Sanjay Ghodawat University Kolhapur

School of Pharmaceutical Sciences

Department of Pharmacy

B. Sc. Clinical Research & Technology

Curriculum Structure (R25)

Semester: I-VIII

Programme Structure for B. Sc.: First Year Clinical Research and Technology (R25)

Semester I: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UCRPC101	Drug Dosage Forms	3	-	-	3	-	-	3
UCRPC102	Human Anatomy and Physiology I	3	-	-	3	-	-	3
UXXOE01X	Open Elective I	2	-	-	2	-	-	2
UCRPC103	Drug Dosage Forms Lab	-	4	-	-	2	-	2
UCRPC104	Human Anatomy & Physiology I Lab	-	4	-	-	2	-	2
UCRVS101	Clinical Trials Lab	-	2	-	-	1	-	1
UHSAE009	Communicative English	1	2	-	2	-	-	2
UHSVE001	Constitution of India	2	-	-	2	-	-	2
UBTIK102	Indian Medical Knowledge System	2	-	-	2	-	-	2
UISCC0XX	Co-curricular Courses I	-	4	-	-	2	-	2
UHSVE005	Universal Human Values	-	-	-	-	-	-	Audit Course
	Total	**13**	**16**	**-**	**14**	**7**	**-**	**21**

- During the Induction Program, students would get an initial exposure to human values through Universal Human Values.

Semester I: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work/ Tutorial	Practical Oral/ POE	
		CA I	CA II	CA III	Total				
UCRPC101	Drug Dosage Forms	10	10	5	25	50	-	-	75
UCRPC102	Human Anatomy and Physiology I	10	10	5	25	50	-	-	75
UXXOE01X	Open Elective I	-	10	5	15	35	-	-	50
UCRPC103	Drug Dosage Forms Lab	-	-	-	-	-	25	25	50
UCRPC104	Human Anatomy & Physiology I Lab	-	-	-	-	-	25	25	50
UCRVS101	Clinical Trials Lab	-	-	-	-	-	25	-	25
UHSAE009	Communicative English	-	10	5	15	35	-	-	50
UHSVE001	Constitution of India	-	10	5	15	35	-	-	50
UBTIK102	Indian Medical Knowledge System	-	10	5	15	35	-	-	50
UISCC0XX	Co-curricular Courses I	-	-	-	-	-	50	-	50
UHSVE005	Universal Human Values	-	-	-	-	-	-	-	Audit Course
								Total	**525**

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work, SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course

Semester II: Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total credits
UCRPC201	Human Anatomy and Physiology II	3	-	-	3	-	-	3
UCRPC202	Pathophysiology	3	-	-	3	-	-	3
UXXMM0XX	Multidisciplinary Minor I	2	-	-	2	-	-	2
UXXOE02X	Open Elective II	2	-	-	2	-	-	2
UCRPC203	Human Anatomy & Physiology II Lab	-	4		-	2	-	2
UCRPC205	Computer Application & Biostatistics Lab	-	4		-	2	-	2
UHSAE001	Professional Communication	1	2	-	2	-	-	2
USTVE004	Environmental Science & Sustainability	2	-	-	2	-	-	2
UISCC0XX	Co-curricular courses II	-	4	-	-	2	-	2
	Total	**13**	**14**	**-**	**14**	**6**	-	**20**

Semester II: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work/ Tutorial	Practical Oral/POE	
		CA I	CA II	CA III	Total				
UCRPC201	Human Anatomy and Physiology II	10	10	5	25	50	-	-	75
UCRPC202	Pathophysiology	10	10	5	25	50	-	-	75
UXXMM0XX	Multidisciplinary Minor I	-	10	5	15	35	-	-	50
UXXOE02X	Open Elective II	-	10	5	15	35	-	-	50
UCRPC203	Human Anatomy & Physiology II Lab	-	-	-	-	-	25	25	50
UCRPC205	Computer Application & Biostatistics Lab	-	-	-	-	-	25	25	50
UHSAE001	Professional Communication	-	10	5	15	35	-	-	50
USTVE004	Environmental Science & Sustainability	-	10	5	15	35	-	-	50
UISCC0XX	Co-curricular courses II	-	-	-	-	-	50	-	50
								Total	**500**

- Minimum passing is 40% for all courses and evaluation head mentioned above. FET – FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work, SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course

Exit Option:

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting the First-Year program after securing Major with 40 credits and an additional 8 credits core NSQF course/Internship or continue with major & minor.

