



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

{Ref. Government of Maharashtra letter no. ०००००.००००/०००.०.००/००००-००० ०० ००००००: ००
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The degree shall be titled as 'Bachelor of Science (Instrumentation science) 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. (Instrumentation Science)

PO. No.	Programme Outcomes After completing B. Sc. Programme the students will be able to.....
PO-1	graduate with proficiency in the subject.
PO-2	continue higher studies in his subject.
PO-3	pursue higher studies abroad.
PO-4	appear for the examinations for jobs in government organizations.
PO-5	appear for jobs with minimum eligibility as science graduate.
PO-6	appear for industrial jobs with minimum eligibility as graduate.
PSO. NO	Programme Specific Outcomes After completing B. Sc. (Instrumentation) Programme the students will be able to.....
PSO-1	understand the basics of Instrumentation.
PSO-2	learn, design and perform experiments in the labs to demonstrate the concepts, principles and theories learned in the classrooms.
PSO-3	develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental Instrumentation.
PSO-4	identify their area of interest in academic, research and development.
PSO-5	perform job in various fields like science, engineering, education, banking, business and public service, etc. or be an entrepreneur with precision, analytical mind, innovative thinking, clarity of thought, expression, and systematic approach.

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 Instrumentation
2	Sem. III & IV	2025-26	2Year	88	5.0	UG Diploma in Instrumentation
3	Sem. V & VI	2026-27	3Year	132	5.5	B. Sc. in Instrumentation (UG Three Year Degree)
4	Sem. VII & VIII	2027-28	4Year	176	6.0	B. Sc. in Instrumentation [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 the decision of the concern Board of Studies or Competent Authority):**
- 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, II, and III.
- 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
Faculty of Science and Technology

B. Sc. (Instrumentation) Part-I

Semester I				
Sr. No.	Components	Course Code	Course	Credits
1	Course-I	BIST 111	Fundamental of Instrumentation	02
		BIST 112	Application of Instrumentation	02
		BISP 113	Instrumentation Practical Course –I based on Fundamental of Instrumentation (BIST 111) and Application of Instrumentation (BIST 112)	02
2	Course-II	-	DSC I, DSC II, DSP I	06
3	Course-III	-	DSC I, DSC II, DSP I	06
4	OE	BPTOE1	Industrial Project Management P-I	02
5	IKS	BPTIKS 1	Introduction to Indian Knowledge System	02
Total				22
Semester II				
Sr. No.	Components	Course Code	Course	Credits
1	Course-I	BIST 121	Fundamental of Instrumentation for electronics	02
		BIST 122	Fundamental of Instrumentation for physics	02
		BISP 123	Instrumentation Practical Course –II based on Fundamental of Instrumentation for electronics (BIST121) and Fundamental of Instrumentation for physics (BIST 122)	02
2	Course-II	-	DSC III, DSC IV, DSP II	06
3	Course-III	-	DSC III, DSC IV, DSP II	06
4	OE	BISTOE2	Industrial Project Management P-II	02
5	VEC	BISTVEC1	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. (Instrumentation) Part-II

Semester III				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BIST 231	Instrumentation I (P-V)	02
2	Major	BIST 232	Instrumentation II (P-VI)	02
3	Major Lab-III	BISP 233	Practical Based on Paper V and Paper VI	02
4	Minor	-	DSC V, DSC VI, DSP III	06
5	OE	BISTOE3	Industrial Project Management P-III	02
6	VSC	BISPVSC 1	Vocational Skill Course in Basic Electronics Circuits-I	02
7	SEC	BISPSEC 1	Skill Enhancement Course	02
8	AEC	BISTAEC 1	English P-I	02
9	IKS	BISTIKS 2		02
Total				22
Semester IV				
Sr.	Components	Course Code	Course	Credits

No.				
1	Major	BIST 241	Instrumentation III (P-VII)	02
2	Major	BIST 242	Instrumentation IV (P- VIII)	02
3	Major Lab IV	BISP 243	Practical Based on Paper VII and Paper VIII	02
4	Minor	-	DSC VII, DSC VIII, DSP IV	06
5	OE	BISTOE 4	Industrial Project Management P-IV	02
6	VSC	BISPVSC 2	Instrumentation in home appliances	02
7	SEC	BISPSEC 2	Computational Skills in Instrumentation	02
8	AEC	BISTAEC 2	English P-II	02
9	VEC	BISTVEC 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. (Instrumentation) Part-III

