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# Certified Blockchain Professional®

*Powering Business Operations with Blockchain Technology in the era of Digital Transformation*

Brought To you by EC-Council

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# C|BP Training & Certification

**To support the growing demand for skilled Blockchain professionals, IIB Council, introduces the Certified Blockchain Professional (C|BP) Training and Certification Program for Developers and Business Technology Professionals.**

**The course aims to bring practitioners up to speed with the industry requirements while forming the global standards in the Blockchain Industry, one of the fastest growing disciplines.**

Designed
by professionals
*for* professionals

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# About C|BP

## Program Overview

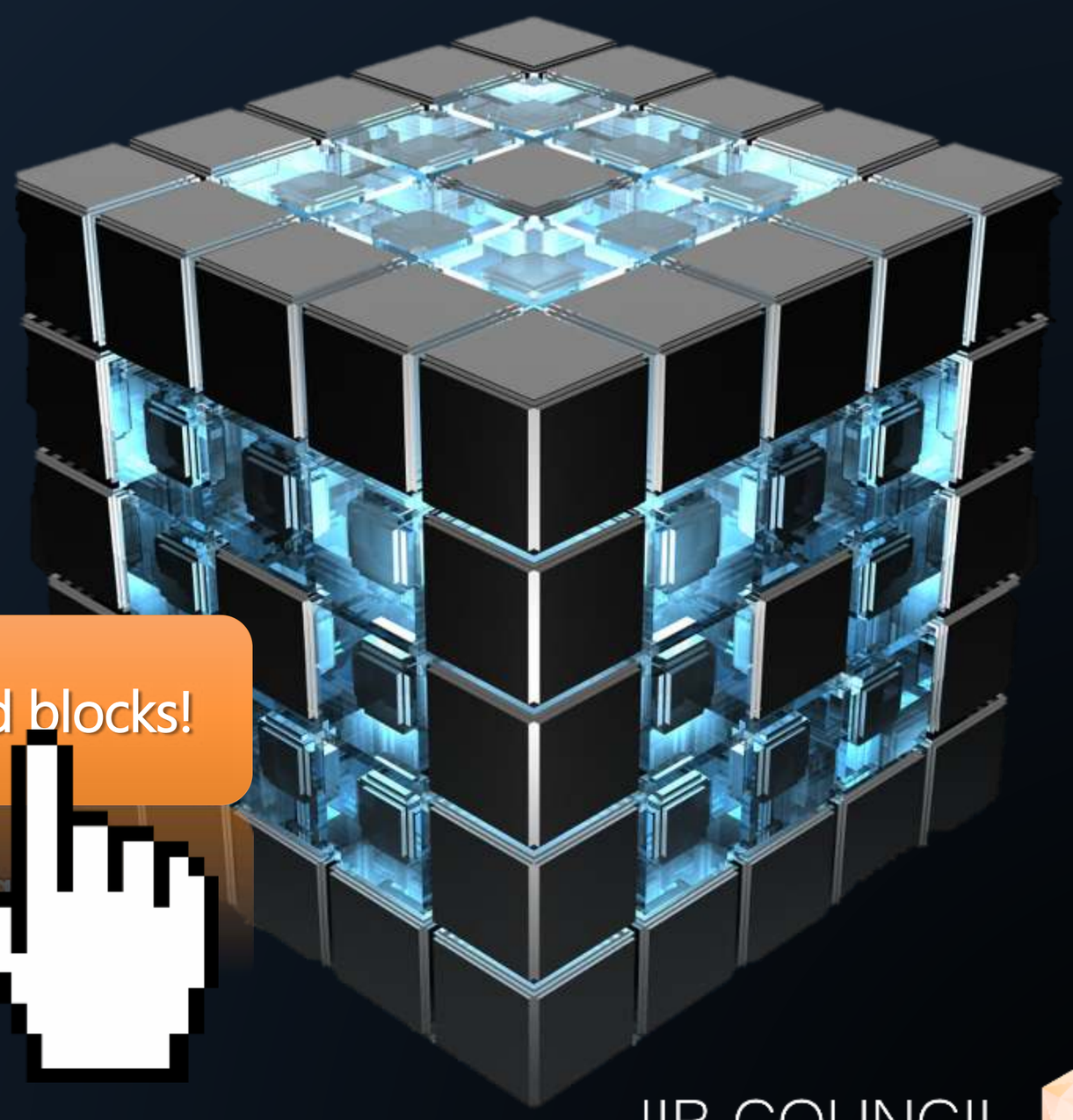
Blockchain, the cornerstone of a decentralization strategy, is a distributed database that is replicated across multiple nodes to enable immutable, permanent, transparent, and secure record-keeping of transactions. Essentially Blockchain is a data storage and data transaction validation system.

