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**A B O U T U S**

D-Hub is a Business Consulting and Training Agency specialized in conducting business advice and providing the most fitting expertise to organizations of different sizes and fields for the sake of helping them improve their ultimate business performance in terms of strategy, structure, operations, profitability and management. D-Hub is concerned with providing information, solving business problems, identifying the effective diagnosis, recommending actions, facilitating the implementation of the proposed change initiatives, building consensus and commitment among organizational members, moreover facilitating client learning through effective training programs and achieving organizational effectiveness as well as providing digital transformation solutions. Training consultant D-Hub is training firm that strives to give new flavor through new training innovations and fresh concepts to the training landscape for all trainees (students, employees, graduates, etc..). Additionally, digital solutions like cloud, AI, IoT, Big data and Data analysis solutions are our main concern to develop all companies and universities.

**M I S S I O N AND V I S I O N**

Our mission is to help students, graduates, employees and companies achieve digital transformation solutions. Through trainings, handson exercises, competitions, consultations and development new solutions, we help you tap on your full digital potential fields.

D-Hub deal with international companies in Egypt and has a vision to reach worldwide spreadness in the field of Digital Transformation. D-Hub is looking forward to cover many companies’ technical issues with automated systems. Additionally, leading Egypt and Middle East trainees to develop their digital transformation skills with the newest techniques.

**Digital Transformation Training for Computer Science Professionals**

Our training program focuses on the field of digital transformation, specifically within the realm of Computer Science. We aim to provide comprehensive and hands-on training to help professionals stay up to date with the latest developments in this rapidly evolving field. Here are the details of programs:

* 18 contact hours of training
* 12 hours of hands-on practice, supervised by an instructor
* 2 weeks of training, with 3 sessions per week, each lasting 3 hours
* Performance measurement using daily tasks, quizzes, and a final exam
* Grading Scheme (out of 50 Marks)
  1. Grade calculation based on performance, 10 marks for daily tasks, 10 marks for quizzes, and 20 marks for final exam
  2. Instructor evaluation including set of questions worth 10 marks (This is provided in last page)
* Student feedback on course materials, teaching criteria, instructor, and areas for improvement
* Opportunity for students to express interest in further training in the same field
* Descriptions for all programs are shown in next pages

**AI Training**

**Training Hrs:** 60 Hrs

**Purpose:**

Artificial Intelligence is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction. AI is a rapidly growing field with many applications in various industries. In this training we will explore the fundamentals of AI, including how to build and train an AI model, how to use machine learning algorithms, how to make decisions with probability and uncertainty and more.

The professional path of the Artificial Intelligence allowed learners to implement AI principles in order to create solutions in reality. This professional path introduces students to fundamental principles of AI, methods of machine learning, natural language processing, chatbots and computer vision. Students use Cloud technologies to apply the principles they learn to real life applications.

**Objective:**

Master the key features of AI solution to define real world applications:

You will be able to:

1. Define the terms “Artificial Intelligence”, “Machine Learning”, “Deep Learning”, “Data Science”
2. State the technological trends which have led to AI
3. List the various uses of AI
4. Build intelligent systems and applications
5. Design and implement intelligent agents
6. use tools such as TensorFlow, Keras, PyTorch and Scikitlearn
7. Apply AI concepts by building models from scratch.
8. Design Hands-on Projects using AI techniques
9. Using Cloud Services and integrating them with AI models

**Training Syllabus:**

Chapter 1: Artificial Intelligence Overiew

1. Demonstrating AI , ML, DL and RL
2. How to use different types tool inAo AI Development
3. Setup the environment (Conda, JupyterNotebook, VOSK, Keras, Tensorflow, pyaudio, matplotlib, Torch, OpenCV, Cuda , …, etc)

Chapter 2: Python Programming and Data Sceince

1. Python Basics Refreshment
2. Data modeling
3. Data science roles and methods
4. Python for ML, DL and RL
5. Real-world use cases and applying solutions

Chapter 3: Recognizing digits

1. How to get MNIST Datasets and local datasets
2. Using RNN and JupyterNote

Chapter 4: Image and Video Processing (Computer Vision)

1. What is CNN?
2. Build up a CNN from scratch by keras
3. Create project to differ between CNN models, then using own datasets
4. More projects on OpenCV
5. Creating Computer Vision Detection Model to recognize Objects in RealTime by using mutliple of tools .

