



(<https://swayam.gov.in/>)



(https://swayam.gov.in/nc_details/NPTEL)

About Swayam (<https://swayam.gov.in/about>) | All Courses | SIGN-IN / REGISTER

Courses (<https://swayam.gov.in/explorer>) >

Introduction To Internet Of Things

By Prof. Sudip Misra | IIT Kharagpur

Learners enrolled: 35738

Prof Sudip Misra




Internet of Things (IoT) is presently a hot technology worldwide. Government, academia, and industry are involved in different aspects of research, implementation, and business with IoT. IoT cuts across different application domain verticals ranging from civilian to defence sectors. These domains include agriculture, space, healthcare, manufacturing, construction, water, and mining, which are presently transitioning their legacy infrastructure to support IoT. Today it is possible to envision pervasive connectivity, storage, and computation, which, in turn, gives rise to building different IoT solutions. IoT-based applications such as innovative shopping system, infrastructure management in both urban and rural areas, remote health monitoring and emergency notification systems, and transportation systems, are gradually relying on IoT based systems. Therefore, it is very important to learn the fundamentals of this emerging technology.

INTENDED AUDIENCE : CSE, IT, ECE, EE, Instrumentation Engg, Industrial Engineering

PREREQUISITES : Basic programming knowledge

Summary

[Handwritten Signature]
PRINCIPAL
G. Narayanamma Institute of
Technology
Shri...

| | | |
|-------------------|--|---|
| Course Status : | Completed (https://swayam.gov.in/) |  (https://swayam.gov.in/nc_details/NPTEL) |
| Course Type : | Elective | |
| Duration : | About Swayam (https://swayam.gov.in/about) All Courses | 0 |
| Category : | <ul style="list-style-type: none"> ◦ Computer Science and Engineering ◦ Systems ◦ Programming | |
| Credit Points : | 3 | |
| Level : | Undergraduate | |
| Start Date : | 24 Jan 2022 | |
| End Date : | 15 Apr 2022 | |
| Enrollment Ends : | 07 Feb 2022 | |
| Exam Date : | 23 Apr 2022 IST | |

Note: This exam date is subjected to change based on seat availability. You can check final exam date on your hall ticket.

This is an AICTE approved FDP course

([/#facebook](#))

([/#twitter](#))

([/#email](#))

([/#linkedin](#))

([/#whatsapp](#))


(https://www.addtoany.com/share?url=https%3A%2F%2Fonlinecourses.nptel.ac.in%2Fnoc22_cs53%2Fpreview&title=Introduction%20To%20Internet%20of%20Things%20-%20Course)

Course layout

- Week 1:** Introduction to IoT: Part I, Part II, Sensing, Actuation, Basics of Networking: Part-I
- Week 2:** Basics of Networking: Part-II, Part III, Part IV, Communication Protocols: Part I, Part II
- Week 3:** Communication Protocols: Part III, Part IV, Part V, Sensor Networks: Part I, Part II
- Week 4:** Sensor Networks: Part III, Part IV, Part V, Part VI, Machine-to-Machine Communications
- Week 5:** Interoperability in IoT, Introduction to Arduino Programming: Part I, Part II, Integration of Sensors and Actuators with Arduino: Part I, Part II
- Week 6:** Introduction to Python programming, Introduction to Raspberry Pi, Implementation of IoT with Raspberry Pi
- Week 7:** Implementation of IoT with Raspberry Pi (contd), Introduction to SDN, SDN for IoT
- Week 8:** SDN for IoT (contd), Data Handling and Analytics, Cloud Computing
- Week 9:** Cloud Computing(contd), Sensor-Cloud
- Week 10:** Fog Computing, Smart Cities and Smart Homes
- Week 11:** Connected Vehicles, Smart Grid, Industrial IoT
- Week 12:** Industrial IoT (contd), Case Study: Agriculture, Healthcare, Activity Monitoring

Books and references

- 1) S. Misra, A. Mukherjee, and A. Roy, 2020. *Introduction to IoT*. Cambridge University Press.


