D. Y. Patil Education Society

(Deemed to Be University)

School of Engineering and Management

KASABA BAWADA, KOLHAPUR

Accredited by NAAC with

‘A++’ Grade



First Year to Final Year B. Tech

Structure (as per NEP 2020)

Department of Data Science Engineering

Revised w. e. f. A. Y. 2024-25

D. Y. Patil Education Society
(Deemed to be University)
D. Y. Patil School of Engineering & Management,
Department of Data Science Engineering

1.0 Semester wise Credit point distribution

Sr. No.	Year	Credit Point	
		ODD	EVEN
1	First	22	20
2	Second	22 **(4 Credits ODL)**	22
3	Third	22 **(4 Credits ODL)**	22
4	Fourth	22 **(4 Credits ODL)**	20 **(8 Credits ODL)**
Total Credit points		**88**	**84**
		172 (20 credits ODL)	

1.1 Course wise Credit Point Distribution

	Course Type and Credits																	
NCrF/ NHEQF Level	**Sem.**	**BSC**	**ESC**	**PCC**	**PEC**	**OEC**	**VSEC**	**AEC**	**IKS**	**VEC**	**MDM**	**HSSM**	**CCA**	**PR**	**INT**	**CEP/ FP**	**RM**	**TOTAL**
4.5	I	8	8	--	--	--	2	--	2	--	--	--	2	--	--	--	--	22
	II	8	4	2	--	--	2	2	--	--	--	--	2	--	--	--	--	20
	EXIT UG CERTIFICATE: 42 + ADDITIONAL 6-8 CREDITS																	
5.0	III	--	--	10	--	4	--	--	--	2	2	2	--	--	--	2	--	22
	IV	--	--	10	--	2	2	2	--	2	2	2	--	--	--	--	--	22
	EXIT UG DIPLOMA 86 + ADDITIONAL 6-8 CREDITS																	
5.5	V	--	--	12	4	2	--	--	--	--	4	--	--	--	--	--	--	22
	VI	--	--	10	8	--	2	--	--	--	2	--	--	--	--	--	--	22
	EXIT B. VOCATIONAL :128 + ADDITIONAL 6-8 CREDITS																	
6.0	VII	--	--	6	6	--	--	--	--	--	2	--	--	4	--	--	4	22
	VIII	--	--	4	2	--	--	--	--	--	2	--	--	--	12	--	--	20

	EXIT B.TECH. IN …….. ENGINEERING 172 CREDITS																
DYSEM	16	12	54	20	8	8	4	2	4	14	4	4	4	12	2	4	172
NEP (State GR)	14-18	12-16	44-56	20	8	8	4	2	4	14	4	4	4	12	2	4	160-180

Common Guidelines:

1. **For ODL Courses, 2 Contact hrs per week will be given to concerned Faculty Members for 3 or 4 credits and 1 contact hour per 1 or 2 credits**
2. **ODL courses platform is SWAYAM and for 2 credits minimum 8 week courses and for 3/4 credits minimum 12 week courses will be allowed.**
3. **Each semester 2 liberal learning courses should be taken by students – one from institute level and one from department level. Concern course coordinator will do the assessment after the end of each semester and give marks.**

Note:

A) B. Tech. Data Science Engineering with Multidisciplinary Minor in Electric Vehicles(172 Credits)

B) B. Tech. Data Science Engineering with Multidisciplinary Minor in Electric Vehicles and Honors in Cyber Security. (172 + 18 Credits)

Honors Category	Semester	Credits
Honors-1	IV	04
Honors-2	V	04
Honors-3	VI	04
Honors-4	VII	04
Honors-5	VIII	02

C) B. Tech. Data Science Engineering with Multidisciplinary Minor in Electric Vehicles and Honors with Research (172 + 18 Credits).

Semester	Details of work	Credits
VII	2 NPTEL course of FDP level, Research work report	9
VIII	Summer vacation Work	9

D) B.Tech in Engg./ Tech.- with Double Minor (additional 18 credits)

Enrollment and Assessment strategy for B. Tech Honors:

- Students completing F.Y. B. Tech. without any backlog/ Students admitted through lateral entry are eligible to register for B. Tech. (Hons.) program.
- Students having no credit arrears at the time of enrollment are eligible to register for B. Tech. (Hons.) program.
- Proportion of the No. of Students for B. Tech. (Hons.) shall be decided as per admission status at F.Y. Level and lateral entry.
- The Assessment and Evaluation will be done as per curriculum structure.
- For B. Tech (Hons.), a student needs to earn additional 18 credits (over and above the required 172) credits for B. Tech Degree relevant to his/her discipline.
- Only one Makeup Examination will be conducted for the students failing in the End Semester Examination of B. Tech (Hons.) program.

