




Excelssior Education Society's
K. C. College of Engineering and Management Studies and Research
 (Affiliated to the University of Mumbai) MithBunder Road, Near Hume Pipe,
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Fundamentals of Cryptography

Curriculum

- Overview of cryptography. What is a cipher?
- One time pad and stream ciphers
- Block ciphers
- How to use a block cipher
- CPA Security plus attacks on block ciphers
- Message integrity: definition and applications
- Collision resistant hashing
- Authenticated encryption: security against active attacks
- Arithmetic modulo primes and finite cyclic groups
- Cryptography using finite cyclic groups
- ElGamal public key encryption
- Public key encryption using a trapdoor function
- Digital signatures: definitions and applications
- More signature schemes and applications
- Identification protocols
- Authenticated key exchange and SSL/TLS session setup
- Zero knowledge proofs
- The crypto wars: should we have end-to-end encryption?




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Introduction to Cyber Security

Curriculum

What is Cyber Security?

This module gives you an introduction and definition to cybersecurity.

Key Concepts of Cyber Security

You will understand the criteria to satisfy to call a system secured and understand CIA concepts in cyber security with examples in this section.

Popular Attacks - Hacker Motivation


In this section, you will understand the organization's motivation to implement a secured cyber security strategy and the hacker's motivation to break into the system. You will also learn about various cloud service providers and why there is a shift to cloud storage.

Popular Attacks

This section will brief you on ransomware, botnet attacks, social engineering attacks, cryptocurrency hijacking, and phishing attacks.

Ransomware




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This section will explain ransomware in detail with the WannaCry Ransomware cryptoworm attack for the bitcoin cryptocurrency example.

BotNet Attack

This section explains botnet attacks with Mirai malware for Linux systems to control bots remotely.

Phishing Attack

This section explains the phishing attack in detail, with the Ukrainian Power Grid attack to destroy physical machinery and banking examples.

Introduction to Cryptography

You will understand what cryptography is and why it is essential in network security. This section will also explain the basic cryptographic process to encrypt sensitive data.

Types of Cryptography


You will learn basic symmetric((private key) cryptography and asymmetric(public key) cryptography concepts in this section.

Message Integrity

You will learn message authentication code(MAC), cipher text, and data integrity concepts in this section, with an example.

Symmetric Key Cryptography




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You will learn and understand Caesar cipher, stream cipher, and block cipher with solved examples in this section.

Public Key Cryptography

You will understand the "key pair" principle that public key cryptography works on with examples and solved problems in this section.

Security goals & Its Implementations - Authentication & Authorization

This section explains authentication and authorization, aiding data security and integrity, and concepts in detail.

Security goals & Its Implementations - Confidentiality

You will understand why it is essential for only authorized individuals to access, alter and delete data within a system, and also understand how it is maintained in this section.

Design a Security System - Part 1


In this section, you will learn to understand different types of threats, ID and mitigate threats, and model a security solution to protect the system against that threat.

Design a Security System - Part 2

You will understand the flow of the design, starting from security in software requirements, robust, consistent error handling, sharing requirements with the relevant team, handling internal errors, defensive programming, validation and fraud checks, and security policy for securing the data.

Buffer OverFlow & Vulnerabilities




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This section explains how a small error in code and other vulnerabilities can be leveraged to overrun the security of a system with an example.

Case Study: WhatsApp Attack

This section explains a case study on WhatsApp to help you understand the overall cyber security concept.



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Introduction to Network Administration

Curriculum

Module 1: Introduction to Network Basics and Administration

- Network Administration: Scope, Goals, Philosophy and Standards
- Network Structures
- Network Technology
- Network Protocols

Module 2: System Components and Management

- System components
- Networked communities
- Host management
- User management


Module 3: Network management

- Methods of network administration: snmp & rmon
- Configuration and maintenance
- Diagnostics, fault and change management
- Monitoring and system performance tuning

Module 4: Network simulation, documentation and security

- Network simulation and documentation
- Network security
- Outlook and the future of network administration




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Linux Essentials Professional Development

You'll Learn These Core Skills:

- Plan and install a home or small business network using wireless technology, then connect it to the Internet.
- Develop critical thinking and problem-solving skills using Cisco Packet Tracer.
- Practice verifying and troubleshooting network and Internet connectivity.
- Recognize and mitigate security threats to a home network.




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Data Science with Python Syllabus

SECTION I --- Python Basics

Lesson 1: Overview

- Why do we need Python?
- Program structure


Environment Setup

- Python Installation
- Execution Types
 - What is an interpreter?
 - Interpreters vs Compilers
 - Using the Python Interpreter
 - Interactive Mode
 - Running python files
 - Working with Python shell
 - Integrated Development Environments (IDES)
 - Interactive Mode Programming
 - Script Mode Programming

Lesson 2 : Basic Concepts

- **Basic Operators**
 - Types of Operator
 - Python Arithmetic Operators
 - Python Comparison Operators
 - Python Assignment Operators
 - Python Bitwise Operators
 - Python Logical Operators
 - Python Membership Operators (in, not in)
 - Python Identity Operators (is, is not)
 - Python Operators Precedence
- **Data Types**
 - Variables
 - Assigning Values to Variables
 - Multiple Assignment
 - Python Numbers
 - Python Strings
 - Accessing Values in Strings
 - String Special Operators
 - String Formatting Operator
 - Triple Quotes
 - String Operations




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Lesson 2 : Basic Concepts

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 - Assigning Values to Variables
 - Multiple Assignment
 - Python Numbers
 - Python Strings
 - Accessing Values in Strings
 - String Special Operators
 - String Formatting Operator
 - Triple Quotes
 - Python Lists
 - Python String Operations




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- Accessing Values in Lists
- Updating Lists
- Delete List Elements
- Basic List Operations
- Indexing, Slicing, and Matrixes
- Built-in List Functions & Methods
- Python Tuples
 - Accessing Values in Tuples
 - Updating Tuples
 - Delete Tuple Elements
 - Basic Tuples Operations
 - Indexing, Slicing, and Matrixes
 - No Enclosing Delimiters
 - Built-in Tuple Functions
- Python Dictionary
 - Accessing Values in Dictionary
 - Updating Dictionary
 - Delete Dictionary Elements
 - Properties of Dictionary Keys
 - Built-in Dictionary Functions & Methods

Lesson 3: Loops and Decision Making

- if statements
- if...else statements
- nested if statements
- while loop
- for loop
- nested loops
- Loop Control Statements
- 1) break statement
- 2) continue statement
- 3) pass statement

Lesson 4 : Functions

- Defining a Function
- Syntax
- Calling a Function
- Pass by reference vs value
- Function Arguments
- Required arguments
- Keyword arguments
- Default arguments
- Variable-length arguments
- The return Statement
- Scope of Variables
- Global vs. Local variables

Lesson 5: Basic OOPs Concept

- Creating class in Python


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Section II -- Statistics and Data Science Overview

Lesson 8 : Data Science Overview

● Data Science Disciplines

- Data Science and Business Buzzwords Why are there so many
- What is the difference between Analysis and Analytics
- An Introduction--Business Analytics, Data Analytics, and Data Science
- Data Science Diagram
- Introduction -- BI, ML and AI
- Careers in Data Science Fields

● Data Overview

- What is Data
- Measuring Data
- Measurement of Central Tendency
- Measurements Dispersion
- Measurement Quartile
- Bi-variate Data and Co-variance
- Pearson Correlation Coefficient

● Lesson 9 : Probability

- What is Probability
- Permutations
- Combinations
- Intersections Unions and Complements
- Independent and Dependent Events
- Conditional Probability

- Addition and Multiplication Rules




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- **Lesson 10: Distributions**

- Introduction to Distributions
- Uniform Distribution
- Binomial Distribution
- Poisson Distribution
- Normal Distribution

- **Lesson 11: Statistics**

- What is Statistics
- Sampling
- Central Limit Theorem
- Standard Error
- Hypothesis Testing
- Hypothesis Testing Example Exercise
- Type 1 and Type 2 Errors
- Students T Distribution
- Practical Example Descriptive Statistics Exercise
- What are Confidence Intervals
- Correlation Matrix


- **Lesson 12: Anova**

- Introduction to ANOVA
- Two Way ANOVA Overview
- F- Distribution

- **Lesson 13: Chi Square Analysis**

- Chi Square Analysis
- Chi Square Analysis - Exercise Example




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Section III -- Python for Data Analysis

- **Lesson 14 : Python: Environment Setup and Essentials**
 - Introduction to Anaconda
 - Installation of Anaconda Python Distribution – For Windows, Mac OS, and Linux
 - Jupyter Notebook Installation
 - Jupyter Notebook Introduction

- **Lesson 15:Data Analysis- Numpy**
 - Introduction to Numpy
 - Numpy Array
 - Numpy Indexing
 - Numpy Operations
 - Broadcasting Numpy Array

- **Lesson 16:Data Analysis -- Pandas**
 - Introduction to Pandas
 - Series
 - Data Frames
 - Missing Data
 - Groupby
 - Operations
 - Merging, Joining and concatenating
 - Missing Data
 - Data Input and Output

- **Lesson 17:Pandas Exercise**
 - Salaries Exercise
 - Ecommerce Purchases Exercise

- **Lesson 18:Numpy Exercise**




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- Solving Linear System
- Problem Set

Section IV -- Python for Data Visualization

● Lesson 19:Matplotlib

- Introduction
- Matplotlib Drawing Graph -- Histogram, Plotting, Box Plot etc
- Exercise

● Lesson 20:Seaborn

- Introduction
- Distribution
- Categorical Plots
- Matrix Plots
- Regression Plots
- Grids
- Style and Colors
- Exercise

