# MANIPAL INSTITUTE OF TECHNOLOGY

**MANIPAL**

*(A constituent unit of MAHE, Manipal)*

## RECOMMENDATION LETTER

Sl. No.: № 036670 Date: 20/02/2023

**To Whomsoever It May Concern**

I am a Professor and Head of the Mechanical Engineering Department of Manipal Institute of Technology, Manipal. I am pleased to write this letter of recommendation for my student, Mr. Abhishek Nain, who is applying for the master's program at your reputed university. Over the period of three years, I have interacted with Abhishek regularly, while teaching him the course on "Machine Design 1 and 2." I have had abundant instances to assess his caliber and credentials. I can confidently state that Abhishek is a sincere student who strives hard to achieve his goals. He has the requisite qualities to further his research and analytical abilities through your reputed graduate program, and hence has my complete support for his application.

As a student, Abhishek has always been attentive in class and actively contributed towards topic discussions. Owing to his disposition for knowledge, he was able to maintain a consistently good academic performance, achieving A grades in subjects such as Machine Design 2, Mechanical Vibrations, Finite Element Methods and Computational Fluid Dynamics. He worked on all his assignments diligently and aimed for perfection by conducting exhaustive research and covering all aspects of the topic. He industriously worked on his lab tasks for CAD, which boosted his skills in CATIA and AutoCAD. He also successfully implemented various concepts, as well as design choices while designing different components such as gears, clutches, belt drive systems, etc. A creative problem-solving approach was essential when it came to implementing different design concepts, and he has proven his adroitness in it as well. He is truly dedicated to his work and is single-minded to achieve the targeted results.

Alongside academics, Abhishek has been an enthusiast when it comes to participating in extracurricular activities. He has represented our institute at the National Design competition Formula Bharat as part of the student project Formula Manipal and achieved an overall 3rd position.

During a conversation with him, I came to know of his current job role at Maruti Suzuki India Limited where he started working after the completion of his degree. The technical and managerial skills he gained during his college years are being projected on a much larger scale while being responsible for model development of passenger vehicles concerning development and testing of various safety devices such as airbags, Seat/Seat Belt Anchorages and interior fittings.

In conclusion, I would like to reiterate that Abhishek's ability to grasp complex concepts, his passion, and industriousness towards all tasks at hand are ideal attributes for someone desirous of pursuing graduate studies. I believe he has excellent credentials to offer and I am very confident that he will be successful in his academic pursuits as well as his career. I, therefore, strongly recommend Abhishek for admission to the graduate program at your university and wish him success for a bright and prosperous career.

Regards,

**Dr. Sathyashankara Sharma, FIE, MIET**
M Tech. (Materials Engg.), PhD (Materials Engg.)
**Professor and Head**
Department of Mechanical & Industrial Engineering
Manipal Institute of Technology, MAHE, Manipal
INDIA-576104
E-mail: ss.sharma@manipal.edu
Official Phone: +91-820-2925461

Sathya Shankara Sharma
PROFESSOR AND HEAD
Dept. of Mechanical and Industrial Engineering
M.I.T. MANIPAL - 576 104 (Karnataka)

# MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

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## RECOMMENDATION LETTER

Sl. No.: № 031965

**To Whomsoever It May Concern,**

Date: .....24/02/2023.....

It gives me immense pleasure to write this recommendation letter for my student, Mr Abhishek Nain in support of his application to the master's application at your esteemed university. I have known Abhishek in the capacity of being his Project Guide during his final semester project and have been acquainted with him for a good period, during which he has proved to be diligent and adroit at performing research in his field. He worked on the project 'Design and Analysis of Hydrokinetic Turbines for Indian Rivers' under my guidance.

While working on the project, I had multiple interactions with Abhishek, during which I was impressed by his commitment, problem-solving abilities and out-of-the-box thinking. He and his team used the free flow velocity data of many rivers all across India and established the average energy density to study various aerofoils and turbine designs for energy efficiency and design feasibility. After finalizing the airfoil and turbine type, the team designed a straight turbine blade profile using Blade Element Momentum Theory (BEMT) and ran simulations using CFD software over a range of flow velocities to calculate the coefficient of performance and make comparisons with BEMT results. The design was further optimized to get the final swept blade design, which proved to be aerodynamic better as compared to the straight blade design with a 28% increase in performance at low free-flow speeds and an average increase of 5.6% throughout the entire working range of the turbine. This project was completed during the pandemic when the labs got closed mid-project therefore he and his team shifted to a new cloud-based software for the CFD simulations. The project was completed before the planned date irrespective of the hiccups with the academic schedule and the mass tests for COVID-19 going on within the institute.

