Graphic Era

HILL UNIVERSITY

Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

ALL INDIA CATEGORY

UK DOMICILE CANDIDATES

Full Fee Payment (10 % Discount)

Full Fee Payment (10 % Discount)

EMI Option

EMI Option

ALL INDIA CATEGORY FULL FEE PAYMENT (10 % DISCOUNT)

School of Engineering & Technology
Fee Structure B.Tech
Applicable for B.Tech Computer Science & Engineering

Semester	Heads	(12th PCM %) >=95 OR JEE Mains Percentile >=99	(12th PCM %) >=90 <95 OR JEE Mains Percentile >=98.5<99	(12th PCM %) >=85 <90 OR JEE Mains Percentile >=97<98.5	(12th PCM %) >=80 <85 OR JEE Mains Percentile >=94<97	(12th PCM %) >=75<80 OR JEE Mains Percentile >=90<94	(12th PCM %) >=70 & <75 OR JEE Mains Percentile >=85<90	
1st Sem	Tuition Fee	120000	120000	120000	120000	120000	120000	10% Additional Scholarship on Net Tuition Fee for Girls Candidates
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	60000	65000	70000	75000	80000	105000	
1st Sem	Payable Tuition Fee (10% discount)	54000	58500	63000	67500	72000	94500	
2nd Sem	Tuition Fee	120000	120000	120000	120000	120000	120000	
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	60000	65000	70000	75000	80000	105000	
2nd Sem	Payable Tuition Fee (10% discount)	54000	58500	63000	67500	72000	94500	
3rd Sem	Tuition Fee	126000	126000	126000	126000	126000	126000	
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	66000	71000	76000	81000	86000	111000	
3rd Sem	Payable Tuition Fee (10% discount)	59400	63900	68400	72900	77400	99900	
4th Sem	Tuition Fee	126000	126000	126000	126000	126000	126000	
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	66000	71000	76000	81000	86000	111000	
4th Sem	Payable Tuition Fee (10% discount)	59400	63900	68400	72900	77400	99900	
5th Sem	Tuition Fee	132300	132300	132300	132300	132300	132300	
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	72300	77300	82300	87300	92300	117300	
5th Sem	Payable Tuition Fee (10% discount)	65070	69570	74070	78570	83070	105570	
6th Sem	Tuition Fee	132300	132300	132300	132300	132300	132300	
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	72300	77300	82300	87300	92300	117300	
6th Sem	Payable Tuition Fee (10% discount)	65070	69570	74070	78570	83070	105570	
7th Sem	Tuition Fee	138915	138915	138915	138915	138915	138915	
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	78915	83915	88915	93915	98915	123915	
7th Sem	Payable Tuition Fee (10% discount)	71024	75524	80024	84524	89024	111524	
8th Sem	Tuition Fee	138915	138915	138915	138915	138915	138915	
	Scholarship	60000	55000	50000	45000	40000	15000	
	Net Tuition Fee	78915	83915	88915	93915	98915	123915	
8th Sem	Payable Tuition Fee (10% discount)	71024	75524	80024	84524	89024	111524	
Total		498987	534987	570987	606987	642987	822987	

One Time Payable		
	Admission Fee (Non Refundable)	10000
	Enrolment Fee	2000
	Caution Money (Refundable)	5000

Other Charges (Per Sem)	Examination Fee	Library Fee	Insurance Fee (Per Year)	Students Welfare Fee	Sport Fee	Transportation Fee	Online Student Information	Total
	4000	1800	1000	750	500	1250	500	9800

Scholarship for Wards of Defence personnel: 5%

APPLY NOW

EMI OPTION

Fee for Male Candidates						
Year	12 Month Zero Cost EMIs	(12th PCM %) >=95 OR JEE Mains Percentile >=99	(12th PCM %) >=90 <95 OR JEE Mains Percentile >=98.5<99	(12th PCM %) >=85 <90 OR JEE Mains Percentile >=97<98.5	(12th PCM %) >=80 <85 OR JEE Mains Percentile >=94<97	(12th PCM %) >=75<80 OR JEE Mains Percentile >=90<94	(12th PCM %) >=70 & <75 OR JEE Mains Percentile >=85<90
1st Year		11634	12467	13300	14134	14967	19134
2nd Year		12634	13467	14300	15134	15967	20134
3rd Year		13684	14517	15350	16184	17017	21184
4th Year		14786	15620	16453	17286	18120	22286

Fee for Female Candidates						
Year	12 Month Zero Cost EMIs	(12th PCM %) >=95 OR JEE Mains Percentile >=99	(12th PCM %) >=90 <95 OR JEE Mains Percentile >=98.5<99	(12th PCM %) >=85 <90 OR JEE Mains Percentile >=97<98.5	(12th PCM %) >=80 <85 OR JEE Mains Percentile >=94<97	(12th PCM %) >=75<80 OR JEE Mains Percentile >=90<94	(12th PCM %) >=70 & <75 OR JEE Mains Percentile >=85<90
1st Year		10634	11384	12134	12884	13634	17384
2nd Year		11534	12284	13034	13784	14534	18284
3rd Year		12479	13229	13979	14729	15479	19229
4th Year		13471	14221	14971	15721	16471	20221

One Time Payable (Not included in EMI)		
	Admission Fee	10000
	Enrolment Fee	2000
	Caution Money (Refundable)	5000

Scholarship for Wards of Defence personnel: 5%

EMI amount will vary as per the concessions the candidate is eligible for.