● Lesson 21:Data Visualization with Pandas

- Pandas Built-in Data Visualization
- Pandas Data Visualization Exercise

● Lesson 22:Data Visualization - Geographical Plotting

- Introduction to Geographical Plotting
- Choropleth Maps - Part 1 - USA
- Choropleth Maps - Part 2 - World
- Choropleth Exercises




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- **Capstone Project I**

- Calls Data Capstone Project
- Finance Project

- **Lesson 23:Time Series Analysis**

- Pandas for Time Series
- Introduction to Time Series with Pandas
- Date time Index
- Time Re-sampling
- Time Shifts
- Pandas Rolling and Expanding
- Time Series Analysis
- Introduction to Time Series
- Time Series Basics
- Introduction to Statsmodel
- ETS Theory
- EWMA Theory
- ARIMA Theory
- ACF and PACF
- ARIMA with Statsmodel

- **Capstone Project II**

- Stock Market Analysis Project

- **Lesson 24:Scientific computing with Python (Scipy)**

- SciPy and its Characteristics
- SciPy sub-packages
- SciPy sub-packages –Integration
- SciPy sub-packages –Optimize
- Linear Algebra




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- SciPy sub-packages – Statistics
- SciPy sub-packages – Weave
- SciPy sub-packages – I O

● **Lesson 25: Data Science with Python Web Scraping**

- Web Scraping
- Common Data/Page Formats on The Web
- The Parser
- Importance of Objects
- Understanding the Tree
- Searching the Tree
- Navigating options
- Modifying the Tree
- Parsing Only Part of the Document
- Printing and Formatting
- Encoding

Section V -- Machine Learning

● **Lesson 26: Machine Learning with Python (Scikit-Learn)**

- Introduction to Machine Learning
- Machine Learning Approach
- How Supervised and Unsupervised Learning Models Work
- Scikit-Learn
- Supervised Learning Models – Linear Regression
- Supervised Learning Models: Logistic Regression
- K Nearest Neighbors (K-NN) Model
- K Means Algorithm
- SVMs
- Unsupervised Learning Models: Clustering
- Unsupervised Learning Models: Dimensionality Reduction
- Pipeline
- Model Persistence
- Model Evaluation – Metric Functions

● **Lesson 27: Natural Language Processing with Scikit-Learn**

- NLP Overview
- NLP Approach for Text Data
- NLP Environment Setup
- NLP Sentence analysis
- NLP Applications
- Major NLP Libraries
- Scikit-Learn Approach
- Scikit – Learn Approach Bolt – Modules
- Scikit – Learn Approach Feature Extraction




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- Bag of Words
 - Extraction Considerations
 - Scikit – Learn Approach Model Training
 - Scikit – Learn Grid Search and Multiple Parameters
 - Pipeline
- **Lesson 28: Python integration with Hadoop, MapReduce and Spark**
 - Need for Integrating Python with Hadoop
 - Big Data Hadoop Architecture
 - MapReduce
 - Cloudera QuickStart VM Set Up
 - Apache Spark
 - Resilient Distributed Systems (RDD)
 - PySpark
 - Spark Tools
 - PySpark Integration with Jupyter Notebook

Section VI: Project Works

Project 1-- Board Game Review Prediction -- To perform a Linear Regression Analysis by predicting the average reviews in a board game

Project 2 -- Credit Card Fraud Detection -- To focus on Anomaly Detection by using probability densities to detect credit card fraud

Project 3 – Stock Market Clustering – Learn how to use the K-means clustering algorithm to find related companies by finding correlations among stock market movements over a given time span

Project 4 – Getting Started with Natural Language Processing in Python – This project will focus on Natural Language Processing (NLP) methodology, such as tokenizing words and sentences, part of speech identification and tagging, and phrase chunking.




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COURSE CURRICULUM (AY 2022-23)

CCNAv7: Introduction to Networks

You'll Learn These Core Skills:

- Build simple LANs, perform basic configurations for routers and switches, and implement IPv4 and IPv6 addressing schemes.
- Configure routers, switches, and end devices to provide access to local and remote network resources and to enable end-to-end connectivity between remote devices.
- Develop critical thinking and problem-solving skills using real equipment and Cisco Packet Tracer.
- Configure and troubleshoot connectivity to a small network using security best practices.




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Linux Essential Professional Development

Curriculum

- FOSS, the various communities, and licenses.
- Knowledge of open source applications in the workplace as they relate to closed source equivalents.
- Basic concepts of hardware, processes, programs and the components of the Linux Operating System.
- How to work on the command line and with files.
- How to create and restore compressed backups and archives.
- System security, users/groups and file permissions for public and private directories.
- How to create and run simple scripts.




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Crash Course on Python

You'll Learn These Core Skills:

- Specialization Introduction•5 minutes•Preview module
- Course Introduction•5 minutes
- The Beginning of Your Programming Journey•2 minutes
- What is programming?•2 minutes
- What is automation?•2 minutes
- Getting Computers to Work for You•3 minutes
- What is Python?•2 minutes
- Why is Python relevant to IT?•4 minutes
- Other Languages•3 minutes
- Hello, World!•2 minutes
- Getting Information from the User•1 minute
- Python Can Be Your Calculator•2 minutes
- Code editors and IDEs overview•2 minutes
- Use the command-line•3 minutes
- Use JupyterLab and Jupyter Notebooks•3 minutes
- Use Colab•2 minutes
- Use VS Code•4 minutes
- First Steps Wrap Up•1 minute
- Meet Marga, the Curriculum Developer•1 minute
- Basic Python Syntax introduction•2 minutes•Preview module
- Data Types•4 minutes



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- Expressions, numbers, and type conversions•2 minutes
- Defining Functions•3 minutes
- Returning Values•4 minutes
- The principles of code reuse•2 minutes
- Code style•4 minutes
- Comparing things•4 minutes
- Branching with if Statements•2 minutes
- else Statements•3 minutes
- elif Statements•3 minutes
- In Marga's Words: Why I Like Python•1 minute
- Basic Syntax Wrap Up•1 minute
- Introduction to Loops•1 minute•Preview module
- What is a while loop?•3 minutes
- More while loop examples•3 minutes
- Why Initializing Variables Matters•3 minutes
- Infinite Loops and How to Break Them•4 minutes
- What is a for loop?•5 minutes
- More for loop examples•2 minutes
- Nested for Loops•6 minutes
- Common Errors in for Loops•3 minutes
- What is recursion? (Optional)•4 minutes
- Recursion in Action in the IT Context•3 minutes
- Loops Wrap Up•1 minute
- In Marga's Words: How I Got Into Programming•2 minutes
- Basic Structures Introduction•1 minute•Preview module



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- What is a string?•2 minutes
- The Parts of a String•3 minutes
- Creating New Strings•6 minutes
- More String Methods•4 minutes
- Formatting Strings•4 minutes
- What is a list?•4 minutes
- Modifying the Contents of a List•4 minutes
- Lists and Tuples•3 minutes
- Iterating over Lists and Tuples•7 minutes
- List Comprehensions•4 minutes
- List comprehension vs for loops•4 minutes
- What is a dictionary?•5 minutes
- Iterating over the Contents of a Dictionary•4 minutes
- Dictionaries vs. Lists•3 minutes
- OOP Introduction (Optional)•0 minutes
- Instance Methods (Optional)•4 minutes
- Basic Structures Wrap Up•1 minute
- In Marga's Words: My Most Challenging Script•0 minutes
- Final Project Introduction•2 minutes•Preview module
- Problem Statement•3 minutes
- Research•4 minutes
- Planning•2 minutes
- Writing the Script•3 minutes
- Putting It All Together•2 minutes



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Python Basics for Data Science

- ☑ About this course
- ☑ Module 1 - Python Basics
- ☑ Module 2 - Python Data Structures
- ☑ Module 3 - Python Programming Fundamentals
- ☑ Module 4 - Working with Data in Python
- ☑ Module 5 - Working with Numpy Arrays
- ☑ Course Summary
- ☑ Final Assignment
- ☑ Final Exams



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Introduction to IOT Certified by CISCO

After completing the Introduction to IoT certification course, candidates will obtain a basic understanding of the internet of things' essential concepts and principles. Candidates will explore numerous business processes that contribute to digital transformation. Candidates will learn about Arduino, Python, big data, Azure IoT Hub, Kali Linux, CISCO Packet Tracer, and CISCO Edge Intelligence, among other IoT technologies. Candidates will also learn about artificial intelligence, machine learning, networking & security using IoT concepts .

