

**KURUKSHETRA UNIVERSITY
KURUKSHETRA**

**Scheme of Examination and Syllabus for
Under-Graduate Programme**

**Programme: Bachelor of Science (Hons.) in
Information Technology**

**Under Multiple Entry-Exit, Internship and
CBCS-LOCF in accordance to NEP-2020 w.e.f.
2023-24 (in phased manner)**

**Scheme of Examination for Under-Graduate Programme
Under Multiple Entry-Exit, Internship and CBCS-LOCF in accordance to NEP-2020
w.e.f. 2023-24 (in phased manner)**

UG Programme with Single Major in Information Technology

FIRST YEAR: SEMESTER-1								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-1 MCC-A1 4 credit	B23-HIT-101	Digital Electronics-I	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-2 MCC-A2 4 credit	B23-HIT-102	Computer and Programming Fundamentals	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-M1 4 credit	From Available CC-M1 of 4 credits as per NEP							
MDC-1 3 credits	From Available MDC-1 of three credits as per NEP							
AEC-1 2 credit	From Available AEC-1 of two credits as per NEP							
SEC-1 3 credit	From Available SEC-1 of three credits as per NEP							
VAC-1 2 credit	From Available VAC-1 of two credits as per NEP							
FIRST YEAR: SEMESTER-2								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-3 MCC-A3 4 credit	B23-HIT-201	Digital Electronics-II	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
DSEC-A1 4 credit (select any one option)	B23-HIT-202	Office Automation Tools	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
	B23-HIT-203	Basics of Web Development	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-M2 4 credit	From Available CC-M2 of 4 credits as per NEP							
MDC-2 3 credits	From Available MDC-2 of three credits as per NEP							
AEC-2 2 credit	From Available AEC-2 of two credits as per NEP							
SEC-2 3 credit	From Available SEC-2 of three credits as per NEP							
VAC-2 2 credit	From Available VAC-2 of two credits as per NEP							

SECOND YEAR: SEMESTER-3								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-4 MCC-A4 4 credit	B23-HIT-301	Industrial Electronics	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-5 MCC-A5 4 credit	B23-HIT-302	Computer Programming with C	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-M3 4 credit	From Available CC-M3 of 4 credits as per NEP							
MDC-3 3 credit	From Available MDC-3 of three credits as per NEP							
AEC-3 2 credit	From Available AEC-3 of two credits as per NEP							
SEC-3 3 credit	From Available SEC-3 of three credits as per NEP							
VAC-3 2 credit	From Available VAC-3 of two credits as per NEP							
SECOND YEAR: SEMESTER-4								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-6 MCC-A6 4 credit	B23-HIT-401	Transistor & Linear Integrated Circuits	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-7 MCC-A7 4 credit	B23-HIT-402	Fundamentals of Database Management Systems	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-8 MCC-A8 4 Credits	B23-HIT-403	Electronic Communication	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
DSE-A1 4 credits (Select one option)	B23-HIT-404	Object Oriented Programming with C++	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
	B23-HIT-405	Programming in Java	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-M4(V) 4 credit	From Available CC-M4(V) of 4 credits as per NEP							
AEC-4 2 credit	From Available AEC-4 of two credits as per NEP							
VAC-4 2 credit	From Available VAC-4 of two credits as per NEP							