The blockchain technology is the only **peer-to-peer decentralized network** to authorize users to digitally sign transactions with 100% accuracy. Blockchain is gaining popularity across industries such as finance, government, insurance, logistics, media healthcare and many others for being a borderless network of **value exchange in real time**.

The C|BP course provides a **100% hands-on** thorough overview of blockchain technology and its implementation to the real world.

The C|BP Certification consists of three knowledge and competency areas in Blockchain Technology: **Development, Implementation** and **Strategy**.

During the course students will not only be exposed to multiple blockchain implementation concepts but they will also be immersed to a unique guideline for **sustainable** and **scalable** blockchain development with the use of quantum resistant ledgers.



Enter the realm of sophisticated blocks!

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# C | BP Objectives

## What you will learn

### Objectives

- Master the theoretical and technical foundations of blockchain technology
- Understand the concept of decentralization, its impact, and its relationship with blockchain technology
- Understand the underlying technical principles of blockchain development and implementation.
- Understand the blockchain technology mechanisms behind Bitcoin and other cryptocurrencies
- Understand how cryptography is used to secure data with practical examples
- Understand theoretical foundations of smart contracts and how Ethereum blockchain is used to develop decentralized applications using Solidity and relevant development frameworks
- Investigate alternative blockchain solutions including Hyperledger, Corda, and many more
- Discover use cases of blockchain powered applications in various industries
- Explore blockchain implementation and commercialization strategies
- Learn best practices for blockchain integration in current business architectures
- Identify possible blockchain implementation implications on legal aspects
- Predict adoption risks and failures from application strategies and learn how to avoid with effective change management and project management approaches.
- Identify new research topics and future scope of blockchain technology

### ✓ Outcome

- ✓ Thorough understanding of cryptography and cryptocurrencies, Distributed ledgers, decentralization and smart contracts
- ✓ Ability to build powerful and highly secure, decentralized applications using Ethereum to create smart contracts and facilitate trusted in-app transactions.
- ✓ Ability to provide innovative solutions to solve industry adoption and scalability issues.

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# Why C|BP

**Introducing the 1st Blockchain Professional Training and Certification Program to set the global standards in Blockchain Technology**

**Contextual Training, Global Application**

**A**s organizations transform into smart, adaptive, digital enterprises and economies evolve to consumer-centric and data driven peer-to peer ecosystems, our mission is and has always been to help business professionals obtain relevant, implementable and practical digital skills to facilitate corporate growth globally.

The Certified Blockchain Professional (C|BP) Course is developed to help respective aspiring professionals gain excessive knowledge in Blockchain technology and its implication on businesses & beyond. C|BP program, a 360°, vendor agnostic and practical course, focuses in blockchain's technology current and future potential.

The course digs deep into the main characteristics and features of the distributed ledger technology (DLT) as well as introduces Blockchain's new 3S (Secure-Scalable-Sustainable) proprietary framework.

- Development Ecosystem Agnostic
- International Standards
- Technology Agnostic
- Global Certification
- Network Agnostic
- Worldwide Recognition
- 360° Approach
- Hands on training

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# C | BP Candidate

## WHO IS IT FOR

**Business Tech Executives**

For **decision makers** (unit leaders, growth executives and technology innovators) interested in leading blockchain based projects.

*(2 days training)*

**Government Tech Officials**

For **policy makers** (government officials, regulators and compliance officers) assigned with Blockchain related cases.

*(1 day training)*

**Full Stack Developers**

For **technology makers** (developers, programmers, coders) equipped with the basic understanding of programming languages and technical knowledge to deep dive into blockchain development, strategy and implementation.

*(5 days training)*

5days

8h/d

Worldwide

Advanced

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# C | BP Prerequisites

*5 days Training*

## The Certified Blockchain Professional Program by IIB Council aims to bring up to speed aspiring Blockchain Developers and Blockchain Strategists.

