

Indian Institute of Technology Dharwad



॥ सा विद्या या विमुक्तये ॥

भारतीय प्रौद्योगिकी संस्थान धारवाड
Indian Institute of Technology Dharwad

Information Brochure

M.Tech. Admissions

Academic Year 2023-24

(For Indian Nationals)

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Section I

General Information on Admission Process

A. Schedule of Master of Technology (M.Tech.) Admission

Sr. No.	Description	Relevant dates*										
1.	Applications open	28-March-2023 for ME 14-April-2023 for EE										
2.	Last date to apply online	30-April-2023 (Up to 5:00 PM) for ME & EE both.										
3.	Announcement of shortlisted candidates as per the Common Offer Acceptance Portal or COAP https://coap.iitb.ac.in/ Main rounds of offers are available in the COAP. There may be additional rounds as per the COAP.	<table border="1"><tbody><tr><td>Round 1</td><td>May 20 - 22, 2023</td></tr><tr><td>Round 2</td><td>May 27 - 29, 2023</td></tr><tr><td>Round 3</td><td>June 03 - 05, 2023</td></tr><tr><td>Round 4</td><td>June 10 – 12, 2023</td></tr><tr><td>Round 5</td><td>June 17 – 19, 2023</td></tr></tbody></table>	Round 1	May 20 - 22, 2023	Round 2	May 27 - 29, 2023	Round 3	June 03 - 05, 2023	Round 4	June 10 – 12, 2023	Round 5	June 17 – 19, 2023
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Round 3	June 03 - 05, 2023											
Round 4	June 10 – 12, 2023											
Round 5	June 17 – 19, 2023											

All potential candidates are requested to visit the institute website regularly for updated information about the schedule. **The updates regarding the admission process will be made available on the institute website under section [Academics](#) >> [Admissions](#) >> [M.Tech.](#)**

B. FINANCIAL SUPPORT

IIT Dharwad admits candidates for full time M.Tech. Programme, under Teaching Assistantship (TA).

B.1 Teaching Assistantship (TA)

Funded by the Ministry of Education (MoE, formerly known as MHRD), the TAs are expected to assist in the academic/administrative work for smooth functioning of the institute. Students under this category are entitled to financial support as per the MoE norms.

1. The assistantship is payable for a maximum duration of two academic years. At present, the monthly rate of assistantship is ₹12400.
2. To get the TA stipend, the students concerned must assist in teaching, research and/or administrative work as assigned by the respective academic unit to the extent of 8 hours work per week.
3. The continuation of the assistantship will be subject to the satisfactory performance of the duties assigned by the departments as well as satisfactory academic performance.
4. As per MoE directives, the employees on the rolls (with or without pay) of any organization are not eligible for admission under this category. Candidates selected in

this category have to resign from the current job and submit a relieving letter from their employer before joining the programme.

C. APPLICATION PROCESS

1. Please read all the instructions given in the brochure carefully before filling up the application form.
2. You are required to submit the application form online. There are no downloadable forms available. Please note that the application is to be filled in one go. There is no save and proceed option. The application process flow is given below.

Keep all the documents including COAP registration number, GATE handy >> pay the application fee through SBI e-collect facility >> Note down SBI e-collect reference No >> Start online application form >> Fill all particulars including SBI e-collect reference No >> Take a print or save a pdf copy of preview of completed application form >> Final submission of application form >> Note down submission ID for future reference

3. The procedure to pay the application fee through SBI e-collect facility is made available on the website. Candidates are requested to pay the application fee through the steps/procedure described. Candidates may contact pgadmissions@iitdh.ac.in for any errors/issues pertaining to payment of application fees.
4. This information brochure and future updates regarding the admission process will be made available on the institute website under section **Academics >> Admissions >> M.Tech.**
5. After filling the form, you are advised to take a print and keep the same for future reference. After successful submission of the form, you should receive a confirmation email. In case you have not received any e-mail confirmation, within one-hour post submission, you are requested to resubmit the form.
6. The application fee is as follows: Please visit the link given below and choose “Application Fee (M.Tech/MS/PhD)”, fill all the particulars and chose an amount based on your social category. **Please submit and note down the transaction reference number to be mentioned in the application form as well as for future reference.**

