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TECHNOLOGY & LEARNING INSTITUTION LIMITED

Every Life, Every Moment, Every Day. A New Discovery...

IT TECHNOLOGIES COURSES

(SECTION 2)

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Every Life, Every Moment, Every Day. A New Discovery...

CASE MANAGEMENT INFORMATION SYSTEM

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Case Management Information System?

Case Management Information System is a computer software that helps you in managing and keeping all court records and activities electronically such as case files, court cases, court proceedings, including the judge in charge of the case, the plaintiff and defendant, the lawyers and the nature of the case or crime involved.

Case Management Information System is a method of keeping files and records of all court cases electronically for easy retrieval.

Today, almost every business and professional documents are developed and produced on a computer and mobile hand-held devices like smartphones. E-mail records and pages that are visited on the internet and they produce even more essential information about our daily lives. More importantly, the records and information that are stored on a computer can make or break a business or an individual, a group of people or a court case.

Computer and Digital forensics is defined as the science of locating, collecting, storing and making meaning out of the evidence that is located on a computer's hard drive and other sources and mediums of Electrically Stored Information (ESI) such as CDs and DVDs, Floppies, External hard drives, Thumb drives, and Voice mail servers so that it can be made use of as an evidence in a court of law. It is the use of specific and specialized techniques for the authentication, recovery, and analysis of electronic data when a case concerns various issues that are related to the reconstruction of computer usage, authentication of data and the examination of residual data by technical analysis or explanation of technical features of data and computer usage.

It is also the professional extraction and managing of potential electronic evidence from any computer, digital device or digital storage medium to help prosecutors, investigators, and the Trier of fact (Magistrates, Judges, and Members of Tribunals) in a criminal justice system at reaching the right judgment in litigation.

The various methods and workflows of a CMS - Case Management System are very different from every single court. CMS's powerful workflow feature allows administrators to set up the filing, processing, approvals, appeals, reproduction, and editing of case documents based on court regulations and protocols. This particular feature makes case processes happen faster by providing help to define stages, roles, and permissions connected case management. Document templates enable court staff to easily create and edit subpoenas, warrants, affidavits, orders, and decisions.

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Features of Case Management Information System

There are many features of the Case Management Information System and some of them are:

1. It makes use of a Centralized database system.
2. It has Multi-User Access.
3. It has several Data Analysis Tools.
4. It has an exceptional Service and Support system.
5. It has workflow and Scheduling features and Capabilities.
6. It is configurable and flexible.
7. It is web-based and accessible.
8. It has stringent security rules and standards.
9. It has case-linking capabilities.
10. It has role-based access.

Benefits of Case Management Information System

There are many benefits of the Case Management Information System, and some of them are:

1. Digital record-keeping with a Case Management Information System decreases paperwork in an organization.

2. Centralized data management of information allows for remote access to the data stored somewhere else.

3. A Case Management Information System presents real-time updates and quick access to information.

4. A Case Management Information System produces an efficient resolution of cases through the use of effective collaboration

5. A Case Management Information System brings about increased transparency and clear audit trails.

6. A Case Management Information System brings about improved and personalized customer care.

7. Learning to use A Case Management Information System can bring job opportunities for you because courts have begun adopting the system.

Functions of Case Management Information System

Some of the important functions include:

1. Electronic Case Filing: Backlogs of cases that haven't been processed are a major challenge for court systems with very restricted resources. With the online data entry power of a Case Management Information system, people using it can put in new case records and also update and save case records that are existing in a fully searchable database. Also, lawyers can electronically file case documents, thereby shortening the burden that paperwork brings on the court system, and in initializing cases and ensuring that all needed documents are filed properly and completed. Top-level officials can visualize an Audit Trail showing when a case file was modified and by whom.

2. Court Scheduling: A very important aspect of a case management system is helping to manage caseloads, scheduling, and calculating the time between case filing and transfer. A case management information system calendar component allows court officials to schedule hearings, properly arrange tasks and notifications and set meetings for themselves or other court staff.

3. Case Analytics and Reporting: Tracking performance in court helps to provide accountability, raises public trust and confidence in the judicial system and increases the rule of law. A Case Management Information System reporting feature automates the generation of customizable reports, lists, charts, and Public Views thereby allowing the controlled publication of performance information, and enhanced transparency and accountability. Reports, charts, and graphs can be exported to Word, Excel, PDF, etc.

Advantages of Studying Case Management Information System

There are lots of reasons why you need to study Case Management Information System and some of them are:

1. Case management tools allow you to make use of a better record-keeping system because all case-related content and collaborations are stored in a cloud-based data storage system.

2. If you are in the force, the knowledge of a case management information system is very essential and crucial so as to have information about a Case, both past and present in an orderly manner and to be able to manage the case efficiently.

3. With a Case Management Information System, you can interact directly with your customers from any platform of choice.

4. If you hold a legal profession, a lawyer, for example, you would definitely need the knowledge of a case management information system to be able to keep track of your client's individual cases in the order that you get them.

5. In terms of career opportunities, there are a lot of jobs available for certified Case Management Information System personals, ranging from the court, police department, military, etc.

Case Management Information System Course Outline

Case Management Information System - Introduction
Case Management Information System - Case Management Software
Case Management Information System - Video Lectures
Case Management Information System - Additional Resources
Case Management Information System - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

CHURCH MANAGEMENT INFORMATION SYSTEM COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Church Management Information System

Church Management Information System is the specialized software used in the management and information processing of church daily operations.

Church Management Softwares typically assist in the information management of the church congregation, workers departments, memberships, fundraising, events, accounting, mailings, report generations, bulletin publishing, soul-winning, etc

Types of Church Management Softwares

There are hundreds of various Church Management Softwares available to pick from when looking for one, Some are **Cloud-based** meaning they can be operated online without installation on your computer and others **Desktop-based** meaning you need to install them before use.

Here we list out 10 most popular Church Management Software:
1. Simple Church CRM
2. ACS Technologies
3. ServantKeeper
4. PowerChurch Software
5. ParishSOFT
6. Church Community Builder
7. CCIS
8. Church Windows
9. ChurchTrac
10. By the Book

In this course, we chose SimpleChurch CRM as our basic software for managing church information because it is cloud-based, flexible and simple to use.

SimpleChurch CRM is a Cloud-based Church Management Solution platform designed for churches that offer interactive management which helps users to track and manage operations such as phone calls, emails, memberships, letters, etc.

It is also a powerful and robust church management system designed to simplify the way churches manage information of their operations, from outreach to manage church attendance, collecting and managing donations and tithes, etc.

SimpleChurch CRM has the capability to mass-import members' information from Excel (CSV) and/or mass-update members' information. This church application software can export all membership, giving and interaction information to Excel (.CSV) - useful for using mail-merge, calling tree programs, and custom reports.

SimpleChurch CRM is divided into 9 major components which are:
1. Members
2. Groups
3. Interactions
4. Attendance
5. Reports
6. Utilities
7. Search
8. Settings
9. Permissions

To get the best user experience with this web-based software, It can be used with device drivers such as Windows, OS X, Linux, and it supports browsers like Mozilla Firefox 3.0 or greater, MS Internet Explorer 8 or greater, Apple's Safari 4.0 or greater, and Google Chrome. In SimpleChurch CRM, attendance can be entered manually or easily by the use of RFID cards which is referred to as Radio-Frequency Identification.

Benefits Of SimpleChurch Management System

1. Know Your Members: SimpleChurch organizes your members and prospects, by their commonalities, and makes it easy to look up people and their details, you can set up a public directory for members and cease worrying about your membership information.

2. Giving Made Easy: With our online giving service, you can use debit or credit cards to receive tithes and offerings from members. Easily track giving for your congregation and identify slumps with graphs for giving trends. You can even import giving data from other online giving services.

3. Outreach And Follow-Up: With interactions, you can easily track when you were last in touch with any member. By using interaction assignments you can involve pastors, small group leaders, and members in the ministry process. Keep up with people from their first visit to their baptism.

4. Attendance Trends: With Child Check-In, you can have multiple check-in stations within your church, letting you keep children secure. Our mass communication system keeps you in touch with everyone or just absentees via email, voice message, or text message. SimpleChurchCRM offers a robust attendance tracking system that not only allows you to see trends and absences but also finds and contacts absentees.

5. Better Mobile Integration: Our native iOS App lets you - add, edit, and view people, Add pictures to people, Take attendance, Send a mass email, SMS, and voice messages, Log, assign, view, and edit interactions.

For Android and WP users, we have a mobile web app that lets you do almost everything our native app does.

6. Mobile App: This is a key component of SimpleChurch CRM. It's optimized to allow you to manage communications with your church through email, SMS, and voice messaging. You can also take attendance and view interactions with members.

7. Child Check-In: SimpleChurch CRM gives your church the flexibility to manage multiple check-in stations in a way that works for you. Our child check-in feature is much more than just a label printer, It includes a kiosk mode, an iOS app, and the ability to text parents.

8. Smart Giving: We offer several convenient options for your members and visitors to give: online giving, mobile giving, text donations, recurring tithes and gifts, and giving kiosks. SimpleChurch Giving can help you increase your giving
budget by 30% or more.

Why Study Church Management Information System?

1. Church-Centric Functionality
2. Make Better Informed Decisions: Through the use of certain statistics, you can greatly influence the impact that your place of worship has on your community.
3. Track Church Finances: The contributions that your church collects in order to grow its reach and maintain itself, should always be tracked as accurately as possible, and keep tabs on donations.
4. Better Accountability
5. Job Opportunity and Career Advancement

In this course, you will learn everything you need to know about **Church Management Information System** with **Certificate** to showcase your knowledge and competence.

Church Management Information System Course Outline

Church Management Information System - Church Management Software Introduction
Church Management Information System - Simple Church CRM Overview
Church Management Information System - Simple Church CRM Groups
Church Management Information System - Simple Church CRM Members
Church Management Information System - Simple Church CRM Interactions
Church Management Information System - Simple Church CRM Attendance
Church Management Information System - Simple Church CRM Reports
Church Management Information System - Simple Church CRM Utilities
Church Management Information System - Simple Church CRM Aggregates
Church Management Information System - Simple Church CRM Visitors
Church Management Information System - Simple Church CRM Child Check-in
Church Management Information System - Simple Church CRM Integrations MailChimp
Church Management Information System - Simple Church CRM Integrations Planning Center Online
Church Management Information System - Simple Church CRM Drivers
Church Management Information System - Simple Church CRM Browser Compatibility
Church Management Information System - Exams and Certification

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CONSTRUCTION MANAGEMENT INFORMATION SYSTEM COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Construction Management Information System?

Construction Management Information System or CMIS is the software and applications used to digitally plan, design and oversee the execution and completion of a construction project. There are hundreds of software and applications used in Construction Management ranging from Open Source software to Paid or Premium software.

Construction Management or CM can be defined as the use of specialized project management techniques to direct and oversee the planning and execution of a construction project right from its beginning stage to its completion stage.

The Main Aim of Construction Management Information System or CMIS is to adequately control a construction project's Time, Cost and Quality using information technology (software and applications) in order to fulfill the owners and contractors agreement—also known as a Contract Agreement.

A Contractor is a person or company that manages the planning, execution, and completion of a project on a contract basis over a certain period of time. Contractors are assigned to a construction project most times through a bidding procedure involving different contractors.

The 7 Major Types of Construction

Agricultural Construction: This has to do with buildings for agricultural purposes, such as Cages, Barns, Animal sheds, Specialized fencing, Storage silos, Elevators, Water supply system, drains, tanks, wells, and ditches.

Residential Construction: This includes living houses, mansions, apartments, townhouses, etc.

Commercial Construction: These are buildings for business transactions such as offices, stores, commerce, trade, banks, malls, shopping centers, hotels, and services.

Institutional Construction: These are constructions for government use and other public organizations such as schools, fire and police stations, buildings, hospitals, transportation, libraries, museums, dormitories, research, etc.

Industrial Construction: These are larger buildings for heavy productions and storage such as chemical and power plants, steel mills, manufacturing plants, pipelines, oil refineries, platforms, and seaports.

Heavy Civil: These are the construction of transportation infrastructures such as roads, railroads, tunnels, streets, bridges, airports, and fortified military facilities.

Environmental Construction: Environmental constructions was always part of heavy civil construction, but is now separate because it deals with projects that improve the environment. Such as waterways, water treatment plants, sanitary and storm sewers, solid waste management, and air pollution control.

Construction Management Information System or CMIS is basically the software and applications used to digitally plan, design and oversee the execution and completion of a construction project. There are hundreds of software used in Construction Management ranging from Open Source software to Paid or Premium software.

The Top 10 Construction Management Softwares

These are based on popularity, they are as follows:

1. Oracle Aconex
2. Monday.com
3. Procore
4. PlanGrid
5. Buildertrend
6. Fieldwire
7. iTWO 4.0
8. CoConstruct
9. ComputerEase
10. Acculynx

Career Opportunities in Construction Management Information System

An increasing number of companies are bringing up the need for construction management information system professionals. If you are in the look for career opportunities that are available in this field, they are large, and some of them are listed below.

1. Job opportunities and career advancement.

2. Become a construction management information system specialist in an organization.

3. After taking this certification course of the construction management information system module, you can become a construction management information system expert.

4. Become a construction management information system consultant.

5. Become a construction management information system expert, either freelancing or in an organization.

6. Become a CMIS advisory consultant.

7. Become the manager of a construction business, whether it's your personal business or an organization

8. Become a construction management information system trainer.

9. Become a construction management information systems head commanding high pay.

In the Full Course, you will learn everything you need to know about **Construction Management Information System** from introduction to software practice with **Certificate** to showcase your knowledge.

Construction Management Information System Course Outline

CMIS - Introduction
CMIS - Construction Practices
CMIS - Management System
CMIS - Project Cost Estimating
CMIS - Project Planning
CMIS - Project Scheduling
CMIS - Production Planning
CMIS - Project Time Acceleration
CMIS - Resource Management
CMIS - Project Time Management
CMIS - Project Cost System
CMIS - Project Financial Management
CMIS - Scheduling Applications
CMIS - Construction Software Practice
CMIS - Exams and Certification

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CCTV COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is CCTV?

CCTV known as Closed Circuit Television is a self-surveillance security system designed for monitoring activities in both private and public places.

CCTV can also be defined as a surveillance system that allows video cameras to transmit direct signals with the help of a wire/wireless connection to a specific location. The signal transmitted is not broadcasted but can be stored in a storage device with the help of DVR for record keeping and future use. The reason why it is called a **Closed Circuit Television** is its characteristics of direct transmission and not broadcasted.

Advantages of CCTV

1. CCTV provides close monitoring security in both private and public places such as stores, event centers etc.
2. CCTV helps in monitoring our offices including financial institutions such as banks etc.
3. It provides security surveillance for protection of people in places of gathering such as events, clubs, market places etc.
4. CCTV helps in protection from theft and loss of property.
5. CCTV provides 24/7 monitoring service.
6. It provides job opportunity for CCTV professionals.
7. It serves as a source of self-employment.
8. They are used in deterring crimes.
9. They monitor busy places and help to secure property and life.
10. CCTV helps to keep past and present occurences for future use.
11. CCTV provide surveillance system for a house or work even when the owner is far away, can still monitor his asset from anyway using a remote system.
12. CCTV helps onlooker and investigators to be aware of certain occurrences before taking an action.

CCTV system provides security surveillance protection of people, assets, offices and the environment at large. A CCTV system comprises of mini cameras, recorders, drives and monitors. CCTV links a camera to a video monitor, using direct transmission system. This is unlike broadcast television where the signal is transmitted over the air and viewed with a television.

Components or Parts of a CCTV System

1. DVR
2. Hard-drive
3. BNC connectors
4. Video Cable
5. Monitor
6. Camera

A number of considerations must be taken into account when designing the power distribution system for CCTV. Therefore, it is prudent to consult licensed electrical engineers in the design and installation of a CCTV power distribution system. Inadequate power supply is one of the most common problems with CCTV equipment and can often be the cause of erratic or sporadic equipment behavior.

Proper CCTV system performance requires a clean, adequate power source. For example, it is possible for power to fluctuate considerably on hot days when air conditioning units overload power grids. Therefore, agencies should plan accordingly and specify power conditioning or backups as needed. The stability of the input power to CCTV equipment can be determined by taking several readings of the voltage and current levels over a short time period, or by using a voltage recorder for long-term monitoring.

Inadequate power supply can affect the quality of the video across the entire CCTV system. Placement of power components is an important design consideration. Placing low-voltage power components near high-voltage lines can induce currents in the low-voltage system, presenting a hazard to personnel and equipment. Alternatively, placing a power source too far away can cause power fluctuations and also drive the installation costs up due to the larger conductor sizes needed to reduce voltage drop over long distances.

CCTV Study

In the Full Course, you will learn everything you need to know about **CCTV Systems and Installation** with **Certificate** to showcase your knowledge and competence.

Duration: Study At Your Own Pace
Format: Web and Video Lectures

CCTV Course Outline

CCTV - Introduction/Overview
CCTV - System Requirements
CCTV - System Design Considerations
CCTV - Cameras
CCTV - Lenses
CCTV - Housing and Mounts
CCTV - Video Monitors
CCTV - Switchers and Multiplexers
CCTV - Video Recorders
CCTV - Wired Transmission
CCTV - Wireless Transmission
CCTV - Network Transmission
CCTV - Media Storage
CCTV - Scalable Network Storage
CCTV - Video Analytics
CCTV - Systems Approach
CCTV - Components Integration
CCTV - Digital Technologies
CCTV - Improvements to Existing Technology
CCTV - Major IT Trends
CCTV - Selection Criteria
CCTV - Vendor Resources
CCTV - Installation Video Lectures
CCTV - Exams and Certification

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CLOUD COMPUTING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Cloud Computing?

Cloud Computing is a platform which remotely allows storage, manipulation, configuration, management and easy access of hardware and software resources. Cloud computing offers online real-time data storage infrastructure and application for smooth accessibility and security.

Cloud Computing can also be defined as the on demand availability of computer system resources, including data storage and accessibility without direct active management by the user.

The Cloud Computing Concepts started in the year 1950 with implementation of mainframe computers, accessible via thin/static clients.

Advantages of Cloud Computing

1. Cloud Computing offers load balancing which makes applications more accessible and reliable.

2. The system offers online development and deployment tools, programming runtime environment through a model PaaS.

3. In Cloud Computing the cost is highly effective because it operates at high efficiency with optimum utilization.

4. All Cloud resources are very much available on the network in a manner that provide platform independent access to any type of clients.

5. Cloud Computing offers on-demand self-service. The resources can be used without interaction with cloud service provider.

Characteristics of Cloud Computing

1. On Demand Self Service
2. Board Network Access
3. Resource Polling
4. Measured Service
5. Remote Access
6. Security

Cloud Computing Service Models

1. Infrastructure as a Service (IaaS)
2. Platform as a Service (PaaS)
3. Software as a Service (SaaS)

Cloud Computing Deployment Models

1. Private Cloud
2. Public Cloud
3. Hybrid Cloud
4. Community Cloud
5. Distributed Cloud
6. Multi Cloud
7. Fluid Cloud
8. Big Data Cloud
9. HPC Cloud

Advantages of Studying Cloud Computing

1. It provides students with up to date knowledge of what cloud computing is all about compared to traditional ways of handling applications, data and other computing resources across the internet.

2. It enable students to know how fast or quick applications can be developed, implemented, stored, retrieved, etc across the cloud resources.

3. Cloud computing enhances instant accessibility, since applications builts on cloud are designed to be accessed from anywhere, provided there is internet connection.

4. It also makes hardware maintenance effortless, since traditionally, users have to patch software with the latest releases, upgrade and troubleshooting, but with cloud computing, users don't have to worry about that, since it will be handled by the cloud service provider.

5. Knowledge of cloud computing enhances better security, since incidents of data theft through theft of devices such as laptop or dekstop is very minimal. Users don't have to worry about that since all data and applications are stored in a centralized secure remote location.