Programme Structure for B. Sc.: Second Year Clinical Research and Technology (R25)

Semester III: Teaching Scheme

Course code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UCRPC301	Fundamentals of Clinical Research	3	-	-	3	-	-	3
UCRPC302	General Pharmacology	3	-	-	3	-	-	3
UCRPC303	Microbiology	3	-	-	3	-	-	3
UCRPC304	Principles of Biochemistry	3	-	-	3	-	-	3
UCRPE3XX	Program Elective I	3	-	1	3	-	1	4
UXXMM0XX	Multidisciplinary Minor II	3	-	-	3	-	-	3
UCRPC305	General Pharmacology Lab	-	2	-	-	1	-	1
UCRPC306	Microbiology Lab	-	2	-	-	1	-	1
UCRPC307	Principles of Biochemistry Lab	-	2	-	-	1	-	1
UXXMM0XX	Multidisciplinary Minor II lab	-	2	-	-	1	-	1
UCRFP301	Field Project	-	4	-	-	2	-	2
	Total	**18**	**12**	**1**	**18**	**6**	**1**	**25**

Semester III: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work/ Tutorial	Practical Oral/POE	
		CA I	CA II	CA III	Total				
UCRPC301	Fundamentals of Clinical Research	10	10	5	25	50	-	-	75
UCRPC302	General Pharmacology	10	10	5	25	50	-	-	75
UCRPC303	Microbiology	10	10	5	25	50	-	-	75
UCRPC304	Principles of Biochemistry	10	10	5	25	50	-	-	75
UCRPE3XX	Program Elective I	10	10	5	25	50	25	-	100
UXXMM0XX	Multidisciplinary Minor II	10	10	5	25	50	-	-	75
UCRPC305	General Pharmacology Lab	-	-	-	-	-	25	-	25
UCRPC306	Principles of Biochemistry Lab	-	-	-	-	-	25	-	25
UCRPC307	Microbiology Lab	-	-	-	-	-	25	-	25
UXXMM0XX	Multidisciplinary Minor II lab	-	-	-	-	-	25	-	25
UCRFP301	Field Project	-	-	-	-	-	50	-	50
								Total	**625**

* Minimum passing is 40% for all courses and evaluation head mentioned above. FET – Faculty evaluation for Theory, T1, T2, Continuous Assessment Test, Term Work, SEE - Semester End Examination, P/F – Pass/ Fail Course, AU – Audit Course

Semester IV: Teaching Scheme

Course code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UCRPC401	Clinical Pharmacokinetics	3	-	-	3	-	-	3
UCRPC402	Systemic Pharmacology and autocoids	3	-	-	3	-	-	3
UCRPC403	Regulatory Aspects in Clinical Research	2	-	-	2	-	-	2
UCRPC404	Epidemiology and Global Health	2	-	-	2	-	-	2
UCRPE4XX	Program Elective II	3	-	1	3	-	1	4
UXXMM0XX	Multidisciplinary Minor III	2	-	-	2	-	-	2
UCRPC405	Systemic Pharmacology and autocoids Lab	-	2	-	-	1	-	1
UCRPC406	Clinical Sampling and Analytical Techniques Lab	-	2	-	-	1	-	1
UXXMM0XX	Multidisciplinary Minor III Lab	-	2	-	-	1	-	1
UCRSE401	Medical Writing	2	-	-	2	-	-	2
UCRVS401	Healthcare administration	2	-	-	2	-	-	2
	Total	**19**	**6**	1	**19**	**3**	1	**23**

Semester IV: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work/ Tutorial	Practical Oral /POE	
		CA I	CA II	CA III	Total				
UCRPC401	Clinical Pharmacokinetics	10	10	5	25	50	-	-	75
UCRPC402	Systemic Pharmacology and autocoids	10	10	5	25	50	-	-	75
UCRPC403	Regulatory Aspects in Clinical Research	-	10	5	15	35	-	-	50
UCRPC405	Epidemiology and Global Health	-	10	5	15	35	-	-	50
UCRPE4XX	Program Elective II	10	10	5	25	50	25	-	100
UXXMM0XX	Multidisciplinary Minor III	-	10	5	15	35	-	-	50
UCRPC405	Systemic Pharmacology and autocoids Lab	-	-	-	-	-	25	-	25
UCRPC406	Clinical Sampling and Analytical Techniques Lab	-	-	-	-	-	25	-	25
UXXMM0XX	Multidisciplinary Minor III Lab	-	-	-	-	-	25	-	25
UCRSE401	Medical Writing	-	10	5	15	35	-	-	50
UCRVS401	Healthcare administration	-	10	5	15	35	-	-	50
								Total	**575**

Exit Option:

- Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- Students exiting the Second-Year program after securing Major with 80 credits and an additional 8 credits core NSQF course/Internship or continue with major & minor.