THIRD YEAR: SEMESTER-5								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-9 MCC-A9 4 credit	B23- HIT-501	Microprocessor 8085 Architecture & Programming	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-10 MCC-A10 4 credit	B23- HIT-502	Operating Systems	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
DSE-A2 4 credits (Select any one option)	B23- HIT-503	Web Development using ASP	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
	B23- HIT-504	Web Development using PHP	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
DSE-A3 4 credits (Select any one option)	B23- HIT-505	Data Structure	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
	B23- HIT-506	Animation Techniques	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-M5(V) 4 credit	From Available CC-M5(V) of 4 credits as per NEP							
Internship 4 credit	Internships							
THIRD YEAR: SEMESTER-6								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-11 MCC-A11 4 credit	B23- HIT-601	8085 Peripheral Devices and 8051 Microcontroller	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-12 MCC-A12 4 credit	B23- HIT-602	Introduction to Python Programming	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
DSE-A4 4 credit (Select any one option)	B23- HIT-603	Data Communication & Computer Networks	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
	B23- HIT-604	Data ware Housing & Data Mining	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
DSE-A5 4 Credits (Select any one option)	B23- HIT-605	Linux & Shell Programming	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
	B23- HIT-606	Internet Concepts & Applications	3	3	20	50	70	3 hrs.
		Practical	1	2	10	20	30	3 hrs.
CC-M6(V) 4 credit	From Available CC-M6(V) of 4 credits as per NEP							
SEC-4 2 credit	From Available SEC-4 of two credits as per NEP							

FOURTH YEAR: SEMESTER-7								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-H1 4 credit	B23- HIT-701	Artificial Intelligence & Machine Learning	4	4	30	70	100	3 hrs.
CC-H2 4 credit	B23- HIT-702	Software Engineering	4	4	30	70	100	3 hrs.
CC-H3 4 credits	B23- HIT-703	Satellite Communication	4	4	30	70	100	3 hrs.
DSE-H1 4 credits (Select any one option)	B23- HIT-704	Introduction to VHDL	4	4	30	70	100	3 hrs.
	B23- HIT-705	Cloud Computing	4	4	30	70	100	3 hrs.
PC-H1 4 credits	B23- HIT-706	Practical Based on B23-HIT -701 TO 704/705	4	8	30	70	100	6 hrs
CC-HM1 4 credits	From Available Minor of 4 credits as per NEP							
FOURTH YEAR: SEMESTER-8								
CC-H4 4 credit	B23- HIT-801	Signals & Systems	4	4	30	70	100	3 hrs.
CC-H5 4 credit	B23- HIT-802	Computer Graphics	4	4	30	70	100	3 hrs.
CC-H6 4 Credits	B23- HIT-803	Optical Fiber Communication	4	4	30	70	100	3 hrs.
DSE-H2 4 credits (Select any one option)	B23- HIT-804	Mobile App Development	4	4	30	70	100	3 hrs.
	B23- HIT-805	Internet of Things	4	4	30	70	100	3 hrs.
PC-H2 4 credits	B23- HIT-806	Practical Based on B23-HIT-801 TO 804/805	4	8	30	70	100	6 hrs
CC-HM2 4 credits	From Available Minor of 4 credits as per NEP							
OR								
Course	Paper(s)	Nomenclature of Paper	Credits	Hours/Week	Internal marks	External Marks	Total Marks	Exam Duration
CC-H4 4 credit	B23- HIT-801	Signals & Systems	4	4	30	70	100	3 hrs.
CC-H5 4 credit	B23- HIT-802	Computer Graphics	4	4	30	70	100	3 hrs.
Project/ Dissertation 12 credits	B23- HIT-807	Project/ Dissertation	8+4		-	300	300	-
CC-HM2 4 credits	From Available Minor of 4 credits as per NEP							

Session: 2023-24			
Part A - Introduction			
Name of the Programme	Bachelor of Science (B.Sc.) (Hons) (Information Technology)		
Subject	Information Technology		
Semester	FIRST		
Name of the Course	DIGITAL ELECTRONICS-I		
Course Code	B23-HIT-101		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VAC)	MCC-A1		
Level of the course	100-199		
Pre-requisite for the course (if any)	PHYSICS as a subject AT LEVEL-4.0 (CLASS XII)		
Course Learning Outcomes (CLO):	<p>After completing this course, the learner will be able to:</p> <p>CLO-1: To understand the basics of various Number systems and their conversions</p> <p>CLO-2: To understand the basics of logic gates, Boolean algebra and use of kmap</p> <p>CLO-3 To understand how to design combinational circuits</p> <p>CLO-4: To understand the working and use of Sequential digital circuits</p> <p>CLO-5: To learn and understand the use of various electronic components & equipments used for analysis of basic digital electronic circuits.</p>		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	45	30	75
Max. Marks: 100(70 Theory +30 Practical) Internal Assessment Marks: 20 Theory +10 Practical End Term Exam Marks: 50 Theory +20 Practical		Time: 3 Hours each for Theory & Practical	

Part B- Contents of the Course

Instructions for Paper- Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 compulsory and four more questions selecting one question from each unit.

