



ATMA MALIK INSTITUTE OF TECHNOLOGY AND RESEARCH (AMRIT)

Mohili-Aghai, Shahapur, Thane, Maharashtra, India. Pincode: 421603
Contact: +91 7720012139 / +91 9552773875, info@vishwatmakengg.in

Key Indicator -1.2 Academic Flexibility

Sub criteria 1.2.2. Number of Add on/ Certificate programs offered during the year.

1.2.3.1 Number of students enrolled in subject related Certificate or Add-on programs during the year

1. No. of Certificate/Add-on/Value added programs

No. of Certificate/Add-on/Value added Programs		
Sr. No.	Name of Add on Course	Total
1	ADD On course on "Data Science with Machine Learning"	03
2	NPTEL Course on VLSI Design Flow: RTL to GDS	
3	Workshop on "Introducing Solid Works"	

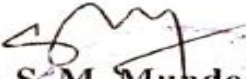
2. Number of students enrolled in subject related Certificate or Add-on programs during the year

Number of students enrolled in subject related Certificate or Add-on programs during the year		
Sr. No.	Name of Add on Course	Number of students enrolled
1	ADD On course on "Data Science with Machine Learning"	60
2	NPTEL Course on VLSI Design Flow: RTL to GDS	11
3	Workshop on "Introducing Solid Works"	41
Total Number of students enrolled in subject related Certificate or Add-on programs during the year		112

3. Link of relevant documents

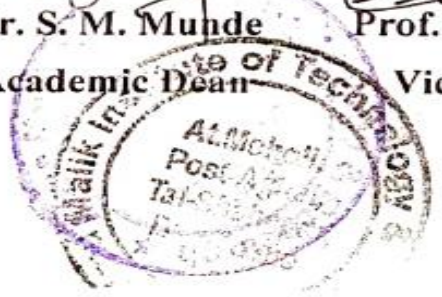
Use the following link for documents of all types of Certificate/Add-on/ Value added Programs.

Sr. No.	Description
1	Supporting Document for Certificate/ Add-on/Value added Programs


Dr. S. M. Munde
Academic Dean


Prof. G. E. Chavan
Vice-Principal


Dr. D. D. Shinde
Principal


Atma Malik Institute of Technology
Al. Moholi, Dist. Solapur



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A COMPLETE INDUSTRIAL TRAINING ON

DATA SCIENCE

with Machine Learning

Turning what is unknown into what is known is
the power of Machine Learning

MITU SKILLOLOGIES

Second Floor, Ratnatara Complex,
Kranti Chowk, Navi Sangvi,
Pimpri Chinchwad, Maharashtra
411 027

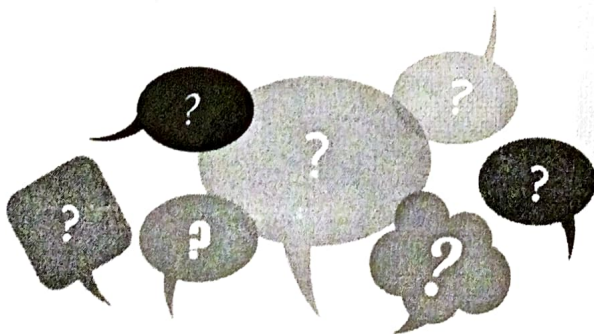


PREREQUISITES

Requirements are...

There are NO special prerequisites required for Data Science and Machine Learning training. However, the knowledge of the following will make it easier:

- Basic Mathematics
- Simple Statistics
- Knowledge of programming language
- Business domain knowledge



PROGRAM MODULES

This we learn...

- Python Programming
- Data Science Basics
- Data Science Pre-processing
- Data Analytics Processes
- Data Visualization
- Advanced Data Visualization
- Feature Extraction, Selection
- Machine Learning Techniques
- Regression Algorithms
- Classification algorithms
- Clustering, Kmeans, Hierarchical
- Association Rules algorithms
- Outliers Detection and Removal
- Data Science Industry Project Development



LEARNING JOURNEY

We'll proceed through...

The program takes you through a progression of the four building blocks of machine learning i.e. understanding data, prediction, decision making and causal inference. In addition to the practical knowledge that you'll gain from the lectures, you'll learn from peer discussions, case studies, assignments, and quizzes.

Throughout the journey, there are real-life machine learning facilitators to provide guidance and clarification. At the end of the program, you should be prepared to apply some of these techniques at your own organization.



SCHEDULING

The things to know...

Timings:

6 Hrs per day (Total 5 days)

Total: 30 Hrs

Training Charges

₹1,500 per hr (for any number of candidates)

(Total: ₹45,000)

Study Material:

The complete study material will be provided by company in soft copy with free access to the Python course from MITU Skillologies!

Certification:

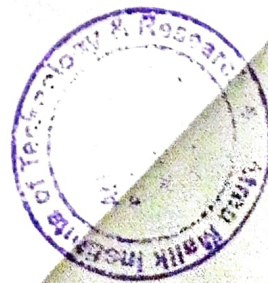
MITU Skillologies will provide the authorized company certification to all the participants after project and online test passing.

Accommodation:

Required for one resource person.

Traveling Charges:

At Actual



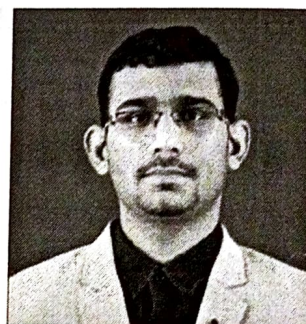
KNOW YOUR TRAINERS

They will be for you...

Aditya Thakare

Aditya is a dedicated researcher, trainer, and avid open-source enthusiast. With a background in engineering from Pune University, he honored his skills further by completing a PG Diploma in Artificial Intelligence from ACTS, CDAC, Pune. He conducted more than 25 student training programs.

