



**Karmaveer Bhaurao Patil University, Satara**  
**Faculty of Science & Technology**  
**B. Sc. (Drug Chemistry)**  
**Programme and Credit Structure as per NEP 2020**

{Ref. Government of Maharashtra letter no. एनइपी.२०२२/प्र.क.०९/विशि-३शिकानादिनांक: १३मार्च२०२४}  
The degree shall be titled as 'Bachelor of Science [Drug Chemistry) under the faculty of Science and  
Technology

**B. Sc. Sem. I & II from Academic Year 2024-25**  
**B. Sc. Sem.III & IV from Academic Year 2025-26**  
**B. Sc. Sem. V & VI from Academic Year 2026-27**  
**B. Sc.Sem. VII&VIII from Academic Year 2027-28**

**Programme Outcomes for B. Sc. (Drug Chemistry)**

<b>Programme Outcomes</b>	
<b>PO. No.</b>	<b>After completing B.Sc. (Drug Chemistry) Programme the students will be able to.....</b>
PO-1	Study the Classification of drugs.
PO-2	Recall amino acids and proteins.
PO-3	Develop skills in practical work, experiments, and laboratory materials.
PO-4	Detect functional group in given compounds.
PO-5	Gain Knowledge about mineral nutrition.
PO-6	Study fundamentals of Titration.
PO-7	Learn Chemical communication and human body.
PO-8	Analyze Drug absorption process.
PO-9	Examine drug metabolic pathways.
PO-10	Practice techniques for isolation and purification of organic solids.
PO-11	Explain the significance of partition coefficient in drug distribution.
PO-12	Understand the fundamental principles of enzyme structure and function.
PO-13	Investigate metabolic regulation.
PO-14	Enable the students to acquire knowledge of drugs and related subjects so as to apply them for the benefit of human beings.
<b>PSO. NO</b>	<b>Programme Specific Outcomes The student will be able to...</b>
PSO-1	Discuss and ask questions related to the different aspects of Drugs.
PSO-2	Perform experiments and projects related to Drug Chemistry.
PSO-3	Demonstrate drug metabolic process.
PSO-4	Evaluate the reaction efficiency and yield.
PSO-5	Understand the factors influencing drug stability.
PSO-6	Explain, describe and discuss the concepts of Toxicology.
PSO-7	Perform and design experiments related to purification of organic compounds.
PSO-8	Differentiate acidic and basic compounds.
PSO-9	Classify the amines.
PSO-10	Perform calculation to determine the amount of glycine present based on experimental data and stoichiometry.
PSO-11	Understand the applications of hygienic and antiseptic compounds in health care settings.
PSO-12	Extract oil from distillation methods.

### Semester, Credit Framework, NSQF Level and Exit Points

Sr. No.	Semester	Year	Year	Credits	Level	Exit Points & Award
1	Sem. I& II	2024-25	1Year	44	4.5	UG Certificate in Drug Chemistry
2	Sem.III& IV	2025-26	2Year	88	5.0	UG Diploma in Drug Chemistry
3	Sem. V &VI	2026-27	3Year	132	5.5	B. Sc. in Drug Chemistry (UG Three Year Degree)
4	Sem.VII& VIII	2027-28	4Year	176	6.0	B. Sc. in Drug Chemistry [Honors/Research] (UG Four Year Degree)

### Credit Distribution

Sr. No.	Course	3 Year Degree Programme			4 Year Honors Degree Programme			4 Year Honors with Research Degree Programme		
		Courses (3 Yr)	Credits (3 Yr)	%	Courses (4 Yr)	Credits (4 Yr)	%	Courses (4 Yr)	Credits (4 Yr)	%
1	Major	26	52	39.39	34	80	45.45	32	72	40.91
2	Elective	04	08	6.06	08	16	9.09	08	16	9.09
3	IKS	02	04	3.03	02	04	2.27	02	04	2.27
4	VSC	04	08	6.06	04	08	4.55	04	08	4.55
5	FP	01	02	1.52	01	02	1.14	01	02	1.14
6	OJT	01	04	3.03	02	08	4.55	01	04	2.27
7	RP	00	00	0.00	00	00	00	02	12	6.82
8	SEC	03	06	4.55	03	06	3.41	03	06	3.41
9	CEP	01	02	1.52	01	02	1.14	01	02	1.14
<b>Total ( Major) (A)</b>		<b>42</b>	<b>86</b>	<b>65.15</b>	<b>55</b>	<b>126</b>	<b>71.59</b>	<b>54</b>	<b>126</b>	<b>71.59</b>
1	Minor & RM	12	24	18.18	13	28	15.91	13	28	15.91
<b>Total (Minor) (B)</b>		<b>12</b>	<b>24</b>	<b>18.18</b>	<b>12</b>	<b>28</b>	<b>15.91</b>	<b>13</b>	<b>28</b>	<b>15.91</b>
1	OE	04	08	6.06	04	08	4.55	04	08	4.55
2	AEC	04	08	6.06	04	08	4.55	04	08	4.55
3	VEC	02	04	3.03	02	04	2.27	02	04	2.27
4	CC	01	02	1.52	01	02	1.14	01	02	1.14
<b>Total (C)</b>		<b>11</b>	<b>22</b>	<b>16.67</b>	<b>11</b>	<b>22</b>	<b>12.50</b>	<b>11</b>	<b>22</b>	<b>12.50</b>
<b>Grand Total (A+B+C)</b>		<b>65</b>	<b>132</b>	<b>100</b>	<b>79</b>	<b>176</b>	<b>100</b>	<b>78</b>	<b>176</b>	<b>100</b>

