BHARATHIDASAN UNIVERSITY TIRUCHIRAPPALLI-620 024.

B.Sc. ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

CHOICE BASED CREDIT SYSTEM –

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)

(Applicable to the candidates admitted from the academic year 2022-23 onwards)

(Naan Mudhalvan scheme has been implemented from 2nd to 4th 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	4	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 Course – II (AC)		3	-	-	-	-	-
	IV	Value Education		2	2	3	25	75	100
	TOTAL			**30**	**20**	**-**	**-**	**-**	**600**
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)	Programming in Python	5	4	3	25	75	100
		Core Practical – II (CP)	Programming in Python Lab	4	4	3	40	60	100
		First Allied Course – II (AC)		3	2	3	25	75	100
		First Allied Course – III (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	Naan Mudhalvan Scheme (NMS) @@	Language Proficiency for Employability – Overview of English Language Communication	2	2	3	25	75	100
	TOTAL			**30**	**28**	**-**	**-**	**-**	**900**

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)	RDBMS and NoSQL	5	4	3	25	75	100
		Core Practical – III (CP)	RDBMS and NoSQL 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 **or** b) Special Tamil if Tamil language was studied upto 10th & 12th std.		2	2	3	25	75	100
	VI	Naan Mudhalvan Scheme (NMS) @@	Digital Skills for Employability - Microsoft Digital Skills	-	2	3	25	75	100
	TOTAL			**30**	**26**	**-**	**-**	**-**	**800**
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)	Artificial Intelligence	5	4	3	25	75	100
		Core Practical - IV (CP)	Artificial Intelligence 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 **or** b) Special Tamil if Tamil language was studied upto 10th & 12th std.		2	2	3	25	75	100
	VI	Naan Mudhalvan Scheme (NMS) @@	Fundamentals of Web Development	-	2	3	25	75	100
	TOTAL			**30**	**24**	**-**	**-**	**-**	**800**

V	III	Core Course -V (CC)	Embedded Systems and IoT	5	5	3	25	75	100
		Core Course - VI(CC)	Open Source Software	5	5	3	25	75	100
		Core Course - VII(CC)	Robotics	5	5	3	25	75	100
		Core Practical -V (CP)	Robotics Lab	4	4	3	40	60	100
		Major Based Elective – I (Any one)	1. Virtual Reality and Augmented Reality 2. Fuzzy Logic and Neural Networks	5	5	3	25	75	100
	IV	Skill Based Elective I	Mobile Application Development	4	2	3	25	75	100
		Soft Skills Development		2	2	3	25	75	100
	TOTAL			**30**	**28**	**-**	**-**	**-**	**700**
VI	III	Core Course - VIII (CC)	Human Computer Interaction	6	6	3	25	75	100
		Core Course -IX (CC)	Machine Learning	6	6	3	25	75	100
		Core Practical - VI(CP)	Machine Learning Techniques Lab	4	4	3	40	60	100
		Major Based Elective - II (Any one)	1. Natural Language Processing 2. Deep Learning	5	5	3	25	75	100
		Project		4	3	-	20	80	100
	IV	Skill Based Elective – II	Cloud Computing	4	2	3	25	75	100
	V	Gender Studies		1	1	3	25	75	100
		Extension Activities **		-	1	-	-	-	-
		TOTAL		**30**	**28**	**-**	**-**	**-**	**700**
GRAND TOTAL				**180**	**154**				**4500**

List of Allied Courses

First Allied Course	**Second Allied Course**
Mathematics	Applied Physics

$ For those who studied Tamil upto 10th +2 (Regular Stream).

+ Syllabus for other Languages should be on par with Tamil at degree level.

Those who studied Tamil upto 10th +2 but opt for other languages in degree level under Part- I should study special Tamil in Part – IV.

The Professional English – Four Streams Course is offered in the 2nd and 3rd 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.

** Extension Activities shall be outside instruction hours.

@@ Naan Mudhalvan 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	Naan Mudhalvan Scheme	3	6	300
	Total		**46**	**154**	**4500**

PROGRAM OBJECTIVES:

- Upon completion of this undergraduate programme on B.Sc. Artificial Intelligence and Machine Learning, the students will be able to
- Exhibit good domain knowledge and completes the tasks with expected quality standards.
- To be capable of modelling, designing, implementing and verifying a computing system to meet specified requirements for the benefit of society.
- Design and develop research based solutions for complex problems.
- To possess critical thinking, communication skills, teamwork, leadership skills and ethical behaviour necessary to function productively and professionally.
- Able to apply analytical and critical thinking to identify, formulate and analyse complex problems
- Establish the ability to listen, read, proficiently communicate and articulate complex ideas.

PROGRAM OUTCOMES:

After successful completion of B.Sc. AI &ML program the students are expected to

- Apply the concepts and practical knowledge in analysis, design and development of computing systems and applications to multi-disciplinary problems.
- Provide a concrete foundation and enrich their abilities to qualify for Employment, Higher studies and Research in Artificial Intelligence and Machine Learning with ethical values
- Understand, analyze and develop essential proficiency in the areas related to artificial intelligence and machine learning in terms of underlying statistical and computational principles.
- Learn the basic concepts of AI & ML and apply in various research areas like image processing, speech recognition and Medical diagnostics etc.,
- Find solutions to complex AI problems using various AI tools

*****