HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE
(DEEMED TO BE UNIVERSITY)

School of Basic and Applied Sciences

DEPARTMENT OF COMPUTER SCIENCE

CURRICULUM 2026

M.Sc. ARTIFICIAL INTELLIGENCE AND DATA ANALYTICS

(Duration: 2 Years)

Under Choice Based Credit System (In line with NEP 2020)
(Applicable for Students admitted from Academic Year 2026-27)

HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE

Motto:

To Make Every Man a Success and No Man a Failure

Vision:

To be an International Institute of Excellence, providing a conducive environment for education with a strong emphasis on innovation, quality, research and strategic partnership blended with values and commitment to society.

Mission:

- To create an ecosystem that promotes learning and world class research.
- To nurture creativity and innovation.
- To instil highest ethical standards and values.
- To pursue activities for the development of the Society.
- To develop national and international collaborations with institutes and industries of eminence.
- To enable graduates to become future leaders and innovators.

Value Statement:

Integrity, Innovation, Internationalization.

DEPARTMENT OF COMPUTER SCIENCE

Vision:

The department of Computer Applications aims to transform aspiring students into software professionals with a high degree of technical skills and to inculcate a research mind set.

Mission:

- To provide strong theoretical foundations complemented with extensive practical training.
- To design and deliver curricula to meet the changing needs of industry.
- To establish strong collaborations with industry, R&D and academic institutes for training and research.
- To promote all-round development of the students through interaction with alumni and industry.

PROGRAMME'S EDUCATIONAL OBJECTIVES (PEO's)

PEO1. To prepare graduates to be successful professionals in industry, government, academia, research, entrepreneurial pursuit and consulting firms.

PEO2. To prepare graduates to achieve peer-recognition, as an individual and as a team player, through demonstration of good analytical, design, implementation and interpersonal skills.

PEO3. To prepare graduates to contribute to society as broadly educated, expressive, ethical and responsible citizens with proven expertise.

PEO4. To prepare graduates to pursue life-long learning to fulfil their goals.

PROGRAMME'S OUTCOMES (PO's)

Upon successful completion of the programme, graduates will be able to:

PO1. Specialized Knowledge
Apply advanced knowledge of the discipline and related areas to solve complex scientific problems and develop innovative solutions.

PO2. Problem Analysis and Critical Thinking
Critically analyze scientific problems by reviewing relevant research literature, identifying patterns, and drawing evidence-based conclusions.

PO3. Design and Development of Solutions
Design and develop scientific solutions or experimental setups that address real-world challenges while considering societal, cultural, and environmental factors.

PO4. Research and Inquiry
Demonstrate research competence by formulating hypotheses, selecting appropriate methodologies, analyzing data, and interpreting results to advance knowledge in the field.

PO5. Modern Tools and Digital Competence
Select, apply, and adapt modern scientific tools, technologies, and computational techniques with an understanding of their scope and limitations.

PO6. Ethics and Professional Integrity
Adhere to ethical principles and professional standards in scientific research and practice, ensuring integrity and social responsibility.

PO7. Communication and Collaboration
Communicate scientific knowledge, research findings, and technical information effectively with diverse audiences, and collaborate in multidisciplinary and multicultural teams.

PROGRAMME'S SPECIFIC OUTCOMES (PSO's)

PSO1: Ability to solve complex problems in the domain of Artificial Intelligence and Data Analytics using the current software tools and technologies.

PSO2: Explore the concepts of Artificial Intelligence and Data Analytics and development of computational systems in multidisciplinary fields.

PSO3: Create a new design, model, analyse and evaluate the solution for new real time problems in the field of Artificial Intelligence and Data Analytics.

