

**Faculty of Science and Technology
Savitribai Phule Pune University
Maharashtra, India**



<http://unipune.ac.in>

**Proposed Structure for
Bachelor of Engineering
in
Artificial Intelligence and Data Science
(2020 Course)
(with effect from A.Y. 2020-21)**

Savitribai Phule Pune University
Second Year of Artificial Intelligence and Data Science (2020 Course)
(With effect from Academic Year 2020-21)

Semester-III

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme				
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total	
	Discrete Mathematics	03	-	-	30	70	-	-	-	100	03	--	-	03	
	Data Structures & Algorithms	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Object Oriented Programming (OOP)	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Computer Graphics & Computer Vision	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Operating Systems	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Data Structures & Algorithms Laboratory	-	04	-	-	-	25	25	-	75	-	02	-	02	
	Computer Graphics Laboratory & Computer Vision	-	04	-	-	-	25	25	-	50	-	02	-	02	
	Operating Systems Laboratory	-	02	-	-	-	25	25	-	25	-	01	-	01	
	Business Communication Skills	-	02	-	-	-	25	-	-	25	-	01	-	01	
	Humanity and Social Science	-	-	01	-	-	25	-	-	25	-	-	01	01	
	Audit Course 3														
Total Credit											15	06	01	22	
Total		15	12	01	150	350	125	75	-	700	-	-	-	-	

Semester-IV

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme				
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total	
	Statistics	03	-	-	30	70	-	-	-	100	03	--	-	03	
	Internet of Things	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Software Engineering	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Database Management System	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Management Information System	03	-	-	30	70	-	-	-	100	03	-	-	03	
	Internet of Things Laboratory	-	04	-	-	-	50	25	-	50	-	02	-	02	
	DBMS Laboratory	-	04	-	-	-	25	25	-	50	-	02	-	02	
	Project Based Learning II	-	04	-	-	-	50	-	-	50	-	02	-	02	
	Code of Conduct	-	-	01	-	-	25	-	-	25	-	-	01	01	
	Audit Course 4														
Total Credit											15	06	01	22	
Total		15	10	02	150	350	150	50	-	700	-	-	-	-	

Savitribai Phule Pune University
Third Year of Artificial Intelligence and Data Science (2020 Course)
(With effect from Academic Year 2020-21)

Semester-V

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
	<u>Data Science</u>	03	-	-	30	70	-	-	-	100	03	--	-	03
	<u>Computer Networks</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Artificial Intelligence</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Cyber security</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Elective I</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	Software Laboratory I (Data Science & AI)	-	04	-	-	-	25	25	-	50	-	02	-	02
	<u>CN Laboratory</u>	-	02	-	-	-	25	25	-	50	-	01	-	01
	<u>Elective I Laboratory</u>	-	02	-	-	-	25	-	25	50	-	01	-	01
	<u>Seminar I</u>	-	-	01	-	-	25	-	-	25	-	-	01	01
	<u>Environmental Studies</u>	-	-	01	-	-	25	-	-	25	-	-	01	01
	Total	15	08	02	150	350	125	50	25	700	15	04	02	21
	Audit Course 5													
Total Credit											15	06	01	21
Total		15	12	01	150	350	125	50	25	700	-	-	-	-

Semester-VI

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral/Presentation	Total	Lecture	Practical	Tutorial	Total
	<u>Data Warehousing & Mining</u>	03	-	-	30	70	-	-	-	100	03	--	-	03
	<u>Web Technology</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Neural Networks & Fuzzy Logic</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Elective II</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Software Laboratory II (Neural Networks & Fuzzy Logic and Web Technology)</u>	-	04	-	-	-	50	25	-	75	-	02	-	02
	<u>Software Lab III (DWM & Elective II)</u>	-	04	-	-	-	50	25	-	75	-	02	-	02
	<u>Internship</u>	-	08	-	-	-	50	-	50	100	-	04	-	04
	<u>Seminar II</u>	-	-	01	-	-	25	-	25	50	-	-	01	01
	Total	12	18	01	120	280	175	50	75	700	12	08	01	21
	Audit Course 6													
Total Credit											12	08	01	21

Savitribai Phule Pune University
Forth Year of Artificial Intelligence and Data Science (2020 Course)
(With effect from Academic Year 2020-21)

Semester-VII

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral/Presentation	Total	Lecture	Practical	Tutorial	Total
	<u>Machine Learning</u>	03	-	-	30	70	-	-	-	100	03	--	-	03
	<u>Data Modeling & Visualization</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Elective III</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Elective IV</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Computer Laboratory I</u>	-	04	-	-	-	50	25	-	75	-	02	-	02
	<u>Computer Laboratory II</u>	-	04	-	-	-	50	25	-	75	-	02	-	02
	<u>Project Stage I</u>	-	04	-	-	-	50	-	50	100	-	02	-	02
	<u>MOOC</u>			02			50			50			02	02
	<u>Total</u>	12	12	02	120	280	200	50	50	700	12	06	02	20
	<u>Audit Course 7</u>													
Total Credit											12	06	02	20

Semester-VIII

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral/Presentation	Total	Lecture	Practical	Tutorial	Total
	<u>Computational Intelligence</u>	03	-	-	30	70	-	-	-	100	03	--	-	03
	<u>Distributed Computing</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Elective V</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Elective VI</u>	03	-	-	30	70	-	-	-	100	03	-	-	03
	<u>Computer Laboratory III</u>	-	02	-	-	-	50	25	-	75	-	01	-	01
	<u>Computer Laboratory IV</u>	-	02	-	-	-	50	25	-	75	-	01	-	01
	<u>Project II</u>	-	12	-	-	-	100	-	50	150	-	06	-	06
	<u>Total</u>	12	16	-	120	280	200	50	50	700	12	08		20
	<u>Audit Course 8</u>													
Total Credit											15	05	02	20

Electives					
Elective I	Elective II	Elective III	Elective IV	Elective V	Elective VI
Human Computer Interface	Robotics and Automation	Quantum AI	GPU Programming and Architecture	Virtual & Augmented Reality	Virtual Reality in Game Development
IOT & Embedded Systems	IOT & Embedded Systems Security	Cloud Computing	Deep Learning	Information Retrieval	Business Intelligence
Software Modeling and Design	Software Architecture	Enterprise Architecture and Components	Design Thinking	Software Testing and Quality Assurance	Information Systems Management
Pattern Recognition	Natural Language Processing	Bioinformatics	Bio Inspired Algorithms	Open Elective	Open Elective
Audit Courses					
Audit Course 3	Audit Course 4	Audit Course 5	Audit Course 6	Audit Course 7	Audit Course 8
Road Safety	Water Management	Emotional Intelligence	Digital and Social Media Marketing	Block Chain	Usability Engineering
Engineering Economics	Intellectual Property Rights	Industrial Safety and Environment Consciousness	Sustainable Energy Systems	Entrepreneurship Development	Conversational Interfaces
Smart Cities	The Science of Happiness	3D Printing	Leadership and Personality Development	Botnet of Things	Social Media and Analytics
Foreign Language	Foreign Language	Foreign Language	Foreign Language	Foreign Language	Foreign Language
MOOC- Learn New Skills	MOOC- Learn New Skills	MOOC- Learn New Skills	MOOC- Learn New Skills	MOOC- Learn New Skills	MOOC- Learn New Skills

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