# भारतीय प्रौद्योगिकी संस्थान मुंबई
# INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
## पवई / Powai, मुंबई / Mumbai 400 076

**Official Transcript**

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|---|---|---|---|---|
| Roll Number: | 170100026 | | Academic Unit: | Electrical Engineering |
| Name of the Student: | Jian Manish Vora | | Joining Month & Year: | July 2017 |
| Programme: | Bachelor of Technology (B.Tech.) | | | |

| Code | Name | Credits | Tag | Grade | Code | Name | Credits | Tag | Grade |
|------|------|---------|-----|-------|------|------|---------|-----|-------|
| **Academic Year: 2017 - 2018, Term: Semester Autumn** ||||||||||
| CH 105 | Organic & Inorganic Chemistry | 4.0 | MA | AA | ME 113 | Workshop Practice | 4.0 | MA | AA |
| CH 107 | Physical Chemistry | 4.0 | MA | AA | NOCS01 | NCC/NSS/NSO | 0.0 | MA | PP |
| CS 101 | Computer Programming and Utilization | 6.0 | MA | BB | PH 107 | Quantum Physics and Application | 6.0 | MA | AB |
| MA 105 | Calculus | 8.0 | MA | AA | PH 117 | Physics Lab | 3.0 | MA | AA |
| SPI= 9.49/10 ||||| CPI= 9.49/10 |||||
| **Academic Year: 2017 - 2018, Term: Semester Spring** ||||||||||
| BB 101 | Biology | 6.0 | MA | AA | MA 108 | Differential Equations | 4.0 | MA | AA |
| CE 102 | Engineering Mechanics | 6.0 | MA | AA | ME 119 | Engineering Graphics & Drawing | 5.0 | MA | AA |
| CH 117 | Chemistry Lab | 3.0 | MA | AB | NOCS02 | NCC/NSS/NSO | 0.0 | MA | PP |
| MA 106 | Linear Algebra | 4.0 | MA | AA | PH 108 | Basics of Electricity & Magnetism | 6.0 | MA | AA |
| SPI= 9.91/10 ||||| CPI= 9.70/10 |||||
| **Academic Year: 2018 - 2019, Term: Semester Autumn** ||||||||||
| CS 213 | Data Structures and Algorithms | 6.0 | MI | AB | EE 236 | Electronic Devices Lab | 3.0 | MA | BB |
| EE 111 | Introduction to Electrical Systems | 6.0 | MA | AB | HS 101 | Economics | 6.0 | MA | AA |
| EE 207 | Electronic Devices & Circuits | 6.0 | MA | AA | MA 205 | Complex Analysis | 4.0 | MA | AA |
| EE 223 | Data Analysis and Interpretation | 6.0 | MA | AB | MA 207 | Differential Equations II | 4.0 | MA | AB |
| EE 225 | Network Theory | 6.0 | MA | AA | | | | | |
| SPI= 9.46/10 ||||| CPI= 9.61/10 |||||
| **Academic Year: 2018 - 2019, Term: Semester Spring** ||||||||||
| CS 224 | Computer Networks | 6.0 | MI | BC | EE 224 | Digital Systems | 6.0 | MA | AA |
| EE 204 | Analog Circuits | 6.0 | MA | AA | EE 230 | Analog Lab | 3.0 | MA | AA |
| EE 210 | Signals and Systems | 6.0 | MA | AB | EE 234 | Machines Lab | 4.0 | MA | AA |
| EE 214 | Digital Circuits Lab | 3.0 | MA | AA | ES 200 | Environmental Studies: Science and Engineering | 3.0 | MA | AA |
| EE 222 | Electrical Machines and Power Electronics | 6.0 | MA | AA | HS 200 | Environmental Studies | 3.0 | MA | AA |
| SPI= 9.85/10 ||||| CPI= 9.67/10 |||||
| **Academic Year: 2019 - 2020, Term: Semester Autumn** ||||||||||
| CS 416 | Computer and Network Security | 6.0 | MI | BC | EE 325 | Probability and Random Processes | 6.0 | MA | AA |
| CS 663 | Fundamentals of Digital Image Processing | 6.0 | MI | AA | EE 337 | Microprocessors Laboratory | 3.0 | MA | AA |
| EE 301 | Electromagnetic Waves | 6.0 | MA | AA | EE 340 | Communications Lab | 3.0 | MA | AA |
| EE 308 | Communication Systems | 6.0 | MA | AA | HS 307 | Sociology | 6.0 | MA | BB |
| EE 309 | Microprocessors | 6.0 | MA | AA | | | | | |
| SPI= 9.67/10 ||||| CPI= 9.67/10 |||||
| **Academic Year: 2019 - 2020, Term: Semester Spring** ||||||||||
| CS 419 | Introducing to Machine Learning | 6.0 | MI | PP | EE 328 | Digital Communications | 6.0 | MA | AA |
| CS 490 | R & D Project | 6.0 | MA | AA | EE 334 | Power Systems | 6.0 | MA | AA |
| CS 754 | Advanced Image Processing | 6.0 | MA | AA | EE 338 | Digital Signal Processing | 6.0 | MA | PP |
| EE 302 | Control Systems | 6.0 | MA | AA | EE 344 | Electronic Design Lab | 6.0 | MA | AA |
| EE 324 | Control Systems Lab | 3.0 | MA | AA | | | | | |
| SPI= 10.00/10 ||||| CPI= 9.73/10 |||||

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Name of the Student: Jian Manish Vora