[State Bank Collect \(onlinesbi.sbi\)](https://onlinesbi.sbi)

Gen/Gen (EWS)/OBC/ all other candidates	₹ 200/-
Women/SC/ST/PwD category candidates	₹ 100/-

7. **The application form without valid online payment details will not be considered. Application fee is Non-Refundable.**
8. Applicant may find it convenient to keep following information handy while filling the application form online (whichever relevant):

- COAP Registration Number
 - Passport size photo (with size less than 50 KB) and SBI e Collect Reference Number
 - Educational details (from secondary school onward)
 - GATE qualification details
9. Amendments to the form will not be possible once the last date to apply online is over. However, amendments can be considered if the applicant resubmits the entire form without making repeat fee payment before the deadline.
 10. Check your emails regularly for any communication from the institute regarding the selection process.
 11. Check the institute website and COAP regularly for updates regarding the selection process.
 12. **Candidates should keep all their documents ready, they should be able to produce the same on a short notice. The documents include all educational qualification, GATE score card, experience and a valid category certificate etc.**

D. FEES, DEPOSITS & HOSTEL RENT

D.1 TA Category

The tentative fee applicable for admission to M.Tech. Programme for Autumn 2023-24 semester is

S. No.	Fee Amount (In Rs.)	For General/EWS/OBC	For SC/ST/Divyangjan
A. One-time payment at the time of Admission			
1.	Admission Fee	2,200.00	2,200.00
2.	Graduation Transcript Fee	500.00	500.00
3.	Medical Examination	400.00	400.00
4.	Provisional Certificate	500.00	500.00
5.	Thesis Fee	2,500.00	2,500.00
6.	Student Welfare Fund	1,000.00	1,000.00
7.	Modernization & Upgradation	2,500.00	2,500.00
8.	Identity Card	500.00	500.00
9.	Alumni fee	1000.00	1000.00
10.	Convocation fee	3000.00	3000.00
Sub-Total (A)		14,100.00	14,100.00
B. Semester Fee			
1.	Tuition Fee – Statutory Fee	#5,000.00	##Nil
2.	Examination Fee	1,000.00	1,000.00
3.	Registration Fee	750.00	750.00
4.	Gymkhana Fee	3,000.00	3,000.00
5.	Student Benevolent Fund	500.00	500.00
6.	Medical Fee	1,500.00	1,500.00
7.	Hostel Room Rent	2,000.00	2,000.00
8.	Electricity & Water Charges	3,000.00	3,000.00
9.	Hostel Establishment Charges	3,000.00	3,000.00
10.	Mess Establishment Charges	1,550.00	1,550.00
Sub-Total (B)		21,300.00	16,300.00
Mess Advance		24,500.00	24,500.00
C. Deposits (Refundable) to be paid at the time of Admission			
1.	Institute Security Deposit	1,000.00	1,000.00
2.	Library Security Deposit	1,000.00	1,000.00
3.	Mess Security Deposit	1,000.00	1,000.00
Sub-Total (C)		3,000.00	3,000.00
GRAND TOTAL FEE (A + B + C+ Mess Advance)		62,900.00	57,900.00

Note:

- a. #IIT Dharwad reserves the right to revise the Tuition Fee-Statutory Fee (in future).
- b. ##All the SC/ST/Divyangjan students are exempted from payment of Tuition fee.