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Introduction to Cloud

Curriculum

Module 1: Overview of Cloud Computing

- Definition and essential characteristics
- A brief history and evolution of Cloud
- Key cloud service providers and their services

Module 2: Cloud Adoption and Emerging Technologies

- Business case for Cloud Computing
- Emerging technologies supported by Cloud: AI, IoT, Blockchain, Analytics

Module 3: Cloud Computing Service and Deployment Models

- Service Models: IaaS, PaaS, SaaS
- Deployment Models: Public, Private, Hybrid

Module 4: Components of Cloud Computing

- Cloud Infrastructure Overview
- Virtualization, VMs, Bare Metal
- Secure Cloud Networks
- Containers

Module 5: Cloud Storage

- Direct Attached
- File Storage
- Block Storage
- Object Storage
- Content Delivery Networks (CDN)

Module 6: Cloud Native and Emergent Cloud Trends

- Hybrid Multi cloud
- Serverless
- Microservices
- Cloud Native
- Application Modernization




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Deep Learning

Curriculum

Deep learning basics	Convolutional neural networks
Advanced deep architectures	Deep reinforcement learning
Practical network training	Recurrent neural networks
Novel deep methods (deep image and deep internal learning)	Tools (tensor flow, pytorch)
Practical sessions (computer vision)	Natural language processing


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Certificate course on Python

Curriculum

Module 1: An Introduction to Python (Duration - 2 hrs)

- What can Python do?
- Why Python?
- Good to know
- Python Syntax contrasted(compared) with other programming dialects or languages.
- Python Install

Module 2: Beginning Python Basics (Duration - 3 hrs)

- The print statement
- Comments
- Python Data Structures & Data Types
- String Operations in Python
- Simple Input & Output
- Simple Output Formatting
- Operators in python

Module 3: Python Program Flow (Duration - 3 hrs)

- Indentation
- The If statement and its' related statement(assertion)
- An example with if and it's related statement(explanation)
- The while loop
- The for loop
- The range statement
- Break & Continue
- Assert
- Examples for looping

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Module 4: Functions & Modules (Duration - 3 hrs)

- Create your own functions
- Functions Parameters
- Variable Arguments
- Scope of a Function
- Function Documentations
- Lambda Functions & map
- n Exercise with functions
- Create a Module
- Standard Modules

Module 5: Exceptions Handling (Duration - 3 hrs)

- Errors
- Exception handling with try
- handling Multiple Exceptions
- Writing your own Exception

Module 6: File Handling (Duration - 2 hrs)

- File handling Modes
- Reading Files
- Writing & Appending to Files
- Handling File Exceptions
- The with statement

Module 7: Classes In Python (Duration - 4 hrs)

- New Style Classes
- Creating Classes
- Instance Methods
- Inheritance
- Polymorphism
- Exception Classes & Custom Exceptions

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Module 8: Generators and iterators (Duration - 2 hrs)

- Iterators





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- Generators
- With Statement
- Data Compression

Module 9: Data Structures (Duration - 2 hrs)

- List Comprehensions
- Nested List Comprehensions
- Dictionary Comprehensions
- Functions
- Default Parameters
- Variable Arguments
- Specialized Sorts

Module 10: Collections (Duration - 2 hrs)

- namedtuple()
- deque
- ChainMap
- Counter
- OrderedDict
- defaultdict
- UserDict
- UserList
- UserString

Module 11: Writing GUIs in Python (Time-Duration) (3 hrs)

- Introduction
- Components and Events
- An Example GUI
- The root Component
- Adding a Button
- Entry Widgets
- Text Widgets
- Check buttons

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Module 12: Python SQL Database Access (Duration - 4 hrs)





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- Introduction
- Installation
- DB Connection
- Creating DB Table
- INSERT, READ, UPDATE, DELETE operations
- COMMIT & ROLLBACK operation
- handling Errors

Module 13: Network Programming (Duration - 3 hrs)

- Introduction
- A Daytime Server
- Clients and Servers
- The Client Program
- The Server Program

Module 14: Date and Time (Duration - 1 hr)

- sleep
- Program execution time
- more methods on date/time

Module 15: Some similar topics in-detailed (Duration Time - 1 hr)

- Filter
- Map
- Reduce
- Decorators
- Frozen set
- Collections

Module 16: Regular expression (Duration - 1 hr)

- Split
- Working with special characters, dates, emails
- Quantifiers
- Match and find all
- character sequence and substitute
- Search method

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Module 17: Threads ESSENTIAL (Duration - 1 hr)

- Class and threads
- Multi-threading
- Synchronization
- Treads Life cycle
- use cases

Module 18:

- Multithreading

Module 19:

- Python JSON

Module 20:

- Python Excel
-

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Angular Js

Curriculum

Introduction to HTML

HTML Basics, Elements, Attributes, Styles
 Forms, Form Elements, Input Element Types
 Input Attributes, File Paths, Script tag
 HTML & XHTML

Introduction to CSS

CSS Introduction, Syntax, Selectors, Styling
 Pseudo class, Pseudo Elements
 CSS Tables, CSS Box Models
 CSS Opacity, CSS Navigation Bar, Dropdowns

Introduction to JavaScript

JavaScript Statements, Keywords, Functions
 JavaScript Programs, Operators, Functions
 Function Parameters, Function Return Types
 Data Types, Primitive Types

Working with Objects

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 Head of Engineering Dept
 K. C. College of Engineering and Management Studies and Research





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Object Oriented Programming, Object Creation
Adding Methods of Objects
JavaScript Loops & Iteration
Adding Properties of Objects
JavaScript Conditional Statements
Enumerating Properties, Callbacks, JSON

Angular JS Basics

What is Angular JS?
Why Angular JS?
Why MVC matters
MVC-The Angular JS way
Features of Angular JS ,Model-View-Controller
My First Angular JS app

Angular Expressions

All about Angular Expressions
How to use expressions, Angular vs JavaScript

Filters

Built-In Filters, Using Angular JS Filters
Creating Custom Filters

Directives

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Connecting String, Configuring
Updating Records
Working with Select Command
Deleting Records

Project Development

Project Development using Node JS

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What is Dependency Injection
Creating Services, Factory, Service & Provider
Using Dependency Injection, What are services
Using Angular JS built in services

Single Page Application (SPA)

What is SPA, Pros and Cons of SPA
Passing Parameters, Changing location
Installing the ng Route module, Configure routes
Resolving promises, Creating a Single Page Apps

Angular JS Animation

Animate Module, CSS Transforms
CSS Transitions, Applying Animations

Introduction to Node JS

Introduction to Node JS
Advantages of Node JS
What is Node JS, Node.js Process Model
Traditional Web Server Model

Setup Development Environment

Install Node.js on Windows
Working in REPL, Node JS Console

Node JS Modules

Functions, Buffer, Module
Modules Types
Core Modules, Local Modules
Modules Exports

Node Package Manager

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What is NPM, Installing Packages Locally
Installing package globally
Adding dependency in package json
Updating packages

Creating Web Server

Creating Web Server
Sending Requests
Handling http requests

File System

Read File, Writing a File
Opening a file, Deleting a file
Writing a file asynchronously
Other IO Operations

Debugging Node JS Application

Core Node JS Debugger

Events

Event Emitter class
Inheriting Events
Returning event emitter

Express JS

Configuring Routes
Working with Express

Serving Static Resources

Serving Static Files
Working with Middle Ware

Database Connectivity

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Introduction to Directives, Directive Lifecycle
Binding controls to data, Matching directives
Using Angular JS built-in directives
Creating a custom directive

Controllers

Role of a Controller, Controllers & Modules
Attaching Properties and functions to scope
Nested Controllers, Using Filters in Controllers
Controllers in External Files

Angular JS Modules

Introduction to Angular JS Modules
Bootstrapping Angular JS


Angular JS Forms

Working with Angular Forms, Model Binding
Forms Events, Updating Models with a Twist
Form Controller, Validating Angular Forms
\$error object

Scope

What is scope, Scope Lifecycle
Scope Inheritance, Scope & Controllers
Root scope, Scope Broadcasting
Two-way data binding, Scope Inheritance
Scope & Directives, \$apply and \$watch
Scope Events

Dependency Injection & Services


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Big data analysis

Curriculum

ESSENTIALS OF BIG DATA AND ANALYTICS: Data, Characteristics of data and Types of digital data, Sources of data, Working with unstructured data, Evolution and Definition of big data, Characteristics and Need of big data, Challenges of big data; Overview of business intelligence, Data science and Analytics, Meaning and Characteristics of big data analytics, Need of big data analytics, Classification of analytics, Challenges to big data analytics, Importance of big data analytics, Basic terminologies in big data environment.

HADOOP : Introducing Hadoop, Need of Hadoop, limitations of RDBMS, RDBMS versus Hadoop, Distributed computing challenges, History of Hadoop , Hadoop overview, Use case of Hadoop, Hadoop distributors, HDFS (Hadoop Distributed File System) , Processing data with Hadoop, Managing resources and applications with Hadoop YARN (Yet another Resource Negotiator), Interacting with Hadoop Ecosystem.

MAPREDUCE PROGRAMMING: Introduction , Mapper, Reducer, Combiner, Partitioner, Searching, Sorting, Compression, Real time applications using MapReduce, Data serialization and Working with common serialization formats, Big data serialization formats.

HIVE: Introduction to Hive, Hive architecture, Hive data types, Hive file format, Hive Query Language (HQL), User-Defined Function (UDF) in Hive; UNIT – 5 9 Hours **PIG:** The anatomy of Pig , Pig on Hadoop, Pig Philosophy, Use case for Pig; ETL Processing , Pig Latin overview , Data types in Pig , Running Pig , Execution modes of Pig, HDFS commands, Relational operators, Piggy Bank , Word count example using Pig.

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CI/CD and DevOps

Curriculum

- Introduction
- The Old School Software Development Life Cycle
- Old School Integration - Pain Points
- Bringing in Continuous Integration
- Continuous Integration - Solving the pain points
- Pipelines Explained
- Before Continuous Delivery came in - Old School Operations


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Syllabus for Skillz cafe R for data science

This course is designed to help learners become proficient in R programming and data science. The course covers various topics, including data manipulation, visualization, exploratory data analysis, statistical inference, machine learning, and predictive modeling. The course is taught by industry experts and includes practical exercises and real-world case studies to help learners develop the skills and knowledge needed to succeed in the field of data science.

