



Karmaveer Bhaurao Patil University, Satara
Faculty of Science and Technology

B. Sc. (Mathematics)

Programme and Credit Structure as per NEP 2020

{Ref. Government of Maharashtra letter no. 00000.0000/000.0.00/0000-000 00 00 000000: 00
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The degree shall be titled as 'Bachelor of Science (Mathematics) 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.

PO. No.	Programme Outcomes After completing B. Sc. Programme the students will be able to.....
PO-1	acquire a comprehensive understanding of the fundamental concepts, theories, and principles in the discipline.
PO-2	use critical thinking and reasoning to interpret data, identify patterns, and draw conclusions.
PO-3	engage in scientific inquiry and research, using appropriate methodologies to investigate questions and generate new knowledge
PO-4	gain proficiency in the use of modern tools, techniques, and technologies relevant to the scientific field
PO-5	develop the ability to effectively communicate scientific ideas and findings, both orally and in writing, to a variety of audiences.
PO-6	recognize the societal and environmental implications of scientific work and act responsibly.
PO-7	engage in interdisciplinary learning and research to address complex issues.
PO-8	foster a commitment to continuous learning and professional development
PO-9	develop the ability to work effectively in teams, contributing to collective goals while respecting diverse perspectives.
PO-10	gain an understanding of global issues and the role of science in addressing them.
PO-11	enhance the ability to think analytically, critically evaluate information, and solve complex problems.
PO-12	understand the impact of scientific activities on the environment and promote sustainability.
PSO. NO	Programme Specific Outcomes B. Sc. (Mathematics) The student will be able to...
PSO-1	gain a deep understanding of fundamental mathematical principles, theories, and methodologies.
PSO-2	apply mathematical concepts to solve complex problems in various fields such as engineering, physics, economics, and computer science.
PSO-3	develop strong analytical skills, enabling them to identify, formulate, and solve problems using mathematical reasoning.
PSO-4	approach problems logically and critically.
PSO-5	acquire proficiency in using mathematical software, programming languages, and computational tools.
PSO-6	create model, simulate, and analyze real-world problems effectively.
PSO-7	participate in research activities, fostering creativity and innovation.

PSO-8	utilize mathematical research methodologies and be capable of contributing to academic and industrial research projects.
PSO-9	develop the ability to communicate mathematical ideas effectively, both orally and in writing.
PSO-10	collaborate in interdisciplinary teams, combining mathematical knowledge with insights from other disciplines.
PSO-11	address societal challenges using mathematical approaches.
PSO-12	adapt to changing technologies and emerging fields that require mathematical expertise.

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 Mathematics
2	Sem. III & IV	2025-26	2Year	88	5.0	UG Diploma in Mathematics
3	Sem. V & VI	2026-27	3Year	132	5.5	B. Sc. in Mathematics (UG Three Year Degree)
4	Sem. VII & VIII	2027-28	4Year	176	6.0	B. Sc. in Mathematics [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
Total (Major) (A)		42	86	65.15	55	126	71.59	54	126	71.59
1	Minor & RM	12	24	18.18	13	28	15.91	13	28	15.91
Total (Minor) (B)		12	24	18.18	12	28	15.91	13	28	15.91
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
Total (C)		11	22	16.67	11	22	12.50	11	22	12.50
Grand Total (A+B+C)		65	132	100	79	176	100	78	176	100

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:
- (1st Year: Certificate, 2nd Year: Diploma, 3rd Year: Degree, 4th 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: 12th 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):(As per BOS)

- 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).
- 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. I, B. Sc. II and B.Sc. III.
- However under the National Education Policy the rules extended by KBP University, time to time regarding ATKT will be applicable.

Eligibility of the Core Faculty:(As per BOS)

- 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
Faculty of Science and Technology

B. Sc. (Mathematics) Part-I

Semester I				
Sr. No.	Components	Course Code	Course	Credits
1	Course-I	BMT 111	Calculus	02
		BMT 112	Differential Equations	02
		BMP 113	Practical Based on BMT 111 and BMT 112	02
2	Course-II	-	DSC I, DSC II, DSP I	06
3	Course-III	-	DSC I, DSC II, DSP I	06
4	OE	BMTOE 1	Creative Writing P-I	02
5	IKS	BMTIKS 1	Introduction to Indian Knowledge System	02
Total				22
Semester II				
Sr. No.	Components	Course Code	Course	Credits
1	Course-I	BMT 121	Differential Calculus	02
		BMT 122	Advanced Differential Equations	02
		BMP 123	Practical Based on BMT 121 and BMT 122	02
2	Course-II	-	DSC I, DSC II, DSP I	06
3	Course-III	-	DSC I, DSC II, DSP I	06
4	OE	BMTOE 2	Creative Writing P-II	02
5	VEC	BMTVEC 1	Democracy, Election and Indian Constitution	02
Total				22
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. (Mathematics) Part-II

Semester III				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BMT 231	Real Analysis	02
2	Major	BMT 232	Algebra	02
3	Major Lab III	BMP 233	Practical Based on BMT 231 and BMT 232	02
4	Minor	-	DSC V, DSC VI, DSP III	06
5	OE	BMTOE 3	Creative Writing P-III	02
6	VSC	BMTVSC 1	Data Analysis Using MATLAB	02
7	SEC	BMTSEC 1	Mathematical Computations using Advanced Excel	02
8	AEC	BMTAEC 1	English P-I	02
9	IKS	BMTIKS 2	Vedic Mathematics	02
Total				22
Semester IV				
Sr. No.	Components	Course Code	Course	Credits