Chapter 5: NLP and Speech Recognition

1. What is NLP?
2. Text clustering, Text classification and Document embedding Projects
3. How to training and prediction
4. Sentiment analysis
5. Twitter and Topic modeling

Chapter 6: Speech to text & Text To Speech

1. Speech Recognition by Converting Analog Voices to Transcript , by using OFFLINE with live capability .
2. Test To Speech , by Converting texts to bot voices .
3. Create Voice Recognition model with Online API and
4. Print your texts in a Real-time

Chapter 7: Chatbots

1. Design Thinking and Persona .
2. Creating Chat Bot From scratch
3. Publishing Chat Bot with API
4. Projects on Openweaver

Chapter 8: Reinforcement Learning

1. Fundamentals of Reinforcement Learning
2. Sample-based Learning Methods
3. Prediction and Control with Function Approximation

**IoT Training**

**Training Hrs:** 60 Hrs

**Purpose:**

The explosive growth of the “Internet of Things” is changing our world and the rapid drop in price for typical IoT components is allowing people to innovate new designs and products at home. In this class you will learn the importance of IoT in society, the current components of typical IoT devices and trends for the future. IoT design considerations, constraints and interfacing between the physical world and your device will also be covered. You will also learn how to make design trade-offs between hardware and software.

The IoT career path prepares trainees to apply IoT and cloud computing concepts to know how is solutions based on devices connected to gateway or cloud-based IoT platform are connected. This career path introduces trainees to basic concepts of IoT, device connectivity protocols, data generated by sensors and other devices, cloud computing, device simulators, flow-based programming tools, and analytics.

**Objective:**

Master the key features of IoT solution to define real world applications:

You will be able to:

1. Define the term “Internet of Things”
2. State the technological trends which have led to IoT
3. Describe the impact of IoT on society
4. Name the core hardware components most commonly used in IoT devices
5. Describe the interaction between software and hardware in an IoT device
6. Describe the role of an operating system to support software in an IoT device
7. Explain the use of networking and basic networking hardware
8. Understanding how packets flow across devices
9. Describe the meaning of a “network protocol”
10. State the effect of new technologies on IoT communication

**Training Syllabus:**

Chapter 1: IoT Overview and Network Layer Technology Overview

1. IoT Development History
2. IoT Overview and Architecture
3. IoT Network Applications and Solutions
4. IoT Security Technologies
5. Common IoT Communications Technologies
6. NB-IoT Communication Technology Solution

Chapter 2: IoT Devices and Protocols

1. Common Sensors
2. Devices: IoT circuits
3. IoT Devices Architecture
4. Overview on Radio Frequency Protocols
5. NB-IoT Standards and Solutions
6. Technical Principles of LwM2M
7. Industrial IoT Gateway

Chapter 3: IoT Communication Technologies and Cloud

1. Technical Principles of communication technologies
2. 5G Communications Technologies and Solutions
3. AT Commands for Communications Modules
4. Define cloud platforms
5. IoT containers and dockers

Chapter 4: The Arduino Platform and C Programming

1. Arduino Environment
2. C Programming (syntax and structures)
3. Arduino Programs
4. Interfacing with the Arduino

Chapter 5: Arduino and Sensors connections

1. Working with main electronics components (resistors, diodes, transistors …. etc)
2. Connect Arduino shields (wifi, ethernet, motor, relay … etc)
3. Knowing Arduino libraries
4. Connect to different types of sensors
5. Displaying output on LCD, 7-segment, dotmatrix, … etc
6. Memory and storage