Unit	Topics	Contact Hours
I	Number Systems: Binary, Octal, Hexadecimal number system and base conversions, Binary Arithmetic Operations, 1's and 2's complement representation and there arithmetic. Binary Codes- BCD, Grey, cyclic, ASCII, EBCDIC, Parity Bit Code, Unicode, Sequential Code	12
II	Logic Gates and K-Map: AND, OR, NOT, XOR, XNOR, NOR, NAND (Definition, Symbols & Truth table). Boolean Algebra: Postulates, Duality Principal, De Morgan's Law, Simplification of Boolean Identities, Standard SOP & POS Forms, Simplification using K-map, don't care condition implementation of SOP & POS form using NAND and NOR Gate, Logic Families- NAND and NOR Logics (DTL, TTL and CMOS)	12
III	Combinational Logic Design: Combinational Circuit design procedure, Half adder, full adder, half Subtractor, full Subtractor, parallel binary adder, 2'S complement adder/ Subtractor, Multiplexer and Demultiplexer, Decoder, Encoder, Code Converter.	10
IV	Sequential Circuits: 1 Bit memory cell, RS Flip-Flop, Clocked RS FF, JK-FF, Race around condition, MASTER SLAVE JK T-FF, D-FF, and Excitation table of Flip Flop, Conversion of Flip Flops.	11
V*	<p>Students have to perform six practicals out the list</p> <ol style="list-style-type: none"> 1. Measurement of resistance by colour code method and using M/M and to design a potential divider arrangement and familiarization of components such as capacitors, potentiometer, diode, transistors, etc. Study of basis logic gate (AOI). 2. Familiarization and Identification of the Digital ICs. 3. Circuit Design of AOI using discrete components on Breadboard 4. Realization of Boolean Identities on Digital Trainer Kit 5. Study of DTL NAND gate. 6. Study of TTL NAND gate. 7. Digital trainer using AOI. 8. Digital trainer using NAND. 9. Half adder/Full adder. 	30

Suggested Evaluation Methods	
<p>Internal Assessment:</p> <ul style="list-style-type: none"> ➤ Theory(10 Marks) <ul style="list-style-type: none"> • Class Participation (4 Marks) • Seminar/presentation/assignment/quiz/class test etc.: • Mid-Term Exam: (6 Marks) ➤ Practicum (5 Marks) <ul style="list-style-type: none"> • Class Participation: • Seminar/Demonstration/Viva-voce/Lab records etc.(5 Marks) • Mid-Term Exam: 	<p>End Term Examination:</p> <p>Theory: 50 Marks</p> <p>Practical: 20 Marks</p>
Part C-Learning Resources	
<p>Recommended Books/e-resources/LMS:</p> <ul style="list-style-type: none"> • Digital Electronics & Micro computers - R. K. Gaur (4 th edition). • Modern Digital Electronics by R.P. Jain. • Digital Fundamentals by Thomas J Floyd 	

Session: 2023-24			
Part A - Introduction			
Name of the Programme	Bachelor of Science (B.Sc.) (Hons) (Information Technology)		
Subject	Information Technology		
Semester	FIRST		
Name of the Course	Computer and Programming Fundamentals		
Course Code	B23-HIT-102		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VAC)	MCC-A2		
Level of the course	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: CLO1: To Learn about evaluation and various generations of computers CLO-2: to learn the concept of various secondary storage devices CLO-3 To learn how to plan a computer program CLO-4: To learn to concepts of making algorithms CLO-5: To get the Handson practice on Windows and Office Tools		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	45	30	75
Max. Marks: 100(70 Theory +30 Practical) Internal Assessment Marks: 20 Theory +10 Practical End Term Exam Marks: 50 Theory +20 Practical		Time: 3 Hours each for Theory & Practical	

Part B- Contents of the Course

Instructions for Paper- Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 compulsory and four more questions selecting one question from each unit.

