



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

B.Sc. Computer Science (Gaming Design)

(Duration: 3 Years)

CURRICULUM and SYLLABUS

(Applicable for Students admitted from Academic Year 2022-23)

DEPARTMENT OF COMPUTER APPLICATIONS
HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE

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 APPLICATIONS

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 EDUCATIONAL OBJECTIVES (PEO)

The Program Educational Objectives (PEOs) of the Computer Applications are listed below:

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):

(To be achieved by the student after every semester/year/and at the time of graduation)

At the end of this program, graduates will be able to

- 1. Computer knowledge:** *Apply the knowledge of mathematics, computer Fundamentals to IT applications.*
- 2. Design/Development of solutions:** *Design solutions for IT applications using latest technologies and develop and implement the solutions using various latest languages.*
- 3. Modern tool usage:** *Create, select and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex IT applications with an understanding of the limitations.*
- 4. Environment and sustainability:** *Understand the impact of the IT analyst solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.*
- 5. Ethics:** *Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.*
- 6. Individual and teamwork:** *Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.*

PROGRAMME SPECIFIC OUTCOMES (PSO'S):

PSO-1: *Apply mathematical, conceptual knowledge of computing and analytical skills to demonstrate the graphical representation of real-world data.*

PSO-2: *Formulate and use appropriate graphics tools to enhance their knowledge in the field of Animation and other animation related fields.*

PSO-3: *Equipped with creative and technical skills in various domains of Animation, Gaming, VFX and multimedia*

B.SC. COMPUTER SCIENCE (GAMING DESIGN)

SEMESTER- I									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	CF	ELA0101	English	2	0	0	2	1	2
2	CF	MAA0101	Calculus and Linear Algebra	3	0	2	4	0	5
3	PC	CAB0102	Data Structures	3	0	2	4	0	5
4	PC	CAB0103	Python Programming	3	0	0	3	1	3
5	PC	CAB0104	Computer Science Essentials	2	0	2	3	0	4
PRACTICAL									
6	PC	CAB0131	Python Programming Lab	0	0	2	1	0	2
7	PC	CAB0133	Internet Programming Lab	0	0	2	1	0	2
Total				13	0	10	18	2	23
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- II									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	CF	MAA0117	Statistics and Probability	3	1	0	4	1	4
2	PC	CAB0116	Design and Analysis of Algorithms	3	0	2	4	0	5
3	PC	CAB0120	2D Game Design	2	0	2	3	1	3
4	PC	CAB0121	Introduction to Game Theory and Development	3	0	0	3	1	3
5	PC	CAB0123	Elements of Design	3	0	0	3	1	3
PRACTICAL									
6	PC	CAB0143	Game Designing Lab	0	0	2	1	0	2
7	PC	CAB0144	Digital Art Lab	0	0	2	1	0	2
Total				14	1	8	19	4	22
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- III									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	PC	CAB0206	Operating Systems	2	0	2	3	1	4
2	PC	CAB0207	Database Management Systems	2	0	2	3	0	4
3	PC	CAB0208	HTML 5 Gaming Framework	3	1	0	4	1	4
4	DE	CAC02**	Elective – 1	2	1	2	4	0	5
5	PC	CAB0209	Interactive Graphics and Games	3	0	0	3	1	3
PRACTICAL									
6	PC	CAB0233	Web Designing Lab	0	0	2	1	0	2
7	PC	CAB0234	Animation and Interactivity Lab	0	0	2	1	0	2
			Total	12	2	10	19	3	24
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- IV									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	PC	CAB0220	3D Animation	2	0	2	3	1	4
2	PC	CAB0221	Game Interface Design	3	1	0	4	0	4
3	PC	CAB0222	Digital Marketing	3	0	0	3	0	3
4	PC	CAB0223	Virtual Reality	3	0	0	3	0	3
5	DE	CAC02**	Elective – II	2	1	2	4	0	5
PRACTICAL									
6	PC	CAB0243	Video Game Development Lab	0	0	2	1	0	2
7	PC	CAB0244	3D Animation Lab	0	0	2	1	0	2
			Total	13	2	8	19	1	23
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- V									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	PC	CAB0304	Mobile Application Development	2	1	2	4	1	4
2	PC	CAB0305	AR Game Development	2	1	2	4	0	5
3	DE	CAC03**	Elective – III	2	1	2	4	0	5
4	DE	CAC03**	Elective – IV	2	1	2	4	0	5
PRACTICAL									
5	PC	CAB0333	AR Game Lab	0	0	2	1	0	2
6	PC	CAB0334	Mini Project	0	0	2	1	0	2
			Total	8	3	16	18	1	23
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

SEMESTER- VI									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	PC	CAB0317	Game Environment	3	0	2	4	0	5
2	PE	CAC03**	Elective – V	2	1	2	4	1	5
PRACTICAL									
3	PC	CAB0341	Internship	0	0	2	1	0	2
4	PC	CAB0342	Project Work	0	0	16	8	0	16
			Total	5	1	22	17	1	28
L – Lecture ; T – Tutorial ; P – Practical ; C – Credit; S- Self Study; TCH- Total Contact Hours									

TOTAL CREDITS: 110

LIST OF DEPARTMENTAL ELECTIVES WITH GROUPING - SEMESTER WISE

SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
Elective I									
3	DE	CAC0251	Principles of Game Theory	2	1	2	4	1	5
3	DE	CAC0252	Color Theory	2	1	2	4	1	5
Elective II									
4	DE	CAC0268	Introduction to Multimedia Design	2	1	2	4	1	5
4	DE	CAC0269	2D Gaming Production	2	1	2	4	1	5
Elective III									
5	DE	CAC0355	Hardware in Game Programming	2	1	2	4	1	5
5	DE	CAC0356	Business and Legal issues for Video Game Developers	2	1	2	4	1	5
Elective IV									
5	DE	CAC0357	3D Character Development	2	1	2	4	0	5
5	DE	CAC0358	Principles of Sound Design	2	1	2	4	0	5
Elective V									
6	DE	CAC0370	Visual Scripting	2	1	2	4	0	5
6	DE	CAC0371	Advanced Modelling and Texturing	2	1	2	4	0	5
6	DE	CAC0372	Stop Motion Animation	2	1	2	4	0	5