Roll Number : 170100026

| Code | Name | Credits | Tag | Grade | Code | Name | Credits | Tag | Grade |
|------|------|---------|-----|-------|------|------|---------|-----|-------|
| | | | | | | | | | |

**Academic Year: 2020 - 2021, Term: Semester Autumn**

| Code | Name | Credits | Tag | Grade | Code | Name | Credits | Tag | Grade |
|------|------|---------|-----|-------|------|------|---------|-----|-------|
| CS 747 | Foundations of Intelligent and Learning Agents | 6.0 | MA | AA | EE 691 | R & D Project | 6.0 | MA | AA |
| CS 767 | Theoretical Machine Learning | 6.0 | MI | AA | EE 782 | Advanced Topics in Machine Learning | 6.0 | MA | AA |
| EE 491 | BTP I | 6.0 | MA | AA | | | | | |

SPI=10.00/10  CPI=9.76/10

**Academic Year: 2020 - 2021, Term: Semester Spring**

| Code | Name | Credits | Tag | Grade | Code | Name | Credits | Tag | Grade |
|------|------|---------|-----|-------|------|------|---------|-----|-------|
| CS 347 | Operating Systems | 6.0 | MI | BB | EE 492 | BTP II | 12.0 | MA | AA |
| CS 748 | Advances in Intelligent and Learning Agents | 6.0 | MI | AA | EE 736 | Introduction to Stochastic Optimization | 6.0 | AL | AA |
| CS 753 | Automatic Speech Recognition | 6.0 | MI | AA | EE 763 | Science of Information, Statistics, and Learning | 6.0 | MA | AA |
| CS 769 | Optimization in Machine Learning | 6.0 | MI | AA | | | | | |

SPI=10.00/10  CPI=9.77/10

| | | | | |
|---|---|---|---|---|
| Mandatory Course Credits (MA) | = 267.0 | Overall CPI | = 9.77/10 |
| Overall Credits Completed | = 327.0 | | |
| Overall Grade Points | = 3155.0 | | |

**Final Result**

The student has completed the academic requirements of the programme in the month of June 2021 for the award of Bachelor of Technology in Electrical Engineering and Minor in (1) Computer Science and Engineering (2) Artificial Intelligence and Data Science

Signature & Seal of Transcript Issuing Authority:

Joint/Assistant Registrar (Academic), IIT Bombay
Date: 12-August-2021
Place: Mumbai
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| Name of the Student: Jian Manish Vora | Roll Number: 170100026 |
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**General Information**

The medium of instruction at the Institute is English.

Course credits and grade: Each course is associated with credits which are an indicator of its relative weight in calculating the academic performance. A two-letter grade is awarded to students on the basis of their performance in examinations and assignments of a specific course. The letter grades have numerical equivalents on a 0-10 scale as given below.

| Letter Grade | AP | AA | AB | BB | BC | CC | CD | DD | FF | FR | W | DX | PP | NP | AU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Numerical Equivalent | 10 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 0 | 0 | – | – | – | – | – |

FF: Fail, FR: Fail and repeat, W: Withdrawn, DX: Insufficient attendance, AU: Satisfactory performance in an audit course, PP: Pass, NP: Not Pass. The minimum passing grade in a course is DD. The grade AP is awarded to students with exceptional performance in core courses of a programme. Numerical equivalents of letter grades are referred to as grade points.

The numerical grade points are not convertible into marks or percentages.

Performance Indicators: The performance of a student in a semester is given by a number called the Semester Performance Index (SPI),which is the weighted average of the earned grade points in the courses during the semester.

If a student has courses with credits $C_1, C_2,..., C_n$, with grade points of $G_1, G_2,..., G_n$ respectively, then

| Semester Credits = $C_1 + C_2 + ... + C_n$ | Semester Grade Points = $C_1G_1 + C_2G_2 + ... + C_nG_n$ | SPI = Semester Grade Points ÷ Semester Credits |
|---|---|---|

Cumulative Performance Index (CPI) is the weighted average of the grade points in the courses in all semesters. The indices SPI and CPI are calculated upto two decimal places.

Courses are tagged as MA: Mandatory (Core/Elective), MI: Minor, HO: Honours, AL: Additional Learning, AU: Audit

- Each degree programme has mandatory credits consisting of core courses, elective courses, and non credit courses. These courses are tagged as MA.
- For calculation of SPI and CPI, grades obtained only in mandatory courses (MA) are considered.
- Students can supplement the learning experience by crediting additional courses. Credits earned in these courses, when appropriate, can earn additional credentials either in the form of "Honours" (HO) in the chosen discipline or "Minor" (MI) in another discipline or both.
- "Honours" is not indicative of proficiency, and can be earned by completing the additional prescribed set of advanced core and elective courses in the chosen discipline. "Minor" can be earned by completing the prescribed set of courses in a discipline other than the chosen discipline. Additional courses that are not used for earning "Honours" or "Minor" are tagged as "Additional Learning" (AL).
- The AU is awarded based on satisfactory attendance and fulfilling the minimum requirements as set by the course instructor.It carries no grade points and does not figure in SPI or CPI calculations.
- PP or NP is awarded in some credit courses that are not earmarked with a letter grade. Correspondingly, PP/NP does not carry a grade point.

The Institute does not award any class or division. Notionally, the CPI may be multiplied by a factor of 10 to obtain a numerical percentage.

The veracity of this document can be ascertained by using the verification ticket number in the URL given at the bottom of this page.

| END OF TRANSCRIPT | Roll Number: 170100026 |
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