Unit	Topics	Contact Hours
I	Introduction to computer system:- What is a Computer, Evolution & Generation of computers, Applications and characteristics of computers, Classification of Computers, Elements of Computer (Hardware, Software), Common input & output devices (Basic idea), Motherboard & Ports, Definition of software, relationship between hardware and software, types of software.	12
II	Memory: Concept of primary & secondary memory, RAM, ROM, types of ROM, Cache memory, CPU Registers, flash memory, Secondary storage devices: Sequential & direct access devices viz. magnetic tape, magnetic disk, CD, DVD.	10
III	Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation, Techniques of Problem Solving: Flowcharting, algorithms, pseudo code, decision table, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	12
IV	Algorithm: Searching, Sorting, and Merging: Linear & Binary Searching, Bubble, Selection, and Insertion Sorting, Merging. Computer Languages: Analogy with natural language, machine language, assembly language, high-level language, language translators, characteristics of a good programming language.	11
V*	<p>Students have to perform six practicals out the list</p> <ol style="list-style-type: none"> 1. Learn to create a folder, copy files, move files, delete files in Windows. 2. Learn to use the menu commands of MS-Word to Create, Edit, Modify, Format a document. 3. How to use mail merge and macro in MS Word. 4. Learn to use menu commands of MS-EXCEL to create and manipulate a spread sheet. 5. Working on spreadsheet like adding, deleting, merging cells, layout and style. 6. Create different charts in excel and implement formulas (automatic and use defined). 7. Create a spreadsheet with LOOKUP/VLOOKUP features. 8. Plot graphs and charts in MS EXCEL. 9. Create a Power Point presentation using slide template, animation, transition, adding tables and charts. 	30

Suggested Evaluation Methods

Internal Assessment:

- **Theory(10 Marks)**
 - Class Participation (4 Marks)
 - Seminar/presentation/assignment/quiz/class test etc.:
 - Mid-Term Exam: (6 Marks)
- **Practicum (5 Marks)**
 - Class Participation:
 - Seminar/Demonstration/Viva-voce/Lab records etc.(5 Marks)
 - Mid-Term Exam:

End Term Examination:**Theory: 50 Marks****Practical: 20 Marks**

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Sinha, P.K. &Sinha, Priti, Computer Fundamentals, BPB
2. Dromey, R.G., How to Solve it By Computer, PHI

REFERENCE BOOKS

1. Balagurusamy E, Computing Fundamentals and C Programming, Tata McGraw Hill.
2. Norton, Peter, Introduction to Computer, McGraw-Hill
3. Leon, Alexis & Leon, Mathews, Introduction to Computers, Leon Tech World
4. Rajaraman, V., Fundamentals of Computers, PHI

SEMESTER-II

Session: 2023-24			
Part A - Introduction			
Name of the Programme	Bachelor of Science (B.Sc.) (Hons) (Information Technology		
Subject	Information Technology		
Semester	SECOND		
Name of the Course	DIGITAL ELECTRONICS-II		
Course Code	B23-HIT-201		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VAC)	MCC-A3		
Level of the course	100-199		
Pre-requisite for the course (if any)	Concepts of design of combinational circuits as learned in semester-I		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: CLO-1: To understand the design and working of Sequential circuits CLO-2: To learn how shift registers work and its applications CLO-3 To understand the concept of digital memory and its uses CLO-4: To understand the working , types and use of Analog to Digital and Digital to Analog converters circuits CLO-5: Handson with various combinational and sequential circuits.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	45	30	75
Max. Marks: 100(70 Theory +30 Practical) Internal Assessment Marks: 20 Theory +10 Practical End Term Exam Marks: 50 Theory +20 Practical		Time: 3 Hours each for Theory & Practical	

Part B- Contents of the Course

Instructions for Paper- Setter

3. Nine questions will be set in all. All questions will carry equal marks.
4. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 compulsory and four more questions selecting one question from each unit.

