

HSC ICT Advance Full Course

[Online/Combo]

Syllabus (Archive Class)

Serial no	Subject	Chapter	Lecture
01	Information and Communication Technology	01	02
		02	04
		03	16
		04	08
		05	16
		06	08
		Total Chapter – 06	Total Lecture - 54

ICT (Reference Book: **UDVASH** Parallel Text)

Chapter	Lecture	Syllabus
Chapter-3 Number System and Digital Device	ICT-01	Number System- History of Invention of Numbers, Egyptian / Hieroglyphics Number System, Babylonian Number System, Roman Number System, Mayan Number System, Hindu-Arabic Number System, Types of Number Systems, Decimal or Decimal, Binary or Binary Number System, Octal Number System, Hexadecimal Number System.
	ICT-02	Number System Conversion - Convert decimal to any other number system.
	ICT-03	Convert any other number system to decimal.
	ICT-04	Reciprocal conversion of any number system other than decimal, conversion with calculator, binary addition-subtraction.
	ICT-05	Signed numbers, 1's complement, 2's complement.
	ICT-06	Code, BCD Code, Alpha Numeric Code, ASCII Code, EBCDIC Code, Unicode.
	ICT-07	Boolean Algebra- Boolean variables and constants, Boolean fundamental theorem, truth table.
	ICT-08	Boolean Functions, Boolean Equations, Duality, Logic Gates, Basic Logic Gates.
	ICT-09	Implementation of any circuit with compound gate, universal gate, special logic gate, NAND or NOR.
	ICT-10	Circuits and Equations (Drawing Logic Circuits from Boolean Equations, Writing Equations from Logic Circuits), Logic Functions Simplification.
	ICT-11	Generating Functions from Truth Tables, Boolean Algebra at a Glance.
	ICT-12	Digital Devices- Encoder, Decoder, Half Adder.
	ICT-13	Full adder, implementation of desired logic circuit using one or more ICs, implementation of full adder using half adder.
	ICT-14	Latch, Clock/Clock Pulse, FlipFlop (SR FlipFlop, JK FlipFlop, D FlipFlop, T FlipFlop)
	ICT-15	Structure of register, parallel load register or buffer register, counter, mode number or modulus of counter, synchronous counter.
	ICT-16	Asynchronous counter, shift-register counter, creative questions.
Chapter-5 Programming Language	ICT-17	Programming- Concept of programming language, different generations of programming languages, first generation, second generation, third generation, fourth generation, Fifth generation, level of programming language (low, middle, high)
	ICT-18	Translator program, compiler, interpreter, assembler.
	ICT-19	Steps of program creation, program organization, algorithm, flowchart (Flow diagram), flowchart symbols, basic pattern of flowchart formation, rules for creating a flowchart.
	ICT-20	Examples of algorithm and flowchart, pseudocode.
	ICT-21	C-Programming- History of programming language, structure of C program, constants, variables, data types, operators and their applications.
	ICT-22	Unary Operators, Binary Operators, Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Assignment Operators, Precedence of Operators.
	ICT-23	Ternary operators, keywords, library functions and header files.
	ICT-24	Comments, input/output, format specifiers, escape sequences.
	ICT-25	Control Statement- Branching & Looping, Conditional Control Statement (if, if - else, if - else if - else).
	ICT-26	Conditional control statement (switch - case - default), loop with go to statement.
	ICT-27	Loop (for loop, while loop, do while loop), entry control and exit control loop.
	ICT-28	Array- Concept of array, array declaration and array element access.
	ICT-29	Dimensions, one dimensional array, two-dimensional array, three-dimensional array.
	ICT-30	string (character array)
	ICT-31	function or user defined function.
	ICT-32	Area and Boundary of Variables, Creative Questions.
Chapter-4	ICT-33	Internet and Web Introduction- Internet Introduction, Web Introduction, Web Design Concept, Web Page and Web Site, Static Website, Dynamic Website, Network Protocol, Domain Name, URL.

