CHARUSAT
CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

STUDENT INFORMATION BOOKLET FOR THE ACADEMIC YEAR 2025-26

VOLUME – 2 : Master of Pharmacy Programme (Pharmaceutical Technology)

Ramanbhai Patel College of Pharmacy

CHARUSAT UNIVERSITY
Off. Nadiad-Petlad Highway, Changa - 388 421
Anand, Gujarat, India

CONTENT

PREAMBLE

The Handbook (Student's Information Booklet) for Students, printed in two volumes contain General Information Respectively about the CHARUSAT University and detailed information about Indukaka Ipcowala Institute of Management.

Handbook Volume-I contains information about general rules to be followed by the students on campus. It gives information about the general facilities and support available for the students on campus. It gives insight about the discipline and conduct rules of the University.

This Handbook (Student's Information Booklet) is for the purpose of providing information to the students about the University and its programmes and is not a Regulation book of the University. Hence, no claim can be made based on the information given in the book.

The University / Institute reserves the right to amend the rules and regulations mentioned in the Handbook without any prior notice. The decision of the University shall be final on all matters. For any clarification, the Student Section may be contacted.

Handbook Volume-II (Student's Information Booklet) contains academic information about the Institute, which includes the Academic Rules and Regulations regarding academic requirements and academic conduct of the students at the University including different policies and forms. Besides, it includes important information on registration, grading system, academic standards, attendance norms, discipline and the like. The students shall abide by these rules and shall, at all times, conduct in a manner so as to bring credit to the University and enhance its prestige in the society.

It is prime responsibility of the students to get familiar (themselves) with the rules and regulations

About the Institute

Ramanbhai Patel College of Pharmacy (RPCP) is a constituent Institute of Charotar University of Science and Technology (CHARUSAT). RPCP was established in the year 2004 with a view to promote excellence in Pharmacy Education and to prepare young talent to meet the challenges of Industrial Pharmacy and Pharmacy Practice. The Institute has the patronage of Zydus Cadila Health Care Ltd; patronized by Shri Pankaj Patel, CMD, Zydus Cadila Healthcare Ltd to commemorate his father, Late Shri Ramanbhai Patel. A Visionary Entrepreneur and a Philanthropist. M.Pharm Programs at RPCP are executed under the auspices of T. P. Patel Centre for PG studies in Pharmacy. The centre in patronized by Shri Jagdishbhai Patel and Shri H. T. Patel and their families to monumentalize their father, Late Shri T. P. Patel.

Vision

To Become a Premier Pharma Institute by Creating World Class Pharmacists and Researchers

Mission

To Strive for the Excellence in Pharmaceutical Sciences through Quality Education and Research

SECTION - 1

PROGRAMME SPECIFIC: M.Pharm (Pharmaceutical Technology)

1.1 Academic Regulation

&

1.2 B.Pharm Programme Structure (Teaching & Examination Scheme)

ACADEMIC REGULATIONS & SYLLABUS

Faculty of Pharmacy
Master of Pharmacy Programme
(Pharmaceutical Technology)

(AS PER PCI SYLLABUS)

A. Y. 2025 - 2026

Ramanbhai Patel College of Pharmacy

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

MASTER OF PHARMACY (M. Pharm.) PROGRAMME

Vision of RPCP

To Become a Premier Pharma Institute by Creating World Class Pharmacists and Researchers.

Mission of RPCP

To Strive for the Excellence in Pharmaceutical Sciences through Quality Education and Research.

PROGRAM OUTCOMES

1. Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.

2. Planning Abilities: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.

3. Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

4. Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

5. Leadership skills: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.

6. Professional Identity: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).

7. Pharmaceutical Ethics: Honor personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

8. Communication: Communicate effectively with u the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

9. The Pharmacist and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.

10. Environment and sustainability: Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

11. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

FACULTY OF PHARMACY

ACADEMIC REGULATIONS
MASTER OF PHARMACY (M. Pharm.) PROGRAMME
Choice Based Credit System (CBCS)

1. Short Title and Commencement

These regulations shall be called as "The Revised Academic Regulations for the postgraduate programmes under the Faculty of Pharmacy". They shall come into effect from the Academic Year 2018-19. The regulations framed are subject to modifications from time to time by the respective regulatory bodies.

2. Minimum Qualification for Admission

2.1 Candidate shall have passed B. Pharm Degree examination of an Indian university established by law in India from an institution approved by Pharmacy Council of India and has scored not less than 55 % of the maximum marks (aggregate of 4 years of B.Pharm)

2.2 Every student, selected for admission to post graduate pharmacy program in any PCI approved institution should have obtained registration with the State Pharmacy Council or should obtain the same within one month from the date of his/her admission, failing which the admission of the candidate shall be cancelled.

Note: It is mandatory to submit a migration certificate obtained from the respective university where the candidate had passed his/her qualifying degree (B.Pharm).

3. Duration of the Programme

The course of study for M.Pharm shall extend over a period of four semesters (two academic years). The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of Instruction and Examinations

Medium of instruction and examination shall be in English.

5. Working Days in a Semester

Each semester shall consist of not less than 100 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.

6. Attendance and Progress

A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.

7. Programme Credit Structure

As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses

Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having four lectures per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

The contact hours of seminars, assignments and research work shall be treated as that of practical courses for the purpose of calculating credits. i.e., the contact hours shall be multiplied by 1/2. Similarly, the contact hours of journal club, research work presentations and discussions with the supervisor shall be considered as theory course and multiplied by 1.

7.2. Minimum credit requirements

The minimum credit points required for the award of M. Pharm. degree is 93. However based on the credit points earned by the students under the head of co-curricular activities, a student shall earn a maximum of 98 credit points. These credits are divided into Theory courses, Practical, Seminars, Assignments, Research work, Discussions with the supervisor, Journal club and Co-Curricular activities over the duration of four semesters. The credits are distributed semester-wise. Courses generally progress in sequence, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus.

8. Academic work

A regular record of attendance both in Theory, Practical, Seminar, Assignment, Journal club, Discussion with the supervisor, Research work presentation and Dissertation shall be maintained by the department / teaching staff of respective courses**.**

9. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Annexure II (Table – 1 to 5).

9.1. End Semester Examinations

The End Semester Examinations for each theory and practical course through semesters I to IV shall be conducted by the University for which Examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.

9.2. Internal Assessment: Continuous Mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Table- 1: Scheme for awarding internal assessment: Continuous mode

Theory	
Criteria	**Maximum Marks**
Attendance (Refer Table – 2)	8
Student – Teacher interaction	2
Total	10
Practical	
Attendance (Refer Table – 2)	10
Based on Practical Records, Regular viva voce, etc.	10
Total	20

Table- 2: Guidelines for the allotment of marks for attendance

Percentage of Attendance	**Theory**	**Practical**
95 – 100	8	10
90 – 94	6	7.5
85 – 89	4	5
80 – 84	2	2.5
Less than 80	0	0

9.2.1. Sessional Exams

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college. The scheme of question paper for theory and practical Sessional examinations will be as prescribed by the regulatory body. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in Annexure II. Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly, Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks.

10. Promotion and Award of Grades

A student shall be declared PASS and eligible for getting grade in a course of M.Pharm. Programme, if he/she secures at least 50% marks in that particular course including internal assessment.

11. Carry Forward of Marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 9 above, then he/she shall reappear for the end semester examination of that course. However, his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

12. Improvement of Internal Assessment

A student shall have the opportunity to improve his/her performance only once in the Sessional exam component of the internal assessment. The re-conduct of the Sessional exam shall be completed before the commencement of next end semester theory examinations.

13. Re-examination of End Semester Examinations

Re-examination of end semester examination shall be conducted as per the schedule given in table 3. The exact dates of examinations shall be notified from time to time.

Table-3: Tentative schedule of end semester examinations

Semester	**For Regular Candidates**	**For Failed Candidates**	
		Remedial Examination-1	**Remedial Examination-2***
I and III	November / December	After 15 days of the declaration of the result of the end semester Examination	last week of June/ end of the Academic Year, which is earlier
II and IV	May / June	After 15 days of the declaration of the result of the end semester Examination	

* If student who are remain left from end semester examination and remedial examination-1.

14. Academic Progression

No student shall be admitted to any examination unless he/she fulfils the norms given in item no. 6 under the heading of attendance and progress. Academic progression rules are applicable as follows:

- **"Student will not be allowed to move to next year if she/he has not cleared all the courses of the previous year"**
- A student shall be eligible to carry forward all the courses of Ist semesters till the IInd semester examinations. However, he/she shall not be eligible to attend the courses of

the III[rd] semester until all the courses of the I[st] and II[nd] semesters are successfully completed.

- A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to IV semesters within the stipulated time period as per the norms.
- Note: Grade "NA" should be considered as failed and treated as one head for deciding ATKT. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.

15. Grading of Performances (Letter Grades and Grade Points Allocations)

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table – 4.

Table-4: Letter grades and grade points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	AA	10	Outstanding
80.00 – 89.99	AB	9	Excellent
70.00 – 79.99	BB	8	Good
60.00 – 69.99	BC	7	Fair
50.00 – 59.99	CC	6	Average
Less than 50	FF	0	Fail
Absent	NA	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of "NA" and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

16. Semester Grade Point Average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses(Theory/Practical) in a semester with credits C1, C2, C3, C4 and C5 and the student's grade points in these courses are G1, G2, G3, G4 and G5, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C1G1+C2G2+C3G3+C4G4}{C1+C2+C3+C4}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the FF and Ab. grade awarded in that semester. For example if a learner has a FF or Ab. grade in course 4, the SGPA shall then be computed as:

$$\text{SGPA} = \frac{C1G1+C2G2+C3G3+C4Zero}{C1+C2+C3+C4}$$

17. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of FF grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C1S1+C2S2+C3S3+C4S4}{C1+C2+C3+C4}$$

where C1, C2, C3,…. is the total number of credits for semester I,II,III,…. and S1,S2, S3,….is the SGPA of semester I,II,III,…. .

No student will be allowed to move further if CGPA is less than 3 at the end of every academic year.

18. Declaration of Class (Table-5)

The class shall be awarded on the basis of CGPA as follows:

First Class with Distinction	= CGPA of. 7.50 to 10.0
First Class	= CGPA of 6.0 to 7.49
Second Class	= CGPA of 5.0 to 5.99
Pass Class	< CGPA of 5.00

19. Project Work

All the students shall undertake a project under the supervision of a teacher in Semester III to IV and submit a report. 4 copies of the project report shall be submitted (typed & bound copy not less than 75 pages).

The internal and external examiner appointed by the University shall evaluate the project at the time of the Practical examinations of other semester(s). The projects shall be evaluated as per the criteria given below.

Evaluation of Dissertation Book			
Criteria	**Semester-III**	**Semester-IV**	
		Internal Evaluation (Marks)	**External Evaluation (Marks)**
Objective(s) of the work done	--	05	05
Methodology Adopted	--	25	25
Results and Discussions	--	15	15
Conclusions and Outcome	--	05	05
Total	--	50	50
Final Total		**100**	

Evaluation of Presentation				
	Semester-III		**Semester-IV**	
Criteria	**Internal Evaluation (Marks)**	**External Evaluation (Marks)**	**Internal Evaluation (Marks)**	**External Evaluation (Marks)**
Presentation of work	75	100	75	75
Communication skills	25	50	25	25
Question and answer skills	50	50	50	50
Total	150	200	150	150
Final Total	**350**		**300**	

20. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more courses during the M.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the M. Pharm program in minimum prescribed number of years, (two years) for the award of Ranks.

22. Award of degree

Candidates who fulfil the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

23. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the said period, otherwise they have to get fresh Registration.