E. INFORMATION PERTAINING TO HOSTELS

About IIT Dharwad	Kindly visit the website https://www.iitdh.ac.in/ for available facilities
Hostel room allocation (on sharing basis)	You will be allotted a room in the hostel & the room key will be handed over on your arrival at the institute. Each room will accommodate roughly two/four students (depending on the prevailing conditions) and has an attached bath & toilet.
Are hostel rooms furnished	Each student will be provided a cot, chair & study table and wardrobe. Students can purchase mattress/bedding, bucket, etc. locally. Arrangements will be made for on-campus shopping for these items.
Possession of motorized vehicle	NOT ALLOWED, however bicycles are permitted in the campus.
Climatic conditions	The weather at Dharwad is pleasant throughout the year. Generally, it will be raining in the months of June to September and weather will be windy and cold during the months of October to January. It is suggested that you carry protective clothing accordingly.

Section II

Department Specific Information

F. DEPARTMENT OF MECHANICAL, MATERIALS, AND AEROSPACE ENGINEERING

The Department of Mechanical, Materials, and Aerospace Engineering (MMAE) was started as the Department of Mechanical Engineering in the year 2016, the same year of establishment of IIT Dharwad. The department was renamed in the year 2019. Since its inception, the department has been offering a four-year B.Tech. Programme in Mechanical Engineering at an undergraduate level. At the postgraduate level, the department offers research programs such as M.S. (by Research) and Ph.D. programs. From the autumn semester 2022-23, Department of MMAE started a two-year M.Tech. in Mechanical Engineering.

The Department's UG and PG curriculum offers a distinct combination of courses with sound conceptual understanding together with practice-oriented learning elements. The theoretical rigor is imparted from a selection of courses in basic sciences and interdisciplinary topics in addition to subjects from the core mechanical and materials engineering curriculum, which are backed by an array of hands-on laboratory courses.

The faculty of the department work on various core research areas and also on an extensive list of interdisciplinary research areas. The research areas of MMAE faculty members are listed below

Stream	Area of Research
Thermal and Fluid	<ul style="list-style-type: none"> ● Computational Fluid Dynamics (CFD) ● Non-Newtonian flows, ● Turbulence ● Compressible flows ● Multiphase flows ● Fluid Structure Interaction (FSI) ● Machine learning for fluid mechanics ● Turbomachinery aerodynamics ● Experimental methods in fluid mechanics ● Thermoacoustics ● Combustion ● Fire dynamics and fire safety ● Gas turbine blade cooling ● Atomization and sprays ● Environmental fluid mechanics
Design stream	<ul style="list-style-type: none"> ● Computational and experimental mechanics ● Finite Element Methods (FEM) ● Nonlinear mechanics ● Reduced-order modeling ● Thin film dynamics ● Computational biomechanics ● Robotics ● Rigid multibody kinematics and dynamics

	<ul style="list-style-type: none"> ● Static Balancing ● Topology optimization ● Tribology and contact mechanics ● Vibrations ● Mechanics of composite materials ● Fracture mechanics ● Mechanics of cellular solids ● Computer vision
Materials and Manufacturing	<ul style="list-style-type: none"> ● Metal forming and plasticity ● CAD/CAM ● Numerical analysis of forming processes ● Fracture mechanics ● Additive manufacturing ● 4D Printing smart material ● CNC machining ● Micromechanical modeling of materials ● Material testing and characterization ● Dislocation dynamics and Crystal Plasticity modeling ● Light weight and high temperature structural materials ● Digital Twins

F.1 ELIGIBILITY FOR ADMISSION

F.1.a General eligibility criteria

1. B.Tech./B.E. or equivalent degree in Mechanical Engineering or Materials and Metallurgical Engineering or Aerospace Engineering or other related streams*
2. A valid GATE score in one of the following papers AE, ME, MT, PI, XE (A, B, C, D, E) **

*related streams: Production, Industrial, Automobile, Aeronautical, Mining Engineering and M.Sc. in Physics or Material Science

**Valid GATE score is essential for all the candidates, except for candidates who have B.Tech. or equivalent degree from IITs or BS degree from IISc with a minimum CPI/CGPA of 8.0 on the scale of 10.

