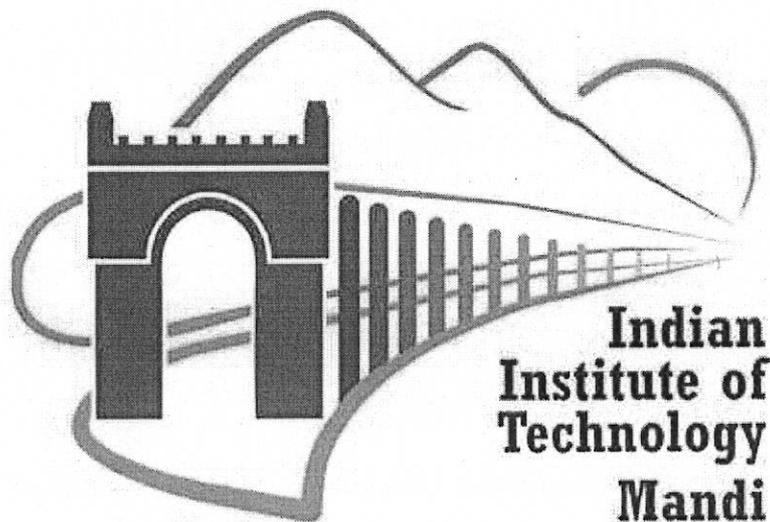


INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND, DISTT. MANDI – 175005 (HIMACHAL PRADESH)



MINUTES OF 23RD BOARD OF ACADEMICS MEETING

VENUE : A-4 CONFERENCE ROOM, KAMAND)
DATE : 10TH APRIL, 2018 (TUESDAY)
TIME : 04:00 P.M.

Following members attended the meeting

Sl.No.		Name	
1.	Dean Academics	Prof. B.D. Chaudhary	Chairman
2.	Associate Dean (Research)	Dr. Venkata Krishnan	Member
3.	Associate Dean (Courses)	Dr. Pradeep Parameswaran	Member
4.	Chairman Library Advisory Committee	Dr. Astrid Kiehn	Member
5.	Chairman Course Proposal Committee + Course Coordinator M.Sc. (Chemistry)	Dr. Chayan K Nandi	Member
6.	Course Coordinator (IC Courses)	Dr. Aniruddha Chakraborty	Member
7.	Course Coordinator (B.Tech.-CSE)	Dr. Dileep A D	Member
8.	Course Coordinator (M.Tech.- (Energy Engg. (Materials))	Dr. Atul Dhar	Member
9.	Course Coordinator (M.Tech.-(Mechanical Engg. (Energy Systems))		Member
10.	Course Coordinator (M.Tech.-(Communication and Signal Processing))	Dr. Renu M Rameshan	Member
11.	Course Coordinator (M.Tech.-Biotechnology)	Dr. Shyam K Masakpalli	Member
12.	Course Coordinator (M.Sc.-Applied Maths)	Dr. Nitu Kumari	Member
13.	Nominee-1: School of Engineering	Dr. Rajesh Ghosh	Member
14.	Nominee-2: School of Engineering	Dr. Venkata Uday Kala	Member
15.	Nominee-1: School of Computing & Electrical Engineering	Dr. Kunal Ghosh	Member
16.	Nominee-2: School of Computing & Electrical Engineering	Dr. Aditya Nigam	Member
17.	Nominee-1: School of Basic Sciences	Dr. Syed Abbas	Member
18.	Academic Affairs Secretary	Mr. Abhishek	Member
19.	Assistant Registrar (Academics): Secretary	Mr. Suresh Rohilla	Member

Following members could not attend the meeting

Sl.No.		Name	
1.	Course Coordinator (SHSS Courses) + Nominee (SHSS)	Dr. Shyamasree Dasgupta	Member
2.	Course Coordinator (B.Tech.-EE)	Dr. Subashish Datta	Member
3.	Course Coordinator (B.Tech.-ME)	Dr. Arpan Gupta	Member
4.	Course Coordinator (B.Tech.-CE)	Dr. Deepak Swami	Member
5.	Course Coordinator (M.Tech.-(VLSI))	Dr. Satinder Sharma	Member
6.	Course Coordinator (M.Tech.-(Power Electronics and Drives))	Dr. Narsa Reddy Tummuru	Member
7.	Course Coordinator (M.Sc.-Physics)	Dr. Chander Shekhar Yadav	Member
8.	Course Coordinator (I-Ph.D.(Physics))	Dr. Hari Varma	Member
9.	Nominee-2: School of Basic Sciences	Dr. Prosenjit Mondal	Member
10.	Nominee-1: School of Humanities & Social Sciences	Dr. Ashok Kumar	Member
11.	Research Affairs Secretary	Ms. Manushree	Member
12.	Industry Member - 1	Dr. Nadeem Akhtar	Member