24. Extra Credit:

An extra credit is to be offered to a student for achievements in co-curricular and extra–curricular activities. This credit shall not be counted while considering the minimum credits for completing the program. The activities and appropriate weight (points) to be allocated to award an extra credit are broadly classified as per the table below:

Sr. no.	**Name of the Activity**	**Maximum Credit Points Eligible / Activity**
1	Participation in National Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	01
2	Participation in international Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	02
3	Academic Award/Research Award from State Level/National Agencies	01
4	Academic Award/Research Award from International Agencies	02
5	Research / Review Publication in National Journals (Indexed in Scopus / Web of Science)	01
6	Research / Review Publication in International Journals (Indexed in Scopus / Web of Science)	02

Note: International Conference: Held Outside India

International Journal: The Editorial Board Outside India

***The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.**

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
MASTER OF PHARMACY (PHARMACEUTICAL TECHNOLOGY) PROGRAMME
Schemes for internal assessments and end semester examinations

SEMESTER-I
SCHEME OF TEACHING

Course Code	Course Name	Credit Hours	Credit Points	Hr/Week
PHCCC009	Modern Pharmaceutical Analytical Techniques	4	4	4
PHTCH001	Drug Delivery System	4	4	4
PHTCH012	Modern Pharmaceutics	4	4	4
PHTCH002	Regulatory Affairs	4	4	4
PHTCH003	Pharmaceutical Technology Practical-I	12	6	12
PHTCH004	Seminar / Assignment-I	2	1	2
---	DHSS Elective-I*	2	2	2
	Total	**32**	**25**	**32**

SCHEME OF EVALUATION

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
PHCCC009	Modern Pharmaceutical Analytical Techniques	10	15	1Hr	25	75	3Hrs	100
PHTCH001	Drug Delivery System	10	15	1Hr	25	75	3Hrs	100
PHTCH012	Modern Pharmaceutics	10	15	1Hr	25	75	3Hrs	100
PHTCH002	Regulatory Affairs	10	15	1Hr	25	75	3Hrs	100
PHTCH003	Pharmaceutical Technology Practical-I	20	30	6Hrs	50	100	6Hrs	150
PHTCH004	Seminar / Assignment-I	-	-	-	100	-	-	100
---	DHSS Elective-I*	-	-	-	30	70	-	100
Total								750

***DHSS elective courses: SCHEME OF TEACHING**

Semester	Course Code	Course Name	Credit Hours	Credit Points	Hrs/Week
I	HS105.02 B	Academic Speaking and Presentation Skills	02	02	02

***DHSS elective courses: SCHEME OF EVALUATION**

Course Code	Course Name	Evaluation Scheme				
		Theory		Practical		Total
		Internal	External	Internal	External	
HS105.02 B	Academic Speaking and Presentation Skills	-	-	30	70	100

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
MASTER OF PHARMACY (PHARMACEUTICAL TECHNOLOGY) PROGRAMME
Schemes for internal assessments and end semester examinations

SEMESTER II

SCHEME OF TEACHING

Course Code	Course Name	Credit Hours	Credit Points	Hrs/Week
PHTCH005	Molecular Pharmaceutics (NanoTech and Targeted DDS)	4	4	4
PHTCH006	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4
PHTCH013	Computer Aided Drug Delivery System	4	4	4
PHTCH007	Cosmetic and Cosmeceuticals	4	4	4
PHTCH008	Pharmaceutical Technology Practical-II	12	6	12
PHTCH009	Seminar/Assignment-II	2	1	2
---	DHSS elective-II*	2	2	2
---	University Elective-II**	2	2	2
	Total	**34**	**27**	**34**

SCHEME OF EVALUATION

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
PHTCH005	Molecular Pharmaceutics	10	15	1Hr	25	75	3Hrs	100
PHTCH006	Advanced Biopharmaceutics & Pharmacokinetics	10	15	1Hr	25	75	3Hrs	100
PHTCH013	Computer Aided Drug Delivery System	10	15	1Hr	25	75	3Hrs	100
PHTCH007	Cosmetic and Cosmeceuticals	10	15	1Hr	25	75	3Hrs	100
PHTCH008	Pharmaceutical Technology Practical-II	20	30	1Hr	50	100	3Hrs	150
PHTCH009	Seminar/Assignment-II	-	-	-	100	-	-	100
---	DHSS elective-II*	-	-	-	30	70	-	100
---	University Elective-II**	-	-	-	25	25	-	50
Total								800

***DHSS elective courses: SCHEME OF TEACHING**

Semester	Course Code	Course Name	Credit Hours	Credit Points	Hrs/Week
II	HS106.02 B	Academic Writing	02	02	02

***DHSS elective courses: SCHEME OF EVALUATION**

Course Code	Course Name	Evaluation Scheme				
		Theory		Practical		Total
		Internal	External	Internal	External	
HS106.02 B	Academic Writing	-	-	30	70	100

****University elective courses: SCHEME OF TEACHING - Semester-II**

Course Code	Course Name	Credit Hours	Credit Points	Hrs/Week
NRMD551	Mindfulness and Well-Being: Living With Balance and Ease	4	2	4
PTUD796	Yoga and Positive Psychology for Managing Career and Life	4	2	4
FSUD554	Plastic Waste Management	4	2	4
FSUD553	Computational Science in Engineering	4	2	4
FSUD552	Nuclear Astrophysics	4	2	4
FSUD551	Energy Resources, Economics and Sustainability	4	2	4
CAUD518	Software Project Management	4	2	4
MBUD558	Introduction to Operations Research	4	2	4
FTUD501	Blockchain and Its Applications	4	2	4
FTUD502	Sustainable Engineering Concepts and Life Cycle Analysis	4	2	4
FTUD552	Health and Safety Management	4	2	4
OCMPH1003	Introduction on Intellectual Property to Engineers and Technologists	4	2	4

****University elective courses: SCHEME OF EVALUATION- Semester-II**

Course Code	Course Name	Evaluation Scheme				
		Theory		Practical		Total
		Internal	External	Internal	External	
NRMD551	Mindfulness and Well-Being: Living With Balance and Ease	-	-	25	25	50
PTUD796	Yoga and Positive Psychology for Managing Career and Life	-	-	25	25	50
FSUD554	Plastic Waste Management	-	-	25	25	50
FSUD553	Computational Science in Engineering	-	-	25	25	50
FSUD552	Nuclear Astrophysics	-	-	25	25	50
FSUD551	Energy Resources, Economics and Sustainability	-	-	25	25	50
CAUD518	Software Project Management	-	-	25	25	50
MBUD558	Introduction to Operations Research	-	-	25	25	50
FTUD501	Blockchain and Its Applications	-	-	25	25	50
FTUD502	Sustainable Engineering Concepts and Life Cycle Analysis	-	-	25	25	50
FTUD552	Health and Safety Management	-	-	25	25	50
OCMPH1003	Introduction on Intellectual Property to Engineers and Technologists	-	-	25	25	50

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

MASTER OF PHARMACY (PHARMACEUTICAL TECHNOLOGY) PROGRAMME

Schemes for internal assessments and end semester examinations

SEMESTER-III

Course Code	Course Name	Credit Hours	Credit Points	Hrs/Week
PHCCC010	Research Methodology and Biostatistics*	4	4	4
PHCCC011	Journal club – I	1	1	1
PHTCH014	Discussion / Presentation	2	2	2
PHTCH015	Research work-I	28	14	28
	Total	**35**	**21**	**35**

* Non University Examination

SCHEME OF EVALUATION

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
PHCCC010	Research Methodology and Biostatistics*	10	15	1 Hr	25	75	3 Hrs	100
PHCCC011	Journal Club-I	-	-	-	25	-	-	25
PHTCH014	Discussion / Presentation	-	-	-	50	-	-	50
PHTCH015	Research work-I	-	-	-	-	350	1 Hr	350
Total								525

***** Non University Examination

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

MASTER OF PHARMACY (PHARMACEUTICAL TECHNOLOGY) PROGRAMME

Schemes for internal assessments and end semester examinations

SEMESTER -IV

Course Code	Course Name	Credit Hours	Credit Points	Hrs/Week
PHCCC012	Journal Club-II	1	1	1
PHTCH016	Discussion/ Presentation	3	3	3
PHTCH017	Research work-II	31	16	31
	Total	**35**	**20**	**35**

SCHEME OF EVALUATION

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
PHCCC012	Journal Club-II	-	-	-	25	-	-	25
PHTCH016	Discussion / Presentation	-	-	-	75	-	-	75
PHTCH017	Research work-II	-	-	-	-	400	1 Hrs	400
Total								500

Semester wise credits distribution

Semester	Credit Point
I	25
II	27
III	21
IV	20
Co-curricular Activity (Attending Conference, Scientific Presentations, Publication, Industry Training and other scholarly Activities)	Maximum 5
Total Credit Point	**Minimum- 93** **Maximum- 98***

*Credit Point for co-curricular activity

FACULTY OF PHARMACY
Master of Pharmacy Programme

Syllabi
Semester - I

Charotar University of Science and Technology

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHCCC009: MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES (Theory)

Total hours: 60 Hr

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	UV-Visible spectroscopy	10
	IR spectroscopy	
	Spectro-flourimetry	
	Flame emission spectroscopy and Atomic absorption spectroscopy	
2	NMR Spectroscopy	10
3	Mass Spectroscopy	10
	X-Ray Crystallography	
4	Chromatography	10
5	Electrophoresis	10
	Immunological Assays	
6	Potentiometric	10
	Thermal analysis	

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**UV-Visible spectroscopy**	**10**	**16.67**
	• UV-Visible spectroscopy: Introduction, Theory, Laws, Instrumentation associated with UV-Visible spectroscopy, Choice of solvents and solvent effect and Applications of UV Visible spectroscopy.		
	IR spectroscopy		
	• Theory, Modes of Molecular vibrations, Sample handling, Instrumentation of Dispersive and Fourier - Transform IR Spectrometer, Factors affecting vibrational frequencies and Applications of IR spectroscopy		
	Spectrofluorometric		
	Theory of Fluorescence, Factors affecting fluorescence, Quenchers, Instrumentation and Applications of fluorescence spectrophotometer.		
	Flame emission spectroscopy and Atomic absorption spectroscopy		
	• Principle, Instrumentation, Interferences and Applications.		

2.	**NMR Spectroscopy**	**10**	**16.67**
	• Quantum numbers and their role in NMR, Principle, Instrumentation, Solvent requirement in NMR, Relaxation process, NMR signals in various compounds, Chemical shift, Factors influencing chemical shift, Spin Spin coupling, Coupling constant, Nuclear magnetic double resonance, Brief outline of principles of FT-NMR and 13C NMR. Applications of NMR spectroscopy.		
3.	**Mass Spectroscopy**	**10**	**16.67**
	• Mass Spectrometry: Principle, Theory, Instrumentation of Mass Spectrometry, Different types of ionization like electron impact, chemical, field, FAB and MALDI, APCI, ESI, APPI Analysers of Quadrupole and Time of Flight, Mass fragmentation and its rules, Meta stable ions, Isotopic peaks and Applications of Mass spectrometry.		
	X ray Crystallography		
	• Production of X rays, Different X ray diffraction methods, Bragg's law, Rotating crystal technique, X ray powder technique, Types of crystals and applications of X ray diffraction.		
4.	**Chromatography**	**10**	**16.67**
	• Principle, apparatus, instrumentation, chromatographic parameters, factors affecting resolution and applications of the following: a) Paper chromatography b) Thin Layer chromatography c) Ion exchange chromatography d) Column chromatography e) Gas chromatography f) High Performance Liquid chromatography g) Affinity chromatography		
5.	**Electrophoresis**	**10**	**16.67**
	• Principle, Instrumentation, Working conditions, factors affecting separation and applications of the following: a) Paper electrophoresis b) Gel electrophoresis c) Capillary electrophoresis d) Zone electrophoresis e) Moving boundary electrophoresis f) Iso-electric focusing		
	Immunological Assays		
	• RIA (Radio Immuno assay), ELISA, Bioluminescence assays.		
6.	**Potentiometry**	**10**	**16.67**
	• Principle, working, Ion selective Electrodes and Application of potentiometer		
	Thermal Techniques		
	• Differential Scanning Calorimetry (DSC): Principle, thermal transitions and Instrumentation (Heat flux and power-compensation and designs), Modulated DSC, Hyper DSC,		

	experimental parameters (sample preparation, experimental conditions, calibration, heating and cooling rates, resolution, source of errors) and their influence, advantage and disadvantages, pharmaceutical applications. • Differential Thermal Analysis (DTA): Principle, instrumentation and advantage and disadvantages, pharmaceutical applications, derivative differential thermal analysis (DDTA). TGA: Principle, instrumentation, factors affecting results, advantage and disadvantages, pharmaceutical applications.		

