



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

B.SC. COMPUTER SCIENCE

**With specialization
Full Stack Development
/ IOT / Augmented
reality & Virtual reality**

(Duration: 3 Years)

CURRICULUM

Under Choice Based Credit system

(In line with NEP 2020)

(Applicable for Students admitted from Academic Year 2023-24)

DEPARTMENT OF COMPUTER APPLICATIONS

SCHOOL OF LIBERAL ARTS AND APPLIED SCIENCES

HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE

SEMESTER – I

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TC H
1	I	CC	TH	ACA31002	Computer Fundamentals and Organization	2	1	0	3	2	3
2	I	CC	TP	ACA31003	Problem Solving Techniques	2	0	2	3	2	4
3	I	CC	TP	ACA31004	Data Structures	2	1	2	4	2	5
4	I	BS	TH	GMA31001	Mathematics for computer Science	3	1	0	4	2	4
5	I	HS	TP	GLS51001	Communication Skills	2	0	1	2	1	3
6	I	HS	TH	GLS11001	Tamil Art and Culture	1	0	1	1	2	2
7	I	VA	TH	GGE51003	Environmental Science and Sustainable Development	2	0	0	2	2	2
8	I	HS	PR	GBP01400	Health and Wellbeing	0	0	2	1	2	2
9	I	VA	PR	GPE21401	Yoga	0	0	2	1	2	2
				GPE21402	Sports	0	0	2	1	2	2
				GPE21403	Fitness	0	0	2	1	2	2
				AVC31401	Fine Arts	0	0	2	1	2	2
10	I	HS	PR	GGE51401	Outreach (NCC)-Level-I	0	0	2	1	2	2
				GGE51402	Outreach (NSS, Y's men, Rotaract)-Level-I	0	0	2	1	2	2
11	I	NC	TP	ASS21001	Community Development	1	0	1	*	2	2
					Total	15	3	9	20	17	27

L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours * indicates Non Credit Course

SEMESTER – II

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	II	CC	TP	ACA31005	Object Oriented Programming	2	0	2	3	2	4
2	II	CC	TP	ACA31006	Database Management Systems	2	0	2	3	2	4
3	II	CC	TP	ACA31007	Multimedia Systems	2	0	2	3	2	4
4	II	CC	TH	ACS11002	Design and analysis of Algorithms	2	1	0	3	2	3
5	II	HS	TP	GLS51002	Personality Development and Soft Skills	2	0	1	2	1	3
6	II	AE	TP	ACA31001	Digital Technological Solutions	2	0	2	3	2	4
7	II	HS	TH	GLS51008	Tamil	2	0	0	2	2	2
				GLS51009	Hindi						
				GLS11002	Advanced Tamil						
				GLS51010	Telugu						
8	II	HS	PR	GBP01400	Health and Wellbeing	0	0	2	1	2	2
9	II	VA	PR	GPE21401	Yoga	0	0	2	1	2	2
				GPE21402	Sports	0	0	2	1	2	2
				GPE21403	Fitness	0	0	2	1	2	2

				AVC31401	Fine Arts	0	0	2	1	2	2
11	II	HS	PR	GGE51401	Outreach (NCC)-Level-I	0	0	2	1	2	2
				GGE51402	Outreach (NSS, Y's men, Rotract)-Level-I	0	0	2	1	2	2

SEMESTER – III

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TC H
1	III	CC	TH	ACA31010	Computer Networks	3	1	0	4	2	4
2	III	CC	TP	ACS01001	Fundamentals of Python Programming	3	0	2	4	2	5
3	III	DE	TP	**	Department Elective-I	2	0	2	3	2	4
4	III	NE	TH	***	Non-Department Elective Course	3	0	0	3	2	3
5	III	HS	TH	GLS51011	French	2	0	0	2	2	2
	III	HS	TP	GLS51012	German	2	0	0	2	2	2
	III	HS	TH	GLS51013	Spanish	2	0	0	2	2	2
	III	HS	TP	GLS51014	Korean	2	0	0	2	2	2
	III	HS	TP	GLS51015	Mandarin	2	0	0	2	2	2
	III	HS	PR	GLS51016	Japanese	2	0	0	2	2	2
6	III	HS	TP	GLS51005	Public Speaking	1	0	1	1	1	2
7	III	NC	TH	GGE51015	Indian Knowledge System	3	0	0	*	2	3
8	III	NC	TP	ABB31001	CSR & SD	1	0	2	*	2	3

