

IT Fundamentals

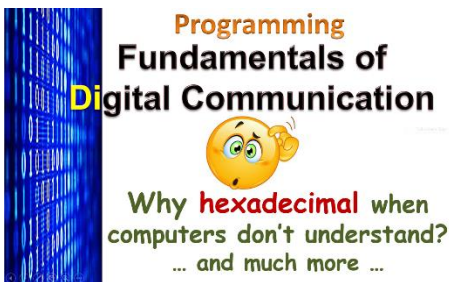
This course is designed for the beginner, who wants to learn programming. It contains basic essential concepts one needs to know for better programming. Learn the fundamental concepts in IT with a *Common Sense approach*. It has something to learn for everyone- including professionals.

Objective:

To generate interest of learning software development.

To enable the learners with fundamentals of -

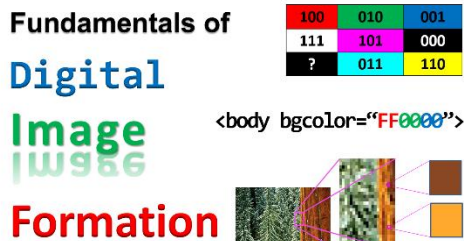
1. digital communication
2. OS, CPU, File, and Memory management
3. SDLC and project terminologies



Programming Fundamentals of Digital Communication

A tutorial with common sense approach that describes basic building blocks of programming starting with 0s and 1s.

<https://youtu.be/wRytL2L1h5o> (8 minute)



Fundamentals of Digital Image Formation

Learn: what does 8-bit color mean? How colorful RGB pixels are stored? What is a CODEC? Find important basic information regarding graphics..



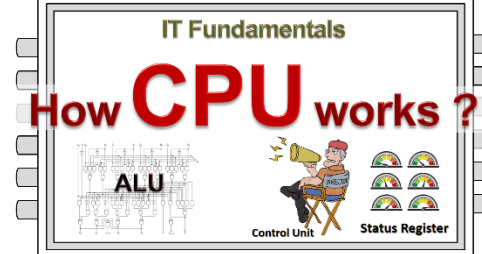

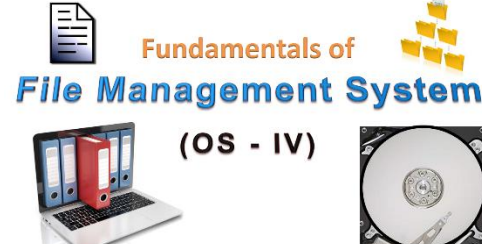
<https://youtu.be/IM290z9tTK4> (8 minute)

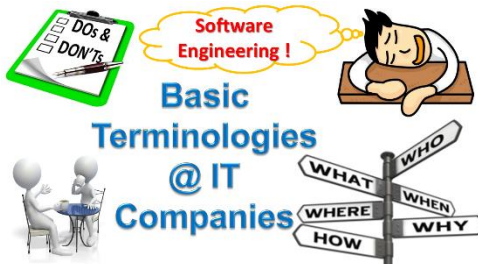



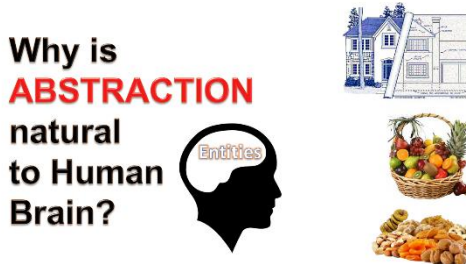
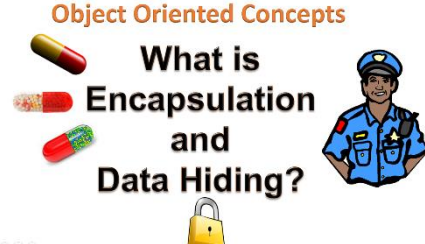
Fundamentals of Multimedia

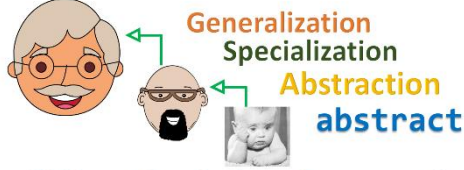
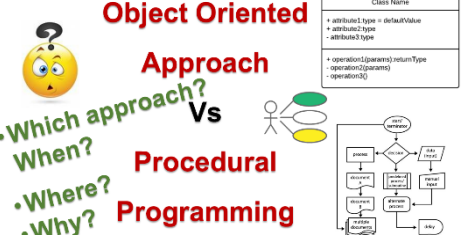



In this video tutorial, learn the interesting basics of Audio, Video, 3D effects in a simple and understandable manner.