Chapter 6: IoT Cloud

1. Utility of Cloud in an IoT ecosystem
2. Cloud as PaaS, SaaS, IaaS
3. Digital Storage for IoT (cloudDB)
4. Cloud Platforms (AWS, Google, Microsoft Azur, IBM)
5. Artificial Intelligence cloud services and IoT
6. Node-Red app
7. Open-Source IoT Platforms (ThingsBoard, myDevices (Cayenne), Blynk)

Chapter 7: IoT Projects

1. Identify how to Create a system-level design
2. Testing created projects

**Data Analytics and Big Data Training**

**Training Hrs:** 60 Hrs

**Purpose:**

Data analytics and big data training can provide a wide range of benefits for businesses, including the ability to identify trends and patterns in large sets of data, make informed decisions, improve operational efficiency, and gain a competitive advantage. With the help of data analytics, businesses can gain valuable insights into customer behavior, market trends, and other critical information that can help drive growth and success. Additionally, big data training can help organizations stay current with the latest technologies and best practices in the field, allowing them to stay competitive and make the most of the data at their disposal. Overall, investing in data analytics and big data training can help organizations make better use of their data and drive success in today's data-driven world. This training is to understand the main concepts about data analytics and big data and how to implement it using Microsoft Power BI, also highlights AI, machine learning, python programming language in relation to big data and data analytics

**Objective:**

After finishing the training, you will be able to:

1. Transform your data from regular forms into strategically designed insights, where the light is spotted only on the data that matters.
2. Empowering your reports with smart designs and eye-opening visuals.
3. Closely highlights the most critical facts and figures that smoothly lead you to make the best decisions
4. Ability to use data analytics tools: The training will help participants learn how to use various data analytics tools and software.
5. The training will cover techniques for creating effective data visualizations, allowing users to better understand and communicate insights.
6. The training will cover techniques for creating predictive models, which can be used to make predictions about future events or trends.
7. The training will cover the basics of machine learning and how it can be used to analyze large sets of data.
8. The training will provide understanding on how to manage and analyze large datasets using distributed systems like Hadoop and Spark
9. Business use cases: The training will cover how data analytics can be used to solve real-world business problems and drive growth and success.
10. The training will provide plenty of hands-on experience, allowing participants to apply what they have learned to real-world data sets.

**Training Syllabus:**

Chapter 1: Introduction to Business Intelligence and Data analytics

1. What is business intelligence
2. Importance of Data
3. Stages in Analytics
4. Introducing Power BI tool

Chapter 2: Starting with Power BI

1. Explore available features
2. Importing data from excel, database, and web
3. Explore First Data Model
4. Power BI Visuals

Chapter 3: Analytics Life Cycle and Prepare data for analysis

1. Data preparation
2. Data Processing
3. Data Modelling
4. Get data in Power BI
5. Clean, transform, and load data in Power BI

Chapter 4: Model, Visualize and analyze data in Power BI

1. Design a data model in Power BI
2. Work with Power BI visuals
3. Perform analytics in Power BI

Chapter 5: Overview of Artificial intelligence

1. What is Artificial intelligence
2. How we can apply it in different business fields
3. Develop a chatbot as practical example on AI

Chapter 6: Python programming Principles

1. The programming principles
2. Python programming language syntax
3. Practical examples

Chapter 7: Big Data introduction

1. Important information about big data
2. Its basic definition
3. Typical characteristics
4. Various applications in different fields,
5. Some challenges in many industries.

Chapter 8: HDFS and HBase

1. HDFS - Hadoop Distributed File System overview
2. System architecture of HDFS
3. The data read and write process
4. Underlying system architecture of HBase
5. Key features and HBase read and write processes
6. Introduces the important features of HBase.

Chapter 9: MapReduce – Distributed Offline Batch Processing and Yarn - Resource Negotiator.

1. Overview for MapReduce,
2. Process details of MapReduce
3. MapReduce's Word Count case.
4. The resource limitations and key enhancement features in YARN task scheduling

**Cloud Computing Training**

**Training Hrs:** 60 Hrs

**Purpose:**

This Course prepares you for an entry-level professional position in the cloud. Through real-world, scenario-based learning and hands-on labs, learners gain the technical skills they need for junior cloud roles. Fusion Compute Cloud also focuses on building professional skills such as adaptive communication, time management, and collaboration. The program’s mission is to build a diverse pipeline of entry-level cloud talent.