Know more: <https://mitu.co.in/aditya>



<https://www.linkedin.com/in/aditya-thakare72>



ADD ON COURSE ON DATA SCIENCE WITH MACHINE LEARNING

A Five Day's Course
26th - 30th March 2024

Organised by

**Department Of
Electronic & Telecommunication
And Computer Engineering**



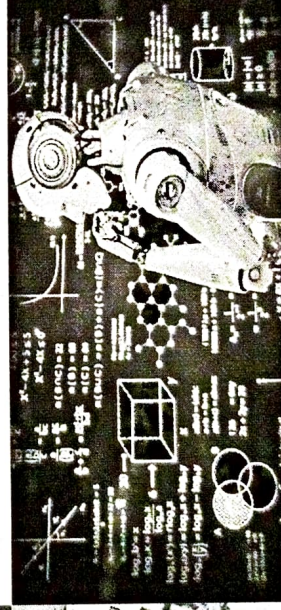
**Atma Malik Institute
of Technology and Research**



[Affiliated to MSBTE, Mumbai, Approved by AICTE,
New Delhi & DTE, M.S.]
At : Mohili, Post: Aghai, Via Kalyan, Dist: Thane,
421301

Course Objectives

- 1) Understand core data science principles.
- 2) Learn Python or R for analysis and modeling.
- 3) Master data preprocessing and cleaning techniques.
- 4) Explore regression, classification, and clustering algorithms.
- 5) Develop skills in model evaluation and tuning.



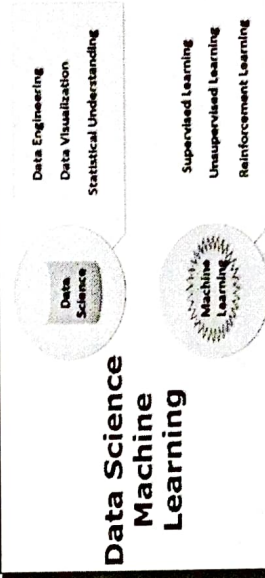
... Prepare for a career in data science and machine learning.



Course Outcomes

After completion of the course students should be able to:

- 1) Solid understanding of data science fundamentals.
- 2) Proficiency in implementing machine learning algorithms.
- 3) Skills in data analysis and preprocessing.
- 4) Ability to evaluate and optimize ML models.



**Resource Person :-
Mr. Aditya Thakre**

Course Pre-requisites :

Requirements are...

There are NO special prerequisites required for Data Science and Machine Learning training. However, The

Knowledge of the following will make it easier:

- 1) Basic Mathematics
- 2) Simple Statistics
- 3) Knowledge of programming language
- 4) Business domain knowledge

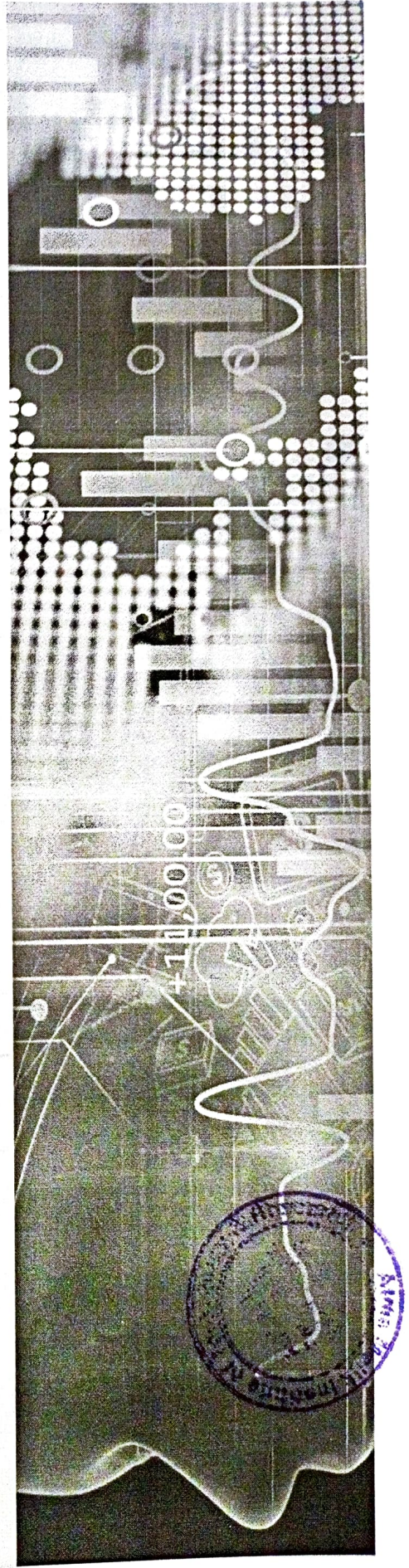
Career Prospects :

The program takes you through a progression of the four building blocks of machine learning i.e. understanding data, prediction, decision making and causal inference. In addition to the practical knowledge that you'll gain from the lectures, you'll learn from peer discussions, case studies, assignments, and quizzes.

At the end of the program, you should be prepared to apply some of these techniques at your own organization.

Course Contents :

- 1) Python Programming (1hrs)
- 2) Data Science Basics (2hrs)
- 3) Data Science Pre-processing (2hrs)
- 4) Data Analytics Processes (4hrs)
- 5) Data Visualization (4hrs)
- 6) Advanced Data Visualization (5hrs)
- 7) Feature Extraction, Selection (2hrs)
- 8) Machine Learning Techniques (4hrs)
- 9) Regression Algorithms (2hrs)
- 10) Classification algorithms (4hrs)





!! Sabka Malik Atma !!
Vishwatmak Jangli Maharaj Ashram Trust's
Atma Malik Institute of Technology & Research (AMRIT)
Department of Computer Engineering

ACAD-DI-59	One Page Activity Report	Academic Year: 2023-24
Rev : 00		Semester: EVEN
Date: 11-7-2022		

Name of Activity: ADD on course on “ Data Science with Machine Learning”
Permission from Authorities - Hon. Principal Sir.

Date of activity: 26-03-2024 to 30-03-2024

Name and contact details of Resource Person: Mr. Aditya Thakare

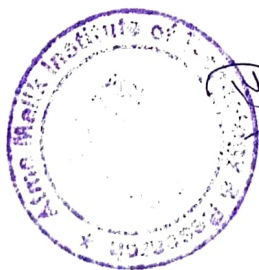
Issues- NA

Conclusion- Students Participated in Add on Course on “Data Science with Machine Learning”