Semester V				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BIST 351	Instrumentation V (P-IX)	02
2	Major	BIST 352	Instrumentation VI (P-X)	02
3	Major	BIST 353	Instrumentation VII (P-XI)	02
4	Electives (Any one out of two)	BIST 354	(P-XIIE1)	02
		BIST 354	(P-XIIE2)	02
5	Major Lab	BISP 355	Instrumentation Practical Lab – V	02
6	Elective Lab	BISP 356	Instrumentation Practical Elective Lab – I	02
7	VSC	BISPVSC 3	Vocational Skill Course in Basic Electronics Circuits-II	02
8	AEC	BISTAEC 3	English P-III	02
9	OJT	BISPOJT 1	On Job Training in Instrumentation I	04
10	CEP	BISTCEP 1	Community Engagement Programme in Instrumentation	02
			Total	22

Semester VI				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BIST 361	Instrumentation VIII(P-XIII)	02
2	Major	BIST 362	Instrumentation IX (P-XIV)	02
3	Major	BIST 363	Instrumentation X (P-XV)	02
4	Electives (Any one out of two)	BIST 364	(P-XVIE1)	02
		BIST 364	(P-XVIE2)	02
5	Major Lab	BISP 365	Instrumentation Practical Lab – VI	02
6	Elective Lab	BISP 366	Instrumentation Practical Elective Lab – II	02
7	VSC	BISPVSC 4	Vocational Skill Course in Applied Instrumentation -I	02
8	SEC	BISPSEC 3	AI in Instrumentation	02
9	FP	BISTFP 1	Field Project in Instrumentation	02
10	CC	BISTCC 1	Co-curricular Course in Instrumentation	02
11	AEC	BISTAEC 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. (Instrumentation) Part-IV Honors Degree

Semester VII				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BIST 471	Instrumentation XI (P-XVII)	04
2	Major	BIST 472	Instrumentation XII (P-XVIII)	04
3	Major	BIST 473	Instrumentation XIII(P-XIX)	04
4	Electives (Any one out of two)	BIST 474	(P-XXE1)	02
		BIST 474	(P-XXE2)	02
5	Major Lab	BISP 475	Instrumentation Practical Lab – VII	02
6	Elective Lab	BISP 476	Instrumentation Practical Elective Lab – III	02
7	Minor	BIST 477	Research Methodology	04
			Total	22
Semester VIII				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BIST 481	Instrumentation XIV (P-XXI)	04
2	Major	BIST 482	Instrumentation XV(P-XXII)	04
3	Major	BIST 483	Instrumentation XVI(P-XXIII)	04
4	Electives (Any one of two)	BIST 484	(P-XXIVE1)	02
		BIST 484	(P-XXIVE2)	02
5	Major Lab	BISP 485	Instrumentation Practical Lab – VIII	02
6	Elective Lab	BISP 486	Instrumentation Practical Elective Lab – IV	02
7	OJT	BISPOJT 2	On Job Training in Instrumentation II	04
			Total	22

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

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

Semester VII				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BIST 471	Instrumentation XVII(P-XVII)	04
2	Major	BIST 478	Instrumentation XVIII (P-XVIII)	04
3	Electives	BIST 474	(P-XIXE1)	04
			(P-XIXE2)	
4	Major Lab	BISP 475	Instrumentation Practical Lab – VII	02
5	Minor	BIST 477	Research Methodology	04
6	RP	BISPRP 1	Research Project in Instrumentation I	04
			Total	22
Semester VIII				
Sr. No.	Components	Course Code	Course	Credits
1	Major	BIST 481	Instrumentation XIX(P-XXI)	04
2	Major	BIST 482	Instrumentation XX (P-XXII)	04
3	Electives	BIST 484	(P-XXIIIIE1)	04
			(P-XXIIIIE2)	

4	Major Lab	BISP 485	Instrumentation Practical Lab – VIII	02
5	RP	BISPRP 2	Research Project in Instrumentation II	08
			Total	22
Award of Four year UG Honors Degree in Major and Minor with 176 credits.				

Chairman
BoS in Instrumentation

Secretary
Academic Council

Chairman
Academic Council