

Motilal Nehru National Institute of Technology Allahabad Prayagraj

Online GIAN course on “Designing Money in Connected World – Digital Currency and Payments Systems”

January 17 to January 21, 2022 (One Week)

Overview

For millennia, man has required a way to facilitate the exchange of goods and services and payment of debts. From metal and paper to bits and bytes, money has long been a ubiquitous feature of society. But in an increasingly virtual world in which convenience is everything, are paper and plastic still viable forms of payment? The rise of a new digital currency is only the latest step in the virtualization of money, and whether or not it gains traction, it's clear the future of your wallet lies in the cloud.

Digital currencies have many different features. They are a peer-to-peer network, a distributed public database (i.e., the block chain), an Internet protocol, a software client, and a digital (crypto) asset (i.e., token) which you can own and transfer to another party. The use cases for crypto currencies may be grouped into four major categories: (a) speculative digital asset/investment; (b) medium of exchange; (c) payment trail; and (d) non-monetary use cases. The emergence of crypto-currencies as a new method of payment has broad implications for illicit actors, consumers, the official sector, and financial institutions. There are significant risks and challenges that must be overcome before these users adopt and accept crypto-currencies to conduct financial transactions on a large scale. This adoption will require adaptation of the crypto-currency protocols to meet the requirements of each of these perspectives. In this course, we will explore the risks and challenges for the use of digital (crypto) currencies as an alternative to traditional currencies for various stakeholders.

Course Objectives

The primary objectives of the course are as follows:

1. Exposing participants of the Payment systems: Differences and relationships between digital currency and digital payment solutions.
2. Introducing the concept of Crypto currency and further discussion about data structures and algorithms to implement efficient payment mechanisms.
3. Briefly discuss social, economic and political implications, the risks and benefits to society and businesses.
4. Provide a brief review of Regulatory and Governance aspects and familiarizing the participants about various international laws and regulations for cross border payments.
5. Enhancing the capability of the participants to identify and evaluate some of the key technologies and recommendations for India to become a world leader in this area.

Learning Outcomes

After completing this course, the audience/recipients should:

1. Understand the role of money in our lives, current state of financial transactions, and inefficiencies therein. They should also understand various participants and externalities in the system.

2. Understand the difference between digital currency and digital payments, their relationship and dependencies. Understand various risks associated with digital payments and associated risk-mitigating strategies. They will also get to know the arguments for having digital implementation of one or both.
3. Understand technology implications inherent in a networked society for a payment solution. They will also learn about the current developments in algorithms and data structures influencing efficient design of payments systems. They will be exposed to Cryptography, Merkle trees, Blockchains and Distributed Ledger technology.
4. Understand economic and social implications of digital currency in the context of privacy, inclusion, transparency and governance. They will also be introduced to various regulatory challenges and devices employed by governments.
5. Understand how developments for modernizing currencies and payments have taken place in countries like India.
6. Understand some of the key technologies and their implementation and how to become pioneer in this field.

Programme Schedule

Dates:	Jan 17 th - Jan 21 st , 2022	
Location:	Online Programme using Web-conferencing system (MNNIT Allahabad)	
Course Schedule:	17 th Jan 2022	Lecture-1: 1 hr: PV: Money cycle, Currency, Payments Lecture 2: 1 hr: PV: Settlement and Clearing Lecture 3: 2 hrs: PV: Brief history of Money, transactions and payments
	18 th Jan 2022	Lecture 1: 2 hrs: PV: Cryptography, Payment systems – SWIFT, Ripple Lecture 2: 2 hrs: RT: Cryptography and Digital Mobile Payment System
	19 th Jan 2022	Lecture 1: 2 hrs: PV: Merkle Trees, Block Chains Lecture 2: 2 hrs: GPS: Blockchain and its application
	20 th Jan 2022	Lecture 1: 1 hr: PV: Bitcoin and other crypto currencies Lecture 2: 2 hrs: PV: Digital Ledger and Smart contracts Lecture 3: 1 hr: GPS: Case Study
	21 st Jan 2022	Lecture 1: 2 hrs: PV: Governance, Oversight and regulations; Cross border payments; Economic and Social implications Lecture 2: 1 hr: PV: Review submitted case study solution; Presentation by selected participants Lecture 3: 1 hr: RT: Case study
Who can attend?	<ul style="list-style-type: none"> • Professionals from both private and public sectors interested in learning about and the Digital Currency • Faculty and Researchers from various institutions and universities • Student at all levels (B.Com./B.Tech./MBA/M.Com./M.Sc./M.Tech./PhD) 	
Course Fee:	One-Time GIAN Registration: Please visit http://www.gian.iitkgp.ac.in/GREGN/ and register by paying Rs. 500/- (those who have already been paid, need not pay again). The participation fees for attending the course is as follows: Participants from abroad: US\$ 100 Industry/ Research Organizations: Rs. 1000 Academic Institutions (Faculty members): Rs. 500 Academic Institutions (Students/Research scholars): Rs. 300	