Course Outcome (COs):

At the end of the course, the students would be able to;

CO1	describe theory and principle of various spectroscopic and chromatographic separation techniques.
CO2	describe instrumentation and application of various spectroscopic and chromatographic separation techniques with justification.
CO3	summarize approaches to be adopted for quantitative & qualitative analysis of drugs in single and combine dosage forms.
CO4	Describe use of thermal methods and potentiometry in analysis of drugs/formulations
CO5	interpret the spectra and propose the structure of organic compounds.

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	-	-	-	-	-	-	-	-	-	3
CO2	3	3	3	-	3	-	-	3	-	3	3
CO3	3	3	3	3	-	3	-	3	-	3	3
CO4	3	3	3	3	-	-	-	3	-	-	3
CO5	3	-	3	3	-	-	-	3	-	-	3

❖ **References:**

1. Spectrometric Identification of Organic compounds - Robert M Silverstein, Sixth edition, John Wiley & Sons, 2004.
2. Principles of Instrumental Analysis - Doglas A Skoog, F. James Holler, Timothy A. Nieman, 5th edition, Eastern press, Bangalore, 1998
3. Instrumental methods of analysis – Willards, 7th edition, CBS publishers.
4. Practical Pharmaceutical Chemistry – Beckett and Stenlake, Vol II, 4th edition, CBS Publishers, New Delhi, 1997.
5. Organic Spectroscopy - William Kemp, 3rd edition, ELBS, 1991.
6. Quantitative Analysis of Drugs in Pharmaceutical formulation - P D Sethi, 3rd

Edition, CBS Publishers, New Delhi, 1997.

7. Pharmaceutical Analysis- Modern methods – Part B - J W Munson, Volume 11, Marcel Dekker Series. 8. The Analysis of Drugs in Biological Fluids, Joseph Chamberlain, CRC Press

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH001: DRUG DELIVERY SYSTEMS (Theory)

Total hours: 60

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	Sustained Release (SR) and Controlled Release (CR) formulations	10
2	Rate Controlled Drug Delivery Systems	10
3	A. Gastro-Retentive Drug Delivery Systems	10
	B. Buccal Drug Delivery Systems	
4	Transdermal Drug Delivery Systems	15
	Ocular Drug Delivery Systems	
5	A. Protein and Peptide Delivery	15
	B. Vaccine Delivery Systems	

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**Sustained Release (SR) and Controlled Release (CR) formulations**	**10**	**16.66**
	Introduction & basic concepts, advantages/ disadvantages, factors influencing, Physicochemical & biological approaches for SR/CR formulation Mechanism of Drug Delivery from SR/CR formulation. Polymers: introduction, definition, classification, properties and application Dosage Forms for Personalized Medicine: Introduction, Definition, Pharmaco-genetics Categories of Patients for Personalized Medicines: Customized drug delivery systems, Bio-electronic Medicines, 3D printing of pharmaceuticals, Tele-pharmacy.		
2.	**Rate Controlled Drug Delivery Systems**	**10**	**16.66**
	Principles & Fundamentals, Types, Activation Modulated Drug Delivery Systems Mechanically activated, pH activated, Enzyme activated, and Osmotic Activated Drug Delivery Systems Feedback regulated Drug Delivery Systems; Principles & Fundamentals.		
3.	**A. Gastro-Retentive Drug Delivery Systems**	**10**	**16.66**

	Principle, concepts advantages and disadvantages, Modulation of GI transit time approaches to extend GI transit		
	B. Buccal Drug Delivery Systems		
	Principle of muco-adhesion, advantages and disadvantages, Mechanism of drug permeation, Methods of formulation and its evaluations.		
4.	**Transdermal Drug Delivery Systems**	**15**	**25.0**
	Structure of skin and barriers, Penetration enhancers, Transdermal Drug Delivery Systems, Formulation and evaluation.		
	Ocular Drug Delivery Systems		
	Barriers of drug permeation, Methods to overcome barriers		
6.	**A. Protein and Peptide Delivery**	**15**	**25.0**
	Barriers for protein delivery. Formulation and Evaluation of delivery systems of proteins and other macromolecules		
	B. Vaccine delivery systems		
	Vaccines, uptake of antigens, single shot vaccines, mucosal and transdermal delivery of vaccines		

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	summarize various approaches for development of novel drug delivery system
CO2	describe formulation strategy and rationalize the evaluation of various novel drug delivery systems
CO3	describe the vaccine, protein and peptide drug delivery system
CO4	theorize key standards for selection of active pharmaceutical ingredient/s and appropriate excipients for development of drug delivery systems

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	-	-	-	-	-	-	-	-	3
CO2	3	-	-	-	-	-	-	-	-	-	3
CO3	3	-	-	-	-	-	-	-	-	-	3
CO4	3	-	-	-	-	-	-	-	-	-	3

Recommended Study Material:

❖ **References:**

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992.
2. Robinson, J. R., Lee V. H. L, Controlled Drug Delivery Systems, Marcel Dekker, Inc., New York, 1992.
3. Encyclopedia of controlled delivery, Editor - Edith Mathiowitz, Published by Wiley Interscience Publication, John Wiley and Sons, Inc, New York! Chichester/Weinheim
4. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001).
5. S. P. Vyas and R. K. Khar, Controlled Drug Delivery - concepts and advances, Vallabh Prakashan, New Delhi, First edition 2002

❖ **Relevant Articles from Journals like:**

1. Indian Journal of Pharmaceutical Sciences (IPA)
2. Indian drugs (IDMA)
3. Journal of controlled release (Elsevier Sciences) desirable
4. Drug Development and Industrial Pharmacy (Marcel & Decker) desirable

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH012: MODERN PHARMACEUTICS(Theory)

Total hours: 60

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	Preformation Concepts and Optimization Techniques in Pharmaceutical Formulation	12
2	Validation	12
3	cGMP & Industrial Management	12
4	Compression and compaction	12
5	Study of consolidation parameters	12

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**Preformation Concepts and Optimization Techniques in Pharmaceutical Formulation**	**12**	**20.0**
	Preformation Concepts – Drug Excipient interactions - different methods, kinetics of stability, Stability testing. Theories of dispersion and pharmaceutical Dispersion (Emulsion and Suspension, SMEDDS) preparation and stability Large and small volume parental – physiological and formulation consideration, Manufacturing and evaluation.		
	b. Optimization techniques in Pharmaceutical Formulation: Concept and parameters of optimization, Optimization techniques in pharmaceutical formulation and processing. Statistical design, Response surface method, Contour designs, Factorial designs and application in formulation		
2.	**Validation**	**12**	**20.0**
	Introduction to Pharmaceutical Validation, Scope & merits of Validation, Validation and calibration of Master plan, ICH & WHO guidelines for calibration and validation of equipment's, Validation of specific dosage form, Types of validation. Government regulation, Manufacturing Process Model, URS, DQ, IQ, OQ & P.Q. of facilities.		
3.	**cGMP & Industrial Management**	**12**	**20.0**

	Objectives and policies of current good manufacturing practices, layout of buildings, services, equipment's and their maintenance Production management: Production organization, materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and cost control, industrial and personal relationship. Concept of Total Quality Management.		
4.	**Compression and compaction** Physics of tablet compression, compression, consolidation, effect of friction, distribution of forces, compaction profiles. Solubility.	**12**	**20.0**
5.	**Study of consolidation parameters** Study of consolidation parameters; Diffusion parameters, Dissolution parameters and Pharmacokinetic parameters, Heckel plots, Similarity factors – f2 and f1, Higuchi and Peppas plot, Linearity Concept of significance, Standard deviation , Chi square test, students T-test , ANOVA test.	**12**	**20.0**

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	describe the concept of pre-formulation study
CO2	use the design of experiment for optimization of formulation
CO3	understand the concept of validation in pharmaceutical industry
CO4	calculate dissolution and diffusion parameters

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	3	-	-	-	-	-	-	3
CO2	-	3	3	-	-	-	-	3	-	-	3
CO3	3	-	-	3	-	-	3	-	3	-	3
CO4	3	-	3	-	-	-	3	-	-	-	3

❖ **References:**

1. Theory and Practice of Industrial Pharmacy by Lachmann and Libermann
2. Pharmaceutical dosage forms: Tablets Vol. 1-3 by Leon Lachmann.
3. Pharmaceutical Dosage forms: Disperse systems, Vol, 1-2; By Leon Lachmann.

4. Pharmaceutical Dosage forms: Parenteral medications Vol. 1-2; By Leon Lachmann.
5. Modern Pharmaceutics; By Gillbert and S. Banker.
6. Remington's Pharmaceutical Sciences.
7. Advances in Pharmaceutical Sciences Vol. 1-5; By H.S. Bean & A.H. Beckett.
8. Physical Pharmacy; By Alfred martin
9. Bentley's Textbook of Pharmaceutics – by Rawlins.
10. Good manufacturing practices for Pharmaceuticals: A plan for total quality control, Second edition; By Sidney H. Willig.
11. Quality Assurance Guide; By Organization of Pharmaceutical producers of India.
12. Drug formulation manual; By D.P.S. Kohli and D. H. Shah. Eastern publishers, New Delhi.
13. How to practice GMPs; By P. P. Sharma. Vandhana Publications, Agra.
14. Pharmaceutical Process Validation; By Fra. R. Berry and Robert A. Nash.
15. Pharmaceutical Preformulations; By J.J. Wells.
16. Applied production and operations management; By Evans, Anderson, Sweeney and Williams.
17. Encyclopaedia of Pharmaceutical technology, Vol I – III.

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH002: REGULATORY AFFAIRS (Theory)

Total hours: 60

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	(a) Documentation in pharmaceutical industry	12
	(b) Regulatory requirement for product approval	
2	CMC and post approval regulatory affairs	12
3	Non clinical drug development	12
4	Clinical trials	12
	Computers in clinical development	
5	cGMP & Industrial management	12

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**(a) Documentation in Pharmaceutical industry**	**12**	**20.0**
	Master formula record, DMF (Drug Master File), distribution records. Generic drugs product development Introduction, Hatch- Waxman act and amendments, CFR (CODE OF FEDERAL REGULATION), drug product performance, in-vitro, ANDA regulatory approval process, NDA approval process, BE and drug product assessment, in–vivo, scale up process approval changes, post marketing surveillance, outsourcing BA and BE to CRO.		
	(b) Regulatory requirement for product approval		
	API, biologics, novel, therapies obtaining NDA, ANDA for generic drugs ways and means of US registration for foreign drugs		
2.	**CMC and Post approval regulatory affairs**	**12**	**20.0**
	CMC, post approval regulatory affairs. Regulation for combination products and medical devices. CTD and ECTD format, industry and FDA liaison. ICH - Guidelines of ICH-Q, S E, M. Regulatory requirements of EU, MHRA, TGA and ROW countries.		
3.	**Non clinical drug development**	**12**	**20.0**

	Global submission of IND, NDA, ANDA. Investigation of medicinal products dossier, dossier (IMPD) and investigator brochure (IB)		
4.	**Clinical trials**	**12**	**20.0**
	Developing clinical trial protocols. Institutional review board/independent ethics committee Formulation and working procedures informed Consent process and procedures. HIPAA - new, requirement to clinical study process, pharmacovigilance safety monitoring in clinical trials.		
	Computers in Clinical Development		
	Clinical Data Collection and Management, Regulation of Computer Systems.		
5.	**cGMP & Industrial Management**	**12**	**20.0**
	Objectives and policies of current good manufacturing practices, layout of buildings, services, equipment's and their maintenance Production management: Production organization, materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and cost control, industrial and personal relationship. Concept of Total Quality Management. Computers in Market analysis.		