 PRINCIPAL
 G. Narayanan, Head of Centre
 Technology Education, IIT
 Shillong, India - 793 018

- Availability: https://www.swayam.gov.in/courses/Introduction-To-Sudip-Misra/dp/1108959741/ref=sr_1_1?dchild=1&keywords=sudip+misra&qid=1627359971&sr=8-1
- 2) S. Misra, C. Roy, and A. Mukherjee, 2020, *Introduction to Industrial Internet of Things and Industry 4.0*. CRC Press. (Availability: https://www.amazon.in/dp/1032146753/ref=sr_1_3?dchild=1&keywords=sudip+misra&qid=1627359971&sr=8-3)
- 3) Research Papers

Instructor bio



Prof. Sudip Misra

IIT Kharagpur

Dr. Sudip Misra is a Professor in the Department of Computer Science and Engineering at the Indian Institute of Technology Kharagpur. Prior to this he was associated with Cornell University (USA), Yale University (USA), Nortel Networks (Canada) and the Government of Ontario (Canada). He received his Ph.D. degree in Computer Science from Carleton University, in Ottawa, Canada. He has several years of experience working in the academia, government, and the private sectors in research, teaching, consulting, project management, architecture, software design and product engineering roles. His current research interests include Wireless Ad Hoc and Sensor Networks, Internet of Things (IoT), Computer Networks, Learning Systems, and algorithm design for emerging communication networks. Dr. Misra is the author of over 260 scholarly research papers, including 140+ reputed journal papers. He has won seven research paper awards in different conferences. Recently, he and his students won Samsung Innovation Award and the IEEE ComSoc Student Competition. He was awarded the fellow of NASI. He was also awarded the IEEE ComSoc Asia Pacific Outstanding Young Researcher Award at IEEE GLOBECOM 2012, Anaheim, California, USA. He was also the recipient of several academic awards and fellowships such as the Young Scientist Award (National Academy of Sciences, India), Young Systems Scientist Award (Systems Society of India), Young Engineers Award (Institution of Engineers, India), (Canadian) Governor General's Academic Gold Medal at Carleton University, the University Outstanding Graduate Student Award in the Doctoral level at Carleton University and the National Academy of Sciences, India - Swarna Jayanti Puraskar (Golden Jubilee Award). Dr. Misra was also awarded the Canadian Government's prestigious NSERC Post-Doctoral Fellowship and the Humboldt Research Fellowship in Germany. Dr. Misra has been serving the editorial boards of distinguished journals such as the Transactions on Vehicular Technology, Transactions on Mobile Computing, International Journal of Communication Systems (Wiley) and the IET Wireless Sensor Systems (UK). In the past, he served as the Associate Editor/Editorial Board Member of the Telecommunication Systems Journal (Springer), Security and Communication Networks Journal (Wiley), and the EURASIP Journal of Wireless Communications and Networking, IET Communications Journal, and the Computers and Electrical Engineering Journal (Elsevier). Dr. Misra has published 10 books in the areas of wireless ad hoc networks, wireless sensor networks, wireless mesh networks, communication networks and distributed systems, network reliability and fault tolerance, and information and coding theory, published by reputed publishers such as Cambridge University Press, Springer, Wiley, and World Scientific.

Course certificate

The course is free to enroll and learn from. But if you want a certificate, you have to register and write the proctored exam conducted by us in person at any of the designated exam centres.

The exam is optional for a fee of Rs 1000/- (Rupees one thousand only).

Date and Time of Exams: **23 April 2022** Morning session 9am to 12 noon; Afternoon Session 2pm to 5pm.

Registration url: Announcements will be made when the registration form is open for registrations.

The online registration form has to be filled and the certification exam fee needs to be paid. More details will be made available when the exam registration form is published. If there are any changes, it will be mentioned then.

[Handwritten signature]

PRINCIPAL

G. Narayanaswami Institute of Technology
Shailputur, Tumkur - 572104