Bank Account Details:	<p>The above fee includes all instructional materials (soft copy only). Minimum 90% attendance necessary to be eligible for certificate Appearing for evaluations/examinations during the course is necessary for certificate of grades in the course.</p> <hr/> <p>The Course Participation fee is required to be deposited in the bank account mentioned below through online transfer or bank deposit; the account detail is as under: Account Name: GIAN-DMCW-2022 Account No.: 77660200001307 Bank Name: Bank of Baroda Branch: MNNIT Allahabad U.P. India IFSC Code: BARBOVJMNRE Last Date of Registration: January 14, 2022</p>
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International Expert:



Prof. Prabhat Vaish, (Professor of Practice, Informatics, New Jersey Institute of Technology, New Jersey, USA) is a Senior Technology Executive, Innovation and business change champion with a demonstrated track record of developing disruptive technologies, implementing emerging IT solutions, and optimizing the use of legacy systems to create a competitive market advantage, expand capabilities, and strengthen governance, risk and compliance. He is Global technology strategy leader with extensive experience in the development of financial services risk and trading products. He blends a strategic perspective with detail-oriented tactical approach to manage costs, enhance productivity, and revenue growth. He is a strong consensus builder with a deep business understanding and extensive IT product knowledge. His key strengths are: Strategic Planning, Global Team Leadership, Governance, Project Management, FX, Rates, Equity & Credit Derivatives, Trading & Risk Systems, Basel II, SOX, DFA, CCAR, Cloud Computing, Big Data/Analytics, Machine Learning, Product Development, Java, Python, R, TensorFlow and related areas.

Host Faculty:



Prof. Rajeev Tripathi completed his B. Tech. in 1986, M. Tech. in 1992 and PhD in 1998 from the University of Allahabad. He joined MNNIT Allahabad as a faculty member in 1988 and is currently a Professor since 2005. He was faculty member at The University of The West Indies, St. Augustine, Trinidad (WI) from 2002 to 2004. He was Visiting Faculty at School of Engineering Liverpool John Moores University U.K. in the year 1998 and 1999. Besides vast teaching and research experience of around 30 years, he also has a vast administrative experience at MNNIT Allahabad. He worked as Vice-President Gymkhana from 1998 to 2000, Faculty In charge Communications from 1996 to 2013, Coordinator, Quality Improvement Program (QIP) from 2005 to 2016, Chairman, Senate Post Graduate Committee from 2005 to 2009, Dean, Academic Affairs from 2009 to 2011, Head, Department of Electronics and Communication Engineering from 2011 to 2013, and Professor In charge, Training and Placement from 2011 to 2016.

Prof. Tripathi has made pioneering research contributions and has solved a number of open problems. He has published more than 160 papers in international journals and conferences of repute and supervised nineteen Ph.D. students. He has worked closely with Government as well as industry on various problems and has successfully led and completed large projects and programmes at

national and international levels. Important among them include sponsored project by Govt. of India and British Govt. under Indo-UK Science and Technology Research Fund and project sponsored by Ministry of Human Resource Development, Government of India. He is a well-known teacher and mentor who has not only graduated a large number of students and developed well appreciated teaching modules but has also motivated and mentored many students' innovation and entrepreneurial activities which have achieved unique successes.

Prof. Tripathi has pioneered personnel and Institute level research collaboration with foreign universities and visited several countries in this regard. Important among them include Liverpool John Moores University, Liverpool, U.K., The University of The West Indies, St. Augustine, Trinidad (WI), Barbados campus of University of West Indies, Moncton New Brunswick, Canada, University of Waterloo (UoW), Waterloo, Canada, Spain, U.S.A., etc.

Prof. Tripathi worked as reviewer of many international journals including IEEE Communication Letters, Adhoc Networks, Elsevier, Wireless Personal Communication Springer, International Journal of Electronics, Taylor and Francis, IETE Journal of Research, Taylor and Francis and West Indian Journal of Engineering. He has organized many international conferences in the capacity of conference chair and co-chair and served as program committee of several international conferences of repute in the area of wireless communication and networking. Prof. Tripathi is a senior member of IEEE, USA, Life Fellow of Institution of Electronics & Telecommunication Engineers (IETE), India, Life Member of Institution of Engineers (IE), India, Life Member of Indian Society of Technical Education (ISTE), India and Life Member of Indian Institute of Public Administration (IIPA), India.



Prof. G. P. Sahu is Professor and former Head, School of Management Studies, Motilal Nehru National Institute of Technology Allahabad, India. He has more than 23 years of teaching and research experience. He completed his one-year Post-Doctoral Fellowship program from California State University Monterey Bay, California, US and PhD in Management from Indian Institute of Technology Delhi, India. His research interests are in the areas of MIS, E-governance, Green Information Systems, Digital Marketing, etc. Prof. Sahu has published around 90 research papers in international journals and conferences. He has coordinated a few international conferences. He has edited nine books in the area of MIS and E-governance. Prof. Sahu has acted as a reviewer for many international journals. He is also a Guest Editor with International Journal of Electronic Governance. Prof. Sahu is Chairperson of Special Interest Group on E-Governance, Computer Society of India; he has been on the jury for the CSI-Nihilent E- governance National Awards, India.

Contact:

Coordinator	Co-Coordinator and Local Coordinator, GIAN
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