6. It offers lots of job opportunities for cloud computing professionals.

7. For career advancement.

In the Full Course, you will learn everything you need to know about **Cloud Computing** with **Certificate** to showcase your knowledge.

Cloud Computing Course Outline

1. Cloud Computing Basics
1.1 Cloud Computing Introduction
1.2 Cloud Computing Overview
1.3 Cloud Computing Planning
1.4 Cloud Computing Technologies
1.5 Cloud Computing Architecture
1.6 Cloud Computing Infrastructure
2. Cloud Deployment Models
2.1 Public Cloud Model
2.2 Private Cloud Model
2.3 Hybrid Cloud Model
2.4 Community Cloud Model
3. Cloud Service Models
3.1 Infrastructure-as-a-Service
3.2 Platform-as-a-Service
3.3 Software-as-a-Service
3.4 Identity-as-a-Service
3.5 Network-as-a-Service
4. Cloud Advanced Concepts
4.1 Cloud Computing Management
4.2 Cloud Computing Data Storage
4.3 Cloud Computing Virtualization
4.4 Cloud Computing Security
4.5 Cloud Computing Operation
4.6 Cloud Computing Applications
4.7 Cloud Computing Providers
4.8 Cloud Computing Challenges
4.9 Cloud Computing Mobile
5. Cloud Computing Video Lectures
6. Cloud Computing Exams and Certification

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COMPILER DESIGN COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Compiler Design?

Compiler Design is the structure and set of principles that guide the translation, analysis and optimization process of a compiler.

A Compiler is computer software that transforms program source code which is written in a high-level language into low-level machine code. It essentially translates the code written in one programming language to another language without changing the logic of the code.

The Compiler also makes the code output efficient and optimized for execution time and memory space. The compiling process has basic translation mechanisms and error detection, it can't compile code if there is an error. The compiler process runs through syntax, lexical and semantic analysis in the front end and generates optimized code in the back end.

When executing, the compiler first analyzes all the language statements one after the other syntactically and then, if it's successful, builds the output code, making sure that statements that refer to other statements are referred to appropriately, Traditionally, the output code is called **Object Code.**

Types of Compiler

Cross Compiler: This enables the creation of code for a platform other than the one on which the compiler is running. For instance, it runs on a machine 'A' and produces code for another machine 'B'.

Source-to-source Compiler: This can be referred to as a transcompiler or transpiler and it is a compiler that translates source code written in one programming language into source code of another programming language.

Single Pass Compiler: This directly transforms source code into machine code. For instance, Pascal programming language.

Two-Pass Compiler: This goes through the code to be translated twice; on the first pass it checks the syntax of statements and constructs a table of symbols, while on the second pass it actually translates program statements into machine language.

Multi-Pass Compiler: This is a type of compiler that processes the source code or abstract syntax tree of a program multiple times before translating it to machine language.

Language Processing Systems Steps

High-Level Language: These are programs that contain #define or #include directives such as #include or #define. They are closer to humans language but far from machines. The (#) tags are referred to as preprocessor directives. They tell the pre-processor about what to do.

Pre-Processor: This produces input for the compiler and also deals with file inclusion, augmentation, macro-processing, language extension, etc. It removes all the #include directives by including the files called file inclusion and all the #define directives using macro expansion.

Assembler: This translates assembly language code into machine understandable language. Each platform (OS + Hardware) has its own assembler. The output of an assembler is known as an object file which is a combination of machine instruction along with the data required to store these instructions in memory.

Interpreter: An interpreter converts high-level language into low-level machine language almost similar to what Compiler does. The major difference between both is that the interpreter reads and transforms code line by line while Compiler reads the entire code at once and outputs the machine code directly. Another difference is, Interpreted programs are usually slower with respect to compiled ones.

Relocatable Machine Code: This enables the movement of a program using its unique address identifier. This can be loaded at any point in time and can be run.

Linker: It links and merges a variety of object files into a single file to make it executable. The linker searches for defined modules in a program and finds out the memory location where all modules are stored.

Loader: It loads the output from the Linker in memory and executes it. It basically loads executable files into memory and runs them

Features Of A Compiler

Correctness: A major feature of a compiler is its correctness, and accuracy to compile the given code input into its exact logic in the output object code due to its being developed using rigorous testing techniques (often called compiler validation) on an existing compiler.

Recognize legal and illegal program constructs: Compilers are designed in such a way that they can identify which part of the program formed from one or more lexical tokens using the appropriate rules of the language is syntactically allowable and which is not.

Good Error reporting/handling: A compiler is designed to know how to parse the error encountered from lack be it a syntactical error, insufficient memory errors or logic errors are meticulously handled and displayed to the user.

The Speed of the target code: Compilers make sure that the target code is fast because in huge size code its a serious limitation if the code is slow, some compilers do so by translating the bytecode into target code to run in the specific processor using classical compiling methods.

Preserve the correct meaning of the code: A compiler makes sure that the code logic is preserved to the tiniest detail because a single loss in the code logic can change the whole code logic and output the wrong result, so during design process, the compiler goes through a whole lots of testing to make sure that no code logic is lost during the compiling process.

Code debugging help: Compilers make help the debugging process easier by pointing out the error line to the programmer and telling them the type of error that is encountered so they would know how to start fixing it.

Benefits Of Using A Compiler

Improved performance: Using a compiler increases your program performance, by making the program optimized, portable and easily run on the specific hardware.

Reduced system load: Compilers make your program run faster than interpreted programs because it compiles the program only once, hence reducing system load and response time when next you run the program.

Protection for source code and programs: Compilers protect your program source by discouraging other users from making unauthorized changes to your programs, you as the author can distribute your programs in object code.

Portability of compiled programs: Compiled programs are always portable meaning that you can transfer it from one machine to another without worrying about dependencies as it is all compiled together.

In the Full course, you will learn everything you need to know about **Compiler Design** with **Certification of Completion** to showcase your knowledge/skill gained.

Compiler Design Course Outline

Compiler Design - Introduction/Overview
Compiler Design - Architecture
Compiler Design - Phases of Compiler
Compiler Design - Lexical Analysis
Compiler Design - Regular Expressions
Compiler Design - Finite Automata
Compiler Design - Syntax Analysis
Compiler Design - Types of Parsing
Compiler Design - Top-Down Parser
Compiler Design - Bottom-Up Parser
Compiler Design - Error Recovery
Compiler Design - Semantic Analysis
Compiler Design - Run-time Environment
Compiler Design - Symbol Table
Compiler Design - Intermediate Code
Compiler Design - Code Generation
Compiler Design - Code Optimization
Compiler Design - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

COMPUTER ENGINEERING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

Engineering?

Computer Engineering is a branch of engineering that combines computer science and electronic engineering for the development and maintenance of computer hardware and software.

Three Hundred years back in history, great philosophers and mathematicians like Leibnitz, Pascal, Boole and Babbage started the foundation of computing with their discoveries.

A notable scientist with the name JohVon Neuman describe computer hardware in five major parts:
1. The Central Processing Unit (CPU),
2. Input Unit,
3. Output Unit,
4. Working Memory and
5. Permanent Memory.

There are many types of Computers under these major categories namely; Personal Computers, Server Computers, Mainframe Computers. Here we will dive into Personal Computer - the most popular and commonly used which is also known as PC.

In 1981 PC - Personal Computer was established by IBM and it has had effect on communication. IBM built the PC with an Intel processor and also on Microsoft Simple Disk Operating System (MS DOS). Later on other companies like Compaq, AST etc also came into the scene and went on to develop their own hardware components.

A typical PC Unit consist of a Monitor, System Unit, Keyboard, Mouse and sometimes other peripherals like Scanners, Printers, Speakers etc.

The Outside of the System Unit

1. CD-ROM Drive Bay,
2. Diskette Drive Bay,
3. Power and Reset Button.
4. Computer Casing
5. Keyboard
6. Mouse

The Inside of the System Unit

1. The Motherboard
2. The Processor
3. The Random Acess Memory (RAM),
4. Read Only Memory (ROM) chips which contain BIOS and Start-up programs.
5. Ports (PS2, USB etc)
6. Busses and Expansion slots which are for expansion cards (graphics cards, network controllers, sound and video cards, TV cards ISDN cards etc).

The Start-up and Booting processes happens when you turn the power on, you will hear the fan motor first and then the texts starts scrolling on the screen, then the RAM test, you then receive command from ROM which will give you the POST and Basic Input Output System (BIOS) instructions. The operating system is read next from the hard drive.

Personal Computers - PC's run on system software which is also known as the operating system, there are various of them in the market. The operating system works hand in hand with the BIOS which is found in the ROM chip to help communicate with the hardware with the help of device drivers.

Device drivers are group of files or program that operates or controls each device attached to the computer. Every device has its own driver that helps it function with the operating system. In order words, drivers enables hardware devices to communicate smoothly with computers operating system.

Advantages of Studying Computer Engineering

Some of the advantages include:

1. Studying Computer Engineering helps to understand the software and hardware structure, design and architecture.

2. Studying Computer Engineering helps you develop relevant engineering skills in computing.

3. Studying Computer Engineering gives engineers tremendous job security and opportunity compare to other professions because of the demand in use of computer.

4. Studying Computer Engineering helps one to acquire logical thinking and critical analysis skills.

5. It develops your technical thinking and thought process in computing.

6. It will help you develop problem solving skills.

7. It improves your knowledge in creating solutions to computer problems.

8. It helps to understand the techniques in computer software installation.

9. It helps you understand and troubleshoot basic computer problems.

10. It helps increase efficiency and productivity of your computer.

11. It helps to elongate the life span use of your computer.

12. It helps you to save money if you know how to fix your own computer.

13. It provides self employment opportunity

14. It provides job opportunity and security.

How To Build/Couple a PC

1. Get Your Engineering Tools such as: 2 Phillips-head (cross-shaped) Screwdriver, Set of Needle-nose pliers, Anti-static Wrist Strap, Flashlight, Electrical tape etc.

2. Get the Components of Computer or PC such as: the inside unit and outside unit i.e Case, Motherboard, Keyboard, Mouse, RAM, CDROM, Processor, CPU Cooling Fan, Hard Drive etc.

3. We first install the Motherboard shield before installing the Motherboard, then

4. We install the Processor before installing the CPU cooling fan, then

5. We install the RAM and then

6. The Graphics Card then

7. We can install other Expansion Cards followed by

8. The Storage Drives i.e Hard drive, then

9. We install Optical Drives such CD ROM followed by

10. The Power Supply Unit,

11. We can then install the Case.

12. We can now boot the computer after which,

13. We can install Operating System using a Flash Drive or CD Drive.

Computer Engineering Study

In the Full course you will learn everything you need to know about Computer Engineering from the Fundamentals of Building a PC, to Repairs and Maintenance. You will fully understand the Computer Structure and Architecture. You will be a Competent Computer Engineer with **Certificate** to showcase your knowledge and competence.

Duration: Study At Your Own Pace

Computer Engineering Course Outline

Computer Engineering - Introduction To the PC
Computer Engineering - Guide to Mother board
Computer Engineering - Operating System
Computer Engineering - The RAM
Computer Engineering - The Start up Process
Computer Engineering - Setup Program
Computer Engineering - Introduction to Busses
Computer Engineering - The PCI
Computer Engineering - The PCI BUS
Computer Engineering - Clock CPU
Computer Engineering - Pentium Pro
Computer Engineering - CIRS and RISC
Computer Engineering - Chips Per Module
Computer Engineering - Pentium classic
Computer Engineering - Hard Disk
Computer Engineering - CD ROM
Computer Engineering - DVD ROM
Computer Engineering - System Software
Computer Engineering - Control of Hardware
Computer Engineering - Protect Mode
Computer Engineering - Screen Image
Computer Engineering - Refreshing Screen
Computer Engineering - Building a PC
Computer Engineering - Computer Repairs
Computer Engineering - Windows Installation
Computer Engineering - Exams and Certification

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COMPUTER FUNDAMENTALS COURSE

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CERTIFICATE OF COMPLETION

Fundamentals?

The Computer is an advanced electronic device that takes raw data as an input from the user and processes it under the control of a set of instructions (called program), produces a result (output), and saves it for future use.

The parts of the computer that you can see and can touch, such as the monitor, keyboard, and mouse are known as **Hardware,** while the set of instructions that direct the computer on what to do is known as **Software or Computer Program.**

Data which is the raw facts that you enter into the computer is known as **Input,** this includes; words, characters, numbers, sound, and pictures. When the input data has been processed by the computer, the meaningful output which the computer produces is called **Information.**

Benefits of Computer Fundamentals

There are many benefits to learning about computers, some of them are:

Employment Opportunities: Being Knowledgeable in computer opens lots of job opportunities to the individual, such as computer programmer, technician, engineer, software developer, engineer, and system analyst, because modern business depends heavily on computer devices or the network they need computer personnel to manage their computer needs.

Fast Skills Improvement: Having knowledge of computer means that you understand how computer software and hardware work and can adapt to any change because computer technology does not remain stagnant, as your position depends on using the computer efficiently you need to adapt quickly to any change.

Increased Knowledge: Studying the Fundamentals of Computers helps you understand everything about the computer, the types of computers we have out there, history and generations of the computer, you also learn about the individual components that make up the computer like the CPU, modem, etc.

Independence: With knowledge of computers, you can create jobs for yourself like open a software consultation website, blogs and computer-related jobs.

Increased Work Performance: Using a computer in a worrkspace increases the work performance because it makes carrying out tasks like taking meeting notes or memos to be done efficiently by either typing it in the laptop or by recording the meeting to listen later. The computer has programs such as spreadsheets and word processors which helps you organize your thoughts and ideas, and if you operate a large business, tasks like this are almost impossible to carry out manually without computer knowledge.

Leadership and Promotion: With basic computer knowledge, you open yourself to the opportunity of being promoted to higher positions within your workspace because being computer literate will allow you to work on more challenging project or tasks which could put you in leadership positions.

Improved Communication: The computer makes communication with others better and easier, with software applications like email applications, social media, and social forums.

Features of a Computer

There are many features of a Computer, Below are some basic features:

Processor: The computer has a processor that is one of the most important components whose job is to perform data processing by carrying out instructions in computer code.

Storage: The computer features two kinds of memory which is the Random access memory (RAM) and the Read-Only Memory (ROM). The Ram is known as the primary storage of the computer and is versatile meaning that it dosent hold information for long, while the Rom is the secondary storage that holds information for a longer period unless it is deleted from the disk.

Networking: A basic feature every computer has is its ability to connect to another computer over the network to retrieve data and information that is in it.

Computer Operating System: Every computer has an operating system that runs on it and knows how to connect to the different hardware attached to the computer and also manages memory allocation and allow computer software application to run on it, examples are the Windows Operating System, Linux and Mac.

The Full Course explains the Foundational Concepts of Computer Hardware, Software, Operating Systems, Peripherals, etc. along with how to get the most value and impact of computer technology.

Computer Fundamentals Course Outline

Computer Fundamentals - Introduction/Overview
Computer Fundamentals - Applications
Computer Fundamentals - Generations
Computer Fundamentals - Types
Computer Fundamentals - Components
Computer Fundamentals - CPU
Computer Fundamentals - Input Devices
Computer Fundamentals - Output Devices
Computer Fundamentals - Memory
Computer Fundamentals - RAM
Computer Fundamentals - Read-Only Memory
Computer Fundamentals - Motherboard
Computer Fundamentals - Memory Units
Computer Fundamentals - Ports
Computer Fundamentals - Hardware
Computer Fundamentals - Software
Computer Fundamentals - Number System
Computer Fundamentals - Number Conversion
Computer Fundamentals - Data and Information
Computer Fundamentals - Networking
Computer Fundamentals - Operating System
Computer Fundamentals - Internet and Intranet
Computer Fundamentals - How to Buy?
Computer Fundamentals - Exams and Certification

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COMPUTER GRAPHICS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Computer Graphics?

Computer Graphics is the art of drawing pictures and charts lines using computers achieved with the help of programming. Computer graphics are made up of a number of pixels. **A Pixel** is the smallest visible unit of an image displayed on the computer screen.

Computer Graphics is the technology that concerns the design and manipulation of pictures on the computer. **Graphics** is defined as an image or a visual representation of objects. It is all about computer programs that are capable of displaying pictures.

To display a picture of any size on a computer screen can be somewhat a difficult process. Computer graphics are used to simplify this process, various algorithms and techniques are used to generate graphics and make them display properly on computer devices.

Graphics in the computer screen are grouped into two types which are:

1. Raster Graphics and
2. Vector Graphics.

Raster Graphics Editor is a computer program that allows users to create and edit images as an array of pixels. Popular raster formats are JPEG, PNG, GIF and TIFF.

Vector Graphics use paths, points, lines, shapes, curves or polygons (all of which are based upon mathematical equations) for the same purpose.

Features of Computer Graphics

There are a lot of features of computer graphics software some of them are:

1. Title Bar: The title bar is the part that displays the document title usually at the top of the screen.

2. Ruler: The ruler feature is used to determine the size and position of objects that you are drawing on the computer.

3. Menu Bar: The menu bar is the area on the screen that contains a list of all the commands to be found within the graphic software.

4. Standard Toolbar: The standard toolbar is a bar that you can remove which shows short-cut commands of the software.

5. Property Bar: The property bar is a detachable bar that contains commands that are relative to the object or tool that you are currently working with.

6. Color Pallete: The color palette is a dockable bar in graphic design software that contains color swatches.

7. Drawing Window: The drawing window is an area outside the printable page. it creates a border around the printable page.

8. Drawing Page: The drawing window is a rectangular area inside the drawing window also known as the printable area because it is the printable area of your drawing.

9. Toolbox: The toolbox is a detachable bar containing tools for selecting, creating modify-ing and filling objects in the drawing.

10. Magnifier: The magnifier is used to zoom in or out on a particular selected area of your drawing or picture.

11. Eraser: The eraser as its name suggests, is used to erase areas of your drawing or pic-ture.

12. Text: The text feature is used to enter text in the picture or drawing.

13. Fill With Color: Fill with color is used to fill the entire picture or a selected covered shape with color.

Benefits of Computer Graphics

There are many benefits and advantages of computer graphics, some of them are:

1. Computer graphics gives us the ability to store, create and display complex drawings easily and properly with the help of programming.

2. Computer graphics allows us to use easily interactive devices to build simulations.

3. It widens our knowledge about graphics in computer programs and applications.

4. It helps in generating pictures or images.

5. It assists in changing and moulding images into motion pictures.

6. It makes computation easier and in an accurate way e.g. with the help of gridlines.

7. It also helps in performing sequence of transformation and translation or scaling of objects or images.

8. It is used for engineering drawing.

9. It is used in business presentations

10. It provides the ability of a computer system to store complex drawings and display them whenever needed.

11. Computer graphics is one of the most effective and commonly used ways of communicating graphics on computing devices.

12. One of the major goals of computer graphics is to create realistic images in real time.

Types of Computer Graphics

Basically there are two types of Computer Graphics namely:

Interactive Computer Graphics:- This involves a two way communication between the computer and the user. Here the user is given some control over the image by providing him with an input device for example the video game controller of the ping pong game. This helps him to signal his request to the computer. The computer on receiving signals from the input device can modify the displayed picture appropriately. The user can give a series of commands, each one generating a graphic response from the computer. In this way he maintain a conversation, or dialogue with the computer. Interactive Computer Graphics improves our life in a number of ways, for example, it helps to train pilots on aircrafts etc.

Non-Interactive Computer Graphics:- Non-Interactive Computer graphics is the type of graphics in which the user does not have any kind of control over the image. Image is merely the product of static stored program and will work according to the instructions given in the program linearly. The image is totally under the control of program instructions for example screen savers.

In the Full Course, you will learn everything you need to know about **Computer Graphics** with **Certificate** to showcase your knowledge and competence.