To attend the 5-days course and be able to integrate Blockchain functionalities into business operations, commercial applications, or open source peer-to-peer transactions you need some technical experience, skills and/or qualifications as follows:

### Basic Understanding of Cryptocurrencies (Preferred)

Blockchain developers thoroughly understand how bitcoins and ethers work, and most of them have already mastered the basics and fundamentals of cryptocurrencies. For C|BP course students is advisable to have some Blockchain programming foundations already. This includes understanding of how a blockchain serves as the backbone that powers digital currencies.

### Basic Exposure in Programming Languages (Required)

Blockchain's APIs support six programming languages (Python, Django, C++, HTML, Javascript, Node) so if you're planning to attend C|BP training you will need to be proficient at least in one with which you will be able to integrate Blockchain's services. While Blockchain developers, are proficient in the language they select for their project, Blockchain aspiring Professionals need to have at least an overview of the blockchain supporting languages to smoothly decide which one to pick to integrate Blockchain functionalities with the rest of their applications.

### Experience with Bitcoin and Ether (Preferred)

Understanding the theory behind cryptocurrencies may be useful, but actual experience in transacting with these currencies allows you to introduce better, more innovative and more user friendly blockchain powered solutions. By having actual experience in blockchain's most popular implementation, Bitcoin and Ether, you will be able to better understand the needs of the organization, and provide suitable solutions that are in line with business architecture and business objectives.

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# C | BP Domains

*5 days Training*

## *Phase 1 DEVELOPMENT*

### Blockchain Fundamentals - Introduction

*Theoretical; Introduction to Cryptography, Coding, Programming Languages for Blockchain*

### Blockchain Technology Development - Cryptocurrency

*Technical/Practical; Networks and Ecosystems Development, Tool manuals*

## *Phase 2 IMPLEMENTATION*

### Blockchain Solutions Implementation - Bitcoin

*Tactical/Operational; Project Management, Step-by-Step Guides, Various Use Cases*

### Blockchain Industry Adoption – Ethereum/ Hyperledger

*Strategic/Contextual; Technology Integration, Various Case Studies*

### Blockchain and Digital Transformation - DApps

*Analytical; AI, ML, IoT, Cyber Security, Change Management,*

## *Phase 3 STRATEGY*

### Blockchain Governance, Compliance & Regulation - Amenability

*Understanding of the legal implications and the overall risks of the technology*

### Blockchain Sustainability - Scalability

*Bonus Chapter; Resource Management, Eco-friendly Vs Energy-intense block mining, alternative approaches*

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# CLASS SCHEDULE

*5 days Training*

| Module/ Domains | Chapter | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 |
|---|---|---|---|---|---|---|
| **Phase 1** | **Blockchain Development** | | | | | |
| Module 1 | Introduction to Blockchain Technology | | | | | |
| Module 2 | Crypto Assets | | | | | |
| Module 3 | Blockchain Mining | | | | | |
| **Phase 2** | **Blockchain Implementation** | | | | | |
| Module 4 | Bitcoin | | | | | |
| Module 5 | Hyperledger | | | | | |
| Module 6 | Ethereum Project | | | | | |
| Module 7 | Decentralized Applications (DApps) | | | | | |
| **Phase 3** | **Blockchain Strategy** | | | | | |
| Module 8 | Impact on Industry | | | | | |
| Module 9 | Industry Use Cases and Business Models | | | | | |
| Module 10 | Blockchain Project Implementation | | | | | |

## Training Options

**Online**

Via iClass

**Onsite**

Via Authorized Training Partners

**Customized**

Via Authorized Training Partners

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# Day 1

- **Introduction: blockchain technology**
  - Blockchain - the cornerstone of a decentralization strategy
  - Decentralization
  - Introduction to blockchain (history and evolution of blockchain through bitcoin)
  - What fundamental issue blockchain resolves?
  - Blockchain fundamentals
    - What are blocks?
    - What are transactions?
    - Structure of a blockchain
    - Elements of a blockchain
    - Peer-to-peer network
    - Hashing
    - Byzantine generals problem
    - Consensus algorithms
      - Proof of work
      - Proof of stake
  - Distributed ledger technology (DLT)
    - DLT vs blockchain
  - Blockchain classification (public/private/permissioned or consortium blockchain networks)
  - Blockchain as a transaction registry
  - Advantages of blockchain
  - Applications of blockchain
  - Challenges towards blockchain adoption
  - Future scope

