and Awareness program during Coivid19**

To eliminate plastic pollution, its toxic impacts on people and the environment. To conduct awareness program during covid19 behaviour and to distribute handmade cotton mask among the college girls.

1. **To Make Garments By Self Help**

To make the student self confident by tailoring & embroidery

Implementation:-

1. **Plastic Free Campus, a project in the College, aims to measurably reduce plastic waste and pollution in college campuses and the world around them. To eliminate plastic pollution and its toxic impacts on people and the environment.**

Cotton cloth masks were made and distributed by the college girl students for protection during covid19. Along with this information was also given through awareness programs of covid19 behavior. In place of plastic, cloth bags are made and used by the college girls. And all staff members are also using and promoting cloth bags.

2. Students of our college in Home science department are trained to make self garments. The students take very much interest in learning tailoring. The Home science students make their garments by them self & does embroidery work in it. & wear it also. All these practice creates so much confidence in girls that they can make their self garments & help themselves. Many students of our college are running boutique in the villages & doing the tailoring work. Students are doing embroidery in table clothes & runner also. They are preserving embroidery of India. Bengal ka katha, kashmiri work, luknow chicken kari, Karnataka kasuti work, kuccha kathiavad jari work.

File Description	Documents
Best practices in the Institutional website	http://www.rmdgirlspgcollege.ac.in/aboutus.aspx?page=Recognition
Any other relevant information	NA

7.3 - Institutional Distinctiveness

7.3.1 - Portray the performance of the Institution in one area distinctive to its priority and thrust within 200 words

Superstition Alleviation and Legal Aid Clinic

- The girl students are made aware to seek medical help instead of exorcising on snake bites. In case of ill health of someone in the family, instead of exorcising them by exorcism, they are motivated for medical help.
- Generally, chutney rice and Mahua liquor are consumed in the food. Due to which complaints of sickle cell and anemia are found in abundance in the girl students. To prevent this, nutritious food is encouraged.
- Gudakhu is used in dentistry in the families of girl students. Due to its side effects, there is a risk of getting diseases like oral cancer. To protect it, it is advised not to use such things.
- Through several programs, the Youth Red Cross provides

awareness about sexually transmitted infections among girl students.

File Description	Documents
Appropriate web in the Institutional website	View File
Any other relevant information	View File

7.3.2 - Plan of action for the next academic year

- **To achieve academic excellence, we will first introduce value added courses.**
- **Online seminars and lecture series will be organized by various departments.**
- **Sports activities will be promoted to develop skilled players in sports.**
- **The Incubation Center will organize seminars and workshops on various employable disciplines. This will motivate the girl students for skill development and adopting employment oriented behavior.**
- **To motivate the students for the application of ICT through various mediums like etc. material, e-classes, webinars etc.**
- **The library will be developed as an ICT information center to promote reading habits of girl students.**