F.1.b Minimum score in the qualifying degree

For General/General (EWS)/OBC category candidates and/or for candidates where no concession in academic performance is called for, the eligibility criteria in the qualifying degree (B.Tech./B.E.) is either of the following two:

- A minimum of 60% marks (without round off) in aggregate over the entire

duration of the undergraduate program.

- A minimum Cumulative Grade Point Average (CGPA) or Cumulative Performance Index (CPI) of 6.0 on the scale of 0-10 with corresponding proportional requirements when the scales are other than 0-10 (for example, 4.8 on a scale of 0-8).

For SC/ST/PWD category candidates, a relaxation of 5% in the performance at the qualifying degree is applicable.

Merely satisfying the eligibility conditions does not guarantee selection into the program.

F.2 Applicants in the final phase of getting qualifying degree

The students who are in the final phase of receiving above mentioned qualifying degree and are likely to graduate before the commencement of the Autumn 2023-24 semester are also eligible to apply. However, if offered, the admission to those candidates would be provisional. To join the academic program at IIT Dharwad, such candidates need to furnish necessary documents regarding completion of the degree on the date of joining IIT Dharwad. The date of joining will be announced later on the institute website. The candidate needs to meet the criteria specified in Section F.1 above considering the updated score in the qualifying degree. In the meanwhile, the aggregate academic performance announced by the respective university till the last date for submission (mentioned in section A) should be used to determine eligibility for application, and the same should be reported in the online application.

F.3 Screening criteria of applications

The GATE cut off for applying to the M.Tech. Programme are as follows: 460 for General/General (EWS) and for other categories, relaxation is given as per GOI norms.

F.4 Financial support category

The Department of Mechanical, Materials, and Aerospace Engineering at IIT Dharwad invites applications for the M.Tech. in Mechanical Engineering program under the TA category for the Academic Year 2023-24.

F.5 Number of available seats

- The total number of seats available in the TA category are $20^* + 2^{**} = 22$.
- The 20 seats are distributed as per the seat matrix for different social categories.

*20 seats are to be admitted purely based on the GATE score and as per the criteria specified in Sections F.1 and F.3. Minimum 60% of total seats will be allocated to the students with ME paper and B.Tech/B.E in Mechanical Engineering. The remaining 40% seats may be filled with candidates having non-ME background.

**2 seats are supernumerary for the candidates who have B.Tech. or equivalent degree from IITs or BS degree from IISc with minimum CPI/CGPA of 8.0 on scale of 0-10.

F.6 Modality of selection process

- For admission through GATE score, the candidates with higher GATE scores will be allotted seats based on their social category. Candidate can access the offers made (from IIT Dharwad) in COAP website during the time window mentioned in COAP.
- Tie-breaker criteria for the instances when the GATE score is same among multiple candidates within the same social category will be as follows in that order:
 - The aggregate academic performance in their B.Tech./B.E. till the last date for submission
 - Seniority of the candidate based on their date of birth. The candidates with earlier date of birth will be given preference.
- GATE is not mandatory for the candidates who have B.Tech. or equivalent degree from IITs or BS degree from IISc with minimum CPI/CGPA of 8.0 on the scale of 0-10 for supernumerary seats. For such candidates, the selection will be based on CPI/CGPA only.

F.7 Department level contacts for admission process enquiries

For queries related to MS admissions in MMAE Department, one can write to pgadmissions.me@iitdh.ac.in and cc to pgadmissions@iitdh.ac.in with the subject “Query related to MS Admissions in MMAE”.

