



## AUTONOMOUS SCHEME (Tentative) UG - BE 2nd Year CSE(DataScience)

SCHEME: 2023

Aca. Year.: 2024-25

Date:

17-11-2023

SEM: III

SL No	Course Type	Course type Count	Course Code	Course Title	Teaching Dept.	QP setting dept	Credits	Teaching Hrs/Week				Examinations				
								L	T	P	S	CIE Marks	SEE			Tot. Marks
								Lecture	Tutorial	Practical	PBL/ABL/SL/others.		Dur.	Th. Mrks	Lab. Mrks.	
1	IBSC	3	23MAI301	Mathematics-III	Maths	Maths	4	2	2	2		50	03	50	-	100
2	PCC	1	23CDT302	Introduction to Data Science	CSE(DS)	CSE(DS)	3	2	2	0		50	03	50	-	100
3	IPCC	1	23CDI303	Data Structures and Applications	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
4	IPCC	2	23CDI304	Digital Circuits & Computer Organisation	CSE(DS)	CSE(DS)	4	2	2	2		50	03	50	-	100
5	PCCL	1	23CDL305	Unix Shell Scripting	CSE(DS)	CSE(DS)	1	0	0	2		50	03	-	50	100
6	ETC	1	23CDE31y	Emerging Technology Course - 1	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
7	AEC	3	23CDAE31	Skill development Course - 3 (EWDP)	I.E.	I.E.	1	1	0	0	3	50	02	50	-	100
8	NCMC	3	23PDSN03	Personality Development-3 (HRD Training)	I.E.	I.E.	PP/NP	0	0	0	2	50	-	-	-	50
<b>Total</b>							<b>20</b>	<b>13</b>	<b>6</b>	<b>8</b>	<b>5</b>	<b>400</b>		<b>300</b>	<b>50</b>	<b>750</b>

BSC: Basic Science Course; PCC: Professional Course; IPCC: Integrated Professional Core Course; PCCL: Professional Core Course Laboratory; ETC: Emerging Technology Course; AEC: Ability Enhancement Course; NCMC: Non Credit Mandatory Course (I.E.-Industry Experts)

**Note:** For the fulfillment of successful completion of degree, lateral entry students, shall study & complete additional courses of Additional mathematics, Language Courses, Environmental studies, Constitution of India & professional Ethics as per the guidelines released time to time.

Emerging Technology Course - 1	
Course Code	Course Title
23CDE311	OOPs using C++
23CDE312	Introduction to R Programming
23CDE313	Web Programming
23CDE314	Data Analytics with Excel

HOD  
17.11.2023

**Head of the Department**  
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SJB Institute of Technology  
# 67, BGS Health & Education City,  
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18/11/23  
Academic Dean

**Dr. BABU. N.V**  
Prof. & Academic Dean  
SJB Institute of Technology  
BGS Health & Education City  
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20.11.2023  
Principal

**Principal**  
SJB Institute of Technology  
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Kengeri, Bengaluru - 560 060.



SCHEME: 2023  
SEM: IV

Aca. Year.: 2024-25

Date: 17-11-2023

SL No	Course Type	Course type Count	Course Code	Course Title	Teaching Dept.	QP setting dept	Credits	Teaching Hrs/Week				Examinations				
								L	T	P	S	CIE Marks	SEE			Tot. Marks
								Lecture	Tutorial	Practical	PBL/ABL/SL/others.		Dur.	Th. Mrks	Lab. Mrks.	
1	IBSC	4	23MAI401	Mathematics-IV	Maths	Maths	3	2	0	2		50	03	50	-	100
2	PCC	2	23CDT402	Database Management System	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
3	IPCC	3	23CDI403	Design & Analysis of Algorithms	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
4	IPCC	4	23CDI404	Internet of Things	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
5	PCCL	2	23CDL405	OOPs using Java	CSE(DS)	CSE(DS)	1	0	0	2		50	03	-	50	100
6	ETC	2	23CDE42y	Emerging Technology Course - 2	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
7	HSMC	5	23SFHH06/ 23UHVH07	SFH or UHV	any dept	any dept	1	0	2	0	@	50	02	50	-	100
8	AEC	4	23xxAE41	Skill Development Course - 4 (EWDP)	I.E.	I.E.	1	1	0	0	3	50	02	50	-	100
9	NCMC	4	23PASN01	Phy. Education (Phy. Activities & Sports)	PED	PED	PP/NP	-	-	-	2	50	-	-	-	50
			23YOGN02	Yoga	PED	PED										
			23NSSN03	NSS	NSS	NSS										
			23NCCN04	NCC	NCC	NCC										
			23IKSN05	Inidan Knowledge System	HSS	HSS										
10	NCMC	5	23PDSN04	Personality Development-4 (HRD Training)	I.E.	I.E.	PP/NP	0	0	0	2	50	-	-	-	50
<b>Total</b>							<b>20</b>	<b>15</b>	<b>2</b>	<b>8</b>	<b>7</b>	<b>500</b>		<b>350</b>	<b>50</b>	<b>900</b>