- **Crypto assets**
  - What are crypto assets
  - Tokenization
  - Crypto-currencies, altcoins etc.
  - Introduction to some cryptocurrencies (zcash, litecoin)
  - Provisioning crypto assets, cryptocurrencies
  - ICOs
  - Token standards (ERC 20)
  - Securitization of physical assets

- **Blockchain mining**
  - What is mining
  - Why mining is performed / required?
  - Different types of mining
    - Solo mining
    - Pool mining
    - Hybrid mining
  - Mining vs. Forging
  - Design of a mining rig
  - Problem of centralization
  - Recent 51% attacks

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# Day 2

- **Bitcoin**
  - Introduction
  - History
  - Ownership
  - Bitcoin value - how is it determined?
  - Bitcoin blockchain structure
  - Components of the bitcoin network
  - Mining and pow consensus
  - Task of miners
  - Transactions
    - How transactions work in bitcoin
  - Script language
  - Utxo
  - Financial investment and payments
    - Exchanges
    - Payment service provider
    - Merchant acceptance
  - Wallets
    - Types of wallets
  - Security and privacy
  - Legality and taxation
  - Bitcoin limitations
  - Bitcoin variants
  - Bitcoin clients
  - Forking
- **Sustainable blockchain**
  - Mining
  - Current bitcoin energy consumption
  - Forecast
  - How to address the energy consumption issue
  - POS , alternate consensus algorithms
  - Quantum Resistant Blockchain
- **Open source business blockchain frameworks**
  - Introduction
  - Permissioned and permission less blockchain
- **Hyperledger**
  - History
  - Projects
  - Frameworks
    - Burrow
    - Fabric
    - Indy
    - Iroha
    - Sawtooth
  - Tools
    - Cello
    - Composer
    - Explorer
    - Quilt
  - Caliper

# Day 3

- **Ethereum**
  - Introduction
  - History
  - Ether
  - Performance (in comparison with bitcoin)
  - Elements of the ethereum ecosystem
    - Keys, address, accounts, calls, messages, world state, account state, transactions receipts, state storage, execution environment
    - Clients (mist, geth)
  - Ethereum virtual machine
    - Execution environment, machine state, iterator function.
  - Smart contracts
    - Introduction
    - History
    - How do smart contracts work?
    - Advantages
    - Implementation
  - Solidity language
  - Writing smart contracts
  - Supporting protocols
    - Whisper and swarm
  - Benefits
    - Challenges

- **Decentralized applications (DApps)**
  - DOs, DAOs
  - Decentralized autonomous organization (DAOs)
    - Introduction
    - Structure and operation
    - Security

- **AI and Blockchain**
  - What is AI
  - What is machine learning
  - Convergence of AI with blockchain
  - Machine learning and blockchain
  - Intelligent smart contracts
  - Examples
  - DAOs and AI
  - Blockchain X.0

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# Day 4

- **Impact on industry**
  - Financial
  - Insurance
  - Government
  - Technology
  - Media
  - Healthcare
  - Others

- **Industry use cases**
  - Sample use cases
    - Supply chain – food supply chain
    - Identity management
  - Identity and blockchain
    - What is identity
    - Identity on blockchain
    - Examples
    - Advantages
    - Design of a blockchain based identity solutions
  - Other use cases
    - Distributed storage
    - Post trade clearance

- **IOT and blockchain**
  - Blockchain of things
  - Usual /normal IOT model vs blockchain based IOT model
  - Advantages of IOT and blockchain convergence
  - How to achieve convergence
  - Examples

- **Blockchain project implementation**
  - Creating networks
    - Types of networks
    - How to build a private networks (Ethereum)
  - Solidity language in detail
    - Types, literals, functions, variables, controls structures
  - Examples using remix IDE

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# Day 5

- **Blockchain project implementation (cont.…)**
  - Writing smart contract code
  - Tools and frameworks for smart contract development on ethereum
    - Remix IDE
    - Web3.Js
    - Metamask
    - Truffle
    - Ganache
    - Wallets / clients
  - Monitoring blockchain network (block explorer)
  - Real-world project
    - Write a proof of idea (patent application)
  - Get help and support
  - Get involved