### Duration:

- The program shall be a full-time program.
- The duration of program shall be three years for Bachelor of Science and four years for Bachelor of Science with Honors or Bachelor of Science with Research.
- Every year students will have exist option with:
- (1<sup>st</sup> Year: Certificate, 2<sup>nd</sup> Year: Diploma, 3<sup>rd</sup> Year: Degree, 4<sup>th</sup> Year: Honors/ Research)
- These students are allowed to re-enter the degree program within three years and complete the degree program within the stipulated maximum period of Seven Years.

**Eligibility: 12<sup>th</sup> Pass with Science, or equivalent.**

**Medium of Instruction: The medium of instructions shall be in English.**

**Scheme of Examination & Standard of Passing (CCE and ESE):**

- End Semester Exam (ESE): 30 Marks (Min 12 Marks for Passing)
- Continuous Comprehensive Evaluation (CCE): 20 Marks (Min 08 Marks for Passing)
- Total Marks = 50 Marks
- Minimum 40% Marks Required for Passing and there is separate head of Passing for End Semester Examination (ESE) and Continuous Comprehensive Evaluation (CCE).

- Scheme of Examination & Standard of Passing for ESE and CCE:
- As per the decision of the concern Board of Studies or Competent Authority.
- A candidate who acquire 32 credits or more during semester – I & II shall be admitted to B. Sc. II (appear for semester–III & IV examination).
- However the candidate shall not be admitted to B.Sc. III (Semester-V) unless he/she passed in all the subjects at B.Sc. I (Semester-I & Semester- II) and acquire 32 credits or more during semester – III & IV.
- However the candidate shall not be admitted to B. Sc. IV (Semester-VII) unless he/she passed in all the subjects at B. Sc. III (Semester-V & Semester-VI).
- However under the National Education Policy the rules extended by KBP University, time to time regarding ATKKT will be applicable.

**Eligibility of the Core Faculty:**

- As per rules and regulations of Karmaveer Bhaurao Patil University, Satara and Govt. of Maharashtra.
- Eligibility for Professor of Practice or Professional Trainer:  
Any other eligibility as per the guidelines and regulations passed by concern board of studies, academic council of the autonomous college and rules & regulations of Karmaveer Bhaurao Patil University, Satara and Government of Maharashtra and UGC norms.



**Karmaveer Bhaurao Patil University, Satara**  
**Yashavantrao Chavan Institute of Science, Satara**  
 (An Autonomous College)

**B. Sc. (Drug Chemistry) Part-I**

<b>Semester I</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Course-I	BDCT 111	Introduction to Drug Chemistry (P-I)	02
2		BDCT 112	Fundamentals of Drug (P-II)	02
3		BDCP 113	Practical Based on BDCT 111 & BDCT 112 (Lab I)	02
4	Course-II	BDCT 114	Physical Chemistry (P-I)	02
5		BDCT 115	Inorganic Chemistry (P-II)	02
6		BDCP 116	Practical Based on BDCT 114 & BDCT 115 (Lab I)	02
7	Course-III	BDCT 117	Introduction to Instrumentation (P-I)	02
8		BDCT 118	Fundamentals of Instrumentation (P-II)	02
9		BDCP 119	Practical Based on BDCT 117 & BDCT 118 (Lab I)	02
10	OE	BDCTOE I	Indian Music Instruments	02
11	IKS	BDCTIKS I	Introduction to Indian Knowledge System	02
<b>Total</b>				<b>22</b>