Programme Structure for B. Sc. Third Year Clinical Research and Technology (R25)

Semester V: Teaching Scheme

Course code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UCRPC501	Pharmacovigilance	3	-	-	3	-	-	3
UCRPC502	Systemic Pharmacology and Chemotherapy	3	-	-	3	-	-	3
UCRPC503	Emerging Technologies in Clinical Trials	4	-	-	4	-	-	4
UCRPC504	Clinical Data & Medical Records Management	3	-	-	3	-	-	3
UCRPE5XX	Program Elective III	3	-	1	3	-	1	4
UXXMM0XX	Multidisciplinary Minor IV	2	-	-	2	-	-	2
UCRPC505	Systemic Pharmacology and Chemotherapy Lab	-	2	-	-	1	-	1
UXXMM0XX	Multidisciplinary Minor IV Lab	-	2	-	-	1	-	1
UCRVS501	Career Readiness and Professional Practice in Science	2	-	-	2	-	-	2
	Total	**20**	**4**	**1**	**20**	**2**	**1**	**23**

Semester V: Evaluation Scheme

Course code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				SEE	Term work /Tutorial	Practical Oral /POE	
		CA I	CA II	CA III	Total				
UCRPC501	Pharmacovigilance	10	10	5	25	50	-	-	75
UCRPC502	Systemic Pharmacology and Chemotherapy	10	10	5	25	50	-	-	75
UCRPC503	Emerging Technologies in Clinical Trials	10	10	5	25	75	-	-	100
UCRPC504	Clinical Data & Medical Records Management	10	10	5	25	50	-	-	75
UCRPE5XX	Program Elective III	10	10	5	25	50	25	-	100
UXXMM0XX	Multidisciplinary Minor IV	-	10	5	15	35	-	-	50
UCRPC505	Systemic Pharmacology and Chemotherapy Lab	-	-	-	-	-	25	-	25
UXXMM0XX	Multidisciplinary Minor IV Lab	-	-	-	-	-	25	-	25
UCRVS501	Career Readiness and Professional Practice in Science	-	10	5	15	35	-	-	50
								Total	**575**

Semester VI: Teaching Scheme

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	
UCRPC601	MOOC/Online course (GCP)	2	-	-	2	-	-	2
UCRPR601	Project	-	12	-	-	6	-	6
UCROT601	Internship	-	24	-	-	12	-	12
	Total	**02**	**36**	**-**	**02**	**18**	**-**	**20**

Project:

All the students shall undertake a project under the supervision of a teacher. The project shall be carried out in group not exceeding 4 in number. The project report shall be submitted in triplicate (typed & bound copy not less than 25 pages). The internal and external examiner appointed by the University shall evaluate the project at the time of the Practical examinations of semester(s). Students shall be evaluated in groups.

Internship:

Every student shall be required to complete internship/practical training, spread over a period of sixth semester, in an Industry/Hospital or any other relevant field as per the prescribed course content under the supervision of a teacher and external mentor from Industry/Hospital and submit a report. He/she has to submit internship report which will be evaluated separately.

Semester VI: Evaluation Scheme

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				ESE	Term work*	Practical* Oral/ POE	
		CA I	CA II	CA III	Total				
UCRPC601	MOOC/Online course (GCP)	-	-	-	-	100	-	-	100
UCRPR601	Project	-	-	-	-	-	100	50	150
UCROT601	Internship	-	-	-	-	-	150	100	250
								Total	**500**

Note:

The Evaluation of Project is divided into two parts

a) Term Work: Preparation and presentation of the proposal of the Project (Motivation/ Relevance, Problem Statement, Literature Survey, Objectives, Methodology, design of the project, conclusion & outcome) for 100 marks.

b) Practical/Oral/POE: Student shall present a seminar on the topic relevant to the Project work for 50 marks.