Introduction to web design and HTML	ICT-34	Website structure, tree or hierarchical structure, web-linked or network structure, sequence or linear structure, hybrid or combination structure, web publishing and hosting.
	ICT-35	HTML- Introduction and versions of HTML, sample HTML code, element and tag, different types of tags, HEAD section tags.
	ICT-36	Body section tags, heading tags, text formatting tags.
	ICT-37	Style Attributes & CSS.
	ICT-38	Hyperlink, Add Image, Add Image in Background, List (Ordered & Unordered List)
	ICT-39	Table, border attribute, cells pacing and cellpadding attribute, border manipulation, pot (text box, radio button, check box, file input, submit)
	ICT-40	Special Characters, Semantic Elements, Some Special Terminology, Creative Questions.
Chapter-1 Information and Communication Technology: World and Bangladesh Perspective	ICT-41	Information and Communication Technology and Our Bangladesh- Data and Information, Technology, Information and Communication Technology: Bangladesh Perspective, Digital Bangladesh Initiative Software Industry, Concept of Global Village- Elements of Establishing Global Village, Communication, Housing, Education, Medical, Employment, Office, Business, Trade, Research, news, entertainment, social media, cultural exchange, VR- History, Constituents of Virtual Reality, Application and Impact of Virtual Reality, Uses and Benefits of Virtual Reality, Recent Trends in Information and Communication Technology- Defense, ICT in Defense Industry, Space Expedition, Application of ICT in Space Research, Space Expedition: Bangladesh perspective , Robotics, Features of Robot, Some Important Robot Introduction in Technology World, Use of Robot, Artificial Intelligence, How Artificial Intelligence Works, Applications of AI, Uses of AI, Disadvantages of Artificial Intelligence, Cryosurgery.
	ICT-42	Biometrics, Areas of Application of Biometric Technology, Steps of Individual Identification in Biometrics Technology, Bioinformatics, Gene Engineering, Methods of Genetic Engineering, Application of ICT in Genetic Engineering, Uses of Genetic Engineering, Genetic Engineering in the Context of Bangladesh, Nanotechnology methods, advantages and applications of nanotechnology, ICT-based production systems, information and communication technology and economic development, ethics in the use of information and communication technology, some discussed cybercrime incidents, different types of cybercrime, laws to suppress cybercrime, information and communication technology in social life Effects- Positive Effects of Information Technology, Negative Effects of Information Technology, Creative Questions.
Chapter-2 Communication Systems and Networking	ICT-43	Data Communication and Data Transmission- Concept of Data Communication, Signals (Analog and Digital), Fundamentals of Data Communication, Bandwidth, Calculation of Bandwidth, Data Transmission Methods, Parallel and Serial Transmission, Synchronous, Asynchronous and Isochronous Transmission, Modes of Data Transmission, simplex, half duplex and duplex transmission, unicast, broadcast and multicast.
	ICT-44	Data Communication Media, Wireless Media- Electro-Magnetic Spectrum and Reasons to Use Radio Waves, Microwaves and Infrared, Radio Waves, Microwaves, Terrestrial Microwave, Satellite Microwave, Infrared, Wireless Communication Systems, Wireless Internet Access Points, Hotspot, Bluetooth, Wi-Fi, WiMAX, mobile communications, different generations of mobiles.
	ICT-45	Wired medium – twisted pair cable, coaxial cable, connectors of coaxial cable, fiber optic cable, laser and LED, computer networking – concept of networking, purpose of computer network, types of networks, classification of network according to geographical spread, service delivery and control.
	ICT-46	NIC, Modem, Hub, Switch, Router, Gateway, Repeater, Bridge, Network Topology, Cloud Computing- Characteristics of Cloud Computing, Positive and Negative Effects of Cloud Computing, Creative Questions.
Chapter-6 Database Management system	ICT-47	Database- Difference between data and information, concept of database, spreadsheet vs database, computer memory and file and database storage.
	ICT-48	Advantage of using the database, area of use of the database (corporate, office, bank etc.).
	ICT-49	Table, Field, Record, Entity, Attribute, Value, Datatype, Relational Database- General Database vs Relational Database
	ICT-50	Features and uses of RDBMS, Key (Primary Key, Composite Primary Key, Foreign Key).
	ICT-51	Relationship (One to one, One to Many, Many to Many), Entity Relationship Diagram (ERD).
	ICT-52	Structured Query Language- CRUD, DML/DDI, Database Creation, Table CRUD, Record CRUD.
	ICT-53	Sorting, Joining, Indexing.
	ICT-54	Data Security- Data Encryption, Creative Questions.

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উদ্ভাস

একাডেমিক এন্ড এডমিশন কেয়ার



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