Online Courses Evaluation (*AICTE (Credit Framework for online learning course through SWAYAM) Regulations, 2016*)

- The evaluation should be based on predefined norms and parameters and shall be based on a comprehensive evaluation throughout the length and breadth of course based on specified instruments like discussions, forms, quizzes, assignments, session examinations and final examination.
- Whereas an online examination would be the preferred mode, the Principal Investigator (PI) shall be authorized to decide on the mode of conducting the final examination. This shall be announced in the overview of the Course at the time of offering the course.
- In case, a pen and paper final examination is to be conducted, the same shall be offered through any college/school volunteering to conduct the same. The decision in this respect will be of the PI and the host institution.



D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMENT
Teaching and Evaluation Scheme from Year 2023-24 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER-I)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE / PoE	
					L	P	T						
1	23DSEU1B01	BSC	Linear Algebra and Calculus	4	3	-	1	20	30	50	25	-	125
2	23DSEU1B02	BSC	Applied Physics	4	3	2	-	20	30	50	25	-	125
3	23DSEU1S03	ESC	Problem Solving through Programming	4	2	4	-	-	-	50	50	50	150
4	23DSEU1S04	ESC	Digital Logic Design	4	3	2	-	20	30	50	25	-	125
5	23DSEU1N05	VSEC	Design Thinking Through Innovation	2	1	2	-	25	-	-	25	-	50
6	23DSEU1K06	IKS	The Outreach of Indian Knowledge System	2	2	-	-	20	30	-	-	-	50
7	23DSEU1C07	CCA	Liberal Learning	2	-	4*	-	-	-	-	50	-	50
8	23DSEU1D08	AC	Finishing School Training I	Audit	3*	-	-	50	-	-	-	-	50
9	23DSEU1I09	INT	Rural/Social Internship	-	-	-	-	50		-	-	-	50
			Total	**22**	**14**	**10**	**1**						**775**

Note:
$ - Open & Distance Learning
* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course

D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMENT
Teaching and Evaluation Scheme from Year 2023-24 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER-II)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE / PoE	
					L	P	T						
1	23DSEU2B01	BSC	Differential Equations and Numerical Techniques	4	3	-	1	20	30	50	25	-	125
2	23DSEU2B02	BSC	Applied Chemistry	4	3	2	-	20	30	50	25	-	125
3	23DSEU2S03	ESC	Generative AI	4	3	2	-	20	30	50	25	-	125
4	23DSEU2A04	AEC	Professional Communication	2	1	2	-	25	-	-	25	-	50
5	23DSEU2C05	CCA	Liberal Learning	2	-	4*	-	50	-	-	-	-	50
6	23DSEU2P06	PCC	Data Analytics with Excel	2	2	-	-	-	-	50	-	-	50
7	23DSEU2N07	VSEC	Python Programming	2	1	2	-	25	-	-	25	-	50
8	23DSEU2J08	PR	Capstone Project	-	-	-	-	50	-	-	-	-	50
9	23DSEU2I09	INT	Finishing School Training II	-	3*	-	-	50	-	-	-	-	50
			Total	**20**	**13**	**8**	**1**						**675**

Note:
$ - Open & Distance Learning
* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course



D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMNET
Teaching and Evaluation Scheme from Year 2024-25 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER- III)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	24DSEU3P01	PCC	Probability & Statistics	**3**	3	-	-	20	30	50	-	-	100
2	24DSEU3P02	PCC	Data Structures	**3**	3	-	-	20	30	50	-	-	100
3	24DSEU3P03	PCC	Data Structures Laboratory	**1**	-	2	-	-	-	-	25	25	50
4	24DSEU3P04	PCC	Programming Lab - I	**3**	2	2	-	-	-	-	50	50	100
5	24DSEU3M05	MDM-I	Fundamentals of Data Science	**2**	2	-	-	-	-	50	-	-	50
6	24DSEU3O06	OEC-I $	Data Science for Engineers	**3**	3	-	-	20	30	50	-	-	100
7	24DSEU3O07	OEC-I $	Data Science for Engineers Lab	**1**	-	2	-	-	-	-	25	-	25
8	24DSEU3F08	CEP/FP	Domain Specific Mini Project	**2**	-	4	-	-	-	-	25	25	50
9	24DSEU3V09	VEC	Environmental Studies-I	**2**	2	-	-	-	-	50	-	-	50
10	24DSEU3H10	HSSM	Economics and Management for IT	**2**	2	-	-	-	-	50	-	-	50
11	24DSEU3D11	AC	Liberal Learning	-	2*	-	-	-	-	-	50*	-	
12	24DSEU3D12	AC	Finishing School Training - III	-	2*	-	-	-	-	-	50*	-	
			Total	**22**	**17**	**10**	**0**						**675**

Note:
$ - Open & Distance Learning
* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course