**Objective:**

After finishing the training, you will be able to:

1. Understanding the fundamentals of cloud computing and its various models (public, private, and hybrid)
2. Acquiring the skills to design, deploy, and manage cloud infrastructure using popular platforms
3. Learning best practices for data security and compliance in cloud environments
4. Gaining experience in migrating and integrating on-premises applications and services to the cloud
5. Developing the ability to monitor and optimize the performance and cost of cloud-based resources
6. Understanding the concepts of DevOps and how to implement it on cloud platforms
7. Familiarizing with the different types of cloud services (IaaS, PaaS, SaaS) and their use cases
8. Understanding how to deploy and manage containerized applications on cloud platforms
9. Understanding the serverless architecture and how to build and deploy serverless applications
10. Familiarizing with the various tools and technologies used in cloud computing and how to use them effectively.

**Training Syllabus:**

Chapter 1: Introduction to Cloud Computing

1. What is Cloud Computing?
2. Characteristics of Cloud Computing
3. Origin & Development of Cloud Computing
4. Cloud Computing Models

Chapter 2: Introduction to Compute Virtualization

1. Virtualization Overview
2. Compute virtualization
3. KVM
4. FusionCompute

Chapter 3: Network Basics For Cloud Computing

1. Network Architecture in Virtualization
2. Physical Networks in Virtualization
3. Virtual Networks in Virtualization

Chapter 4: Storage Virtualization Basics

1. Mainstream Physical Disk Types
2. Centralized Storage and Distributed Storage
3. Virtualized Storage and Non-Virtualized Storage
4. Virtual Machine Disks
5. Storage Features of Huawei Virtualization Products

Chapter 5: Introduction to Virtualization Features

1. Virtualization Cluster Features
2. Virtual Machine Features
3. Virtualization Product Features

Chapter 6: Cloud Computing Trends

1. Fields Related to Cloud Computing
2. Cloud-Enabling Technologies
3. Other Emerging Technologies

**Cybersecurity Training**

**Training Hrs:** 60 Hrs

**Purpose:**

Cybersecurity training for students aims to educate them on the importance of protecting sensitive information and assets in the digital age. The training covers topics such as online safety, privacy, and security, as well as the latest cybersecurity threats such as phishing, malware, and ransomware. The training will teach students how to identify and prevent these threats, how to maintain strong passwords, how to keep software and systems up to date and how to be cautious when handling sensitive information. Additionally, the training aims to raise awareness of the importance of cyber security in the current job market and career options available in the field. Overall, the goal of cybersecurity training for students is to empower them with the knowledge and skills they need to protect themselves and their future careers in the digital age.

**Objective:**

After finishing the training, you will be able to:

1. To educate students on the latest cybersecurity threats and how to identify and prevent them.
2. To teach students the importance of maintaining strong passwords and keeping software and systems up to date.
3. To raise awareness of the importance of online privacy and security.
4. To empower students with the knowledge and skills they need to protect themselves and their future careers in the digital age.
5. To teach students about the importance of being cautious when handling sensitive information.
6. To provide students with an understanding of the current job market and career options available in the field of cybersecurity.
7. To encourage students to develop a culture of cyber security within the school and beyond.
8. To develop critical thinking skills in students to make them more cyber aware and to be able to identify and prevent cyber-attack.

