

**SANJIVANI RURAL EDUCATION SOCIETY'S**  
**SANJIVANI COLLEGE OF ENGINEERING**  
**KOPARGAON**

*(An Autonomous Institute Affiliated to SPPU Pune)*



**DEPARTMENT OF INFORMATION**  
**TECHNOLOGY**  
**COURSE STRUCTURE - 2021 PATTERN**  
**B. TECH. IT**

**LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Full Form</b>	<b>Abbreviation</b>	<b>Full Form</b>
ES	Engineering Science	HSMC	Humanity Science
PC	Professional Core	CA	Continuous Assessment
PE	Professional Elective	OR	End Semester Oral Examination
OE	Open Elective	PR	End Semester Practical Examination
ISE	In-Semester Evaluation	TW	Continuous Term work Evaluation
ESE	End-Semester Evaluation	BSC	Basic Science Course
PRJ	Project	MC	Mandatory Course

## COURSE STRUCTURE - 2021 PATTERN

### SECOND YEAR B. TECH. INFORMATION TECHNOLOGY

#### SEMESTER - III

Course		Course Title	Teaching Scheme			Credits	Evaluation Scheme - Marks					
Cat.	Code		Hours/ Week				Theory		OR	PR	TW	Total
			L	T	P		CA	ESE				
PC	IT201	Discrete Mathematics	3	1	-	4	40	60	-	-	-	100
PC	IT202	Digital Electronics & Computer Organization	4	-	-	4	40	60	-	-	-	100
PC	IT203	Data Structures & Files	3	-	-	3	40	60	-	-	-	100
PC	IT204	Object Oriented Programming	3	-	-	3	40	60	-	-	-	100
HS MC	HS205	Universal Human Values And Ethics	3	-	-	3	40	60	-	-	-	100
PC	IT206	Digital Electronics Laboratory	-	-	2	1	-	-	-	-	50	50
PC	IT207	Data Structures & Files Laboratory	-	-	2	1	-	-	-	50	-	50
PC	IT208	Object Oriented Programming Laboratory	-	-	2	1	-	-	50	-	-	50
MC	MC209	Mandatory Course-III	1	-	-	0	-	-	-	-	-	Pass/ Fail
<b>Total</b>			<b>17</b>	<b>1</b>	<b>6</b>	<b>20</b>	<b>200</b>	<b>300</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>650</b>

MC209	Mandatory Course-III	Constitution of India – Basic features and fundamental principles
-------	----------------------	---

## COURSE STRUCTURE - 2021 PATTERN

### SECOND YEAR B. TECH. INFORMATION TECHNOLOGY

#### SEMESTER - IV

Course		Course Title	Teaching Scheme			Credits	Evaluation Scheme – Marks					
Cat.	Code		Hours/ Week				Theory		OR	PR	TW	Total
			L	T	P		CA	ESE				
BS	BS202	Engineering Mathematics - III	3	1	-	4	40	60	-	-	-	100
PC	IT210	Microprocessor & Microcontroller	4	-	-	4	40	60	-	-	-	100
PC	IT211	Database Management System	4	-	-	4	40	60	-	-	-	100
PC	IT212	Software Engineering Modeling & Design	4	-	-	4	40	60	-	-	-	100
PC	IT213	Microprocessor & Microcontroller Laboratory	-	-	2	1	-	-	50	-	-	50
PC	IT214	Database Management System Laboratory	-	-	2	1	-	-	-	-	50	50
PC	IT215	Software Modeling & Design Laboratory	-	-	2	1	-	-	-	50	-	50
HS MC	HS216	Corporate Readiness-I	-	-	2	1	-	-	-	-	50	50
PRJ	IT217	Seminar	2	-	-	2	-	-	50	-	-	50
PRJ	IT218	Mini Project	-	-	4	2	-	-	-	-	100	100
MC	MC219	Mandatory Course-IV	1	-	-	0	-	-	-	-	-	Pass/ Fail
<b>Total</b>			<b>18</b>	<b>1</b>	<b>12</b>	<b>24</b>	<b>160</b>	<b>240</b>	<b>100</b>	<b>50</b>	<b>200</b>	<b>750</b>

MC219	Mandatory Course-IV	Innovation - Project based – Sc., Tech, Social, Design & Innovation
-------	---------------------	---