Special Invitee

Sl.No.	Name	
1.	Dr. Hitesh Shrimali	Asst. Prof., SCEE
2.	Dr. Dericks P Shukla	Asst. Prof., SE
3.	Dr. Sandip Kumar Saha	Asst. Prof., SE
4.	Dr. Maheshreddy Gade	Asst. Prof., SE
5.	Dr. Ankush Bag	Asst. Prof., SCEE
6.	Dr. Shail Shankar	Asst. Prof., SHSS
7.	Dr. Varun Dutt	Asst. Prof., SCEE
8.	Dr. Rajeshwari Dutt	Asst. Prof., SHSS
9.	Dr. Ramna Thakur	Asst. Prof., SHSS
10.	Dr. Surya Prakash	Asst. Prof., SHSS
11.	Dr. Devika Sethi	Asst. Prof., SHSS
12.	Dr. Manu V Devadevan	Asst. Prof., SHSS
13.	Dr. Shubhajit Roy Chowdhury	Asst. Prof., SCEE

PART-A

(Issues discussed by the Board of Academics when the Student Members were present)

23.1 Confirmation of minutes of 22nd meeting of Board of Academics:

The minutes of 22nd BoA meeting held on 05th February, 2018 was confirmed.

23.2 To deliberate new courses to be offered:

The Chairperson, CPC presented 17 new courses for consideration and approval of BoA. After due deliberations, the BoA decided to recommend the following 10 courses after incorporating the suggestions to the Senate for its approval. Further it decided to defer 07 courses.

Following 10 Courses are recommended to the Senate for its approval:

Sl. No.	Course No.	Course Name	Credits	Proposed by	School
1	CE 252	Geology and Geomorphology	1.5-0-1-2	Dr Dericks P Shukla	SE
2	CE 555	Design of Structures	2-1-0-3	Dr. Sandip Kumar Saha	SE
3	CE 556P	Structural Engineering Laboratory	0-0-4-2	Dr. Sandip Saha, Dr. Subhamoy Sen and Dr. Kaustav Sarkar	SE



4	CE 557	Solid Mechanics in Structural Engineering	3-0-0-3	Dr. Maheshreddy Gade and Dr. Rajneesh Sharma	SE
5	CS 544	Formal Concept Analysis: Theory and Practice	3-0-0-3	Dr. Sriram Kailasam	SCEE
6	HS 525	History of Development Thought	3-0-0-3	Dr. Shyamasree Dasgupta and Dr. Rajeshwari Dutt	SHSS
7	HS 526	Human Geography: A Regional Perspective	3-0-0-3	Dr. Devika Sethi and Dr. Ramna Thakur	SHSS
8	HS 527	Indian Social Structure and Development	3-0-0-3	Dr. Surya Prakash Upadhyay	SHSS
9	HS 528	Technology and Development	3-0-0-3	Dr. Varun Dutt and Dr. Shubhajit Roy Chowdhury	SHSS
10	CS 523	Verification of Reactive Systems	3-0-0-3	Dr. Astrid Kiehn	SCEE

Following 07 Courses were deferred by the Board:

1	HS 529	Topics in Engineering and Basic Sciences for HSS	3-0-0-3	Dr. Atul Dhar, Dr. Shyam Masakpalli and Dr. Satvasheel Powar	SE, SBS, SCEE
2	HS 530	Planning, Welfare and Development	3-0-0-3	Dr. Surya Prakash and Dr. Manu Devadevan	SHSS
3	HS 531	Planning, Welfare and Development	3-0-0-3	Dr. Surya Prakash and Dr. Manu Devadevan	SHSS
4	HS 532	Sustainable Development and Environmental Protection	3-0-0-3	Dr. Shyamasree Dasgupta	SHSS
5	HS 533	Urban Development	3-0-0-3	Dr. Surya Prakash and Dr. Manu Devadevan	SHSS
6	HS 534	Economics of Climate Change	3-0-0-3	Dr. Shyamasree Dasgupta	SHSS
7	CE 512	Wastewater Treatment	3-0-0-3	Prof. Ajit P Annachhatre	SE

The final course descriptions of the recommended courses after incorporating the suggested changes are placed at Annexure-"A":

23.3 To consider a proposal for M. Tech. in Structural Engineering

Dr. Sandeep Saha briefed the Board on the draft proposal for M.Tech in Structural Engineering. The Board deliberated on the draft and suggested few modifications as follows:

- The Courses for Free Electives must be outside discipline.
- Number of Courses in Mathematics Core should be reduced.
- Appropriate Course Number should be incorporated in course plan.