Feedback Report- Photos, feedback form

Completion report- Successfully conducted

P. Tiwari
Program Coordinator

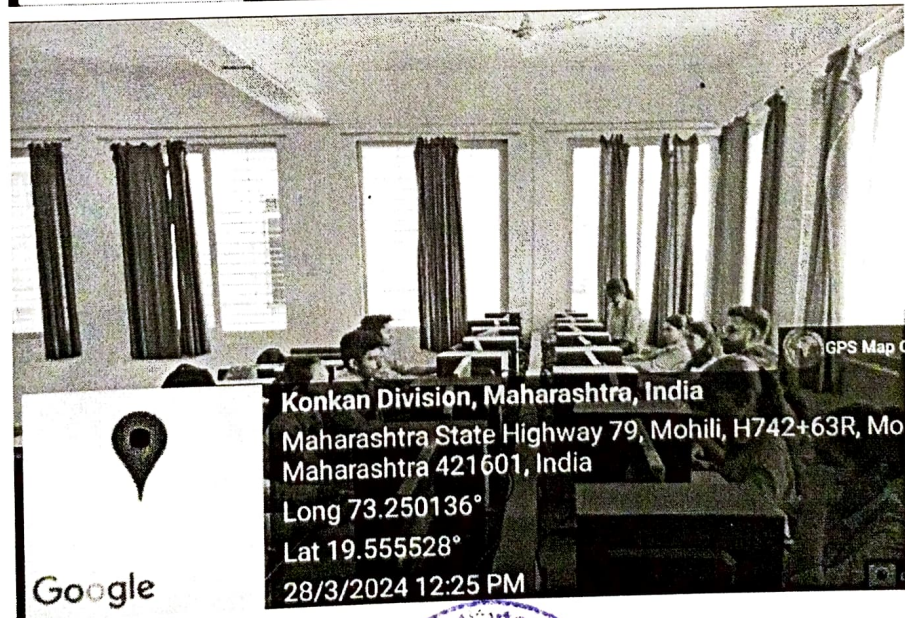
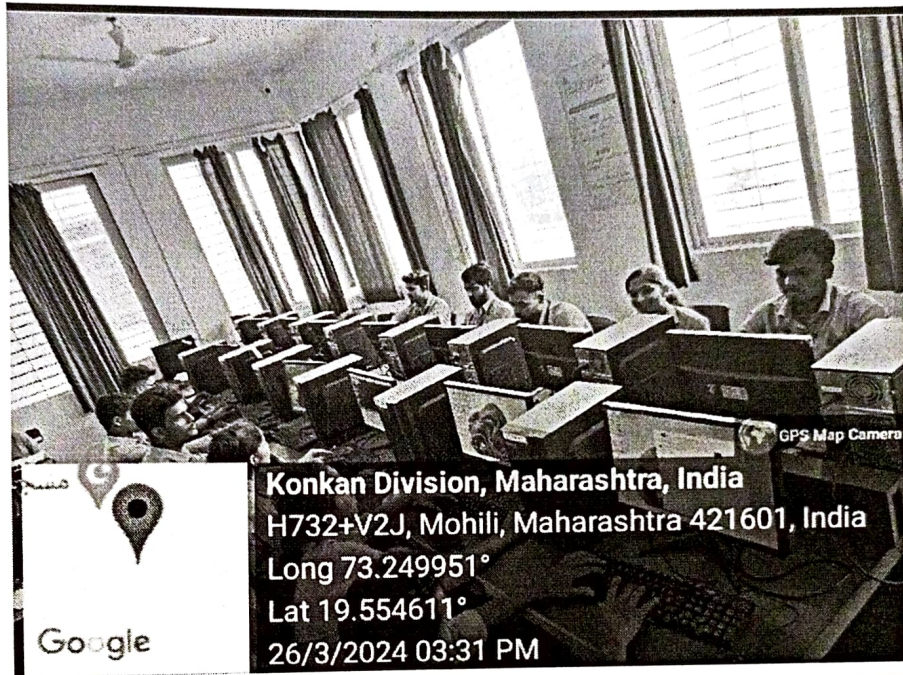


W. Haridas
HOD

Principal



!! Sabka Malik Atma !!
Vishwatmak Jangli Maharaj Ashram Trust's
Atma Malik Institute of Technology & Research (AMRIT)
Department of Computer Engineering





Vishwatmak Jangli Maharaj Ashram Trust's

Atma Malik Institute of Technology & Research (AMRIT)

ACAD-DI-68	ADD ON NOTICE	Academic Year: 2023-24
Rev : 00		Semester: EVEN
Date: 11-7-2022		

Date: 27/02/2023

All the Students of Electronics & Telecommunication Engineering and Computer Engineering department are hereby informed that department is organizing a certification program on **"Data Science with machine learning"** for the skill enhancement of students from **26th March to 30th March 2024** at **10.00am-5.00pm.**

Last date of registration is **5th march 2024.**

Objectives of the Program:

1. To provide a glimpse of the latest technologies on machine learning. Understanding data prediction, decision making and causal inference.
2. Students can avail knowledge on Python Programming and data science basics.

Note: Certificate will be provided to candidates by college.

Students can register for program through this link

<https://forms.gle/HdrJ5swZJa9mtuJp8>

Fees: No Registration charge.

For Queries Contact:

Prof. Nisha Shelar (9860174845)

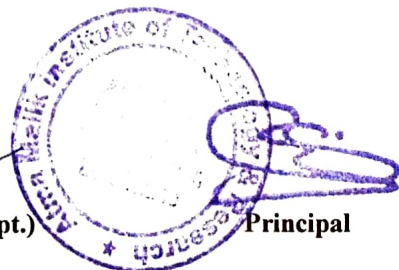
Assistant Professor, EXTC department

Prof. Poonam Tiwari (9890529159)

Assistant Professor, Computer department

P. Tiwari
Program Co-ordinator

P. Tiwari
HOB (Comp. Dept.)



Principal



II ATMA MALIK II

Vishwatmak Jangli Maharaj Ashram Trust, Local management Committee
Branch - Mohili - Aghai (Shahapur)

ATMA MALIK INSTITUTE OF TECHNOLOGY & RESEARCH (AMRIT)

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An ISO 21001 : 2018 Certified Institute

NAAC ACCREDITED

(Approved by - AICTE, A Statutory body under Ministry of HRD, Government of India)
Recognized by Govt. of Maharashtra, DTE & Affiliated to University of Mumbai (for Degree)
Affiliated to MSBTE (Diploma) M.S.B.T.E. code No. 1578

Date: 15/02/23

To,
Mr. Aditya Thakare
Speaker
Thane

Respected Sir,

Our institute Atma Malik Institute of Technology and Research (AMRIT) is approved by AICTE New Delhi, recognized by DTR, Maharashtra State and affiliated to Maharashtra State Board of Technical Education Mumbai. As per our curriculum we require to arrange an **ADD ON COURSE ON DATA SCIENCE WITH MACHINE LEARNING** for students. We would like you to invite for guiding our students for the same. Kindly send the consent and provide the appropriate time /date.