Abhishek is a quick learner. He grasped the concepts required for this project and implemented them within a very short period. He went well beyond the basic course requirements in the quantity and quality of his project, putting in a lot of extra research to gather relevant data and having many meaningful discussions with the team. Throughout the project, Abhishek demonstrated great perseverance and initiative. Not only was he interested in and motivated to learn the material, but he also put great work into assimilating the challenges and limitations proposed by the current designs and developing his ideas about each topic that we discussed. He displayed an informative presentation for his final assessment in an appealing way, which showed his strong prospect in the domain.

He has proven himself to have the initiative, and intellectual creativity necessary to complete an advanced research project. If his performance during the project is a good indication of how he would perform as a graduate student, he would be an extremely positive asset to your program and therefore I strongly recommend his application to your university without any qualms.

Regards,

Jayakrishnan R
Asst.Professor, Aeronautical & Automobile Dept
MIT, Manipal 576104
Ph#8970221602

Dept. of Aeronautical and Automobile Engineering
MIT
MANIPAL
576 104

AUTODESK

COURSE CERTIFICATE

Mar 31, 2020

# Abhishek Nain

has successfully completed

## Autodesk Fusion 360 Integrated CAD/CAM/CAE

an online non-credit course authorized by Autodesk and offered through Coursera

Andrew Anagnost, President and Chief Executive Officer of Autodesk, Inc.


Verify at:
https://coursera.org/verify/HY6ZD88H8Y24

Coursera has confirmed the identity of this individual and their participation in the course.

RICE UNIVERSITY

COURSE CERTIFICATE

Jul 20, 2020

# Abhishek Nain

has successfully completed

## Basic Data Descriptors, Statistical Distributions, and Application to Business Decisions

an online non-credit course authorized by Rice University and offered through Coursera

Sharad Borle

Sharad Borle
Associate Professor of Management
Jones Graduate School of Business

Verify at:
https://coursera.org/verify/5X3PBY2V2LED

Coursera has confirmed the identity of this individual and their participation in the course.

RICE UNIVERSITY

COURSE CERTIFICATE

Apr 17, 2020

# Abhishek Nain

has successfully completed

## Introduction to Data Analysis Using Excel

an online non-credit course authorized by Rice University and offered through Coursera


Sharad Borle

Sharad Borle
Associate Professor of Management
Jones Graduate School of Business

Verify at:
https://coursera.org/verify/DRYLN4YVRJSU

Coursera has confirmed the identity of this individual and their participation in the course.

Imperial College London

COURSE CERTIFICATE

Jul 20, 2020

# Abhishek Nain

has successfully completed

## Mathematics for Machine Learning: Linear Algebra

an online non-credit course authorized by Imperial College London and offered through Coursera

David Dye, Samuel J. Cooper, and A. Freddie Page

Verify at:
https://coursera.org/verify/U2FF67B8DS4E

Coursera has confirmed the identity of this individual and their participation in the course.

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# Progress Report

**Name:** Abhishek Nain

**Course:** Machine Learning Onramp

**Progress:** **100%** complete (as of 6 May 2020)

**Chapters**

1. Overview of Machine Learning **100%**
2. Classification Workflow **100%**
3. Importing and Preprocessing Data **100%**
4. Engineering Features **100%**
5. Classification Models **100%**
6. Conclusion **100%**