**Semester II**

<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Course-I	BDCT 121	Introduction to Biochemistry (P-III)	02
2		BDCT 122	Analysis Techniques (P-IV)	02
3		BDCP 123	Practical Based on BDCT 121 & BDCT 122 (Lab-II)	02
4	Course-II	BDCT 124	Fundamental Organic Chemistry (P- III)	02
5		BDCT 125	Basic Analytical Chemistry (P-IV)	02
6		BDCP 126	Practical Based on BDCT 124 & BDCT 125 (Lab-II)	02
7	Course-III	BDCT 127	Fundamental Instrumentation for physics & chemistry (P- III)	02
8		BDCT 128	Fundamental Instrumentation for Electronics (P- IV)	02
9		BDCP 129	Practical Based on BDCT 127 & BDCT 128 (Lab-II)	02
10	OE	BDCTOE II	Music Studies P-II	02
11	VEC	BDCTIKS II	Democracy, Good Governance and Constitution of India	02
<b>Total</b>				<b>22</b>

**EXIT OPTION:** Award of UG Certificate in Major **with 44 credits** & an additional 4 credits core NSQF Course/Internship OR Continue with Major & Minor.

**B. Sc. (Drug Chemistry) Part-II**

<b>Semester III</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BDCT 231	Pharmacokinetics (P-V)	02
2		BDCT 232	Physicochemical Properties of Drugs (P-VI)	02

3		BDCP 233	Practical based on BDCT 231 & BDCT 232 (Lab-III)	02	
4	Minor	BDCT 234	Named Reactions and Reagents (P-V)	02	
5		BDCT 235	Inorganic Chemistry (P-VI)	02	
6		BDCP 236	Practical based on BDCT 234 & BDCT 235 (Lab-III)	02	
7	OE	BDCTOE III	Music Studies P-III	02	
8	VSC	BDCPVSC I	Synthesis of hygienic and antiseptic Compounds.	02	
9	SEC	BDCTSEC II	Purification techniques in Drug Chemistry.	02	
10	AEC	BDCTAEC I	English P-I	02	
11	IKS	BDCTIKS III	IKS P-III	02	
				<b>Total</b>	<b>22</b>

#### Semester IV

Sr. No.	Components	Course Code	Course	Credits	
1	Major	BDCT 241	Enzymes and metabolic processes (P-VII)	02	
2		BDCT 242	Spectroscopic Techniques (P-VIII)	02	
3		BDCP 243	Practical based on BDCT 241 & BDCT 242 (Lab-IV)	02	
4	Minor	BDCT 244	Organic Chemistry (P-VII, P-VIII, Lab-IV)	02	
5		BDCT 245	Analytical Chemistry (P-VIII)	02	
6		BDCP 246	Practical based on BDCT 241 & BDCT 242 (Lab-IV)	02	
7	OE	BDCTOE IV	Music Studies P-IV	02	
8	VSC	BDCPVSC II	Skin and hair care products.	02	
9	SEC	BDCTSEC III	Advanced Analytical Techniques.	02	
10	AEC	BDCTAEC II	English P-II	02	
11	VEC	BDCTVEC III	Role of values and ethics in Drug Chemistry.	02	
				<b>Total</b>	<b>22</b>

**EXIT OPTION: Award of UG Diploma in Major and Minor with 88 Credits & an additional 4 credits core NSQF Course/ Internship OR Continue with Major & Minor**

### B. Sc. (Drug Chemistry) Part-III

#### Semester V

Sr. No.	Components	Course Code	Course	Credits	
1	Major	BDCT 351	Drug Design and Early Development (P-IX)	02	
2	Major	BDCT 352	Reaction Mechanisms, Reagents and Name Reactions (P-X)	02	
3	Major	BDCT 353	Natural Product (P-XI)	02	
4	Electives	BDCT 354 E1	Industrial Pharmacy (P-XIIE1)	02	
		BDCT 354 E2	Analytical Chemistry (P-XIIE2)		
5	Major Lab	BDCT 355	Practical Based on BDCT 351 & BDCT 352, 353 (Lab V)	02	
6	Elective Lab	BDCT 356	Practical Based on BDCT 354 E1 & BDCT 354 E2, (Lab VI)	02	
7	VSC	BDCTPVSC III	Advanced Analytical Techniques	02	
8	AEC	BDCTAEC III	English P-III	02	
9	OJT	BDCTOJT I	On Job Training in Drug Chemistry I	04	
10	CEP	BDCTCEP I	Community Engagement Programme in Drug Chemistry	02	
				<b>Total</b>	<b>22</b>