Computer Graphics Course Outline

Computer Graphics - Basics/Introduction
Computer Graphics - Line Generation Algorithm
Computer Graphics - Circle Generation Algorithm
Computer Graphics - Polygon Filling Algorithm
Computer Graphics - Viewing & Clipping
Computer Graphics - 2D Transformation
Computer Graphics - 3D Computer Graphics
Computer Graphics - 3D Transformation
Computer Graphics - Curves
Computer Graphics - Surfaces
Computer Graphics - Visible Surface Detection
Computer Graphics - Fractals
Computer Graphics - Computer Animation
Computer Graphics - Video Lectures
Computer Graphics - Exams and Certification

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COMPUTER PROGRAMMING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Computer Programming?

Computer Programming is the organized method and process of designing and building computer programs and applications to solve problems or to accomplish a specific computing task.

Programming have existed as far back as 1206 AD. Machine code was the early language of computer programs, as at then it was written in binary notations. Assembly language was later developed that allows programmer specify instruction in a text format.

The first standard computing program was introduced in 1843, when a mathematician named Ada Lovelace developed an algorithm to solve a sequence of Bernoulli numbers using Charles Babbage's Analytical Engine.

Advantages of Computer Programming

1. It enhances effective communication between the computer and the programmer.

2. It extend the work of a computer to function according to programmer's algorithm.

3. It is used to build softwares and applications used in various fields and sectors such medicals, agriculture, accounting, management etc.

4. It is used to build both desktop, web and mobile applications.

5. It serves as source of self-employment.

6. It provides lots of job opportunities globally.

7. It provides applications that makes life easier.

8. It is widely used for complex mathematical calculations

9. It enhances business operations and growth.

10. Computer programs have increased our socialization via the use of web and mobile applications for chats, business e.t.c

11. Computer programs help us simplify our work, save much time and increase productivity at work places.

Computer Programming Tasks

Computer programming tasks generally involves these major steps:

1. Analysis of Problem and Solution,
2. Generating Algorithms for the Solution,
3. Profiling Algorithms' Accuracy,
4. Ascertaining Resource Consumption,
5. Choosing the right programming language for the job.
6. The Implementation of Algorithms in a chosen or preferred programming language known as coding.

Computer Programming Features

Some of the common features of any computer programming language:

1. Programmer or Coder: The person who codes or writes programming language algorithm to solve problems or to achieve a specifc computing task.

2. Algorithms: can be defined as the step by step approach or method in solving a given problem. Algorithm expression involves the use of variables and data types.

3. Variables: are memory location for storing data in a computer program. The value of variables can change during the execution of the program. We have two types of variables:

- **String Variables and**
- **Numeric Variables.**

4. Data Types: are data attributes which instructs the compiler or interpreter how the programmer intends to use the data.Data types that exist across major programming languages like *C*, Java and Python are:

- **Ch,**
- **int,**
- **arrays,**
- **list,**
- **numbers (float, decimals etc),**
- **string etc.**

5. Coding Tools: The tools used in writing programs ranges from Text Editors, IDEs, Compilers and Interpreters.

- **Compilers:** A compiler is used to convert the program file to binary file.
- **Text Editors:** These are softwares used in writing raw codes.
- **Interpreters:** Interpreters are used to read and execute programs directly without any conversion.
- **IDEs:** also known as Integrated Development Environment (IDE) is a software application that provides comprehensive coder interface environment to computer programmers for software development. An IDE usually consists of: source code editor, automation tools and a debugger.

Types of Computer Programming Languages

There are hundreds of Programming Languages in existence, ranging from low-level language to high level programming languages. The most popular and commonly used ones are as follows:

1. C Programming Language
2. C# Programming Language
3. C++ Programming Language
4. Fortran Programming Language
5. Pascal Programming Language
6. Perl Programming Language
7. PHP Programming Language
8. Python Programming Language
9. ASP Programming Language
10. Java Programming Language
11. Javascript Programming Language
12. LISP Language
13. Scheme Language etc.

In the Full course, you will learn everything you need to know about **Computer Programming** with **Certificate** to showcase your knowledge and competence.

Computer Programming Course Outline

Computer Programming - Introduction
Computer Programming - Basic Elements
Computer Programming - Environment
Computer Programming - Basic Syntax
Computer Programming - Data Types
Computer Programming - Variables
Computer Programming - Keywords
Computer Programming - Operators
Computer Programming - Decisions
Computer Programming - Loops
Computer Programming - Numbers
Computer Programming - Characters
Computer Programming - Arrays
Computer Programming - Strings
Computer Programming - Functions
Computer Programming - File I/O
Computer Programming - Summary
Computer Programming - Exams and Certification

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COMMUNICATION TECHNOLOGIES COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Communication Technologies?

Communication Technologies, also known as Information Technology (I.T), refers to all equipments and tools that are used to process and communicate information. Professionals in the communication technology field specialize in the development, installation and servicing of these hardware and software systems. Individuals who study in this field will develop an understanding of the conceptions, production, evaluation and distribution of communication technology devices.

Communication is the exchange of information through the use of speech, signs or symbols. When early humans started speaking, that was the first mode of communication. Communication over a long distance when people who are communicating are not in direct line of each other's site is called Telecommunication.

The invention of the telephone and establishment of commercial telephony in 1878 marked a turn around in communication systems and real telecommunication was born. Telephones slowly gave way to television, satellite and finally computer networks. Computer networks have revolutionized modern-day communication and communication technologies.

Major Types of Communication Technologies

Communication Technologies are basically the equipments, tools, devices to make it easier for people to communicate and pass information around the globe.

Below are some major technologies enabling an easier and faster way to communicate:

Telephone: This is basically an electronic device designed for the simultaneous transmission and reception of the human voice. Telephone converts sound, usually the human voice, into electronic signals that are transmitted via cables and other communication channels to another telephone which reproduces the sound to the receiving user. Alexander Graham Bell revolutionized the way people communicate with his patent on the telephone in 1876. All over the world, millions of people can talk to each other, expanding businesses and improving relationships that might not otherwise have survived across long distances.

Radio: This involves the transmission, detection, and reception of communication signals consisting of electromagnetic waves that travel through the air in a straight line or by reflection from the ionosphere or from a communication satellite. It is basically a technology of signaling and communicating using radio waves. The radio waves are generated by an electronic device called a transmitter connected to an antenna that radiates the waves, and received by a radio receiver connected to another antenna. The radio receiver is an electronic device that receives radio waves and converts the information carried by them to a usable form clearly using the antenna. Antenna intercepts radio waves and converts them to tiny alternating currents which are applied to the receiver, and the receiver extracts the desired information.

Television: This involves the delivery and transmission of moving images (usually monochrome, two/three dimensions)and sound from a source to a receiver. This type of communication uses an electronic for receiving transmitted signals and usually known as a TV set. It is a mass medium for advertising, entertainment, and news. The TV was introduced to the public in 1946, even though it had been experimented with since late 1920. Television signals are distributed as terrestrial television using high-powered radio-frequency transmitters to broadcast the signal to individual television receivers.

Internet: This is one of the most major inventions in Communication Technologies. The Internet basically opens up a wide range of communication methods and also helps to enhance the existing method. The Internet is a global wide area network that connects computer systems across the world. The creation of the Internet allowed computer networks from around the globe to network with each other using the ISP suite, giving individuals access to an incredible wealth of information. It is a network of networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents and applications of the World Wide Web (WWW), electronic mail, telephony, and file sharing.

Benefits of Communication Technologies

Communication Technologies have helped to make the communication process more convenient and easier and it has a lot of benefits and advantages when compared to the traditional means of communication and below are some of the benefits of communication technologies.

Accessibility: Communication Technologies helped to make communication more convenient and accessible, especially long-distance communication because to message someone anywhere in the globe, you have a lot of tools in the computer to choose from, for example, email, social networks, etc which delivers the message in a heart-beat.

Social Influence: Communication Technologies, mainly communications via the internet like social networking websites and dating websites, has made easy the process of socializing. Social networking websites help you to keep in touch with friends and family while dating websites help you find someone compatible to be in a relationship with.

Mass Communication: Large organizations like schools and businesses, use electronic communication media to share information with a large number of people, schools can send bulk emails to students to inform them about a certain change in the school or a public holiday. Many higher institutions use electronic communication to maintain a well-informed campus.

Communication for the Disabled: A benefit of communication technology not often noted or discussed is that technology gave the disabled the ability to communicate, facebook for example allows even dumb people to easily communicate and share their opinions to everyone. Communication technology allows for people who have previously not been able to speak to have a voice through specialized computer software.

Long-Distance Communication: Early forms of transferring information across a long distance involves runners who ran messages to and fro between people and training pigeons to fly written messages. The advancement of communication technology has helped to make long-distance communication fast and effortless.

Social Comfort: For people who are socially awkward, computer communications such as online forums and chat rooms can help them create a more fulfilling social life.

Features of Communication Technologies

Below is a list of a few features of Communication Technologies

Asynchronous Communications: Communication Technologies allows companies, for example, to recruit workers who are in remote locations because asynchronous communications allows them to work together even in different time zone.

Electronic Mail: Electronic mail (e-mail) is widely used to communicate between team members. It has lots of valuable characteristics and features for project management:
Really Simple Syndication (RSS): Communication technologies allow users to subscribe to online news sources to read every update from a single app.

Voice Calling: Communication Technologies allows you to call and speak with someone instantly not minding the distance and time.

Video Calling: Communication Technologies allows for companies and business to call and discuss in real-time with the computer.

Instant Messaging: Communication Technologies allow you to text messages in an instant.

Communication Technologies Course Outline

Communication Technologies - Introduction
Communication Technologies - History of Networking
Communication Technologies - Terminologies
Communication Technologies - Switching Techniques
Communication Technologies - Transmission Media
Communication Technologies - Network Devices
Communication Technologies - Network Topologies
Communication Technologies - Types of Networks
Communication Technologies - Network Protocols
Communication Technologies - Mobile Communication Protocols
Communication Technologies - Mobile Communication Technologies
Communication Technologies - Email Protocols
Communication Technologies - VoIP
Communication Technologies - Wireless Technologies
Communication Technologies - Network Security
Communication Technologies - Firewall
Communication Technologies - Cookies
Communication Technologies - Hacking
Communication Technologies - Security Acts & Laws
Communication Technologies - Web Services
Communication Technologies - Exams and Certification

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CONCRETE ENGINEERING AND TECHNOLOGY COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Concrete Engineering and Technology?

Concrete Engineering and Technology is the application of various mechanisms and technology to concrete material mixing in order to enhance the process of concrete formation in civil engineering.

Concrete is a compound material that is made up of fine and coarse mixture of various crust and sand materials that are binded together with a fluid cement (or cement paste) that gets hardened over time in a cement binder. Some of the cement binders include: Lime Putty, and water-powered cement such as a Calcium Aluminate Cement or with Portland Cement to develop Portland Cement concrete (it was named such because of its visual resemblance to the Portland stone).

Many other non-cementitious types of concrete exist with several other methods of binding Concrete together, this includes: Asphalt Concrete together with a binder for Bitumen, which is commonly used for coating road surfaces, and polymer concretes that makes use of polymers as a binder.

When the Concrete is mixed together with dry Portland cement and water, the mixture then forms a slurry fluid that is easily poured and molded into any shape. The cement then reacts with the water and other ingredients to develop a hard matrix that bonds together the material into a durable stone-like material that has many uses.

Most times, various additives such as Superplasticizers or Pozzolans are added together in the mixture to enhance the physical properties of the wet mixture or the finished material. Most concrete is poured out with re-enforced materials such as rebar that are embedded to give the material tensile strength, therefore producing a reinforced concrete.

Features of Concrete Engineering

There are many features of modern concrete engineering and some of them are:

1. Grades (M20, M25, M30, etc.)
2. Compressive strength of the total mixture.
3. Characteristic Strength of material.
4. Tensile strength.
5. Durability.
6. Creep.
7. Shrinkage.
8. Unit weight.
9. Modular Ratio.
10. Poisson's ratio.

Benefits of Concrete Engineering and Technology

Concrete is so essential to our societies because it is the only material for building that cost-effectively delivers:

1. The lowest footprints of carbon for a pavement or structure over its lifecycle.
2. Unmatched durability, strength, longevity, and flexibility.
3. Maximized energy performance and efficiency via a thermal mass.
4. Durability in any environment it is used in.
5. A building material that doesn't rust, burn, or rot.
6. Safety and security.
7. Versatility, meaning that it can be turned into any shape, color or pattern that is imaginable.
8. No off-gas.
9. Excellent vibration and sound insulating material.
10. Low cost of maintenance.
11. 100 percent reusability, also, the various materials that are needed to make concrete are plentiful in just about every area on the planet.
12. Concrete is one of the most commonly used material for building. Its usage is worldwide, ton for ton, it is twice that of wood, steel, plastics, and aluminum combined together.
13. Concrete can be cast into any desired shape. Since it is a plastic-like material in fresh state, various forms, shapes, and sizes of formworks are used to produce different shapes such as circular, rectangular, etc.
14. The constituents of concrete are sand, cement, aggregates, and water. A mixture of cement and water is called a paste. So, concrete can be called a mixture of paste, sand, and aggregates. Sometimes rocks are simply used in the place of aggregates.

In The Full Course, you will learn everything you need to know about **Concrete Engineering and Technology** with **Certification** to showcase and document your knowledge.

Concrete Engineering and Technology Course Outline

Concrete Eng and Tech - Concrete as a Structural Material
Concrete Eng and Tech - Cement
Concrete Eng and Tech - Normal Aggregate
Concrete Eng and Tech - Quality of Water
Concrete Eng and Tech - Fresh Concrete
Concrete Eng and Tech - Strength of Concrete
Concrete Eng and Tech - Mixing,
Handling, Placing and Compacting Concrete
Concrete Eng and Tech - Admixtures
Concrete Eng and Tech - Temperature Problems in Concreting
Concrete Eng and Tech - Development of Strength
Concrete Eng and Tech - Strength Properties
Concrete Eng and Tech - Elasticity and Creep
Concrete Eng and Tech - Deformation and Cracking Independent of load
Concrete Eng and Tech - Permeability and Durability
Concrete Eng and Tech - Resistance to Freezing and Thawing
Concrete Eng and Tech - Testing
Concrete Eng and Tech - Conformity with Specifications
Concrete Eng and Tech - Lightweight Concrete
Concrete Eng and Tech - Mix Design
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Every Life, Every Moment, Every Day. A New Discovery...

CONTROL SYSTEMS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Control Systems?

Control System is a category of mechanical or electronic devices that control and regulate other devices or systems by using control loops mechanism.

A Control System command manages, directs, and regulates the activity of other devices or systems using control loops. It can range from an individual home heating controller using a thermostat that controls a domestic boiler up to large Industrial Control Systems which are used for controlling processes or machines.

A Control System is seen as a system, which provides the desired response by simply controlling the output. Control Systems are the basic part of the industry and of automation.

Types Of Control Systems

The Types of Control Systems processes include:

1. Industrial Control Systems (ICS) such as Supervisory Control and Data Acquisition (SCADA) and

2. Distributed Control systems (DCS).

What is Control Systems?

Some of the elements of Control Loops which are among the parts of Control Systems are:

1. Programmable Logic Controllers (PLC),
2. Programmable Automation Controllers (PAC),
3. Intelligent Electronic Devices (IED),
4. Remote Terminal Units and Sensors.

The Control Loops that make up the Control Systems themselves are made up of:

1. Sensors,
2. Controllers, and
3. Control Element.

The Sensor gets its input from the process variable or a measurement that is related to the process.

The Controller gets the signal from the sensor and then sends it to the instrument, which forwards it to the remote terminal units and then to the final control elements.

The Control Element is where the process variable is then adjusted and kept constant at a set point.

Features Of Control Systems

Accuracy: Effective Controls produce accurate data and information. Accurate information is important for effective managerial decisions. Inaccurate controls would divert management efforts and energies on Situations that do not exist or have a low priority and would fail to let managers know of serious problems that do require attention.

Timeliness: Inaccuracy should be reported as soon and regularly as possible to the management so that timely actions to restore it can be taken. Delay in actions may be as good as no actions. Fast collection of information on deviations can make the Control System prompt

Future-Oriented: The Control System enforces that mistakes made in the past are not repeated in the future. It is a process that is based on future plans. It helps in recreating the plans by giving out data upon which they should be based.

Multiple Control System: The Control System does not aim to control only one activity. Effective control systems control production sequence simultaneously, inventory, sales, cost, and quality. They should not only target the different areas of operations, but they should also aim at looking deviations of the inputs, work-in-progress (concurrent) and outputs (feedback).

Economical: It is generally expensive to install a control system in an institution. Therefore, the costs of the control system should be far less than its benefits. This is made possible by making corrective measures only on significant deviations. Control by exception at critical points reduces the use of resources on areas that best shows the organizational efficiency.

Flexible: Control Systems should be flexible to adjust operations to environmental changes. The impact of changes on planned performance (or standards) should be installed from time to time.

Operational: The Control System should not only find problems it should also correct them. Managers can manually create a problem and see how effectively the Control System works in such conditions.

Objective Standards: A Control System will be more successful if the standards of performance are objective. Standards must be quantifiable, specific and attainable. Poor or non-measurable standards will defeat the goal of the control system as it may be based on personal favoritism. It may leed to short-term gains at the cost of long-term profits.

Benefits And Advantages Of Control Systems

There are many Benefits of using a Control System, some of them are:

1. Quality Assurance.
2. Less Wastage.
3. Lower Cost of Operations.
4. Assists in Decision Making.
5. Production Planning.
6. Production Control.
7. Better Time Management.

In The Full Course, you will learn everything you need to know about **Control Systems** with **Certification** to showcase your knowledge and competence.

Control Systems Course Outline

Control Systems - Introduction
Control Systems - Feedback
Control Systems - Mathematical Models
Control Systems - Modelling of Mechanical Systems
Control Systems - Electrical Analogies of Mechanical Systems
Control Systems - Block Diagrams
Control Systems - Block Diagram Algebra
Control Systems - Block Diagram Reduction
Control Systems - Signal Flow Graphs
Control Systems - Mason's Gain Formula
Control Systems - Time Response Analysis
Control Systems - Response of the First Order System
Control Systems - Response of Second Order System
Control Systems - Time Domain Specifications
Control Systems - Steady State Errors
Control Systems - Stability
Control Systems - Stability Analysis
Control Systems - Root Locus
Control Systems - Construction of Root Locus
Control Systems - Frequency Response Analysis
Control Systems - Bode Plots
Control Systems - Construction of Bode Plots
Control Systems - Polar Plots
Control Systems - Nyquist Plots
Control Systems - Compensators
Control Systems - Controllers
Control Systems - State Space Model
Control Systems - State Space Analysis
Control Systems - Exams and Certification

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CRYPTOCURRENCY COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Cryptocurrency?

Cryptocurrency is a digital currency that can be used to purchase goods and services by making use of an online ledger with very strong cryptography to secure your online transactions. Much of the interest that arise in these unregulated currencies is to trade for profit, with speculators at many times driving prices skyward.

Cryptocurrency is a form of payment that can be exchanged online for many goods and services. Many companies have issued their own cryptocurrencies, often known as tokens, and these can be traded specifically for the good or service that the company provides. Think of them as you would think of an arcade tokens or chips in a casino. You will need to exchange real currency for the cryptocurrency to access the goods or the service.

How Cryptocurrency Work

Cryptocurrencies work by using a technology known as blockchain for its operations. Blockchain is a decentralized technology that spread across several computers that manages and records the transactions. Part of the appeal of this technology is its security.

Cryptocurrencies use cryptography to secure transactions and regulate the creation of more units. Bitcoin, the original and by far most well-known cryptocurrency, was launched in January 2009. Today there are over 1,000 cryptocurrencies that are available online used by millions of traders and users around the world.

Features of Cryptocurrencies

1. Cryptography: Cryptocurrencies
makes use of more advanced cryptography in a number of ways. Cryptography evolved out of the need for secure communication methods in world war II, in order to convert easily-readable information into an encrypted code. Modern cryptography has come a long way since then, and in today's digital world it is based primarily on computer science and mathematical theory. It also draws from communication science, physics and also from electrical engineering.

