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

School of Basic and Applied Sciences

DEPARTMENT OF COMPUTER SCIENCE

CURRICULUM 2026

(in line with NEP 2020)

B.Sc. COMPUTER SCIENCE (Gaming Design)

(Duration: 3 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 instill 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

To be a globally recognized center of excellence in Computer Science education and research, fostering innovation, entrepreneurship, and societal impact through cutting-edge technology and ethical practice.

MISSION

- To provide a robust academic foundation and research environment that encourages innovation and critical thinking in Computer Science.
- To cultivate creativity, problem-solving skills, and entrepreneurial spirit among students.
- To uphold integrity, inclusivity, and professionalism in all endeavors.
- To engage with industry and global institutions for collaborative research, internships, and knowledge exchange.
- To contribute technological solutions addressing societal challenges and advancing sustainable development.
- To mentor students into future-ready technologists, researchers, and leaders with a global perspective.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

Graduates will be able to

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 OUTCOMES (PO's)

Upon successful completion of the programme, graduates will:

PO1. Scholarship of Knowledge:
Capable of demonstrating comprehensive knowledge of one or more disciplines of science, ability to analyse, evaluate, design the solution for different kinds of non-familiar problems / real life situations by applying the scientific knowledge.

PO2. Communication:
Ability to express thoughts and ideas effectively in writing and orally, communicate with others using appropriate media; confidently share one's views and express herself/himself, present complex information in a clear and concise manner to different groups.

PO3. Usage of Modern Tools:
Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.

PO4. Team Work:
Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.

PO5. Research Skill:
Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data and report the results of an experiment or investigation.

PO6. Ethical Practices and Social Responsibility:
Ability to identify ethical issues related to one's work, avoid unethical behaviour such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights; appreciating environmental and sustainability issues; possess knowledge of the values and beliefs of multiple cultures and a global perspective.

PO7. Life-long Learning:
Ability to acquire knowledge and skills, including 'learning how to learn', that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning.

PROGRAMME SPECIFIC OUTCOMES (PSO's)

PSO1: Apply core computer concepts — programming, data structures, algorithms, and computer graphics — to design and develop interactive game applications and simulations.

PSO2: Design and build 2D/3D game assets, environments, and mechanics using industry-standard game engines and development tools (e.g., Unity, Unreal Engine).

PSO3: Integrate concepts of AI, physics simulation, animation, and UX/UI design to create immersive, responsive, and engaging gaming experiences.

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B.Sc. Computer Science (Gaming Design) – 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	TH	BCS21001	Desktop Publishing and Troubleshooting	4	0	0	4	2	4
2	PC	TP	BCA41002	Problem Solving and Programming	3	0	2	4	2	5
3	PC	TP	BGD21001	Multimedia System Design	2	1	2	4	2	5
4	BS	TH	BMA41001	Combinatorial Analysis	3	1	0	4	2	4
5	MC	TH	GGE61002	Environmental Studies and Sustainable Development Goals	2	0	0	2	2	2
6	HS	TH	GLS61004	Language and Life Skills	3	0	0	3	1	3
				Total	**17**	**2**	**4**	**21**	**11**	**23**

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	TH	BGD21002	Gaming Principles	4	0	0	4	2	4
2	PC	TH	BCS21004	Software Engineering and Agile Practices	3	1	0	4	2	4
3	PC	TP	BCS21005	Data Structures and Modern AI Algorithms	3	0	2	4	2	5
4	PC	TP	BCS21006	Intelligent Data Management System	2	1	2	4	2	5
5	NC	PR	GPE31401	Yoga	0	0	2	*	4	2
			GPE31402	Sports						
			GPE31403	Fitness						
			GGE61401	Outreach (NSS, Y's Men, Rotaract)						
6	HS	TH	GLS61005	Communicative English	3	0	0	3	1	3
				Total	**15**	**2**	**6**	**19**	**13**	**23**

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

*** Non Credit**

SEMESTER III										
SL. NO	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	PC	TH	BCA41006	Computer Networks and Security	3	1	2	4	2	5
2	PC	TP	BCA41007	Object Oriented Programming using Java	3	0	2	4	2	5
3	PC	TH	BCS21007	Digital Graphics	3	1	0	4	2	4
4	PC	TP	BGD21003	2D and 3D Modelling	2	1	2	4	2	5
5	HS	TH	GLS61011	French	1	0	0	1	1	2
			GLS61012	German						
			GLS61013	Spanish						
			GLS61014	Korean						
			GLS61016	Japanese						
			GLS61006	Malayalam						
			GLS61007	Tamil						
			GLS61008	Hindi						
			GLS61009	Telugu						
6	HS	PR	GLS61400	Presentation Skills	0	0	4	2	1	4
7	NDE	TH	G*******	NDE	2	0	0	2	2	2
				Total	**14**	**3**	**8**	**21**	**12**	**26**
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	PC	TH	BAD21006	Prompt Engineering	3	1	0	4	2	4
2	PC	TP	BCS21008	Cloud for Gaming Technology	3	0	2	4	2	5
3	PE	TP	BGD215**	Professional Elective – 1	2	1	2	4	2	5
4	PE	TP	BGD215**	Professional Elective – 2	2	1	2	4	2	5
5	AE	PR	BGD21800	Design Project	0	0	4	2	2	4
6	MC	TH	GGE61001	Indian Knowledge System	2	0	0	2	2	2
7	HS	PR	GLS61401	Personality and Skill Development	0	0	4	2	1	4
				Total	**12**	**3**	**14**	**22**	**13**	**29**
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours										
# 15 days Internship carried out at the end of SEM IV in the summer vacation and evaluated in SEM V										