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COURSE CURRICULUM (AY 2021-22)

AWS Academy Cloud Foundation

- Recall cloud computing services and models
- Describe developing on AWS
- Configure AWS Identity and Access Management for programmatic access
- Configure storage with Amazon S3 programmatically
- Develop with DynamoDB
- Explain caching
- Configure containers
- Develop event-driven solutions with Lambda
- Configure solutions with API Gateway
- Develop solutions with SQS and SNS
- Describe the use of Step Functions
- Identify best practice for building secure applications
- Identify best practice for deploying application

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Machine Learning

Introduction to ML

- (i) Motivation and role of machine learning in computer science and problem solving .
- (ii) Representation (features), linear transformations, Appreciate linear transformations and matrix vector operations in the context of data and representation.
- (iii) Problem formulations (classification and regression).
- (iv) Appreciate the probability distributions in the context of data, Prior probabilities and Bayes Rule.
- (v) Introduce paradigms of Learning (primarily supervised and unsupervised. Also a brief overview of others) .

Fundamentals of ML

- (i) PCA and Dimensionality Reduction,
- (ii) Nearest Neighbours and KNN.
- (iii) Linear Regression (iv) Decision Tree Classifiers
- (iv) Notion of Generalization and concern of Overfitting
- (v) Notion of Training, Validation and Testing; Connect to generalization and overfitting.

Selected Algorithms

- (i) Ensembling and RF
- (ii) Linear SVM,
- (iii) K Means,
- (iv) Logistic Regression
- (v) Naive Bayes

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Neural Network Learning

- (i) Role of Loss Functions and Optimization, (ii) Gradient Descent and Perceptron/Delta Learning, (iii) MLP, (iv) Backpropagation (v) MLP for Classification and Regression, (vi) Regularisation, Early Stopping (vii) Introduction to Deep Learning (viii) CNNs

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IBM: AI for Everyone: Master the Basics

- Understand what is AI, its applications and use cases and how it is transforming our lives
- Explain terms like Machine Learning, Deep Learning, and Neural Networks
- Describe several issues and ethical concerns surrounding AI
- Articulate advice from experts about learning and starting a career in AI



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COURSE CURRICULUM (AY 2020-21)

AI For Everyone (Deep Learning AI)

Week 1 Introduction•8 minutes•Preview module

Machine Learning•8 minutes

What is data?•11 minutes

The terminology of AI•9 minutes

What makes an AI company?•7 minutes

What machine learning can and cannot do•6 minutes

More examples of what machine learning can and cannot do•8 minutes

Non-technical explanation of deep learning (Part 1, optional)•7 minutes

Non-technical explanation of deep learning (Part 2, optional)•3 minutes

Week 2 Introduction•1 minute•Preview module

Workflow of a machine learning project•6 minutes

Workflow of a data science project•6 minutes

Every job function needs to learn how to use data•6 minutes

How to choose an AI project (Part 1)•7 minutes

How to choose an AI project (Part 2)•8 minutes

Working with an AI team•8 minutes

Technical tools for AI teams (optional)•6 minutes

Week 3 Introduction•2 minutes•Preview module

Case study: Smart speaker•9 minutes

Case study: Self-driving car•6 minutes

Example roles of an AI team•8 minutes

AI Transformation Playbook (Part 1)•10 minutes

AI Transformation Playbook (Part 2)•14 minutes

AI pitfalls to avoid•2 minutes

Taking your first step in AI•4 minutes

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Introduction to Data Science in Python

Introduction to Specialization•3 minutes•Preview module
Introduction to the Course•4 minutes
The Coursera Jupyter Notebook System•8 minutes
Python Functions•8 minutes
Python Types and Sequences•8 minutes
Python More on Strings•3 minutes
Python Demonstration: Reading and Writing CSV files•3 minutes
Python Dates and Times•2 minutes
Advanced Python Objects, map()•5 minutes
Advanced Python Lambda and List Comprehensions•2 minutes
Numerical Python Library (NumPy)•32 minutes
Manipulating Text with Regular Expression•27 minutes

Introduction to Pandas•3 minutes•Preview module
The Series Data Structure•10 minutes
Querying a Series•15 minutes
DataFrame Data Structure•12 minutes
DataFrame Indexing and Loading•8 minutes
Querying a DataFrame•9 minutes
Indexing Data Frames•8 minutes
Missing Values•11 minutes
Example: Manipulating DataFrame•8 minute

Merging Dataframes•15 minutes•Preview module
Pandas Idioms•15 minutes
Group by•19 minutes
Scales•10 minutes
Pivot Table•9 minutes
Date/Time Functionality•12 minutes
Basic Statistical Testing•13 minutes•Preview module
Other Forms of Structured Data•6 minutes

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Survey of major AI application areas (optional)•16 minutes
Survey of major AI techniques (optional)•15 minutes

Week 4 Introduction•2 minutes•Preview module

A realistic view of AI•7 minutes

Discrimination / Bias•9 minutes

Adversarial attacks on AI•7 minutes

Adverse uses of AI•4 minutes

AI and developing economies•7 minutes

AI and jobs•8 minutes

Conclusion•3 minutes


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Introduction to Data Science in Python

Introduction to Specialization•3 minutes•Preview module

Introduction to the Course•4 minutes

The Coursera Jupyter Notebook System•8 minutes

Python Functions•8 minutes

Python Types and Sequences•8 minutes

Python More on Strings•3 minutes

Python Demonstration: Reading and Writing CSV files•3 minutes

Python Dates and Times•2 minutes

Advanced Python Objects, map()•5 minutes

Advanced Python Lambda and List Comprehensions•2 minutes

Numerical Python Library (NumPy)•32 minutes

Manipulating Text with Regular Expression•27 minutes

Introduction to Pandas•3 minutes•Preview module

The Series Data Structure•10 minutes

Querying a Series•15 minutes

DataFrame Data Structure•12 minutes

DataFrame Indexing and Loading•8 minutes

Querying a DataFrame•9 minutes

Indexing Data Frames•8 minutes

Missing Values•11 minutes

Example: Manipulating DataFrame•8 minute

Merging Dataframes•15 minutes•Preview module

Pandas Idioms•15 minutes

Group by•19 minutes

Scales•10 minutes

Pivot Table•9 minutes

Date/Time Functionality•12 minutes

Basic Statistical Testing•13 minutes•Preview module

Other Forms of Structured Data•6 minutes

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Introduction to Web Development

Introduction to Specialization•3 minutes•Preview module
Introduction to the Course•4 minutes
The Coursera Jupyter Notebook System•8 minutes
Python Functions•8 minutes
Python Types and Sequences•8 minutes
Python More on Strings•3 minutes
Python Demonstration: Reading and Writing CSV files•3 minutes
Python Dates and Times•2 minutes
Advanced Python Objects, map()•5 minutes
Advanced Python Lambda and List Comprehensions•2 minutes
Numerical Python Library (NumPy)•32 minutes
Manipulating Text with Regular Expression•27 minutes

Module Introduction•1 minute•Preview module
Creating Links, Part 1•9 minutes
Creating Links, Part 2•5 minutes
Creating Links, Part 3•8 minutes
Working with Replaced Content (Images) & Image Formats, Part 1•9 minutes
Working with Replaced Content (Images) & Image Formats, Part 2•6 minutes
Working with Replaced Content (Images) & Image Formats, Part 3•4 minutes
Working with Replaced Content (Images) & Image Formats, Part 4•7 minutes
Working with Replaced Content (Images) & Image Formats, Part 5•3 minutes
Working with Replaced Content (Images) & Image Formats, Part 6•6 minutes
Markup Practice Files, Part 2•9 minutes

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Module Introduction•0 minutes•Preview module
Semantic Markup, Part 1 •6 minutes
Semantic Markup, Part 2•9 minutes
Applying HTML Knowledge to Other Systems•6 minutes
Installing Git on Mac, Part 1•5 minutes
Installing Git on Mac, Part 2•3 minutes
Installing Git on Windows•3 minutes
Publishing a Website on GitHub on Windows, Part 1•13 minutes
Publishing a Website on GitHub on Windows, Part 2•7 minutes
Publishing a Website on GitHub on Mac•13 minutes
Fix a broken GitHub connection•4 minutes
Personal Website•15 minutes
Portfolio Webpage on GitHub•10 minutes

Module Introduction•1 minute•Preview module
Introduction to CSS•9 minutes
Inheritance in CSS•5 minutes
CSS Syntax •2 minutes
Cascade and Specificity in CSS, Part 1•6 minutes
Cascade and Specificity in CSS, Part 2•8 minutes
Combinator Selectors and Linked Stylesheets•10 minutes
Lemmings Webpage, Part 1•8 minutes
Lemmings Webpage, Part 2•3 minutes
Lemmings Webpage, Part 3•5 minutes
Lemmings Webpage, Part 4•5 minutes
Lemmings Webpage, Part 5•3 minutes
Lemmings Webpage, Part 6•8 minutes
Lemmings Webpage, Part 7•1 minute
Course Summary•1 minute

Basic Statistical Testing•13 minutes•Preview module
Other Forms of Structured Data•6 minutes


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Technical Support Fundamentals

- Program Introduction•5 minutes•Preview module
- What is IT?•3 minutes
- What does an IT Support Specialist do?•2 minutes
- Course Introduction•1 minute
- From Abacus to Analytical Engine•5 minutes
- The Path to Modern Computers•10 minutes
- Kevin: Their career path•1 minute
- Computer Language•2 minutes
- Character Encoding•2 minutes
- Binary•2 minutes
- How to Count in Binary•2 minutes
- Abstraction•2 minutes
- Computer Architecture Overview•2 minutes
- Kevin: Advice for the world of IT•1 minute

- Module Introduction•2 minutes•Preview module
- Introduction to Computer Hardware•4 minutes
- Programs, the CPU, and Memory•8 minutes
- Joe: Diversity in IT•1 minute
- CPU•4 minutes
- RAM•3 minutes
- Motherboards•3 minutes
- Physical Storage: Hard Drives•4 minutes
- Power Supplies•4 minutes
- Mobile Devices•3 minutes
- Batteries and Charging Systems•3 minutes
- Peripherals and Ports•3 minutes
- BIOS•4 minutes
- Ben: Skills of IT professionals•1 minute
- Putting it All Together: Installing The Processor•8 minutes
- Putting it All Together: Adding the RAM And The Drive•6 minutes

