



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



Date of Issue : 28-October-2025 , liable to change since student has not yet graduated

Roll Number: 22B4246 Academic Unit: Electrical Engineering  
Name of the Student: Prajwal Nayak Discipline/Specialization: Communication & Signal Processing  
Programme: Dual Degree (B.Tech. + M.Tech.) (Dual Degree (B.Tech. + M.Tech.)) Joining Month & Year: October 2022

Code	Name	Credits	Tag	Grade/ Marks	Code	Name	Credits	Tag	Grade/ Marks
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**Academic Year: 2022 – 2023, Term: Semester Autumn**

BB 101	Biology	6.0	MA	AA	GC 101	Gender in the workplace	0.0	MA	PP
CH 105	Organic & Inorganic Chemistry	4.0	MA	BB	MA 109	Calculus I	4.0	MA	BC
CH 107	Physical Chemistry	4.0	MA	AB	MA 111	Calculus II	4.0	MA	BC
CH 117	Chemistry Lab	3.0	MA	AA	MS 101	Makerspace	8.0	MA	AB
ES 101	Introduction to Environmental Science & Engineering	6.0	MA	AB	NOCS01	NCC/NSS/NSO	0.0	MA	PP

SPI=8.72/10

CPI=8.72/10

**Academic Year: 2022 – 2023, Term: Semester Spring**

CS 101	Computer Programming and Utilization	6.0	MA	AA	NOCS02	NCC/NSS/NSO	0.0	MA	PP
ES 204	Environmental Chemistry	6.0	MA	AA	PH 111	Introduction to classical Physics	4.0	MA	BB
HS 110	Introduction to Psychology	4.0	MA	BB	PH 112	Introduction to Quantum Physics	4.0	MA	BC
HS 112	Introduction to the Arts	4.0	MA	AB	PH 117	Physics Lab	3.0	MA	AB
MA 106	Linear Algebra	4.0	MA	AB	TA 101	Teaching Assistant Skill Enhancement & Training (TASET)	0.0	MA	PP
MA 108	Differential Equations	4.0	MA	BB					

SPI=8.79/10

CPI=8.76/10

**Academic Year: 2023 – 2024, Term: Semester Autumn**

DS 203	Programming for Data Science	6.0	MI	BC	EE 214	Digital Circuits Lab	3.0	MA	AB
EC 101	Economics	6.0	MA	CC	EE 224	Digital Systems	6.0	MA	AA
EE 114	Power Engineering - I	6.0	MA	CD	EE 229	Signal Processing - ; I	6.0	MA	BB
EE 204	Analog Circuits	6.0	MA	BC	EE 325	Probability and Random Processes	6.0	MA	BB

SPI=7.46/10

CPI=8.32/10

**Academic Year: 2023 – 2024, Term: Semester Spring**

CS 419	Introducing to Machine Learning	6.0	MI	BC	EE 240	Power Engineering Lab	3.0	MA	AB
DE 250	Design Thinking for Innovation	6.0	MA	AB	EE 302	Control Systems	6.0	MA	AB
EE 207	Electronic Devices & Circuits	6.0	MA	CD	EE 309	Microprocessors	6.0	MA	AB
EE 230	Analog Lab	3.0	MA	BC	EE 337	Microprocessors Laboratory	3.0	MA	BB
EE 238	Power Engineering - II	6.0	MA	BB					

SPI=8.00/10

CPI=8.23/10

**Academic Year: 2024 – 2025, Term: Semester Autumn**

CS 663	Fundamentals of Digital Image Processing	6.0	AL	BC	EE 341	Communication Systems - I	6.0	MA	BB
EE 236	Electronic Devices Lab	3.0	MA	BB	EE 353	Introduction to Data Science and Machine Learning	6.0	MA	AB
EE 301	Electromagnetic Waves	6.0	MA	BC	EE 678	Wavelets	6.0	MA	BB
EE 324	Control Systems Lab	3.0	MA	AA	HS 436	Indian Culture and Tradition	6.0	MA	BB
EE 340	Communications Lab	3.0	MA	AB					

SPI=8.23/10

CPI=8.23/10

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Name of the Student: Prajwal Nayak

Roll Number : 22B4246

Code	Name	Credits	Tag	Grade/ Marks	Code	Name	Credits	Tag	Grade/ Marks
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Academic Year: 2024 - 2025, Term: Semester Spring

CS 754 Advanced Image Processing	6.0	MA	CC	EE 702 Computer Vision	6.0	MA	BC
EE 338 Digital Signal Processing	6.0	MA	AB	EE 708 Information Theory & Coding	6.0	MA	DD
EE 344 Electronic Design Lab	6.0	MA	BB	EE 739 Processor Design	6.0	MA	BB
EE 350 Technical Communication	6.0	MA	AB	ENT601 Intellectual Property for Entrepreneurs	3.0	MA	AB
EE6106 Online Learning and Optimisation	6.0	MA	BB				

SPI=7.47/10

CPI=8.08/10

Mandatory Course Credits (MA+HO)	= 252.0	CPI (Courses)	= 8.08/10
Project Credits (PR)	= 0.0		
Net Mandatory Credits (MA+PR)	= 252.0	CPI (Overall)	= 8.08/10
Overall Completed Credits	= 252		
Overall Grade Points	= 2036		

**Current Status**

The academic requirements for the degree are yet to be completed.

**General Information**

The medium of instruction at the Institute is English.

Course credits and grade: Each academic course is associated with a credit which is an indicator of its relative academic 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  $C_1, C_2, \dots, C_n$ , with grade points of  $G_1, G_2, \dots, G_n$  respectively, then

Semester Credits = $C_1 + C_2 + \dots + C_n$	Semester Grade Points = $C_1 G_1 + C_2 G_2 + \dots + C_n G_n$	SPI = Semester Grade Points ÷ Semester Credits.
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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.
- O-IITB is/are the Course(s) completed by a student outside IIT Bombay (NPTEL/ Swayam). These course(s) contribute towards the completion of credits for a degree requirement. However, grades/marks earned for such course(s) is/are not considered for SPI / CPI calculation.

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.

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END OF TRANSCRIPT

Roll Number: 22B4246