Thank you for consideration.

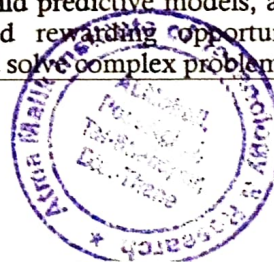
With warm regards

P. Wale
Program Co-ordinator



T. D. Haridas
HOD (Comp. Dept)

Name of Course :		Certificate Course on Data Science With Machine Learning		
Duration :	30 Hrs	Modules	5	
Course Objectives :				
1) Understand core data science principles. 2) Learn Python or R for analysis and modeling. 3) Master data preprocessing and cleaning techniques. 4) Explore regression, classification, and clustering algorithms. 5) Develop skills in model evaluation and tuning. 6) Prepare for a career in data science and machine learning. 7) Master foundational concepts in data science and machine learning. 8) Develop practical skills in data analysis, pre-processing, and feature engineering. 9) Gain proficiency in implementing and evaluating machine learning algorithms. 10) Apply machine learning techniques to real-world datasets and projects.				
Course Outcomes :				
After completion of the course students should be able to:				
1) Solid understanding of data science fundamentals. 2) Proficiency in implementing machine learning algorithms. 3) Skills in data analysis and pre-processing. 4) Ability to evaluate and optimize ML models. 5) Practical experience with real-world datasets.				
Course Pre-requisites :				
There are NO special prerequisites required for Data Science and Machine Learning training. However, The Knowledge of the following will make it easier: 1) Basic Mathematics 2) Simple Statistics 3) Knowledge of programming language 4) Business domain knowledge The course requires participants to have basic programming skills, particularly in Python, and a solid understanding of fundamental mathematical concepts such as calculus, linear algebra, and statistics. Familiarity with data manipulation using libraries like NumPy and Pandas, as well as data visualization with tools like Matplotlib and Seaborn, is beneficial. Additionally, critical thinking and problem-solving abilities are essential for effectively tackling real-world data science challenges.				
Career Prospects:				
The program takes you through a progression of the four building blocks of machine learning i.e. understanding data, prediction, decision making and causal inference. In addition to the practical knowledge that you'll gain from the lectures, you'll learn from peer discussions, case studies, assignments, and quizzes. At the end of the program, you should be prepared to apply some of these techniques at your own organization. The course opens up diverse career prospects in the rapidly growing field of data science and machine learning. Graduates can pursue roles such as data scientist, machine learning engineer, business analyst, or AI researcher in industries ranging from finance and healthcare to e-commerce and technology. With the ability to extract insights from data, build predictive models, and drive data-driven decision-making, professionals can expect to find rewarding opportunities in organizations looking to harness the power of data to innovate and solve complex problems.				





!! Sabka Malik Atma !!

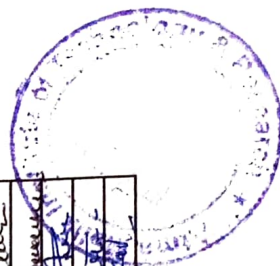
Vishwatmak Jangli Maharaj Ashram Trust's
Atma Malik Institute of Technology & Research (AMRIT)

Program Attendance Sheet

Name of Program: ADD ON COURSE ON DATA SCIENCE WITH MACHINE LEARNING

Academic year :2023-24

Sr. No	Name of the Student	26-03-2024		27-03-2024		28-03-2024		29-03-2024		30-03-2024	
		Session I	Session II	Session I	Session II	Session I	Session II	Session I	Session II	Session I	Session II
1	Patil Karan Dhanraj	Ripab/	Ripab/	Ripab/	Ripab/	Ripab/	Ripab/	Ripab/	Ripab/	Ripab/	Ripab/
2	Sunil Krishna Dokfode	Sunil/	Sunil/	Sunil/	Sunil/	Sunil/	Sunil/	Sunil/	Sunil/	Sunil/	Sunil/
3	Om Madhukar Vekhande	Om/	Om/	Om/	Om/	Om/	Om/	Om/	Om/	Om/	Om/
4	Reddy balaji Raju	Reddy/	Reddy/	Reddy/	Reddy/	Reddy/	Reddy/	Reddy/	Reddy/	Reddy/	Reddy/
5	Samadhan pundalik desale	Samadhan/	Samadhan/	Samadhan/	Samadhan/	Samadhan/	Samadhan/	Samadhan/	Samadhan/	Samadhan/	Samadhan/
6	Kadam Tushar Surjearao	Kadam/	Kadam/	Kadam/	Kadam/	Kadam/	Kadam/	Kadam/	Kadam/	Kadam/	Kadam/
7	Pawar Sapana Navnath	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/
8	Sushant Santoshkumar Patil	Sushant/	Sushant/	Sushant/	Sushant/	Sushant/	Sushant/	Sushant/	Sushant/	Sushant/	Sushant/
9	Bhosale Sayli shankar	Bhosale/	Bhosale/	Bhosale/	Bhosale/	Bhosale/	Bhosale/	Bhosale/	Bhosale/	Bhosale/	Bhosale/
10	Kunal Shravan Patil	Kunal/	Kunal/	Kunal/	Kunal/	Kunal/	Kunal/	Kunal/	Kunal/	Kunal/	Kunal/
11	Ahire Vanashri vitthal	Ahire/	Ahire/	Ahire/	Ahire/	Ahire/	Ahire/	Ahire/	Ahire/	Ahire/	Ahire/
12	Nikam shivani balu	Nikam/	Nikam/	Nikam/	Nikam/	Nikam/	Nikam/	Nikam/	Nikam/	Nikam/	Nikam/
13	Rathod Rahul Kailas	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/
14	Sapkal Jagruti Rajendra	Sapkal/	Sapkal/	Sapkal/	Sapkal/	Sapkal/	Sapkal/	Sapkal/	Sapkal/	Sapkal/	Sapkal/
15	Kumavat Ruturaj Shivcharan	Kumavat/	Kumavat/	Kumavat/	Kumavat/	Kumavat/	Kumavat/	Kumavat/	Kumavat/	Kumavat/	Kumavat/
16	Tejas machhindranath bhargare	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/
17	Verna Pankaj Dashrath	Verna/	Verna/	Verna/	Verna/	Verna/	Verna/	Verna/	Verna/	Verna/	Verna/
18	Pawar Tanmay Vikas	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/	Pawar/
19	Khair Rutik pandurang	Khair/	Khair/	Khair/	Khair/	Khair/	Khair/	Khair/	Khair/	Khair/	Khair/
20	Karan Kiran Joshi	Karan/	Karan/	Karan/	Karan/	Karan/	Karan/	Karan/	Karan/	Karan/	Karan/
21	Bhojane Tanvi Vijay	Bhojane/	Bhojane/	Bhojane/	Bhojane/	Bhojane/	Bhojane/	Bhojane/	Bhojane/	Bhojane/	Bhojane/
22	Dinesh Sudhakar Mhaskar	Dinesh/	Dinesh/	Dinesh/	Dinesh/	Dinesh/	Dinesh/	Dinesh/	Dinesh/	Dinesh/	Dinesh/
23	Tejas Gupta	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/	Tejas/
24	Sapana Navnath Pawar	Sapana/	Sapana/	Sapana/	Sapana/	Sapana/	Sapana/	Sapana/	Sapana/	Sapana/	Sapana/
25	More Sushant Rakesh	More/	More/	More/	More/	More/	More/	More/	More/	More/	More/
26	Neman Anita Dattaram	Neman/	Neman/	Neman/	Neman/	Neman/	Neman/	Neman/	Neman/	Neman/	Neman/
27	SANDIP MALHARI JADHAV	SANDIP/	SANDIP/	SANDIP/	SANDIP/	SANDIP/	SANDIP/	SANDIP/	SANDIP/	SANDIP/	SANDIP/
28	Rathod Rahul Kailas	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/	Rathod/