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Putting it All Together: Adding Graphics and Other Peripherals. •6 minutes

Mobile Device Repair •2 minutes

One program, many futures •1 minute

Module introduction •2 minutes • Preview module

Components of an Operating System •5 minutes

Files and File Systems •3 minutes

Process Management •2 minutes

Memory Management and Virtual Memory •1 minute

I/O Management •2 minutes

Interacting with the OS: User Space •2 minutes

Logs •1 minute

The Boot Process •2 minutes

Mobile Operating Systems •1 minute

Cindy: Drive and career path •1 minute

Choosing an Operating System •2 minutes

Virtual Machines •1 minute

Installing Windows 10 •4 minutes

Installing Linux •5 minutes

What is Chrome OS? •2 minutes

Mac OS •2 minutes

Tri Ngo: How to overcome obstacles and become successful in IT •1 minute

Introduction to Qwiklabs •1 minute

Module Introduction •3 minutes • Preview module

Basics of Networking •7 minutes

Networking Hardware •3 minutes

TCP/IP •1 minute

The Web •3 minutes

Victor: First job experiences •1 minute

History of the Internet •3 minutes

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Limitations of the Internet•3 minutes
Changing Careers•1 minute
Impact•3 minutes
Internet of Things•1 minute
Gian: What he does in Android Security•1 minute
Privacy and Security•3 minutes
Heather Adkins: keeping hackers out•2 minutes
Learner Story: Melinda•0 minutes

Module Introduction•2 minutes•Preview module
How software is built: Coding, scripting, and programming •2 minutes
Types of Software•3 minutes
Revisiting Abstraction•1 minute
Recipe for Computing•3 minutes
Phelan: Learning IT in the Navy•1 minute
Managing Software•2 minutes
Installing, Updating, and Removing Software on Windows•2 minutes
Installing, Updating, and Removing Software on Linux•1 minute
Software Automation•1 minute

Module Introduction•1 minute•Preview module
Ask Questions!•3 minutes
Isolating the Problem•3 minutes
Follow the Cookie Crumbs•2 minutes
Start with the Quickest Step First•2 minutes
Troubleshooting Pitfalls to Avoid•1 minute
Amir: Attributes in an IT support space•1 minute
Intro to Soft Skills•8 minutes
Anatomy of an Interaction•7 minutes
How to Deal with Difficult Situations Part I•5 minutes
How to Deal with Difficult Situations Part II•4 minutes
Ticketing Systems and Documenting Your Work•2 minutes
Process Documentation•1 minute

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Documenting in Ticketing Systems•1 minute
Your Opportunity for Success•1 minute
Standing Out from the Crowd•3 minutes
Getting Ready for the Interview•2 minutes
What to Expect During the Technical Interview•2 minutes
Showing Your Best Self During the Interview•1 minute
Interview Role Play: Customer Service•2 minutes
Course Wrap Up•2 minutes
Sabrina: Technology can open doors •1 minute
Congratulations!•0 minutes



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Python Data Structures

Video Welcome - Dr. Chuck•1 minute•Preview module

6.1 - Strings•15 minutes

6.2 - Manipulating Strings•17 minutes

Worked Exercise: 6.5•8 minutes

Bonus: Office Hours New York City•2 minutes

Bonus: Monash Museum of Computing History•7 minutes

Fun: The Textbook Authors Meet @PyCon•3 minutes

Demonstration: Using the Python Playground•3 minutes•Preview module

Windows 10: Installing Python and Writing A Program•6 minutes

Windows: Taking Screen Shots•2 minutes

Macintosh: Using Python and Writing A Program•9 minutes

Macintosh: Taking Screen Shots•4 minutes

7.1 - Files•8 minutes•Preview module

7.2 - Processing Files•11 minutes

Demonstration: Worked Exercise 7.1•9 minutes

Bonus: Office Hours Barcelona•1 minute

Bonus: Gordon Bell - Building Blocks of Computing•15 minutes

8.1 - Lists•10 minutes•Preview module

8.2 - Manipulating Lists•9 minutes

8.3 - Lists and Strings•7 minutes

Fun: Python Lists in Paris•0 minutes

Worked Exercise: Lists•11 minutes

Bonus: Office Hours - Chicago•0 minutes

Bonus: Rasmus Lerdorf - Inventing the PHP Language•7 minutes

9.1 - Dictionaries•9 minutes•Preview module

9.2 - Counting with Dictionaries•8 minutes

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Unable to Resolve a Hostname or Domain Name•3 minutes
What do Services Look Like in Action•1 minute
Managing Services in Linux•4 minutes
Managing Services in Windows•3 minutes
Configuring Services in Linux•4 minutes
Configuring Services in Windows•4 minutes
Configuring DNS with Dnsmasq•6 minutes
Configuring DHCP with Dnsmasq•7 minutes

Module Introduction•0 minutes•Preview module
Communication Services•2 minutes
Email Protocols•3 minutes
User Productivity Services: Agreements and Licenses•1 minute
Web Server Security Protocols•3 minutes
Heather: Managing self-doubt•1 minute
What are file services?•0 minutes
Network File Storage•2 minutes
Mobile Synchronization•3 minutes
Configuring Print Services•2 minutes
Web Servers Revisited•3 minutes
What is a database server?•1 minute
Is the website down?•3 minutes
Cloud Concepts•3 minutes
Typical Cloud Infrastructure Setups•1 minute
When and How to Choose Cloud•1 minute

Module Introduction•0 minutes•Preview module
What is a directory server?•3 minutes
Implementing Directory Services•2 minutes
What is centralized management?•4 minutes
What is LDAP?•1 minute
What is LDAP Authentication?•2 minutes
Heather: Overcoming obstacles•1 minute


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What is Active Directory?•5 minutes
Managing Active Directory•2 minutes
Managing Active Directory Users and Groups•4 minutes
User Accounts and Groups•6 minutes
Managing Active Directory User Passwords•4 minutes
Joining an Active Directory Domain•4 minutes
Group Policy: Group Policy Object (GPO)•4 minutes
Group Policy Creation and Editing•12 minutes
Group Policy Inheritance and Precedence•7 minutes
Group Policy Troubleshooting•5 minutes
Group Policy Troubleshooting: Common Issues•6 minutes
Mobile Device Management (MDM)•1 minute
What is OpenLDAP?•3 minutes
Managing OpenLDAP•2 minutes

Module Introduction•0 minutes•Preview module
What is Data Recovery?•3 minutes
Backing Up Your Data•3 minutes
Backup Solutions•3 minutes
Job transition•0 minutes
Testing Backups•1 minute
Types of Backup•5 minutes
User Backups•1 minute
What's a Disaster Recovery Plan?•4 minutes
Designing a Disaster Recovery Plan•5 minutes
What's a post-mortem?•2 minutes
Writing a Post-Mortem•3 minutes
Interview Role Play: Sys Admin•2 minutes

Final Project Introduction•2 minutes•Preview module
Alex: How passion turned into success•1 minute
Congratulations!•0 minutes

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Foundations of Business Strategy

An Introduction to Strategic Analysis•4 minutes•Preview module

Strategic Analysis•4 minutes

The Strategist's Challenge•6 minutes

Fundamental Principle of Business Strategy•6 minutes

Competitive Markets•6 minutes

A Little Calculus•2 minutes

Two Perspectives on Economic Rents•7 minutes

Module Lessons•1 minute

Strategist's Toolkit: SWOT Analysis•2 minutes

Strategist's Toolkit: Competitor Analysis•2 minutes

Strategist's Toolkit: Environmental Analysis•3 minutes

Analyzing Industry Structure•5 minutes•Preview module

Threat of Entry, Part 1•9 minutes

Threat of Entry, Part 2•4 minutes

Threat of Substitutes•10 minutes

Bargaining Power of Buyers, Part 1•7 minutes

Bargaining Power of Buyers, Part 2•6 minutes

Bargaining Power of Suppliers•5 minutes

Intensity of Rivalry•9 minutes

Module Lessons•3 minutes

Strategist's Toolkit: Five Forces Analysis•4 minutes

Analyzing Firm Capabilities•6 minutes•Preview module

Value Chain•5 minutes

Alignment•6 minutes

Sustainability: Imitation•7 minutes

Sustainability: Durability•4 minutes

Building Capabilities•8 minutes



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Module Lessons•1 minute

Strategist's Toolkit: Capabilities Analysis•2 minutes

Determining Competitive Positioning•6 minutes•Preview module

Generic Competitive Positions, Part 1•8 minutes


Generic Competitive Positions, Part 2•7 minutes

Mapping Competitive Positions•6 minutes

Which Position Is Best?•5 minutes

Module Lessons•2 minutes

Strategist's Toolkit: Strategy Maps•4 minutes



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System Administration and IT Infrastructure Services

