

Dr.AMBEDKAR INSTITUTE OF TECHNOLOGY
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

The Enclosed documents are verified and approved



HOD,ISE
HEAD

Dept. of Information Science & Engg.
Dr. Ambedkar Institute of Technology
Bangalore-560 099.

**Dr. Ambedkar Institute of Technology
Bangalore**



B.E

Department Of Information Science and Engineering

VALUE ADDED COURSES (MOOC CERTIFICATES)

Sl.NO	Student Name	NPTEL COURSE/Coursara	DURATION
1	MAHENDRA R	Cryptography and Network Security	Jan-Apr 2021
2	Prajwal K	Cryptography and Network Security	Jan-Apr 2021
3	Rakshitraj N	Machine Learning for all	32 Hours Nov 2022
4	Shama Ponnappa A	Programming, Data Structures And Algorithms Using Python	Jul-Sept 2021
5	Nayana K N	Python for Data Science	Jan-feb 2020
6	Rakshit R	Python for Data Science	Jan-feb 2020
7	Mahantesh H	Python for Data Science	Jan-feb 2020
8	Sahana P V	Python for Data Science	Jan-feb 2020
9	Shitanshu Ranjan srivastav	Python for Data Science	Jan-feb 2020
10	Sukesh M	Python for Data Science	Jan-feb 2020
11	Rahul Ranjan	Python for Data Science	Jan-feb 2020
12	Shreyas M	Python for Data Science	Jan-feb 2020
13	Priyanka D Hosmani	Python for Data Science	Jan-feb 2020
14	Sujith S	Python for Data Science	Jan-feb 2020
15	Surya C	Python for Data Science	Jan-feb 2020
16	Pranjal	Python for Data Science	Jan-feb 2020

Subject Name: Cryptography and Network Security

Course layout

Week 1: Introduction to cryptography, Classical Cryptosystem, Block Cipher.

Week 2: Data Encryption Standard (DES), Triple DES, Modes of Operation, Stream Cipher.

Week 3: LFSR based Stream Cipher, Mathematical background, Abstract algebra, Number Theory.

Week 4: Modular Inverse, Extended Euclid Algorithm, Fermat's Little Theorem, Euler Phi-Function, Euler's theorem.

Week 5: Advanced Encryption Standard (AES), Introduction to Public Key Cryptosystem, Diffie-Hellman Key Exchange, Knapsack Cryptosystem, RSA Cryptosystem.

Week 6: Primarily Testing, ElGamal Cryptosystem, Elliptic Curve over the Reals, Elliptic curve Modulo a Prime.

Week 7: Generalized ElGamal Public Key Cryptosystem, Rabin Cryptosystem.

Week 8 : Message Authentication, Digital Signature, Key Management, Key Exchange, Hash Function.

Week 9 : Cryptographic Hash Function, Secure Hash Algorithm (SHA), Digital Signature Standard (DSS).

Week 10: Cryptanalysis, Time-Memory Trade-off Attack, Differential and Linear Cryptanalysis.

Week 11: Cryptanalysis on Stream Cipher, Modern Stream Ciphers, Shamir's secret sharing and BE, Identity-based Encryption (IBE), Attribute-based Encryption (ABE).

Week 12: Side-channel attack, The Secure Sockets Layer (SSL), Pretty Good Privacy (PGP), Introduction to Quantum Cryptography, Blockchain, Bitcoin and Cryptocurrency.

Instructor bio



Prof. Sourav Mukhopadhyay

IIT Kharagpur

Sourav Mukhopadhyay is an Associate Professor, Department of Mathematics at Indian Institute of Technology Kharagpur. He has completed his B.Sc (Honours in Mathematics) in 1997 from University of Calcutta, India. He has done M.Stat (in statistics) and M.Tech (in computer science) from Indian Statistical Institute, India, in 1999 and 2001 respectively. He worked with Cryptology Research Group at Indian Statistical Institute as a PhD student and received his Ph.D. degree in Computer Science from there in 2007. He was a Research Assistant at the Computer Science department of School of Computing, National University of Singapore (NUS). He visited Inria Rocquencourt, project CODES, France and worked as a post-doctoral research fellows at the School of Computer Engineering, Nanyang Technological University (NTU), Singapore. He was a post-doctoral research fellows and a part time Lecturer with School of Electronic Engineering, Dublin City University (DCU), Ireland.