Release: R2019b | Language: English

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# Progress Report

**Name:** Abhishek Nain

**Course:** MATLAB Fundamentals

**Progress:** **100%** complete (as of 26 July 2020)

**Chapters**

1. Getting Started **100%**
2. Plotting and Common Modifications **100%**
3. Working with Live Scripts **100%**
4. Creating and Manipulating Arrays **100%**
5. Accessing Data in Arrays **100%**
6. Mathematical and Statistical Operations with Arrays **100%**
7. Visualizing Data in 2D and 3D **100%**
8. Conditional Data Selection **100%**
9. Review Project I **100%**
10. Tables of Data **100%**
11. Organizing Data **100%**
12. Preprocessing Data **100%**
13. Common Data Analysis Techniques **100%**
14. Programming Constructs **100%**
15. Increasing Automation with Functions **100%**
16. Troubleshooting Code **100%**
17. Review Project II **100%**
18. Conclusion **100%**

Release: R2019b | Language: English

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# Progress Report

**Name:** Abhishek Nain

**Course:** MATLAB Onramp

**Progress:** **100%** complete (as of 27 February 2020)

**Chapters**

1. Course Overview **100%**
2. Commands **100%**
3. MATLAB Desktop and Editor **100%**
4. Vectors and Matrices **100%**
5. Indexing into and Modifying Arrays **100%**
6. Array Calculations **100%**
7. Calling Functions **100%**
8. Obtaining Help **100%**
9. Plotting Data **100%**
10. Review Problems **100%**
11. Importing Data **100%**
12. Logical Arrays **100%**
13. Programming **100%**
14. Final Project **100%**
15. Conclusion **100%**

Release: R2019b | Language: English

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# Progress Report

**Name:** Abhishek Nain

**Course:** Simulink Onramp

**Progress:** **100%** complete (as of 20 April 2020)

**Chapters**

1. Course Overview **100%**
2. Simulink Graphical Environment **100%**
3. Inspecting Signals **100%**
4. Basic Algorithms **100%**
5. Obtaining Help **100%**
6. Project - Automotive Performance Modes **100%**
7. Simulink and MATLAB **100%**
8. Dynamic systems in Simulink **100%**
9. Discrete systems **100%**
10. Continuous systems **100%**
11. Simulation Time **100%**
12. Project - Modeling a Thermostat **100%**
13. Project - Peregrine Falcon Dive **100%**
14. Conclusion **100%**

Release: simulinkR2020a | Language: English

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD
South Asia

# CERTIFICATE

**TÜV SÜD South Asia Pvt. Ltd. hereby certifies that**

## Abhishek Nain

from 22.05.2023 to 24.05.2023 in Gurgaon
has successfully participated in the following event:

Qualified electrician for HV systems in motor vehicles for manufacturers and suppliers

and was trained in the following activities:

- Electrical hazards and first aid
- Protective measures against the effects of electrical current on the body and arc flashes
- Organization of safety and health measures when performing electrical work
- Technical and managerial responsibility, and staff qualifications in electrical engineering
- Structure, function and mode of operation of alternative power trains
- Electrical machines, high-voltage components used, standards and regulations (Federal ECE Rule 100)
- Measurement devices and measurement exercises performed on a high-voltage system
- Exchange of components, measuring points, error sources, lines and cables
- Service disconnect and testing of electrical isolation

The participant was instructed on the potential danger associated with improper behavior and on effective protective equipment and protective measures. The activities specified here may only be performed following a written order by the employer.

Ahmedabad, 05.06.2023.

**Vishal Nerurkar**
**Sr. Vice-President**
**TÜV SÜD South Asia Pvt. Ltd.**

Certificate No.: IN/25556/268996

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD South Asia

# CERTIFICATE

**Academy Division of TÜV SÜD South Asia Pvt. Ltd. hereby confirms that**

## Abhishek Nain

from **MARUTI SUZUKI INDIA LIMITED**

**has attended the training**

**Live working for HV systems in motor vehicles**

**held on 25.05.2023 in Gurgaon, Haryana**

**The course encompassed below training topics:**

- Introduction to Live Working
- Accident Statistics
- Regulations and Standards
- Implementation in the Company
- Measuring Equipment and Its Use
- Problems when Assembling Batteries
- Personal Protective Equipment (PPE) and Tools
- Protective Measures, Accident Prevention
- Important Safety Components

Date of Release: 29.05.2023
Place: Ahmedabad, India

**Vishal Nerurkar**
**Sr. Vice-President**
**TÜV SÜD South Asia Pvt. Ltd.**

**Certificate No.:** IN/25668/271148



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