G. PROGRAMME STRUCTURE (M.Tech. in Mechanical Engineering)

Total credit requirement for the course completion: minimum **125 credits**

IC: Institute core = **67 credits**,

PC: Program core = **23 credits**,

PE: Program Electives = $6 + 5 + 4 \times 6 = 35$ credits

1st semester:

- 3 core-courses (6 credits each) = 18 credits prescribed program core
- Minimum 6 credits from “Engineering and Applied Mathematics” basket
- Minimum 5 credits from “Programming and Scientific Computing” basket
- Research Practicum (3 credits)

2nd semester:

- 4 elective-courses (6 credits each)
- 1 core-lab (5 credits)

3rd semester:

- MTech Technical Project work - Phase I (32 credits)

4th semester:

- MTech Technical Project work - Phase II (32 credits)

1st Semester: (3 Core courses + 2 Elective courses + Research Practicum): 32 Credits

Course Name	L-T-P-C	Objective of the course	Course Category
Advanced Solid Mechanics OR Advanced Mechanisms and Dynamics of Mechanical Systems	3-0-0-6	To introduce and orient students to the concepts of forces, stresses, deflections in mechanical systems OR To introduce and orient students to the advanced mechanisms & dynamics	PC
Advanced Fluid Mechanics and Heat Transfer	3-0-0-6	To introduce students to the advanced topics in the fluid thermal	PC
Additive and Forming Manufacturing Processes	3-0-0-6	To introduce mathematical concepts, forming and additive manuf., trends and case studies regarding industry 4.0	PC
A course from “Engineering and Applied Mathematics” basket	min. 6 credits	To make the mathematical foundations	PE
A course from “Programming and Scientific Computing” basket	min. 5 credits	To introduce students programming, analysis tools and software, Operating systems, R and Python programming, etc.	PE
Research Practicum (Seminar)	0-0-3-3	To introduce students to literature review, report preparations and seminar presentation to a large audience as seminar on research topics in Mechanical Engineering	IC

*Allocate research practicum seminar topics: seminar coordination by the FacAd of the batch at the beginning of 1st semester

*Allocate MTech Technical Project Supervisor at the end of 1st semester

2nd Semester: (1 Core Lab + 4 Elective courses): 29 Credits

Course Name	L-T-P-C	Objective of the course	Course Category
Experimental Theory & Laboratory	1-0-3-5	To introduce students with experimental analysis, data analysis, measurement tools and to introduce basic and advance level experiments in FM, HT, SOM, KDOM, Manufacturing	PC
Elective I	3-0-0-6	To give a choice to the student to choose postgraduate level course	PE
Elective II	3-0-0-6	To give a choice to the student to choose postgraduate level course	PE
Elective III	3-0-0-6	To give a choice to the student to choose postgraduate level course	PE
Elective IV	3-0-0-6	To give a choice to the student to choose postgraduate level course	PE

Semester – III: 32 Credits			Semester – IV: 32 Credits		
Course Name	L-T-P-C	Course Category	Course Name	L-T-P-C	Course Category
M.Tech. Project - I	0-8-16-32	IC	M.Tech. Project - II	0-8-16-32	IC

Engineering and Applied Mathematics Basket of Courses: (minimum 6 credits)

- Engineering Mathematics for Advanced Studies
- Mathematics for Data Science
- Numerical Linear Algebra
- Introduction to Numerical Methods

Programming and Scientific computing Basket of Courses: (minimum 5 credits)

- Introduction to Programming and Modeling Laboratory (5 credits)
- Topics in Data structures and Algorithms (6 credits, course put for approval in MTech DSAI)
- Programming Parallel Machines (6 credits)
- Software Development for Scientific Computing (6 credits)

List of available PG electives

Advanced Finite Element Methods	Fracture Mechanics
Advanced Heat Transfer	Fundamentals of Acoustics
Applied Elasticity	Fundamentals of Tribology
Combustion and Fire Dynamics	Introduction to Turbulence and its Modelling
Convective Heat Transfer	Kinematics, Dynamics and Control of Mechanical System
Design of Mechatronic Systems	Linear Viscoelasticity
Fatigue and Fracture Mechanics	Mechanical Vibrations
Metal Forming and Plasticity	Mechanics of Composite Materials
Non-linear Solid Mechanics	Fluid Flow and Heat Transfer in Porous Media

