



COLLEGE OF ENGINEERING BHUBANESWAR

Plot No.1 (A), CNI Complex, Patia, Bhubaneswar – 751024, Odisha, India.

[AFFILIATED TO BPUT, ODISHA]

www.coeb.ac.in

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ADD-ON COURSE : Blockchain Technology and Applications

[Programme: B.Tech, CSE]

Course Objectives:

To provide students the understanding of emerging abstract models for Blockchain Technology and to familiarize with the functional/operational aspects of crypto-currency eco-system.

SYLLABUS

Total Lecture Hours : 40

MODULE-I: Introduction

[12 Hours]

Introduction to Blockchain, Types of Blockchain - Public Blockchains, Consortium Blockchains, Private Blockchains. Blockchain Implementations - Bitcoin, Namecoin, Ripple, Ethereum, Blockchain Collaborative Implementations - Hyperledger, Corda, Categories of Blockchain, Private Blockchain Use Cases, Private Blockchain Technology, AlphaPoint Distributed Ledger Platform, Chain Core, Corda, Domus Tower, The Elements Project, HydraChain, Hyperledge, Stellar.

MODULE-II Blockchain Business Use Cases

[08 Hours]

Currency and Tokens, Cryptocurrency, Digital Tokens, Financial Services Use Cases viz. Know Your Customer (KYC) Use Case, Asset Management Settlement Use Case, Insurance Claims Processing Use Case, Trade Finance (Supply Chain) Use Case, Global Payments Use Case, Smart Property, Smart Contracts on the Blockchain.

MODULE-III Blockchain Technology, Legal and Governance Use Cases

[08 Hours]

Web 3.0, Distributed Storage Systems, Distributed Computation, Decentralized Communications, Crypto-currencies as Legal Tender, Blockchain and Privacy Laws, Blockchain and Privacy Laws, Smart Contract, Smart Contract Design, Decentralized Autonomous Organizations.

MODULE-IV Blockchain Challenges

[06 Hours]

Blockchain Governance Challenges, Bitcoin Blocksize Debate, Blockchain Technical Challenges, Bugs in the Core Code, Denial-of-Service Attacks, Security in Smart Contracts, Scaling, Sharding.

MODULE-V Enterprise Applications of Blockchain

[06 Hours]

Issues and Needs of Blockchain, Benefits and Challenges of Blockchain Implementation - Smart Health Care, Transportation, Smart City and Supply Chain Management.

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Course Outcomes: After completion of the course, the students will be able to

- CO1: Describe the basic concepts and technology used for blockchain.
- CO2: Describe the primitives of the distributed computing and cryptography related to blockchain.
- CO3: Illustrate the concepts of Bitcoin and their usage.
- CO4: Implement Ethereum block chain contract.
- CO5: Apply security features in blockchain technologies.
- CO6: Use smart contract in real world applications.

Evaluation Process:

1. Attendance for the course is 75%, which is mandatory.
2. Minimum qualifying marks percentage for the course is 50.
3. Certificate will be issued after successful completion of course and assessment processes.

Learning resources:

Suggested Books:

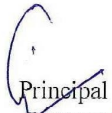
1. Narayanan, Bonneau, Felten, Miller and Goldfeder, "Bitcoin and Cryptocurrency Technologies – A Comprehensive Introduction", Princeton University Press.
2. Josh Thompson, 'Blockchain: The Blockchain for Beginnings, Guild to Blockchain Technology and Blockchain Programming', Create Space Independent Publishing Platform, 2017.
3. Imran Bashir, "Mastering Blockchain: Distributed ledger technology, decentralization, and smart contracts explained", Packt Publishing.
4. Merunas Grincalaitis, "Mastering Ethereum: Implement Advanced Blockchain Applications Using Ethereum-supported Tools, Services, and Protocols", Packt Publishing.


Other Sources:

e-Learning Resources:

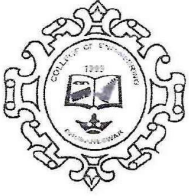
Prof. Sandip Chakraborty, Dr. Praveen Jayachandran, "Blockchain Architecture Design And Use Cases"[MOOC], NPTEL: <https://nptel.ac.in/courses/106/105/106105184/>

Design and Developed by: Prof. Tanmaya Kumar Das &, Prof. Sasmita Mishra


Principal
PRINCIPAL
College of Engineering Bhubaneswar


H.O.D. CSE
Head
Deptt. of Comp. Sc. & Engg.
College of Engineering Bhubaneswar


Principal
College of Engineering Bhubaneswar



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NOTICE

ADD-ON/CERTIFICATE COURSE

Ref No: COEB/CSE/2020/12 ✓

Date: 05/09/2020

It is for the information of all the students of **3rd/5th/7th** semester that the classes for the Add-On/Certificate Courses for the **Academic Year 2020-21** will commence as per the time table given below in **ONLINE** Mode. The registration process for the course will start from **05/09/2020**. The interested students to enroll themselves for the course are advised to contact the concerned Course Coordinators for the details.