The Evaluation of Internship is divided into two parts

a) Term Work: Internship, and report submission for 150 marks.

b) Practical/Oral/POE: Student shall present a seminar on their internship work for 100 marks.

Programme Structure for B. Sc. Fourth Year Clinical Research and Technology (R25)

Semester VII: Teaching Scheme (Honors with Research)

Course Code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Th	Pr	Tu	Th	Pr	Tu	
UCRPC701	Clinical Pharmacotherapeutics	3	-	1	3	-	1	4
UCRPC702	Biopharmaceutics	3	-	1	3	-	1	4
UCRPE7XX	Program Elective IV	3	-	1	3	-	1	4
USTRM701	Research Methodology	3	-	-	3	-	-	3
UCRRP701	Research Project I	-	8	-	-	4	-	4
UCRPC703	Clinical Pharmacotherapeutics Lab	-	2	-	-	1	-	1
	Total	**12**	**10**	**03**	**12**	**5**	**3**	**20**

Semester VII: Evaluation Scheme (Honors with Research)

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				ESE	Term work*/ Tutorial	Practical* Oral/ POE	
		CA I	CA II	CA III	Total				
UCRPC701	Clinical Pharmacotherapeutics	10	10	5	25	50	25	-	100
UCRPC702	Biopharmaceutics	10	10	5	25	50	25	-	100
UCRPE7XX	Program Elective IV	10	10	5	25	50	25	-	100
USTRM701	Research Methodology	10	10	5	25	50	-	-	75
UCRRP701	Research Project I	-	-	-	-	-	50	50	100
UCRPC703	Clinical Pharmacotherapeutics Lab	-	-	-	-	-	25	-	25
								Total	**500**

Note:

The Evaluation of Research Project is divided into two parts

a) Term Work: Preparation and presentation of the proposal of the Project (Motivation/ Relevance, Problem Statement, Literature Survey, Objectives, Methodology, design of the project, results, discussion, conclusion & outcome) for 50 marks.

b) Practical/Oral/POE: Student shall present a seminar on the topic relevant to the Research Project work for 50 marks.

Semester VIII: Teaching Scheme (Honors with Research)

Course Code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Th	Pr	Tu	Th	Pr	Tu	
UCRPC801	Clinical Research in Oncology	3	-	-	3	-	-	3
UCRPC802	Bioethics and Drug Safety	3	-	-	3	-	-	3
UCRPC803	Health Economics & Outcomes Research	2	-	-	2	-	-	2
UCRPE8XX	Program Elective V	3	-	1	3	-	1	4
UCRRP801	Research Project II	-	16	-	-	8	-	8
	Total	**11**	**16**	**1**	**11**	**08**	**1**	**20**

Semester VIII: Evaluation Scheme (Honors with Research)

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				ESE	Term work*/Tutorial	Practical* Oral/ POE	
		CA I	CA II	CA III	Total				
UCRPC801	Clinical Research in Oncology	10	10	5	25	50	-	-	75
UCRPC802	Bioethics and Drug Safety	10	10	5	25	50	-	-	75
UCRPC803	Health Economics & Outcomes Research	-	10	5	15	35	-	-	50
UCRPE8XX	Program Elective V	10	10	5	25	50	25	-	100
UCRRP701	Research Project II	-	-	-	-	-	150	50	200
								Total	**500**

Semester VII: Teaching Scheme (Honors)

Course Code	Course Name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Th	Pr	Tu	Th	Pr	Tu	
UCRPC701	Clinical Pharmacotherapeutics	3	-	1	3	-	1	4
UCRPC702	Biopharmaceutics	3	-	1	3	-	1	4
UCRPC703	Bioethics and Drug Safety	3	-	1	3	-	1	4
UCRPE7XX	Program Elective IV	3	-	1	3	-	1	4
USTRM701	Research Methodology	3	-	-	3	-	-	3
UCRPC703	Clinical Pharmacotherapeutics Lab	-	2	-	-	1	-	1
	Total	**15**	**2**	**04**	**15**	**1**	**04**	**20**

Semester VII: Evaluation Scheme (Honors with Research)