Subject Name: Programming, Data Structures And Algorithms

Using Python

COURSE PLAN :

Week 01 : Informal introduction to programming, algorithms and data structures via gcd, Downloading and installing Python, gcd in Python: variables, operations, control flow - assignments, condition-als, loops, functions.

Week 02 : Python: types, expressions, strings, lists, tuples | Python memory model: names, mutable and immutable values | List operations: slices etc| Binary search | Inductive function definitions: numerical and structural induction | Elementary inductive sorting: selection and insertion sort | In-place sorting.

Week 03 : Basic algorithmic analysis: input size, asymptotic, complexity, $O()$ notation | Arrays vs lists | Merge sort | Quicksort | Stable sorting.

Week 04 : Dictionaries | More on Python functions: optional arguments, default values | Passing functions as arguments | Higher order functions on lists: map, lter, list comprehension. Week 05 : Exception handling | Basic input/output | Handling files | String processing.

Week 06 : Backtracking: N Queens, recording all solutions | Scope in Python: local, global, nonlocal names | Nested functions | Data structures: stack, queue | Heaps.

Week 07 : Abstract datatypes | Classes and objects in Python | "Linked" lists: find, insert, delete | Binary search trees: find, insert, delete | Height-balanced binary search trees.

Week 08 : Efficient evaluation of recursive definitions: memoization | Dynamic programming: examples | Other programming languages: C and manual memory management | Other programming paradigms: functional programming.

ABOUT INSTRUCTOR : Prof. Madhavan Mukund studied at IIT Bombay (B.Tech) and Aarhus University (PhD). He has been a faculty member at Chennai Mathematical Institute since 1992, where he is presently Professor and Dean of Studies. His main research area is formal verification. In addition to the NPTEL MOOC programme, he has been involved in organizing IARCS Instructional Courses for college teachers. He is a member of ACM India's Education Committee. He has contributed lectures on algorithms to the Massively Empowered Classroom (MEC) project of Microsoft Research and the QEEE programme of MHRD.

Subject Name: Python for Data Science

Course layout

Week 1:

•BASICS OF PYTHON SPYDER (TOOL)

- Introduction Spyder
- Setting working Directory
- Creating and saving a script file
- File execution, clearing console, removing variables from environment, clearing environment
- Commenting script files
- Variable creation
- Arithmetic and logical operators
- Data types and associated operations

Week 2:

Sequence data types and associated operations

- Strings
- Lists
- Arrays
- Tuples
- Dictionary
- Sets
- Range

NumPy

- ndarray

Week 3:

•Pandas dataframe and dataframe related operations on Toyota Corolla dataset

1. Reading files
2. Exploratory data analysis
3. Data preparation and preprocessing

•Data visualization on Toyoto Corolla dataset using matplotlib and seaborn libraries

1. Scatter plot
2. Line plot
3. Bar plot

4. Histogram
5. Box plot
6. Pair plot

•**Control structures using Toyota Corolla dataset**

1. if-else family
2. for loop
3. for loop with if break
4. while loop

•**Functions**

Week 4: CASE STUDY

•**Regression**

1. Predicting price of pre-owned cars

•**Classification**

1. Classifying personal income

Instructor bio



Prof. Ragnathan Rengasamy

IIT Madras

Prior to joining IIT Madras as a professor, Prof.Rengaswamy was a professor of Chemical Engineering and Co-Director of the Process Control and Optimization Consortium at Texas Tech University, Lubbock, USA. He was also a professor and associate professor at Clarkson University, USA and an assistant professor at IIT Bombay. His major research interests are in the areas of fault detection and diagnosis and development of data science algorithms for manufacturing industries.

NPTEL COURSE ON CRYPTOGRAPHY AND NETWORK SECURITY

Course Abstract:

The aim of this course is to introduce the student to the areas of cryptography and cryptanalysis. This course develops a basic understanding of the algorithms used to protect users online and to understand some of the design choices behind these algorithms. Our aim is to develop a workable knowledge of the mathematics used in cryptology in this course. The course emphasizes to give basic understanding of previous attacks on cryptosystems with the aim of preventing future attacks. A wide variety of basic cryptographic primitives will be discussed along with recent developments in some advanced topics like identify-based encryption, attribute-based encryption, two-party/multi-party computation, bitcoin and cryptocurrency and postquantum cryptography. The cryptanalysis part will help us to understanding challenges for cybersecurity that includes network security, data security, cloud security, data security, cloud security and endpoint security.

Course layout:

This is 12 weeks certification course under the category of computer science and engineering systems. This is an AICTE approved FDP course.