2. Blockchain Technology: A blockchain is the decentralised, public ledger or a list of a cryptocurrency's transactions. Completed blocks, made up of the latest transactions, are recorded and added to the blockchain network. They are stored in chronological order as an open, permanent and verifiable record. A peer-to-peer network of market participants are the ones that blockchains, and they follow a set protocol for validating new blocks. Each 'node' or computer connected to the network automatically downloads a copy of that blockchain. This would allow everyone to track transactions without the need for a central record keeping.

3. Block Mining: Block mining is the process of creating new transaction records as transaction blocks to the blockchain network. In the process using bitcoin as an example new bitcoins get produced, adding to the total number of coins that is out in circulation. Mining requires a specific piece of software that is used to solve mathematical puzzles, and this validates the legitimate transactions which make up blocks.

Benefits of Cryptocurrencies

There are many benefits of Cryptocurrencies, some of them are:

1. Easy transactions.
2. Asset transfers.
3. Confidential transactions.
4. Give access to credit.
5. Hold ownership.
6. Strong security.
7. Decentralization.

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CRYPTOGRAPHY COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Cryptography

Cryptography is the process of securing information from third party. It deals with information and communication security which involves the passing of information from one person to another without giving access to third party.

Cryptography deals with information confidentiality and security. It has the ability of transmitting information between people without giving access of such information to third parties.

It is a very important factor in information technology because it enables individuals and organization to pass vital information securely and selectively.

Cryptography is a term gotten from two key words **"krypto"** meaning hidden or secret and **"graphene"** meaning writing, therefore it means: **Secret Writing.**

Advantages of Studying Cryptography

The benefits and uses of Cryptography include:

1. It enables individuals and organizations to share information selectively and secretly.
2. It helps to ensure that information being sent to the receiver is authentic.
3. It provides security for data at all times making it an ideal solution to ensure that important information are kept secretly.
4. It ensures data integrity and information authentication.
5. It ensures privacy and reduces information theft.

Features of Cryptography

Confidentiality: Confidential information can only be accessed by the person who has the rights and no other person except him can access it.

Integrity: Integrity information cannot be edited in storage between sender and receiver without any addition to information being detected.

Non-Repudiation: Non-Repudiation information means the sender cannot deny his or her intention to send information at later stage.

Authentication: This means both the identities of sender and receiver are confirmed including destination/origin of information is confirmed.

Types Of Cryptography

Symmetric Key Cryptography: This is an encryption system where the sender and receiver of information use a single common key to encrypt messages.

Hash Functions: Hash functions makes it impossible for contents of plain text to be recovered such as encrypted passwords.

Asymmetric Key Cryptography: This is the use of pair of keys to encrypt and decrypt information.

Principles Of Cryptosystem

Principles of Cryptosystem by Kerchoff's include:

1. Cryptosystem should be unbreakable mathematically.
2. Whenever the cryptosystem falls into the hands of third parties, that shouldn't lead to compromise of the system.
3. The key should be easily communicable, memorable and changeable.
4. The Ciphertext should also be easily transmissible by telegraph.
5. The encryption system should be easily operatable by a single person.
6. It shouldn't be difficult to encode or decode.

In the Full course, you will learn everything you need to know about **Cryptography** with **Certificate** to showcase your knowledge.

Cryptography Course Outline

Cryptography - Origin of Cryptography
Cryptography - Modern Cryptography
Cryptography - Cryptosystems
Cryptography - Attacks On Cryptosystem
Cryptography - Traditional Ciphers
Cryptography - Modern Symmetric Key Encryption
Cryptography - Block Cipher
Cryptography - Feistel Block Cipher
Cryptography - Data Encryption Standard
Cryptography - Triple DES
Cryptography - Advanced Encryption Standard
Cryptography - Block Cipher Modes of Operation
Cryptography - Public Key Encryption
Cryptography - Data Integrity in Cryptography
Cryptography - Cryptography Hash functions
Cryptography - Message Authentication
Cryptography - Cryptography Digital Signatures
Cryptography - Public Key Infrastructure
Cryptography - Benefits & Drawbacks
Cryptography - Video Lectures
Cryptography - Exams and Certification

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CORELDRAW GRAPHICS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is CorelDraw Graphics?

CorelDraw Graphics is a software application developed by Corel Corporation used to create objects and vectors using predesigned tools such as lines, shapes and other drawing effects to produce meaningful and presentable graphics.

Features of CorelDraw Graphics

Some of the many features of CorelDraw Graphics include:

1. Easy to Use
2. LiveSketch tools
3. Enhanced vector previews, handles, and nodes.
4. Prominent interactive sliders
5. Custom node shapes
6. Touch-friendly GU interface
7. Powerful stylus enhancements
8. Import legacy workspaces
9. Font filtering and search
10. Corel Font manager
11. Multi-monitor
12. Healing clone tools
13. Copy Curve Segments
14. Gaussian blur feature

Advantages of Studying CorelDraw Graphics

The benefits are endless, some of which are:

1. To become an expert in the field of graphics.
2. A means of creating self employment by rendering graphics services to others.
3. It helps to express and picture our thoughts and ideas in graphics.
4. It enhances innovative skills and enriches your CV.
5. It provides self-employment opportunity.
6. It provides job opportunity.
7. It helps in branding our start-ups and ideas.
8. It helps in communicating plans andideas.
9. It helps us to create attractive graphics for advert placement.
10. It helps in statistics illustration.

Here we highlight some of the things you will learn in this course:

You will be able to identify lines and drawings from bitmaps which is made up pixels. Objects made up by pixels are best printed in there originally resolutions.

You will understand how to use the basic tools in the software package such as: pick tools, shape tools, transperency tool, extrude tool, shadow, fill tools, shape etc. The tools are selected interchangeably depending on the task you intend to do. For instance when you need to add a shadow to an object you go pick the shadow tools which is always at the left hand side of the software.

You will be able to choose the type of view that suite you, from the presets having normal, enhanced, wire frame etc.

You will be able to differentiate and identify the Taskbar such as property Tools bar, standard tools bar, menu tools bar etc. And also how to customize or position them on the workshop.

You will understand how to fill an object with its outline or without. Able to mix and blend colors together. Fountain fills, pattern fills, uniform fills, bitmap and etc including some templates that can help your work even faster and also you can add more templates.

You will learn how to choose the page layouts, page orientation, paper size, number of pages, color profile for your drawings at start up or after start up.

You will be able to work with fonts where we have the paragraph texts, artistic text. How to make a drop cap and links the text paragraphs together or flow the text together from one page to another.

In the Full Course, you will learn everything you need to know about **CorelDraw Graphics** with **Certification** of Completion to showcase your knowledge and competence.

CorelDraw Graphics Course Outline

CorelDraw Graphics - Getting Started
CorelDraw Graphics - Lines, Shapes and Outlines
CorelDraw Graphics - Objects, Symbols and Layers
CorelDraw Graphics - Color, Fills and Transparencies
CorelDraw Graphics - Special Effects
CorelDraw Graphics - Texts
CorelDraw Graphics - Templates and Styles
CorelDraw Graphics - Pages and Layouts
CorelDraw Graphics - Bitmaps
CorelDraw Graphics - Printing
CorelDraw Graphics - Web Graphics
CorelDraw Graphics - File Formats
CorelDraw Graphics - Customizing and Automating
CorelDraw Graphics - Video Lectures
CorelDraw Graphics - Exams and Certification

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COMPUTER NETWORKING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Computer Networking?

Computer Networking is the process involved in connecting computing devices for exchange of information and resources over cable media or wireless media. Cable Media are Wires, Network Cables and Optic Cables, while Wireless Media are WI-FI, Hotspot, Bluetooth, GPS, Radios etc.

Computer Networks are digital telecommunications systems that allows nodes or devices to interconnect and share resources. Early networks of computers included the U.S. military radar system Semi-Automatic Ground Environment (SAGE) dating back In the late 1950s.

Advantages of Computer Networking

Some of the advantages of Computer Networking include:

1. Securing valuable information
2. Cuts cost on software storage
3. Files accessibility and flexibility
4. Improved storage efficiency and volume
5. Helps to speed up business operations and growth
6. It helps in sharing data between remote offices and branches
7. It helps in sharing videos, pictures, and textfiles
8. It aids communication and transportation
9. It offers convenient resource sharing
10. It allows frequent collaboration
11. It allows free information sharing with speed
12. It increases storage capacity

Advantages of Studying Computer Networking

Some of the advantages of studying Computer Networking include:

1. It makes our work stress-free
2. It creates self employment opportunity
3. It creates job opportunity
4. Knowing loops of your network
5. Freedom to choose the best computer networking methods
6. It helps to save money if you can do it yourself

Types of Computer Networking

The available types of Computer Networks are as follows:

• **LAN :** Local Area Network interconnects devices that are not too far from each other, such as a few tens of kilometers apart.

• **MAN :** Metropolitan Area Network interconnects devices that are up to a few hundred of kilometers apart

• **WAN :** Wide Area Network interconnects hosts that can be located anywhere in the world.

• **GAN :** Global Area Network also interconnects hosts that can be located anywhere in the world.

Computer Networking Devices

The Key Computer Networking devices are as follows:

1. Hubs,
2. Routers,
3. Switch,
4. Modems,
5. Access Points,
6. LAN/Network cables,
7. Fiber Optics,
8. Telephone Cables,
9. Copper Cables,
10. Antennas,
11. Satellite Dishes.

Another Classification of computer networks is based on their Topology.

Network Topology is the pattern in which devices or nodes such as computers, printers, routers and other devices are connected to a Local Area Network (LAN) or other associated networks.

Types of Network Topologies

The various Network Topologies are as follows:

1. Bus Topology,
2. Ring Topology
3. Star Topology and
4. Mesh Topology

Computer Network Layers: are regarded
as the third level of the (OSI Model) - Open Systems Interconnection Model - This layer provides data routing paths for network communication.

Data is usually transferred in form of packets via logical network paths in an ordered format controlled by the network layer.

The Major Layers in Computer Networks

The major layers in Computer Networks are as follows:

1. Physical Layer: This is regarded as Layer 1. The Physical layers is the lowest of the IOS reference model.

2. Data Link Layer (DLL): Regarded as Layer 2. The Datalink Layer is responsible for the node to node delivery of messages.

3. Network Layer: The Layer 3. For transmission of data from one host to the other located in different network.

4. Transport Layer: This is Layer 4. It provides services to application layer and takes services from network layer.

5. Session Layer: The Layer 5. This is responsible for establishment of connection, maintenance of sessions.

6. Presentation Layer: Regarded as the Layer 6. This is also known as translation layer.

7. Application Layer: Application layer is at the very top of the IOS reference model stack of layers.

In the Full course you will learn everything you need to know about **Computer Networking** with **Certificate of Completion** to document and showcase your knowledge.

Computer Networking Course Outline

1. Network Basics
Computer Networking - Introduction
Computer Networking - Infrastructure
Computer Networking - Switches, Routers, and VLANs
Computer Networking - Servers and Virtualization
Computer Networking - Cloud Computing

2: Understanding Network Protocols
Computer Networking - Protocols and Standards
Computer Networking - TCP/IP and the Internet
Computer Networking - IP Addresses
Computer Networking - Routing
Computer Networking - DHCP
Computer Networking - DNS
Computer Networking - TCP/IP Tools and Commands

3. Planning a Network
Computer Networking - Local Area Networks
Computer Networking - Wide Area Networks
Computer Networking - Server Architecture
Computer Networking - Virtualization Architecture
Computer Networking - Storage Architecture

4. Implementing a Network
Computer Networking - Network Hardware
Computer Networking - Wireless Networks
Computer Networking - Windows Clients
Computer Networking - Mac Networking
Computer Networking - Network Printers
Computer Networking - Virtual Private Networks

5. Implementing Virtualization
Computer Networking - Hyper-V
Computer Networking - VMware
Computer Networking - Azure
Computer Networking - Amazon Web Services
Computer Networking - Desktop Virtualization

6. Implementing Windows Server 2016
Computer Networking - Installing Windows Server 2016
Computer Networking - Configuring Windows Server 2016
Computer Networking - Configuring Active Directory
Computer Networking - Configuring User Accounts
Computer Networking - Configuring a File Server
Computer Networking - Using Group Policy
Computer Networking - Configuring Internet Information Services
Computer Networking - Configuring Exchange Server 2016
Computer Networking - Configuring SQL Server 2014
Computer Networking - Windows Commands
Computer Networking - Using PowerShell

7. Implementing Linux
Computer Networking - Installing a Linux Server
Computer Networking - Configuring Linux
Computer Networking - Basic Linux Network Configuration
Computer Networking - Running DHCP and DNS
Computer Networking - Doing the Samba Dance
Computer Networking - Running Apache
Computer Networking - Running Sendmail
Computer Networking - Linux Commands

8. Managing a Network
Computer Networking - Network Administration Introduction
Computer Networking - Managing Remotely
Computer Networking - Managing Network Assets
Computer Networking - Managing the Help Desk
Computer Networking - Solving Network Problems
Computer Networking - Managing Software Deployment
Computer Networking - Managing Email Retention
Computer Networking - Managing Mobile Devices

9. Managing Cybersecurity
Computer Networking - Cybersecurity Introduction
Computer Networking - Managing Firewalls and Virus Protection
Computer Networking - Managing Spam
Computer Networking - Managing Backups
Computer Networking - Managing Disaster Recovery and Business Continuity Planning

10. Exams and Certification

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COMPUTER SECURITY COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Computer Security?

Computer Security is the combined steps and measures taken specifically to detect and stop unauthorized access to a computer system. It is also a process of securing data items that are sensitive to the computer from hackers and intruders.

Computer Security protects computer systems and information from harm, theft, and unauthorized use. There are methods, software, and techniques involved to enable system security, safeguard computing resources, enable data integrity, restrict access to authorized users, and retain data confidentiality.

Computer Security is a global demand to protect our computer systems from the malicious attackers from doing any damage to our hardware, software as well as disruption of the services provided.

Many people aren't aware of the cyber threats lurking on the World Wide Web, i.e., the internet. Have you ever thought of what would happen if all your credential information like username, password, credit card number, financial transactions, etc. is leaked from the internet.

Why is Computer Security Important?

Some of the reasons Computer Security is very important include:

1. Protection of personal and sensitive information

2. It helps prevent viruses and malware from attacking your computer system, which allows programs to run quicker and smoother.

3. Monitor and secure critical business processes.

4. To keep all the computer systems, network or software secure from the malicious attacks and keep the online information and data secure.

5. To secure vital information and sensitive data in corporate environment that uses computers.

Components of Computer System Security

The components of a computer system that needs to be protected are:

Hardware: This is the physical part of the computer, like the system memory and disk drive

Firmware: This is the permanent software that is designed into a hardware device's non-volatile memory and is mostly invisible to the user.

Software: This is the component built using programming languages that offer services, like operating system, word processor, the internet browser to the user.

How to Be Secured?

Computer Security plays a major role in securing our files, online accounts using password and complex encryptions.

Set Strong Password: This is actually the first line of defense to employ in computer security. The use of weak passwords would allow hackers to guess them easily and gain access to private user credentials and use them to get monetary benefits.

Backing up data: The second most important key to cyber-security is the backing up of data. This is done by saving a copy of your existing data on an external hard-disk so that if your device is stolen or compromised, your backup data would be a savior.

Protecting Wireless Network: All the wireless networks associated with businesses and individuals should be protected with a strong password. This prevents hackers from accessing or hijacking the wireless business network. Make sure that the wireless network is encrypted.

Advantages of Computer Security

Some of the advantages of computer security includes:

1. It provides protection from hackers and intruders.

2. It helps to secure against data loss and theft.

3. It reduces the chance of getting virus attacks from the internet with the help of antivirus.

4. It reduces the chance of unauthorized access.

5. It allows the encryption of data that secures the content being sent or communicated.

6. It creates job opportunities for computer security experts.

7. It can serve as a source of self-employment.

8. It allows employees to work safely in workplaces.

9. It gives adequate privacy to users.

10. It minimizes the cost of computer maintenance because computer freezing and crashes are reduced.

Main Features of Computer Security

1. Information Sharing Security: This talks about the security of information, such as the type or level of information we share without knowing, how dangerous it could be to one's company or to one's self, which implies that more care and caution has to be taken in divulging sensitive information and the person who is requesting such information must have the necessary or appropriate clearance or authorization.

2. Multiple Layers Security: This is important as it helps to tighten the security of a computer or software application. Multiple Layers Security helps to frustrate the intruder or hacker activities because it gives the hacker a hard time trying to penetrate knowing that after one layer there are still many other layers to try to penetrate.

3. Security Softwares: The use of security software such as Antivirus, Firewalls and Anti-malware to protects against all sort of Viruses and Malwares like Trojans, Worms that could harm or lead to loss of useful pieces of information on the computer.

4. Encryption Security: This is the process of providing adequate encryption layers such as:

A. SSL - Secure Socket Layer which provides encryption between clients and servers over the network or internet.

B. SSH - Secure Shell which provides encryption between host and host over the internet.

5. Back-Up Systems: This is the necessity of backing up one's data and information just in case the unexpected happens. Back-ups Security can be done via the following:

A. **Local Backups:** such as External Hard-Drives, Flash Drives, CD, DVD and other Removable Disks.

B. **Online Backups:** such as Cloud Backups, Server Backups, Network Attached Storage (NAS) and Storage Area Network (SAN).

6. Security Policies: As a system administrator, it is important to formulate policies that guides computer usages which ranges from:

A. User Policy,
B. I.T Policy,
C. Permissive Policy,
D. Prudent Policy,
E. Acceptance User Policy,
F. User Account Policy,
G. Special Access Policy,
H. Remote Access Policy,
I. Firewall Management Policy.

Computer Security Practices Include

Some of the common Computer Security daily practices include:

1. Never share passwords or passphrases.
2. Do not click random links.
3. Deploy encryption whenever available.
4. Remove unnecessary programs or applications that are not in use.
5. Always scan your computers with Antiviruses and Antimalwares.
6. Always run Automatic Updates.
7. Always run a Disk clean up and Defragmentation.
8. Always clear browser history and cache when using public computer.

In the Full Course you will learn everything you need to know about **Computer Security** with **Certificate** to showcase your knowledge for career advancement.

Computer Security Course Outline

Computer Security - Introduction
Computer Security - Elements
Computer Security - Terminologies
Computer Security - Layers
Computer Security - Securing OS
Computer Security - Antiviruses
Computer Security - Malware
Computer Security - Encryption
Computer Security - Data Backup
Computer Security - Disaster Recovery
Computer Security - Network
Computer Security - Policies
Computer Security - Checklist
Computer Security - Legal Compliance
Computer Security - Video Lectures
Computer Security - Exams and Certification

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CUSTOMER SERVICE TECH COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Customer Service?

Customer Service is the rendering of goods, services and support to customers before, during and after a successful sale or purchase.

Customer Satisfaction solely depends on how the employees of an organization can adjust themselves to the personality and need of the customers per time.

A Company or Organization that values good customer service will experience growth overtime. Customer service is the main pillar of profitability and growth, when your customers enjoy their first experience with your products and services, they keep coming back for more, so you don't have to keep spending so much money on advertisement overtime.

Customer Service plays a very important role in any organization's ability to continue to generate income and revenue. It is always included as part of an overall approach to systematic improvement. Attitude of every Customer Service rep is everything.

Greeting people with a smile or friendly hello can make a big difference with your customer, and for any customer service position, a customer service rep should develop friendly and patient attitude.

A Customer Service Representative is someone who takes the position of a Customer Support in an organization to assist customers make the right decisions in purchase as well as resolving issues encountered after purchase.

What is Customer Service Tech?

Customer Service Tech or Automated Customer Service is the use of both human capacity and modern technology to provide a more sophisticated customer support to achieve improved customer satisfaction. Many organizations have invested in both human capacity and technology to improve customer satisfaction as this is key to continous growth.

Why Customer Service Tech?

