

**B.Sc. DATA SCIENCE****CHOICEBASEDCREDIT SYSTEM –****LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)**

(Applicable to the candidates admitted from the academic year 2022-2023 onwards)

**(NaanMudhalvan scheme has been implemented from 2nd to 5th semester for the 2023-2024 Batch)**

Sem.	Part	Course	Title	Ins. Hrs	Credit	Exam Hours	Marks		Total	
							Int.	Ext.		
I	I	Language Course – I Tamil \$ / Other Languages + #		6	3	3	25	75	100	
	II	English Course - I		6	3	3	25	75	100	
	III		Core Course – I (CC)	Programming in C and Data Structures	5	5	3	25	75	100
			Core Practical – I (CP)	Programming in C Lab	4	4	3	40	60	100
			First Allied Course – I (AC)		4	4	3	25	75	100
		First Allied Practical (AP)		3	-	-	-	-	-	
	IV	Value Education		2	2	3	25	75	100	
<b>TOTAL</b>				<b>30</b>	<b>21</b>	-	-	-	<b>600</b>	
II	I	Language Course - II Tamil \$ / Other Languages + #		6	3	3	25	75	100	
	II	English Course - II		4	3	3	25	75	100	
	III		Core Course – II (CC)	Python Programming	5	5	3	25	75	100
			Core Practical – II (CP)	Python Programming – Lab	4	4	3	40	60	100
			First Allied Practical (AP)		3	2	3	40	60	100
		First Allied Course – II (AC)		4	4	3	25	75	100	
		Add on Course – I ##	Professional English I	6*	4	3	25	75	100	
	IV	Environmental Studies		2	2	3	25	75	100	
VI	NaanMudhalvan Scheme (NMS) @@	Language Proficiency for Employability - Overview of English Language Communication	2	2	3	25	75	100		
<b>TOTAL</b>				<b>30</b>	<b>29</b>	-	-	-	<b>900</b>	

III	I	Language Course – III Tamil \$ / Other Languages + #		6	3	3	25	75	100	
	II	English Course - III		6	3	3	25	75	100	
	III	Core Course – III (CC)	Database Systems	5	5	3	25	75	100	
		Core Practical - III (CP)	Database Systems Lab	4	4	3	40	60	100	
		Second Allied Course – I (AC)		4	4	3	25	75	100	
		Second Allied Practical (AP)		3	-	-	-	-	-	
		Add on Course – II ##	Professional English II	6*	4	3	25	75	100	
	IV	Non-Major Elective I @ - Those who choose Tamil in Part I can choose a non-major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studied in school level <b>or</b> b) Special Tamil if Tamil language was studied upto 10 <sup>th</sup> & 12 <sup>th</sup> std.		2	2	3	25	75	100	
	VI	NaanMudhalvan Scheme (NMS) @@	Digital Skills for Employability – Microsoft Digital Skills	-	2	3	25	75	100	
	<b>TOTAL</b>				<b>30</b>	<b>27</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>
IV	I	Language Course –IV Tamil \$ / Other Languages + #		6	3	3	25	75	100	
	II	English Course – IV		6	3	3	25	75	100	
	III	Core Course - IV (CC)	Big Data Analytics with NoSQL Database	5	5	3	25	75	100	
		Core Practical - IV (CP)	Big Data Analytics Lab	4	4	3	40	60	100	
		Second Allied Practical (AP)		3	2	3	40	60	100	
		Second Allied Course – II (AC)		4	4	3	25	75	100	
	IV	Non-Major Elective II Those who choose Tamil in Part I can choose a non-major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studied in school level <b>or</b> b) Special Tamil if Tamil language was studied upto 10 <sup>th</sup> & 12 <sup>th</sup> std.		2	2	3	25	75	100	
	VI	NaanMudhalvan Scheme (NMS) @@	Fundamentals of Web Development	-	2	3	25	75	100	
	<b>TOTAL</b>				<b>30</b>	<b>25</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>