Semester	Course Title	Course Coordinator	Date of Commencement
3rd	Problem Solving Skills	Prof. Anugnya Pravamanjari	14/09/2020
5th	Block Chain Technology and Application	Prof. Alaka Rout	14/09/2020
7th	Data Science	Prof. Hiren Praharaj	14/09/2020

The class timing will be from **5.30 pm to 7.30 pm**.

Copy to:

1. Office of the Registrar for kind Information.
2. Office of the Principal for kind information.
3. Departmental Notice Board.
4. Guard File

Splm 5/9/20
Head of the Department

Head
Deptt. of Comp. Sc. & Engg.
College of Engineering Bhubaneswar

Splm 5/9/20
Head of the Department

Head
Deptt. of Comp. Sc. & Engg.
College of Engineering Bhubaneswar

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COLLEGE OF ENGINEERING BHUBANESWAR (COEB)
ADD-ON COURSE ENROLLMENT SHEET


ON-LINE MODE

Name of the Department: Computer Science and Engineering	
Course Title: Block Chain Technology and Application	
Semester : 5th	Academic Year: 2020-21
Duration: 40 hours	

Student's Declaration/Undertaking

1. I do hereby undertake to participate in the above mentioned add on course.
2. I do hereby, promise to abide by the admissible rules and regulations, concerning discipline, attendance, etc. of the department, and also to follow the Code of Conduct prescribed for the students of the Institute, as in force from time to time.

Sl. No.	Registration No.	Name of the Student	Remarks by the Course Coordinator
1	1801219002	ABHISHEK KUMAR MISHRA	Certified that the Enrollment Sheet is prepared by taking the consents of the students to enroll themselves in this Certificate Course (Add-On) to be conducted in Virtual Mode (ON-LINE) during the Pandemic COVID'19 through the link provided by the Department. They have also gone through the declaration/undertaking to be strictly abided by them during the course period.
2	1801219003	ABINASH PRADHAN	
3	1801219006	AMIT KUMAR	
4	1801219007	ANIL KUMAR MALIK	
5	1801219008	ANIRBAN GHOSH	
6	1801219011	ANSHUMAN SHATPATHI	
7	1801219012	ARADHANA RATH	
8	1801219013	ARCHANA PATTANAYAK	
9	1801219015	ARPITARANI SAHOO	
10	1801219017	ASHISH GAUTAM	
11	1801219020	ASHUTOSH KUMAR	
12	1801219022	AWNISH KUMAR	
13	1801219023	B. JIMMY RAJA	
14	1801219026	BHARAT KUMAR BARIK	
15	1801219027	BHISMARANJAN SAHOO	
16	1801219031	BIKASH KUMAR YADAV	
17	1801219033	BINIT KUMAR MONDAL	
18	1801219035	BISWAJIT SAHOO	
19	1801219036	BISWAJIT SAMAL	
20	1801219039	CHANDAN SASAMAL	
21	1801219041	CHINMAYA MALLIK	
22	1801219043	DEBASHIS SAHOO	
23	1801219044	DEBASIS DAS	
24	1801219045	DEBASIS JENA	
25	1801219046	DEBASISH PATRA	
26	1801219047	DEEPAK KUMAR	
27	1801219049	DIBYAJYOTI DAS	
28	1801219050	DIBYAJYOTI SWAIN	
29	1801219051	DIBYENDU SHEKHAR DAS	
30	1801219055	GUNJAN DASHMOHINI	
31	1801219056	GYANA PRAKASH SAHOO	
32	1801219058	IFTESAN NAJ	
33	1801219059	JAGADISH SAHOO	
34	1801219063	JYOTIPRAKASH SAHU	
35	1801219064	JYOTIRMAYEE MALIK	
36	1801219068	KUMAR AMAR	
37	1801219071	LIPSITA PRIYADARSHINEE	
38	1801219074	MAHIMA MILAN MOHAPATRA	
39	1801219078	MANISH TANDAN	
40	1801219080	MANSI BARIYAR	