D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMNET
Teaching and Evaluation Scheme from Year 2024-25 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER- IV)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	24DSEU4P01	PCC	Discrete Mathematical Structure	**3**	3	-	-	20	30	50	-	-	100
2	24DSEU4P02	PCC	Design and Analysis of Algorithm	**3**	3	-	-	20	30	50	-	-	100
3	24DSEU4P03	PCC	Programming Lab - II	**4**	2	4	-	-	-	-	50	50	100
4	24DSEU4M04	MDM-II	Data Analysis and Visualization	**2**	2	-	-	-	-	50	-	-	50
5	24DSEU4O05	OEC-II	Introduction to Data Engineering	**2**	2	-	-	-	-	50	-	-	50
6	24DSEU4A06	AEC	Soft Skill	**2**	-	4	-	-	-	-	25	25	50
7	24DSEU4N07	VSEC	Web Application Development - I	**2**	1	2	-	-	-	-	25	25	50
8	24DSEU4V08	VEC	Environmental Studies-II	**2**	2	-	-	-	-	50	-	-	50
9	24DSEU4H09	HSSM	Leveraging Technologies for Project Management and Startup Ventures	**2**	1	2	-	-	-	-	50	-	50
10	24DSEU4D10	AC	Liberal Learning	-	2*	-	-	-	-	-	50*	-	
11	24DSEU4D11	AC	Finishing School Training - IV	-	2*	-	-	-	-	-	50*	-	
			Total	**22**	**16**	**12**	**0**						600

HONORS

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	L	P	T	ISE	MSE	ESE	INT	OE/	
1	23DSEU4Z01	Honors	Fundamentals of Cyber Security	3	3	-	-	20	30	50	-	-	100
2	23DSEU4Z02	Honors	Fundamentals of Cyber Security Lab	1	-	2	-	-	-	-	25	-	25

Note:
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* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course



D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMNET
Teaching and Evaluation Scheme from Year 2024-25 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER- V)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	24DSEU5P01	PCC	Operating Systems	**3**	3	-	-	20	30	50	-	-	100
2	24DSEU5P02	PCC	Computer Networks	**2**	1	2	-	-	-	-	25	25	50
3	24DSEU5P03	PCC	Database Engineering	**3**	3	-	-	20	30	50	-	-	100
4	24DSEU5P04	PCC	Database Engineering Lab	**1**	-	2	-	-	-	-	25	25	50
5	24DSEU5P05	PCC	Programming Lab - III	**3**	2	2	-	-	-	-	50	50	100
6	24DSEU5M06	MDM-III	Data Mining and Warehousing	**3**	3	-	-	20	30	50	-	-	100
7	24DSEU5M07	MDM-III	Data Mining and Warehousing Laboratory	**1**	-	2	-	-	-	-	25	-	25
8	24DSEU5E08	PEC-I	Information Security	**3**	**3**	**-**	**-**	**20**	**30**	**50**	**-**	**-**	**100**
9	24DSEU5E09		Theory of Computation										
10	24DSEU5E10		IT Infrastructure										
11	24DSEU5E11	PEC-I	Information Security Lab	**1**	-	**2**	-	-	-	-	**25**	-	**25**
12	24DSEU5E12		Theory of Computation Lab										
13	24DSEU5E13		IT Infrastructure Lab										
14	24DSEU5O14	OEC-III	Business Analysis using Python	**2**	2	-	-	-	-	50	-	-	50
15	24DSEU5D15	AC	Liberal Learning	-	2*	-	-	-	-	-	50*	-	
16	24DSEU5D16	AC	Finishing School Training - V	-	2*	-	-	-	-	-	50*	-	
			Total	**22**	**18**	**10**							**700**

Note:
$ - Open & Distance Learning
* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course

HONORS

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	L	P	T	ISE	MSE	ESE	INT	OE/	
1	24CSEU5Z01	Honors	Data Security Systems	3	3	-	-	20	30	50	-	-	100
2	24CSEU5Z02	Honors	Data Security Systems Lab	1	-	2	-	-	-	-	25	-	25

