WINTER TRAINING

TR TRAINING BASKET
QUALIFY FOR TOMORROW

IoT

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GETTING STARTED
- History & need of Python
- Application of Python
- Advantages of Python
- Disadvantages of Python
- Installing Python

PYTHON FUNDAMENTALS
- Working With Interactive Mode
- Working With Script Mode
- Python Character Set
- Python Tokens- Keywords, Identifires, Literals, Operators
- Variables and Assignments
- Input and Output Functions in Python
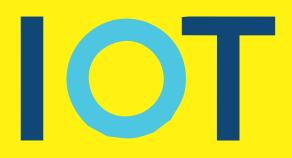
DATA HANDLING
- Data Types
  - Numbers
  - Strings
  - Lists
  - Tuples
  - Dictionary
  - Mutable and Immutable Data Types
- Operators
  - Arithmetic Operators
  - Relational Operators
  - Logical Operators
  - Operators Precedence
  - Evaluating Expression
  - Type Casting

CONDITIONAL AND LOOPING CONSTRUCTS
- If Statements of Python
  - The if Statement
  - The if-else Statement
  - The if-elif Statement
  - Nested if Statements
- Looping and Iteration
  - The For Loop
  - The While Loop
  - Loop Else Statement
  - Nested Loops
  - Break and Continue
- The Range Function

INTRODUCTION TO FUNCTIONS AND MODULES
- Using a Functions
- Python Function Types
- Structure of Python Modules
- Importing Modules in Python Programs
- Invoking Python's Built In Functions
- Working With Random Modules
- User Defined Functions
  - Structure of a Python Program w.r.t. UDF
  - Invoking UDF
  - Flow of Execution
  - Arguments and Parameters
  - Default Arguments, Named Arguments
  - Scope of Variables

RASPBERRY PI BASICS
- What is Raspberry PI
- Hardware
- Ingredients
- Preparing & Installing Raspberry PI
- Connecting The Raspberry PI
- Basic Networking
- Shutting Down

RASPBERRY PI PROCESSOR ARCHITECTURE
- SoC
- BCM2835 Multimedia Processor
- SoC in Raspberry PI
- Connecting Peripherals to PI Board

GETTING STARTED WITH LINUX ENVIRONMENT
- Understanding Linux File System
- Basic Linux Commands
  - LS,CD,PWD,MKDIR,RMDIR,RM,CP, MV,TOUCH,CAT,
  - HEAD,TAIL,CHMOD,SUDO,DF,UNZI P,TAR,PIPE,MAN
  - GREP,HOSTNAME,IFCONFIG
  - Text Editors
  - LEAFPAD
  - IDLE
  - VI
  - GVIM
  - NANO
  - VIM
  - EMACS

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GETTING READY FOR SOFTWARE
- Introduction to NOOBS and SD Cards
- NOOBS for Raspbian
- SD Card Formatter
- Downloading & Installing NOOBS

GETTING STARTED WITH GPIO PROGRAMMING
- Led Programming
- Switch and Led Programming
- Interfacing Relay
- Motor Interfacing
- Motor Driver Ics
- Relay Drivers Ics
- Other Peripheral Interfacing
- 2+ Projects