Unit	Topics	Contact Hours
I	Sequential Circuits-I Counters: Asynchronous Counters- Mod-N or divided by N Counter. Synchronous Counter-Modulo Counters, Decade Counter. UP-Down Counters, Basic principle of digital clock.	11
II	Sequential Circuits-II: Registers : Shift Registers, Serial-in serial out (SISO), serial-in-parallel out (SIPO), parallel-in-serial-out (PISO) parallel-in-parallel-out (PIPO), bi-directional shift register, Universal Shift Register Applications of shift register – Ring counter, Twisted Ring Counter, Sequence Generator	10
III	Digital Memories: Memory System Parameters, ROM, PROM, EPROM, EEPROM, RAM (Static and dynamic), Programmable Logic Devices: Programmable Logic Arrays, Programmable Array Logic, Expanding Memory Size	12
IV	D/A and A/D converters: Digital and Analog Representation, D/A Converters: Weighted Resistor DAC, R-2R Ladder Type DAC, Specifications of DAC. A/D converters: Single slope A/D converter, Dual slope A/D converter, Successive approximation A/D converter, Specification of ADC and DAC	12
V*	<p>Students have to perform six practicals out the list :</p> <ol style="list-style-type: none"> 1. Design of 2's complement Adder/Subtractor using ICs on Breadboard 2. Multiplexer(4:1) and Demultiplexer Circuit (1:4) 3. JK, D & T Flip-Flops. 4. Divide by N Counter. 5. Shift register 6. DAC 7. ADC 8. Ripple' binary counter. 9. Synchronous binary-counter. 10. Up. Down counter 	30

Suggested Evaluation Methods

Internal Assessment:

- > **Theory(10 Marks)**
 - Class Participation (4 Marks)
 - Seminar/presentation/assignment/quiz/class test etc.:
 - Mid-Term Exam: (6 Marks)
- > **Practicum (5 Marks)**
 - Class Participation:
 - Seminar/Demonstration/Viva-voce/Lab records etc.(5 Marks)
 - Mid-Term Exam:

End Term Examination:

Theory: 50 Marks

Practical: 20 Marks

Part C-Learning Resources

Recommended Books/e-resources/LMS:

- Digital Electroics & Micro computers - R. K. Gaur (4 th edition).
- Modern Digital Electronics by R.P. Jain.
- Digital Fundamentals by Thomas J Floyd

Session: 2023-24			
Part A - Introduction			
Name of the Programme	Bachelor of Science (B.Sc.) (Hons) (Information Technology)		
Subject	Information Technology		
Semester	SECOND		
Name of the Course	Office Automation Tools		
Course Code	B23-HIT-202		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VAC)	DSEC-A1		
Level of the course	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: CLO-1: Functionality of Operating Systems and its applications, use of spread sheets CLO-2: To learn how to make presentation CLO-3: Learning and use of internet CLO-4: Understanding the use of Google office tools CLO-5: Handson with the various office automation tolls.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	45	30	75
Max. Marks: 100(70 Theory +30 Practical) Internal Assessment Marks: 20 Theory +10 Practical End Term Exam Marks: 50 Theory +20 Practical		Time: 3 Hours each for Theory & Practical	

Part B- Contents of the Course

Instructions for Paper- Setter

5. Nine questions will be set in all. All questions will carry equal marks.
6. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 compulsory and four more questions selecting one question from each unit.