Organizations are moving towards automation, having first hand knowledge of customer service combined with modern technological aids can mean so much more for both the customer and the organization.

Customer Service Tech or Automated Customer Service is necessary in the following ways;

1. Maintain good business practices and healthy competitive advantage
2. Automation of organizational service processes
3. Monitor user enquiries and concerns across all social platforms
4. Provide excellent after sales service and user experience
5. Improved reflection of company's values
6. Improved customer reach and support through a wide range of channels
7. Stay ahead of customer service trends for marketing and business growth
8. Increased customer lifetime value

Features of Good Customer Service Tech

A good customer service representative sets out to create a positive experience for the customer using modern technologies at his or her disposal. The customer may not always get the results he was looking for, but a good customer service can make the customer feel like he got a fair deal. There are several features of good customer service that every customer service rep should incorporate in their customer service delivery.

Customers Are Important

One of the primary features of good customer service is that the customer is the primary focus. Make the customer feel important by treating the customer as though she is important.

Remain Professional

A good customer service representative knows how to remain calm and professional at all times. A calm and professional demeanor helps a good customer service representative make rational decisions even in the face of the most difficult customer situations.

Automate Task

Using modern technologies and processes, one features of good customer service is task automation and delivery, ensuring that the customer requests and needs are met in a timely manner.

Win-Win

A good customer service representative understands that a win-win situation is normally the best solution. The customer wins because he gets what he feels is a fair solution, and the company wins because it gets to retain some profit and keep a repeat customer.

Advantages of Customer Service Tech

The benefits are endless, some of the benefits of Customer Service Tech include:

1. Improved Customer Service: One of the major advantages of Automated Customer Service or Customer Service Technology is the increased ability to provide support service 24/7 via live kiosks, live chats, various customer relationship apps and softwares for communicating with customers as well as keeping their records, which achieves better results and far more preferrable.

2. Increased Customer Satisfaction

3. Higher Productivity

4. Continous Growth

5. Higher Profitability

6. Lowers Cost of Customer Service

7. Higher Lifetime Value

8. Helps to Maintain prompt resolution strategy needed for immediate resolution of customer complaints.

9. Increased sales and financial growth

10. It helps users get the most out of the company's product and services.

11. Access to firsthand testimonials and reviews and gain insights into customer experiences

12. Helps in customer retention

13. Attract customer loyalty and support through good customer service support

Tools Used in Customer Service Tech

There are efficient tools used to automate service delivery, this includes but not limited to:

1. Messenger Chatbots such as Facebook, WhatsApp etc.
2. Live Support Chat such as Skype, Tawk etc.
3. Self Service HelpDesk System
4. Intercom
5. Slack
6. The Automatic Callback Phone System
7. Dedicated Mobile Apps
8. Dedicated Desktop Apps
9. Online Ticketing System etc.

Why Study Customer Service Tech

1. Gain essential skills needed for good customer service delivery
2. Increased productivity and accuracy.
3. Gain in-depth knowledge on organizations products needed to handle requests and provide technical guidance.
4. Access to flexible working conditions
5. Knowledge of the right tools to aid in excellent customer delivery.
6. Job Opportunities and Career Advancement.

Customer Service Tech Study

In the Full Course, you will understand everything about **Customer Service and Automated Customer Service or Customer Service Technology. You will be a competent Customer Service Representative** with **Certificate** to showcase your knowledge and competence.

Duration: Study At Your Own Pace
Format: Web and Video Lectures

Customer Service Tech Course Outline

Customer Service Tech - Introduction
Customer Service Tech - Customer Service In The 21st Century
Customer Service Tech - The Three Key Elements Of Service
Customer Service Tech - What Customer Service Means
Customer Service Tech - Simple Huge Returns In Customer Service
Customer Service Tech - Conversations Over The Telephone
Customer Service Tech - Responding To Your Business Email Quickly!
Customer Service Tech - First Impressions In Customer Service
Customer Service Tech - Ten Major Do's And Don'ts Of Customer Service
Customer Service Tech - Communicating With The Unsatisfied Customer
Customer Service Tech - Follow -Up With The Customer
Customer Service Tech - Customer Service Traits To Copy
Customer Service Tech - Benefits Of Good Customer Service
Customer Service Tech - Agile CRM Software
Customer Service Tech - Video Lectures
Customer Service Tech - Exams and Certification

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CUSTOMER INFORMATION CONTROL SYSTEM - CICS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is CICS - Customer Information Control System?

CICS is the acronym for the **Customer Information Control System** that was developed by IBM in 1968. CICS allows it's users to generate and execute an online application in an MVS environment. CICS has become one of the most commonly used servers for developing and hosting Internet applications.

CICS is a transaction processing system that is also known as an Online Transaction Processing (OLTP) Software. CICS is a data communication information system that can support a network that is made up of hundreds of terminals.

CICS is a DB/DC software system that is used in online web applications. CICS was designed and developed because a batch operating system can run only batch programs. CICS programs can be developed by using COBOL, Java, C, C++, etc. These days, users want to get information within seconds and also in real-time. To provide such quick service, we would need a system that can access and process the information online. CICS allows users to communicate directly with the back-end system to get the informations that they desire. Some examples of these online programs include a flight reservation system, an online banking system, etc.

CICS is middleware software that is designed to support for a very fast, and high-volume processing of online transactions. A CICS transaction is a single unit of processing that is initiated by a single request which may affect one or more objects. This processing is regularly interactive i.e screen-oriented, but carrying out transactions in the background is possible.

CICS offers services that either extend or replace the functions of the Operating System and are developed to be more efficient than the regular services in the operating system and are made simpler for computer programmers to use, especially with regards to communication systems that have diverse terminal devices.

Applications that are developed for CICS may be developed in a variety of computer programming languages and they make use of CICS-supplied language extensions to interact with required resources such as database, files, terminals, connections, or to call various functions such as web services. CICS handles the entire transaction such that if for any reason a piece of the transaction fails all the recoverable changes can be withdrawn out.

Features of Customer Information Control System

Some of the features of CICS are as follows:

1. CICS is an Operating System on its own, as it operates its own storage for a processor, has its own task manager which is used to handle the execution of multiple programs, and to provides its own file management functions.

2. CICS presents users with an online environment in a batch operating system. Jobs that are submitted are carried out immediately.

3. CICS is a generalized processing interface for a transaction.

4. It is feasible to have one or more CICS regions at the same time, as CICS operates as a batch job in the Operating System at the back-end systems.

Attributes of Customer Information Control System

CICS has all the attributes that a perfect transaction framework ought to have. They are called ACID (Atomicity, Consistency, Isolation, and Durability) properties of transactions.

1. Atomicity: CICS Properties performing the transaction completely or not. For instance, in the event that there is a bank exchange between accounts, at that point cash ought to be charged from one record and in the meantime, it ought to be attributed to another record so as to play out the transaction totally.

2. Consistency: This property of CICS ensures that the information is predictable all through the transaction. From the above precedent, the cash exchanged ought to be equivalent when the transaction.

3. Isolation: This property is identified with security. At the point when more than one transaction is occurring in the meantime, transactions ought to be undetectable or somewhat obvious to the outsider. In the previously mentioned precedent, the transaction is undetectable to other people or just the person who is associated with the transaction can see the record.

4. Durability: Once the transaction is finished, information ought not to be lost or changed. At the point when cash is exchanged, the transaction ought not to be turned around in any circumstance, notwithstanding when there is any framework disappointment.

Benefits of Customer Information Control System

1. CICS helps to manage requests from several users of an application at the same time. Although several users are working on the CICS system at the same time, it would still give them the feeling that it is a single-user application.

2. CICS manages the sharing of resources, the integrity of data and prioritization of execution, with fast response.

3. CICS gives applications access to read or update data files in an Operating System. CICS authorizes users, allocates resources (real storage and cycles), and passes on database requests by the application to the appropriate database manager.

4. CICS Transaction Server is a family of scalable general-purpose transaction processing solutions such as distributed applications. These servers support large transaction volumes with fast, consistent response times and provide high availability and scalability at a low cost per transaction.

Why Study Customer Information Control System?

1. Learn to build customer transaction enterprise applications using CICS APIs

2. Better Job Opportunities and Career Advancement

3. Become a CICS professional.

4. Increase Your Earning Potential.

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DATA COMMUNICATIONS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Data Communications?

Data Communications refers to the transmission of digital data between two or more computers. A computer network or data network is a telecommunications network that allows computers to exchange data. The physical connection between networked computing devices is established using either cables media or wireless media. The best-known computer network is the **Internet.**

Data Communications are said to be local if communicating devices are in the same building or in a similarly restricted geographical area.

A Data Communication system can collect data from remote locations through data transmission circuits, and then output processed results to remote locations. The different data communication techniques which are presently in widespread use, evolved gradually, either to improve the data communications techniques already existing or to replace the same with better options and features.

What is Communication?

Communication is the process of sharing a message. A conversation between two people is an example of communication.

Characteristics Of Data Communications

The performance of a Data Communications system depends on four fundamental characteristics:

1. Delivery: The data must be delivered in the correct order to the correct destination.

2. Accuracy: The data must be delivered accurately.

3. Timeliness: The Delivered data must be timely because data delivered late is useless.

4. Jitter: It is the uneven delay in the packet arrival time that causes uneven quality.

Features Of Data Communications

A Data Communication system has the following features:

1. Message: It is the information or data to be transmitted. It is made up of text, numbers, pictures, sound video, or any combination of these.

2. Sender: It is the device or computer that develops and sends that message.

3. Receiver: It is the device or computer that receives the message. The location of the receiving computer is generally different from the sender's computer. The distance between the sender and receiver depends upon the type of network used in between.

4. Medium: It is the channel or physical path in which the message is carried from the sender to the receiver.

5. Protocol: It is a set of rules that govern the communication between the devices. Both the sender and receiver follow the same protocols to communicate with each other.

A protocol performs the following functions:

1. Data Sequencing: It refers to splitting a long message into smaller packets of fixed size. Data sequencing rules define the method of numbering packets to detect loss or duplication of packets and to correctly identify packets, which belong to the same message.

2. Data Routing: Data routing defines the most efficient path linking the source and destination.

3. Data Formatting: Data formatting rules define which group of bits or characters within the packet constitute data, control, addressing, or other information.

4. Flow Control: A communication protocol also prevents a fast sender from overwhelming a slow receiver. It ensures resource sharing and protection against traffic congestion by regulating the flow of data on communication lines.

5. Error Control: These rules are designed to detect errors in messages and to ensure the transmission of correct messages.

6. Precedence and Order of Transmission: These rules ensure that all the nodes get a chance to use the communication lines and other resources of the network based on the priorities assigned to them.

7. Connection Establishment and Termination: These rules define how connections are established, maintained and terminated when two nodes of a network want to communicate with each other.

8. Data Security: Providing data security and privacy is also built into most communication software packages. It prevents access to data by unauthorized users.

9. Log Information: Several communication software is designed to develop log information, which consists of all jobs and data communications tasks that have taken place.

Benefits Of Data Communications

There are many benefits of Data communications some of them are:

1. Data Communication allows us to relay information between two or more devices.

2. Data Communication makes the world a global village, which means that we are all connected to each other.

3. Data Communications make it easy for us to carry out mundane tasks that were hard to do before easily like messaging someone over a distance.

4. Data Communications enables the movement of electronic or digital data between two or more nodes, regardless of geographical location, technological medium or data contents, emails and instant messages, as well as phone calls are examples of data communications.

This course will teach you all about **Data Communication** including various concepts in **Data Communication** and **Computer Networks.**

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This course will teach you all about **Data Communication** including various concepts in **Data Communication** and **Computer Networks.**

Data Communications Course Outline

Data Communications - Introduction/Overview
Data Communications - Computer Network Types
Data Communications - Network LAN Technologies
Data Communications - Computer Network Topologies
Data Communications - Computer Network Models
Data Communications - Computer Network Security
Data Communications - Physical Layer
Data Communications - Digital Transmission
Data Communications - Analog Transmission
Data Communications - Transmission media
Data Communications - Wireless Transmission
Data Communications - Multiplexing
Data Communications - Network Switching
Data Communications - Data Link Layer
Data Communications - Error detection and Correction
Data Communications - Data Link Control & Protocols
Data Communications - Network Layer
Data Communications - Network Addressing
Data Communications - Routing
Data Communications - InterNetworking
Data Communications - Network Layer Protocols
Data Communications - Transport Layer
Data Communications - Transmission Control Protocol
Data Communications - User Datagram Protocol
Data Communications - Application Layer
Data Communications - Client-Server Model
Data Communications - Application Protocols
Data Communications - Network Services
Data Communications - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

DATA MINING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Data Mining?

Data Mining is the process of extracting usable data from a large set of any raw data. Data mining is a key part of knowledge discovery that helps to analyze an enormous set of data.

Data Mining can also be defined as the process of sorting through large data sets in order to discover and identify patterns and establish a relationship through data analysis.

Data Mining has applications in various fields of our life, like science and research. Businesses can learn more about their customers to develop more effective marketing strategies, increase sales, decrease costs, make better decisions by using software to understand deep insights of data.

Data Mining depends heavily on effective data collection, warehousing, and computer processing. This helps businesses be closer to their objectives and make better decisions that are future proof.

How Does Data Mining Work?

Data Mining deals with exploring and analyzing large pieces of information to extract meaningful patterns, trends, and insights to make better decisions. This can be used in a variety of ways, such as marketing, credit risk management, fraud detection, scientific discovery, determine users' behavior and sentiment.

To achieve this, the process involves effective data collection and warehousing as well as a computational process. Data mining employs sophisticated mathematical algorithms to segment the data and evaluate the probability of future events. Data mining is also recognized as Knowledge Discovery in Data (KDD).

The data mining process breaks down into the simple steps below:

1. First, organizations collect data and load it into their data warehouses.

2. Next, they store and manage the data, either on in-house servers or the cloud. Business analysts, management teams and information technology professionals access the data and determine how they want to organize it.

3. Then, application software sorts the data based on the user's results, and finally, the end-user presents the data in an easy-to-share format, such as a graph or table.

Types Of Data

Data Mining deals with varieties of data and below are some types of data, data mining is applied on:

Relational databases: This is base on the relational model of data. It is a set of structured data tables from which data can be accessed or reassembled in many various ways without having to reorganize the database tables.

Data warehouses: This is a system used for reporting and data analysis, and is regarded as a core element of business intelligence. It is a process of collecting and managing data from various sources to provide meaningful business insights.

Advanced DB and information repositories: This usually requires a level of aggregation of data that the lower-level databases simply cannot provide, thus necessitating the creation of a higher-level structure.

Object-oriented and object-relational databases: An object-oriented database is a database that subscribes to a model with information represented by objects. The main feature of object-oriented databases is allowing the definition of objects, which are different from normal database objects.

Transactional Databases: Transactional database is a collection of data organized by time-stamps, dates, etc to represent transactions in databases. With Transactional Databases, you have the full ability to roll back or undo its operation when a transaction is not completed or committed.

Spatial databases: Spatial databases are used for data involving spatially referenced data (i.e. data related to phenomena that have a position, and possibly, a shape, an orientation, and a size). Spatial databases can be implemented using various technologies, the most common now being the relational technology. They can have various structures and architectures according to their intended purpose. They store data in the form of coordinates, topology, lines, polygons, etc.

Heterogeneous and legacy databases: Legacy database is a group of heterogeneous databases that combines different kinds of data systems, such as relational or objects oriented databases, hierarchical databases, network databases, spreadsheets, multimedia databases, or file systems.

Types Of Data

Multimedia Database: This is the combination of interrelated multimedia data that includes text, graphics (sketches, drawings), images, animations, video, audio, etc and have vast amounts of multisource multimedia data. These are used to store multimedia data such as images, animation, audio, video, and text-based. This data is stored in the form of multiple file types like .txt(text), .jpg(images), .swf(videos), .mp3(audio) etc.

Text databases: Text databases consist of a huge collection of documents. They collect this information from several sources such as news articles, books, digital libraries, e-mail messages, web pages, etc. Due to an increase in the amount of information, the text databases are growing rapidly. In many of the text databases, the data is semi-structured.

Flat Files: Flat files are defined as data files in text form or binary form with a structure that can be easily extracted by data mining algorithms. Flat files are represented by the data dictionary. Eg: CSV file.

Web Data: This is a collection of documents and resources like audio, video, text, etc which are identified by Uniform Resource Locators (URLs) through web browsers, linked by HTML pages, and accessible via the Internet network. These are basically data found on the web with their unique URLs.

Advantages of Data Mining

1. Data Mining helps to extract information from a data set to give a meaningful insight for better decision making.
2. Data Mining helps in association/correlation between product sales.
3. Data Mining helps in checking competitors and monitoring market directions.
4. Data Mining helps in checking resources and spending.
5. Data Mining helps in checking and identifying criminality.
6. Data Mining helps to identify the kind of products your customers prefer per time.
7. Data Mining offers accurate market analysis.
8. Data Mining helps in fraud detection.
9. Data Mining helps with customer retention.
10. Data Mining helps in science exploration and research.
11. Data Mining helps in gaining higher returns on investment.
12. Data Mining provides job opportunities.

Features of Data Mining

1. Data Mining implies an analysis of data patterns in large batches of data using one or more software.
2. Data Mining has applications in multiple fields such as fields like science and research.
3. With Data Mining, businesses can get more information about their customers and develop more effective ways to improve business functions.
4. Data Mining is used in effective data collection and warehousing as well as computer processing for the arrangement and evaluation of the data.
5. Data Mining uses sophisticated mathematical algorithms.
6. Data Mining is also known as knowledge discovery.
7. Data Mining is a process used by companies to turn raw data into useful information.
8. With Data Mining, businesses can learn more about their customers to develop more effective marketing strategies, increase sales and decrease costs leading to higher profitability.
9. Data mining depends on effective data collection, warehousing, and computer processing.
10. Data mining can be used in a variety of ways, such as database marketing, credit risk management, fraud detection, Spam email filtering even to discern the sentiment or opinion of users.

The Data Mining Process

The Data Mining process is broken down into these five steps:

1. Organizations engage in the collection of data and load it into their data warehouses.
2. Organizations store and manage the data, either in-house-server or on the cloud.
3. Business analysts, management teams and information technology professionals access the data and determine how they want to organize it for use.
4. Applications software sorts the data based on the user's results.
5. Lastly, the end-user represents the data in an easy to share formats such as graphs or tables.

In the Full Course, you will learn everything you need to know about **Data Mining** with **Certification** to showcase your knowledge/skill gained.

The Data Mining Process

Data Mining - Introduction/Overview
Data Mining - Tasks
Data Mining - Issues
Data Mining - Evaluation
Data Mining - Terminologies
Data Mining - Knowledge Discovery
Data Mining - Systems
Data Mining - Query Language
Data Mining - Classification & Prediction
Data Mining - Decision Tree Induction
Data Mining - Bayesian Classification
Data Mining - Rules-Based Classification
Data Mining - Classification Methods
Data Mining - Cluster Analysis
Data Mining - Mining Text Data
Data Mining - Mining WWW
Data Mining - Applications & Trends
Data Mining - Themes
Data Mining - Exams and Certification

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DATA SCIENCE COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Data Science?

Data Science is a study of various scientific processes, algorithms, methods and systems to extract information and gain deep insights from both structural and un-structural data.

People who study and work in the field of data science are called Data Scientists. They combine range of skills in collecting and analyzing data from various sources.

Data Scientists most times come from many different educational and work experience backgrounds.
These are:
1. Business Domain
2. Research Institute
3. Mathematics (includes statistics and probability)
4. Computer Science (e.g. software/data architecture and engineering)
5. Communication (both written and verbal)

As the world has come to an era of big data, the need for its storage also grew. This was the major challenges and concerns for the enterprise industries not until 2010.

The main focus was having the ability to building a framework and solutions to store data. Now when Hadoop and other frameworks have successfully found a solution to the problem of storage, the focus has now shifted to processing this data.