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	describe the concept of innovator and generic drugs, drug development process and comprehend the regulatory guidance's and guidelines for filing and approval process
CO2	categorize the preparation of dossiers and their submission to regulatory agencies in different countries in CTD/eCTD format
CO3	assess the post approval requirements for active substances and drug products
CO4	describe the concept of non-clinical drug development, clinical trials requirements for conducting clinical trials, pharmacovigilance and role of computers in clinical development
CO5	theorize the cGMP and industrial management aspects in a pharmaceutical industry

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	-	-	-	-	-	3	-	-	3
CO2	3	-	-	-	-	-	-	3	-	-	3
CO3	3	-	-	-	-	-	-	-	-	-	3
CO4	3	-	-	-	-	-	-	-	-	-	3
CO5	3										3

Recommended Study Material:

❖ **References:**

1. Generic Drug Product Development, Solid Oral Dosage forms, Leon Shargel and Isader Kaufer, Marcel Dekker series, Vol.143
2. The Pharmaceutical Regulatory Process, Second Edition Edited by Ira R. Berry and Robert P. Martin, Drugs and the Pharmaceutical Sciences, Vol. 185, Informa Health care Publishers.
3. New Drug Approval Process: Accelerating Global Registrations by Richard A Guarino, MD, 5th edition, Drugs and the Pharmaceutical Sciences, Vol. 190.
4. Guidebook for drug regulatory submissions / Sandy Weinberg. By John Wiley &Sons.Inc.
5. FDA regulatory affairs: a guide for prescription drugs, medical devices, and biologics/edited by Douglas J. Pisano, David Mantus.
6. Clinical Trials and Human Research: A Practical Guide to Regulatory Compliance By Fay A.Rozovsky and Rodney K. Adams
7. www.ich.org/
8. www.fda.gov/
9. europa.eu/index_en.htm
10. https://www.tga.gov.au/tga-basics

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH003: PHARMACEUTICAL TECHNOLOGY PRACTICAL-I (Practical)

Total hours: 180

Outline of the course:

Sr. No.	Title of the practical
1	Analysis of pharmacopoeia compounds and their formulations by UV Vis spectrophotometer
2	Simultaneous estimation of multi component containing formulations by UV spectrophotometry
3	Experiments based on HPLC
4	Experiments based on Gas Chromatography
5	Estimation of riboflavin/quinine sulphate by fluorimeter
6	Estimation of sodium/potassium by flame photometry
7	To perform In-vitro dissolution profile of CR/ SR marketed formulation
8	Formulation and evaluation of sustained release matrix tablets
9	Formulation and evaluation osmotically controlled DDS
10	Preparation and evaluation of Floating DDS- hydro-dynamically balanced DDS
11	Formulation and evaluation of Muco-adhesive tablets.
12	Formulation and evaluation of transdermal patches.
13	Formulation and evaluation of transdermal patches.
14	To study the effect of compressional force on tablets disintegration time.
15	To study Micrometric properties of powders and granulation.
16	To study the effect of particle size on dissolution of a tablet.
17	To study the effect of binders on dissolution of a tablet.
18	To plot Heckal plot, Higuchi and peppas plot and determine similarity factors.

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	accomplish the assessment of the drug/s using various spectroscopic and chromatographic techniques
CO2	comprehend the operational aspects of various analytical instruments/equipments
CO3	accomplish the pre-formulation, formulation and characterization of various types of the modified release drug delivery systems
CO4	describe the potential effects of excipients and processing parameters on various dosage forms
CO5	comprehend and apply the various model dependent and model independent approaches for the assessment of dosage forms

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	-	3	3	-	3	-	-	3	3
CO2	3	3	-	3	3	-	3	-	-	3	3
CO3	3	3	-	3	3	-	3	-	-	3	3
CO4	3	3	-	3	3	-	3	-	-	3	3
CO5	3	3	-	3	3	-	3	-	-	3	3

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
HS105.02 B: ACADEMIC SPEAKING AND PRESENTATION SKILLS
(Sem-I)

Credits and Schemes:

Sem	Course Code	Course Name	Credits	Teaching Scheme	Evaluation Scheme				
				Contact Hours/Week	Theory		Practical		Total
					Internal	External	Internal	External	
1	HS105.02 B	Academic Speaking and Presentation Skills	02	02	--	--	30	70	100

Course Outline

Module No.	Title/Topic	Classroom Contact Hours
1	**Foundations of Advance Communication** • *Meaning and Definition of Advance Communication* • *Advance Communication in Digital, Social, Mobile World* • *Strategies for Advance Communication* • Meaning and Concept of Academic Language • High Frequency Academic Vocabulary	**04**
2	**Art of Conversation** • *Describing people, places and things* • *Expressing opinions* • *Making suggesting* • *Persuading someone* • *Interpreting and Summarizing*	**06**
3	***Science of Power Speaking*** • *Phonemes* • *Word Stress* • *Pronunciation* • *Intonation* • *Pause* • *Register* • *Fluency* • *Prosody* • *Lexical Range*	**06**

4	***Academic Speaking Application – Part I*** • *Art of Oratory* • *Formal Presentation* • *Speech Analysis – Decoding Best Speeches*	**08**
5	**Academic Speaking Application – Part II** • *Job Interview* • *Group Discussion* • *Meeting*	**06**
	Total	**30**

I. **Instruction Methods and Pedagogy**

The course is based on practical learning. Teaching will be facilitated by reading material, discussion, task-based learning, projects, assignments and various interpersonal activities like case studies, group work, independent and collaborative research, presentations etc.

II. Evaluation

The students will be evaluated continuously in the form of their consistent performance throughout the semester. There is no theoretical evaluation. There is just practical evaluation. The evaluation (practical) is schemed as 30 marks for internal evaluation and 70 marks for external evaluation.

Internal Evaluation

The students' performance in the course will be evaluated on a continuous basis through the following components:

Sl. No.	Component	Number	Marks per incidence	Total Marks
1	I-Talk	1	10	25
2	Situational Speaking	1	05	
3	Case Study - Speech Analysis	2	10	
4	Attendance and Class Participation	-		05
			Total	**30**

External Evaluation

The University Practical Examination will be for 70 marks and will test the advance communication skills and academic speaking.

Sl. No.	Component	Number	Marks per incidence	Total Marks
1	Viva / Practical	-	70	70
			Total	**70**

Course Outcome (COs):

After completion of the course the student would be able to:

CO1	understand and demonstrate advance communication skills and academic speaking.
CO2	demonstrate linguistic competence
CO3	demonstrate performing ability at group discussion and personal interview.
CO4	demonstrate the formal presentation skills.
CO5	demonstrate ability to communicate in diverse situations

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	-	-	-	-	-	-	3	-	-	-
CO2	-	-	-	-	-	-	-	3	-	-	-
CO3	-	-	-	-	3	-	-	3	-	-	-
CO4	-	-	-	-	-	-	-	3	-	-	-
CO5	-	2	-	-	3	-	-	3	-	-	-

Correlation levels 1, 2 or 3 are as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

III. Reference Books

- Headway Academic Skills - Level 1: Listening, Speaking and Study Skills Student's Book Paperback

IV. Reading

- **Unit 1:** Business communication Today (Thirteenth Edition) by Courtland L. Bovee, John V. Thill and Roshan Lal Raina
- **Unit 2:** Effective Speaking Skills by Terry O' Brien
- **Unit 2:** Speak Better Write Better by Norman Lewis
- **Unit 2:** Well Spoken: Teaching Speaking to All Students by Erik Palmer
- **Unit 3:** Let Us Hear Them Speak: Developing Speaking – Listening Skills in English by Jayshree Mohanraj (Publisher – Sage Publication)
- **Unit 4:** The craft of scientific presentations: Critical steps to succeed and critical errors to avoid. New York: Springer by Michael Alley
- **Unit 4:** Presentation Skills in English by Bob Dignen (Publisher: Orient Black Swan)

FACULTY OF PHARMACY
Master of Pharmacy Programme

Syllabi
Semester - II

Charotar University of Science and Technology

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH005: MOLECULAR PHARMACEUTICS (NANO TECHNOLOGY AND TARGETED DDS) (NTDS) (Theory)

Total hours: 60

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	Targeted drug delivery systems	12
2	Targeting Methods	12
3	Micro capsules/ Micro spheres	12
4	Pulmonary drug delivery systems	12
5	Nucleic acid based therapeutic delivery systems	12

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1	**Targeted drug delivery systems** Concepts, Events and biological process involved in drug targeting, Targeting Methods, Tumor targeting and Brain specific delivery	**12**	**20.0**
2.	**Targeting Methods** Introduction preparation and evaluation. Nano Particles & Liposomes: Types, preparation and evaluation	**12**	**20.0**
3.	**Micro Capsules/Micro Spheres** Types, preparation and evaluation, Monoclonal Antibodies; preparation and application, preparation and application of Noisome, Aquasomes, Phytosomes, Electrosomes.	**12**	**20.0**
4.	**Pulmonary Drug Delivery Systems** Aerosols, propellants, Containers Types, preparation and evaluation, Intra Nasal Route Delivery systems; Types, preparation and evaluation.	**12**	**20.0**
5.	**Nucleic acid based therapeutic delivery system** Gene therapy, introduction (ex-vivo & in-vivo gene therapy). Potential target diseases for gene therapy (inherited disorder and cancer). Gene expression systems (viral and non-viral gene transfer). Liposomal gene delivery systems. Bio distribution and Pharmacokinetics. Knowledge of therapeutic antisense molecules and aptamers as drugs of future.	**12**	**20.0**

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	comprehend the concepts of the pre-formulation study and targeted drug delivery to specific organ/s
CO2	describe formulation aspects and rationalize the characterization of particulate carrier systems, vesicular carrier systems and pharmaceutical dispersion systems
CO3	describe formulation aspects and rationalize the characterization of polymeric and lipidic carrier base microparticulate drug delivery systems
CO4	describe formulation aspects and rationalize the characterization of understand the various type of pulmonary and nasal drug delivery systems
CO5	comprehend the nucleic acid based therapeutic delivery systems

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	3	3	-	-	-	-	3	3	3
CO2	3	-	3	3	-	-	-	-	3	3	3
CO3	3	-	3	3	-	-	-	-	3	3	3
CO4	3	-	3	3	-	-	-	-	3	3	3
CO5	3	-	3	3	-	-	-	-	3	3	3

Recommended Study Material:

❖ **References:**

1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, MarcelDekker, Inc., New York, 1992.
2. S. P. Vyas and R. K. Khar, Controlled Drug Delivery - concepts and advances, Vallabh Prakashan, New Delhi, First edition 2002.
3. N. K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001).