Turbomachinery Aerodynamics	Modeling of Metal Plasticity: Discrete & Continuum Approaches
Advanced CAM	Satellite Altitude Dynamics and Control
	Design and Manufacturing of Composite Materials

H. DEPARTMENT OF ELECTRICAL ENGINEERING

H.1 ELIGIBILITY FOR ADMISSION

H.1.a General eligibility criteria

1. B.Tech./B.E. in
 - a. Electrical Engineering,
 - b. Electronics and communication Engineering,
 - c. Instrumentation engineering
 - d. Instrumentation and control engineering
 - e. Telecommunication engineering
 - f. Electronics and Telecommunication engineering
 - g. Electrical and Electronics

2. A valid GATE score in one of the following papers EE or EC,*

*Valid GATE score is essential for all the candidates, except for candidates who have B.Tech. or equivalent degree from IITs or BS degree from IISc with a minimum CPI/CGPA of 8.0 on the scale of 10.

H.1.b Minimum score in the qualifying degree

For General/General (EWS)/OBC category candidates and/or for candidates where no concession in academic performance is called for, the eligibility criteria in the qualifying degree (B.Tech./B.E.) is either of the following two:

- A minimum of 60% marks (without round off) in aggregate over the entire duration of the undergraduate program.
- A minimum Cumulative Grade Point Average (CGPA) or Cumulative Performance Index (CPI) of 6.0 on the scale of 0-10 with corresponding proportional requirements when the scales are other than 0-10 (for example, 4.8 on a scale of 0-8).

For SC/ST/PWD category candidates, a relaxation of 5% in the performance at the qualifying degree is applicable.

Merely satisfying the eligibility conditions does not guarantee selection into the program.

H.2 Applicants in the final phase of getting qualifying degree

The students who are in the final phase of receiving the above mentioned qualifying degree and are likely to graduate before the commencement of the Autumn 2023-24 semester are also eligible to apply. However, if offered, the admission to those candidates would be provisional. To join the academic program at IIT Dharwad, such candidates

need to furnish necessary documents regarding completion of the degree on the date of joining IIT Dharwad. The date of joining will be announced later on the institute website. The candidate needs to meet the criteria specified in Section H.1 above considering the updated score in the qualifying degree. In the meanwhile, the aggregate academic performance announced by the respective university till the last date for submission (mentioned in section A) should be used to determine eligibility for application, and the same should be reported in the online application.

H.3 Screening criteria of applications

The GATE cut off for applying to the M.Tech. Programme are as follows: 350 for General/General (EWS) and for other categories, relaxation is given as per GOI norms.

H.4 Financial support category

The Department of Electrical Engineering at IIT Dharwad invites applications for the M.Tech. in Electrical Engineering under the TA category for the Academic Year 2023-24.

H.5 Number of available seats

- The total number of seats available in the TA category are $36^* + 4^{**} = 40$.
- The 36 seats are distributed as per the seat matrix for different social categories.

*36 seats are to be admitted purely based on the GATE score and as per the criteria specified in Sections H.1 and H.3. 28 seats will be allocated to the students with GATE in EC paper and 8 seats will be allocated to students with GATE in EE.

**4 seats are supernumerary for the candidates who have B.Tech. or equivalent degree from IITs or BS degree from IISc with minimum CPI/CGPA of 8.0 on scale of 0-10.

H.6 Modality of selection process

- For admission through GATE score, the candidates with higher GATE scores will be allotted seats based on their social category. Candidates can access the offers made (from IIT Dharwad) in COAP website during the time window mentioned in COAP.
- Tie-breaker criteria for the instances when the GATE score is same among multiple candidates within the same social category will be as follows in that order:
 - The aggregate academic performance in their B.Tech./B.E. till the last date for submission
 - Seniority of the candidate based on their date of birth. The candidates with earlier date of birth will be given preference.

