

NEHRU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution affiliated to Bharathiar University)

**(Reaccredited with “A+” Grade by NAAC, ISO 9001:2015 & 14001:2004 Certified,
Recognized by UGC with 2(f) & 12(B), Under Star College Scheme by DBT, Govt. of India)**

Nehru Gardens, T. M. Palayam, Coimbatore - 641 105, Tamil Nadu

B.Sc. ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING



Effective from 2024 - 2025



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Under Star College Scheme by DBT, Govt. of India)
Nehru Gardens, Thirumalayampalayam, Coimbatore - 641 105, Tamil Nadu, India.
E-mail: nasoffice@nehrucolleges.com. Web Site: www.nehrucolleges.net.



Programme Specific Outcomes (PSO)

PSO1	Obtain ability to specify, design, develop, test and maintain usable software systems that behave reliably and efficiently and satisfy all the requirements that customers have defined for them.
PSO2	Gain skill to develop software systems that would perform tasks related to Research, Education and Training and/or E-governance.
PSO3	Expertise in determining and optimizing the performance of a given algorithm on a given platform.
PSO4	Acquire capability to anticipate the changing direction of information technology and evaluate and communicate the likely utility of new technologies to an individual or organization.
PSO5	Make the students capable in decision making at personal and professional level.



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Programme Outcomes (PO)

PO1	Critical Thinking	Develop a systematic, critical approach to problem solving at all levels and apply the domain specific knowledge to form conclusions based on quantitative information to meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO2	Usage of Technology	Equip the students to meet the industrial needs by utilizing tools and technologies for Peer Communication, Data Interpretation and Problem-Solving aspects.
PO3	Effective Communication	Develop language competence and be proficient in oral and written communication with a focus on LSRW.
PO4	Environment and Sustainability	Understand the consequential responsibilities to analyze and realize the interactions between social and environmental sustainability procedures and create processes.
PO5	Individual and Team Work	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings and manifest the best outcomes.
PO6	Ethics and Values	Acquire life skills to become a better human being and apply ethical principles and commit to professional ethics and responsibilities.
PO7	Social Interactions	Participate actively in initiatives that encourage equity and growth for all and to act with an informed awareness of local, regional, national and global needs.
PO8	Life Long Learning	Engage in lifelong learning and Work on career enhancement and adapt to changing personal, professional and societal needs.



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Scheme of Examination B. Sc. Artificial Intelligence and Machine Learning Programme Code : UAM (Applicable to the students admitted during the year 2024 -2025 onwards)

Semester	Part	Sub. Code	Name of the Subject	Instruction hours / week	Duration of Examination	Examination Marks			Credits
						CIA	ESE	Total	
I	I	23U1TAM101/ 24U1HIN101 / 24U1MAL101/ 24U1FRN101	Elanthamizh Rachnathmak Hindi Kadhayum Samskaaravum Le Francais Fondamental -I	4	3	20	55	75	3
	II	24U2ENG101	Professional English I	4	3	20	55	75	3
	III	23U3CKC101	Core Paper I: Python Programming	5	3	25	75	100	4
		23U3CJC102	Core Paper II: Data Structures	5	3	25	75	100	4
		24U3AMP101	Core Paper III: Practical in Python Programming	4	3	40	60	100	4
	IV	24U3MKA101	Allied Paper I: Statistics for Computer Science	5	3	25	75	100	4
		21U4ENV101	@ Ability Enhancement Compulsory Course: Environmental Studies	2	3	50	-	50	2
			22U4HVY201	Value Education: Human Values and Yoga Practice	1	-	-	-	-
				30				600	24
II	I	23U1TAM202/ 24U1HIN202/ 23U1MAL202/ 24U1FRN202	Pynthamizh Sanchar Hindi Novalum Bhashaapadanavum Le Francais Fondamental -II	4	3	20	55	75	3
	II	24U2ENG202	Professional English II	4	3	20	55	75	3
	III	23U3AMC202	Core Paper IV: Fundamentals of Artificial Intelligence	5	3	25	75	100	4
		23U3AMC203	Core Paper V: Relational Database Management Systems	5	3	25	75	100	4
		23U3AMP204	Core Paper VI: Practical in SQL and PL/SQL	4	3	40	60	100	4
		23U3MIA202	Allied Paper II: Discrete Mathematics	5	3	25	75	100	4