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH006: ADVANCED BIOPHARMACEUTICS & PHARMACOKINETICS (Theory)

Total hours: 60

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	Drug Absorption from the Gastrointestinal Tract	12
2	Bio pharmaceutical considerations in drug product design and *In Vitro* Drug Product Performance	12
3	Pharmacokinetics	12
4	Drug Product Performance	12
5	Application of Pharmacokinetics	12

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**Drug Absorption from the Gastrointestinal Tract**	**12**	**20.0**
	Drug Absorption from the Gastrointestinal Tract: Gastrointestinal tract, Mechanism of drug absorption, Factors affecting drug absorption, pH-partition theory of drug absorption. Formulation and physicochemical factors: Dissolution rate, Dissolution process, Noyes–Whitney equation and drug dissolution, Factors affecting the dissolution rate. Gastrointestinal absorption: role of the dosage form: Solution (elixir, syrup and solution) as a dosage form, Suspension as a dosage form, Capsule as a dosage form, Tablet as a dosage form, Dissolution methods, Formulation and processing factors, Correlation of in vivo data with in vitro dissolution data. Transport model: Permeability-Solubility-Charge State and the pH Partition Hypothesis, Properties of the Gastrointestinal Tract (GIT), pH Microclimate Intracellular pH Environment, Tight-Junction Complex.		
2.	**Bio pharmaceutical considerations in drug product design and *In Vitro* Drug Product Performance**	**12**	**20.0**

	Introduction, biopharmaceutical factors affecting drug bioavailability, rate-limiting steps in drug absorption, physicochemical nature of the drug formulation factors affecting drug product performance, Diffusion parameters, In vitro: dissolution and drug release testing, compendia methods of dissolution, alternative methods of dissolution testing, meeting dissolution requirements, problems of variable control in dissolution testing performance of drug products. *In vitro–in vivo* correlation, dissolution profile comparisons, drug product stability, considerations in the design of a drug product.		
3.	**Pharmacokinetics**	**12**	**20.0**
	Basic considerations, pharmacokinetic models, compartment modeling: one compartment model - IV bolus, IV infusion, extra-vascular. Multi compartment model: two compartment -model in brief, non-linear pharmacokinetics: cause of non-linearity, Michaelis – Menten equation, estimation of Kmax and Vmax. Drug interactions: introduction, the effect of protein-binding interactions, the effect of tissue-binding interactions, cytochrome p450-based drug interactions, Drug interactions linked to transporters.		
4.	**Drug Product Performance**	**12**	**20.0**
	In Vivo: Bioavailability and Bioequivalence: drug product performance, purpose of bioavailability studies, relative and absolute availability. Methods for assessing bioavailability, bioequivalence studies, design and evaluation of bioequivalence studies, study designs, crossover study designs, evaluation of the data, bioequivalence example, study submission and drug review process. Bio-pharmaceutics classification system, methods. Permeability: In-vitro, in-situ and In-vivo methods. Generic biologics (biosimilar drug products), clinical significance of bioequivalence studies, special concerns in bioavailability and bioequivalence studies, generic substitution.		
5.	**Application of Pharmacokinetics**	**12**	**20.0**
	Modified-Release Drug Products, Targeted Drug Delivery Systems and Biotechnological Products. Introduction to Pharmacokinetics and pharmaco-dynamic, drug interactions. Pharmacokinetics and pharmacodynamics of biotechnology drugs. Introduction, Proteins and peptides, Monoclonal antibodies, Oligonucleotides, Vaccines (immunotherapy), Gene therapies.		

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	comprehend the basic concepts in biopharmaceutics and pharmacokinetics

CO2	to derive pharmacokinetic models and parameters which describe the process of drug absorption, distribution, metabolism and elimination
CO3	comprehend the critical evaluation of bio-pharmaceutical studies involving drug product equivalency
CO4	design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutical parameters
CO5	apply basics of pharmacokinetic and solve potential clinical pharmacokinetic problems

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	-	-	-	-	-	-	-	-	-
CO2	-	-	3	3	-	-	-	-	-	-	-
CO3	-	-	3	-	-	-	-	-	-	-	-
CO4	3	-	3	3	-	-	-	-	-	-	-
CO5	-	-	3	-	-	-	-	-	-	-	-

Recommended Study Material:

❖ **References:**

1. Biopharmaceutics and Clinical Pharmacokinetics by Milo Gibaldi, 4th edition, Philadelphia, Lea and Febiger, 1991
2. Biopharmaceutics and Pharmacokinetics, A. Treatise, D .M. Brahmankar and Sunil B. Jaiswal., VallabPrakashan, Pitampura, Delhi
3. Applied Biopharmaceutics and Pharmacokinetics by Shargel. Land Yu ABC, 2Ndedition, Connecticut Appleton Century Crofts, 1985
4. Textbook of Biopharmaceutics and Pharmacokinetics, Dr. Shobha Rani R. Hiremath, Prism Book
5. Pharmacokinetics by Milo Gibaldi and D. Perrier, 2nd edition, Marcel Dekker Inc., New York, 1982
6. Current Concepts in Pharmaceutical Sciences: Biopharmaceutics, Swarbrick. J, Lea and Febiger, Philadelphia, 1970
7. Clinical Pharmacokinetics, Concepts and Applications 3rd edition by Malcolm Rowland and Thom~ N. Tozer, Lea and Febiger, Philadelphia, 1995
8. Dissolution, Bioavailability and Bioequivalence, Abdou. H. M, Mack Publishing Company, Pennsylvania, 1989
9. Biopharmaceutics and Clinical Pharmacokinetics, An Introduction, 4th edition, revised and expande by Robert. E. Notari, Marcel Dekker Inc, New York and Basel, 1987.
10. Biopharmaceutics and Relevant Pharmacokinetics by John. G Wagner and M. Pemarowski, 1st edition, Drug Intelligence Publications, Hamilton, Illinois, 1971.

11. Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick, James. G. Boylan, Marcel Dekker Inc, New York, 1996.
12. Basic Pharmacokinetics, 1^{S}edition, Sunil S Jambhekar and Philip J Breen, pharmaceutical press, RPS Publishing, 2009.
13. Absorption and Drug Development- Solubility, Permeability, and Charge State, Alex Avdeef, John Wiley & Sons, Inc,2003.

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH013: COMPUTER AIDED DRUG DEVELOPMENT (Theory)

Total hours: 60

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	Computers in Pharmaceutical Research and Development	12
	Quality-by-Design in Pharmaceutical Development:	
2	Computational Modelling Of Drug Disposition	12
3	Computer-aided formulation development	12
4	Computer-aided biopharmaceutical characterization	12
	Computer Simulations in Pharmacokinetics and Pharmacodynamics	
	Computers in Clinical Development	
5	Artificial Intelligence (AI), Robotics and Computational fluid dynamics	12

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**Computers in Pharmaceutical Research and Development**	**12**	**20.0**
	A General Overview: History of Computers in Pharmaceutical Research and Development. Statistical modelling in Pharmaceutical research and development: Descriptive versus Mechanistic Modelling, Statistical Parameters, Estimation, Confidence Regions, Nonlinearity at the Optimum, Sensitivity Analysis, Optimal Design, Population Modelling		
	Quality-by-Design in Pharmaceutical Development:		
	Introduction, ICH Q8 guideline, Regulatory and industry views on QbD, scientifically based QbD - examples of application.		
2.	**Computational Modelling Of Drug Disposition**	**12**	**20.0**
	Introduction, Modelling Techniques, Drug Absorption, Solubility, Intestinal Permeation, Drug Distribution, Drug Excretion, Active Transport; P-gp, BCRP, Nucleoside Transporters, hPEPT1, ASBT, OCT, OATP, BBB-Choline Transporter		
3.	**Computer-aided formulation development**	**12**	**20.0**
	Concept of optimization, Optimization parameters, Factorial design, Optimization technology & Screening design. Computers in Pharmaceutical Formulation: Development of pharmaceutical emulsions, microemulsion drug carriers Legal Protection of		

	Innovative Uses of Computers in R&D, The Ethics of Computing in Pharmaceutical Research, Computers in Market analysis		
4.	**Computer-aided biopharmaceutical characterization**	**12**	**20.0**
	Gastrointestinal absorption simulation. Introduction, Theoretical background, Model construction, Parameter sensitivity analysis, Virtual trial, Fed vs. fasted state, In vitro dissolution and *in-vitro in-vivo* correlation, Biowaiver considerations		
	Computer Simulations in Pharmacokinetics and Pharmacodynamics		
	Introduction, Computer Simulation: Whole Organism, Isolated Tissues, Organs, Cell, Proteins and Genes.		
	Computers in Clinical Development		
	Clinical Data Collection and Management, Regulation of Computer Systems		
5.	**Artificial Intelligence (AI), Robotics and Computational fluid dynamics**	**12**	**20.0**
	General overview, Pharmaceutical Automation, Pharmaceutical applications, Advantages and Disadvantages. Current Challenges and Future Directions.		

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	understand the application of computers in pharmaceutical research
CO2	understand role of computers in preclinical drug development
CO3	understand role of artificial intelligence in field of pharmacy
CO4	Use of various software's in biopharmaceutical characterization of drug molecules

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	-	3	-	-	-	-	3	-	3
CO2	3	-	3	3	-	-	-	-	3	-	3
CO3	3	3	-	3	-	-	-	3	-	-	3
CO4	3	-	3	3	-	-	-	-	-	-	3

❖ **REFERENCES**

1. Computer Applications in Pharmaceutical Research and Development, Sean Ekins, 2006, John Wiley & Sons.
2. Computer-Aided Applications in Pharmaceutical Technology, 1st Edition,Jelena Djuris, Woodhead Publishing
3. Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick,James. G.Boylan, Marcel Dekker Inc, New York, 1996.

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH007: COSMETICS AND COSMECEUTICALS (Theory)

Total hours: 60

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	Cosmetics-Regulatory	12
2	Cosmetics-Biological aspects	12
3	Formulation Building blocks	12
4	Design of cosmeceutical products	12
5	Herbal cosmetics	12

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**Cosmetics-Regulatory**	**12**	**20.0**
	Definition of cosmetic products as per Indian regulation. Indian regulatory requirements for labeling of cosmetics Regulatory relating to import of cosmetics, Misbranded and spurious cosmetics. Regulatory provisions relating to manufacture of cosmetics – Conditions for obtaining license, prohibition of manufacture and sale of certain cosmetics, loan license, offences and penalties.		
2.	**Cosmetics-Biological aspects**	**12**	**20.0**
	Structure of skin relating to problems like dry skin, acne, pigmentation, prickly heat, wrinkles and body odor. Structure of hair and hair growth cycle. Common problems associated with oral cavity. Cleansing and care needs for face, eye lids, lips, hands, feet, nail, scalp, neck, body and under-arm.		
3.	**Formulation Building blocks**	**12**	**20.0**
	Building blocks for different product formulations of cosmetics/cosmeceuticals. Surfactants-Classification and application. Emollients, rheological additives: classification and application. Antimicrobial used as preservatives, their merits and demerits. Factors affecting microbial preservative efficacy. Building blocks for formulation of a moisturizing cream, vanishing cream, cold cream, shampoo and toothpaste. Soaps and syndetbars. Perfumes; Classification of perfumes. Perfume ingredients listed as allergens in EU regulation Controversial ingredients: Parabens, formaldehyde liberators, dioxane.		

4.	**Design of cosmeceutical products**	**12**	**20.0**
	Sun protection, sunscreens classification and regulatory aspects. Addressing dry skin, acne, sun-protection, pigmentation, prickly heat, wrinkles, body odor., dandruff, dental cavities, bleeding gums, mouth odor and sensitive teeth through cosmeceutical formulations.		
5.	**Herbal Cosmetics**	**12**	**20.0**
	Herbal ingredients used in Hair care, skin care and oral care. Review of guidelines for herbal cosmetics by private bodies like cosmos with respect to preservatives, emollients, foaming agents, emulsifiers and rheology modifiers. Challenges in formulating herbal cosmetics.		

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	employ the knowledge of regulatory aspects and biological aspects as a fundamental need for development of cosmetics and cosmeceuticals
CO2	describe the formulation building blocks for different kinds of cosmetics and cosmeceuticals
CO3	apply scientific knowledge for design and development of cosmetics and cosmeceuticals with desired safety, stability and efficacy.
CO4	select herbal ingredients in the formulation of cosmetics and point out challenges in the formulation of herbal cosmetics.
CO5	describe the guidelines for the regulation of herbal cosmetics by private bodies.

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	-	-	-	-	-	-	-	-	3
CO2	3	-	-	-	-	-	-	-	-	-	3
CO3	3	-	3	-	-	-	-	-	-	-	3
CO4	3	-	-	-	-	-	-	-	-	-	3
CO5	3	-	-	-	-	-	-	-	-	-	3

Recommended Study Material:

❖ **References:**

1. Harry‘s Cosmeticology. 8th edition.
2. Poucher‘s perfume cosmetics and Soaps, 10th edition.
3. Cosmetics - Formulation, Manufacture and quality control, PP.Sharma,4th edition
4. Handbook of cosmetic science and Technology A. O. Barel, M. Paye and H. I. Maibach. 3rd edition
5. Cosmetic and Toiletries recent suppliers catalogue.
6. CTFA directory.