Data Science is the secret behind it here. All ideas which you can see in the Hollywood sci-fi movies can actually be changed into reality by Data Science.

Data Science can be themed as the future of Artificial Intelligence. Therefore, it is very important to learn and come to an understand of what Data Science is all about and how can it add value to your business.

What Does a Data Scientist Do?

A Data Scientist will take a deep view into the available data extracted from many sources and angles, then extrapolate these data and share the insights with analysts and organizations.

Some of the activities of Data Scientist are:

1. Identify the data-analytics problems that offer the greatest opportunities to the organization

2. Determine the correct data sets and variables

3. Collect large sets of structured and unstructured data from disparate sources

4. Clean and validate the data to ensure accuracy, completeness, and uniformity

5. Devise and apply models and algorithms to mine the stores of big data

6. Analyze the data to identify patterns and trends

7. Interprete the data to discover solutions and opportunities

8. Communicating findings to stakeholders such as analysts and organizations using visualizations and other presentation means.

What Does a Data Analyst Do?

Data Analyst will explain and interprete the extracted data in a clearer and consumable format.

Some of the methods of data presentations and analytics include:

Descriptive Analytics: evaluates and presents what has happened in the past in a descriptive and precisely clear format, such as monthly or yearly revenue, weekly sales, daily website traffic, daily page impressions, quarterly app purchases etc

Diagnostic Analytics: considers the reason for a past or current happenings by comparing descriptive data sets to identify dependencies and patterns per time.

Predictive Analytics: If you would like a model which will predict the chances of a specific event within the future, you would like to use predictive causal analytics. Here, you'll build a model which will perform predictive analytics on the payment history of the customer to predict if the longer term payments are going to be on time or not.

Prescriptive Analytics: If you would like a model that has the intelligence of taking its own decisions and therefore the ability to switch it with dynamic parameters, you certainly need prescriptive analytics for it.

Features and Benefits of Data Science

These are some of the numerous advantages of Data Science:

Data Science is in Demand

Data Science is Versatile

Data Science Makes Data Better

Data Science can Save Lives

Data Science Helps To Make Better Business Decisions

Helps to Ascertain Current and Future Trends

No More Boring Tasks

Insights from Data Science can help improve management operations and customer satisfaction among others.

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Insights from Data Science can help improve management operations and customer satisfaction among others.

Why Study Data Science

Reasons to learn Data Science

Data Science Makes Products Smarter

Data Science Offer Abundance of Positions

Data Scientists are Highly Prestigious

A Highly Paid Career

Enrich Your CV and Attract Better Jobs

Increase Your Earning Potential

Data Science Course Outline

Data Science - Introduction
Data Science - Wrapping Your Head around Data Science
Data Science - Exploring Data Engineering Pipelines
Data Science - Applying Data-Driven Insights to Business
Data Science - Machine Learning: Learning from Data
Data Science - Math, Probability, and Statistical Modeling
Data Science - Using Clustering to Subdivide Data
Data Science - Modeling with Instances
Data Science - Building Models That Operate Internet-of-Things
Data Science - Following the Principles of Data Visualization
Data Science - Using D3.js for Data Visualization
Data Science - Web-Based Applications for Visualization
Data Science - Exploring Best Practices in Dashboard Design
Data Science - Making Maps from Spatial Data
Data Science - Using Python for Data Science
Data Science - Using Open Source R for Data Science
Data Science - Using SQL in Data Science
Data Science - Doing Data Science with Excel and Knime
Data Science - Data Science in Journalism: Nailing Down
Data Science - Delving into Environmental Data Science
Data Science - Data Science for Driving Growth in
Data Science - Using Data Science to Describe and Predict
Data Science - Phenomenal Resources for Open Data
Data Science - Free Data Science Tools and Applications
Data Science - Video Lectures
Data Science - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

DATA STRUCTURE AND ALGORITHMS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Data Structure & Algorithms

A Data Structure is a specialized method or format for organizing and storing data. General data structure types include:

1. The array
2. The file
3. The record
4. The table
5. The tree, and so on

Algorithms are set of rules and processes to be followed by the computer to carry out various calculation tasks and problem-solving operations.

All Data Structures are designed to organize data in order to suit a specific purpose so that it can be accessed and worked with in appropriate ways. In computer programming, a data structure may be selected or designed to store data for the purpose of working on it with various algorithms.

Data Structure is a systematic way to organize data for effective usage. The following are the fundamentals of a data structure.

1. Interface: This represents the set of operations data structure supports. However, an interface provides the list of supported operations, parameters.

2. Implementation: This also provides the internal representation of a data structure. It provides the definition of the algorithms used in the operations of the data structure.

3. Need for Data Structure: Data can be organized or reorganized in a data structure in a way that not all items may not be required to be searched and the required data can be searched instantly.

4. Data Queue: This is a process whereby one end is used to input data (enqueue) and the other is used to remove data (dequeue). It can as well be described as (FIFO) First-In-First-Out methodology. Which means the first data item stored will be the first to be accessed.

5. Merge Sort: This is a technique that is used to divide array into equal halves and then combines them in a sorted manner.

6. Selection Sort: This is a method of sorting. It is an in-place comparison-based algorithm which the list is however divided into two parts.

(a) Sorted part and
(b) Unsorted part.

The **Sorted part** is on the left side while the **Unsorted part** is on the right side.

7. Binary Search: This is a fastest way of conducting a search. What applies is a principle of divide and conquer and in order for the algorithm to work properly, the data collection must be in a sorted form.

Advantages of Data Structure & Algorithms

1. Data structures allow information storage on hard disks.

2. Data structures allow the data use and processing on a software system.

3. Provides means for management of large data-set such as databases or internet indexing services.

4. It allows easier processing of data.

5. It allows safe storage of information on a computer. The information is then available for later use and can be used by multiple programs.

In the Full course, you will learn everything you need to know about Data Structure and Algorithms with **Certificate** to showcase your knowledge.

Data Structure and Algorithms Course Outline

Data Structures & Algorithms - Introduction/Overview
Data Structures & Algorithms - Environment Setup
Data Structures & Algorithms - Algorithms Basics
Data Structures & Algorithms - Asymptotic Analysis
Data Structures & Algorithms - Greedy Algorithms
Data Structures & Algorithms - Divide and Conquer
Data Structures & Algorithms - Dynamic Programming
Data Structures & Algorithms - Data Structure Basics
Data Structures & Algorithms - Array Data Structure
Data Structures & Algorithms - Linked List Basics
Data Structures & Algorithms - Doubly Linked List
Data Structures & Algorithms - Circular Linked List
Data Structures & Algorithms - Stack
Data Structures & Algorithms - Expression Parsing
Data Structures & Algorithms - Queue
Data Structures & Algorithms - Linear Search
Data Structures & Algorithms - Binary Search
Data Structures & Algorithms - Interpolation Search
Data Structures & Algorithms - Hash Table
Data Structures & Algorithms - Sorting Algorithms
Data Structures & Algorithms - Bubble Sort
Data Structures & Algorithms - Insertion Sort
Data Structures & Algorithms - Selection Sort
Data Structures & Algorithms - Merge Sort
Data Structures & Algorithms - Quick Sort
Data Structures & Algorithms - Graph Data Structure
Data Structures & Algorithms - Depth First Traversal
Data Structures & Algorithms - Breadth First Traversal
Data Structures & Algorithms - Tree Data Structure
Data Structures & Algorithms - Tree Traversal
Data Structures & Algorithms - Binary Search Tree
Data Structures & Algorithms - AVL Tree
Data Structures & Algorithms - Spanning Tree
Data Structures & Algorithms - Heap
Data Structures & Algorithms - Recursion Basics
Data Structures & Algorithms - Tower of Hanoi
Data Structures & Algorithms - Fibonacci Series
Data Structures & Algorithms - Video Lectures
Data Structures & Algorithms - Exams and Certification

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DATA WAREHOUSE COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Data Warehouse?

Data Warehouse also known as as an **Enterprise Data Warehouse (EDW)** is a system used for data storage, analysis and reporting. It is considered as the core components of business intelligence. Data warehouse are central housing of data gotten from one or more separate sources.

A Data Warehouse saves both current and historical data in one place for later analytical reports for workers all over the enterprise. It is an electronic storage of a very large quantity of data generated by a business that is designed to make querying and analysing of the data very easy. It is a process of transforming data into very useful information and also making it available to the user in an orderly manner.

The idea of a Data Warehouse was introduced in 1988 by two researchers in IBM Barry Devlin And Paul Murphy. The need to store data in a data warehouse grew up as computer systems became more advanced and complex and can handle a large amount of data. Basically, a data warehouse is a relational database that is stored on an enterprise server or more recently in the cloud.

Data gotten from many online sources such as social media, forums, web pages, directories and chat sites are taken and saved for later analysis which can be used for business intelligence, decision support, to fine-tune the customer service and to create a better version of a product etc.

Features Of Data Warehouse

The major features of a data warehouse are stated below:

1. Non-Volatile: Saying that a data warehouse is non-volatile means that data entered before is not deleted when a new data is saved in it. A data warehouse is kept as a separate part from the database that the user works with on a day by day scale so changes that arises from entering and removing data regularly from the operational database does not affect the warehouse.

2. Time-Variant: Data stored in a data ware house I uniquely identified with a particular time period. The data in a ware house gives out information from an historical point of view, In a data warehouse, you can easily go back and check for something that was stored in it by checking the time period, for example, an organization going back through it stored data of check for information an employee that was employed in a certain time.

3. Subject Oriented: A data warehouse basically provides information about a subject rather than what the organization is currently working on. The information provided could be in the form of the companies products, sales, business revenue, customers, etc. It does not focus on the ongoing operations, instead, it focusses on arranging and analyzing the data for decision making.

4. Integrated: A data warehouse is built up by joining data gotten from several different sources such as relational databases, flat files, etc. this integration increases the quick and proper analysis of the data.

Benefits Of A Data Warehouse

Below are some of the benefits of a Data Warehouse:

1. A Data Warehouse Delivers Enhanced Business Intelligence.
2. A Data Warehouse Saves Time In Business Analytics.
3. A Data Warehouse increases Data Quality and Consistency.
4. A Data Warehouse Provides Historical Intelligence.
5. A Data Warehouse Generates a High Return On Investment.

In The Full Course, you will learn everything you need to know about **Data Warehouse** with **Certification** to showcase your knowledge and competence.

Data Warehouse Course Outline

Data Warehouse - Introduction/Overview
Data Warehouse - Concepts
Data Warehouse - Terminologies
Data Warehouse - Delivery Process
Data Warehouse - System Processes
Data Warehouse - Architecture
Data Warehouse - OLAP
Data Warehouse - Relational OLAP
Data Warehouse - Multidimensional OLAP
Data Warehouse - Schemas
Data Warehouse - Partitioning Strategy
Data Warehouse - Metadata Concepts
Data Warehouse - Data Marting
Data Warehouse - System Managers
Data Warehouse - Process Managers
Data Warehouse - Security
Data Warehouse - Backup
Data Warehouse - Tuning
Data Warehouse - Testing
Data Warehouse - Future Aspects

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Every Life, Every Moment, Every Day. A New Discovery...

DESIGN AND ANALYSIS OF ALGORITHMS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Design and Analysis Of Algorithms?

Design and Analysis of Algorithm is the branch of computer science and information technology introduced for designing algorithms to solve various types of problems in computing.

Algorithm is a set of instructions that specifies a process of operation to be carried out in order to solve a specific problem, task or class of problems.

An Algorithm is the best way to show the solutions to a particular problem in a very simple and efficient way. If we have an Algorithm for a particular problem, then we can easily implement it in any programming language, which means that the algorithm is independent of programming languages.

As the speed and power of processors increases, performance is said to be less central when compared to other software quality characteristics like: security, extensibility, reusability, etc. Performance a very important factor in computing among other characteristics, this is because, the longer the computation time, the higher the cost of computation. Therefore, the study of Algorithms gives us the opportunity to optimize computing performance in general.

Design And Analysis of Algorithms are very important for designing an Algorithm in order to bring solutions to different types of problems in computer science and information technology. The major aspects of Algorithm design involves creating an efficient and detailed Algorithm to solve a particular problem in an efficient way with very minimum time and space.

To find solutions to a particular problem, different methods can be employed. Some of them can be efficient with regards to time usage, while other approaches can be memory efficient. However, one needs to keep in mind that time consumption and memory usage cannot be efficiently optimized at the same time. If we need an Algorithm to operate in lesser time we have to sacrifice more memory and if we require an algorithm to operate with lesser memory we need to have more time.

Features Of Design and Analysis Of Algorithms

The main features and characteristics of Algorithms are as follows:

1. Uniqueness: Algorithms must have a unique name.

2. Input/Output: Algorithms should have a clearly defined set of inputs and outputs.

3. Ordered Operations: Algorithms are usually well ordered and have specific and well-cut operations.

4. Definite Time: Algorithms all stop in a known amount of time. it doesn't run infinitely i.e, an algorithm must stop at some point.

5. Effective: Algorithms should be effective: The designed algorithm should solve the problem it was designed to solve. It should also be possible to demonstrate that the algorithm is feasible with just a paper and pencil.

6. Solution: The main aim of algorithm is to provide desired solution to a problem. An Algorithm must be able to provide the exact solution you are looking for.

Features Of Design and Analysis Of Algorithms

There are many benefits and advantages that we get from Designing and Analyzing Algorithms to solve a particular problem, some of them are:

1. It is a step by step representation of a solution given to a problem, which is the reason why an Algorithm is easy to understand.

2. An Algorithm makes use of a specific procedure. It doesn't depend on any programming language, so it is easy for anyone, even people without programming knowledge to understand.

3. Every step in an Algorithm has its own logical patterns it is very easy to debug.

4. By using an Algorithm, the problem is broken down, into little pieces or steps, from there it is easier for any programmer to convert it into an actual program.

5. It helps to provide solutions to complex problems in computing.

In The Full Course, you will learn everything you need to know about **Design and Analysis of Algorithm** with **Certification** to showcase your knowledge and competence.

Design and Analysis Of Algorithms Course Outline

Design & Analysis of Algorithms - Introduction
Design & Analysis of Algorithms - Analysis of Algorithms
Design & Analysis of Algorithms - Methodology of Analysis
Design & Analysis of Algorithms - Asymptotic Notations & Apriori Analysis
Design & Analysis of Algorithms - Space Complexities
Design & Analysis of Algorithms - Divide & Conquer
Design & Analysis of Algorithms - Max-Min Problem
Design & Analysis of Algorithms - Merge Sort
Design & Analysis of Algorithms - Binary Search
Design & Analysis of Algorithms - Strassen's Matrix Multiplication
Design & Analysis of Algorithms - Greedy Method
Design & Analysis of Algorithms - Fractional Knapsack
Design & Analysis of Algorithms - Job Sequencing with Deadline
Design & Analysis of Algorithms - Optimal Merge Pattern
Design & Analysis of Algorithms - Dynamic Programming
Design & Analysis of Algorithms - 0-1 Knapsack
Design & Analysis of Algorithms - Longest Common Subsequence
Design & Analysis of Algorithms - Spanning Tree
Design & Analysis of Algorithms - Shortest Paths
Design & Analysis of Algorithms - Multistage Graph
Design & Analysis of Algorithms - Travelling Salesman Problem
Design & Analysis of Algorithms - Optimal Cost Binary Search Trees
Design & Analysis of Algorithms - Binary Heap
Design & Analysis of Algorithms - Insert Method
Design & Analysis of Algorithms - Heapify Method
Design & Analysis of Algorithms - Extract Method
Design & Analysis of Algorithms - Bubble Sort
Design & Analysis of Algorithms - Insertion Sort
Design & Analysis of Algorithms - Selection Sort
Design & Analysis of Algorithms - Quick Sort
Design & Analysis of Algorithms - Radix Sort
Design & Analysis of Algorithms - Deterministic vs. Nondeterministic Computations
Design & Analysis of Algorithms - Max Cliques
Design & Analysis of Algorithms - Vertex Cover
Design & Analysis of Algorithms - P and NP Class
Design & Analysis of Algorithms - Cook's Theorem
Design & Analysis of Algorithms - NP Hard & NP-Complete Classes
Design & Analysis of Algorithms - Hill Climbing Algorithm
Design & Analysis of Algorithms - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

DEVOPS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is DevOps?

DevOps is a development culture that enhances and promotes the collaboration between the development and operations team of an organization to deploy codes to production faster in a repeatable and automated way. The word 'DevOps' is a combination of two words which are 'Development' and 'Operations.'

DevOps serves to increase an organization's speed to deliver software applications and services. It allows businesses and organizations to serve their customers better and to compete with their market competitor more strongly.

In more simple terms, DevOps can be defined as the alignment of the IT development and operations team for better collaboration and communication.

Under a DevOps model, the development and operations teams are no longer 'distant'. In some cases, these two teams are joined together into a single team where the engineers work across the whole application lifecycle, from the initial development and test to the deployment stage, then to operations, and they develop a range of skills that are not limited to a single function.

In some models of DevOps, the quality assurance teams and the security teams might also become more tightly integrated into the development and operations team throughout the application production lifecycle. When security is the focus of everyone that is on a DevOps team, they are then referred to as 'DevSecOps'.

These teams make use of several practices to automate various processes that in the past, have been manual and very slow. They make use of a technology stack and tooling which helps them to operate and evolve applications reliably and quickly. These technology stack tools also help software engineers to individually accomplish several tasks that normally would have required help from other teams, and this further increases the team's speed.

History of DevOps

The DevOps era started to form between the years 2007 and 2008 when Information Technology operations and software development nations began to talk about what they felt was a real high level of dysfunction in the industry.

They were against the regular software development model, which made the people who write code to be separated organizationally and functionally from those who support and helped deploy code.

Developers and Information Technology Ops professionals had quite separate and always competitive objectives, different department leadership, different KPIs (key performance indicators) in which they were assessed, and also worked on different floors or even different offices. The result was isolated teams that were only bothered with their territories, long hours, bad and careless releases, and also very unhappy customers.

But then there's a much better and effective way to carry out these activities, they said. So the two separated professions or rather communities came together and started discussing – with folks like the great Patrick Dubois, Gene Kim, and John Willis at the forefront of the conversation.

What kicked off in online forums and local meet-ups is now a major factor in the software defining operation. You and your entire team are feeling the pain caused by separated teams and dead systems of communication within your company. You're making use of the agile methodologies for structuring, planning, and even development, but still struggling to release your code without a series of mistakes, bugs and even drama per se.

The good news is that DevOps isn't magic, and these changes don't happen overnight. Another good news is that you don't have to wait for the management at the top to bring out a large-scale initiative. By getting and understanding the value of DevOps and making small, continuous changes, your team can strat on the DevOps journey right away.

Features of DevOps

There are lots of features of DevOps, and some of them are:

1. DevOps Provides Collaboration between the development and the operations teams.

2. DevOps helps to develop applications that are easily scalable.

3. DevOps helps in automating the workflow.

4. DevOps helps in continuous building, testing, integration, and deployment process.

5. DevOps helps in the speedy delivery of new features and in reducing the cost of IT.

6. DevOps helps to increase customer Satisfaction & Retention and Business Efficiency.

Benefits of DevOps

There are lots of benefits of DevOps, and some of them are:

1. Predictability: DevOps offers a more obviously lower rate of failure of new releases

2. Reproducibility: DevOps helps to version everything so that an earlier version can be restored anytime that you want.

3. Maintainability: Devops helps with the process of recovery in the event of a new release disabling or crashing the current system.

4. Time to market: DevOps reduces the time spent to release the product by up to 50% by following a more streamlined software delivery process. This is particularly the case for mobile and digital applications.

5. Greater Quality: DevOps helps the development team to provide an improved quality of application development as it combines infrastructure issues.

6. Reduced Risk: DevOps includes various security aspects into the software delivery life-cycle. It helps in the decrease and reduction of defects across the application lifecycle.

7. Breaks larger code base into small pieces: DevOps is based on the agile software programming method. Therefore, it allows you to break larger codebases into very small and manageable chunks that can help with understanding the application.

