



CertNexus Certified Internet of Things Practitioner (CIoTP)



Online Course

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Course Modules

The Impact of IoT

1. Identify and describe the possible benefits that IoT provides

- Increase business intelligence
- Enhance existing revenue streams
- Create new revenue streams
- Enter and create new markets
- Reduce costs
- Increase productivity and agility
- Increase operational efficiency
- Decrease time to market
- Reduce natural resources usage
- Increase opportunities for innovation
- Improve customer experience
- Increase safety
- Improve competitive position



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2. Identify and describe the possible challenges that IoT presents

- Applicability of automation throughout the organization
- Scalability of legacy solutions to modern solutions
- Connectivity and coverage concerns
- Transfrmtn from a prodct-orientd busnss to an everythg-as-a-servc
- Cultural transformation & adoption both in business & technology
- Security, privacy, and safety concerns
- Cost of transition
- Digital disruption
- Immaturity of standards, regulations, and oversight
- Retrofitting modern design into an existing infrastructure

3. IoT Ecosystems

- Identify common IoT terminology.
- functnlty of the typical physical and edge/fog computing elements.
- Sensors & Actuators
- Power sources
- Input/output
- Edge and fog computing & Computing elements
- Hardware platforms
- Programming languages
- Frameworks & Operating systems
- Location awareness



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4. Functionality of the typical elements of IoT networks & connectivity.

- Wired protocols/technologies
- Industrial Ethernet standards
- Legacy field buses
- Wireless protocols/technologies
- Medium range
- Long range
- Applications/messaging protocols
- IoT networking
- Routing and QoS
- Encryption
- SDN/NFV
- Encapsulation and bridging

5. Functionality of the typical elements of the cloud & cloud platforms.

- Deployment models
- Cloud service models
- Cloud platforms
- Common functions of IoT platforms
- Virtualization technologies
- IoT data analytics & Techniques
- Tools & AI
- Tools



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6. Identify the various IoT market sectors and describe the apps

- Agriculture
- Applications
- Examples of things
- Security/public safety
- Applications
- Examples of things
- Retail
- Applications
- Distribution systems
- Examples of things
- Transportation and logistics
- Manufacturing
- Healthcare, medical, and life science
- Consumer and home
- Energy and utilities
- Buildings
- Defense
- Smart city



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7. Security, Privacy, and Safety

- Understand common IoT security and privacy threats.
- Malware
- Network attacks
- Password attacks
- Social engineering
- Elevation of privilege
- Fuzzing
- Cross-site scripting
- Code injection
- Buffer overflow

8. Understand common IoT security and privacy countermeasures.

- CIA triad
- Confidentiality
- Integrity
- Availability
- AAA
- Firmware/software
- Physical security
- Vulnerability assessment
- Data anonymization



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- Physical/loss of life accidents
- Infrastructure outages
- Biological/medical
- Supply chain disruption

10. Explain common safety risk management approaches.

- Hazard classification and analysis
- Root cause analysis
- Quality management systems
- CAPA
- Safety certification

11. The IoT System Development Life Cycle

- Identify and describe the phases of the IoT SDLC.
- Initiation
- System concept development & Planning
- Requirements analysis
- Design
- Development
- Integration and testing
- Implementation
- Operations and maintenance
- Disposition

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