- **Scalable Blockchain**
  - What is the scalability issue?
  - How scalability issues can be solved
  - What has been done so far
  - What are the possible solutions, sharding, off chain etc?
  - A survey of advanced techniques for blockchain scalability
  - Examples of recent bitcoin scalability solutions
  - Other advanced and new protocols such as chainweb etc
  - Layer 2 solutions (off chain solutions), lightning etc
  - Consensus performance

- **Security in blockchain (Secure Blockchain)**
  - Secure smart contracts
  - Vulnerabilities in smart contracts
  - How to mitigate
  - Formal verification of smart contracts
  - Other security issues and mitigation
  - End point security
  - Privacy and confidentiality

- **Blockchain as a service (BAAs)**
  - Microsoft azure
  - IBM blockchain service
  - Others

- **Open research problems in blockchain**
  - Interoperability
  - Security
  - Privacy
  - Performance
  - Scalability
  - Standardization (ISO TC 307)

# C | BP Career

The key advantage of blockchain technology is transparency and security. The actions of all participants are open and visible in real time, which prevents forgery of information.

As such the demand for blockchain professionals has skyrocketed up to 700% the past years.

The scope is highly positive in Blockchain field as the market is flowing into industry 4.0 with machine learning for blockchain powered IoT and A.I. solutions.

"There are now **14 job openings** for every one **blockchain** professional" (TechCrunch).

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# $20 billion

## the expected worth of the global blockchain market in 2024

*Expandedramblings*

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# The Advisory Board

## The Blockchain Advisory Board

The **Blockchain Advisory Board** is a member based network of volunteers who are recognized by IIB Council as key leaders in the field of **Blockchain Technology**. The members are carefully selected from the industry and are committed to creating a positive impact on the project management profession. They possess an in-depth knowledge of and experience in **Cryptocurrency, Financial Technology, Information Security, full-stack development, Distributed ledger technology (DLT), etc.**; and remain an independent voice for the industry.

Their leadership role is recognized and honored by IIB Council Management and R&D team. With the formation of the Board, we seek to monitor developments to our Blockchain certification policies and procedures to ensure that our certifications remain valuable and up-to-date, and that all IIB certified professionals continue to widen their knowledge base. **The Board is responsible for the development and the maintenance of IIB Council Blockchain certification matters, will manage the ethical standards of our certification holders and the quality of the certification.**

The Board is independent in its review and the blockchain certification standards are peer reviewed globally. The Management of IIB Council shall refer to the Board for advice in matters pertaining to Blockchain technology.

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# IIB Council –
## Who we are and what we do

IIB Council (Institute of iBusiness Council) is a division of International Council of E-Commerce Consultants, also known as EC-Council, one of the world's largest cyber security technical certification body. ECC operates in 145 countries globally and is the owner and developer of the world-famous Certified Ethical Hacker (CEH), Computer Hacking Forensics Investigator (C|HFI), Certified Security Analyst (ECSA), License Penetration Testing (Practical) programs, among others. We are proud to have trained and certified over 200,000 information security professionals globally that have influenced the cyber security mindset of countless organizations worldwide.

The IIB division is dedicated towards developing the world's first Business Technology and Enterprise Digital Transformation Professional Training and Certification Programs.

The programs aim at **revolutionizing traditional approach in business operations**. IIB's Smart Education includes Certification Programs in Digital Marketing Management, Digital Project Management, Blockchain and Financial Technology Management (FinTech).

The IIB Training programs are developed with a unique **practical** approach to a standard MBA program. The **hands-on training** is aimed at nurturing a Corporate Growth Hacking mindset; a skillset that describes one's ability to leverage analytical, creative and digital skills to conduct rapid experimentations within various business operations and identify the most efficient ways to **accelerate performance and attain business growth**.

Corporate Growth Hacking is an immediate implementable skill-set that refers to a set of both conventional and unconventional **testing techniques used to define growth strategy**. This approach allows business professionals to make the most use of smart technology, digital tools and online applications based on advanced technologies such as Big Data Analytics & Visualization, Predictive Analytics, Augmented Reality (AR), Virtual Reality (VR), Artificial Intelligence (AI), Machine Learning (ML) and Blockchain. to test and analyze common business methodologies and help optimize and transform them into higher performing processes and automated operations.

Such skills are highly sought-after in the digital era we live in, where traditional organizations strive to live up to the expectations of **Data-Driven Economies**, **Decentralized Financial Ecosystems** and **Consumer-Centric Markets**.

# See you around the block…


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Register Now

www.iibcouncil.org

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