9	III	SI	PR	ACS01800	Internship #	#			4	#	
					Total	18	1	10	2 1	16	29

L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours * indicates Non Credit courses # 15 days Internship carried out at the end of SEM II and evaluated in the SEM III **indicates Department Elective *** indicates Non Department Elective

SEMESTER – IV

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TC H
1	IV	CC	TP	ACA31011	Software Engineering	3	0	2	4	2	5
2	IV	CC	TP	ACA31008	Operating Systems	2	1	0	3	2	3
3	IV	CC	TP	ACA31012	Mobile Application Development	2	0	2	3	2	4
4	IV	CC	TP	ACS01002	Web Technologies	2	0	2	3	2	4
5	IV	SE	TP	ACS01003	Computer Graphics	1	0	2	2	2	3
6	IV	DE	TP	**	Department Elective-II	2	0	2	3	2	4
7	IV	HS	TH	GLS11003	French Intermediate	2	0	0	2	2	2
				GLS11004	German Intermediate	2	0	0	2	2	2
				GLS11005	Spanish Intermediate	2	0	0	2	2	2
				GLS11006	Korean Intermediate	2	0	0	2	2	2
				GLS11007	Mandarin Intermediate	2	0	0	2	2	2
				GLS11008	Japanese Intermediate	2	0	0	2	2	2
8	III	HS	TP	GLS51006	English for Competitive Examinations	1	0	1	1	1	2

					Total	13	2	10	21	14	25
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L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours ** indicates Department Elective

SEMESTER – V

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TC H
1	V	CC	TP	ACS11010	Network and Data Security	3	0	2	4	2	5
2	V	CC	TH	ACS11011	Artificial Intelligence	3	1	0	4	2	4
3	V	CC	TH	ACS11012	Game Theory and Development	3	1	0	4	2	4
4	V	CC	TH	AGE21001	Fundamentals of Research Methodology	3	0	2	4	2	5
5	V	DE	TP	**	Department Elective-III	2	0	2	3	2	4
6	V	HS	TP	GLS51007	Verbal Reasoning and Interview Skills	1	0	1	1	1	2
7	V	NC	TH	AGE31001	Methodology for Writing a Professional & Scientific Article	1	0	0	*	2	1
					Total	16	2	7	20	13	25

L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours * indicates Non Credit course ** indicates Department Elective

SEMESTER – VI

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TC H
1	VI	CC	TH	ACS11014	AR Game Development	3	1	0	4	2	4

2	VI	CC	TH	ACS11016	Game Environment	3	1	0	4	2	4
3	VI	CC	TH	ACA31013	Cyber Security	3	1	0	4	2	4
4	VI	DE	TP	**	Department Elective -III	2	0	2	3	2	4
5	VI	NC	TH	GGE51011	Introduction to Women and Gender Studies	3	0	0	*	2	3
6	VI	HS	TH	GGE51001	Universal Human Values	2	0	0	2	2	2
7	VI	RP	PJ	ACS01801	Project	0	0	14	7	0	14
					TOTAL	16	3	16	24	12	35

L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours ** indicates Department Elective

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

LIST OF DEPARTMENT ELECTIVES								
SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	VERTICALS		
						Full Stack Development	IoT	Augmented Reality/Virtual reality
ELECTIVES-1								
1	III	DE	TP	ACS01500	Front End Development	\$\$		
2	III	DE	TP	ACS01501	Back End Development	\$\$		
3	III	DE	TP	ACS01508	Introduction to IoT		&&	
4	III	DE	TP	ACS01509	IoT and Sensor Networks		&&	