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH008: PHARMACEUTICAL TECHNOLOGY PRACTICAL-II
(Practical)

Total hours: 180

Outline of the course:

Sr. No.	Title of the practical
1	To study the effect of temperature change, non-solvent addition, incompatible polymer addition in microcapsules preparation
2	Preparation and evaluation of Alginate beads
3	Formulation and evaluation of gelatin /albumin microspheres
4	Formulation and evaluation of liposomes/niosomes
5	Formulation and evaluation of spherules
6	Improvement of dissolution characteristics of slightly soluble drug by Solid dispersion technique.
7	Comparison of dissolution of two different marketed products /brands
8	Protein binding studies of a highly protein bound drug & poorly protein bound drug
9	Bioavailability studies of Paracetamol in animals
10	Pharmacokinetic and IV-IVC data analysis by WinnolineR software
11	*In-vitro* cell studies for permeability and metabolism
12	DoE Using Design Expert® Software
13	Formulation data analysis Using Design Expert® Software
14	Quality-by-Design in Pharmaceutical Development
15	Computer Simulations in Pharmacokinetics and Pharmacodynamics
16	Computational Modeling of Drug Disposition
17	To develop Clinical Data Collection manual
18	To carry out Sensitivity Analysis, and Population Modeling
19	Development and evaluation of Creams
20	Development and evaluation of Shampoo and Toothpaste base
21	To incorporate herbal and chemical actives to develop products
22	To address Dry skin, acne, blemish, Wrinkles, bleeding gums and dandruff

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	formulate and characterize various novel drug delivery systems, cosmetic preparations, herbal active containing products and toiletry items
CO2	comprehend pharmacokinetic and IVIVC data analysis, simulation of pharmacokinetic and pharmaco-dynamic studies and drug disposition modeling using appropriate computational program/s
CO3	comprehend the various aspects of clinical trials and able to perform pharmacokinetic study in appropriate preclinical animal model
CO4	comprehend the applications of design of experiment software/s and Quality-by-Design in pharmaceutical development.
CO5	theorize the problems associated with skin, teeth and scalp

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	-	-	-	-	-	-	3	3
CO2	3	3	3	3	-	-	-	-	-	3	3
CO3	3	3	3	3	-	-	-	-	-	3	3
CO4	3	3	3	3	-	-	-	-	-	3	3
CO5	3	3	3	3	-	-	-	-	-	3	3

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
HS106.02 B: ACADEMIC WRITING

Credits and Schemes:

Sem	Course Code	Course Name	Credits	Teaching Scheme	Evaluation Scheme				
				Contact Hours/Week	Theory		Practical		Total
					Internal	External	Internal	External	
II	HS106.02 B	Academic Writing	02	02	--	--	30	70	100

Course Outline

Module No.	Title / Topic	Classroom Contact Hours
1	**Academic Writing and Research Process** • *Introduction to Academic Writing* • *Academic Writing as a Part of Research* • *Types of Academic Writing* • *Features of Academic Writing* • *Importance of Good Academic Writing in various Academic Works*	**05**
2	**Anatomy of Academic Writing** • *Academic Vocabulary* • *Simple and Complex Sentences* • *Organizing Paragraphs* • *The Writing Process* • *Adopting Academic Writing Style*	**05**
3	**Key Academic Skills** • Note – taking • Note – making • Paraphrasing • Summarizing	**05**
4	**Accuracy in Academic Writing** • *Lexical Range* • *Academic Language and Structures* • *Elements of Writing* • *Proof Reading, Editing, and Rewriting*	**05**
5	**Using and Citing Sources of Ideas** • *Academic Texts and their Types* • *Intellectual Honesty in Academic Writing* • *Avoiding Plagiarism – Idea Theft* • *Degrees of Plagiarism* • *Types of Borrowing* • *Anatomy of Citations* • *Common Citation Styles*	**05**

6	**Contemporary Practices in Academic Writing** • Analytical Essays • Graph / Table / Process Interpretation and Description • Writing Reports • Writing Research / Concept Papers	**05**
Total		**30**

I. Instruction Methods and Pedagogy

The course is based on practical learning. Teaching will be facilitated by reading material, discussion, task-based learning, projects, assignments and various interpersonal activities like writing, group work, independent and collaborative research, etc.

II. Evaluation

The students will be evaluated continuously in the form of their consistent performance throughout the semester. There is no theoretical evaluation. There is just practical evaluation. The evaluation (practical) is schemed as 30 marks for internal evaluation and 70 marks for external evaluation.

Internal Evaluation

The students' performance in the course will be evaluated on a continuous basis through the following components:

Sl. No.	Component	Number	Marks per incidence	Total Marks
1	Paragraph Writing	1	3	03
2	Note-taking / Note-making	1	3	03
3	Paraphrasing / Summarizing	1	4	04
4	Essay Writing	1	5	05
5	Concept Paper Writing	1	10	10
5	Attendance and Class Participation			05
			Total	**30**

External Evaluation

The University Practical Examination will be for 70 marks and will test the professional communication skills and academic writing skills of the students.

Sl. No.	Component	Number	Marks per incidence	Total Marks
1	Viva / Practical /Quiz/ Project / Academic Writing	-	70	70
			Total	**70**

Course Outcome (COs):

After completion of the course, the student would:

CO1	have sound understanding of the concept and applications of academic writing
CO2	have acquired enough knowledge of academic writing style, strategy and approach
CO3	be able to demonstrate error free and effective academic writing
CO4	be able to demonstrate ability to work on project/report/paper writing
CO5	understand the concept of plagiarism and learn to use different citation styles as a part of referencing

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	-	-	-	-	-	-	3	-	-	-
CO2	-	-	-	-	-	-	-	3	-	-	-
CO3	-	-	-	-	-	-	-	3	-	-	-
CO4	-	-	-	-	-	-	-	3	-	-	-
CO5	-	-	-	-	-	-	2	-	-	-	-

Correlation levels 1, 2 or 3 are as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

I. Reference Books / Reading

Essential Reading for Concepts

- Academic Writing for International Students, Routledge
- Academic Writing: A Guide for Management Students and Researchers. Monipally, M. M. & Pawar, B. S. Sage. 2010. New Delhi

Essential Reading for Activity and Teacher Resource

- ***Effective Academic Writing Level - 1,2,3,4 (Second Edition) By:*** Alice Savage, Patricia Mayer, Masoud Shafiei, Rhonda Liss, & Jason Davis; *Publisher: Oxford*

Additional Reading

- Writing Your Thesis (2nd Edition) by Paul Oliver, Sage
- Development Communication In Practice by Vilanilam V J, Sage
- Intercultural Communication by Mingsheng Li, Patel Fay, Sage
- www.owl.perdue.edu

FACULTY OF PHARMACY
Master of Pharmacy Programme

Syllabi
Semester - III

Charotar University of Science and Technology

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHCCC010: RESEARCH METHODOLOGY & BIOSTATISTICS (Theory)

Total hours: 60 Hrs

Outline of the course:

Sr. No.	Title of the unit	Minimum number of hours
1	**General Research Methodology**	12
2	Biostatistics	12
3	Medical Research	12
4	CPCSEA guidelines for laboratory animal facility	12
5	Declaration of Helsinki	12

Detailed Syllabus:

Sr. No.	UNIT	Hours	Weightage (%)
1.	**General Research Methodology**	**12**	**20.0**
	Research, objective, requirements, practical difficulties, review of literature, study design, types of studies, strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques		
2.	**Biostatistics**	**12**	**20.0**
	Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, parametric tests (students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (Wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.		
3.	**Medical Research**	**12**	**20.0**
	History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics, importance of communication, control resolution, guidelines,		

	ethics committees, cultural concerns, truth telling, online business practices, conflicts of interest, referral, vendor relationships, treatment of family members, sexual relationships, fatality.		
4.	**CPCSEA guidelines for laboratory animal facility**	**12**	**20.0**
	Goals, veterinary care, quarantine, surveillance, diagnosis, treatment and control of disease, personal hygiene, location of animal facilities to laboratories, anesthesia, euthanasia, physical facilities, environment, animal husbandry, record keeping, SOPs, personnel and training, transport of lab animals.		
5.	**Declaration of Helsinki**	**12**	**20.0**
	History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care.		

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	narrate hierarchy of continue research by proper fundamental methodology.
CO2	summarize the guidelines and ethical values in medical research.
CO3	prepare protocol for Animal study.
CO4	apply the concept of design of experiments in pharmaceutical research.

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO11
CO1	3	-	-	-	-	-	-	-	-	-	3
CO2	3	-	-	-	-	-	-	-	-	-	3
CO3	3	-	-	-	-	-	-	-	-	-	3
CO4	3	-	-	-	-	-	-	3	-	-	3

Recommended Study Material:

❖ **References:**

1. Research in Education- John V. Best, John V. Kahn 7th edition, Published by: Phi Learning Pvt. Ltd

2. Research Methodology: Methods and Techniques. C.R. Kothari and Gaurav Garg, New Age International Publications.
3. Essentials of Research Methodology and Dissertation Writing. Kanan Yelikar, Jaypee Publishers
4. ICMR Ethical Guidelines for Biomedical Research (http://icmr.nic.in/ethical_guidelines.pdf)
5. A review of ―Scientist in legal Systems‖, Journal of Forensic Sciences (JOFS),21(2),1976.
6. Donald Menzel, Jones, Howard Mumford; Boyd, Lyle G., Writing a technical paper, J. Chem. Edu., 1962, 39 (6), p A500.
7. Mitchell, K. and Glover, T. 2001. Introduction to Biostatistics. McGraw Hill, Publishing Co.

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHCCC011: JOURNAL CLUB -I

Total hours: 15

Course Outcome (COs):

At the end of the course, the students would be able to

	CO
CO1	present scientific literature and interpret the finding

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	3	3	-	-	-	3	-	-	3

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH015: RESEARCH WORK - I

Total hours: 420

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	define and describe research problem.
CO2	illustrate project management skills such as project design, scientific information and literature access, project implementation, data analysis, and interpretation.
CO3	present a dissertation report integrating appropriate written and verbal communicative skills.
CO4	efficiently use communication and information technology tools.

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	-	-	-	-	-	-	-	-	3
CO2	3	3	3	3	-	-	-	-	-	-	3
CO3	3	-	3	3	-	-	-	-	-	-	3
CO4	3	-	-	-	-	-	3	3	-	-	3

FACULTY OF PHARMACY
Master of Pharmacy Programme

Syllabi
Semester - IV

Charotar University of Science and Technology

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHTCH017: RESEARCH WORK - II

Total hours: 465

Course Outcome (COs):

At the end of the course, the students would be able to

CO1	define and describe research problem.
CO2	illustrate project management skills such as project design, scientific information and literature access, project implementation, data analysis, and interpretation.
CO3	present a dissertation report integrating appropriate written and verbal communicative skills.
CO4	efficiently use communication and information technology tools.

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	-	-	-	-	-	-	-	-	3
CO2	3	3	3	3	-	-	-	-	-	-	3
CO3	3	-	3	3	-	-	-	-	-	-	3
CO4	3	-	-	-	-	-	3	3	-	-	3

FACULTY OF PHARMACY
MASTER OF PHARMACY PROGRAMME
PHCCC012: JOURNAL CLUB -II

Total hours: 15

Course Outcome (COs):

At the end of the course, the students would be able to

	CO
CO1	present scientific literature and interpret the finding

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	3	3	-	-	-	3	-	-	3

1.3 Learning Resources

Students can utilize library at RPCP or CHARUSAT Knowledge Resource Centre (situated in building A1)

1.4 Academic Calendar:

Ramanbhai Patel College of Pharmacy

Charotar University of Science & Technology

Tentative Planning for **Academic Year: 2025-2026 (Odd semester-1st Sem M.Pharm.)**

Week	Date	Day	No. of working days	WD/HD	Activity
1	03.10.2025	Fri	2	WD	**COMMENCEMENT OF 1st SEMESTER OF M.Pharm.**
	04.10.2025	Sat		WD	Teaching-Learning for 1st sem M.Pharm.
	05.10.2025	Sun		HD	
2	06.10.2025	Mon	6	WD	-
	07.10.2025	Tue		WD	-
	08.10.2025	Wed		WD	Teaching-Learning for 1st sem M.Pharm.
	09.10.2025	Thu		WD	
	10.10.2025	Fri		WD	
	11.10.2025	Sat		WD	-
	12.10.2025	Sun		HD	
3	13.10.2025	Mon	5	WD	-
	14.10.2025	Tue		WD	-
	15.10.2025	Wed		WD	-
	16.10.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	17.10.2025	Fri		WD	-
	18.10.2025	Sat		HD	
	19.10.2025	Sun		HD	
4	20.10.2025	Mon	0	HD	**Diwali vacation**
	21.10.2025	Tue		HD	
	22.10.2025	Wed		HD	
	23.10.2025	Thu		HD	-
	24.10.2025	Fri		HD	
	25.10.2025	Sat		HD	-
	26.10.2025	Sun		HD	
5	27.10.2025	Mon	6	WD	
	28.10.2025	Tue		WD	-
	29.10.2025	Wed		WD	-
	30.10.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.