D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMNET
Teaching and Evaluation Scheme from Year 2024-25 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER- VI)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	24DSEU6P01	PCC	Data Engineering	**3**	3	-	-	20	30	50	-	-	100
2	24DSEU6P02	PCC	Machine Learning	**3**	3	-	-	20	30	50	-	-	100
3	24DSEU6P03	PCC	Data Engineering Lab	**1**	-	2	-	-	-	-	25	25	50
4	24DSEU6P04	PCC	Machine Learning Lab	**1**	-	2	-	-	-	-	25	-	25
5	24DSEU6P05	PCC	Data Analytics Tools	**2**	1	2	-	-	-	-	25	25	50
6	24DSEU6M06	MDM-IV	Fundamentals of Business Intelligence	**2**	2	-	-	-	-	50	-	-	50
7	24DSEU6E07	PEC-II	Cyber Security and Digital Forensics	**3**	3	-	-	20	30	50	-	-	100
8	24DSEU6E08		Software Architecture										
9	24DSEU6E09		Internet of Things										
10	24DSEU6E10	PEC-II	Cyber Security and Forensics Tutorial	**1**	-	-	1	-	-	-	25	-	25
11	24DSEU6E11		Software Architecture Tutorial										
12	24DSEU6E12		Internet of Things Tutorial										
13	24DSEU6E13	PEC-III	Blockchain Technology	**3**	3	-	-	20	30	50	-	-	100
14	24DSEU6E14		Cloud Computing										
15	24DSEU6E15		High Performance Computing										
16	24DSEU6E16	PEC-III	Blockchain Technology Laboratory	**1**	-	2	-	-	-	-	25	-	25
17	24DSEU6E17		Cloud Computing Laboratory										
18	24DSEU6E18		High Performance Computing Laboratory										
19	24DSEU6N19	VSEC	Web Application Development - II	**2**	1	2	-	-	-	-	25	25	50
20	24DSEU6D20	AC	Liberal Learning	-	2*	-	-	-	-	-	50*	-	
21	24DSEU6D21	AC	Finishing School Training - VI	-	2*	-	-	-	-	-	50*	-	
			Total	**22**	**16**	**10**	**1**						**675**

Note:
$ - Open & Distance Learning
* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course

HONORS

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	L	P	T	ISE	MSE	ESE	INT	OE/	
1	24DSEU6Z01	Honors	Ethical Hacking	3	3	-	-	20	30	50	-	-	100
2	24DSEU6Z02	Honors	Ethical Hacking Lab	1	-	2	-	-	-	-	25	-	25

D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMENT
Teaching and Evaluation Scheme from Year 2023-24 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER- VII)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	23DSEU7P01	PCC	Deep Learning	**3**	3	-	-	20	30	50	-	-	100
2	23DSEU7P02	PCC	Deep Learning Lab	**1**	-	2	-	-	-	-	25	25	50
3	23DSEU7P03	PCC	Data Visualization	**2**	1	2	-	-	-	-	25	25	50
4	23DSEU7M04	MDM-V	Big Data Analytics	**2**	2	-	-	-	-	50	-	-	50
5	23DSEU7E05	PEC-IV	Business Intelligence	3	3	-	-	20	30	50	-	-	100
6	23DSEU7E06		Big Data Analytics										
7	23DSEU7E07		Social Network Analysis										
8	23DSEU7E08	PEC-V	Image Processing	3	3	-	-	20	30	50	-	-	100
9	23DSEU7E09		Natural Language Processing										
10	23DSEU7E10		Soft Computing										
11	23DSEU7R11	RM$	Research Methodology	**4**	4	-	-	20	30	50	-	-	100
12	23DSEU7J12	PR	Project	**4**	-	8	-	-	-	-	75	75	150
13	23DSEU7D13	AC	Liberal Learning	-	2*	-	-	-	-	-	50*	-	
			Total	**22**	**14**	**12**							**700**

Note:
$ - Open & Distance Learning
* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course

HONORS

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	L	P	T	ISE	MSE	ESE	INT	OE/	
1	23DSEU7Z01	Honors	Cyber-crime and Laws	3	3	-	-	20	30	50	-	-	100
2	23DSEU7Z02	Honors	Cyber-crime and Laws Lab	1	-	2	-	-	-	-	25	-	25



D. Y. PATIL DEEMED TO BE UNIVERSITY
SCHOOL OF ENGINEERING AND MANAGEMENT
Teaching and Evaluation Scheme from Year 2023-24 (as per NEP-2020)
B. Tech. Data Science Engineering (SEMESTER- VIII)

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	23DSEU8P01	PCC $	Agentic AI	**3**	3	-	-	20	30	50	-	-	100
2	23DSEU8P02	PCC $	Agentic AI Lab	**1**	-	2	-	-	-	-	25	-	25
3	23DSEU8M03	MDM-VI $	Capstone Project	**2**	-	4	-	-	-	-	25	25	50
4	23DSEU8E04	PEC-VI $	Computer Vision	2	2	-	-	-	-	50	-	-	50
5	23DSEU8E05		Human Computer Interaction										
6	23DSEU8E06		Augmented and Virtual Reality										
7	23DSEU8I07	INT	Internship	**12**	-	24	-	-	-	-	200	200	400
			Total	**20**	**5**	**30**	**-**						**625**

Note:
$ - Open & Distance Learning
* - Values are not included in total marks
Min. Marks for Passing: 40% of total marks of individual course

HONORS

Sr. No.	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical		Total Marks
				Credits	L	P	T	ISE	MSE	ESE	INT	OE/	
1	23DSEU8Z01	Honors	Capstone Project Cyber Security$	2	-	4	-	-	-	-	50	-	50