BSC: Basic Science Course; PCC: Professional Course; IPCC: Integrated Professional Core Course; PCCL: Professional Core Course Laboratory; ETC: Engineering Technology Course; AEC: Ability Enhancement Course; HSMC: Humanities, Social Sciences & Management Course; NCMC: Non Credit Mandatory Course; {@ - Compulsory one activity during the semester} {\$ - Activity based (2 Hrs/week)} {I.E.-Industry Experts}

Emerging Technology Course - 2	
Course Code	Course Title
23CDE421	Cyber Security
23CDE422	Data Engineering
23CDE423	Computer Vision -Image Processing
23CDE424	MERN

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 Head of the Department  
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 17-11-2023

*[Signature]*  
 Dr. BABU. N. Babu  
 Prof. & Academic Dean  
 SJB Institute of Technology  
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*[Signature]*  
 Principal  
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 20-11-2023



### AUTONOMOUS SCHEME (Tentative) UG - BE 3rd Year CSE(DataScience)

SCHEME: 2023

Aca. Year.: 2025-26

Date:

17-11-2023

SEM: V

SL No	Course Type	Course type Count	Course Code	Course Title	Teaching Dept.	QP setting dept	Credits	Teaching Hrs/Week				Examinations				
								L	T	P	S	CIE Marks	SEE			Tot. Marks
								Lecture	Tutorial	Practical	PBL/ABL / SL/others.		Dur.	Th. Mrks	Lab. Mrks	
1	PCC	3	23CDT501	Software Engineering	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
2	IPCC	5	23CDI502	Machine Learning	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
3	IPCC	6	23CDI503	Computer Networks	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
4	PCCL	3	23CDL504	Computer Network Lab	CSE(DS)	CSE(DS)	1	0	0	2		50	03	-	50	100
5	PEC	1	23CDP51y	Professional Elective Course - 1	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
6	ETC	3	23CDE53y	Emerging Technology Course - 3	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
7	HSMC	6	23SFHH06/ 23UHVH07	SFH or UHV	any dept	any dept	1	0	2	0	@	50	02	50	-	100
8	AEC	5	23CDAE51	Skill Development Course - 5 (EWDP)	I.E.	I.E.	1	1	0	0	3	50	02	50	-	100
9	NCMC	4	23PASN01	Phy. Education (Phy. Activities & Sports)	PED	PED	NP/PP	-	-	-	2	50	-	-	-	50
			23YOGN02	Yoga	PED	PED										
			23NSSN03	NSS	NSS	NSS										
			23NCCN04	NCC	NCC	NCC										
			23IKSN05	Inidan Knowledge System	HSS	HSS										
10	NCMC	6	23PDSN04	Personality Development-5 (HRD Training)	I.E.	I.E.	PP/NP	0	0	0	2	50	-	-	-	50
<b>Total</b>							<b>20</b>	<b>16</b>	<b>2</b>	<b>6</b>	<b>7</b>	<b>500</b>		<b>350</b>	<b>50</b>	<b>900</b>

PCC: Professional Course; IPCC: Integrated Professional Core Course; PCCL: Professional Core Course Laboratory; ETC: Engineering Technology Course; AEC: Ability Enhancement Course; HSMC: Humanities, Social Sciences & Management Course; NCMC: Non Credit Mandatory Course; {@ - Compulsory one activity during the semester} {\$ - Activity based (2 Hrs/week)} {I.E-Industry Experts}