**Training Syllabus:**

Chapter 1: Security, information, and security overview

1. Basic Concepts of Information Security
2. Information Security Standards and Specifications
3. Basic Network Concepts
4. Common Network Devices

Chapter 2: Network Security Basis

1. Common Information Security Threats
2. Introduction to Firewalls
3. Network Address Translation
4. Dual-System Hot Standby
5. Firewall User Management
6. Overview of Intrusion Prevention

Chapter 3: Application of Encryption and Decryption

1. Encryption and Decryption Mechanisms
2. Public Key Infrastructure (PKI) Certificate System
3. Application of Cryptographic Technologies

Chapter 4: Operation System and Host Security

1. Operating System Overview
2. Common Server Types and Threats
3. Host Firewalls and Antivirus Software

Chapter 5: Introduction to Cybersecurity

1. Overview of cybersecurity and its importance in the digital age
2. Types of cyber threats and attacks (phishing, malware, ransomware, APT, etc.)
3. Basic concepts of online privacy and security
4. The history of cybersecurity and evolution of attacks

Chapter 6: Identifying and Preventing Cyber Threats

1. How to recognize phishing attempts, spear-phishing, whaling
2. Techniques for preventing malware and ransomware attacks
3. Best practices for keeping software and systems up to date
4. Understanding the anatomy of a cyber attack

Chapter 7: Strong Passwords and Authentication

1. Importance of strong passwords, multi-factor authentication
2. Types of authentication methods (two-factor, biometric, etc.)
3. How to create and manage secure passwords
4. Understanding the security behind Passwords and Authentication methods

Chapter 8: Handling Sensitive Information

1. Understanding the importance of confidentiality and privacy
2. Best practices for handling sensitive information
3. How to identify and report a data breach

Chapter 9: Cybersecurity in the Workplace

1. Overview of the current job market and career options in cybersecurity
2. Importance of cybersecurity in various industries
3. Tips for protecting your organization's sensitive information and assets

Chapter 10: Advanced Cybersecurity Techniques

1. Understanding the concepts of encryption and decryption, symmetric and asymmetric encryption
2. Advanced threat detection and prevention methods
3. Introduction to incident response and disaster recovery
4. Understanding the concept of vulnerability management

Chapter 11: Creating a Culture of Cybersecurity

1. Importance of creating a culture of cybersecurity within an organization
2. Strategies for raising awareness and promoting cybersecurity best practices
3. How to encourage employees to take ownership of their own cybersecurity

Chapter 12: Current Cybersecurity trends and updates

1. Overview of current Cybersecurity trends and updates
2. Understanding the impact of emerging technologies on cybersecurity
3. How to stay current with the latest cybersecurity news and developments.
4. Understanding the concept of cyber espionage and nation-state attacks

**نموذج تقييم الطالب من المدرب**

**جامعة .............**

**بيانات الطالب** :-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| اسم الطالب : ................................... ID: ...................................  الكلية والقسم :……………….......... فترة التدريب: ………………  **بيانات المدرب**  الاسم: ........................................ مسمى الوظيفة: .....................................  رقم كارنيه النقابة: ......................... رقم الهاتف المحمول: ............................. | | | | | |
| **م** | **نقاط التقييم** | | **ممتاز** | **جيد جدا** | **جيد** | **مقبول** |
| 1 | الالتزام بأوقات التدريب. | |  |  |  |  |
| 2 | الالتزام بإجراءات و أنظمة العمل. | |  |  |  |  |
| 3 | المعلومات و المهارات الأساسية للطالب. | |  |  |  |  |
| 4 | دراك الطالب لتفاصيل العمل. | |  |  |  |  |
| 5 | المظهر العام للطالب. | |  |  |  |  |
| 6 | القدرة على العمل فى فريق. | |  |  |  |  |
| 7 | القدرة على التحسين المستمر للمستوى المهني. | |  |  |  |  |
| 8 | التعامل مع الزملاء. | |  |  |  |  |
| 9 | الرغبة في التعلم و تولي مهام متنوعة. | |  |  |  |  |
| 10 | تقبل التوجيه و الملاحظات. | |  |  |  |  |

11-هل ترى أن هناك اختلاف بين طالب كلية …….. - جامعة ............. و كليات………. الأخرى من حيث:

* المعلومات الأساسية نعم ( ) إلى حد ما ( ) لا ( √ )
* المهارات الأساسية و العامة نعم ( ) إلى حد ما ( √ ) لا ( )

التقييم العام للطالب والملاحظات:-............................................................................................