1	Major	BMT 241	Advanced Real Analysis	02
2	Major	BMT 242	Advanced Algebra	02
3	Major Lab IV	BMP 243	Practical Based on BMT 241 and BMT 242	02
4	Minor	-	DSC VII, DSC VIII, DSP IV	06
5	OE	BMTOE 4	Creative Writing P-IV	02
6	VSC	BMTVSC 2	Mathematical Computations Using MATLAB	02
7	SEC	BMTSEC 2	Data Visualization using Python	02
8	AEC	BMTAEC 2	English P-II	02
9	VEC	BMTVEC 2	Environmental Studies	02
			Total	22
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. (Mathematics) Part-III

Semester V				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BMT 351	Mathematical Analysis (P-IX)	02
2	Major	BMT 352	Abstract Algebra (P-X)	02
3	Major	BMT 353	Optimization Techniques (P-XI)	02
4	Electives (Any one out of two)	BMT 354	Integral Transforms (P-XI E1)	02
		BMT 354	Numerical Methods I (P-XI E2)	02
5	Major Lab	BMP 355	Mathematics Practical Lab – V	02
6	Elective Lab	BMP 356	Mathematics Practical Elective Lab – I	02
7	VSC	BMPVSC 3	MATLAB- III P-III	02
8	AEC	BMPAEC 3	English P-III	02
9	OJT	BMPOJT 1	On Job Training in Mathematics I	04
10	CEP	BMTCEP 1	Community Engagement Programme in Mathematics P-I	02
			Total	22
Semester VI				
Sr.	Components	Course Code	Course	Credits
1	Major	BMT 361	Metric Spaces (P-XIII)	02
2	Major	BMT 362	Linear Algebra (P-XIV)	02
3	Major	BMT 363	Complex Analysis (P-XV)	02
4	Electives (Any one out of two)	BMT 364	Discrete Mathematics (P-XVIE1)	02
		BMT 364	Numerical Methods II (P-XVIE2)	02
5	Major Lab	BMP 365	Mathematics Practical Lab – VI	02
6	Elective Lab	BMP 366	Mathematics Practical Elective Lab – II	02
7	VSC	BMPVSC 4	MATLAB-IV P-IV	02
8	SEC	BMPSEC 3	R Software P-III	02
9	FP	BMPFP 1	Field Project in Mathematics	02
10	CC	BMTCC 1	Co-curricular Course in Mathematics P-I	02
11	AEC	BMTAEC 4	English P-IV	02
			Total	22
EXIT OPTION: Award of UG Degree in Major with 132 credits OR Continue with Major & Minor.				

B. Sc. (Mathematics) Part-IV Honors Degree

Semester VII				
Sr. No.	Components	Course Code	Course	Credits

1	Major	BMT 471	Linear Algebra (P-XVII)	04
2	Major	BMT 472	Advanced Calculus (P-XVIII)	04
3	Major	BMT 473	Real Analysis (P-XIX)	04
4	Electives (Any one out of two)	BMT 474	Classical Mechanics (P-XXE1)	02
		BMT 474	Graph Theory (P-XXE2)	02
5	Major Lab	BMP 475	Mathematical Practical Lab – VII	02
6	Elective Lab	BMP 476	Mathematics Practical Elective Lab – III	02
7	Minor	BMT 477	Research Methodology	04
			Total	22

Semester VIII

Sr.	Components	Course Code	Course	Credits
1	Major	BMT 481	Algebra (P-XXI)	04
2	Major	BMT 482	Topology (P-XXII)	04
3	Major	BMT 483	Complex Analysis (P-XXIII)	04
4	Electives (Any one out of two)	BMT 484	Differential Geometry (P-XXIVE1)	02
		BMT 484	Lattice Theory (P-XXIVE2)	02
5	Major Lab	BMP 485	Mathematics Practical Lab – VIII	02
6	Elective Lab	BMP 486	Mathematics Practical Elective Lab – IV	02
7	OJT	BMPOJT 2	On Job Training in Mathematics II	04
			Total	22

Award of Four year UG Honors Degree in Major and Minor with 176 credits.

B. Sc. (Mathematics) Part-IV Honors with Research Degree

Semester VII

Sr. No.	Components	Course Code	Course	Credits
1	Major	BMT 471	Linear Algebra (P-XVII)	04
2	Major	BMT 472	Advanced Calculus (P-XVIII)	04
3	Electives (Any one out of two)	BMT 473	Real Analysis (P-XIXE1)	04
		BMT 473	Classical Mechanics (P-XIXE2)	04
4	Major Lab	BMP 474	Mathematics Practical Lab – VII	02
5	Minor	BMT 475	Research Methodology	04
6	RP	BMPRP 1	Research Project in Mathematics I	04
			Total	22

Semester VIII

Sr. No.	Components	Course Code	Course	Credits
1	Major	BMT 481	Algebra (P-XX)	04
2	Major	BMT 482	Topology (P-XXI)	04
3	Electives (Any one out of two)	BMT 483	Complex Analysis (P-XXIII E1)	04
		BMT 483	Differential Geometry (P-XXIII E2)	04
4	Major Lab	BMP 484	Mathematics Practical Lab – VIII	02
5	RP	BMPRP 2	Research Project in Mathematics II	08
			Total	22

Award of Four year UG Honors Degree in Major and Minor with 176 credits.

Chairman
BoS in Mathematics

Secretary
Academic Council

Chairman
Academic Council