| **Link to relevant Documents** | |
| --- | --- |
| * [BD Theory Syllabus](https://drive.google.com/file/d/1bBEtWVrJf662BCbIyHgRapE03WfA1WOo/view?usp=sharing) * BD Lesson Plan * [BD - Honors: Attendance Sheet](https://docs.google.com/spreadsheets/d/14FEOpVlP5-wveza1QLQIRSXBOtF1Eqky/edit?usp=sharing&ouid=116999591165080319813&rtpof=true&sd=true) * [BD - Case Study Topics](https://docs.google.com/document/d/1gkq-E_uIUTg1WjbM7e97DLb9iyyGX5-szkQeEU5hJzM/edit?usp=sharing) | * [SB Lab Syllabus](https://drive.google.com/file/d/1l1_o0zbvGOJlSh5gj-Q5pixZS7FubdY1/view?usp=sharing) * SB Lab Plan * [SB Lab Instructions cum Manual](https://docs.google.com/document/d/1TLlwBXMpYak7kQQB4xZkmW0jBQrHIB614u2Su0KoHCs/edit?usp=sharing) * [BD - Case Study Allocation Sheet](https://docs.google.com/spreadsheets/d/1j7XdN7zRvBuoQAloub8HQvutjjDVJHwL49w-fEh3X1U/edit?usp=sharing) |
| **Topics covered with Study Materials** | |
| **Module - 1: Ethereum Ecosystem**  Ethereum components: miner and mining node, Ethereum virtual machine, Ether, Gas, Transactions, accounts, swarm and whisper, Ethash, an end-to-end transaction in Ethereum, the architecture of Ethereum.  ***Self-learning Topics:*** Emerging blockchain platforms  Theory [**Ethereum Ecosystem**](https://drive.google.com/file/d/1EaUu3LHlSpToqui09Q5pU5-FS8oD_eTg/view?usp=sharing)  YoutTube : [**Vitalik explains Ethereuem**](https://www.youtube.com/watch?v=TDGq4aeevgY&t=205s)  Online Materials :   1. [Summary of Top 5 Blockchain Platforms for Enterprises (Horses for Sources)](https://www.horsesforsources.com/storage/app/media/Phil%20MARCH%20APRIL%202018/Enterprise%20Blockchain%20Platforms.jpg) 2. [Top-9-blockchain-platforms-to-consider (Tech Target)](https://www.techtarget.com/searchcio/feature/Top-9-blockchain-platforms-to-consider) 3. [Blockchain-platforms (Gartner)](https://www.gartner.com/reviews/market/blockchain-platforms) 4. [20 Blockchain Platform driving the Industry](https://builtin.com/blockchain/blockchain-platforms) 5. [Top-10-blockchain-platforms-to-consider-in-2023 (Analytics Insight)](https://www.analyticsinsight.net/top-10-blockchain-platforms-to-consider-in-2023/) 6. [Top-10-blockchain-platforms-you-need-to-know-about (Blockchain Council)](https://www.blockchain-council.org/blockchain/top-10-blockchain-platforms-you-need-to-know-about/) 7. [Blockchain-platforms#blockchain-platforms-for-developers (Knowledge Hut)](https://www.knowledgehut.com/blog/blockchain/blockchain-platforms#blockchain-platforms-for%C2%A0developers) | |
| **Module - 2: Blockchain Programming**  Types of Blockchain Programming, Solidity, GoLang, Vyper, Java, Simplicity, Rholang, Comparative study of different blockchain programming languages, Decentralized file system-IPFS.  ***Self-learning Topics:*** Emerging blockchain programming languages  Theory  YoutTube :  Online Materials : | |
| **Module - 3: Smart Contract**  Solidity programming, Smart Contract programming using solidity, mapper function, ERC20 and ERC721 Tokens, comparison between ERC20 & ERC721, ICO, STOMetamask (Ethereum Wallet), setting up a development environment, use cases of smart contract, smart Contracts: Opportunities, Risks  ***Self-learning Topics:*** Cryptocurrencies and their security issues, Consensus mechanisms, Digital Signatures  Theory [**Theory for Solidity Programming**](https://docs.soliditylang.org/en/v0.8.21/)  YoutTube : [**Solidity by Example**](https://www.youtube.com/watch?v=hMwdd664_iw&list=PLO5VPQH6OWdULDcret0S0EYQ7YcKzrigz)  Online Materials :   1. [**LearnETH - Remix IDE**](https://remix.ethereum.org/#lang=en&optimize=false&runs=200&evmVersion=null&version=soljson-v0.8.18+commit.87f61d96.js) 2. [**Solidity by Examples**](https://solidity-by-example.org/) 3. [**Cheat Sheet for Solidity**](https://docs.soliditylang.org/en/latest/cheatsheet.html#global-variables) | |
| **Module - 4: Blockchain Deployment**  Ethereum client, Ethereum Network, Introduction to Go Ethereum (Geth), Geth Installation and Geth CLI, Setting up a Private Ethereum Blockchain. Introduction to Truffle, Smart Contract Deployment on a Private Blockchain. Introduction to Ganache Introduction to Dapp, Dapp architecture, Daaps Scalability, testing Connecting to the Blockchain and Smart Contract, Web3js, Deployment  ***Self-learning Topics:*** Smart Contract deployment using Ganache | |
| **Module - 5 : Hyperledger Application Development**  Installing Hyperledger Fabric, Hyperledger Fabric Network , Building Your First Network, Hyperledger Fabric Demo, Hyperledger Fabric Network Configuration, Certificate Authorities, Chaincode Development and Invocation, Deployment and testing of chaincode on development network, Hyperledger Fabric Transactions.  ***Self-learning Topics:*** Hyperledger sawtooth, Hyperledger caliper | |
| **Module - 6 : Blockchain integration and Research challenges**  Integrating Blockchain with cloud, IoT, AI, ERP, End to end blockchain integration, Risks and Limitations of Blockchain: Privacy & Security. Criminal Use of Payment Blockchains, The “Dark” Side of Blockchain Research challenges in blockchain  ***Self-learning Topics:*** Use Cases: Blockchain for Health Insurance, Blockchain in Supply chain management, Blockchain & PropTech, Blockchain in Banking | |

**Happy Learning!!!**