



# **Savitribai Phule Pune University**

*(Formerly University of Pune)*

**Three Year B.Sc. Degree Program in Computer Science**

**(Faculty of Science & Technology)**

**F.Y.B.Sc. (Computer Science)**

**Choice Based Credit System Syllabus**

**To be implemented from Academic Year 2019-2020**

## **Title of the Course: B. Sc. (Computer Science)**

### **Preamble:**

The B. Sc. (Computer Science) course is systematically designed three year degree program under the faculty of Science and Technology. The objective of the course is to prepare students to undertake careers involving problem solving using computer science and technologies, or to pursue advanced studies and research in computer science. The syllabus which comprises of Computer Science subject along with that of the three allied subjects (Mathematics, Electronics and Statistics) covers the foundational aspects of computing sciences and also develops the requisite professional skills and problem solving abilities using computing sciences.

### **Introduction:**

At the first year of under-graduation, the basic foundations of two important skills required for software development are laid. A course in problem solving and programming along with a course in database fundamentals forms the preliminary skill set for solving computational problems. The practical courses are designed to supplement the theoretical training in the year. Along with Computer Science, the two theoretical and one practical course each in Statistics, Mathematics and Electronics help in building a strong foundation. Career Advancement courses are introduced in both semesters to cover additional areas of Computer Science.

At the second year of under-graduation, computational problem solving skills are further strengthened by a course in Data structures. Software engineering concepts that are required for project design are also introduced. Essential concepts of computer networking are also introduced in this year. The practical course included in both semesters complements the theory courses.

At the third year of under-graduation, all the subjects are designed to fulfill core Computer Science requirements as well as meet the needs of the software industry. Theory courses are adequately supplemented by hands-on practical courses. Skill Enhancement courses enable the students to acquire additional value-added skills.

### **Objectives:**

- To develop problem solving abilities using a computer.
- To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.
- To train students in professional skills related to Software Industry.
- To prepare necessary knowledge base for research and development in Computer Science.
- To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.

**Titles of Papers, Credit Allocation and Scheme of Evaluation****Semester I (Total credits=22)**

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
CC-I	CS-111	Problem Solving using Computer and 'C' Programming	2		15	35	50
	CS-112	Database Management Systems	2		15	35	50
	CS-113	Practical course based on CS101 and CS102		1.5	15	35	50
CC-II*		Mathematics – I, II and III					
CC-III*		Electronics – I,II and III					
CC-IV*		Statistics – I, II and III					

**Semester II (Total credits=22)**

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
CC-V	CS-121	Advanced 'C' Programming	2		15	35	50
	CS-122	Relational Database Management Systems	2		15	35	50
	CS-123	Practical course based on CS201 and CS202		1.5	15	35	50
CC-VI*		Mathematics – I,II and III					
CC-VII*		Electronics – I, II and III					
CC-VIII*		Statistics – I,II and III					



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**S.Y.B.Sc. (Computer Science)**

**Choice Based Credit System Syllabus  
To be implemented from Academic Year  
2020-2021**

**S. Y. B. Sc.( Computer Science)****Semester III**  
*(Total credits=22)*

Course type	Paper Code	Paper title	Credits	Evaluation		
				CA	UE	TOTAL
CC-VIII	CS 231	Data Structures and Algorithms – I	2	15	35	50
	CS 232	Software Engineering	2	15	35	50
	CS 233	Practical course on CS 231 and CS 232	2	15	35	50
CC-IX		Mathematics - I	2	15	35	50
		Mathematics - II	2	15	35	50
		Practical course in Mathematics	2	15	35	50
CC-X		Electronics - I	2	15	35	50
		Electronics - II	2	15	35	50
		Practical course in Electronics	2	15	35	50
AECC-I		Environment Science – I	2			
AECC-II		Language Communication – I	2			

**Semester IV*****(Total credits=22)***

Course type	Paper Code	Paper title	Credits	Evaluation		
				CA	UE	TOTAL
CC-XI	CS 241	Data Structures and Algorithms – II	2	15	35	50
	CS 242	Computer Networks - I	2	15	35	50
	CS 243	Practical course on CS 241 and CS 242	2	15	35	50
CC-XII		Mathematics - I	2	15	35	50
		Mathematics - II	2	15	35	50
		Practical course in Mathematics	2	15	35	50
CC-XIII		Electronics - I	2	15	35	50
		Electronics - II	2	15	35	50
		Practical course in Electronics	2	15	35	50
AECC-I		Environment Science – II	2			
AECC-II		Language Communication –II	2			

- Each theory Lecture time for S.Y. B.Sc Computer Science is of 50 min (3 lectures/ week for 2 credit course)
- Each practical session time for S.Y. B.Sc Computer Science is of 4 hrs 20 minutes (260 min)
- Practical batch size =12



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## **T.Y.B.Sc. (Computer Science)**

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To be implemented from Academic Year 2021 – 2022

**Course Structure T.Y.B.Sc. (Computer Science)**

**Semester V (Total credits=22)**

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
DSEC - I	CS-351	Operating Systems – I	2		15	35	50
	CS-352	Computer Networks – II	2		15	35	50
	CS-357	Practical course based on CS 351		2	15	35	50
DSEC - II	CS-353	Web Technologies – I	2		15	35	50
	CS-354	Foundations of Data Science	2		15	35	50
	CS-358	Practical course based on CS 353 and CS 354		2	15	35	50
DSEC - III	CS-355	Object Oriented Programming using Java - I	2		15	35	50
	CS-356	Theoretical Computer Science	2		15	35	50
	CS-359	Practical Course based on CS 355		2	15	35	50
SECC - I	CS-3510	Python Programming	2	0	15	35	50
SECC - II	CS-3511	Blockchain Technology	2	0	15	35	50

**Semester VI (Total credits=22)**

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
DSEC - I	CS-361	Operating Systems – II	2		15	35	50
	CS-362	Software Testing	2		15	35	50
	CS-367	Practical course based on CS 361		2	15	35	50
DSEC - II	CS-363	Web Technologies – II	2		15	35	50
	CS-364	Data Analytics	2		15	35	50
	CS-368	Practical course based on CS 363 and CS 364		2	15	35	50
DSEC - III	CS-365	Object Oriented Programming using Java - II	2		15	35	50
	CS-366	Compiler Construction	2		15	35	50
	CS-369	Practical Course based on CS 365		2	15	35	50
SECC - III	CS-3610	Software Testing Tools	2	0	15	35	50
SECC - IV	CS-3611	Project	2	0	15	35	50