Course Coordinator
(Signature with Seal)


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Sl. No.	Registration No.	Name of the Student	Remarks by the Course Coordinator	
41	1801219081	MANU SMRITI	<p>Certified that the Enrollment Sheet is prepared by taking the consents of the students to enroll themselves in this Certificate Course (Add-On) to be conducted in Virtual Mode (ON-LINE) during the Pandemic COVID'19 through the link provided by the Department.</p> <p>They have also gone through the declaration/undertaking to be strictly abided by them during the course period.</p>	
42	1801219083	MONALISA ROUT		
43	1801219084	MUNNA KUMAR		
44	1801219086	NEHA DASH		
45	1801219087	NEHA KUMARI		
46	1801219088	NEHRU LAL RAM		
47	1801219094	PADMALAYA SETHY		
48	1801219097	PRABHUDATTA BEHURIA		
49	1801219101	PRATIK MANSINGH		
50	1801219108	PRIYABRATA RANA		
51	1801219109	PRIYAL RAJ		
52	1801219110	PRIYANKA MOHANTY		
53	1801219111	PRIYARANJAN NAYAK		
54	1801219116	RAKESH KUMAR BEHERA		
55	1801219119	RAMESH BAG		
56	1801219120	RASMIREKHA BEHERA		
57	1801219121	ROHAN BEHERA		
58	1801219122	RUDRAKANT NAYAK		
59	1801219123	SAIPRASAD CHOUDHURY		
60	1801219129	SANJIT SHIKARI		
61	1801219131	SANTOSH KUMAR BISWAL		
62	1801219136	SATYANARAYAN OJHA		
63	1801219137	SAYON DUTTA		
64	1801219139	SHALINI		
65	1801219140	SHANAM AMBREEN SHAHAB		
66	1801219141	SHASHANK RAJ		
67	1801219142	SHREERAM PARIJA		
68	1801219144	SHUBHAM KUMAR		
69	1801219145	SIMRAN DWIBEDY		
70	1801219148	SNEHA SINHA		
71	1801219149	SOHAIL QADRI		
72	1801219151	SOUMYA KANTA PATRA		
73	1801219154	SOUMYAKANTA BISWAL		
74	1801219155	SUBHASHREE MUDULI		
75	1801219156	SUBHASHREE PARIDA		
76	1801219158	SUDHANSU SAHOO		
77	1801219159	SUJEET PATEL		
78	1801219160	SURJYAPRAKASH MANGARAJ		
79	1801219161	SUROSHREE GHOSH		
80	1801219162	SUSHIL KUMAR ROUT		
81	1801219165	SWADHIN KUMAR SAHOO		
82	1801219166	SWARAJ PATRA		
83	1801219168	SWETASHREE BADU		
84	1801219169	TAPAS BEHERA		
85	1801219175	YUGANTA KISORE DAS		

Rab

Course Coordinator
(Signature with Seal)



A. B. Singh

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COLLEGE OF ENGINEERING BHUBANESWAR (COEB)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
 ADD ON/CERTIFICATE COURSE

STUDENT ATTENDANCE SHEET

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ON-LINE MODE

Programme: **B.Tech in Computer Science and Engineering**

Semester: **5th**

Academic Year: 2020-21

Name of the Course: **Block Chain Technology and Application**

Course Code (if any):