- GATE is not mandatory for the candidates who have B.Tech. or equivalent degree from IITs or BS degree from IISc with minimum CPI/CGPA of 8.0 on the scale of 0-10 for supernumerary seats. For such candidates, the selection will be based on CPI/CGPA only.

H.7 Department level contacts for admission process enquiries

For queries related to MTech admissions in the Electrical Engineering Department, one can write to pgadmissions@iitdh.ac.in with the subject “Query related to MTech Admissions in EE”.

I. PROGRAMME STRUCTURE (M.Tech. in Electrical Engineering with specializations)

Total credit requirement for the course completion: minimum **130 credits** with following distribution:

1. Core Theory courses = 18 **credits** from courses prescribed in Core theory basket
2. Core lab courses = 3 credits from the courses prescribed in Core lab basket
3. Seminar course = 3 credits
4. Specialization Electives courses = 24 credits from one of the following baskets
 - a. Communications and Signal processing
 - b. Microelectronics and VLSI
 - c. Power electronics and power systems
5. The remaining 18 credits can be chosen from any basket (in addition to core theory, core lab and seminar credits) or outside the department courses subject to the following requirements
 - a. A student can take up to two electives (12 credits) from outside the department to meet their elective credits requirements. These electives must be at level 600 or above (PG level courses).
 - b. A student can take at most 1 UG elective (6 credits), i.e., 300 or above Level course to meet their elective credits requirements.
6. 64 credits from MTech project I and MTech project II (32 credits each).
7. Compulsory communications skills course (P/NP i.e. Pass/Not Passed). This course does not carry any credits.

Semester wise credits distribution (prescribed distribution)

Semester 1	Semester 2	Semester 3	Semester 4
18 core theory credits	30 credits of electives	M.Tech. Project I 32 credits	M.Tech. Project II 32 credits
3 core lab credits			
3 credits seminar			
12 credits electives			
Communications skills course (P/NP)			

List of courses

The core theory courses are (6 credits each)

1. Linear Algebra and its applications
2. Embedded systems design (new course)
3. Probability models and its applications
4. Multivariable Control Systems

The student has to take at least 3 out of these 4 courses to complete the core theory course requirements.

The core lab courses are (3 credits each)

1. Embedded systems design lab (new course)
2. VLSI Simulations Lab (new course)

The student has to take at least 1 out of these 2 lab courses to complete the core lab course requirements.

All the core theory and lab courses will be offered in the Autumn semester (odd semester and the first semester for fresh students).

List of electives

Autumn (Odd) semester

Basket: VLSI and Microelectronics	<ul style="list-style-type: none">● VLSI Design● Physics of Transistors● Analog IC design● Nano electronics
Basket: Communication, Signal Processing and Machine learning	<ul style="list-style-type: none">● Speech Processing● Speech Processing Lab
Basket: Power electronics and power systems	<ul style="list-style-type: none">● Photovoltaic system design● Power Systems Dynamics and Control

Spring (Even) semester

Basket: VLSI and Microelectronics	<ul style="list-style-type: none"> ● Mixed signal VLSI Design ● VLSI Technology ● Power semiconductor devices ● System Design of Electronic Products ● VLSI Testing and testability
Basket: Communication, Signal Processing and Machine learning	<ul style="list-style-type: none"> ● Pattern Recognition and Machine learning (PRML) ● PRML Lab ● Detection and estimation theory ● Optimization theory and algorithms ● Next generation wireless networks ● Wireless communications ● Neural networks and deep learning (NNDL) ● NNDL Lab
Basket: Power electronics and power systems	<ul style="list-style-type: none"> ● Advanced Electric Drives ● Design of power converters ● Micro grid dynamics and control ● System Design of Electronic Products ● Power system protection ● Smart grid ● Power systems operation and control ● Modeling and control of renewable energy sources ● Electric Vehicles: Systems and components ● Advanced power electronics and drives ● Power System Protection (3-0-0-6) ● Power System Simulation Lab (0-0-3-3)