	IV	21U4HRC202	@ Ability Enhancement Compulsory Course: Human Rights and Constitution of India	2	3	50	-	50	2	
		22U4HVY201	@ Value Education: Human Values and Yoga Practice	1	2	50	-	50	2	
		24U4SEC201	Skill Enhancement Course 1 – Career Foundation Skills	2	2	-	-	25	1	
				32				675	27	
III	I	23U1TAM303/ 24U1HIN303 / 24U1MAL303/ 24U1FRN303	Arunthamizh Sahityak Hindi Kavithayum SmarannayumLe Français General - III	4	3	20	55	75	3	
	II	24U2ENG303	Communicative English - I	4	3	20	55	75	3	
		24U3CJC304	Core Paper VII: Computer Networks	4	3	20	55	75	3	
	III		23U3CKC306	Core Paper VIII: Java Programming	4	3	20	55	75	3
			23U3AMP305	Core Paper IX: Practical in Java and Network Programming	3	3	20	30	50	2
			23U3MIA303	Allied Paper III: Operations Research	4	3	25	75	100	4
	IV		24U4AMZ301	Skill enhancement Course 2: Practical in Data Visualization	3	3	30	45	75	3
			22U4NM3BT1 / 22U4NM3AT1 / 22U4NM3CAF / 22U4NM3GST / 22U4NM3WRT	# @Basic Tamil I/ ##Advanced Tamil I / * NME: Consumer Affairs / Gender Sensitization / Women's Rights	2	3	50		50	2
			SBOEC	Skill Enhancement Elective Course 3 – Extra Departmental Course	2	3	-	50	50	2
			23U4AMVALC	Skill Enhancement: Value Added course - Institute Industry Linkage	-	-	-	-	-	-
			24U4SEC302	Skill Enhancement Course 4 – Employment Enhancement Training	2	2	-	-	25	1
					32				650	26
	IV	I	23U1TAM404/ 23U1HIN404 / 24U1MAL404/ 23U1FRN404/	Muthamizh Prayogik Hindi Drisyakalaa Saahithyam Le Français General - IV	4	3	20	55	75	3
II		23U2ENG404	Communicative English-II	4	3	20	55	75	3	
III			23U3AMC406	Core Paper X: Operating System	4	3	20	55	75	3
			23U3CKC408	Core Paper XI: R Programming	4	3	20	55	75	3
			23U3AMP407	Core Paper XII: Practical in R Programming	3	3	20	30	50	2
			23U3MIA404	Allied Paper – IV : Linear Algebra and Differential Equations	4	3	20	55	75	3

		22U4AMZ402	Skill Enhancement Course 5: Capstone Project Work – I	3	3	30	45	75	3	
	IV	22U4NM4BT2 / 22U4NM4AT2 / 22U4NM4GEN	# @Basic Tamil-II / ##Advanced Tamil -II/ General Awareness	2	3	50		50	2	
		VBOEC	Value based Open Elective Courses- Intra School Course	2	3	-	50	50	2	
		23U4AMVALC	Skill Enhancement Add on Course 6 - Institute Industry Linkage	4	-	-	-	50	02	
				34				650	26	
		23U3AMC508	Core Paper XIII: Machine Learning Techniques	5	3	20	55	75	3	
V	III	23U3AMC509	Core Paper XIV: Natural Language Processing	5	3	20	55	75	3	
		23U3AMC510	Core Paper XV: Cloud Computing	5	3	20	55	75	3	
		23U3AMP511	Core Paper XVI: Practical in Natural Language Processing	5	3	30	45	75	3	
		23U3AME501/ 23U3AME502/ 23U3AME503/ 23U3CKE504	Discipline Specific Elective Paper I	6	3	25	75	100	4	
		22U3AMV513	In-plant Training	-	-	50	-	50	2	
	IV	22U4AMZ503	Skill Based Paper III: Practical in Machine Learning Techniques	4	3	30	45	75	3	
		24U4SEC503	Skill Enhancement Course 8 – Campus to Corporate	2	2	-	-	25	1	
		24U4SEC504	Skill Enhancement Course 9 – Industrial Exploration / Corporate Visit	2	2	-	-	25	1	
				34				575	23	
VI	III	23U3AMC612	Core Paper XVII: Internet of Things	4	3	20	55	75	3	
		23U3CJC608	Core Paper XVIII: Deep Learning	4	3	20	55	75	3	
		24U3AMP613	Core Paper XIX: Practical in Internet of Things	3	3	20	30	50	2	
		23U3AME605/ 23U3AME606/ 23U3AME607/ 23U3AME608	Discipline Specific Elective Paper II	6	3	25	75	100	4	
		23U3AME609/ 23U3AME610/ 23U3AME611/ 23U3AME612	Discipline Specific Elective Paper III	6	3	25	75	100	4	
		22U3AMV617	Project and Viva Voce	4	3	30	45	75	3	
	IV	22U3AMZ604	Skill Based Paper IV: Practical in Deep Learning	3	3	30	45	75	3	
V	22U5EXT601	Extension Activities	-	-	50	-	50	2		
				30				600	24	
Total								3750	150	
Additional Credit (Optional)			Semester II-VI					10 ^s		