FINANCEPEER
GROW TOGETHER
EDUCATION FEE PAYMENT MADE EASY

APPLY NOW

UK DOMICILE CANDIDATES FULL FEE PAYMENT (10 % DISCOUNT)

Semester	Heads	(12th PCM %) >=95 OR JEE Mains Percentile >=99	(12th PCM %) >=90 <95 OR JEE Mains Percentile >=98.5<99	(12th PCM %) >=85 <90 OR JEE Mains Percentile >=97<98.5	(12th PCM %) >=80 <85 OR JEE Mains Percentile >=94<97	(12th PCM %) >=75<80 OR JEE Mains Percentile >=90<94	(12th PCM %) >=70 & <75 OR JEE Mains Percentile >=85<90	
1st Sem	Tuition Fee	90000	90000	90000	90000	90000	90000	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	60000	65000	70000	75000	80000	85000	
1st Sem	Payable Tuition Fee (10% discount)	54000	58500	63000	67500	72000	76500	
2nd Sem	Tuition Fee	90000	90000	90000	90000	90000	90000	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	60000	65000	70000	75000	80000	85000	
2nd Sem	Payable Tuition Fee (10% discount)	54000	58500	63000	67500	72000	76500	
3rd Sem	Tuition Fee	94500	94500	94500	94500	94500	94500	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	64500	69500	74500	79500	84500	89500	
3rd Sem	Payable Tuition Fee (10% discount)	58050	62550	67050	71550	76050	80550	
4th Sem	Tuition Fee	94500	94500	94500	94500	94500	94500	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	64500	69500	74500	79500	84500	89500	
4th Sem	Payable Tuition Fee (10% discount)	58050	62550	67050	71550	76050	80550	
5th Sem	Tuition Fee	99225	99225	99225	99225	99225	99225	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	69225	74225	79225	84225	89225	94225	
5th Sem	Payable Tuition Fee (10% discount)	62303	66803	71303	75803	80303	84803	
6th Sem	Tuition Fee	99225	99225	99225	99225	99225	99225	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	69225	74225	79225	84225	89225	94225	
6th Sem	Payable Tuition Fee (10% discount)	62303	66803	71303	75803	80303	84803	
7th Sem	Tuition Fee	104186	104186	104186	104186	104186	104186	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	74186	79186	84186	89186	94186	99186	
7th Sem	Payable Tuition Fee (10% discount)	66768	71268	75768	80268	84768	89268	
8th Sem	Tuition Fee	104186	104186	104186	104186	104186	104186	
	Scholarship	30000	25000	20000	15000	10000	5000	
	Net Tuition Fee	74186	79186	84186	89186	94186	99186	
8th Sem	Payable Tuition Fee (10% discount)	66768	71268	75768	80268	84768	89268	
Total		482240	518240	554240	590240	626240	662240	

10% Additional Scholarship on Net Tuition Fee for Girls Candidates

One Time Payable		
	Admission Fee (Non Refundable)	10000
	Enrolment Fee	2000
	Caution Money (Refundable)	5000

Other Charges (Per Sem)	Examination Fee	Library Fee	Insurance Fee (Per Year)	Students Welfare Fee	Sport Fee	Transportation Fee	Online Student Information	Total
	4000	1800	1000	750	500	1250	500	9800

For B.Tech (Hon.) a fee of Rs. 30000/- per semester extra from 3rd Semester onwards is applicable.

Scholarship for Wards of Defence personnel: 5%

APPLY NOW

EMI OPTION

		Fee for Male Candidates					
Year	12 Month Zero Cost EMIs	(12th PCM %) >=95 OR JEE Mains Percentile >=99	(12th PCM %) >=90 <95 OR JEE Mains Percentile >=98.5<99	(12th PCM %) >=85 <90 OR JEE Mains Percentile >=97<98.5	(12th PCM %) >=80 <85 OR JEE Mains Percentile >=94<97	(12th PCM %) >=75<80 OR JEE Mains Percentile >=90<94	(12th PCM %) >=70 & <75 OR JEE Mains Percentile >=85<90
1st Year		11634	12467	13300	14134	14967	15800
2nd Year		12384	13217	14050	14884	15717	16550
3rd Year		13171	14005	14838	15671	16505	17338
4th Year		13998	14832	15665	16498	17332	18165