The Board requested Dr. Sandeep Saha to modify the proposal accordingly and decided to recommend the same to the Senate for its consideration and approval. Modified proposal for M.Tech. in Structural Engineering is placed at Annexure-“B”

23.4 To consider a proposal for M.Tech in VLSI

Dr. Hitesh Shrimali briefed the Board on the draft proposal for M.Tech in VLSI. The Board deliberated on the draft and suggested few modifications as follows:

- The Courses for Free Electives must be outside discipline.
- The evaluation of Thesis done at the Industry must of done as of Ordinances and Rules of the Institute.

The Board requested Dr. Hitesh Shrimali to modify the proposal accordingly and decided to recommend the same to the Senate for its consideration and approval. Modified proposal for M.Tech. in VLSI is placed at Annexure-“C” .

23.5 To consider Master’s programme in Development Studies to commence in August 2018:

Dr. Rajeshwari Dutt and Dr. Ramana Thakur briefed the Board on the draft proposal for M.A. in Development Studies. The Board deliberated on the draft and suggested as follows:

- The Courses for Free Electives must be outside discipline.
- Research component should be kept to a maximum of 25 credits.

The courses for 1st Semester have been recommended for Senate approval as item No. 23.2 and the remaining courses for next semesters were deferred. The Board requested to modify the draft accordingly and decided to recommend the same to the Senate for its consideration and approval. Modified proposal for M.A. in Development Studies is placed at Annexure-“D”

23.6 To Any other item with the permission of the Chair:

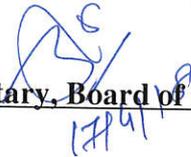
In addition to the circulated agenda points, Chairperson BoA permitted Chairperson LAC to present policy for uploading of MS/PhD Dissertations into the Institute Repository. The Board deliberated and decided to recommend to the Senate for its consideration and approval as follows:

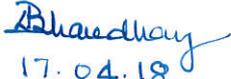
“All MS/PhD dissertation reports shall be uploaded on Institute repository to employ full transparency.

- The author shall transfer the copy right of the manuscript to the Institute at the time of submission of thesis.
- The author, with due justifications, may request embargo in uploading of reports up to maximum of 02 years. The request needs to be supported by the comments of thesis advisor/s who also suggest the duration of embargo and reasons for the same. The request will be approved by the Chairman BoA.

All bibliographical data and the abstract of a thesis will be open for download by outside users through Institute IPs only.

The meeting ended with a vote of thanks to the Chair.


Secretary, Board of Academics


17.04.18
Chairman, Board of Academics

M. Tech. in VLSI

Specialization: Very Large Scale Integration (VLSI)

Duration: 4 semesters

Eligibility: Candidates with engineering field of studies such as BE or B. Tech in Electrical Engineering, Electronics & Communications, Instrumentation, Associate membership of professional bodies equivalent to B.Tech. (EEE/EE/ECE/IN) and M.Sc. with specialization in Electronics Science are eligible for this course. (As per ordinance and regulations for M.Tech./M.Sc. of IIT Mandi)

Selection: The candidates are selected through an all India entrance examination (GATE) in EE/EC/IN, followed by a selection procedure including written test and/or interview. Total number of students will be 30. The sponsored and government organization will be exempted from GATE examination. However, other eligible conditions are made as such for sponsored candidates. (As per ordinance and regulations for M.Tech./M.Sc. of IIT Mandi)

Objectives of the program:

After undergoing this program, the students will acquire both theoretical knowledge and practical skills in Electrical Engineering with specialization of VLSI and chip designing. The curriculum is supported with the advance learning courses of VLSI specialization in device level understanding, design, fabrication and tools. During M. Tech. theses, the students will use VLSI design, testing and fabrication laboratories. For a better insight of the specialization, the core laboratories for VLSI design and fabrication have been designed with considering experimental understanding of the Specialization Core courses. The laboratory experiments will build the basic concepts and the advanced concepts for chip designing. The VLSI laboratories will be the part of VLSI center of IIT Mandi. Moreover, these VLSI laboratories will be further useful for undergraduate students of IIT Mandi, in advance learning of B. Tech. with VLSI as minor area. The UG students will also use the VLSI center facility to execute their major technical project. It is envisaged that adjunct faculty from industry such as SCL (Mohali), STMicroelectronics, Texas instruments, Analog Devices, NXP, Synopsys, Cadence, Mentor Graphics etc. will be engaged to provide industrial experiences to M. Tech students.

The proposed M. Tech. course is with the vision of center for design and fabrication of electron devices (C4DFED) at IIT Mandi. The proposal is also a part of the special man-power development project from system to chip design (SMDP-C2SD) under the Ministry of Electronics and Information Technology (MeitY). The MeitY will be funding for the designed chip as a part of the M. Tech. theses under the India Chip Program. This initiative to fulfil the goal of development of country in the vision and mission of make in India.