This course majorly covers introduction to cryptography and classifications, introduction about block cipher, Data Encryption Standard (DES), Advance Encryption Standard (AES), ELG cryptosystem, cryptographic hash functions, blockchain, bitcoin and Cryptocurrency, digital signature etc.

Course Outcome:

The cryptography and cryptanalysis part will help us to understanding

1. Data Encryption and Data decryption
2. Data security
3. Network security
4. Cryptocurrency
5. Cloud security and endpoint security
6. Mobile security
7. Blockchain
8. Bitcoin

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL21CS16523235667
To
MAHENDRA R
INTURAYANAHALLI
VALLUR POST
PAVAGADA, TUMKURU
KARNATAKA - 572136
PH. NO :9832572843



Score	Type of Certificate
≥ 90	Elite+Gold
75-89	Elite+Silver
≥ 60	Elite
40-59	Successfully Completed
< 40	No Certificate

No. of credits recommended by NPTEL-3

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



Elite
NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to
MAHENDRA R
for successfully completing the course

Cryptography and Network Security

with a consolidated score of **68** %

Online Assignments	23.44/25	Proctored Exam	45/75
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Total number of candidates certified in this course: 279


Prof. G P Raja Sekhar
Dean, Continuing Education
IIT Kharagpur

Jan-Apr 2021
(12 week course)


Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur



Indian Institute of Technology Kharagpur



Roll No: NPTEL21CS16523235667

To validate and check scores: <https://nptel.ac.in/noc/>

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL21CS16S23235664

To
PRAJWAL K
#575, SHIVA NILAYA
NEAR GOVT SCHOOL, VEERSANDRA
BANGLORE
KARNATAKA - 560100
PH. NO : 776665106

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate



No. of credits recommended by NPTEL:3

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

PRAJWAL K

for successfully completing the course

Cryptography and Network Security

with a consolidated score of **60** %

Online Assignments	23.44/25	Proctored Exam	37/75
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Total number of candidates certified in this course: 279


Prof. G P Raja Sekhar
Dean, Continuing Education
IIT Kharagpur

Jan-Apr 2021
(12 week course)


Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur



Indian Institute of Technology Kharagpur



Roll No NPTEL21CS16S23235664

To validate and check scores: <https://nptel.ac.in/noc/>

COURSE – 1

Coursera – Machine Learning for All

1. COURSE OBJECTIVE

In this course we learnt to understand the basic idea of machine learning, even if we don't have any background in math or programming. Not only that, we will get hands on and use user friendly tools developed at Goldsmiths, University of London to actually do a machine learning project: training a computer to recognise images.

2. HIGHLIGHTS OF THE COURSE

- Understand the basic of how modern machine learning technologies work
- Able to explain and predict how data affects the results of machine learning
- Able to use a non-programming based platform train a machine learning module using a dataset
- Able to form an informed opinion on the benefits and dangers of machine learning to society. Terminal based programming applications using Python.

CERTIFICATE

3. COURSE LOCATION

Mode of Conduct: Online

Duration: 32 hours

Date of completion: November 2 2021

Target Group: Self

4. TOPICS COVERED

1. Basic Terminologies of Machine Learning
2. About Data
3. Data Collection and cleaning
4. Basic Models of Machine Learning
5. Types Of learning
6. Supervised Learning
7. Unsupervised Learning
8. Reinforcement Learning
9. Practical understanding of model
10. Implementing With sample Dataset

5. CERTIFICATE



6. OUTCOME OF THE COURSE

In this course we learnt to understand the basic idea of machine learning, even if we don't have any background in math or programming. Not only that, we will get hands on and use user friendly tools developed at Goldsmiths, University of London to actually do a machine learning project: training a computer to recognise images.

COURSE – 2

The Fundamentals of digital marketing

1. COURSE OBJECTIVE

The fundamentals of digital marketing is the course which I have completed on March 2022. The objective of the course is to learn skills to acquire customers and drive your business growth in the digital realm.

2. HIGHLIGHTS OF THE COURSE .

The program enables you with the digital marketing skills to acquire customers and drive your business growth in the digital realm.