## COURSE STRUCTURE - 2021 PATTERN

### THIRD YEAR B. TECH. INFORMATION TECHNOLOGY

#### SEMESTER - V

Course		Course Title	Teaching Scheme Hours/Week			Credits	Evaluation Scheme - Marks					
Cat.	Code		Theory		OR		PR	TW	Total			
			CIA	ESE								
L	T	P										
PC	IT301	System Programming and Operating System	4	-	-	4	40	60	-	-	-	100
PC	IT302	Computer Network	4	-	-	4	40	60	-	-	-	100
PC	IT303	Internet of Things	3	-	-	3	40	60	-	-	-	100
PC	IT304	Theory of Computation	3	-	-	3	40	60	-	-	-	100
PE	IT305	Professional Elective-I	3	-	-	3	40	60	-	-	-	100
PC	IT306	System Programming & Operating System Lab	-	-	2	1	-	-	-	50	-	50
PC	IT307	Computer Network Laboratory	-	-	2	1	-	-	50	-	-	50
PC	IT308	Internet of Things Laboratory	-	-	2	1	-	-	-	-	50	50
PRJ	IT309	Mini Project Based on Skill Based Credit Course	-	-	2	1	-	-	-	-	50	50
PRJ	IT310	Corporate Readiness - II	-	-	2	1	-	-	-	-	50	50
MC	MC311	Mandatory Course-V	1	-	-	0	-	-	-	-	-	Pass/ Fail
<b>Total</b>			<b>18</b>	<b>-</b>	<b>10</b>	<b>22</b>	<b>200</b>	<b>300</b>	<b>50</b>	<b>50</b>	<b>150</b>	<b>750</b>

<b>IT309</b>	Skill Based Credit Course	Minimum 12 week course to be conducted in association with the industry on software product development.
<b>MC311</b>	Mandatory Course-V	Behavioral and Interpersonal skills (non-verbal skills / behaviors, nonaggression)

IT305 Professional Elective- I	
Course Code	Course
IT305A	Software Testing and Quality Assurance
IT305B	Foundation of Data Science
IT305C	Data Mining Techniques

### HONORS SPECIALIZATION IN CYBER SECURITY

Course		Course Title	Teaching Scheme Hours/Week			Credits	Evaluation Scheme-Marks					
Cat.	Code		Theory		OR		PR	TW	Total			
			CIA	ESE								
L	T	P										
HSIT	IT8101	Foundation For Cyber Security	4	-	-	4	40	60	-	-	-	100
<b>Total</b>			<b>4</b>	<b>-</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>100</b>

## COURSE STRUCTURE - 2021 PATTERN

### THIRD YEAR B. TECH. INFORMATION TECHNOLOGY

#### SEMESTER- VI

Course		Course Title	Teaching Scheme			Credits	Evaluation Scheme-Marks					
Cat.	Code		Hours/ Week				Theory		OR	PR	TW	Total
			L	T	P		CIA	ESE				
PC	IT311	Cryptography and Cyber Security	3	-	-	3	40	60	-	-	-	100
PC	IT312	Machine Learning	3	-	-	3	40	60	-	-	-	100
PC	IT313	Web Technology	4	-	-	4	40	60	-	-	-	100
PE	IT314	Professional Elective-II	3	-	-	3	40	60	-	-	-	100
PC	IT315	Cryptography and Cyber Security	-	-	2	1	-	-	50	-	-	50
PRJ	PR316	IPR & EDP	2	-	-	2	20	30	-	-	-	50
PC	IT317	Machine Learning Laboratory	-	-	2	1	-	-	-	50	-	50
PC	IT318	Web Technology Laboratory	-	-	4	2	-	-	50	-	-	50
PRJ	IT319	Creational Activity#	-	-	2	1	-	-	-	-	50	50
MC	MC320	Mandatory Course-VI	1	-	-	0	-	-	-	-	-	Pass/ Fail
<b>Total</b>			<b>16</b>	<b>-</b>	<b>10</b>	<b>20</b>	<b>180</b>	<b>270</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>650</b>

IT314 Professional Elective- II	
Course Code	Course
IT314A	Project Management
IT314B	Big Data Analytics
IT314C	Cloud Computing and DevOps

Mandatory Course-VI	
MC321	Suitable Technical / Non-Technical Activities finalized by Department

### HONORS SPECIALIZATION IN CYBER SECURITY

Course		Course Title	Teaching Scheme			Credits	Evaluation Scheme-Marks					
Cat.	Code		Hours/ Week				Theory		OR	PR	TW	Total
			L	T	P		CIA	ESE				
HSIT	IT8102	Web Security	4	-	-	4	40	60	-	-	-	100
HSIT	IT8103	Web Security Tools Laboratory	-	-	2	1	-	-	-	-	50	50
<b>Total</b>			<b>4</b>	<b>-</b>	<b>2</b>	<b>5</b>	<b>40</b>	<b>60</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>150</b>