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				ESE	Term work*/Tutorial	Practical* Oral/ POE	
		CA I	CA II	CA III	Total				
UCRPC701	Clinical Pharmacotherapeutics	10	10	5	25	50	25	-	100
UCRPC702	Biopharmaceutics	10	10	5	25	50	25	-	100
UCRPC703	Bioethics and Drug Safety	10	10	5	25	50	25	-	100
UCRPE7XX	Program Elective IV	10	10	5	25	50	25	-	100
USTRM001	Research Methodology	10	10	5	25	50	-	-	75
UCRPC703	Clinical Pharmacotherapeut Lab	-	-	-	-	-	25	-	25
								Total	**500**

Semester VIII: Teaching Scheme (Honors)

Course code	Course name	Teaching scheme (Hrs/week)			Credits assigned			Total credits
		Th	Pr	Tu	Th	Pr	Tu	
UCRPC801	Clinical Research in Oncology	3	-	-	3	-	-	3
UCRPC802	Bioethics and Drug Safety	3	-	-	3	-	-	3
UCRPC803	Health Economics & Outcomes	2	-	-	2	-	-	2
UCRRP801	Project	-	24	-	-	12	-	12
	Total	**08**	**24**	**-**	**08**	**12**	**-**	**20**

Semester VIII: Evaluation Scheme (Honors)

Course Code	Course Name	Theory Marks					Practical Marks		Total
		Internal Assessment				ESE	Term work*	Practical* Oral/ POE	
		CA I	CA II	CA III	Total				
UCRPC801	Clinical Research in Oncology	10	10	5	25	50	-	-	75
UCRPC802	Bioethics and Drug Safety	10	10	5	25	50	-	-	75
UCRPC803	Health Economics & Outcomes Research	-	10	5	15	35	-	-	50
UCRRP801	Project	-	-	-	-	-	200	100	300
								Total	**500**

List of Co-curricular courses I & II	
Course Code	**Course Name**
UISCC011	National Service Scheme
UISCC012	Regular and Special NSS Camp Activity
UISCC021	Indian Music
UISCC022	Fine Arts
UISCC023	Indian Dance
UISCC031	Physical Fitness
UISCC032	Yoga & Meditation

Program Electives						
Program Elective	**Vertical I (Clinical Data Science and Analytics)**		**Vertical II (Clinical Trials of Biotech Products, Pharmaceuticals, & Medical Devices)**		**Vertical III (Clinical Research Operations & Entrepreneurship)**	
	Code	**Course**	**Code**	**Course**	**Code**	**Course Name**
I	UCRPE311	Clinical Data Management & Standards	UCRPE321	Clinical Trials of Biotech Products	UCRPE331	CRO Operations & Business Model
II	UCRPE411	Data Analytics for Clinical Research	UCRPE421	Clinical Trials of Pharmaceuticals	UCRPE431	Quality Assurance in Clinical Research
III	UCRPE511	Clinical SAS programming	UCRPE521	Clinical Trials of Medical Devices & Diagnostics	UCRPE531	Intellectual Property Right (IPR)
IV	UCRPE711	Artificial Intelligence in Clinical Research	UCRPE721	Cross-cutting Trial Management & Compliance	UCRPE731	Entrepreneurship in Healthcare