You will also be equipped with the necessary skills and competencies to embark on a digital marketing career based on your choice. You will be able to apply for the following entry-level digital marketing roles:

- Digital Marketing Executive/Digital Marketing Specialist
- Brand Marketing Executive/Brand Marketing Associate/Specialist
- Social Media Marketing Executive/Social Media Analyst
- SEO Executive/SEO Specialist

3. COURSE LOCATION

Mode of Conduct: Online

Duration: 32 hours

Date of completion: March 24, 2022

Target Group: Self

4. TOPICS COVERED

- Structure marketing problem
- Creation of website
- Creation of audio-visual content for owned media and marketing channels
- Make Google work for you through the right keyword identification and SEO optimization (both On-Page and Off-Page)
- Social Media Marketing including Facebook, Instagram, Twitter, LinkedIn, and Pinterest
- Paid search engine marketing including Google campaigns, bidding strategies, YouTube videos, ROI Optimization
- Leverage e-commerce through setting up and promoting store in Amazon and other ecommerce platforms, including online sales, inventory, and ROI optimization
- Design and launch email campaign.

I. NPTEL COURSE ON PROGRAMMING, DATA STRUCTURES AND ALGORITHM USING PYTHON

Course Abstract:

This course is an introduction to programming and problem solving in Python. It does not assume any prior knowledge of programming. Using some motivating examples, the course quickly builds up basic concepts such as conditionals, loops, functions, lists, strings and tuples. It goes on to cover searching and sorting algorithms, dynamic programming and backtracking, as well as topics such as exception handling and using files. As far as data structures are concerned, the course covers Python dictionaries as well as classes and objects for defining user defined data types such as linked lists and binary search trees.

Final Score Calculation Logic:

- Assignment Score = 12.5% of Best 4 out of 5 quizzes + 12.5% of best 4 out of 5 Programming assignments
- Final Score(Score on Certificate)= 45% of Exam Score + 30% of online test + 25% of Assignment Score.
- NOTE: A6,A7,A8,A9,A10 are Programming assignments

Legend:

≥ 90 - Elite + Gold

60-89 - Elite

40-59 - Successfully Completed

< 40 - No Certificate

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL21CS67523191683

To
SHAMA PONNAPPA A
12B, 4TH CROSS, 3RD STAGE,
VINAYAKA LAYOUT, VIJAYANAGAR
BENGALURU
KARNATAKA - 560040
PH. NO :9448440495

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate



No. of credits recommended by NPTEL:2

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

SHAMA PONNAPPA A

for successfully completing the course

Programming, Data Structures And Algorithms Using Python

with a consolidated score of **71** %

Online Assignments	25/25	Programming Exam	25/25	Proctored Exam	20.52/50
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Total number of candidates certified in this course: 1199

Devendra Jalihal

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jul-Sep 2021
(8 week course)

Andrew Thangaraj
Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



Roll No: NPTEL21CS67523191683

To validate and check scores <https://nptel.ac.in/noc/>

NPTEL COURSE ON PYTHON FOR DATA SCIENCE

Course Abstract:

The course aims at equipping participants to be able to use python programming for solving data science problems. In this course participants are going to know the data science importance, analysis process and data visualization tools such as scatter plot, line plot, bar plot, histogram etc. Python is widely used to solve data science problems because it consists of several built-in functions and algorithms. In this course participants are going to know sequence data types and associated operation, NumPy and dataframes.

Course layout:

This is a 4 weeks certification course under the category of computer science and engineering systems. This is an AICTE approved FDP course.

This course majorly covers data science tools, basics of python spyder, setting spyder environment and basic operations performed in spyder such as creating and saving a script file, file execution, clearing console, removing variable from environment, Arithmetic and logical operations.

Basic sequence data types of python such as strings, lists, arrays, tuples dictionary and NumPy library. NumPy is used for mathematical operations on data.

Course outcome:

During the course we did a case study on “Predicting price of pre-owned cars using Linear Regression. Linear regression is a linear approach for modeling the relationship between a scalar response and one or more explanatory variables.

And a case study “classifying personal income” using the classification. Classification is categorizing something into a certain group or system based on certain characteristics.

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20CS3651435070

To
NAYANA K N
#25, SRI VENKATESHWARA NILAYA, 12TH CROSS
KARANJIKATTE, NEAR BABA SCHOOL KOLAR
KOLAR
KARNATAKA-563101
PH. NO :6361908896



No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

NAYANA K N

for passing the course

Python for Data Science

with Score* 72 %

Covid-19
impacted
January 2020
semester

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores <https://nptel.ac.in/noc>

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20CS36S1218198

To
RAKSHITH R
#2076,2ND FLOOR,30TH CROSS,60 FEET
ROAD,D GROUP LAYOUT
NAGARBHAVI 2ND STAGE
BANGALORE URBAN DISTRICT
KARNATAKA - 560091
PH. NO :9900248238