Course Introduction•4 minutes•Preview module

What is Systems Administration?•2 minutes

Servers Revisited•3 minutes

The Cloud•3 minutes

Organizational Policies•2 minutes

IT Infrastructure Services•1 minute

User and Hardware Provisioning•3 minutes

Routine Maintenance•0 minutes

Vendors•1 minute

Troubleshooting and Managing Issues•2 minutes

In Case of Fire, Break Glass•1 minute

Dion: My Michelle Obama story •1 minute

With Great Power Comes Great Responsibility•3 minutes

Never Test in Production•2 minutes

Assessing Risk•1 minute

Fixing Things the Right Way•2 minutes

What are IT Infrastructure Services?•0 minutes•Preview module

The Role of IT Infrastructure Services in SysAdmin•0 minutes

Types of IT Infrastructure Services•4 minutes

Heather: My first job in tech•1 minute

Server Operating Systems•0 minutes

Virtualization•2 minutes

Remote Access Revisited•2 minutes

FTP, SFTP, and TFTP•2 minutes

NTP•2 minutes

Network Support Services Revisited•1 minute

DNS•1 minute

DNS for Web Servers•1 minute

DNS for Internal Networks•2 minutes

DHCP•2 minutes


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Unable to Resolve a Hostname or Domain Name•3 minutes
What do Services Look Like in Action•1 minute
Managing Services in Linux•4 minutes
Managing Services in Windows•3 minutes
Configuring Services in Linux•4 minutes
Configuring Services in Windows•4 minutes
Configuring DNS with Dnsmasq•6 minutes
Configuring DHCP with Dnsmasq•7 minutes

Module Introduction•0 minutes•Preview module
Communication Services•2 minutes
Email Protocols•3 minutes
User Productivity Services: Agreements and Licenses•1 minute
Web Server Security Protocols•3 minutes
Heather: Managing self-doubt•1 minute
What are file services?•0 minutes
Network File Storage•2 minutes
Mobile Synchronization•3 minutes
Configuring Print Services•2 minutes
Web Servers Revisited•3 minutes
What is a database server?•1 minute
Is the website down?•3 minutes
Cloud Concepts•3 minutes
Typical Cloud Infrastructure Setups•1 minute
When and How to Choose Cloud•1 minute

Module Introduction•0 minutes•Preview module
What is a directory server?•3 minutes
Implementing Directory Services•2 minutes
What is centralized management?•4 minutes
What is LDAP?•1 minute
What is LDAP Authentication?•2 minutes
Heather: Overcoming obstacles•1 minute




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What is Active Directory?•5 minutes
Managing Active Directory•2 minutes
Managing Active Directory Users and Groups•4 minutes
User Accounts and Groups•6 minutes
Managing Active Directory User Passwords•4 minutes
Joining an Active Directory Domain•4 minutes
Group Policy: Group Policy Object (GPO)•4 minutes
Group Policy Creation and Editing•12 minutes
Group Policy Inheritance and Precedence•7 minutes
Group Policy Troubleshooting•5 minutes
Group Policy Troubleshooting: Common Issues•6 minutes
Mobile Device Management (MDM)•1 minute
What is OpenLDAP?•3 minutes
Managing OpenLDAP•2 minutes

Module Introduction•0 minutes•Preview module


What is Data Recovery?•3 minutes
Backing Up Your Data•3 minutes
Backup Solutions•3 minutes
Job transition•0 minutes
Testing Backups•1 minute
Types of Backup•5 minutes
User Backups•1 minute
What's a Disaster Recovery Plan?•4 minutes
Designing a Disaster Recovery Plan•5 minutes
What's a post-mortem?•2 minutes
Writing a Post-Mortem•3 minutes
Interview Role Play: Sys Admin•2 minutes

Final Project Introduction•2 minutes•Preview module

Alex: How passion turned into success•1 minute

Congratulations!•0 minutes




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English Language for Competitive Exams - NPTEL

Course layout

1. Introduction/Practice Tests
2. Advanced Grammar
3. Advanced Grammar for Competitive Exams
4. Advanced Vocabulary for Competitive Exams
5. Advanced Vocabulary
6. Advanced Reading for Competitive Exams
7. Advanced Reading for Competitive Exams
8. Advanced Writing for Competitive Exams
9. Conclusion



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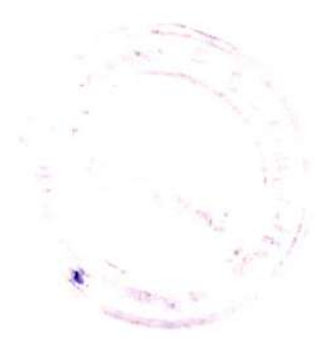


CS403: Introduction to Modern Database Systems

This course includes the following units:

- Unit 1: Introduction to Modern Database Systems
- Unit 2: Database Architecture and Data Languages
- Unit 3: Database History
- Unit 4: The Entity-Relationship Model
- Unit 5: The Relational Database Model
- Unit 6: Relational Algebra
- Unit 7: Introduction to Data Normalization
- Unit 8: Introduction to SQL
- Unit 9: Basic Select Statements
- Unit 10: The Join Statement


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Cybersecurity and the X-Factor

Curriculum

- Introduction to the X-Factor
- Security Education: Training & Awareness
- Reasons Why Traditional Training Efforts Fail
- Threat Intelligence

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Data Analytics for Business



Curriculum

Introduction to analytics	Data mining using a decision tree
Descriptive statistics	Classification algorithm- discriminant Analysis
Inferential statistics	Classification algorithm-Decision trees
Estimation of hypothesis testing	Neural networks
Playing with data	Linear and nonlinear regression
Regression	Model Comparison and further improvement
Anova	Python for data science
Factor analysis and component analysis	Numpy libraries and array
Pandas libraries and data frame	

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Data Science

Curriculum

- Data Visualization
- Machine Learning
- Deep Learning
- Data Mining
- Programming Languages
- Statistics
- Cloud Computing
- Exploratory Data Analysis (EDA)
- Artificial Intelligence (AI)
- Big Data
- Data Structures
- Natural Language Processing (NLP)
- Business Intelligence (BI)
- Data Engineering
- Data Warehousing
- Database Management
- Linear Algebra
- Linear Regression
- Spatial Sciences




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- Statistical Inference
- Probability




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Digital Marketing



Curriculum

Introduction to Digital Marketing	Defining digital marketing, how is it different from traditional marketing and why is it relevant now.
Search Engine Optimisation (SEO)	Techniques used to optimize any article, website, or blog for traffic & revenue generation.
Social Media Marketing	Using different social media platforms (Facebook/Instagram/Twitter) to connect with the audience & convert them to a call of action (purchase or form filling).
Search Engine Marketing	Techniques used to increase the visibility of your webpage on Google search results (SERP); Search engine marketing mostly revolves around paid search advertising (text-based ads that are visible on top of every search result).
Web Analytics	Analyzing the behaviour of visitors to a website through reports based on traffic sources, referring sites, page views, and conversion rates of that website.
E-Commerce Management	Maintenance of an online product-listing website through product keyword research, product pricing, positive reviews, and customer retention.
Planning and Creating a Website	How to create a website on WordPress and later use website analytics to track the behaviour of visitors to a website.


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Email Marketing	How to create and send product-based emails in bulk, and ensure that all of the emails have a good open rate and conversion rate.
Content Strategy	How to create content that matches the user intent and also your business goals.
Affiliate Marketing	Generation of traffic via a third party (company/website). The third party is paid a commission fee to drive traffic to your website.




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Django Bootcamp

Curriculum

- 1: Introduction to Django
- 2: Installation and Setup
- 3: Views and URLs
- 4: Django Templates
- 5: Django Models
- 6: Django Admin
- 7: Django Forms
- 8: Django Class Based Views

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Ethical Hacking



Curriculum

Cyber-Ethics Hacking Introduction	Information Gathering
Scanning	Google Hacking Database
Virus, Worms – Virus Analysis	Trojans and Backdoors
Sniffers and Keyloggers	Social Engineering
Email, DNS, IP	System Hacking and Security
HoneyPots	

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Introduction to Cloud

Curriculum

Module 1: Overview of Cloud Computing

- Definition and essential characteristics
- A brief history and evolution of Cloud
- Key cloud service providers and their services

Module 2: Cloud Adoption and Emerging Technologies

- Business case for Cloud Computing
- Emerging technologies supported by Cloud: AI, IoT, Blockchain, Analytics

Module 3: Cloud Computing Service and Deployment Models

- Service Models: IaaS, PaaS, SaaS
- Deployment Models: Public, Private, Hybrid

Module 4: Components of Cloud Computing

- Cloud Infrastructure Overview
- Virtualization, VMs, Bare Metal
- Secure Cloud Networks
- Containers

Module 5: Cloud Storage

- Direct Attached
- File Storage
- Block Storage
- Object Storage
- Content Delivery Networks (CDN)

Module 6: Cloud Native and Emergent Cloud Trends

- Hybrid Multi cloud
- Serverless
- Microservices
- Cloud Native
- Application Modernization



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Introduction to DBMS

Curriculum

- Course Overview. Introduction to RDBMS
- Structured Query Language (SQL)
- Relational Algebra. Entity-Relationship Model
- Relational Database Design
- Application Development. Case Studies. Storage and File Structure
- Indexing and Hashing. Query Processing
- Query Optimization. Transactions (Serializability and Recoverability)
- Concurrency Control. Recovery Systems. Course Summarization.