8. High Pay Grade: DevOps Engineers are one of the highest-paid in Tech, so learning DevOps is a very wise investment and this course helps you learn it.

9. Collaboration and Trust: Culture is the number one factor of success in DevOps. Building a team where responsibility is shared, there is transparency and a faster feedback process is the base of every high performing DevOps team.

10. Release faster and work smarter: Speed is a major factor in everything. Software Development Teams that carry out DevOps release more often, with a higher quality of software and stability

11. Accelerate time to resolution: The team with the fastest resolution is the team that succeeds. Totally Full transparency and stress-free communication enable teams that practice DevOps to reduce server downtimes and fix issues faster than they have ever done.

12. Management: DevOps helps teams to manage unplanned work properly.

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DESKTOP PUBLISHING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Desktop Publishing?

Desktop Publishing is the technical organization of digital files in the proper format for publishing and printing. In a more practical use, much of the text publishing and graphic design process is carried out using a desktop publishing or graphics software, and in some cases web design software.

Desktop Publishing also refers to the use of computer and computer software programs to develop visual displays of ideas and information. Desktop Publishing documents may be created for personal use or for commercial purposes like printing or for electronic distribution, including PDF, slides, newsletters by email, electronic books, and for the web.

The term Desktop Publishing is gotten after the development of a specific type of design software. It's about using that software to combine and rearrange text and images and also for creating digital files for printing and online viewing or for websites. Prior to the invention of desktop publishing software, the tasks involved in desktop publishing were done manually by people who major in graphic design, typesetting and pre-press tasks.

During the 80s and 90s, Desktop Publishing was solely for printing, but in present-day, desktop publishing has better uses other than just for print and publications. It can publish PDFs or as an E-books, it can publish to blog posts, and it can be used in the designing of websites, desktop publishing is also used for designing contents across multiple platforms, for example, smartphones and tablets.

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Features Of Desktop Publishing

Below are some of the features of Desktop Publishing Softwares:

Project Types Support: It has support for lots of project types. The flexibility of a desktop publishing application is determined by its ability to allow users to create a variety of projects.

Layout Tools: The term “layout tools” here is used to group a lot of tools included in the software that helps the designer to place and align editors' objects accurately.

Text Tools: The text tool is the tool that is used to enter text into the design.

Graphic Tools: The graphic tool in a desktop publishing software comprises all the tools you use for the graphic designs in the editor like the rectangle, ellipse, etc.

Printing And Sharing: A desktop publishing software has the option to send a completed document to the printer and to share it with other devices.

Benefits And Advantages Of Desktop Publishing

With a Desktop Publishing Software, you can:

1. Create and publish newsletters, magazines, and newspapers.

2. Design logos, business cards, and letterhead

3. Design means of communications such as catalogs, directories, sales reports, etc.

4. Design print communications like brochures, church flyers, ads, posters, etc

5. Design books and booklets.

6. Transform print communications to formats for the web and smart devices such as tablets and phones.

7. You can make resumes and business docs including invoices, inventory sheets, memos, and labels.

8. You can publish your own books, newsletters, and e-books.

9. Create, design and publish blogs and websites.

10. You can make slide shows, presentations, and handouts.

11. You can create and print greeting cards, banners, postcards, candy wrappers and iron-on transfers.

12. You can make digital scrapbooks and print or digital photo albums.

13. Desktop publishing can also be used to design and create decorative labels, envelopes, trading cards, calendars, charts, etc.

14. You can design packaging for retail merchandise from wrappers for bars of soap to software boxes.

15. Design store signs, highway signs, and billboards.

16. You can also create very attractive, readable reports, posters, on-screen presentations for institutions or organizations.

List of Desktop Publishing Softwares

Here we list some of Desktop Publishing Softwares for Windows:

1. Adobe InDesign
2. Affinity Publisher
3. Calamus
4. Corel Draw
5. Corel Ventura
6. FrameMaker
7. InPage
8. MadCap Flare
9. Microsoft Office (Word, Excel, Powerpoint etc.)
10. Microsoft Publisher
11. PageStream,
12. Prince XML, by YesLogic
13. QuarkXPress
14. Ready, Set, Go! (software)
15. Scenari,
16. Scribus, open source tool
17. Xara Designer Pro X
18. Xara Page & Layout Designer etc.

In the Full Course, you will learn everything you need to know about **Desktop Publishing** with **Certification** to showcase your knowledge and competence.

Desktop Publishing Course Outline

Desktop Publishing - Introduction
Desktop Publishing - Adobe InDesign
Desktop Publishing - Microsoft Word
Desktop Publishing - Microsoft Powerpoint
Desktop Publishing - Microsoft Publisher
Desktop Publishing - CorelDraw Graphics
Desktop Publishing - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

DBMS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What Is DBMS?

DBMS is an acronym for Database Management System and it is a software program used for storing and retrieving users' data by considering appropriate storage structure and security measures. The word "database" is defined as the collection and assembling of electronic records that can be processed to produce useful information.

The Data in DBMS can be read, modified, controlled, managed and organized to perform different types of data processing activities. The data are usually stored and numbered across rows, columns, and tables all of which make the workload of processing and querying of data more efficient.

Types of DBMS

There are different types of databases, and some of them are:

1. Object-oriented,
2. Relational,
3. Hierarchical,
4. Network,
5. Distributed and others.

In a Full-blown enterprise application, manipulation of databases involves mission-critical, security-sensitive and compliance-focused records of items that all have complicated logical relationships with the other datasets and it grows evenly as time goes by and as the userbase increases. As a result, these organizations needs a technological solutions to manage, maintain, process and store the data in the database, in this situation, a database management system comes to use because it allows users to create their own databases judging by their requirements. It is made up of a group of computer programs that manipulate the database and it provides a means to the database. The DBMS takes in a request for the data from an application and then sends commands to the operating system to come up with the specific data.

Features of DBMS

In other to work properly, a DBMS software needs the following features:

Data: DBMS needs data to operate, and it also needs access to database records and metadata to carry out its basic functions. These data could include files like a dictionary of data representing data flows, customers in business, staff in an organization, students in a school, and relationships to other records or objects.

Software: A DBMS is basically a system software program that can be classified as a data management tool or a means to communicate with, and manage databases. The link also spreads across "real-world" physical systems that generate data to the backend databases. The Operating system, hardware infrastructure, and networking capabilities are all involved in generating, accessing, managing and processing databases.

Query processor: The Query processor, being one of the basic components of the DBMS, functions as a direct link between users and the DBMS data engine to send query requests. When a user enters an instruction in a structured query language, the command is carried out from the high-level language instructions to a low-level language that the computer can understand and process to perform the correct DBMS functionality. aside from just parsing and translating, the query processor also ensures fast processing and accurate results by optimizing the queries.

Database Languages: Database languages are the features of a database management system that is used to access, modify, store and retrieve data from the database, The types of DBMS languages include Data Definition Language (DDL), Database Access Language(DAL), Database manipulation Language(DML) and Data Control Language.

Reporting: Reporting is a useful feature of a DBMS software because it extracts useful information from database files and displays it in an arranged format based on the user-defined specifications. this information is useful because it can be used for later analysis, decision making or business intelligence.

Database Engine: A database engine is a fundamental component within the DBMS software solution that carries out the main tasks of data storage and retrieval.

Benefits and Advantages of DBMS

Below are some of the benefits and advantages of using a DBMS system

DBMS Reduces Data Redundancy
DBMS offers Sharing of Data
DBMS offers Privacy
It offers Data Security
Easy Backup and Recovery of Data
Search Capability
Simplicity of Use
Data Migration
DBMS Solves Enterprise and Individual
Data Storage Requirements
Powerful User Language
Cost of Maintenance is Lower
Very Less Chances of Lossing data
DBMS is Consistent
DBMS Saves Time
Easy Retrieval of Data

Major Components of DBMS

There are four major components of DBMS, they are:

Users,
Software,
Hardware and
Data.

Users: Consist of Database Designers, Database Administrators and the End-Users.

a. Database Designers: are the individuals who actually work on designing the data base.

b. Database Administrators: are the individuals in charge of maintaining and adminis trating a DBMS.

c. End-Users: this are individual who uses the product after it has been fully developed.

Software: This controls the organization Storage Management and Retrieval of Data. Examples of database software includes MSSQL 2012.

Hardware: The hardware can range from PC, to network components and it also includes storage devices such as hard disk and input/output devices such as monitor and printer.

Data: Data stored includes both numerical and non-numerical data.

DBMS Study

In the Full Course, you will learn everything you need to know about **DBMS** with **Certification** to showcase your knowledge and competence.

Duration: Study At Your Own Pace

DBMS Course Outline

DBMS - Introduction/Overview
DBMS - Architecture
DBMS - Data Models
DBMS - Data Schemas
DBMS - Data Independence
DBMS - ER Model Basic Concepts
DBMS - ER Diagram Representation
DBMS - Generalization, Aggregation
DBMS - Codd's Rules
DBMS - Relational Data Model
DBMS - Relational Algebra
DBMS - ER to Relational Model
DBMS - SQL
DBMS - Database Normalization
DBMS - Database Joins
DBMS - Storage System
DBMS - File Structure
DBMS - Indexing
DBMS - Hashing
DBMS - Transaction
DBMS - Concurrency Control
DBMS - Deadlock
DBMS - Data Backup
DBMS - Data Recovery
DBMS - Video Lectures
DBMS - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

DIGITAL COMMUNICATION COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Digital Communication?

Digital Communication is the exchange of data in digital form. For example, communications done over the internet is a simple form of digital communication.

Communication is the transmission of information from a sender to a receiver through some medium. Communication enables us to know what is happening around us. A person can chat with his or her distant relatives over the phone and thus the medium of communication is achieved over the telephone.

In order to understand the notion of digitizing information, it must first be understood that everything in nature, including sounds and images are originally or initially in analog before digital came to being. The Digital is simply an encoded approximation of the Analog.

Our day to day communication is in the form of signals. These signals, for example, sound signals, generally are analog in nature. When the communication needs to be established over a distance, then the analog signals are sent through, using different techniques for effective transmission which is known as Digital Transmission.

The regular methods of communication made use of analog signals for communications, which had a lot of disadvantages such as interference, distortion and other losses including lots of security breaches. In order to solve these problems, the signals are digitized using different techniques. The digitized signals allow communication to be more clear, smoother and accurate without errors.

Features And Characteristics Of Digital Communication

Below are some features and characteristics of digital communication:

1. Conversion: Digital Communication is the process of converting Analogue Signals to Digital Signals over a medium in a language that the digital devices understands.

2. Speed: Speed is one of the important features of digital communication in that it is very fast. In the past, to send a message to someone over a far distance takes a long time, but now with digital communication, you can easily send that message in less than a second.

3. File Sharing: Digital Communication allows you to transfer more than just writing, with digital communications, you can transfer files likes videos, images, voice records, gifs, emojis and a whole lot more, thereby making communication more interesting and efficient. Also, instead of going to a distance to deliver software or a document, you could just scan it and send it instantly.

4. Location Independent: Digital Communication is location independent that is, we can communicate with someone not minding his or her current location as opposed to analog communication.

5. Portability: Digital Communication makes communication to be "on the go", we no longer need to go a distance to the post office to mail a letter to someone when we have a device in our pocket that we can use to easily deliver such message.

Benefits Of Digital Communication

As signals are digitalized, there are lots of advantages of digital communications over analog communication such as:

1. Digital Communication helps us to transmit information that has accurate and less distorted signals.

2. Digital Communication are easy to design and cheaper than analog circuits.

3. The hardware implementation of Digital Communication are more flexible than that of analog.

4. The existence of cross-talk is very hard to find in Digital Communication.

5. The signal is un-changed as the pulse needs a high disturbance to change its properties, which is very difficult.

6. Some signal processing functions such as encryption and compression are used in Digital Communication to maintain the secrecy of the information.

7. The probability of error occurrence coming up is reduced by using error detecting and error-correcting codes.

8. A spread spectrum technique is used to avoid signal jamming.

9. The configuration process of digital signals is easier than analog signals.

10. Digital signals can be easily saved and brought up more conveniently than analog signals.

11. The capacity of the channel is effectively used by digital signals.

12. Digital Communication are more reliable than analog.

Advantages of Studying Digital Communication

1. To broaden knowledge and understanding of how digital information is passed across digital devices.

2. To boost one's career in Digital Technology.

3. To expose us to the advantages of Digital Signal Transmission over Analogue Transmission.

4. To aid us in the knowledge of how to encrypt and secure our information.

5. It provides job opportunities.

Digital Communication Study

Here we highlight some of the things you will learn in this course:

Introduction to Digital Communication and Difference between Digital Signal and Analogue Signals.

You will learn that Digital Signal involves signals in represented in form of zeros and ones. This signal unlike the analogue signal has advantages like:
1. Minimized distortion,
2. Signal security,
3. Accuracy of Information,
4. Cheaper to design and
5. More effective since it is well filtered to give the best output.

You will learn the Elements of Digital Communication like :
1. Source,
2. Transducers,
3. A to D Converters,
4. Source Encoders,
5. Channel Encoders,
6. Modulator, etc.

Also you will learn about the Pulse Code Modulators(PCM), Differential PCM, Delta Modulator(DM) which produces more accurate and less distorted signals.

You will learn Multiplexing which entails passage of many signals through a medium called MUX to a single signal and also De-Multiplexing which involves the conversion of one signal via DEMUX into many signals.

You will learn the Spread Spectrum Technology which uses broad frequency pattern to transmit signal thereby ensuring less distortion, less noise, strong signal strength and quality signal output. It can be divided into Frequency Hopped Spread Spectrum FHSS and DSSS/CDMA.

Other areas includes Sampling and Encoding of signals, where Encoding entails arranging data format into packets that can be transmitted over the digital device in 0s and 1s. This course in depth teaches how digital information is transmitted over a communication channel. It also reveals how analogue signal can be converted to digital signal and vice versa and many more.

In The Full Course, you will learn everything you need to know about **Digital Communication** with **Certificate** to showcase your knowledge and competence.

Digital Communication Course Outline

Digital Communication - Introduction
Digital Communication - Analog to Digital
Digital Communication - Pulse Code Modulation
Digital Communication - Sampling
Digital Communication - Quantization
Digital Communication - Differential PCM
Digital Communication - Delta Modulation
Digital Communication - Techniques
Digital Communication - Line Codes
Digital Communication - Data Encoding Techniques
Digital Communication - Pulse Shaping
Digital Communication - Digital Modulation Techniques
Digital Communication - Amplitude Shift Keying
Digital Communication - Frequency Shift Keying
Digital Communication - Phase Shift Keying
Digital Communication - Quadrature Phase Shift Keying
Digital Communication - Differential Phase Shift Keying
Digital Communication - M-ary Encoding
Digital Communication - Information Theory
Digital Communication - Source Coding Theorem
Digital Communication - Channel Coding Theorem
Digital Communication - Error Control Coding
Digital Communication - Spread Spectrum Modulation
Digital Communication - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

DIGITAL CIRCUITS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Digital Circuits?

Digital Circuits is the type of circuit in which the signal must be one of two discrete levels. Each level is interpreted as one of two different states (for example, on/off, 0/1, true/false). Digital Circuits makes use of transistors to create logic gates in order to perform **Boolean Logic.** The Boolean Logic is the foundation of Digital electronics and Computer processing.

A Circuit is an electrical device that provides a path for electrical current to flow.

Digital Circuits are less susceptible to noise or reduction in quality than analog circuits. It is also easier to carry out error detection and correction with digital signals. To automate the process of designing digital circuits, engineers use **Electronic Design Automation (EDA)** tools, a type of software that optimizes the logic in a digital circuit.

The simplest forms of digital circuits are built from logic gates, since most of the physical variables encountered in the real world, e.g., position and temperature exist in analog form, they are represented electrically by continuously varying currents and voltages in analog circuits. To make digital and analog circuits compatible special converters are used either analog-to-digital or digital-to-analog depending on the direction of information flow.

Features Of Digital Circuits

Some of the features of Digital Circuits include:

1. Operating Speed: The speed of a logic gate depends on the time that elapses between the application of a signal to an input terminal and the resulting change in logical state in the output terminals. It takes into consideration the transition time which is the rise and fall of pulse duration and propagation delays. Both of these times depend upon the loading and increase with an increase in load. The more inputs are attached to the output of a logic gate, the more load is to be handled by that output.

2. Fan-In: The fan-in of a logic gate is defined as the number of inputs coming from similar circuits that it can handle properly

3. Fan-Out: In general, a logic circuit is required to drive several logic inputs. The fan-out is defined as the maximum number of standard logic inputs that output can drive reliably. For example, a logic gate that is specified to have a fan-out of 8 can drive 8 standard logic inputs. if this number exceeds the output logic-level voltages cannot be guaranteed.

4. Power Dissipation: This is the amount of power dissipated in an IC. It is gotten by the current, Icc, that it draws from the Vcc supply and equals Vcc Icc where Icc is the average value of Icc(0) and Icc(1). This power is specified in mW. Lower power dissipation is a desirable feature for any IC.

5. Power Supply Requirements: Every IC needs a certain amount of electrical power to operate. The power is supplied by one or more power-supply voltage connected to the power pin (or pins) on the chip. Obviously, low power consumption is a desirable feature in any digital ICs.

6. Noise Immunity: The noise immunity of a logic circuit refers to the circuits' ability to tolerate noise voltages on its inputs. A quantitative measure of noise margin. Higher the noise margin, better the logic circuit.

7. Operating Temperature Range: Digital ICs should be capable of operating for temperature ranging from 00Cto 700C for consumers and from - 550C to +1250C for military applications.

Benefits Of Digital Circuit

1. Digital Circuits are relatively easy to design.

2. Digital Circuits has a higher accuracy when compared to analog

3. Transmitted signals are not degraded over long distances.

4. Digital Signals can be stored easily.

5. Digital Electronics is comparatively more immune to 'error' and 'noise'. But in case of high-speed designs, a small noise can induce error in signal.

6. More Digital Circuits can be fabricated on integrated chips; this helps us obtain complex systems in a smaller size.

7. The voltage at any point in a Digital Circuit can be either high or low; hence there is less chance of confusion.

8. Digital Circuits are more reliable since its output is invariant with respect to a time where-as analog circuit output changes with change in the environment.

9. The transmission rate is higher, with wider broadband width.

10. It is more secure.

11. Digital Circuits simulate continuous functions with strings of bits; the more bits that are used, the more accurately the continuous signal can be represented.

This course will teach you everything you need to know about **Digital Circuit** and will also take you through various concepts related to **Digital Circuit** with **Diploma Certificate** to showcase your knowledge.

Digital Circuit Course Outline

Digital Circuits - Introduction
Digital Circuits - Number Systems
Digital Circuits - Base Conversions
Digital Circuits - Binary Numbers Representation
Digital Circuits - Signed Binary Arithmetic
Digital Circuits - Codes
Digital Circuits - Error Detection & Correction Codes
Digital Circuits - Boolean Algebra
Digital Circuits - Canonical and Standard Forms
Digital Circuits - K-Map Method
Digital Circuits - Quine-McCluskey Tabular Method
Digital Circuits - Logic Gates
Digital Circuits - Two-Level Logic Realization
Digital Circuits - Combinational Circuits
Digital Circuits - Arithmetic Circuits
Digital Circuits - Decoders
Digital Circuits - Encoders
Digital Circuits - Multiplexers
Digital Circuits - De-Multiplexers
Digital Circuits - Programmable Logic Devices
Digital Circuits - Threshold Logic
Digital Circuits - Sequential Circuits
Digital Circuits - Latches
Digital Circuits - Flip-Flops
Digital Circuits - Conversion of Flip-Flops
Digital Circuits - Shift Registers
Digital Circuits - Application of Shift Registers
Digital Circuits - Counters
Digital Circuits - Finite State Machines
Digital Circuits - Algorithmic State Machine Charts
Digital Circuits - Video Lectures
Digital Circuits - Exams and Certification

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Every Life, Every Moment, Every Day. A New Discovery...