5	III	DE	TP	ACS01516	Interactive Graphics and games			##
6	III	DE	TP	ACS01517	Introduction to Virtual Reality			##
ELECTIVES-2								
7	IV	DE	TP	ACS01502	Scripting languages	\$\$		
8	IV	DE	TP	ACS01503	Introduction to Java Script	\$\$		
9	IV	DE	TP	ACS01510	IoT platform and System Design		&&	
10	IV	DE	TP	ACS01511	Fog Computing		&&	
11	IV	DE	TP	ACS01518	2D Animation			##
12	IV	DE	TP	ACS01519	3D Animation			##
ELECTIVES-3								
15	V	DE	TP	ACS01504	MERN Stack Development	\$\$		
16	V	DE	TP	ACS01505	Typescript	\$\$		
17	V	DE	TP	ACS01512	IoT of Medical Things		&&	
18	V	DE	TP	ACS01513	IoT Security and privacy		&&	
19	V	DE	TP	ACS01520	Metaverse			##
20	V	DE	TP	ACS01521	3D Assets			##
ELECTIVES-4								
23	VI	DE	TP	ACS01506	Web Application Development with ReactJS	\$\$		
24	VI	DE	TP	ACS01507	UX/UI Development	\$\$		
25	VI	DE	TP	ACS01514	IoT Cloud and Data Analytics		&&	

26	VI	DE	TP	ACS01515	IoT Automation		&&	
27	VI	DE	TP	ACS01522	Game publishing and Testing			##
28	VI	DE	TP	ACS01523	Advanced Modelling and Texturing			##
\$\$-Full Stack Development,&&-IOT,##-Augmented Reality and Virtual Reality								
L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours								

LIST OF DEPARTMENT ELECTIVES (FULL STACK DEVELOPMENT)											
SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
Elective-I											
1	III	DE	TP	ACS01500	Front End Development	2	0	2	3	2	4
2	III	DE	TP	ACS01501	Back End Development	2	0	2	3	2	4
Elective-II											
3	IV	DE	TP	ACS01502	Scripting languages	2	0	2	3	2	4
4	IV	DE	TP	ACS01503	Introduction to Java Script	2	0	2	3	2	4
Elective-III											
5	V	DE	TP	ACS01504	MERN Stack Development	2	0	2	3	2	4
6	V	DE	TP	ACS01505	Typescript	2	0	2	3	2	4
Elective-IV											
7	VI	DE	TP	ACS01506	Web Application Development with ReactJS	2	0	2	3	2	4
8	VI	DE	TP	ACS01507	UX/UI Development	2	0	2	3	2	4
L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours											

LIST OF DEPARTMENT ELECTIVES (IOT)											
SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
Elective-I											
1	III	DE	TP	ACS01508	Introduction to IoT	2	0	2	3	2	4
2	III	DE	TP	ACS01509	IoT and Sensor Networks	2	0	2	3	2	4
Elective-II											
3	IV	DE	TP	ACS01510	IoT platform and system Design	2	0	2	3	2	4
4	IV	DE	TP	ACS01511	Fog Computing	2	0	2	3	2	4
Elective-III											
5	V	DE	TP	ACS01512	IoT of Medical Things	2	0	2	3	2	4
6	V	DE	TP	ACS01513	IoT Security and privacy	2	0	2	3	2	4
Elective-IV											
7	VI	DE	TP	ACS01514	IoT Cloud and Data Analytics	2	0	2	3	2	4
8	VI	DE	TP	ACS01515	IoT Automation	2	0	2	3	2	4
L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours											

LIST OF DEPARTMENT ELECTIVES (AUGMENTED REALITY / VIRTUAL REALITY)											
SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
Elective-I											
1	III	DE	TP	ACS01516	Interactive Graphics and games	2	0	2	3	2	4
2	III	DE	TP	ACS01517	Introduction to Virtual Reality	2	0	2	3	2	4

Elective-II											
3	IV	DE	TP	ACS01518	2D Animation	2	0	2	3	2	4
4	IV	DE	TP	ACS01519	3D Animation	2	0	2	3	2	4
Elective-III											
5	V	DE	TP	ACS01520	Metaverse	2	0	2	3	2	4
6	V	DE	TP	ACS01521	3D Assets	2	0	2	3	2	4
Elective-IV											
7	VI	DE	TP	ACS01522	Game publishing and Testing	2	0	2	3	2	4
8	VI	DE	TP	ACS01523	Advanced Modelling and Texturing	2	0	2	3	2	4
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	NE	TP	ACS01700	Networking Concepts	2	0	2	3	2	4
L – Lecture; T – Tutorial; P – Practical; C – Credit; S- Self Study; TCH- Total Contact Hours											