How is this program different?

- Very strong industry oriented curriculum
- Practicum based learning,
- Industry oriented courses,
- The chip designing EDA tools (Cadence, Mentor Graphics, Synopsys, Silvaco, Centaurus and Comsol) based learning. These tools are the latest one and used in all the VLSI industries.
- 100 Class and 1000 class clean room facility available at IIT Mandi for device fabrications.
- Sophisticated instrumentations facility available for device fabrications and characterizations
- Learning design as well as fabrication aspects of the chip,
- Generate and trained manpower for semiconductor design and upcoming fab-line in India.
- There is a vast market opportunities for the graduating students

Faculty strength for teaching /research in core field of VLSI design and technology:

Core VLSI specialized faculties who can teach as well as guide the M. Tech. students

1. Dr. Hitesh Shrimali (SCEE): Analog and mixed signal VLSI design (ADC, DAC, radiation hard circuit designing, on chip instrumentation and CMOS high voltage particle detector
2. Dr. Satinder Kumar Sharma (SCEE): VLSI Technology, semiconductor device physics, MEMS/NEMS and memory design
3. Dr. Shubhajit Roy Chowdhury (SCEE): Embedded system, FPGA, EDA, VHDL and biomedical system design, VLSI architecture
4. Dr. Rahul Shrestha (SCEE): Digital system level VLSI design, VLSI architecture
5. Dr. Ankush Bag (SCEE): VLSI Technology, power semiconductor devices
6. Dr. Kunal Ghosh (SCEE): Microelectronics and photovoltaic devices
7. Dr. Srikant Srinivasan (SCEE): Embedded systems, IOT and spintronics
8. Dr. Viswanathan Balakrishnan (SE): Nano manufacturing and nano materials
9. Dr. Gopi Shrikanth Reddy (SCEE): RF and microwave, antenna, radiating system

Course Structure:

Curriculum Structure:

Total No. of Credits	71
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FIRST SEMESTER (1st Sem)

number	Title of the course	L-T-P-C	Credits
EE 524	Digital MOS LSI Circuits	3-0-0-3	3
EE 519P	CMOS Digital IC design Practicum	0-0-3-2	2
EE 520	Microelectronic devices and modeling	3-0-0-3	3
EE 512	CMOS Analog IC Design	3-0-2-4	4
YY XXX	Outside discipline course - I	3-0-0-3	3
HS 541	Technical Communication	1-0-0-1	1
EE XXX	Independent study	0-0-6-3	3
Total			19

*The course will be part of winter vacation and grades to be submitted at the beginning of second semester.

SECOND SEMESTER (2nd Sem)

Number	Title of the course	L-T-P-C	Credits
EE 611	VLSI technology	3-0-0-3	3
EE 611P	VLSI fabrication Practicum	0-0-3-2	2
YY XXX	Outside discipline course - II	3-0-0-3	3
EE 529	Embedded System Design	3-1-0-4	4
	Elective-I	3-0-0-3	3
	Elective - II	3-0-0-3	3
Total			18

THIRD SEMESTER (3rd Sem)

Course No.	Title of the course	L-T-P-C	Credits
EE XXX	Master of Technology Dissertation – part - I*	0-0-34-17	17
Total			17

FOURTH SEMESTER (4th Sem)

Course No.	Title of the course	L-T-P-C	Credits
EEXXX	Master of Technology Dissertation – part - II*	0-0-34-17	17
Total			17

*With the concern of student and his/her MTech thesis supervisor, M.Tech. thesis can be carried out at industry.

Elective –I

- Nano electronics and Microfabrication (3-0-0-3) - SKS
- Photonics and photovoltaics (3-0-0-3) -KG
- Nanomanufacturing (3-0-0-3) -VB
- Power semiconductor devices (3-0-0-3) - AB
- Organic electronics (3-0-0-3) -SKP
- Modeling/macromodeling for VLSI circuits (3-0-0-3)
- Signal/Power Integrity and EMI/EMC (3-0-0-3)

BSI

Elective –II

- EE619 – Mixed signal VLSI Design (3-0-2-4) -- Hitesh
- Microwave integrated circuits (3-0-0-3) -- Gopi
- **RFIC design (3-0-0-3) -- Hitesh**
- Design for testability (3-0-0-3)
- EE523- Digital VLSI Architecture (3-0-0-3) – Rahul
- IOT systems and cloud (1-0-3-3) – Srikanth/Sriram
- EE516 - Biomedical systems (2.5-1.5-0-4) – SRC
- CS507 - Computer architecture – Anil/Dileep
- CAD for VLSI design (3-0-0-3) – Rahul/Hitesh
- Formal verification – faculty form IITMandi and TIFR