Basic Tamil -Students who have not studied Tamil up to 12th standard.

##Advanced Tamil – Students who have studied Tamil language up to 12th standard and chosen other languages under part I of the UG programme but would like to advance their Tamil language skills.

* **NME** – Student shall choose any one course out of three courses.

@ No End Semester Examinations. Only Continuous Internal Assessment (CIA)

\$ - Not included in Total marks and CGPA Calculation

LIST OF DISCIPLINE SPECIFIC ELECTIVE PAPERS:

ElectivePapers	Course Code	Name of the Course
Elective Paper I	23U3AME501	Fundamentals of Robotics
	23U3AME502	Social Network Analysis
	23U3AME503	Healthcare Analytics
	23U3CKE504	Big Data Analytics
Elective Paper II	24U3AME605	Network Security
	23U3AME606	Ethics and Social Implications of AI
	23U3AME607	Introduction to Neural Networks and Fuzzy Logic
	23U3AME608	Cyber Threat Intelligence
ElectivePaper III	23U3AME609	Augmented Reality and Virtual Reality
	23U3AME610	Pattern Recognition
	23U3AME611	Web Application Security
	23U3AME612	Computational Intelligence

Extra Departmental Course offered by the Department to other Department Students

S. No.	Semester	Course Code	Course Title
1	III	23U4ET3ED1	Practical in Hardware and Assembling
2	III	23U4AM3ED1	Practical in AI Tools and Techniques

- Students need to opt a Course other than the Course offered by their department.

Intra School Course offered by the Department to other Department Students (within the School)

S. No	Course Code	Name of the Course
1	22U4VBOE01	Design Ecosystem
2	22U4VBOE02	Design Thinking
3	22U4VBOE03	Disaster Management
4	22U4VBOE04	Environmental Pollution and Waste Management (EMS)
5	22U4VBOE05	History of Ancient India
6	22U4VBOE06	Indian Knowledge System
7	22U4VBOE07	Principles of Intellectual Property Rights
8	22U4VBOE08	Science, Society and Culture
9	22U4VBOE09	Community Engagement
10	22U4VBOE10	Emotional Intelligence
11	22U4VBOE11	Fundamentals of Tourism
12	22U4VBOE12	Health Education
13	22U4VBOE13	Media and Politics
14	22U4VBOE14	Positive Psychology and Work Life
15	22U4VBOE15	Professional Ethics
16	22U4VBOE16	The Science of Happiness
17	NCC	

- NCC – Students who qualify NCC B Certificate Examination need not appear for these openElectives. The Credits shall be transferred.
- Students shall opt any course within their Schools.

Self-Study Paper offered by Department of Artificial Intelligence and Machine Learning

S. No.	Semester	Course code	Course Title
1	Semester II to V	23UCKSS01	Libre Office
2		23UCSSS02	Management Information System

Chairman
Board of Studies in Computer Applications
Nehru Arts and Science College
Coimbatore