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Vishwatmak Jangli Maharaj Ashram Trust, Local management Committee
Branch - Mohili - Aghai (Shahapur)

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Recognized by Govt. of Maharashtra, DTE & Affiliated to University of Mumbai (for Degree)
Affiliated to MSBTE (Diploma) M.S.B.T.E. code No. 1578

Date: 30/03/24

To,
Mr. Aditya Thakare
Speaker
Pune

Respected Sir,

We are gradually thankful for sharing great knowledge and addressing our students on **ADD ON COURSE ON DATA SCIENCE WITH MACHINE LEARNING** from 26th March to 30th March 2024. We all hope that you will guide our students on such course. This will definitely boost knowledge of our students.

Thank you once again for association with us and sharing the knowledge and sparing your precious time for us. We look forward for more such courses with you.

With warm regards .

Prirwall
Program Co-ordinator



14 Jandas
HOD (Comp. Dept)



CERTIFICATE OF PARTICIPATION



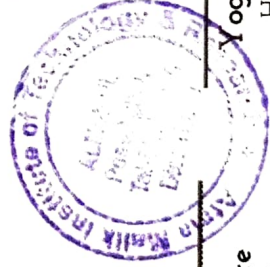
THIS CERTIFICATE IS PROUDLY PRESENTED TO

Rathod Rahul Kailas

For successfully completing the Add on course of "DATA SCIENCE WITH MACHINE LEARNING",
organized by Atma Malik Institute of Technology and Research between March 26, 2024 and March
30, 2024.

22fa8949-df25-4682-b4cd-6b5c94a7679c

Certificate ID



P Tiwari

Poonam Tiwari
Program Coordinator

Dr. D. D. Shinde

Yogeshwari Hardas
Head of Computer
Department

Dr. D. D. Shinde
Principal

Issue Date: March 31, 2024



CERTIFICATE OF PARTICIPATION



THIS CERTIFICATE IS PROUDLY PRESENTED TO

Khair Rutik pandurang

For successfully completing the Add on course of "DATA SCIENCE WITH MACHINE LEARNING",
organized by Atma Malik Institute of Technology and Research between March 26, 2024 and March
30, 2024.

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Certificate ID



Yogeshwari Hardas

Poonam Tiware
Program Coordinator

Yogeshwari Hardas
Head of Computer
Department

[Signature]

Dr. D. D Shinde
Principal

Issue Date: March 31, 2024



CERTIFICATE OF PARTICIPATION



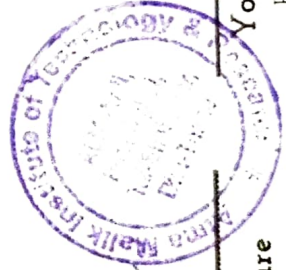
THIS CERTIFICATE IS PROUDLY PRESENTED TO

Kishor Balu Sakhare

For successfully completing the Add on course of "DATA SCIENCE WITH MACHINE LEARNING",
organized by Atma Malik Institute of Technology and Research between March 26, 2024 and March
30, 2024.

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Certificate ID



Yogeshwari Hardas

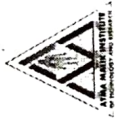
Poonam Tiwari
Program Coordinator

Yogeshwari Hardas
Head of Computer
Department

Dr. D. D. Shinde

Dr. D. D. Shinde
Principal

Issue Date: March 31, 2024



CERTIFICATE OF PARTICIPATION



THIS CERTIFICATE IS PROUDLY PRESENTED TO

Palav Yashwant Jayprakash

For successfully completing the Add on course of "DATA SCIENCE WITH MACHINE LEARNING",
organized by Atma Malik Institute of Technology and Research between March 26, 2024 and March
30, 2024.

bl93025f-be09-4530-a99a-fc850e595446

Certificate ID

P Tiwari

Poonam Tiwari
Program Coordinator

Y H Dardas

Yogeshwari Hardas
Head of Computer
Department

Dr. D. D Shinde

Dr. D. D Shinde
Principal

Issue Date: March 31, 2024



CERTIFICATE OF PARTICIPATION



THIS CERTIFICATE IS PROUDLY PRESENTED TO

Kumavat Ruturaj Shiwcharan

For successfully completing the Add on course of "DATA SCIENCE WITH MACHINE LEARNING",
organized by Atma Malik Institute of Technology and Research between March 26, 2024 and March
30, 2024.

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Certificate ID



Dr. D. D Shinde
Principal

Poonam Tiwari
Program Coordinator

Yogeshwari Hardas
Head of Computer
Department

Issue Date: March 31, 2024



CERTIFICATE OF PARTICIPATION



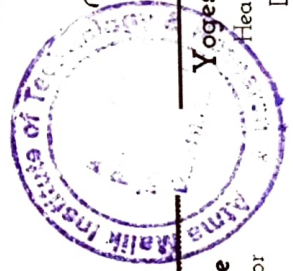
THIS CERTIFICATE IS PROUDLY PRESENTED TO

Vijaya Sunil Ruperi

For successfully completing the Add on course of "DATA SCIENCE WITH MACHINE LEARNING",
organized by Atma Malik Institute of Technology and Research between March 26, 2024 and March
30, 2024.