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Deep Learning

Curriculum

Deep learning basics	Convolutional neural networks
Advanced deep architectures	Deep reinforcement learning
Practical network training	Recurrent neural networks
Novel deep methods (deep image and deep internal learning)	Tools (tensor flow, pytorch)
Practical sessions (computer vision)	Natural language processing




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Syllabus for Introduction to Git and GITHUB

Module 1

Course Introduction•5 minutes
Intro to Module 1: Version Control•3 minutes
Keeping Historical Copies•2 minutes
Diffing Files•4 minutes
Applying Changes•5 minutes
Practical Application of diff and patch•5 minutes
What is version control?•3 minutes
Version Control and Automation•4 minutes
What is Git?•3 minutes
Installing Git•3 minutes
Installing Git on Windows (Optional)•7 minutes
First Steps with Git•4 minutes
Tracking Files•5 minutes
The Basic Git Workflow•6 minutes
Anatomy of a Commit Message•4 minutes
Module 1 Wrap Up: Intro to Version Control•2 minutes

14 readings•Total 140 minutes

Welcome to the Course•10 minutes
Review: Diffing Files•10 minutes
Review: Applying Changes•10 minutes
Review: Practical Application of diff and patch•10 minutes
Study guide: diff and patch•10 minutes
More Information About Git•10 minutes
Installing Git•10 minutes
Review: First steps with Git•10 minutes
Review: Tracking Files•10 minutes
Review: The Basic Git Workflow•10 minutes
Review: Anatomy of a commit message•10 minutes
Study guide: Git•10 minutes
Glossary terms from course 3, module 1•10 minutes
Qwiklabs guidelines and troubleshooting steps•10 minutes

4 quizzes•Total 60 minutes

Introduction to Git•50 minutes
Practice Quiz: Before Version Control•10 minutes
Practice Quiz: Version Control Systems•10 minutes
Practice Quiz: Using Git•10 minutes

1 app item•Total 90 minutes

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Qwiklabs assessment: Introduction to Git•90 minutes
2 discussion prompts•Total 20 minutes
Meet & Greet•10 minutes
Discussion Prompt•10 minutes

Using Git Locally

Module 2•6 hours to complete

Module 2

Intro to Module 2: Using Git Locally•1 minute•Preview module
Skipping the Staging Area•4 minutes
Getting More Information About Our Changes•6 minutes
Deleting and Renaming Files•4 minutes
Undoing Changes Before Committing•5 minutes
Amending Commits•3 minutes
Rollbacks•5 minutes
Identifying a Commit•6 minutes
What is a branch?•2 minutes
Creating New Branches•4 minutes
Working with Branches•3 minutes
Merging•2 minutes
Merge Conflicts•6 minutes
Module 2 Wrap Up: Using Git Locally•1 minute

15 readings•Total 150 minutes

Review: Skipping the staging area•10 minutes
Review: Getting more information from the user•10 minutes
Review: Deleting and Renaming Files•10 minutes
Study guide: Advanced Git•10 minutes
Review: Undoing Changes Before Committing•10 minutes
Review: Amending commits•10 minutes
Review: Rollbacks•10 minutes
Review: Identifying a commit•10 minutes
Study guide: Git Revert•10 minutes
Review: Creating new branches•10 minutes
Review: Working with branches•10 minutes
Review: Merging•10 minutes
Review: Merge conflicts•10 minutes
Study guide: Git branches and merging•10 minutes
Glossary terms from course 3, module 2•10 minutes

4 quizzes•Total 80 minutes

Merging Branches in Git•50 minutes
Practice Quiz: Advanced Git Interaction•10 minutes
Practice Quiz: Undoing Things•10 minutes
Practice Quiz: Branching & Merging•10 minutes

1 app item•Total 90 minutes

Qwiklabs assessment: Merge branches in Git•90 minutes


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- 2 discussion prompts•Total 20 minutes
 - Discussion Prompt•10 minutes
 - Discussion Prompt•10 minutes

Working with Remotes

Module 3•7 hours to complete

Module 3

- Intro to Module 3: Working with Remotes•2 minutes•Preview module
- What is GitHub?•2 minutes
- Basic Interaction with GitHub•6 minutes
- What is a remote?•4 minutes
- Working with Remotes•3 minutes
- Fetching New Changes•3 minutes
- Updating the Local Repository•3 minutes
- The Pull-Merge-Push Workflow•7 minutes
- Pushing Remote Branches•8 minutes
- Rebasing Your Changes•4 minutes
- Another Rebasing Example•8 minutes
- Best Practices for Collaboration•4 minutes
- Module 3 Wrap Up: Working with Remotes•1 minute

18 readings•Total 180 minutes

- Review: Basic interaction with GitHub•10 minutes
- Study guide: Basic Interaction with GitHub•10 minutes
- Review: Working with remotes•10 minutes
- Review: Fetching new changes•10 minutes
- Review: Updating the local repository•10 minutes
- Study guide: Git Remotes•10 minutes
- What is secure shell?•10 minutes
- The SSH protocol•10 minutes
- Configuring SSH•10 minutes
- API Keys•10 minutes
- When to use API Keys•10 minutes
- Public vs. private keys•10 minutes
- Review: The Pull-Merge-Push Workflow•10 minutes
- Review: Pushing remote branches•10 minutes
- Review: Rebasing your changes•10 minutes
- Review: Another Rebasing example•10 minutes
- Study guide: Conflict resolution•10 minutes
- Glossary terms from course 3, module 3•10 minutes

4 quizzes•Total 78 minutes

- Introduction to Github•50 minutes
- Practice Quiz: Introduction to GitHub•8 minutes
- Practice Quiz: Using a Remote Repository•10 minutes
- Practice Quiz: Solving Conflicts•10 minutes

1 app item•Total 90 minutes

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Qwiklabs assessment: Introduction to Github•90 minutes
2 discussion prompts•Total 20 minutes
Discussion Prompt•10 minutes
Discussion Prompt•10 minutes

Collaboration


Module 4•6 hours to complete
Module details

Module 4

Intro to Module 4: Collaboration•1 minute•Preview module
A Simple Pull Request on GitHub•4 minutes
The Typical Pull Request Workflow on GitHub•7 minutes
Updating an Existing Pull Request•4 minutes
Squashing Changes•6 minutes
What are code reviews?•3 minutes
The Code Review Workflow•3 minutes
How to Use Code Reviews in GitHub•5 minutes
Managing Collaboration•4 minutes
Tracking Issues•8 minutes
Continuous Integration•5 minutes
Module 4 Wrap Up: Collaboration•1 minute
Congratulations!•1 minute
Sneak Peek of the Next Course•1 minute

17 readings•Total 170 minutes

Review: The typical pull request workflow on GitHub•10 minutes
Review: Updating an Existing Pull Request•10 minutes
Review: Squashing changes•10 minutes
Study guide: Git forks and pull requests•10 minutes
Review: How to use code reviews•10 minutes
More Information on Code Reviews•10 minutes
Review: Tracking issues•10 minutes
Integrating git and GitHub•10 minutes
GitHub Project Management Tools•10 minutes
Additional Tools•10 minutes
Glossary terms from course 3, module 4•10 minutes
IT skills in action•10 minutes
Tailor your resume•10 minutes
Create a resume and add your new skills•10 minutes
Add your job experience to your resume•10 minutes
Writing a Cover Letter•10 minutes


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Course 3 glossary•10 minutes

4 quizzes•Total 80 minutes

Push local commits to GitHub•50 minutes

Practice Quiz: Pull Requests•10 minutes

Practice Quiz: Code Reviews•10 minutes

Practice Quiz: Managing Collaboration•10 minutes



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Introduction to Java

Curriculum

- Java introduction
- Java Basics & Introduction to Eclipse
- Operators & Expressions
- Control statements
- Java Object Oriented Programming
- Inheritance
- Exception handling
- Interfaces


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Speak English Professionally

Curriculum

Communicate in Person: The Power of Face to Face Connections

Through the lessons in this module, you will be able to work on professional conversational vocabulary and proper word stress and intonation. After the final lesson you will be able to present a short "Elevator Speech."

Meet and Talk Online

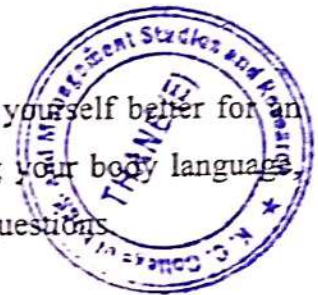
This module looks at group discussion situations with the focus on video conferencing. By looking at various scenarios, you will learn key language for group discussion as well as gain some business etiquette.

Powerful Phone Talk

In this module, you will improve language use and pronunciation for phone conversations. Trickier pronunciation distinctions in can/can't and numbers will be the focus for pronunciation.

Keys to a Strong Interview

Through the lessons in this module, you will be able to prepare yourself better for an interview in English. The three lessons will focus on improving your body language, pronunciation for -ed and -s ending words, and practice interview questions.



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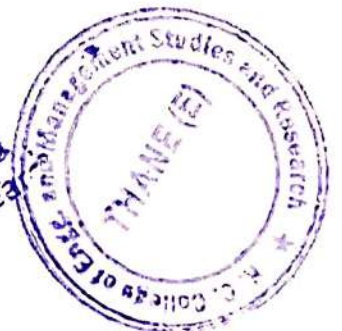


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Put It All Together: Presentations

In this final module, you will have the chance to put all your newly gained language skills together into a presentation. The two lessons will help you organize and deliver your best presentation.


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Web Development

Curriculum

Website Structure and Hosting	Basics of HTML
Intro to Programming with the use of JavaScript	JavaScript Program & Testing
Creating stylish Websites	CSS Basics & Properties
Creating HTML Forms	Creating Web Applications




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AI certification Course

Curriculum

- Introduction to Python
- Machine Learning Concepts
- Supervised Learning
- Unsupervised Learning
- Applied Statistics
- Natural Language Processing
- Face Detection
- Sentiment Analyzer
- Reinforcement Learning
- Object Detection
- TensorFlow and Neural Network
- Motion Analysis and Object Tracking

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Workshop on React JS

Curriculum

- Introduction to React. Js.
- Creating Your First React Application.
- Understanding Components and Props.
- State and Lifecycle.
- React Hooks.
- Handling Events.
- Working with Forms.
- Conditional Rendering.

