



**Karmaveer Bhaurao Patil University, Satara**  
**Faculty of Science and Technology**  
**B. Sc. (Electronics)**

**Programme and Credit Structure as per NEP 2020**

{Ref. Government of Maharashtra letter no. □□□□□.□□□□/□□□□.□.□□/□□□□-□□□□ □□ □□ □□□□□□: □□ □□□□□ □□□□□} The degree shall be titled as Bachelor of Science (Electronics) 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. (Electronics)**

<b>PO. No.</b>	<b>Programme Outcomes</b> <b>After completing B. Sc. Programme the students will be able to.....</b>
PO-1	Develop graduates with sound knowledge of fundamentals of Electronics is the basic objective of this course.
PO-2	Develop a scientific attitude among the students and to make the students open minded, critical, and curious.
PO-3	Develop skills in practical work and contribute towards advancing science and technology and make them ready for life- long learning process.
PO-4	Create graduates with sufficient capabilities in Electronics who can become researchers and developers to satisfy the needs of the core Electronics industry.
PO-5	Develop ability among students to formulate, analyze and solve real life problems faced in Electronics industry.
PO-6	Prepare students for graduate studies through competitive examinations, enabling them to reach higher echelons of excellence.
PO-7	To make the students aware of professional ethics of the Industry, and prepare them with basic soft skills essential for working in community and professional teams.
PO-8	Produce electronic professionals who can be directly employed or start his/her own work as Electronic circuit Designer, Electronics consultant, testing professional, Service engineer and even an entrepreneur in the electronic industry.
<b>PSO. NO</b>	<b>Programme Specific Outcomes</b> <b>The student will be able to.....</b>
PSO-1	Prepare students to excel in postgraduate programs or to succeed in industry/technical profession through global and comprehensive education.
PSO-2	Provide students with a solid foundation in scientific and quantitative electronics fundamentals required to solve technical problems and also to pursue higher studies.
PSO-3	Develop students with good technical and scientific breadth so as to comprehend, analyze, design and create novel products and solutions for real life problems.
PSO-4	Inculcate professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach and an ability in students to relate Science and engineering issues to broader social context.
PSO-5	Prepare student with an academic environment aware of excellence, leadership, written ethical codes and guidelines and the life-long learning needed for a successful professional career.
PSO-6	Design and implement products using the cutting- edge software and hardware tools.

PSO-7	Critically analyze their role in industry/technical professional.
PSO-8	Present their research findings in research conglomerations like conferences and in research journals in the form of publications.

### 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 Electronics
2	Sem. III & IV	2025-26	2Year	88	5.0	UG Diploma in Electronics
3	Sem. V & VI	2026-27	3Year	132	5.5	B. Sc. in Electronics (UG Three Year Degree)
4	Sem. VII & VIII	2027-28	4Year	176	6.0	B. Sc. in Electronics [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 ATKT 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. (Electronics) 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	BET 111	Fundamental of Electronics and Network Analysis	02
		BET 112	Digital Electronics-I	02
		BEP 113	Practical's based on theory paper BET 111 and BET 112	02
2	Course-II	-	DSC I, DSC II, DSP-I	06
3	Course-III	-	DSC I, DSC II, DSP-I	06
4	OE	BETOE 1	Industrial Project Management P-I	02
5	IKS	IKS 1	Introduction to Indian Knowledge System	02
<b>Total</b>				<b>22</b>
<b>Semester II</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Course-I	BET 121	Semiconductor Devices	02
		BET 122	Digital Electronics-II	02
		BEP 123	Practical's based on theory paper BET 121 and BET 122	02
2	Course-II	-	DSC III, DSC IV, DSP-II	06
3	Course-III	-	DSC III, DSC IV, DSP-II	06
4	OE	BETOE 2	Industrial Project Management P-II	02
5	VEC	BETVEC 1	Democracy, Election and Constitution of India	02
<b>Total</b>				<b>22</b>
<b>EXIT OPTION:</b> Award of UG Certificate in Major <b>with 44 credits</b> & an additional 4 credits core NSQF Course/Internship OR Continue with Major & Minor.				

**B. Sc. (Electronics) 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	BET 231	Fundamental of Analog Circuit Design	02
	Major	BET 232	Computer Organization and 8085 Microprocessor	02
	Major Lab	BEP 233	Fundamental of Analog Circuit Design & Computer Organization and 8085 Microprocessor Lab-III	02
2	Minor	-	DSC-V, DSC-VI, DSP-III	06
3	OE	BETOE3	Industrial Project Management P-III	02
4	VSC	BETVSC1	Technical Writing, Documentation and Presentation Skills for Electronics	02
5	SEC	BETSEC1	Scientific Programming Skills for Electronics	02
6	AEC	BETAEC1	English P-I	02
7	IKS	BETIKS2	Indian Knowledge System	02
<b>Total</b>				<b>22</b>