<https://youtu.be/w5Q4DYr4utQ> (7 minute)

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|  | <p><u>Communication Protocol simplified</u></p> <p>In a simple and understandable manner learn about how devices communicate using protocol. Learn-</p> <ul style="list-style-type: none"> • TCP/IP reference model • Serial Protocol. • Interrupts handling. <p>https://youtu.be/PYQMhytyND8 (11 min)</p> |
|  | <p><u>Fundamentals of Operating System for beginners</u></p> <p>Learn Fundamentals of -</p> <ul style="list-style-type: none"> • Operating System, • Device Drivers, and • API <p>in simple and understandable language.</p> <p>https://youtu.be/UTXS0wywFks (8 minute)</p> |
|  | <p><u>How CPU works</u></p> <p>A tutorial where everyone (students to professionals) has something to learn.</p> <ul style="list-style-type: none"> • Learn “how CPU works” in a simple and understandable language. A • Learn various type of memories, and much more. <p>https://youtu.be/b_5WJsFE5IM (14 minute)</p> |
|  | <p><u>Fundamentals of Process and Memory management</u></p> <p>Learn - How is an application (process) organized in the RAM ? What is Virtual Memory? Process life cycle, Scheduler, various strategies taken by OS, page fault etc. in a simple and understandable manner.</p> <p>https://youtu.be/6tghAwJ3oxk (11 minute)</p> |
|  | <p><u>Fundamentals of File Management System</u></p> <p>Learn all the essential concept of the File Management system in a simple and understandable language.</p> <p>https://youtu.be/VkzXQ3P2uvk (13 minute)</p> |

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|  | <p><u>Introduction to basic terminologies in software engineering</u></p> <p>Understand the basic terminologies of Software Engineering including <i>Process, Process Model, Quality Control, Quality Assurance, Quality Metrics</i>, etc. in interesting and simple way</p> <p>https://youtu.be/yLFXC1e-bgg (8 minutes)</p> |
|  | <p><u>Software Development Life Cycle (SDLC)</u></p> <p>Learn about what do people in a Software Company/Project do and how do they do it. V-Model described in a simple and understandable manner. With various stages and roles team members play.</p> <p>https://youtu.be/DRDD7UWX2y4 (9 minutes)</p> |

| Object Oriented Analysis and Design Concepts | |
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| <p>As an architect I have seen many of the programmers, even after few years of coding experience, not able to explain and hence implement the Object Oriented Analysis and Design Concepts.</p> <p>For Example: An OOP language like JAVA has provided with all tools for implementation of OOD and OOC, however writing everything in main method is no better than a procedural program.</p> <p>In a simple and understandable manner learn about the Object Oriented Terminologies and the concepts and then OO approach to make use of the concept to your software design.</p> | |
| <p>Why is ABSTRACTION natural to Human Brain?</p>  | <p><u>Why is ABSTRACTION (OOP) natural to Human Brain?</u></p> <p>Abstraction (@OOP) is the most important and yet often less understood (or misunderstood!) term. In this video, learn psychological reason behind, why Abstraction is natural to human brain?</p> <p>https://youtu.be/b_FYQJ5J76E (4 min)</p> |
| <p>Object Oriented Concepts</p> <p>What is Encapsulation and Data Hiding?</p>  | <p><u>Encapsulation and Data Hiding Vs Abstraction</u></p> <ul style="list-style-type: none"> • Learn the concept of Encapsulation and Data-Hiding in OOP. • Learn, how is it related to abstraction. <p>https://youtu.be/LodRm5BiVro (8 minutes)</p> |

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|  <p>What is Inheritance? Object Oriented Concepts</p> | <p><u>Inheritance: Generalization-Specialization = Parent-Child</u></p> <ul style="list-style-type: none"> Generalization Vs Specialization concept in OOPs. abstract Vs Abstraction <p>https://youtu.be/Uq6l6J3P_Tg (11 minutes)</p> |
|  <p>Object Oriented Approach Vs Procedural Programming</p> <p>• Which approach? When? • Where? • Why?</p> | <p><u>What is Object Oriented Approach?</u></p> <ul style="list-style-type: none"> It is a strategy adopted to analyze the requirements and design the solution in an Object Oriented way. Get clarity on when, where and why to apply Structural and OO Design approach. <p>https://youtu.be/wK6zfKRm5RY (13 min)</p> |
|  <p>POLYMORPHISM</p> | <p><u>Polymorphism</u></p> <ul style="list-style-type: none"> What is <u>Polymorphism</u>? How many types of Polymorphism do you know? ... Learn few more in a simplified manner. <p>https://youtu.be/cLNkvR0G4AE (10 min)</p> |
|  <p>Memory Management in Python</p> <p>- Anuj Jajoo -</p> | <p><u>Memory Allocation and Management in Python</u></p> <p>Learn Object memory management- Allocation and Garbage Collector mechanism in Python and compares with other languages.</p> <p>https://youtu.be/arxWaw-E8QQ (9 min)</p> |
|  <p>Industry Expectations from Fresh Engineering Graduates</p> <p>To B.E. or NOT B.E.</p> <p>Campus Placements</p> | <p><u>Industry Expectations from Fresh Engineering Graduates</u></p> <p>A must watch for anyone who –</p> <ul style="list-style-type: none"> is preparing for Campus placement interview. wants to know what Engineers do before taking admission. <p>https://youtu.be/U1rk4Re8llo (13 minute)</p> |