Professional Elective Course - 1		Emerging Technology Course - 3	
Course Code	Course Title	Course Code	Course Title
23CDP511	Artificial Neural Networks	23CDE531	Mobile App Development
23CDP512	Cloud Computing	23CDE532	Data Analytics with R
23CDP513	NOSQL Databases	23CDE533	Research Methodology
23CDP514	Data Visualization with PowerBI	23CDE534	Devops

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abu 12/11/23  
Academic Dean  
- 3/6 -

**Principal**  
Principal  
SJB Institute of Technology



**SCHEME: 2023**  
**SEM: VI**

**AUTONOMOUS SCHEME (Tentative) UG - BE 3rd Year CSE(DataScience)**


**Aca. Year.: 2025-26**

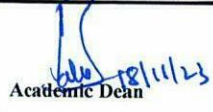
**Date: 17-11-2023**

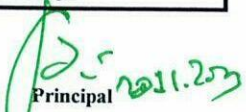
SL No	Course Type	Course type Count	Course Code	Course Title	Teaching Dept.	QP setting dept	Credits	Teaching Hrs/Week				CIE Marks	Examinations			
								L	T	P	S		SEE			Tot. Marks
								Lecture	Tutorial	Practical	PBL/ABL /SL/othrs.		Dur.	Th. Mrks	Lab. Mrks	
1	PCC	4	23CDT601	Exploratory Data Analysis	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
2	IPCC	7	23CDI602	Introduction to Deep Learning	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
3	PCCL	4	23CDL603	Block Chain Technology	CSE(DS)	CSE(DS)	1	0	0	2		50	03	-	50	100
4	PEC	2	23CDP62y	Professional Elective Course - 2	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
5	OEC	1	23CDO61y	Open Elective Course - 1	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
6	ETC	4	23CDE64y	Emerging Technology Course - 4	CSE(DS)	CSE(DS)	3	2	0	2		50	03	50	-	100
7	AEC	6	23CDAE61	Innovation & Design Thinking	CSE(DS)	CSE(DS)	1	0	2	0	@	50	02	50	-	100
8	PRJ	1	23CDPRJ1	Mini Project	CSE(DS)	CSE(DS)	2	0	0	4	@	50	03	-	50	100
9	AEC	7	23CDAE62	Skill Development Course - 6 (EWDp)	I.E.	I.E.	1	1	0	0	3	50	02	50	-	100
10	NCMC	7	23PDSN04	Personality Development-6 (HRD Training)	I.E.	I.E.	PP/NP	0	0	0	2	50	-	-	-	50
<b>Total</b>							<b>21</b>	<b>15</b>	<b>2</b>	<b>10</b>	<b>5</b>	<b>500</b>		<b>350</b>	<b>100</b>	<b>950</b>

PCC: Professional Course; IPCC: Integrated Professional Core Course; PCCL: Professional Core Course Laboratory; PEC: Professional Elective Course; OEC: Open Elective Course; ETC: Engineering Technology Course; HSMC: Humanities, Social Sciences & Management Course; AEC: Ability Enhancement Course; {@ - Compulsory one activity during the semester} {I.E.-Industry Experts} {Open Electives listed here are for other department students, stdnts shall select from separate list published}

Professional Elective Course - 2		Open Elective Course - 1		Emerging Technology Course - 4	
Course Code	Course Title	Course Code	Course Title	Course Code	Course Title
23CDP621	Angular JS	23CDO611	Scala Programming	23CDE641	Mobile Computing
23CDP622	Natural Language Processing	23CDO612	Drone Technology	23CDE642	Full Stack
23CDP623	BOTs	23CDO613	Python Application Programming	23CDE643	Ethical Hacking
23CDP624	Cryptography & Network Security	23CDO614	Algorithms & data Structures	23CDE644	Interactive Design

  
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Principal  
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SCHEME: 2023  
SEM: VII