07f4d2ff-6b87-4155-a4ea-c0e33f576a94

Certificate ID



Dr. D. D. Shinde
Principal

Poonam Tiware
Program Coordinator

Yogeshwari Hardas
Head of Computer
Department

Issue Date: March 31, 2024



!! Sab Ka Malik Atma !!

Vishwatmak Jangli Maharaj Ashram Trust's

Atma Malik Institute of Technology & Research (AMRIT)

Department of Electronics & Telecommunication Engineering

ACAD-DI-59	One Page Report	Academic Year: 2023-24
Rev : 00		Semester: ODD
Date: 11-07-2022		

Name of Activity: Online ADD On/MOOC course by NPTEL

Date of Activity: July to Oct 2023

Resource Person: Dr. Sneh Saurabh, IIIT Delhi.

Name of Faculty Coordinator: Prof. Sumit Kumar

Certificate Copy:



NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to
SANDESH SADANAND MHASE
for successfully completing the course
VLSI Design Flow: RTL to GDS
with a consolidated score of **52** %

Online Assignments	22.19/25	Proctored Exam	30/75
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Total number of candidates certified in this course: 1877

Dr. Anand Srivastava
Coordinator
Continued Education Program, IIITD

Jul-Oct 2023
(12 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIIT Madras

INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY DELHI

swayam

Roll No: NPTEL23EE1375742300672 To verify the certificate

No. of credits recommended: 3 or 4



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swayam

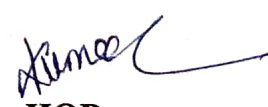
Roll No: NPTEL23EE1375742300299 To verify the certificate

No. of credits recommended: 3 or 4


Faculty Coordinator

Prof. Sumit Kumar




HOD

Prof. Sumit Kumar



!! Sabka Malik Atma !!
Vishwatmak Jangli Maharaj Ashram Trust's
Atma Malik Institute of Technology & Research (AMRIT)

ACAD-DI-68	NOTICE	Academic Year: 2023-24
Rev : 00		Semester: ODD
Date: 11-7-2022		

Date: 19/06/2023

NPTEL COURSE ENROLLMENT

Dear Learners, you are advised to take up **NPTEL online courses** and on successful completion, you are required to submit certification for the same.

Objective: This will definitely help learners to facilitate their enhanced learning based on their interest.

After successful enrollment to the NPTEL course, submit the information to your mentor.

Visit the following link to register for the course:
https://docs.google.com/spreadsheets/d/e/2PACX-1vQCbGU35MAoqfECfSQCj22Kj-272L_xGjsxjgNCJWlhYn3yA25jKhX8v_NKQYffH0dSS0LquHhzhTnM/pubhtml?urp=gmail_link

Prof. Sumit Kumar
HOD-EXTC & IQAC Coordinator



Dr. D. D. Shinde
Principal

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

VLSI Design Flow: RTL to GDS

By Prof. Shih Saurabh | IIT Delhi

Go to course (course/ncs_email-kumaracilab20@gmail.com) Learners enrolled: 12082 | Exam registration: 2720

VLSI Design Flow: RTL to GDS - Course Intro



THE COURSE

This course covers the entire RTL to GDS VLSI design flow, going through various stages of logic synthesis, verification, physical design, and testing. It covers the fundamentals of various design tasks, this course will develop skills in modern chip design with the help of activities and demonstrations on freely available CAD tools. This course will enhance the employability of the students and will make them ready to undertake careers in the semiconductor industry.

PREREQUISITES: Basic Course on Digital Circuits (typically taught in the first/second year of UG Program)

INDUSTRY SUPPORT: The course develops skills to use design automation tools for chip designing. The course will be valued by companies working on semiconductors, such as Qualcomm, Intel, Texas Instruments, NXP, ST Microelectronics, Micron, IBM, Cadence, Synopsys, Siemens, ARM, AMD, NVIDIA, Apple, and Google.

Summary

Course Status: Completed

Books and reference

- Shih Saurabh, "Introduction to VLSI Design Flow", Cambridge University Press, 2023 (expected)
https://www.cambridge.org/9781108755233/preview
(https://www.cambridge.org/highereducation/books/introduction-to-vlsi-design-flow/9781108755233/preview)
- J.M.S. Smith, "Application-specific integrated circuits", Addison-Wesley, 1997
- J. L. Marnon, G. Martin, and L. R. Schaffer (Editors), "Electronic Design Automation for IC Implementation, Circuit Design, and Process Technology", CRC Press, 2016
- A.S. Ponnambalam, "A guide to digital design and synthesis", Pearson Education India, 2003
- S. Bhattacharya and R. Chakrabarti, "Static timing analysis for nanometer designs: A practical approach", Springer Science Business Media, 2009
- Schell, "Synthesis and optimization of digital circuits", McGraw-Hill Higher Education, 1994
- Schell and V. Agrawal, "Essentials of electronic testing for digital, memory and mixed signal VLSI circuits", Springer Science & Business Media, 2009

Instructor bio



Prof. Shih Saurabh

IIT Delhi

Prof. Shih Saurabh obtained his Ph.D. from IIT Delhi in 2012 and B.Tech. (EE) from IIT Kharagpur in the year 2000. He has rich experience in the semiconductor industry, having spent 14 years working for industry leaders such as Cadence Design Systems, Synopsys India, and Magma Design Automation before joining IIT Delhi in June 2016. He has been involved in developing some of the well-established industry-standard EDA tools for logic synchronization, constraints management, STA, formal verification, and physical design. He has taught VLSI-specific courses for over six years at IIT Delhi, the most popular being VLSI Design Flow. His teaching has been rated excellent by students consistently, and he has received the Teaching Excellence award for seven consecutive semesters, three titles for the course VLSI Design Flow. He holds three US patents and is the co-author of the book "Fundamentals of Tunnel Field-Effect Transistors". He is an Editor (IEEE Technical Review), an Associate Editor (IEEE Access), a Review Editor (Frontiers in Electronics Integrated Circuits and VLSI), and a Senior Member of IEEE.

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 Exam: 29 October 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.
Please check the form for more details on the cities where the exams will be held, the conditions you agree to when you fill the form etc.