DIGITAL SIGNAL PROCESSING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Digital Signal Processing (DSP)?

Digital Signal Processing (DSP) is a branch of Electronics and Telecommunication Engineering that is concerned with the improvisation and accuracy of digital signals by employing multiple advanced techniques.

Digital Signal Processing works on real-world signals like voice, audio, video, temperature, pressure, or position that have been digitized and then mathematically manipulate them.

Digital Signal Processing applications consists of audio and speech processing, sonar, radar, and other sensor array processing, spectral density estimation, statistical signal processing, digital image processing, data compression, video coding, audio coding, image compression, signal processing for telecommunications, control systems, biomedical engineering, and seismology, among others.

How Digital Signal Processing Works?

Digital Signal Processing manipulates various types of signals with the intention of filtering, measuring, or compressing and producing analog signals.

These signals need to be processed so that the data that they contain can be displayed, analyzed, or converted to another type of signal that may be useful. Analog devices detect signals such as sound, light, temperature or pressure and manipulate them. A device like the Analog-to-Digital converter takes the real-world signal and turns it into the digital format of 1's and 0's.

Digital Signal information is translated into a binary format where each bit of data is represented by two distinguishable amplitudes while the Analog signal takes information and translates it into electric pulses of varying amplitude, whereas **Digital Signal information can be used by a computer to control things like security,** telephone, home theater systems, and video compression. Signals may be compressed so that they can be transmitted quickly and more efficiently from one place to another.

Signals may also be enhanced or manipulated to improve their quality or provide information that is not sensed by humans. Although real-world signals can be processed in their analog form, processing signals digitally provides the advantages of high speed and accuracy.

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Digital Signal Processing Components

Digital Signal Processing is made up of below components:

Program Memory: This component stores the programs the DSP will use to process, compress and manipulate the signal data

Data Memory: This works with the program memory and stores the signal information to be processed.

Compute Engine: This performs the mathematical processes and manipulations by accessing the program from the Program Memory and the signal data from the Data Memory

Input/Output: This works with a variety of things depending on the field it's used to connect to the outside world.

Applications of Digital Signal Processing

Digital Signal Processing can be used in various manners and applications using different processors.

There are numerous digital signal processors that can accomplish different things, depending on the application being performed. Some of these are audio signal processing, audio and video compression, speech processing and recognition, digital image processing, and radar applications. The difference between each of these applications is how the digital signal processor can filter each input.

There diverse of fields DSP can be applied on and below are major applications:

1. Telecommunications: This involves transferring information from one location to another. This includes many forms of information: telephone conversations, television signals, computer files, and other types of data. To transfer the information, you need a channel between the two locations. This may be a wire pair, radio signal, optical fiber, etc. DSP has revolutionized the telecommunications industry in many areas: signaling tone generation and detection, frequency band shifting, filtering to remove power line hum, etc.

2. Audio Processing: Audio processing comprises of many diverse fields, that are involved in presenting sound to human listeners. Below are major areas audio processing is prominent:
a. Music: High fidelity music reproduction, such as in audio compact discs. This is very familiar to anyone who has compared the musical quality of cassette tapes with compact disks. In a typical scenario, a musical piece is recorded in a sound studio on multiple channels or tracks.
b. Speech Generation/Recognition: This involves synthetic speech, where computers generate and recognize human voice patterns. These are used to communicate between humans and machines.
c. VoIP: This involves voice telecommunications, another name for telephone networks.

3. Echo Location: This involves using signals to detect an object from the surrounding signal direction. This is a common method of obtaining information about a remote object is to bounce a wave off of it. It involves the use of Radar, Sonar, and Echo reflection. For example, radar operates by transmitting pulses of radio waves and examining the received signal for echoes from aircraft. In sonar, sound waves are transmitted through the water to detect submarines and other submerged objects.

4. Image Processing: This involves the use of signals to store, process and manipulate digitized image signals. Images are signals with special characteristics. Images are a measure of a parameter over space (distance), while most signals are a measure of a parameter over time. Another good thing is, they contain a great deal of information. Video Signals are made up of bits of image signals.

Advantages of Digital Signal Processing

The following are a few of the advantages of Digital Signal Processing:

1. Programmability: A digital system can be programmably changed to change the functionality and diversity.

2. Versatility - Ease of upgrading and Flexibility

3. Stability - Less sensitive environmental changes

4. Cost effectiveness

5. Special applications like lossless compression

6. DSP based systems can be easily modified

Digital Signal Processing Course Outline

Digital Signal Processing - Introduction
Digital Signal Processing - Signals-Definition
Digital Signal Processing - Basic CT Signals
Digital Signal Processing - Basic DT Signals
Digital Signal Processing - Classification of CT Signals
Digital Signal Processing - Classification of DT Signals
Digital Signal Processing - Miscellaneous Signals
Digital Signal Processing - Operations Signals - Shifting
Digital Signal Processing - Operations Signals - Scaling
Digital Signal Processing - Operations Signals - Reversal
Digital Signal Processing - Operations Signals - Differentiation
Digital Signal Processing - Operations Signals - Integration
Digital Signal Processing - Operations Signals - ConvolutionDigital Signal Processing - Static Systems
Digital Signal Processing - Dynamic Systems
Digital Signal Processing - Causal Systems
Digital Signal Processing - Non-Causal Systems
Digital Signal Processing - Anti-Causal Systems
Digital Signal Processing - Linear Systems
Digital Signal Processing - Non-Linear Systems
Digital Signal Processing - Time-Invariant Systems
Digital Signal Processing - Time-Variant Systems
Digital Signal Processing - Stable Systems
Digital Signal Processing - Unstable Systems
Digital Signal Processing - Solved Examples
Digital Signal Processing - Z-Transform Introduction
Digital Signal Processing - Z-Transform Properties
Digital Signal Processing - Z-Transform Existence
Digital Signal Processing - Z-Transform Inverse
Digital Signal Processing - Z-Transform Solved Examples
Digital Signal Processing - DFT Introduction
Digital Signal Processing - DFT Time Frequency Transform
Digital Signal Processing - DTF Circular Convolution
Digital Signal Processing - DFT Linear Filtering
Digital Signal Processing - DFT Sectional Convolution
Digital Signal Processing - DFT Discrete Cosine Transform
Digital Signal Processing - DFT Solved Examples
Digital Signal Processing - Fast Fourier Transform
Digital Signal Processing - In-Place Computation
Digital Signal Processing - Computer Aided Design
Digital Signal Processing - Exams and Certification

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DIGITAL IMAGE PROCESSING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Digital Image Processing?

Digital Image Processing is the use of computing algorithms to perform image processing on digital images to improve image quality, extract meaningful information or mapping and recognition of objects.

Digital Image is an image or picture rendered digitally i.e., in groups of sequences bits or respectively called pixels. Digital Image Processing deals with manipulating these groups of bits (or pixels) to enhance the quality of the image or create different perspectives or to extract information from the image digitally, with the help of computer algorithms.

The Use of Digital Imaging has been increasing exponentially in the last decades. Its applications range from medicine to entertainment, passing by geological processing and remote sensing, even multimedia systems one of the pillars of the modern information society rely heavily on digital image processing.

What is an Image?

An image can be defined by a two-dimensional array specifically arranged in rows and columns. It is nothing more than a two-dimensional signal.

Any Image is a two-dimensional function, F(x,y), where x and y are spatial coordinates, and the amplitude of F at any pair of coordinates (x,y) is called the intensity of that image at that point. The value of f(x,y) at any point given is the pixel value at that point of an image.

Image is composed of a finite number of elements, each of which elements have a particular value at a particular location.

Types of Images

Binary Image: A binary image has only two possible gray values or intensities 0 and 255, there are no intermediate values. Binary images are used as masks for indicating the pixels of interest in many image processing tasks. This has only two-pixel elements i.e 0 & 1, where 0 refers to black and 1 refers to white. This is also known as Monochrome.

Grayscale Image: Grayscale image has a range of values from 0 to 255 i.e, each pixel location can have any value between 0 and 255. Old films around the 1950s are actually grayscale images. The image which consists of only black and white color is also called black and white image.

Color Image: Both binary image and grayscale image are 2-dimensional arrays, where at every location, you have one value to represent the pixel. We need more than one value for each pixel to represent a color. Typically you need 3 values for each pixel to represent any color. This has 65,536 different colors in it. It is also known as the High Color Format.

Digital Image Processing Phases

Digital Image Processing consists of various phases which are:

Image Acquisition: It could be as simple as being given an image that is in digital form. The main work involves:
a) Scaling.
b) Color conversion (RGB to Gray or vice-vers a).

Image Enhancement: It is the simplest and most appealing in areas of Image Processing. It is used to increase and enhance the quality of the image. It is also used to extract some hidden details from an image and is subjective.

Image Restoration: It deals with the restoration of an image but it is objective. It is based on a mathematical or probabilistic model or image degradation.

Color Image Processing: It deals with pseudocolor and full-color image processing color models that are applicable to digital image processing.

Wavelets and Multi-Resolution Processing: It is the foundation of representing images in various degrees.

Image Compression: It involves developing some functions to perform this operation. It mainly deals with image size or resolution.

Morphological Processing: It deals with tools for extracting image components that are useful in the representation & description of shape.

Segmentation Procedure: It includes partitioning an image into its constituent parts or objects. Autonomous segmentation is the most difficult task in Image Processing.

Representation and Description: It follows the output of the segmentation stage, choosing a representation is only the part of the solution for transforming raw data into processed data.

Object Detection and Recognition: It is a process that assigns a label to an object based on its descriptor.

Advantages of Digital Image Processing

1. Easy manipulation of Images

2. Enhance the quality of an image

3. You can save a file digitally and it can be uploaded in a matter of seconds.

4. Extract meaningful insights from images

5. Object detection and recognition

6. Easy and fast image optimization

7. Compact storage.

Digital Image Processing Course Outline

Digital Image Processing - Introduction
Digital Image Processing - Signal and System Introduction
Digital Image Processing - History of Photography
Digital Image Processing - Applications and Usage
Digital Image Processing - Concept of Dimensions
Digital Image Processing - Image Formation on Camera
Digital Image Processing - Camera Mechanism
Digital Image Processing - Concept of Pixel
Digital Image Processing - Perspective Transformation
Digital Image Processing - Concept of Bits Per Pixel
Digital Image Processing - Types of Images
Digital Image Processing - Color Codes Conversion
Digital Image Processing - Grayscale to RGB Conversion
Digital Image Processing - Concept of Sampling
Digital Image Processing - Pixel Resolution
Digital Image Processing - Concept of Zooming
Digital Image Processing - Zooming methods
Digital Image Processing - Spatial Resolution
Digital Image Processing - Pixels Dots and Lines per inch
Digital Image Processing - Gray Level Resolution
Digital Image Processing - Concept of Quantization
Digital Image Processing - ISO Preference curves
Digital Image Processing - Concept of Dithering
Digital Image Processing - Histograms Introduction
Digital Image Processing - Brightness and Contrast
Digital Image Processing - Image Transformations
Digital Image Processing - Histogram Sliding
Digital Image Processing - Histogram Stretching
Digital Image Processing - Introduction to Probability
Digital Image Processing - Histogram Equalization
Digital Image Processing - Gray Level Transformations

Digital Image Processing Course Outline

Digital Image Processing - Concept of convolution
Digital Image Processing - Concept of Masks
Digital Image Processing - Concept of Blurring
Digital Image Processing - Concept of Edge Detection
Digital Image Processing - Prewitt Operator
Digital Image Processing - Sobel operator
Digital Image Processing - Robinson Compass Mask
Digital Image Processing - Krisch Compass Mask
Digital Image Processing - Laplacian Operator
Digital Image Processing - Frequency Domain Analysis
Digital Image Processing - Fourier series and Transform
Digital Image Processing - Convolution theorem
Digital Image Processing - High Pass vs Low Pass Filters
Digital Image Processing - Introduction to Color Spaces
Digital Image Processing - JPEG compression
Digital Image Processing - Optical Character Recognition
Digital Image Processing - Computer Vision and Graphics
Digital Image Processing - Video Lectures
Digital Image Processing - Exams and Certification

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DIGITAL PHOTOGRAPHY COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Digital Photography?

Digital Photography is the process of using electronic and computing devices to capture, create, edit, store and share digital images or photographs. It wraps up several different technologies used to provide electronic or computer-based photography services. It is mainly used as a means to create, publish or use digital photographs on computers and on the Internet.

Digital Photography is a form of photography that makes use of cameras containing arrays of electronic photodetectors to capture images focused on by a lens, which is different from an exposure on a photographic film by an analog camera.

The captured images are converted to digital files and stored on a computer, and ready for further digital processing, viewing, digital publishing or printing. Digital Photography has evolved through many types of recording medium. Commonly, up until the last decade, a large amount of photography was done using an exposure stored on a film that would later be removed from the camera and developed into a full-blown picture.

Digital Photography is basically the digital process by which a photo is captured. But the constituents of photography and achieving photography are the same, for example, a digital camera still depends on shutter speed, aperture, and ISO to create an exposure, the same as used in film photography.

Features Of Digital Photography

The **Digital Camera** is the main tool used for digital photography and below are some of the features of a digital camera.

1. Memory: Digital cameras store pictures as data files rather than on film as in analog. The number of pictures you can take before downloading the images to a computer, at which you can easily go back and fill the memory up with new pictures.

2. Resolution: This term refers to the detail, or sharpness of an image. The higher the number of pixels, the higher the resolutions.

3. Flash Type: A flash, of course, is the extra light needed by the camera to capture photos inside or in low-light conditions.

4. Burst Mode: Burst mode is also known also as Rapid Fire and Continuous Shooting mode In general, there is a seconds lag of between 1-2 between pressing the shutter button and the picture is taken with a digital camera. Then there is also a 2-30 second recovery time before the camera is able to take another photo.

5. Optical Zoom: There are 2 types of zoom lenses in a camera, digital and optical. Digital zoom simply zooms the picture without adding any clarity of detail to it. The same thing can be done with an editing and cropping software. Optical zoom will do what you really want which is to add detail and sharpness. The larger the lens (2x, 3x, which is the standard lens, 4x, etc.) the more picture taking ability you have.

6. Lens: Lens length will determine how much of a view will fit into a picture. Some cameras come with fixed focus lenses, which are preset to focus at a certain range. These pictures are typically focussed on a wide-angle lens and normal range. Many cameras have autofocus, which picks an item in the center of the viewfinder around which to focus.

7. Power Source: digital cameras use either a rechargeable battery pack or traditional batteries, usually 2 - 4 double A. Some have an AC adapter as well.

Benefits Of Digital Photography

Below are some of the benefits of Digital Photography:

1. **Lesser Cost:** One of the advantages that digital cameras provide is the fact that it is largely practical and convenient. There is a lesser cost in running it for a long period of time as one needs not to buy films anymore and will not develop the pictures in the old fashion way. They would only need to recharge the batteries, get a reasonably large memory and they are set.

2. **Better Storage:** Photographers can now save the pictures that they have taken in their computers and in their CDs, allowing them to use the camera storage over and over again. There is no more need to keep rolls of film and worry that they might disintegrate.

3. **Printing Convenience:** Another benefit of using a digital camera is the fact that it can be printed at home the same way you print any kind of file.

4. **Trial and Error:** Another benefit of using a digital camera is the fact that one can actually see the photos immediately after taking it and have the option of deleting it when it is not good.

5. **Preservation:** It helps to preserve new and old memories.

6. **Documentation:** It helps to document ones journey through life.

7. **Imagination:** It helps to inspire ones imagination.

Advantages of Studying Digital Photography

1. To have in depth knowledge about photography.
2. To be a professional and informed photographer.
3. It creates job opportuniy.
4. It offers self-employment opportunity.
5. It helps to boost your career in Digital Technology.

In The Full Course, You will learn everything you need to know about **Digital Photography** with **Certification** to showcase your knowledge and competence.

Digital Photography Course Outline

Digital Photography - Introduction to Camera
Digital Photography - Getting to Know Your Camera
Digital Photography - Lighting
Digital Photography - Composing Your Shot
Digital Photography - Photographing at Night
Digital Photography - Capturing Motion
Digital Photography - Photographing Landscapes
Digital Photography - Capturing Close-up Shots
Digital Photography - Taking Photos with Smartphone

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DJ MIXING BASICS COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is DJ Mixing?

DJ Mixing is the sequence or process of mixing together musical tracks to appear as one continuous track for live entertainment. The full meaning of **DJ is Disk-Jockey.**

A DJ is a person who announces and plays popular recorded music mix with sound effects to entertain.

DJ Mixes are usually carried out by using a DJ mixer with several sound sources, such as a turntable, a CD player, a digital audio player or computer sound cards, sometimes with the addition of effects units and samplers, although it is possible to create one by using a sound editing software.

DJ Mixing is significantly not the same with live sound mixing. A DJ combines music from Music genres that would fit into the more general term electronic dance music. Other genres that are mixed by DJ includes breakbeat, hip hop, and disco. Four on the floor disco beats can also be used to create seamless mixes so as to keep dancers fixated and locked to the dancefloor.

A DJ Mixset is usually done live in front of an audience in a party, a nightclub, or a rave setting. Mixsets can also be performed live on the radio or recorded in a music studio. Methods of mixing differ slightly depending on the music genres that are being played.

Features of DJ Mixing

There are many features of DJ mixing, and below are some of the features of a DJ Mixer.

1. Inputs: The inputs in the mixer are usually used for hooking up a vinyl turntable with the usage of a Phono or to hook up either a CD player or a computer to the mixer by using the Line In option.

2. Input switches: These input switches allow the DJ to determine the channel input that will give them access to the signal. When looking at your mixer, look for the knob that is placed directly away from the channel. This will lead to your gain also known as trim.

3. Trim: The trim or gain knob will help you determine the sound level of your chosen channel. The best thing to remember is that the trim's sole purpose is to make sure that the level of sound coming from the channels is the same with another one. The best way to think about this is that if your sound record is very loud, you will want to reduce the trim or gain. If the record is too soft, you will want to increase the trim or gain.

4. Understanding the EQ: The sound signal comes to the EQ after making its way through the gain. Your DJ Mixer will most likely have 3 bands to it. The midrange or mid, treble or hi, and bass or low.

5. Channel's level meter: Once through the EQ, the sound will work its way over to the channel's level meter which will set the signal's volume.

6. Channel up the fader: The fader has the capability to reduce the volume once the signal hits its max. If the fader is closed, the sound will come down. However, if the fader is left open, the sound will increase. When a DJ changes their tracks, they often make use of this feature to increase or decrease the sound.

Benefits of DJ Mixing

There are many benefits of DJ Mixing, and some of them are:

1. You gain education on music and creativity.
2. You gain some of the benefits that good music gives to people which is therapy and relaxation.
3. You have the ability to share your talents with a wider audience.
4. For Entertainment.
5. Income Generation.
6. Connections and Networking with other people.
7. For Advertisement Purposes.

DJ Mixing Course Outline

DJ Mixing - The Revolution of Records
DJ Mixing - The Rise of the Radio DJ
DJ Mixing - The Rise of the Club/Rave DJ
DJ Mixing - The Rise of the Hip-hop DJ
DJ Mixing - The Scratch DJ Revolution
DJ Mixing - The Rise of the DJ as Musician
DJ Mixing - The Turntable Tools
DJ Mixing - The CD, DVD and Hard Drive Decks
DJ Mixing - The Computerized DJ/Remix Tools
DJ Mixing - The Drum Machines and Groove Boxes
DJ Mixing - The Mixers and Effects
DJ Mixing - Video DJ Tools
DJ Mixing - MIT's DJ-Robot
DJ Mixing - Approaching the Turntable
DJ Mixing - Mixing Skills
DJ Mixing - Set Building Skills
DJ Mixing - Mobile DJ Skills
DJ Mixing - Extending Breaks
DJ Mixing - Scratch DJ Skills
DJ Mixing - Video Lectures
DJ Mixing - Exams and Certification