



**INSTITUTE OF**  
**BLOCKCHAIN**™  
— **SINGAPORE** —

**区块链学院 (新加坡)**

UEN: 201801117M

*(Incorporated in the Republic of Singapore)*

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## **IBS-02 Smart Contract & Solidity Syllabus**

### **About Institute**

Institute of Blockchain™ (Singapore), UEN: 201801117M) was founded on Jan 2018. We are a blockchain and EduTech private school with a primary focus on delivering blockchain education and certification. Secondary focus on blockchain research & development.

The Institute is a SkillsFuture Singapore's approved Non-WSQ Training Organisation, NTUC e2i's approved Training Provider and People's Association approved Private Operator, a registered Singapore government's Gebiz supplier and is a graduated start-up from the Alibaba Cloud-SUSS Entrepreneurship Programme.

As part of our CSR efforts, we joined the NVPC's Company of Good and adopted Singapore Children's Society as our official charity. Our strategic partners are DIFY, SUSS, Edufied, IBM Academic Initiative and Justicius Law Corporation and our past corporate clients include Deloitte, GCOX, ERA, Ninecoin (Hongkong), Tuandai (Guangzhou) and Singapore Customs.

## About Lecturer

Mr Kenneth Hu (Associate Lecturer)

Mr Kenneth Hu is a Blockchain enthusiast and has more 10 years' experience in software development. He is also the founder of BlockChain & Dapps Technology meetup (<https://www.meetup.com/BlockChain-Dapps-Technology/>) as well as Singapore IOTA - Next Generation Blockchain meetup (<https://www.meetup.com/Singapore-IOTA-Next-Generation-Blockchain>)

His key domain areas are:

- Smart Contract
- Solidity
- Microsoft Certified Solutions Associate: SQL Server 2012
- Microsoft SQL Server 2008, Database Development
- Web Applications Development with Microsoft .NET Framework 4
- Professional Secretary/Administrator Test
- M101N MongoDB for NET Developers
- M101P MongoDB for Developers
- M102 MongoDB for DBAs
- M202 MongoDB Advanced Deployment and Operations

## Course Preface

In this full day course, we will put a “face” behind these jargons and the basics of smart contract and solidity, as well as dApps, the decentralised application behind smart contracts.

Participants will learn about the programming language Solidity for writing smart contracts and learn to deploy and test a simple token. Upon completion of the course, participants will understand the basic technology, write simple smart contracts and skills required to build a decentralised application on the Ethereum platform.

Who should come for the course?

- Anyone who are interested in writing your own smart contracts, or to be an Ethereum Developer, building decentralized application (DApps) or having the interest in Learning Solidity Language

## Learning Outcomes

Participants will:

- Recognise the true purpose and capabilities of Ethereum and Solidity
- Relate what smart contract and solidity are
- Experiment building a decentralised application on the Ethereum platform

## **Course Content**

1. Blockchain & Dapps
  - 1.1 What is Blockchain
  - 1.2 What is Ethereum
  - 1.3 What is Dapps (decentralized applications)
2. Development environment
  - 2.1 Online Development environment
  - 2.2 Installing the Development environment
  - 2.3 MetaMask – Create/Import/Export Account
  - 2.4 Ethereum Wallet

## **Hands – On Activity 1**

- 2.5 Ganache-cli
- 2.6 Remix
3. Solidity Program language
  - 3.1 Solidity Basics
  - 3.2 Basic Types
  - 3.3 Integer Ranges
  - 3.4 Global variable
  - 3.5 Array
  - 3.6 Common Function Type
  - 3.7 Error handling
4. Ethereum pet shop
  - 4.1 Setting up the development environment
  - 4.2 Creating a Truffle project using a Truffle Box
  - 4.3 Writing the smart contract

4.4 Compiling and migrating the smart contract

4.5 Testing the smart contract

4.6 Creating a user interface to interact with the smart contract

4.7 Interacting with the dapp in a browser

## **Hands – On Activity 2**

### **Course Administrative**

Programme Mode: Full-Time

Full Time Duration: 1 weekend session - 8 hours (9 am to 6 pm) – With lunch break and short breaks after each main topic.

Class Size: 5 to 15 (minimum 5 to start)

Course Fees (per pax): \$278

Language Medium: English

### **Certification**

An Electronic Certificate of Completion will be issued on NEM Blockchain to participants who achieved at least 75% attendance, pass the Final Quiz with a score of 50% and above and completed the end of course survey,

Please indicate the correct name during registration for certificate issuing. The Institute is not responsible for any wrong name indicated and may refuse to issue a subsequent certificate.

### **Progression**

This is a 2 Block Units module which leads to a full Certificate/Diploma in Blockchain Technology.

## **Assessment**

Course participants are given **1 hour** to attempt an assessment comprising of 30 Multiple-Choice Questions. To pass the assessment, the participant needs to score **50%** and above. For scoring 49% and below, participants have up to **ONE** attempt to re-take the assessment at no additional fee. In the event, the participant fails again, he/she shall repeat the respective module

## **Course Enquiry / Support**

Email: [admin@ibs.edu.sg](mailto:admin@ibs.edu.sg)

Phone: +65 6717-7722 or +65 8292 8452 (WhatsApp/LINE/Telegram/WeChat)