#### Semester VI

Sr.	Components	Course Code	Course	Credits
1	Major	BDCT 361	Therapeutic areas & its drugs (P-XIII)	02
2	Major	BDCT 362	Heterocyclic Drugs (P-XIV)	02

3	Major	BDCT 363	Herbal Drug Technology (P-XV)	02
4	Electives	BDCT 364 E1	Industrial Chemistry (P-XVIE1)	02
		BDCT 364 E2	Industrial Chemistry (P-XVIE2)	
5	Major Lab	BDCT 365	Practical Based on BDCT 351 & BDCT 352, 353 (Lab V)	02
6	Elective Lab	BDCT 366	Practical Based on BDCT 354 E1 & BDCT 354 E2, (Lab VI)	02
7	VSC	BDCTPVSC IV	Basic Microscopy and Centrifugation	02
8	SEC	BDCTAEC IV	AI in Drug Chemistry	02
9	FP	BDCTFP I	Field Project in Drug Chemistry	02
10	CC	BDCTCEP I	Co-curricular Course in Drug Chemistry	02
11	AEC	BDCTAEC IV	English P-IV	02
			<b>Total</b>	<b>22</b>
<b>EXIT OPTION: Award of UG Degree in Major with 132 credits OR Continue with Major &amp; Minor.</b>				

### B. Sc. (Drug Chemistry) Part-IV Honors Degree

<b>Semester VII</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BDCT 471	Introduction to Microbiology (P-XVII)	04
2	Major	BDCT 472	Fundamental Organic Chemistry (P-XVIII)	04
3	Major	BDCT 473	Coordination Chemistry (P-XIX)	04
4	Electives	BDCT 474 E1	Basics of Physical Chemistry (P-XXE1)	02
		BDCT 474 E2	Analytical Techniques (P-XXE2)	
5	Major Lab	BDCP 475	Practical Based on BDCT 471, BDCT 472, BDCT 473 (Lab – VII)	02
6	Elective Lab	BDCP 476	Practical Based on BDCT 475 E1 & BDCT475 E2 (Lab - III)	02
7	Minor	BDCT 477	Research Methodology	04
			<b>Total</b>	<b>22</b>
<b>Semester VIII</b>				
<b>Sr.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BDCT 481	Immunology & Virology (P-XXI)	04
2	Major	BDCT 482	Reactive Intermediates and rearrangements (P-XXII)	04
3	Major	BDCT 483	Bio-inorganic Chemistry (P-XXIII)	04
4	Electives	BDCT 484 E1	Physicochemical theories and Equations (P-XXIVE1)	02
		BDCT 484 E2	Advanced Analytical Techniques (P-XXIVE2)	
5	Major Lab	BDCP 485	Practical Based on BDCT 481, BDCT 482, BDCT 483 (Lab – VIII)	02
6	Elective Lab	BDCP 486	Practical Based on BDCT 485 E1 & BDCT485 E2 (Lab - IV)	02
7	OJT	BDCTOJT 487	On Job Training in Drug Chemistry II	04
			<b>Total</b>	<b>22</b>
<b>Award of Four year UG Honors Degree in Major and Minor with 176 credits.</b>				

**B. Sc. (Drug Chemistry) Part-IV Honors with Research Degree**

<b>Semester VII</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BDCT 481	Introduction to Microbiology (P-XVII)	04
2	Major	BDCT 482	Fundamental Organic Chemistry (P-XVIII)	04
3	Electives	BDCT 483 E1	Basics of Physical Chemistry (P-XXE1)	04
		BDCT 483 E2	Analytical Techniques (P-XXE2)	
4	Major Lab	BDCP 484	Practical Based on BDCT 481, BDCT 482, (Lab – VIII)	02
5	Minor	BDCT 485	Research Methodology	04
6	RP	BDCP 486	Research Project in Drug Chemistry I	04
			<b>Total</b>	<b>22</b>
<b>Semester VIII</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BDCT 481	Immunology & Virology (P-XXI)	04
2	Major	BDCT 482	Reactive Intermediates and rearrangements (P-XXII)	04
3	Electives	BDCT 483 E1	Basics of Physical Chemistry (P-XXE1)	04
		BDCT 483 E2	Analytical Techniques (P-XXE2)	
4	Major Lab	BDCP 484	Lab – VIII	02
5	RP	BDCP 485	Research Project in Drug Chemistry II	08
			<b>Total</b>	<b>22</b>
<b>Award of Four year UG Honors Degree in Major and Minor with 176 credits.</b>				

Chairman  
BoS in Drug Chemistry

Secretary  
Academic Council

Chairman  
Academic Council