No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

RAKSHITH R

for passing the course

Python for Data Science

with Score* **87** %



Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores <https://nptel.ac.in/noc/>

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20CS36S1215369

To
MAHANTHESHA H
ANNEHALL BHOVICOLNY ANNEHALL (P)
CHITRADURGA TD
VILLAGE
CHITRADURGA
KARNATAKA - 577555
PH. NO :7892469924



No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to
MAHANTHESHA H
for passing the course

Python for Data Science

with Score* 73 %



Devendra Jalihal

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Prof. Andrew Thangaraj

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores: <https://nptel.ac.in/noc/>

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Roll No: NPTEL20CS3651306250

To
SAHANA P V
#422, I T I LAYOUT 3RD PHASE, OPPOSITE
TO RAJARAJESHWARI ARCH, 1ST MAIN ROAD
BANGALORE
BANGALORE URBAN DISTRICT
KARNATAKA - 560039
PH. NO :6362207852



No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

SAHANA P V

for passing the course

Python for Data Science

with Score* **90** %

Covid-19
impacted
January 2020
semester

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores: <https://nptel.ac.in/noc>

Activity

MOOC courses

Picture

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20CS3651361395
To SHITANSHU RANJAN SRIVASTAV
214RADIANT REDWOOD APARTMENT, BEGUR
KOPPA ROAD, YELLENAHALLI
BANGALURU
BANGALORE URBAN DISTRICT
KARNATAKA - 560068
PH. NO :7483950019



No. of credits recommended by NPTEL:1
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to
SHITANSHU RANJAN SRIVASTAV
for passing the course
Python for Data Science



with Score* 92 %

Devendra Jalihal
Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Andrew Thangaraj
Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores: <https://nptel.ac.in/noc/>

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20CS3651346881

To
SUKESH M
#64,3RD CROSS, 5TH BLOCK NEAR KLE
COLLAGE,NAGARABHAVI 2ND STAGE
BANGALORE
BANGALORE URBAN DISTRICT
KARNATAKA - 560072
PH. NO :8660986258



No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

SUKESH M

for passing the course

Python for Data Science

with Score* 82 %

Covid-19
Impacted
January 2020
semester

Devendra Jalihal

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Prof. Andrew Thangaraj

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores, <https://nptel.ac.in/noc/>

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Roll No: NPTEL20CS36S1888023
To RAHUL RAJAN
582, 12TH MAIN KENGUNTE, MALLATHALLI
LAKE ROAD
BANGALORE
BANGALORE URBAN DISTRICT
KARNATAKA - 560056
PH. NO :9549882198



No. of credits recommended by NPTEL:1
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

RAHUL RAJAN

for passing the course

Python for Data Science

with Score* 59 %



Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores: <https://nptel.ac.in/noc>

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20CS36S1334763

To
SHREYAS M
#5212,20TH MAIN , 1ST A
CROSS, MARENAHALLI, VIJAYNAGAR
BENGALURU
BANGALORE URBAN DISTRICT
KARNATAKA - 560040
PH. NO :9066722406



No. of credits recommended by NPTEL:1
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

SHREYAS M

for passing the course

Python for Data Science

with Score* **72 %**



Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



*Continuous online assessment score

To validate and check scores: <https://nptel.ac.in/noc>

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20CS3651320849
To
PRIYANKA D HOSMANI
45,2ND MAIN ROAD,3RD STAGE,3RD BLOCK,
BASVESHWAR NAGAR,BANGALORE 79
BANGALORE
CHIKMAGALUR
KARNATAKA - 560079
PH. NO :6363043832



No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to
PRIYANKA D HOSMANI
for passing the course

Python for Data Science

with Score* 90 %

Devendra Jalihal

Prof. Devendra Jalihal

Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020

(4 week course)

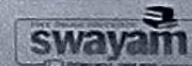
Prof. Andrew Thangaraj

Prof. Andrew Thangaraj

NPTEL Coordinator
IIT Madras



Indian Institute of Technology Madras



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Prof. Devendra Jalihal
Chairman
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Jan-Feb 2020
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Devendra Jalihal

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Feb 2020
(4 week course)

Andrew Thangaraj

Prof. Andrew Thangaraj
NPTEL Coordinator
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with Credit **3.0**

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Registration Number: **19010101010101010101**

Grade: **B**

[Signature]
Prof. Anand Chandra
Head of Department
Department of Computer Science
NIT Hyderabad



National Institute of Technology, Gandhinagar, Hyderabad

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