Duration :			Remarks by the Course Coordinator (P-Present, A-Absent)										Remarks
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date 14/9/20	Date 15/20	Date 16/20	Date 18/20	Date 21/20	Date 22/20	Date 23/20	Date 24/20	Date 25/20	Date 28/20	
1	1801219002	ABHISHEK KUMAR MISHRA	P	P	P	P	P	P	P	P	P	P	Certified that this Certificate course is conducted in virtual mode (ON-LINE) because of the Pandemic COVID-19. The attendance is taken with the remarks P-Present and A-Absent for the students.
2	1801219003	ABINASH PRADHAN	P	P	P	P	A	P	P	P	P	P	
3	1801219006	AMIT KUMAR	P	P	P	P	P	P	P	A	P	P	
4	1801219007	ANIL KUMAR MALIK	P	P	P	P	P	P	P	P	P	P	
5	1801219008	ANIRBAN GHOSH	P	P	P	P	P	P	P	P	P	P	
6	1801219011	ANSHUMAN SHATPATHI	P	P	P	P	A	P	P	P	P	P	
7	1801219012	ARADHANA RATH	P	P	P	P	P	P	P	A	P	P	
8	1801219013	ARCHANA PATTANAYAK	P	P	P	P	P	P	P	P	P	P	
9	1801219015	ARPITARANI SAHOO	P	P	P	P	P	A	P	P	P	P	
10	1801219017	ASHISH GAUTAM	P	P	P	A	P	P	P	P	P	P	
11	1801219020	ASHUTOSH KUMAR	P	P	P	P	P	P	P	P	P	P	
12	1801219022	AWNISH KUMAR	P	P	P	P	P	P	P	P	P	P	
13	1801219023	B. JIMMY RAJA	P	P	P	P	P	P	P	P	P	P	
14	1801219026	BHARAT KUMAR BARIK	P	P	P	P	P	P	P	P	P	P	
15	1801219027	BHISMARANJAN SAHOO	P	P	P	A	P	P	P	P	P	P	
16	1801219031	BIKASH KUMAR YADAV	P	P	P	P	P	A	P	P	P	P	
17	1801219033	BINIT KUMAR MONDAL	P	P	P	P	P	P	P	P	P	P	
18	1801219035	BISWAJIT SAHOO	P	P	P	P	P	P	A	P	P	P	
19	1801219036	BISWAJIT SAMAL	P	P	P	P	P	P	P	P	A	P	
20	1801219039	CHANDAN SASAMAL	P	P	P	P	P	P	P	P	P	P	
21	1801219041	CHINMAYA MALLIK	P	P	P	P	P	P	P	P	A	P	
22	1801219043	DEBASHIS SAHOO	P	P	P	P	P	P	P	P	P	P	
23	1801219044	DEBASIS DAS	P	P	P	P	P	P	P	P	P	P	

Rath
 Course Coordinator
 (Signature with Seal)

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SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Remarks
24	1801219045	DEBASIS JENA	A	P	P	P	P	P	P	P	P	P	Certified that this Certificate course is conducted in virtual mode (ON-LINE) because of the Pandemic COVID-19. The attendance is taken with the remarks P-Present and A-Absent for the students.
25	1801219046	DEBASISH PATRA	P	P	A	P	P	P	P	P	P	P	
26	1801219047	DEEPAK KUMAR	P	P	P	P	A	P	P	P	P	P	
27	1801219049	DIBYAJYOTI DAS	P	P	P	P	P	P	A	P	P	P	
28	1801219050	DIBYAJYOTI SWAIN	P	P	P	P	P	P	P	P	A	P	
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30	1801219055	GUNJAN DASHMOHINI	P	P	P	P	P	P	P	P	P	P	
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35	1801219064	JYOTIRMAYEE MALIK	P	P	P	P	P	P	P	P	P	P	
36	1801219068	KUMAR AMAR	P	P	P	A	P	P	P	P	P	P	
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38	1801219074	MAHIMA MILAN MOHAPATRA	P	P	P	P	P	P	P	P	P	P	
39	1801219078	MANISH TANDAN	P	P	P	A	P	P	P	P	P	P	
40	1801219080	MANSI BARIYAR	P	P	P	P	A	P	P	P	P	P	
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49	1801219101	PRATIK MANSINGH	A	A	A	A	A	A	A	A	A	A	
50	1801219108	PRIYABRATA RANA	P	P	P	P	P	P	P	P	A	P	
51	1801219109	PRIYAL RAJ	P	P	P	P	P	P	P	P	P	A	
52	1801219110	PRIYANKA MOHANTY	P	P	P	P	P	P	A	P	P	P	
Signature of the Course Coordinator													

Course Coordinator
(Signature with Seal)