Aca. Year.: 2026-27

Date: 17-11-2023

**AUTONOMOUS SCHEME (Tentative) UG - BE 4th Year CSE(Data Science)**

SL No	Course Type	Course type Count	Course Code	Course Title	Teaching Dept.	QP setting dept	Credits	Teaching Hrs/Week				Examinations				
								L	T	P	S	CIE Marks	SEE			Tot. Marks
								Lecture	Tutorial	Practical	PBL/ABL / SL/others.		Dur.	Th. Mrks	Lab. Mrks	
1	PCC	5	23CDT701	Theory of Computation	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
2	IPCC	8	23CDI702	Big-Data Analytics	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
3	IPCC	9	23CDI703	Statistical Machine Learning & Reinforcement Learning	CSE(DS)	CSE(DS)	4	3	0	2		50	03	50	-	100
4	PEC	3	23CDP73y	Professional Elective Course - 3	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
5	OEC	2	23CDO72y	Open Elective Course - 2	CSE(DS)	CSE(DS)	3	3	0	0		50	03	50	-	100
6	HSMC	7	23CDT704	Project Management	MBA	MBA	2	2	0	0		50	03	50	-	100
7	PRJ	2	23CDPRJ2	Major Project - Phase I			2	0	0	0	@	50	03	-	50	100
<b>Total</b>							<b>21</b>	<b>17</b>	<b>0</b>	<b>6</b>		<b>350</b>		<b>300</b>	<b>50</b>	<b>700</b>

PCC: Professional Core Course; IPCC: Integrated Professional Core Course; PEC: Professional Elective Course; OEC: Open Elective Course; PRJ-P1W: Major Project Phase Wise. {Open Electives listed here are for other department students, stdnts shall select from separate list published}

Professional Elective Course - 3		Open Elective Course - 2	
Course Code	Course Title	Course Code	Course Title
23CDP731	Speech Recognition	23CDO721	Data Science using Python
23CDP732	Cyber Foremsics	23CDO722	Robotics
23CDP733	Quintek	23CDO723	Introduction to Business Intelligence
23CDP734	Introduction to Quantum Computing	23CDO724	Healthcare Analytics

HOD 17.11.2023

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Academic Dean 18/11/23

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Prof & Academic Dean  
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BGS Health & Education City  
Bengaluru-560060

Principal 20.11.2023

**Principal**  
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**AUTONOMOUS SCHEME (Tentative) UG - BE 4th Year CSE(Data Science)**

Aca. Year.: 2026-27

Date:

17-11-2023

SCHEME: 2023

SEM: VIII

SL No	Course Type	Course type Count	Course Code	Course Title	Teaching Dept.	QP setting dept	Credits	Teaching Hrs/Week				Examinations				
								L	T	P	S	CIE Marks	SEE			Tot. Marks
								Lecture	Tutorial	Practical	PBL/ABL /SL/othrs.		Dur.	Th. Mrks	Lab. Mrks	
1	SLC	1	23xxSL1y	Self-Learning Course - 1 (NPTEL)			3	0	0	0	@	50	-	50	-	100
2	SLC	2	23xxSL2y	Self-Learning Course - 2 (NPTEL)			3	0	0	0	@	50	-	50	-	100
3	PRJ	3	23CDPRJ3	Major Project - Phase II			8				@	100	-	-	100	200
4	INT	1	23CDINT1	Industrial Internship			4				@	50	-	-	50	100
<b>Total</b>							<b>18</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>250</b>	<b>100</b>	<b>150</b>	<b>500</b>	

SLC: Self Learning Course; Prj-PW: Project Phase Wise; INT: Internship; After 7th SEM exams, full time for Internship & Project equally divided; SLC courses to be started from 3rd SEM and to be completed by 7th SEM and evaluated and credited in 8th SEM.

Self-Learning course - 1 (NPTEL)			Self-Learning course - 2 (NPTEL)		
Course Code	Course Title	NPTEL Code	Course Code	Course Title	NPTEL Code
23CDSL11			23CDSL21		
23CDSL12			23CDSL22		
23CDSL13			23CDSL23		
23CDSL14			23CDSL24		
23CDSL15			23CDSL25		
23CDSL16			23CDSL26		
23CDSL17			23CDSL27		
23CDSL18			23CDSL28		
23CDSL19			23CDSL29		
23CDSL20			23CDSL30		
23CDSL21			23CDSL31		

*[Signature]*  
HOD  
12.11.2023

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*[Signature]*  
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*[Signature]*  
Principal

**Principal**  
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