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

{Ref. Government of Maharashtra letter no. संकीर्ण.२०२४/प्र.क्र.७०/सगंवी-४०५ या या या दिनांकः २१ ऑक्टोबर २०२४}

The degree shall be titled as 'Bachelor of Science [Botany) 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. (Computer Science (Entire)

PO. No.	Programme Outcomes After completing B. Sc. (Computer Science (Entire)) Programme the students will be able to……….
PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis, and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8.	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10.	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in

	independent and life-long learning in the broadest context of technological change.
PSO. NO	**Programme Specific Outcomes** **The student will be able to…**
PSO-1	Core Engineering Skills: Exhibit fundamental concepts of Data Structures, Databases, Operating Systems, Computer networks, Theory of Computation, Advanced Programming, and Software Engineering.
PSO-2	Standard Software Engineering practices: Demonstrate an ability to design, develop, test, debug, deploy, analyze, troubleshoot, maintain, manage and secure software.
PSO-3	Future Endeavors: Recognize the need to have knowledge of higher education institutions/ organizations/ companies related to computer science & engineering.
PSO-4	The ability to understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics and networking for efficient design of computer based systems of varying complexity.
PSO-5	The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur and a zest for higher studies/employability in the field of Computer Science & Engineering.
PSO-6	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PSO-7	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural science and engineering sciences.
PSO-8	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.
PSO-9	Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PSO-10	create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations

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 Computer Science (Entire)
2	Sem. III & IV	2025-26	2Year	88	5.0	UG Diploma in Computer Science (Entire)
3	Sem. V &VI	2026-27	3Year	132	5.5	B. Sc. in Computer Science (Entire)(UG Three Year Degree)
4	Sem. VII & VIII	2027-28	4Year	176	6.0	B. Sc. in Computer Science(Entire) [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):

- 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.

B. Sc. (Computer Science (Entire)) Part-I

Semester I

Sr. No.	Components	Course	Credits
1	Course-I	C Programming I, Data Base Management System (DBMS) & Lab-I	06
2	Course-II	Computational Mathematics I, Computational Statistics I & Lab-II	06
3	Course-III	Computational Electronics I, Computational Electronics II & Lab-III	06
4	OE	Defense Studies-I	02
5	IKS	Introduction to Indian Knowledge System	02
		Total	**22**

Semester II

Sr. No.	Components	Course	Credits
1	Course-I	C Programming II, Relational Data Base Management System (RDBMS) & Lab-IV	06
2	Course-II	Computational Mathematics II , Computational Statistics II &Lab-V	06
3	Course-III	Computational Electronics III , Computational Electronics IV & Lab-VI	06
4	OE	Defense Studies-II	02
5	VEC	Democracy, Good Governance and Constitution of India	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. (Computer Science (Entire)) Part-II

Semester III

Sr. No.	Components	Course	Credits
1	Major	Data Structure using C Cloud Computing Lab -VII	06
2	Minor	Data Base concepts using Mongo DB, Software Engineering lab- VIII	06
3	OE	Defense Studies-III	02
4	VSC	Web Multimedia I	02
5	SEC	Operating System Concepts	02
6	AEC	English P-I	02
7	IKS	History Of Computers in India	02
		Total	**22**

Semester IV

Sr. No.	Components	Course	Credits
1	Major	C++ Programming I, Cyber Security Concepts Lab IX	06
2	Minor	Java Script Concepts, Software Project management & Lab-X	06
3	OE	Defense Studies-IV	02
4	VSC	Web Multimedia II	02
5	SEC	Linux OS	02
6	AEC	English P-II	02
7	VEC	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. (Computer Science (Entire)) Part-III

Semester V

Sr. No.	Components	Course	Credits
1	Major	Core Java	02
2	Major	C# Programming I	02
3	Major	PHP Programming I	02
4	Electives	Fundamentals of Data Science / Fundamental Mobile Technology	02
5	Major Lab	Lab - XI	02
6	Elective Lab	Lab - I	02
7	VSC	Computer Networks	02
8	AEC	English P-III	02
9	OJT	On Job Training in Computer Science I	04
10	CEP	Community Engagement Programme in Computer Science	02
		Total	**22**

Semester VI

Sr.	Components	Course	Credits
1	Major	Advanced Java	02
2	Major	C# Programming II	02
3	Major	PHP Programming II	02
4	Electives	IoT using Data Science / Advanced Mobile Technology	02
5	Major Lab	Lab - XII	02
6	Elective Lab	Lab - II	02
7	VSC	E-Commerce	02
8	SEC	Augmented Reality & Virtual Reality	02
9	FP	Field Project in Computer Science	02
10	CC	Co-curricular Course in Computer Science	02
11	AEC	English P-IV	02
		Total	**22**

EXIT OPTION: Award of UG Degree in Major with 132 credits OR Continue with Major & Minor.

B. Sc. (Computer Science (Entire)) Part-IV Honors Degree

Semester VII

Sr. No.	Components	Course	Credits
1	Major	Spring Boot I	04
2	Major	Laravel Framework I	04
3	Major	Python Programming	04
4	Electives	Machine learning I / React JS	02
5	Major Lab	Lab – XIII	02
6	Elective Lab	Lab - III	02
7	Minor	Research Methodology	04
		Total	**22**

Semester VIII

Sr.	Components	Course	Credits
1	Major	Spring Boot II	04
2	Major	Laravel Framework II	04
3	Major	Django Framework	04
4	Electives	Machine learning II / Next JS	02
5	Major Lab	Lab – XIV	02
6	Elective Lab	Lab - IV	02
7	OJT	On Job Training in Computer Science II	04
		Total	**22**

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

B. Sc. (Computer Science (Entire)) Part-IV Honors with Research Degree

Semester VII

Sr. No.	Components	Course	Credits
1	Major	Computer Science (P-XVII)	04
2	Major	Computer Science(P-XVIII)	04
3	Electives	Computer Science (P-XIXE1)/Computer Science (P-XIXE2)	04
4	Major Lab	Lab – VII	02
5	Minor	Research Methodology	04
6	RP	Research Project in Computer Science I	04
		Total	**22**

Semester VIII

Sr.	Components	Course	Credits
Sr. No.	Components	Course	Credits
1	Major	Computer Science (P-XX)	04
2	Major	Computer Science P-XXI)	04
3	Electives	Computer Science(P-XXIIE1)/Computer Science(P-XXIIE2)	04
4	Major Lab	Lab – VIII	02
5	RP	Research Project in Computer Science II	08
		Total	**22**

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

Chairman	Secretary	Chairman
BoS in Computer Science	Academic Council	Academic Council