## COURSE STRUCTURE - 2021 PATTERN

### FINAL YEAR B. TECH. INFORMATION TECHNOLOGY

#### SEMESTER - VII

Course		Course Title	Teaching Scheme			Credits	Evaluation Scheme - Marks					
Cat.	Code		Hours/ Week				Theory		OR	PR	TW	Total
			L	T	P		CIA	ESE				
PC	IT401	Natural Language Processing	3	-	-	3	40	60	-	-	-	100
PC	IT402	Distributed Systems	4	-	-	4	40	60	-	-	-	100
PC	IT403	Artificial Intelligence	3	-	-	3	40	60	-	-	-	100
PE	IT404	Professional Elective-III	3	-	-	3	40	60	-	-	-	100
PE	IT405	Professional Elective-IV	3	-	-	3	40	60	-	-	-	100
PC	IT406	Artificial Intelligence & Natural Language Processing Laboratory	-	-	4	2	-	-	-	50	50	100
PC	IT407	Distributed Systems Laboratory	-	-	2	1	-	-	-	50	-	50
PRJ	IT408	Project Stage - I	-	-	6	3	-	-	50	-	100	150
MC	MC409	Mandatory Course – VII	1	-	-	0	-	-	-	-	-	Pass/ Fail
<b>Total</b>			<b>17</b>	<b>-</b>	<b>12</b>	<b>22</b>	<b>200</b>	<b>300</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>800</b>

<b>MC409</b>	<b>Mandatory Course – VII</b>	Finance related course proposed by Financial Smart
--------------	-------------------------------	--

IT404 Professional Elective- III		IT405 Professional Elective- IV	
Course Code	Course	Course Code	Course
IT404A	Software Architecture	IT405A	Cloud Computing
IT404B	Digital Twin	IT405B	Ubiquitous Computing
IT404C	Cognitive Intelligence	IT405C	Business Intelligence

### HONORS SPECIALIZATION IN CYBER SECURITY

Course		Course Title	Teaching Scheme			Credits	Evaluation Scheme-Marks					
Cat.	Code		Hours/ Week				Theory		OR	P R	TW	Total
			L	T	P		CIA	ES E				
HSI T	IT810 4	Ethical Hacking & Digital Forensic Tools	4	-	-	4	40	60	-	-	-	100
HSI T	IT810 5	Ethical Hacking & Digital Forensic Tools Lab	-	-	2	1	-	-	-	-	50	50
<b>Total</b>			<b>4</b>	<b>-</b>	<b>2</b>	<b>5</b>	<b>40</b>	<b>60</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>150</b>

## COURSE STRUCTURE - 2021 PATTERN

### FINAL YEAR B. TECH. INFORMATION TECHNOLOGY

#### SEMESTER - VIII

Course		Course Title	Teaching Scheme Hours/ Week			Credits	Evaluation Scheme - Marks					
Cat.	Code		Theory		OR		PR	TW	Total			
			CIA	ESE								
OE	IT411	Open Elective-I	3	-	-	3	25	75	-	-	-	100
OE	IT412	Open Elective-II	3	-	-	3	25	75	-	-	-	100
OE	IT413	Open Elective - III	2	-	0	2	25	75	-	-	-	100
PRJ	IT414	Professional Internship	-	-	12	6	-	-	50	-	50	100
PRJ	IT415	Project Stage - II	-	-	4	2	-	-	50	-	50	100
		<b>Total</b>	<b>8</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>75</b>	<b>225</b>	<b>100</b>	<b>-</b>	<b>100</b>	<b>500</b>

IT411 Open Elective- I		IT412 Open Elective- II		IT413 Open Elective- III	
Course Code	Course	Course Code	Course	Course Code	Course
IT411OE1	Product and Brand Management	IT412OE1	Design & Implementation of Human-Computer Interfaces	IT413OE1	Introduction to Haskell Programming
IT411OE2	Organizational Behaviour	IT412OE2	Ethical Hacking	IT413OE2	Computer Graphics
IT411OE3	E-Business	IT412OE3	Introduction to Industry 4.0 And Industrial Internet of Things	IT413OE3	Google Cloud Computing Foundations
IT411OE4	Management Information System	IT412OE4	Deep Learning	IT413OE4	Cloud Computing and Distributed Systems
		IT412OE5	Employment Communication – A Lab-Based Course	IT413OE5	Cloud Computing
		IT412OE6	Object Oriented System Development Using UML, JAVA and Patterns		

### HONORS SPECIALIZATION IN CYBER SECURITY

Course		Course Title	Teaching Scheme Hours/ Week			Credits	Evaluation Scheme-Marks					
Cat.	Code		Theory		OR		PR	TW	Total			
			CIA	ESE								
HSIT	IT8106	Mobile Hacking	4	-	-	4	40	60	-	-	-	100
		<b>Total</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>150</b>