Unit	Topics	Contact Hours
I	Introduction to GUI based OS: Introduction to various types of OS and its functions, User Interface. Various settings of GUI based OS. File and Directory Management, Various types of file extensions, Common Utilities, Word: Introduction of Word, creating, editing a document, modifying and formatting a document, using the speller in word, Creating and using macros, Use of mail merge in Word.	12
II	Spread Sheet: Objective of Spreadsheet, Elements of Electronics Spreadsheet, Manipulation of Cells and worksheet, Function and Charts Presentation: Introduction and Objective,. Basics of Power Point, Creation of presentation, Preparation of Slides, Providing Aesthetics, Presentation of Slides, Slide Show	11
III	Network and Internet: Introduction , Objective , Basics of Computer Networks, Concept and Basics of Internet Architecture, Preparing computer for Internet Access, World Wide Web, Web Browsing Software,. Configuring Web Browser, Search Engines	11
IV	Google Office Tools: Creating , saving , downloading , sharing files/folders from Google drive , creating and sharing Google docs, import and export docs, creating and sharing Google sheet, import and export Google sheet, Google forms and form responses , creating Google slides to present your ideas	11
V*	Recommended Tools to be used: Microsoft office/ Libre Office / Open Office / G Suite Students have to perform at least six practicals out of the list <ol style="list-style-type: none"> 1. Assembling of a system/ Identification of H/W components. 2. Installation of MS DOS, windows & other S/W. 3. Setting up of various input/output devices (monitor, printer, mouse, keypad etc.) in window environment. 4. H/W (Peripherals) installation. 5. Installation of S/W (OS, Application). 6. Use of S/W Tools (scandisk, antivirus, defragmentation etc) 7. Familiarization with basic DOS commands like screen handling, file & directory, disk, system handling commands. 8. In MS DOS creation of auto exec. Bat file & config.sys files and its implementation in installation of PC. 9. Use of multimedia applications using various multimedia tools. 	30

	<p>10. Internet: creating & sending e-mail, downloading, accessing, surfing, chatting, sending attachments.</p> <p>11. Creating a Document on Word and use of Mail merge</p> <p>12. Create and share files/folders in Google drive</p> <p>13. Create and share Google docs.</p> <p>14. Create and share Google sheets.</p> <p>15. Create and share Google Forms.</p> <p>16. Create and share Google slides</p>	
Suggested Evaluation Methods		
<p>Internal Assessment:</p> <p>> Theory(10 Marks)</p> <ul style="list-style-type: none"> • Class Participation (4 Marks) • Seminar/presentation/assignment/quiz/class test etc.: • Mid-Term Exam: (6 Marks) <p>> Practicum (5 Marks)</p> <ul style="list-style-type: none"> • Class Participation: • Seminar/Demonstration/Viva-voce/Lab records etc.(5 Marks) • Mid-Term Exam: 	<p>End Term Examination:</p> <p>Theory: 50 Marks</p> <p>Practical: 20 Marks</p>	
Part C-Learning Resources		
<p>Recommended Books/e-resources/LMS:</p> <ol style="list-style-type: none"> 1. Libre Office, Getting Started Guide by Libre Office Documentation Team 2. Microsoft Office for Dummies by Wallace Wang 3. Mastering Office 2016 by Lalit Mali, Notion Press Companies 4. 4. Computer Networking by Tittle Ed, McGraw Hills 		

Session: 2023-24			
Part A - Introduction			
Name of the Programme	Bachelor of Science (B.Sc.) (Hons) (Information Technology		
Subject	Information Technology		
Semester	SECOND		
Name of the Course	Basics of Web Development		
Course Code	B23-HIT-203		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VAC)	DSEC-A1		
Level of the course	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: CLO-1 : To impart the basic concepts of Web Technologies CLO-2: To understand concept and need of CSS CLO-3 To learn the concept of XML CLO-4: To strengthen the basics of java CLO-5: To create dynamic applications on web through server side technologies.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	45	30	75
Max. Marks: 100(70 Theory +30 Practical) Internal Assessment Marks: 20 Theory +10 Practical End Term Exam Marks: 50 Theory +20 Practical		Time: 3 Hours each for Theory & Practical	

Part B- Contents of the Course

Instructions for Paper- Setter

7. Nine questions will be set in all. All questions will carry equal marks.
8. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 compulsory and four more questions selecting one question from each unit.