CRITERIA TO GET A CERTIFICATE

Average assignment score + 25% of average of best 8 assignments out of the total 12 assignments given in the course.
Exam score + 75% of the proctored certification exam score out of 100

Final score = Average assignment score + Exam score

Course Type:



Elective
12 weeks

Duration:

Category:

About Swayam (https://swayam.gov.in/about) | All Courses | kumaracilab20@gmail.com ~ (/profile)

Credit Points:

VLSI design

Level:

Undergraduate/Postgraduate

Start Date:

24 Jul 2023

End Date:

13 Oct 2023

Enrollment Ends:

07 Aug 2023

Exam Registration Ends:

18 Aug 2023

Exam Date:

29 Oct 2023 IST

Note: This exam date is subject 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://swayam.gov.in/nc_details/NPTEL/137423/preview?title=VLSI%20Design%20Flow%20RTL%20to%20GDS%20-%20Course)

Course layout

- Week 1: Basic Concepts of Integrated Circuit: Structures, Fabrication, Types, Design Styles, Designing vs. Fabrication, Economics, Figures of Merit Overview of VLSI Design Flow: Design Flows and Abstraction, Pre-RTL Methodologies: Hardware-software Partitioning, SoC Design, Intellectual Property (IP) Assembly, Behavioral Synthesis
- Week 2: Overview of VLSI Design Flow: RTL to GDS Implementation: Logic Synthesis, Physical Design: Verification and Testing, Post-GDS Processes
- Week 3: Hardware Modeling: Introduction to Verilog Functional verification using simulation, testbench, coverage, mechanism of simulation in Verilog
- Week 4: RTL Synthesis: Verilog Constructs to Hardware Logic Optimization: Definitions, Two-level logic optimization
- Week 5: Logic Optimization: Multi-level logic optimization, FSM Optimization Formal Verification: Introduction, Formal Engines: BDD, SAT Solver
- Week 6: Formal Verification: Model Checking, Combinational Equivalence Checking Technology Library: Delay models of Combinational and Sequential Cells
- Week 7: Static Timing Analysis: Synchronous Behavior, Timing Requirements, Timing Graph, Mechanism, Delay Calculation, Graph-based Analysis, Path-based Analysis, Accounting for Variations
- Week 8: Constraints: Clock, I/O, Timing Exceptions Technology Mapping Timing-driven Optimizations
- Week 9: Power Analysis, Power-driven Optimizations Design for Test: Basics and Fault Models, Scan Design Methodology
- Week 10: Design for Test: ATPG, BIST Basic Concepts for Physical Design: IC Fabrication, FEOL, BEOL, Interconnects and Parasitics, Signal Integrity, Antenna Effect, LEF files
- Week 11: Chip Planning: Partitioning, Floorplanning, Power Planning Placement: Global Placement, Wirelength Estimates, Legalization, Detailed Placement, Timing-driven Placement, Scan Cell Reordering, Spare Cell Placement
- Week 12: Clock Tree Synthesis: Terminologies, Clock Distribution Networks, Clock Network Architectures, Useful Shapers Routing: Global and Detailed, Optimizations Physical Verification: Extraction, LVS, ERC, DRC, ECO and Sign-off

YOU WILL BE ELIGIBLE FOR CERTIFICATION ONLY IF AVERAGE ASSIGNMENT SCORE $\geq 10/25$ AND EXAM SCORE $\geq 10/75$. If one of the 2 criteria is not met, you will not get a certificate.

Certificate will have your name, photograph and the logo of IIT Delhi. It will be e-verifiable at npTEL.ac.in/noc (http://npTEL.ac.in/noc).

Only the e-certificate will be made available. Hard copies will not be dispatched.

Once again, thanks for your interest in our online courses and certification. Happy learning.

- NPTEL team



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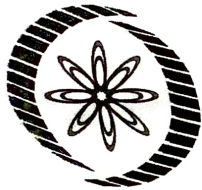
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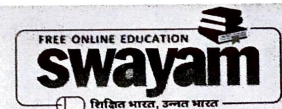


Jul-Oct 2023
(12 week course)

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IIT Madras



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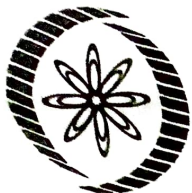


Roll No: NPTEL23EE137S742300672

To verify the certificate



No. of credits recommended: 3 or 4



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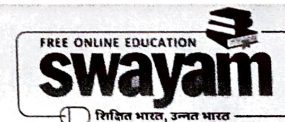
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No. of credits recommended: 3 or 4

AN IOAC INITIATIVE
Workshop on Solid Works (3 D experience)

5 Day workshop
6-11 May, 2024
Organized by
Department of Mechanical Engineering



ATMA MALIK INSTITUTE OF TECHNOLOGY AND RESEARCH

Affiliated to MSBTE, Mumbai,
Approved by AICTE, New Delhi & DTE, M.S.
At: Moholi, Post:Aghai, Via Kalyan, Dist:Thane, 421301

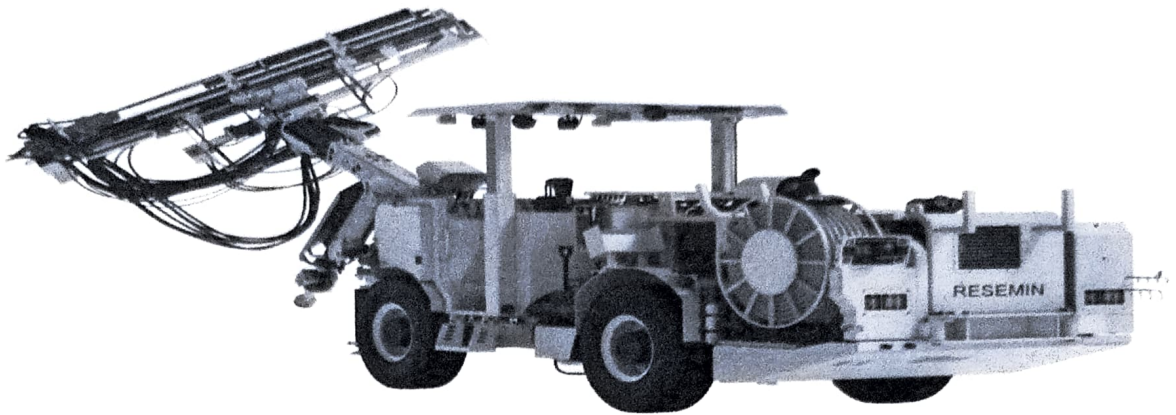
SOLIDWORKS



3DEXPERIENCE

INTRODUCING SOLIDWORKS





Course objective	Why Solid Works	Course content
After completion of this course you will be able to: 1. Sophisticated but easy to use and navigate 3D CAD design 2. Preloaded templates and a CAD library for greater efficiency 3. Automation 4. Effectively and easily produce 2D drawing to use for production 5. Rendering can be produced at a photorealistic level and animation are easy to creat.	1. Rendering 2. Simulation 3. Evaluation 4. Manufacturing 5. Exclusive features 6. 3 D printing 7. 2 D Modelling 8. 3 D Modelling	1. Introduction 2. SOLIDWORKS Fundamentals & introduction to sketching 3. Basic Part Modeling 4. Advance part Modeling 5. Assembly Mode 6. Drafting