		Fee for Female Candidates					
Year	12 Month Zero Cost EMIs	(12th PCM %) >=95 OR JEE Mains Percentile >=99	(12th PCM %) >=90 <95 OR JEE Mains Percentile >=98.5<99	(12th PCM %) >=85 <90 OR JEE Mains Percentile >=97<98.5	(12th PCM %) >=80 <85 OR JEE Mains Percentile >=94<97	(12th PCM %) >=75<80 OR JEE Mains Percentile >=90<94	(12th PCM %) >=70 & <75 OR JEE Mains Percentile >=85<90
1st Year		10634	11384	12134	12884	13634	14384
2nd Year		11309	12059	12809	13559	14309	15059
3rd Year		12018	12768	13518	14268	15018	15768
4th Year		12762	13512	14262	15012	15762	16512

One Time Payable (Not included in EMI)	Admission Fee	10000
	Enrolment Fee	2000
	Caution Money (Refundable)	5000

Scholarship for Wards of Defence personnel: 5%

EMI amount will vary as per the concessions the candidate is eligible for.

APPLY NOW

CS	Computer Science and Information Technology

Section 1: Engineering Mathematics

Discrete Mathematics: Propositional and first order logic. Sets, relations, functions, partial orders and lattices. Monoids, Groups. Graphs: connectivity, matching, coloring. Combinatorics: counting, recurrence relations, generating functions.

Linear Algebra: Matrices, determinants, system of linear equations, eigenvalues and eigenvectors, LU decomposition.

Calculus: Limits, continuity and differentiability. Maxima and minima. Mean value theorem. Integration.

Probability and Statistics: Random variables. Uniform, normal, exponential, poisson and binomial distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.

Computer Science and Information Technology

Section 2: Digital Logic

Boolean algebra. Combinational and sequential circuits. Minimization. Number representations and computer arithmetic (fixed and floating point).

Section 3: Computer Organization and Architecture

Machine instructions and addressing modes. ALU, data-path and control unit. Instruction pipelining, pipeline hazards. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode).

Section 4: Programming and Data Structures

Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.

Section 5: Algorithms

Searching, sorting, hashing. Asymptotic worst case time and space complexity. Algorithm design techniques: greedy, dynamic programming and divide-and-conquer. Graph traversals, minimum spanning trees, shortest paths

Section 6: Theory of Computation

Regular expressions and finite automata. Context-free grammars and push-down automata. Regular and contex-free languages, pumping lemma. Turing machines and undecidability.

Section 7: Compiler Design

Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code generation. Local optimisation, Data flow analyses: constant propagation, liveness analysis, common subexpression elimination.

Section 8: Operating System

System calls, processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU and I/O scheduling. Memory management and virtual memory. File systems.

Section 9: Databases

ER-model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control.

Section 10: Computer Networks

Concept of layering: OSI and TCP/IP Protocol Stacks; Basics of packet, circuit and virtual circuit-switching; Data link layer: framing, error detection, Medium Access Control, Ethernet bridging; Routing protocols: shortest path, flooding, distance vector and link state routing; Fragmentation and IP addressing, IPv4, CIDR notation, Basics of IP support protocols (ARP, DHCP, ICMP), Network Address Translation (NAT); Transport layer: flow control and congestion control, UDP, TCP, sockets; Application layer protocols: DNS, SMTP, HTTP, FTP, Email.

Name of Department:- Computer Science and Engineering

1. Subject Code: | TCS 756 | Course Title: | **Human Computer Interaction**

2. Contact Hours: L: | 3 | T: | - | P: | - |

3. Semester: VII

4. Pre-requisite: Fundamentals of Computer architecture

5. Course Outcomes: After completion of the course students will be able to

1. Explain the capabilities of both humans and computers from the viewpoint of human information processing.
2. Describe typical human–computer interaction (HCI) models, styles, and various historic HCI paradigms.
3. Apply an interactive design process and universal design principles to designing HCI systems.
4. Describe and use HCI design principles, standards and guidelines.
5. Analyze and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems.
6. Discuss tasks and dialogs of relevant HCI systems based on task analysis and dialog design.

6. Detailed Syllabus

UNIT	CONTENTS	Contact Hrs
Unit - I	Introduction : Importance of user Interface – definition, importance of good design. Benefits of good design. A brief history of Screen design.The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface	8
Unit - II	Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions	8
Unit – III	Screen Designing : Design goals – Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow – Visually pleasing composition – amount of information – focus and emphasis – presentation information simply and meaningfully – information retrieval on web – statistical graphics – Technological consideration in interface design	9
Unit – IV	Windows – New and Navigation schemes selection of window, selection of devices based and screen based controls.	8

	Components – text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors	
Unit – V	Software tools – Specification methods, interface – Building Tools. Interaction Devices – Keyboard and function keys – pointing devices – speech recognition digitization and generation – image and video displays – drivers	8
	Total	**41**

.**Text Books :**

1. "The essential guide to user interface design", Wilbert O Galitz, Wiley DreamaTech.

2. "Designing the user interface". 3rd Edition Ben Shneidermann , Pearson Education Asia.

Reference Book:

1. "Human – Computer Interaction". ALAN DIX, JANET FINCAY, GRE GORYD, ABOWD, RUSSELL BEALG, PEARSON.