Unit	Topics	Contact Hours
I	Introduction: Concept of Internet- History of Internet, Protocols of Internet, World Wide Web, URL, Web Server, Web Browser. History of HTML, Structure of HTML Document: Text Basics, Document: Images and Multimedia, Links and webs, Document Layout	11
II	Cascading Style Sheet: CSS: Need for CSS, introduction to CSS, basic syntax and structure using CSS, inline, internal and external CSS, Selectors, colour Background Cursor, Text fonts, List Tables	11
III	XML: Introduction of XML- Some current applications of XML, Features of XML, Anatomy of XML document, structuring data, XML namespace, Document Type Definitions and Schemas, Document object model, DOM methods, XSL, SAX, SOAP	11
IV	JavaScript-I: Document Object Model (DOM), Obtaining user inputs, memory concepts, Operators, Control Structures, Looping constructs, break, continue statements, Programmer defined functions, Scoping rules. Recursion and iteration, Array declaration and allocation, passing arrays to function, Objects: String, Date, Boolean, Window, document; using cookies, form validation in Java Script, Handling Events Using JavaScript.	12
V*	Students have to perform at least six practicals out of the list: <ol style="list-style-type: none">1. Introduction to Web Design and HTML2. Create, save and view a basic HTML page.3. Use of body section tags in Web-page.4. Use of head section elements and meta tags in web-page.5. Use of block-level elements.6. Use of external and internal links in a Document.7. Use of colour and image tage for image insertion and background images and Colours8. Incorporate multimedia (sound & video) elements in website/web-page.9. Creating Web Pages using XML.10. Write a Program using the concept of Java Script	30

Suggested Evaluation Methods

Internal Assessment:

- > **Theory(10 Marks)**
 - Class Participation (4 Marks)
 - Seminar/presentation/assignment/quiz/class test etc.:
 - Mid-Term Exam: (6 Marks)
- > **Practicum (5 Marks)**
 - Class Participation:
 - Seminar/Demonstration/Viva-voce/Lab records etc.(5 Marks)
 - Mid-Term Exam:

End Term Examination:

Theory: 50 Marks

Practical: 20 Marks

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. HTML 4.0 by E.Stephen Mack & Janen Platt
2. HTML Example book by Farrar & Smith (BPB)
3. The Complete Reference HTML by Thomas A. Powell (TMH)
4. Paul Deitel , Harvey Deitel, Abbey Deitel ,“Internet and world wide web – How to Program”, Prentice Hall

ANNEXURE-I

Levels of Courses

Levels of Courses: Courses shall be coded based on the learning outcomes, level of difficulty, and academic rigor. The coding structure is as follows:

0-99: Pre-requisite courses required to undertake an introductory course which will be a pass or fail course with no credits. It will replace the existing informal way of offering bridge courses that are conducted in some of the colleges/ universities.

100-199: Foundation or introductory courses that are intended for students to gain an understanding and basic knowledge about the subjects and help decide the subject or discipline of interest. These courses may also be prerequisites for courses in the major subject. These courses generally would focus on foundational theories, concepts, perspectives, principles, methods, and procedures of critical thinking in order to provide a broad basis for taking up more advanced courses. These courses seek to equip students with the general education needed for advanced study, expose students to the breadth of different fields of study; provide a foundation for specialized higher-level coursework; acquaint students with the breadth of (inter) disciplinary fields in the arts, humanities, social sciences, and natural sciences, and to the historical and contemporary assumptions and practices of vocational or professional fields; and to lay the foundation for higher level coursework.

200-299: Intermediate-level courses including subject-specific courses intended to meet the credit requirements for minor or major areas of learning. These courses can be part of a major and can be pre-requisite courses for advanced-level major courses.

300-399: Higher-level courses which are required for majoring in a disciplinary/interdisciplinary area of study for the award of a degree.

400-499: Advanced courses which would include lecture courses with practicum, seminar-based course, term papers, research methodology, advanced laboratory experiments/software training, research projects, hands-on-training, internship/apprenticeship projects at the undergraduate level or First year Postgraduate theoretical and practical courses.

500-599: Courses at first-year Master's degree level for a 2-year Master's degree programme

600-699: Courses for second-year of 2-year Master's or 1-year Master's degree programme

700 -799 & above: Courses limited to doctoral students