SEMESTER V										
SL. NO	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	PC	TH	BCS21009	Quantum Technologies	3	0	0	3	2	3
2	PC	TP	BCS21010	Research Methodology	2	1	2	4	2	5
3	PE	TP	BGD215**	Professional Elective – 3	3	1	0	4	2	4
4	PE	TP	BGD215**	Professional Elective – 4	2	1	2	4	2	5
5	BS	TH	GGE11002	Quantitative Aptitude and Logical Reasoning	1	1	0	2	4	2
6	SI	PR	BGD21801	Summer Internship	#			2	#	
7	HS	TH	GGE61001	Universal Human Values	2	0	0	2	2	2
				Total	**13**	**4**	**4**	**21**	**14**	**21**
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours										
# 15 days Internship carried out at the end of SEM IV and evaluated in SEM V										

SEMESTER VI										
SL. NO	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	PC	TP	BCS21011	Industry 5.0	2	1	2	4	2	5
2	PE	TH	BGD215**	Professional Elective – 5	2	1	2	4	2	5
3	PE	TP	BGD215**	Professional Elective – 6	2	1	2	4	2	5
4	PJ	PR	BGD21802	Project	0	0	12	6	2	12
				Total	**8**	**2**	**16**	**18**	**8**	**27**
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours										
* indicates Non Credit Course										

Total Credits	**122**

LIST OF DEPARTMENT ELECTIVES											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
Professional Elective – I											
1	III	PE	TP	BGD21501	Principles of Game Theory	2	1	2	4	2	5
2	III	PE	TP	BGD21502	Color Theory	2	1	2	4	2	5
Professional Elective – II											
3	IV	PE	TP	BGD21503	Introduction to Multimedia Design	2	1	2	4	2	5
4	IV	PE	TP	BGD21504	2D Gaming Production	2	1	2	4	2	5
Professional Elective – III											
5	V	PE	TP	BGD21505	Hardware in Game Programming	3	1	0	4	2	4
6	V	PE	TP	BGD21506	Multiplayer Game Development	3	1	0	4	2	4
Professional Elective – IV											
7	V	PE	TP	BGD21507	3D Character Development	2	1	2	4	2	5
8	V	PE	TP	BGD21508	Principles of Sound Design	2	1	2	4	2	5
Professional Elective – V											
9	VI	PE	TP	BGD21509	Game AI and Intelligent Agents	2	1	2	4	2	5
10	VI	PE	TP	BGD21510	Generative AI for Interactive Media	2	1	2	4	2	5
Professional Elective – VI											
11	VI	PE	TP	BGD21511	XR Game Development and Immersive Experiences	2	1	2	4	2	5
12	VI	PE	TP	BGD21512	Game Analytics and Monetization Strategies	2	1	2	4	2	5
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours											

NON-DEPARTMENT ELECTIVES											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	III	NDE	TP	BGD11700	Image Editing Tools	2	0	0	2	2	2
L – Lecture; T – Tutorial; P – Practical; C – Credit; S – Self Study; TCH – Total Contact Hours											

CREDIT DISTRIBUTION BY COURSE CATEGORY				
S. NO	**COURSE CATEGORY**		**CREDITS**	**NO. OF COURSES**
1	PC	PROFESSIONAL CORE	63	16
2	BS	BASIC SCIENCE	6	2
3	HS	HUMANITIES AND SOCIAL SCIENCES	11	5
4	MC	MANDATORY COURSE	6	3
5	NC	NON CREDIT	0	1
6	PE	PROFESSIONAL ELECTIVE	24	6
7	AE	ABILITY ENHANCEMENT	2	1
8	SE	SKILL ENHANCEMENT	0	-
9	SI	SUMMER INTERNSHIP	2	1
10	PJ	PROJECT	6	1
11	NDE	NON DEPARTMENTAL ELECTIVE	2	1
TOTAL			**122**	**37**

SEMESTER	CREDIT COUNT
I	21
II	19
III	21
IV	22
V	21
VI	18
TOTAL	**122**

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