<b>Semester IV</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BET 241	Operational Amplifier and its applications	02
	Major	BET 242	Fundamentals of 8051 Microcontroller	02
	Major Lab IV	BEP 243	Operational Amplifier and its applications & Fundamentals of 8051 Microcontroller Lab-IV	02
2	Minor	-	DSC VII, DSC-VIII, DSP-IV	06
	OE	BETOE4	Industrial Project Management P-IV	02
4	VSC	BEPVSC2	Advanced Digital Tactics for Electronics Enterprises	02
5	SEC	BEPSEC2	Advanced Scientific Programming Skills for Electronics	02
6	AEC	BETAEC2	English P-II	02
7	VEC	BETVEC2	Electronics for Environmental Awareness	02
<b>Total</b>				<b>22</b>
<b>EXIT OPTION: Award of UG Diploma in Major and Minor with 88 Credits &amp; an additional 4 credits core NSQF Course/ Internship OR Continue with Major &amp; Minor</b>				

### **B. Sc. (Electronics)) Part-III**

<b>Semester V</b>				
<b>Sr. No.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BET351	Power Electronics Devices and Applications	02
2	Major	BET352	Digital logic design using HDL	02
3	Major	BET353	8051 Microcontroller Interfacing and Application	02
4	Elective	BET354	Optoelectronics and IoT OR Mechatronics	02
5	Major Lab	BEP355	Lab – V	02
6	Elective Lab	BEP356	Lab - I	02
7	VSC	BEPVSC3	Basic Python programming skill for Electronics	02
8	AEC	BETAEC3	English P-III	02
9	OJT	BETOJT1	On Job Training in Electronics I	04
10	CEP	BETCEP1	Community Engagement Programme in Electronics	02
<b>Total</b>				<b>22</b>
<b>Semester VI</b>				
<b>Sr.</b>	<b>Components</b>	<b>Course Code</b>	<b>Course</b>	<b>Credits</b>
1	Major	BET361	Electronic Instrumentation	02
2	Major	BET362	Antennas and Wave Propagation	02
3	Major	BET363	Advanced Microcontroller: PIC	02
4	Elective	BET364	Industrial Process Control and PLC Programming OR Robotics	02
5	Major Lab	BEP365	Lab - VI	02
6	Elective Lab	BEP366	Lab - II	02
7	VSC	BEPVSC4	Advanced Python programming skill for Electronics	02
8	SEC	BEPSEC3	Additive Manufacturing	02
9	FP	BETFP1	Field Project in Electronics	02
10	CC	BETCC1	Co-curricular Course in Electronics	02
11	AEC	BETAEC4	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;</b>				

**Minor.****B. Sc. (Electronics) Part-IV Honors Degree****Semester VII**

Sr. No.	Components	Course Code	Course	Credits
1	Major	BET471	Foundation of Semiconductor Devices	04
2	Major	BET472	Measurement Techniques	04
3	Major	BET473	Computer Organization	04
4	Electives (Any one out of two)	BET474	Advanced Digital System Design – E-I or Advances in Digital Communication – E-II	02
5	Major Lab	BEP475	LAB VII	02
6	Elective Lab	BEP476	LAB III	02
7	Minor	BET477	Research Methodology	04
			<b>Total</b>	<b>22</b>

**Semester VIII**

Sr.	Components	Course Code	Course (Subject)	Credits
1	Major	BET481	Power Electronics	04
2	Major	BET482	Applied Electromagnetics and Microwaves	04
3	Major	BET483	8-bit Microcontrollers and Applications	04
5	Electives (Any one out of two)	BEP484	HDL and MOS Technology – E-I or Computer Networks – E-II	02
4	Major Lab	BEP485	LAB VIII	02
6	Elective Lab	BEP486	LAB IV	02
7	OJT	BETOJT2	On Job Training in Electronics II	04
			<b>Total</b>	<b>22</b>

**Award of Four year UG Honors Degree in Major and Minor with 176 credits.****B. Sc. (Electronics) Part-IV Honors with Research Degree****Semester VII**

Sr. No.	Components	Course Code	Course	Credits
1	Major	BET471	Foundation of Semiconductor Devices	04
2	Major	BET473	Computer Organization	04
3	Minor	BET474	Advanced Digital System Design – E-I or Advances in Digital Communication – E-II	04
4	Major Lab	BEP475	LAB VII	02
5	Minor	BET477	Research Methodology	04
6	RP	BETRP1	Research Project in Electronics	04
			<b>Total</b>	<b>22</b>

**Semester VIII**

Sr. No.	Components	Course Code	Course	Credits
1	Major	BET482	Applied Electromagnetics and Microwaves	04
2	Major	BET483	8-bit Microcontrollers and Applications	04
3	Electives	BEP484	HDL and MOS Technology – E-I or Computer Networks – E-II	04
4	Major Lab	BEP485	LAB VIII	02

5	RP	BETRP2	Research Project in Electronics 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 Electronics

Secretary  
Academic Council

Chairman  
Academic Council