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30 hours Value added course on "IoT and Machine learning using Python"
Date : 15/7/2020 to 17/7/2020

Contents

- Introduction to python, Features of python, Execution of Python Program
- Comparison between C and Python, Java and Python.
- Writing First python Program, Input and Output, Data types, Operators
- Control Statements, Functions, OOP Concepts
- Modules and Packages , Arrays, Exception Handling.
- File Handling, Packages in python
- Introduction to Machine learning
- Python: Machine Learning libraries
- Machine Learning algorithms
- Implementation of Supervised algorithms
- Implementation of Un-Supervised algorithms.
- Introduction to IoT Different types of boards used in IoT.
- Sensors in IoT.
- Application and case studies in IoT. Installation of Arduino IDE.
- Demonstrations of the project using Arduino and basic electronics components.
- Introduction to Tinkercad , How to design circuits using Tinkercad.
- Design of basic circuit
- Interfacing of sensors like temperature, PIR, ultrasonic sensors.
- Design of Projects for COVID-19 like Digital thermometer, Disinfection, tunnel etc
- Connection of 3 LEDS in series and parallel




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Value added course on Workshop on Design and applications of IOT

Contents

- Introduction to IoT
- Different types of boards used in IoT.
- Sensors in IoT.
- Application and case studies in IoT.
- Digital Transformation
- Devices that connect to the IoT
- Activity: Imagine a new Intelligent sensor
- Activity: Advantages and Disadvantages of IoT.
- Installation of Arduino IDE.
- Demonstrations of project using Arduino and basic electronics components




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Value added course on Blockchain

Content

1: creating wallets and sending cryptocurrency

- Practical assignment

2: starting a Wordpress website

- Introductory video: Banking on Bitcoin Blockchain basics and the role of money
- Practical assignment

3: blockchain explorer

- Introduction to bitcoin (history, distributed P2P network, immutable ledger, forks and Byzantine Fault Tolerance)
- History and the role of money Blockchain philosophy and cryptonomics
- Practical assignment

4: create your own cryptocurrency

- Crypto-anarchism and Cypherpunks
- Hash cryptography, mining and consensus
- Proof-of-Work consensus Applications and Exchanges
- Practical assignment

5: tokenization and trading cryptocurrencies

- Practical assignment

6: start your own ICO

- Exchanges



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- ICO en STO
- Smart contracts and the Apps Towards a decentralized society
- A decentralized society
- The current state of the Blockchain landscape
- Business applications and assessing blockchain projects




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Value added course on on CCNA

Contents

Unit 1: Network Fundamentals Introduction to the OSI Model Introduction to IPv4 (Internet Protocol) IPv4 Packet Header Address Resolution Protocol (ARP) Introduction to TCP and UDP TCP Header TCP Window Size Scaling Introduction to ICMP Introduction to DNS Introduction to Cisco Command Line Interface (CLI) User mode and Privileged mode

Unit 2: Network Access VLANs and Trunks Spanning-Tree Wireless

Unit 3: IP Connectivity IPv4 Subnetting IPv6 Routing OSPF (OPEN SHORTEST PATH FIRST)
3 Gateway Redundancy Unit

4: IP Services DHCP (Dynamic Host Configuration Protocol) SNMP (Simple Network Management Protocol) NAT (Network Address Translation) (QoS) Quality of Service Unit

5: Security Fundamentals Access-Lists AAA Admin Authentication DHCP Snooping Introduction to Firewalls Introduction to VPNs Unit

6: Network Management Introduction to CDP Introduction to LLDP Telnet Server and Client SSH Server and Client Introduction to NTP Introduction to Syslog Configuration Register Password Recovery on Cisco IOS Cisco IOS File System Upgrade Cisco IOS Image

Unit 7: Automation and Programmability Device Programmability REST API Data Models and Structures Spine and Leaf Architecture Configuration Management Tools and Version Control Systems Introduction to Software Defined Networking (SDN)



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Value added courses Deep learning

Contents

- Deep learning basics
- Convolutional neural networks
- Advanced deep architecture
- Deep Reinforcement learning
- Practical network training
- Recurrent neural network
- Novel deep methods
- Tools(tensor flow, pytorch)
- Practical session -computer vision
- Natural language processing




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Workshop on Android application development in Kotlin in association with Appdid

Content

- Introduction to Kotlin
- Environment set up
- Architecture
- Kotlin collections
- Objects and Lists




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Workshop on React JS

Content

- Introduction to React. Js.
- Creating Your First React Application.
- Understanding Components and Props.
- State and Lifecycle.
- React Hooks.
- Handling Events.
- Working with Forms.
- Conditional Rendering.




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Two Days Workshop on "Design and Application of Internet of things"

Content

Introduction to IoT

- Different types of boards used in IoT.
- Sensors in IoT.
- Application and case studies in IoT.
- Digital Transformation
- Devices that connect to the IoT
- Activity: Imagine a new Intelligent sensor
- Activity: Advantages and Disadvantages of IoT.
- Installation of Arduino IDE.
- Demonstrations of project using Arduino and basic electronics components




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Certificate course on Python

Curriculum

Module 1: An Introduction to Python (Duration - 2 hrs)

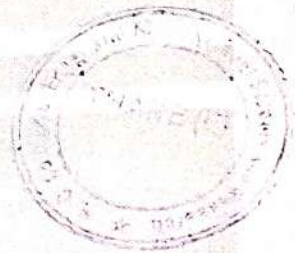
- What can Python do?
- Why Python?
- Good to know
- Python Syntax contrasted (compared) with other programming dialects or languages.
- Python Install


Module 2: Beginning Python Basics (Duration - 3 hrs)

- The print statement
- Comments
- Python Data Structures & Data Types
- String Operations in Python
- Simple Input & Output
- Simple Output Formatting
- Operators in python

Module 3: Python Program Flow (Duration - 3 hrs)

- Indentation
- The If statement and its' related statement(assertion)
- An example with if and it's related statement(explanation)
- The while loop
- The for loop
- The range statement
- Break & Continue
- Assert
- Examples for looping




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Module 4: Functions & Modules (Duration - 3 hrs)

- Create your own functions
- Functions Parameters
- Variable Arguments
- Scope of a Function
- Function Documentations
- Lambda Functions & map
- n Exercise with functions
- Create a Module
- Standard Modules

Module 5: Exceptions Handling (Duration - 3 hrs)

- Errors
- Exception handling with try
- handling Multiple Exceptions
- Writing your own Exception

Module 6: File Handling (Duration - 2 hrs)

- File handling Modes
- Reading Files
- Writing & Appending to Files
- Handling File Exceptions
- The with statement

Module 7: Classes In Python (Duration - 4 hrs)

- New Style Classes
- Creating Classes
- Instance Methods
- Inheritance
- Polymorphism
- Exception Classes & Custom Exceptions



Module 8: Generators and iterators (Duration - 2 hrs)

- Iterators


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- Generators
- With Statement
- Data Compression

Module 9: Data Structures (Duration - 2 hrs)

- List Comprehensions
- Nested List Comprehensions
- Dictionary Comprehensions
- Functions
- Default Parameters
- Variable Arguments
- Specialized Sorts

Module 10: Collections (Duration - 2 hrs)

- namedtuple()
- deque
- ChainMap
- Counter
- OrderedDict
- defaultdict
- UserDict
- UserList
- UserString

Module 11: Writing GUIs in Python (Time-Duration) (3 hrs)

- Introduction
- Components and Events
- An Example GUI
- The root Component
- Adding a Button
- Entry Widgets
- Text Widgets
- Check buttons

Module 12: Python SQL Database Access (Duration - 4 hrs)



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- Introduction
- Installation
- DB Connection
- Creating DB Table
- INSERT, READ, UPDATE, DELETE operations
- COMMIT & ROLLBACK operation
- handling Errors

Module 13: Network Programming (Duration - 3 hrs)

- Introduction
- A Daytime Server
- Clients and Servers
- The Client Program
- The Server Program

Module 14: Date and Time (Duration - 1 hr)

- sleep
- Program execution time
- more methods on date/time

Module 15: Some similar topics in-detailed (Duration Time - 1 hr)

- Filter
- Map
- Reduce
- Decorators
- Frozen set
- Collections

Module 16: Regular expression (Duration - 1 hr)

- Split
- Working with special characters, dates, emails
- Quantifiers
- Match and find all
- character sequence and substitute
- Search method

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Module 17: Threads ESSENTIAL (Duration - 1 hr)

- Class and threads
- Multi-threading
- Synchronization
- Treads Life cycle
- use cases

Module 18:

- Multithreading

Module 19:

- Python JSON

Module 20:

- Python Excel
-

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Certificate Course on CCNA

Curriculum

Unit 1: Network Fundamentals

- Introduction to the OSI Model
- Introduction to IPv4 (Internet Protocol)
- IPv4 Packet Header
- Address Resolution Protocol (ARP)
- Introduction to TCP and UDP
- TCP Header
- TCP Window Size Scaling
- Introduction to ICMP
- Introduction to DNS
- Introduction to Cisco Command Line Interface (CLI)
- User mode and Privileged mode

Unit 2: Network Access

- VLANs and Trunks
- Spanning-Tree
- Wireless

Unit 3: IP Connectivity


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IPv4 Subnetting

IPv6

Routing

OSPF (OPEN SHORTEST PATH FIRST)

3 Gateway Redundancy

Unit 4: IP Services

DHCP (Dynamic Host Configuration Protocol)

SNMP (Simple Network Management Protocol)

NAT (Network Address Translation)

(QoS) Quality of Service

Unit 5: Security Fundamentals

Access-Lists

AAA Admin Authentication

DHCP Snooping

Introduction to Firewalls

Introduction to VPNs

Unit 6: Network Management

Introduction to CDP

Introduction to LLDP

Telnet Server and Client

SSH Server and Client

Introduction to NTP

Introduction to Syslog

Configuration Register

Password Recovery on Cisco IOS

Cisco IOS File System

Upgrade Cisco IOS Image




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