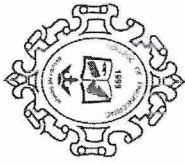
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SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Remarks
53	1801219111	PRIYARANJAN NAYAK	P	P	P	P	P	P	P	P	P	P	Certified that this Certificate course is conducted in virtual mode (ON-LINE) because of the Pandemic COVID-19. The attendance is taken with the remarks P-Present and A-Absent for the students.
54	1801219116	RAKESH KUMAR BEHERA	P	A	P	P	P	P	P	P	P	P	
55	1801219119	RAMESH BAG	P	P	P	A	P	P	P	P	P	P	
56	1801219120	RASMIREKHA BEHERA	P	P	P	P	P	A	P	P	P	P	
57	1801219121	ROHAN BEHERA	P	P	P	P	P	P	P	A	P	P	
58	1801219122	RUDRAKANT NAYAK	P	P	P	P	P	P	P	P	P	A	
59	1801219123	SAIPRASAD CHOUDHURY	P	P	P	P	P	A	P	P	P	P	
60	1801219129	SANJIT SHIKARI	P	P	P	P	P	P	P	A	P	P	
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65	1801219140	SHANAM AMBREEN SHAHAB	A	A	A	A	A	A	A	A	A	A	
66	1801219141	SHASHANK RAJ	P	P	P	P	P	P	P	P	P	P	
67	1801219142	SHREERAM PARIJA	P	P	P	P	P	P	P	P	P	P	
68	1801219144	SHUBHAM KUMAR	P	P	P	P	P	P	P	P	P	P	
69	1801219145	SIMRAN DWIBEDY	P	P	P	P	P	P	P	P	P	P	
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71	1801219149	SOHAIL QADRI	P	P	P	P	P	P	P	P	P	P	
72	1801219151	SOUMYA KANTA PATRA	P	P	P	A	P	P	P	P	P	P	
73	1801219154	SOUMYAKANTA BISWAL	P	P	P	P	P	A	P	P	P	P	
74	1801219155	SUBHASHREE MUDULI	P	P	P	P	P	P	P	A	P	P	
75	1801219156	SUBHASHREE PARIDA	P	P	P	P	P	P	A	P	P	P	
76	1801219158	SUDHANSU SAHOO	P	A	P	P	P	P	P	P	P	P	
77	1801219159	SUJEET PATEL	P	P	P	P	P	P	P	P	P	P	
78	1801219160	SURJYAPRAKASH MANGARAJ	P	P	P	A	P	P	P	P	P	P	
79	1801219161	SUROSHREE GHOSH	P	P	P	P	P	A	P	P	P	P	
80	1801219162	SUSHIL KUMAR ROUT	P	P	P	P	P	P	P	A	P	P	
81	1801219165	SWADHIN KUMAR SAHOO	A	P	P	P	P	P	A	P	P	P	
82	1801219166	SWARAJ PATRA	P	P	P	P	P	P	P	P	A	P	
83	1801219168	SWETASHREE BADU	P	P	P	A	P	P	P	P	P	P	
84	1801219169	TAPAS BEHERA	P	P	P	P	P	A	P	P	P	P	
85	1801219175	YUGANTA KISORE DAS	P	P	P	P	P	P	P	A	P	P	
Signature of the Course Coordinator			<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	<i>(Signature)</i>	

(Signature)
Course Coordinator
 (Signature with Seal)



(Signature)
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COLLEGE OF ENGINEERING BHUBANESWAR

PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024



Certificate of Completion

This is to certify that Mr./Ms. ASHUTOSH KUMAR, student of the Department

of Computer Science Engg. semester Fifth bearing registration number 1801219020

has successfully completed the ADD-ON Course titled Block Chain Technology and Application

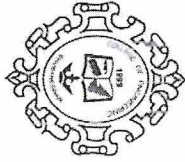
conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

Course-Coordinator

Principal

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COLLEGE OF ENGINEERING BHUBANESWAR

PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024



Certificate of Completion

This is to certify that Mr./Ms. AWNISH KUMAR, student of the Department

of Computer Science Engg. semester Fifth bearing registration number 1801219022

has successfully completed the ADD-ON Course titled Block Chain Technology and Application

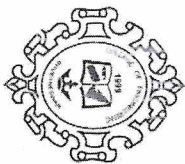
conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

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Course-Coordinator

Principal

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Certificate of Completion

This is to certify that Mr./Ms. BHARAT KUMAR BARIK, student of the Department

of Computer Science Engg. semester Fifth bearing registration number 1801219026

has successfully completed the ADD-ON Course titled Block Chain Technology and Application

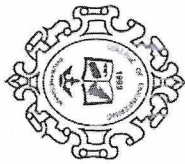
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Certificate of Completion

This is to certify that Mr./Ms. B. JIMMY RAJA student of the Department

of Computer Science Engg. semester Fifth bearing registration number 1801219023

has successfully completed the ADD-ON Course titled Block Chain Technology and Application

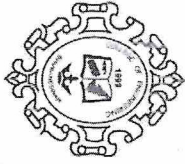
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Certificate of Completion

This is to certify that Mr./Ms. BHISMARANJAN SAHOO, student of the Department

of Computer Science Engg. semester Fifth bearing registration number 1801219027

has successfully completed the ADD-ON Course titled Block Chain Technology and Application

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