V	III	Core Course - V (CC)	Data Mining, Data Warehousing and Data Visualization	5	5	3	25	75	100
		Core Course – VI (CC)	Network Security	5	5	3	25	75	100
		Core Course – VII (CC)	Cloud Computing	5	5	3	25	75	100
		Core Practical -V (CP)	Data Mining, and Data Visualization Lab	4	4	3	40	60	100
		Major Based Elective – I (Any one)	1. Internet of Things 2. Block Chain Technology	5	4	3	25	75	100
	IV	Skill Based Elective I	Shell Programming	4	2	3	25	75	100
		Soft Skills Development		2	2	3	25	75	100
	VI	NaanMudhalvan Scheme (NMS) @@	Generative AI with IBM	-	2	3	25	75	100
	<b>TOTAL</b>			<b>30</b>	<b>29</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>800</b>
	VI	III	Core Course - VIII (CC)	R Programming	6	5	3	25	75
Core Course - IX (CC)			Machine Learning	6	5	3	25	75	100
Core Practical – VI (CP)			Machine Learning Lab	4	4	3	40	60	100
Major Based Elective – II (Any one)			1. Computing Technologies for Data Science 2. Augmented Reality and Virtual Reality	5	4	3	25	75	100
Project				4	3	-	20	80	100
IV		Skill Based Elective – II	Web Technology	4	2	3	25	75	100
V		Gender Studies		1	1	3	25	75	100
		Extension Activities **		-	1	-	-	-	-
<b>TOTAL</b>			<b>30</b>	<b>25</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>700</b>	
<b>GRAND TOTAL</b>			<b>180</b>	<b>156</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4600</b>	

### List of Allied Courses

#### First Allied Course

Mathematics

#### Second Allied Course

Statistics

\$ForthosewhostudiedTamilupto10<sup>th</sup>+2(RegularStream).

+Syllabusfor otherLanguagesshouldbeonparwithTamilatdegreelevel.

#ThosewhostudiedTamilupto10<sup>th</sup>+2butoptforotherlanguagesindegreelevel  
underPart-I shouldstudyspecialTamilinPart – IV.

## The Professional English – Four Streams Course is offered in the 2<sup>nd</sup> and 3<sup>rd</sup> Semester (only for 2022-2023 Batch) in all UG Courses. It will be taught apart from the Existing hours of teaching / additional hours of teaching (1 hour / day) as a 4 credit paper as an add on course on par with Major Paper and completion of the paper is must to continue his / her studies further. (As per G.O. No. 76, Higher Education (K2) Department dated: 18.07.2020).

\* The Extra 6 hrs / cycle as per the G.O. 76/2020 will be utilized for the Add on Professional English Course.

@ NCC Course is one of the Choices in Non-Major Elective Course. Only the NCC cadets are eligible to choose this course. However, NCC Course is not a Compulsory Course for the NCC Cadets.

\*\*ExtensionActivitiesshallbeoutsideinstructionhours.

@@ NaanMudhalvan Scheme.

#### SUMMARY OF CURRICULUM STRUCTURE OF UG PROGRAMMES

Sl. No.	Part	Types of the Courses	No. of Courses	No. of Credits	Marks
1.	I	Language Courses	4	12	400
2.	II	English Courses	4	12	400
3.	III	Core Courses	8	40	800
4.		Core Practical	7	29	700
5.		Allied Courses I & II	4	16	400
6.		Allied Practical	2	4	200
7.		Major Based Elective Courses	2	8	200
8.		Add on Courses	2	8	200
9.		Project	1	3	100
10.	IV	Non-Major Elective Courses (Practical)	2	4	200
11.		Skill Based Elective Courses	2	4	200
12.		Soft Skills Development	1	2	100
13.		Value Education	1	2	100
14.		Environmental Studies	1	2	100
15.	V	Gender Studies	1	1	100
16.		Extension Activities	1	1	--
17.	VI	NaanMudhalvan Scheme	4	8	400
		<b>Total</b>	<b>47</b>	<b>156</b>	<b>4600</b>

## **PROGRAMME OBJECTIVES:**

- Graduates will be able to comprehend the basic concepts learnt and apply in real life situations with analytical skills.
- Graduates with acquired skills and enhanced knowledge will be employable / become entrepreneurs or will pursue higher Education.
- Graduates with acquired knowledge of modern software tools will be able to contribute effectively as data scientist.
- Graduates will be able to comprehend the related concepts to Data Science with Allied papers
- Graduates will be imbued with ethical values and social concerns to ensure a peaceful society.

## **PROGRAMME OUTCOMES:**

After successful completion of B.Sc. Data Science programme the students will be able to

- Apply the computing knowledge to analyze real world applications.
- Solve the complex problems in the field of data science with an understanding of different types and formats of data
- Understand the concepts and ability to apply appropriate models.
- Develop programs and models for the various domains specific problems.
- The ability to explore, identify and analyze big data, adjust and adapt with the dynamic technical environment for the growth of IT industry.

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