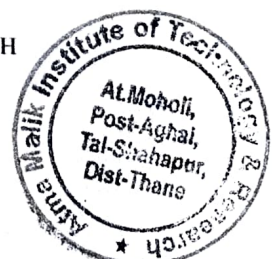
Contact Us

Dr. Shyam Kumar Chaudhary

Phone:- 7979720797

Department of Mechanical Engineering

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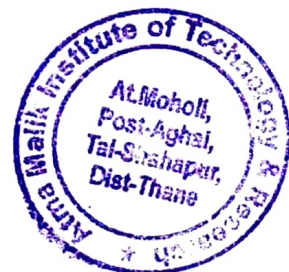


Workshop on Introducing Solid Works

SYLLABUS/ COURSE CONTENT

Sr. No.	Course Content	Number of Hours
1.	Introduction to SolidWorks and Basic Sketching i) Introduction to SolidWorks: ii) Basic Sketching: iii) Hands-on Exercises:	06
2.	Part Modeling Fundamentals i) Introduction to Part Modeling ii) Editing Features iii) Advanced Sketch Tools iv) Hands-on Exercises	06
3.	Advanced Part Modeling and Design Techniques i) Advanced Features: ii) Design Intent and Best Practices iii) Hands-on Exercises	06
4.	Assembly Modeling i) introduction to Assemblies ii) Managing Assemblies iii) Hands-on Exercises	06
5.	Drawing and Documentation i) Creating Drawings ii) Advanced Drawing Techniques iii) Hands-on Exercises	06

Schedule



Workshop on Introducing Solid Works

Day 1: Introduction to SolidWorks and Basic Sketching

Morning Session:

1. Introduction to SolidWorks:

- Overview of SolidWorks interface
- Understanding the Feature Manager Design Tree
- Customizing the workspace

2. Basic Sketching:

- Creating and managing sketches
- Using basic sketch tools (Line, Circle, Rectangle, etc.)
- Sketch relations and dimensions

Afternoon Session:

Creating simple 2D sketches

- Adding dimensions and relations to sketches
- Practical exercise: Designing a basic 2D part



Workshop on Introducing Solid Works

Day 2: Part Modeling Fundamentals

Morning Session:

1. Introduction to Part Modeling:

- Extrude Boss/Base
- Revolve Boss/Base
- Extrude Cut and Revolve Cut

2. Editing Features:

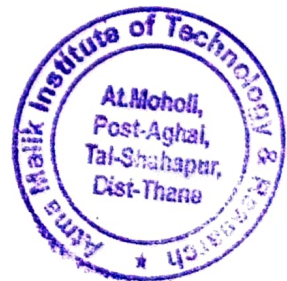
- Modifying existing features
- Understanding feature order and dependency

Afternoon Session: 3. Advanced Sketch Tools:

- Using splines and complex curves
- Creating patterns and mirrored sketches

4. Hands-on Exercises:

- Building a 3D part using various features
- Modifying and editing part features
- Practical exercise: Designing a mechanical part



Workshop on Introducing Solid Works

Day 3: Advanced Part Modeling and Design Techniques

Morning Session:

1. Advanced Features:

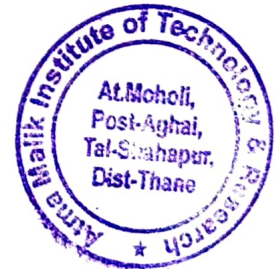
- Sweep and Loft
- Fillet and Chamfer
- Shell and Draft

2. Design Intent and Best Practices:

- Understanding design intent
- Using construction geometry effectively

Afternoon Session: 3. Hands-on Exercises:

- Creating parts with advanced features
- Applying fillets, chamfers, and shelling
- Practical exercise: Designing a complex 3D part



Workshop on Introducing Solid Works

Day 4: Assembly Modeling

Morning Session:

1. Introduction to Assemblies:

- Creating a new assembly
- Inserting components into an assembly
- Using the Mate tool to define relationships

2. Managing Assemblies:

- Assembly configurations
- Working with subassemblies
- Detecting and resolving interferences

Afternoon Session:

3. Hands-on Exercises:

- Building a simple assembly
- Applying various mates and constraints
- Practical exercise: Assembling a mechanical device



Workshop on Introducing Solid Works

Day 5: Drawing and Documentation

Morning Session:

1. Creating Drawings:

- Generating 2D drawings from 3D models
- Adding views (standard, section, detail, etc.)
- Dimensioning and annotating drawings

2. Advanced Drawing Techniques:

- Creating and managing drawing templates
- Using tables and Bill of Materials (BOM)
- Adding exploded views and assembly drawings

Afternoon Session: 3. Hands-on Exercises:

- Creating detailed drawings for parts and assemblies
- Practicing dimensioning and annotation
- Practical exercise: Producing a complete set of drawings for a project



CERTIFICATE

OF PARTICIPATION

This certificate is proudly presented to

Dadhekar Sarthak Rashmikanth.

For successfully completed the ADD on course titled "Introducing Solid Works"
organised by Department of Mechanical Engineering (Atma Malik Institute Of
Technology & Research) from 6th may 2024 TO 10th may 2024.


Coordinator




HOD


Principal

CERTIFICATE

OF PARTICIPATION

This certificate is proudly presented to

Coswami Satish Namal

For successfully completed the ADD on course titled "Introducing Solid Works"
organised by Department of Mechanical Engineering (Atma Malik Institute Of
Technology & Research) from 6th may 2024 TO 10th may 2024.

P. Kumar
Coordinator



[Signature]
HOD

[Signature]
Principal