	31.10.2025	Fri		WD	-
	01.11.2025	Sat		WD	-
	02.11.2025	Sun		HD	
6	03.11.2025	Mon	5	WD	-
	04.11.2025	Tue		WD	-
	05.11.2025	Wed		HD	**Guru Nanak Jayanti**
	06.11.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	07.11.2025	Fri		WD	-
	08.11.2025	Sat		WD	-
	09.11.2025	Sun		HD	
7	10.11.2025	Mon	6	WD	-
	11.11.2025	Tue		WD	-
	12.11.2025	Wed		WD	-
	13.11.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	14.11.2025	Fri		WD	
	15.11.2025	Sat		WD	-
	16.11.2025	Sun		HD	
8	17.11.2025	Mon	6	WD	-
	18.11.2025	Tue		WD	
	19.11.2025	Wed		WD	-
	20.11.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	21.11.2025	Fri		WD	
	22.11.2025	Sat		WD	
	23.11.2025	Sun		HD	
9	24.11.2025	Mon	6	WD	-
	25.11.2025	Tue		WD	-
	26.11.2025	Wed		WD	**1st Internal Examination (T/P)**
	27.11.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	28.11.2025	Fri		WD	
	29.11.2025	Sat		WD	-
	30.11.2025	Sun		HD	
10	01.12.2025	Mon	6	WD	-
	02.12.2025	Tue		WD	-
	03.12.2025	Wed		WD	**1st Internal Examination (T/P)**
	04.12.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	05.12.2025	Fri		WD	
	06.12.2025	Sat		WD	
	07.12.2025	Sun		HD	
11	08.12.2025	Mon	6	WD	-
	09.12.2025	Tue		WD	-
	10.12.2025	Wed		WD	-
	11.12.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.

	12.12.2025	Fri		WD	-
	13.12.2025	Sat		WD	-
	14.12.2025	Sun		HD	-
12	15.12.2025	Mon	6	WD	-
	16.12.2025	Tue		WD	-
	17.12.2025	Wed		WD	-
	18.12.2025	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	19.12.2025	Fri		WD	-
	20.12.2025	Sat		WD	
	21.12.2025	Sun		HD	
13	22.12.2025	Mon	5	WD	-
	23.12.2025	Tue		WD	-
	24.12.2025	Wed		WD	Teaching-Learning for 1st sem M.Pharm.
	25.12.2025	Thu		HD	**Christmas**
	26.12.2025	Fri		WD	
	27.12.2025	Sat		WD	
	28.12.2025	Sun		HD	
14	29.12.2025	Mon	6	WD	-
	30.12.2025	Tue		WD	-
	31.12.2025	Wed		WD	-
	01.01.2026	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	02.01.2026	Fri		WD	-
	03.01.2026	Sat		WD	-
	04.01.2026	Sun		HD	-
15	05.01.2026	Mon	6	WD	-
	06.01.2026	Tue		WD	-
	07.01.2026	Wed		WD	-
	08.01.2026	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	09.01.2026	Fri		WD	-
	10.01.2026	Sat		WD	-
	11.01.2026	Sun		HD	-
16	12.01.2026	Mon	4	WD	-
	13.01.2026	Tue		WD	**2nd Internal Examination (P)**
	14.01.2026	Wed		HD	**Makar Sankranti (Uttarayan)**
	15.01.2026	Thu		HD	
	16.01.2026	Fri		WD	Teaching-Learning for 1st sem M.Pharm.
	17.01.2026	Sat		WD	-
	18.01.2026	Sun		HD	-
17	19.01.2026	Mon	6	WD	-
	20.01.2026	Tue		WD	-
	21.01.2026	Wed		WD	**2nd Internal Examination (T)**
	22.01.2026	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	23.01.2026	Fri		WD	-

	24.01.2026	Sat		WD	-
	25.01.2026	Sun		HD	-
18	26.01.2026	Mon	5	HD	**Republic Day**
	27.01.2026	Tue		WD	-
	28.01.2026	Wed		WD	-
	29.01.2026	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	30.01.2026	Fri		WD	-
	31.01.2026	Sat		WD	-
	01.02.2026	Sun		HD	-
19	02.02.2026	Mon	6	WD	-
	03.02.2026	Tue		WD	-
	04.02.2026	Wed		WD	**Journal Certification**
	05.02.2026	Thu		WD	Teaching-Learning for 1st sem M.Pharm.
	06.02.2026	Fri		WD	-
	07.02.2026	Sat		WD	-
	08.02.2026	Sun		HD	-
20	09.02.2026	Mon	6	WD	**CHARUSAT EXAMINATION (T/P)**
	10.02.2026	Tue		WD	
	11.02.2026	Wed		WD	
	12.02.2026	Thu		WD	
	13.02.2026	Fri		WD	
	14.02.2026	Sat		WD	
	15.02.2026	Sun		HD	
21	16.02.2026	Mon	6	WD	
	17.02.2026	Tue		WD	
	18.02.2026	Wed		WD	
	19.02.2026	Thu		WD	
	20.02.2026	Fri		WD	
	21.02.2026	Sat		WD	
	22.02.2026	Sun		HD	
22	16.02.2026	Mon	6	WD	
	17.02.2026	Tue		WD	
	18.02.2026	Wed		WD	
	19.02.2026	Thu		WD	
	20.02.2026	Fri		WD	
	21.02.2026	Sat		WD	
	22.02.2026	Sun		HD	
			116		

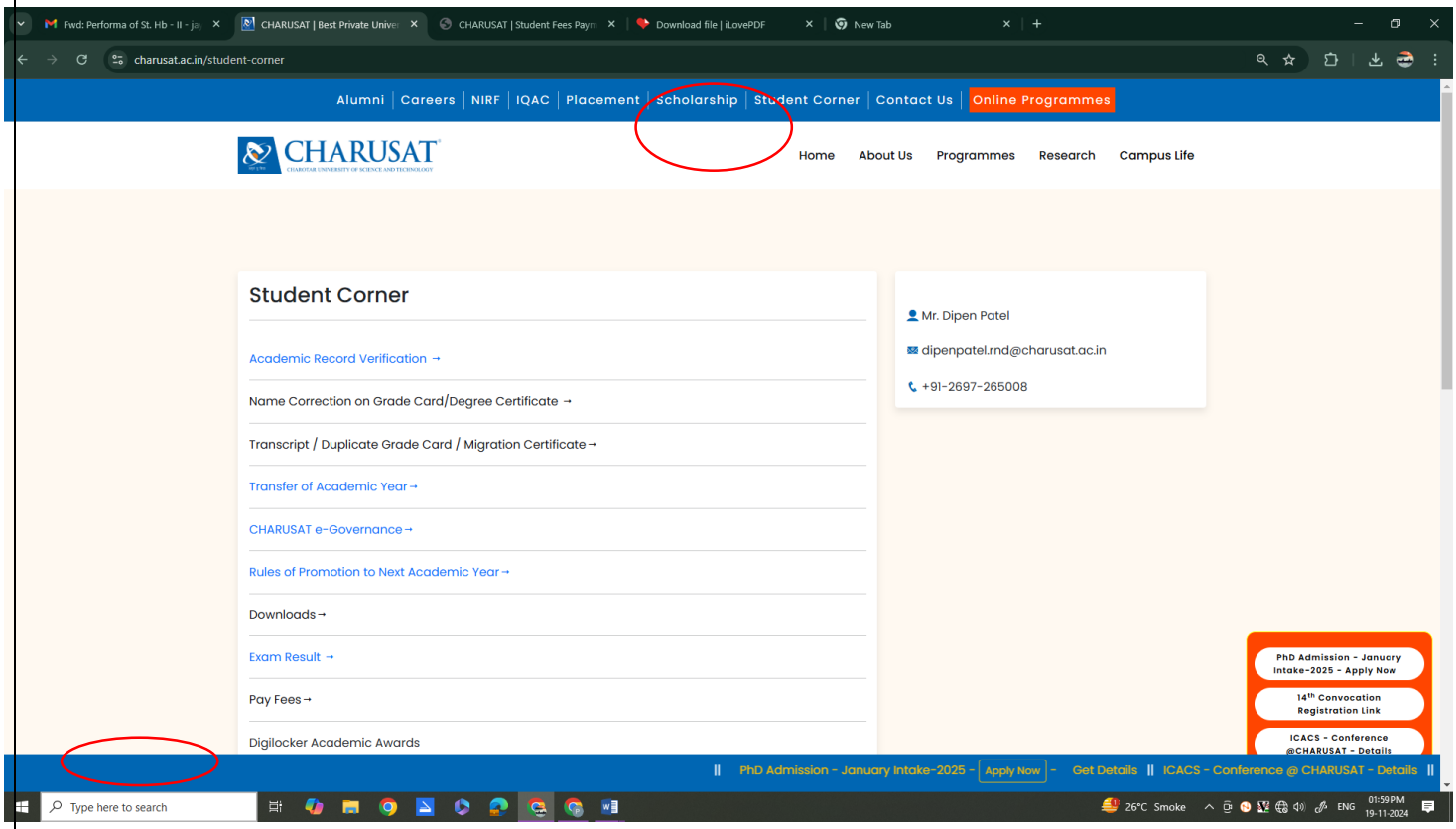
*** Schedule is tentative, subject to change**

SECTION - 2

VARIOUS ADMINISTRATIVE PROCESS

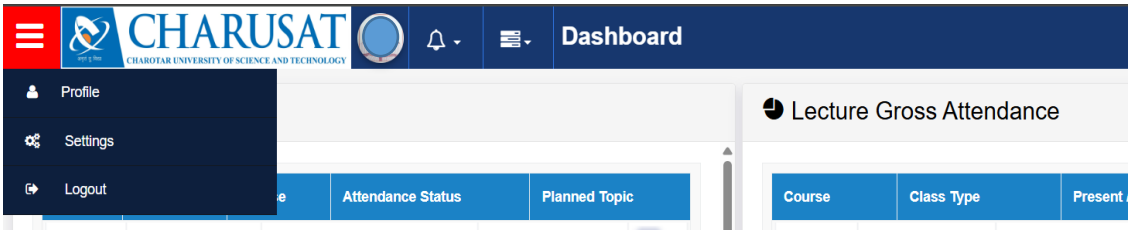
2.1 Payment of tuition fees or Other charges

Step:1	Visit University web-portal click on Pay Fees: https://charusat.edu.in:912/FeesPaymentApp/
Step:2	Enter your Student ID and Pay your Fees
Step:3	Download your fees receipt

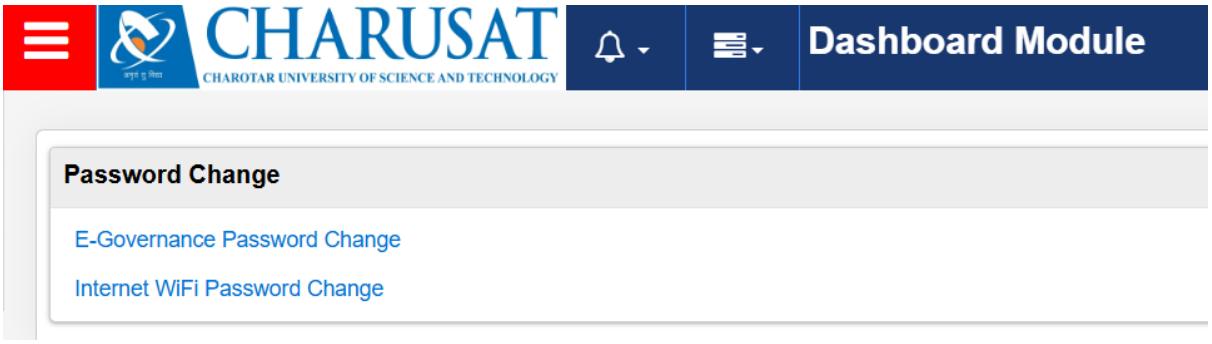


2.2 Process of Acquiring WIFI access

1. Go to e-governance website
    a. http://egov.charusat/
2. Login into your student account using e-governance login credentials
3. Go to settings tab as how in picture below