Open Elective I				
No.	**Course Code**	**Course**	**Faculty/School /Department**	**Credits**
1	UAEOE011	Basic Aeronautical Engineering	Department of Aerospace Engg.	2
2	UAIOE011	Software Models	Department of AIML	2
3	UCEOE011	Advanced Building Materials	Department of Civil Engg.	2
4	UCSOE011	Introduction to Latex	Department of Comp. Sc. & Engg.	2
5	UECOE011	Semiconductor Devices	Department of Elect. & Comm. Engg.	2
6	UCAOE012	Python Programming	School of Computer Applications	2
7	UPHOE011	World of Nano Science	School of Physical & Chemical Sciences	2
8	UFSOE012	Basics of Food Processing	Department of Food Science & Technology	2
9	UDCOE011	Selling Skills	Department of Commerce	2
10	UBAOE011	Basics of Marketing	Department of Management	2
11	UAROE011	Introduction To GIS	Department of Social Sciences	2
12	UAROE012	Applied Communicative English	Department of Social Sciences	2
13	UBTOE011	Introduction to Biotechnology	Department of Bio Technology	2
Open Elective II				
1	UAEOE021	Aircraft Systems and Instruments	Department of Aerospace Engg.	2
2	UAIOE021	Introduction to Python	Department of AIML	2
3	UCEOE021	Green Building	Department of Civil Engg.	2
4	UCSOE021	Advance Microsoft Office	Department of Comp. Sc. & Engg.	2
5	UECOE021	Fundamentals of Communication Engineering	Department of Elect. & Comm. Engg.	2
6	UCAOE022	Data Analytics Tools	School of Computer Applications	2
7	UPHOE021	Wonders in Nanotechnology	School of Physical & Chemical Sciences	2
8	UFSOE022	Bakery and Confectionary Skills	Department of Food Science & Technology	2
9	UDCOE021	Financial Literacy	Department of Commerce	2
10	UBAOE021	Export- Import Documentation and Procedures	Department of Management	2
11	UAROE021	Tourism & Travel Management	Department of Social Sciences	2
12	UAROE022	Language Analytics	Department of Social Sciences	2
13	UBTOE021	Basics in Bioinformatics	Department of Bio Technology	2
Open Elective III				
1	UAEOE031	Unmanned Aerial Vehicle	Department of Aerospace Engg.	2
2	UAIOE031	Introduction to Data Analytics	Department of AIML	2
3	UCEOE031	Disaster Management & Mitigation	Department of Civil Engg.	2
4	UCSOE031	Fundamental of C Programming	Department of Comp. Sc. & Engg.	2
5	UECOE031	Automotive Electronics	Department of Elect. & Comm. Engg.	2
6	UCAOE032	Data Visualization Techniques using Tableau	School of Computer Applications	2
7	UCHOE031	Green Chemistry & Sustainability	School of Physical & Chemical Sciences	2
8	UFSOE032	Basics of Food Adulteration	Department of Food Science & Technology	2
9	UDCOE031	Personal Financial Planning	Department of Commerce	2
10	UBAOE031	Event Management	Department of Management	2
11	UAROE031	English for Competitive Examinations	Department of Social Sciences	2
12	UAIOE032	Agentic AI	Department of AIML	2
13	UBTOE031	Microbial World and Its Applications	Department of Bio Technology	2

Note: For details of Syllabus, Teaching and Evaluation scheme, please refer to the structure and syllabus of respective departments.

For B. Sc. Programs

MDM Track: Biotechnology for Health Industry

Course code	Course name	Credits
UBTMM011	Basics in Biotechnology	2
UBTMM021	Biotechnology in Food and Nutritional Sciences	3
UBTMM022	Biotechnology in Food and Nutritional Sciences Lab	1
UBTMM033	Biotechnology in Healthcare	2
UBTMM032	Biotechnology in Healthcare Lab	1
UBTMM043	Industrial Biotechnology	2
UBTMM042	Industrial Biotechnology Lab	1
	Total	**12**

MDM Track: Translational Biotechnology

Course code	Course name	Credits
UBTMM012	Biomolecules & Cellular Systems	2
UBTMM013	Biomolecules & Cell Biology Lab	1
UBTMM023	Immunology, Diagnostics & Clinical Applications	2
UBTMM024	Immunology & Clinical Techniques Lab	1
UBTMM034	Microbial Science & Industrial Applications	2
UBTMM035	Microbiology & Fermentation Lab	1
UBTMM044	Bioanalytical Techniques & Bioinformatics	2
UBTMM045	Analytical & Bioinformatics Lab	1
	Total	**12**

MDM Track: Data Science and Analytics

Course code	Course name	Credits
UCAMM021	Statistical Computing	2
UCAMM027	Statistical Computing Lab	1
UCAMM031	Python for Data Science	2
UCAMM037	Python for Data Science Lab	1
UCAMM041	Foundation Skills of Machine Learning	2
UCAMM047	Foundation Skills of Machine Learning Lab	1
UCAMM051	Predictive Modelling and Analytics	2
UCAMM051	Predictive Modelling and Analytics Lab	1
	Total	**12**

MDM Track: Food Science and Technology

Course code	Course name	Credits
UFSMM012	Fundamentals of Food Science	2
UFSMM013	Fundamentals of Food Science Lab	1
UFSMM023	Processing of Fruits and Vegetables	2
UFSMM024	Processing of Fruits and Vegetables Lab	1
UFSMM033	Basics in Dairy Sciences	2
UFSMM034	Basics in Dairy Sciences Lab	1
UFSMM043	Fundamentals of Bakery Science	2
UFSMM044	Fundamentals of Bakery Science Lab	1
	Total	**12**