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M.Sc. Artificial Intelligence and Data Analytics – CURRICULUM 2026-27

SEMESTER I

SL. NO	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	PC	TP	BAD12001	Machine Learning Algorithms	2	1	2	4	2	5
2	PC	TP	BAD12002	Design Analysis and Algorithms	2	1	2	4	2	5
3	PC	TH	BAD12003	Prompt Engineering and Gen AI	3	1	0	4	2	4
4	PC	TH	BAD12004	Digital Twin Analytics	3	1	0	4	2	4
5	HS	TH	GLS62001	Academic and Research Writing	2	0	0	2	1	2
6	BS	TH	BMA12001	Mathematical Foundations of AI and DS	4	0	0	4	0	4
				Total	**16**	**4**	**4**	**22**	**9**	**24**

L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours

SEMESTER II

SL. NO	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	PC	TP	BAD12005	Natural Language Processing	2	1	2	4	2	5
2	PC	TH	BAD12006	Ethics for AI	3	1	0	4	2	4
3	PC	TH	BAD12007	Deep Learning	3	1	0	4	2	4
4	PE	TP	BAD125**	Professional Elective – 1	2	1	2	4	2	5
5	PE	TP	BAD125**	Professional Elective – 2	2	1	2	4	2	5
6	BS	TH	GGE12001	Advanced Quantitative Aptitude	1	0	0	1	4	1
7	SE	DP	BAD12800	Design Project	0	0	4	2	2	4
8	HS	PR	GLS62400	Communication Skills and Professional Development	0	0	2	1	1	2
				Total	**13**	**5**	**12**	**24**	**17**	**30**

L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours

SEMESTER III										
SL. NO	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	PC	TP	BAD12008	GPU Programming	2	1	2	4	2	5
2	PC	TH	BAD12009	Quantum AI	3	1	0	4	2	4
3	PC	TH	BAD12010	Cloud Computing for AI	4	0	0	4	2	4
4	PE	TP	BAD125**	Professional Elective – 3	2	1	2	4	2	5
5	PE	TP	BAD125**	Professional Elective – 4	2	1	2	4	2	5
6	AE	TP	GGE12002	IPR and Research Methodology	2	0	2	3	4	4
7	SI	PR	BAD12801	Summer Internship	0	0	0	2	0	0
				Total	**15**	**4**	**8**	**25**	**14**	**27**
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours										

SEMESTER IV										
SL. NO	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	RP	PR	BAD12802	Project	0	0	20	10	0	20
				Total	**0**	**0**	**20**	**10**	**0**	**20**
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours										

Total Credits	**81**

LIST OF DEPARTMENTAL ELECTIVES – SEMESTER WISE											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
Professional Elective – I											
1	II	PE	TP	BAD12500	Knowledge Engineering and Expert Systems	2	1	2	4	2	5
2	II	PE	TP	BAD12501	Web Analytics	2	1	2	4	2	5
Professional Elective – II											
3	II	PE	TP	BAD12502	Big Data Mining and Analytics	2	1	2	4	2	5
4	II	PE	TP	BAD12503	Cyber Security and Data Protection	2	1	2	4	2	5
Professional Elective – III											
5	III	PE	TP	BAD12504	Reinforcement Learning	2	1	2	4	2	5
6	III	PE	TP	BAD12505	Digital and Social Media Analytics	2	1	2	4	2	5
Professional Elective – IV											
7	III	PE	TP	BAD12506	Blockchain and Artificial Intelligence	2	1	2	4	2	5
8	III	PE	TP	BAD12507	Robotics and Intelligent Systems	2	1	2	4	2	5
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours											

CREDIT SUMMARY	
SEMESTER	**CREDIT COUNT**
I	22
II	24
III	25
IV	10
TOTAL	**81**

COURSE TYPE	
TP	Theory with Practical Course
TH	Theory Course
PR	Practical Course

COURSE CATEGORY	
PC	Professional Core
PE	Professional Elective
BS	Basic Sciences
HS	Humanities and Social Sciences
SE	Skill Enhancement
SI	Summer Internship
AE	Ability Enhancement
DP	Design Project
RP	Research Project