4. Click on Internet WiFi password change



5. Change the password to get access to WiFi
6. Save and remember your password

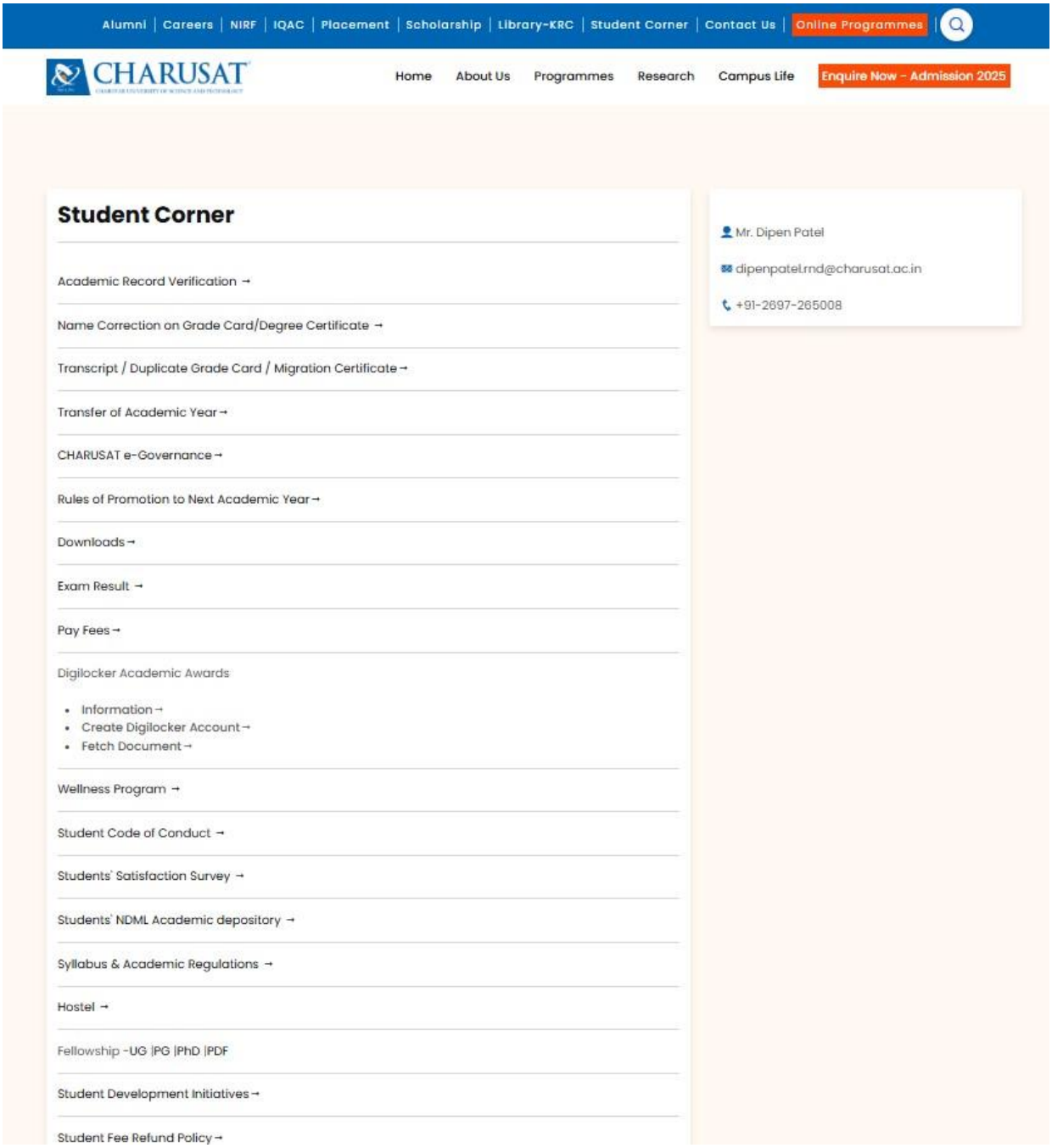
➢ Connect to wifi by authenticating your credentials on http://172.16.0.1:8090/httpclient.html

2.3 Process to obtain required Certificate from the institute

Step:1	Visit Administrative office of RPCP
Step:2	Submit an application as per your requirement along with your ID Number (via Email: principal.rpcp@charusat.ac.in)
Step:3	Collect certificate form Administrative office (Room no: 129A, RPCP)

2.4 Process to obtain required Certificate from the university office

- In order to obtain the required certificate at the University Level, students need to visit the Student Corner of the CHARUSAT University website. They can choose to apply online or offline and should ensure to include all necessary enclosures with their application. The application must be submitted to the Student Section of the University and should be duly attested by the relevant institute's HoD / Principal/ Dean. Once all the necessary procedures are completed, the certificate will be issued at the University office. (As per the below):



2.5 to 2.7 Process to obtain Duplicate Grade Card / Name Correction in Grade Card / Transcript OR E-transcript / Migration Certificate

Step:1	Online Application Request through CHARUSAT Web Portal https://www.charusat.ac.in/student-corner Select Transcript / Duplicate Grade Card / Migration Certificate Select Document Type **Migration Certificate** **Transcript/E-Transcript / WES** **Duplicate Grade Card** Enter CHARUSAT Student ID
Step:2	Pay fees at online Download Payment Receipt (for further Communication)
	University will get request after successful Payment (Time is depend on clearing of payment)
Collect the certificate within 15 days	

OR

Scan the below QR code

CHARUSAT®

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

अमृतं तु विद्या

SCAN TO APPLY FOR

e-transcript

Duplicate Grade Card

Migration Certificate

Student will get an e-copy of the transcript on his/her CHARUSAT e-mail id withing 48 hs working after the successful payment

2.8 Process for Academic Document Verification by External Agency

Step:1	Online Application Request through CHARUSAT Web Portal https://www.charusat.ac.in/student-corner
Step:2	Select Academic Record Verification menu
Step:3	Fill required Information
Step:4	Make Payment
Step:5	Please email Transaction receipt, Student Academic Verification Details (Transcript / Degree Certificate/ Marksheet(s)) after completing the payment process.
Email ID: ***studentservices@charusat.ac.in*** **Email Subject: Academic Document Verification : < Student ID > : < Student Name >**	

SECTION - 3

UNDERTAKINGS

AND

DECLARATIONS

UNDERTAKING
(Observing Rules and Regulations of the University)

Roll No. _____

I, Mr./Ms. _____ son/daughter of _____ have secured admission at the Indukaka Ipcowala Institute of Management of CHARUSAT University in the academic year _____ for the _____ Programme. We hereby confirm that we have gone through the academic rules and regulations of the Institute very carefully and we assure you that we will abide by the same.

Student Signature : _____

Name of the Parent/Guardian : 1. _____

2. _____

Signature of the Parent/Guardian : 1. _____ 2. _____

DECLARATION
(Code of Conducts and Disciplinary Rules)

I ..... bearing roll no. …… admitted in ..... (programme) of the Institute of....., CHARUSAT University, Changa do hereby declare and undertake that I will abide by the Code of Conduct, including rules for misconduct/indiscipline by the students, provisions like dress code on the campus, rules for maintaining vehicles on the campus, public display of affection (PDA), etiquette on the campus etc.

I will abide by all the rules and regulations as and when intimated by the university and if I am found violating any rules then, I shall be subjected to the major/minor penalties as may deemed fit by the university.

Signature : _____

Name of the Parent/Guardian : 1. _____

2. _____

Signature of the Parent/Guardian : 1. _____ 2. _____

UNDERTAKING
(Observing Rules & Regulations of the Examination)

I, ... Roll No..... studying in the First year of ..... programme at Institute of ....., CHARUSAT University, Changa do hereby undertake that I have read and understood all the Rules & Regulations related to Academic Dishonesty at examinations/tests/assignments and punishment in case of using unfair means, I have also gone through the Academic Regulations related to Granting of Term and Cancellation of admission, and I shall observe, follow and abide by all these rules and regulations.

I shall abide by all the rules and regulations and if I am found violating any rules then, I shall be subjected to the necessary action/penalties as per provision of rules/regulations of the university.

Signature : _____

Name : _____

Address : _____

_____

_____

Signature of the Parent/Guardian : 1. _____ 2. _____

UNDERTAKING
(To Refrain from Consumption of Drugs and Alcohol)

I, _____ bearing Roll No._____ admitted in _____ (programme) at Institute of _____ do hereby declare and undertake that I will refrain myself from possession / consumption of Drugs and Alcohol.

I know that the use/possession of narcotics drugs and alcohol is a punishable offence under the law of the Government of Gujarat and if I am found guilty of using such thing/s, then it will amount to a criminal offence and I am liable for the appropriate penalty as per laws and also liable to cancel my admission from the university.

I hereby give an undertaking to the Institute that I will refrain myself from possession or consumption of Drugs and Alcohol in and around the campus.

Date : _____

Place : Signature of Student

I undertake that I will take utmost care to see that my ward does not get involved in any such incident.

Name of the Parent/Guardian : 1. _____

2. _____

Signature of the Parent/Guardian : 1. _____ 2. _____

Address of Parent/ Guardian : _____

_____

Contact no of Parent/ Guardian : 1. _____ 2. _____

4. IMPORTANT CONTACTS

+91-02697-265011 (Last 4 digits: Extension number)

Name and Designation	Extension number & Email-id
Dr. Samir Patel Dean - Faculty of Pharmacy,	5161 dean.fph@charusat.ac.in
Dr. Manan Raval Principal, RPCP	5141 principal.rpcp@charusat.ac.in
Mr. Jaydeep Parmar P.A to Principal	5151 jaydeepparmar.ph@charusat.ac.in
Dr. Meghna Mehta Librarian	5145 meghanamehta.ph@charusat.ac.in
Mr. Jaydeep Parmar Student Section, RPCP	5151 jaydeepparmar.ph@charusat.ac.in
Shri Mukesh Yadav Dy. Registrar, Academic Section	5029 mukeshyadav.adm@charusat.ac.in
Ms. Manisha Patel Chief Finance Officer, Accounts Section	5007 cfo@charusat.ac.in
Shri Mitesh Patel Assistant Registrar, Students Section (University office)	5038 studentservices@charusat.ac.in
Dr. Abhilash Shukla Examination Section	----- abhilashshukla.mca@charusat.ac.in
Dr. Ritesh Patel Coordinator, E-governance	5251 coordinator.egov@charusat.ac.in
Shri Ritesh Bhatt WIN Cell Coordinator	5106 riteshbhatt.win@charusat.ac.in
Mr. Sujal Dadhaniya Corporate Development & Placement Cell	5213 tpo@charusat.ac.in,tnp@charusat.ac.in
Dr. Dilip Gosai Head, Charusat Rural Education Development Programme	5160 head.credp@charusat.ac.in
Dr. Gayatri Dave Chairperson, Women Development Cell	5197 gayatridave.bt@charusat.ac.in
Dr. Mrunali Patel Chairperson, Internal Complaint Committee	5163 chairperson.icc@charusat.ac.in
Dr. Vijay Panchal Head, Equal Opportunity Cell	5081 vijaypanchal.cv@charusat.ac.in
Shri Mukesh Patel Nodal Officer of Student Grievance Redressal Cell	5029 nodalofficergrc@charusat.ac.in
Dr. Vijaykumar Chaudhary Convenor, Anti-ragging Cell	5221 vijaychaudhary.me@charusat.ac.in