Electronics & Communication Engineering Department

INFORMATION BROCHURE 2008

OUR VISION

To build a vibrant multicultural learning environment founded on value based academic principles, wherein all involved shall contribute effectively, efficiently and responsibly to the nation and global community.

National Institute of Technology
Hamirpur (H.P.) India

http://www.nitham.ac.in/
Introduction

When looked at from outside the Library, the view of the mighty Dhauladhar ranges is much obstructed by a mightier administrative block which houses the pride of NIT Hamirpur on its top, the Electronics & Communication Engineering (E&CE) Department. Established in the year 1988, the Department has built an international reputation for excellence in teaching, research and service. The department believes in serious academic pursuit and encourages the radical and original thinking with regard to national and internationally relevant ideas. Department is building its reputation step by step with a dedicated goal of adding value to life and professional standards. In an era when electronics engineers are changing the world to a comfortable global home and the advances of Electronics have triggered the information and technology revolution, the E&CE Department of NIT Hamirpur takes pride in its high national rankings and the international recognition its faculty has received from their peers.

Objectives

- Educational objectives: To deliver quality Technical Education in Electronics & Communication Engineering. To start PG Programmes in new areas of E&CE. The education based on Industry requirements & standards, keeping pace with Technology.
- Research & Development objectives: To conduct and promote scholarly research in VLSI design, optical fiber communication and other emerging areas of Electronics & Communication.
- Societal objectives: To participate in technical innovation and transfer of know-how to our students, staff, NIT Hamirpur fraternity, community & the society at large.
From Director’s Desk

It brings a sense of satisfaction to know that Dept. of E&CE NIT Hamirpur is bringing out Information Brochure. It provides the glimpses of the efforts put in by the faculty, staff and students of E&CED up to 2008. The events given show that E&CED is joining the leading institutions of the world in its endeavor to supplement the R&D, faculty development & development of technical professional with a human touch. The faculty and staff of E&CED are doing what is right for delivering long terms values to all stakeholders of technical education system- students, faculty, parents and the larger community it serves. It is due to complete devotion and dedication that NIT Hamirpur has been rated at 9.4 on a ten point scale by the world bank TEQIP auditor and 20th rank as per Data Quest, amongst Technical Institutions in India. Though R&D activities have picked up in E&CED, yet I expect that there will be further boost in this area. I take this opportunity to congratulate the Dept of E&CE for being awarded Five years Accreditation by NBA. I appreciate their effort in compiling this department information concisely and wish them all the best.

Prof. I. K. Bhat

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From Head’s Desk

It gives me immense pleasure to introduce you to the Electronics & Communication Engineering Department of the National Institute of Technology, Hamirpur, Himachal Pradesh. This institute though young has created a nick in the field of technical education. Our alumni have achieved high positions in their respected fields of work and are doing very well. A large number of companies are now trying to recruit out students. E&CE department has a highly dedicated, hardworking and loyal to their profession faculty in its rolls and their number is growing day by day. Faculty members are publishing their research work in the best journals of the world. All of us at the institute have a vision to make this institute at par with IITs and create our own brand. The day is not far away when this dream will be fulfilled by all who are directly and indirectly connected with this institute. To give a boost to the research activities workshops, short term courses and conferences are frequently being organized by the Department. The Department is constantly engaged in various Projects.

The Department has state-of-the-art labs & classrooms. A close interface with the industry is always maintained. Every year highly reputed organizations visit the Institute for the campus interviews and placements TI, VSNL, BEL, Alstom, DRDO, HP etc. are a few of the brand names in the long list of our recruiters. I take this opportunity to wish all the best to the faculty, staff and students of E&CE NITHamirpur to do well in all their future endeavors.

Dr. Rajeevan Chandel
Courses Offered

Electronics & Communication Engineering Department, NIT Hamirpur HP offers:

- Bachelor of Technology (B.Tech.) in Electronics & Communication Engineering
- Master of Technology (M.Tech.) in VLSI Design Automation & Techniques
- Master of Technology (M.Tech.) in Communication Systems & Networks to commence from 2009
- Doctor of Philosophy (Ph.D.) in the areas of VLSI design, Optical Communication etc.

The annual intake for the B. Tech. and M. Tech. courses is 60 and 18 respectively.

B.Tech. Degree of E&CE NIT Hamirpur is awarded Five years Accreditation by NBA w.e.f. 22Jan 2008

Placements

<table>
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<tr>
<th>Year</th>
<th>No. of E&amp;CED Students Placed</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>B.Tech.</td>
</tr>
<tr>
<td>2005</td>
<td>34/44</td>
</tr>
<tr>
<td>2006</td>
<td>42/48</td>
</tr>
<tr>
<td>2007</td>
<td>44+1*/45</td>
</tr>
<tr>
<td>2008</td>
<td>46/47</td>
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Facility

<table>
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<tr>
<th>S.No.</th>
<th>Name</th>
<th>Designation</th>
<th>Qualification</th>
<th>Specialization</th>
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<tbody>
<tr>
<td>1</td>
<td>Dr. Vinod Kapoor</td>
<td>Professor</td>
<td>BE,MS,MBA,Ph.D (KU)</td>
<td>Optical Communication</td>
</tr>
<tr>
<td>2</td>
<td>Dr. Rajeevan Chandel</td>
<td>Asst. Professor</td>
<td>BE, M.Tech. (IITD), Ph.D (IITR)</td>
<td>Low Power High Speed VLSI Design, Nano Electronics</td>
</tr>
<tr>
<td>3</td>
<td>Er. B. J. Rao</td>
<td>Lecturer (SG)</td>
<td>B.Sc. Engg, M.E, MBA</td>
<td>Digital Techniques &amp; Instrumentation</td>
</tr>
<tr>
<td>4</td>
<td>Er. Surender Soni</td>
<td>Lecturer (SG)</td>
<td>B. Tech, M.E. Pursuing Ph. D.</td>
<td>Electronics &amp; Communication</td>
</tr>
<tr>
<td>5</td>
<td>Er. Ashok Kumar</td>
<td>Lecturer (SG)</td>
<td>B. Tech, M. E. Pursuing Ph. D.</td>
<td>Electronic Product Design &amp; Technique</td>
</tr>
<tr>
<td>6</td>
<td>Er. Gargi Khanna</td>
<td>Sr. Lecturer</td>
<td>B. Tech, M. E. Pursuing Ph. D.</td>
<td>Electronics &amp; Communication VLSI</td>
</tr>
<tr>
<td>7</td>
<td>Er. Ashwani Kumar</td>
<td>Sr. Lecturer</td>
<td>B. Tech, M. Tech, Pursuing Ph. D.</td>
<td>Nano Electronics, VLSI</td>
</tr>
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Major Laboratories

**VLSI DESIGN AND SIMULATION LAB**

The pride & honour of ECE department, this lab is just set to raise the eminence and elegance of the E&CED. Equipped with the modern EDA softwares like Synopsys, Mentor graphics, Cadence, Magma Xilinx, Tanner, Matlab & other tools installed on the fastest 4GB RAM Pcs for R&D work in VLSI. This lab brings glory to the entire institute.

**OPTICAL FIBER, TV & DSP LABS**

Optisim software is being used in optical fibre lab and research in optical fibre communication is carried out. Occupying the maximum floor area as compared to other labs, these labs consists of TV Trainer kits and CROs. The exciting concepts of Digital Signal Processing and filter design are learnt and assimilated by the students in DSP Lab.

**MICROWAVE & COMMUNICATION LABS**

Softwares like Microwave Wizard makes students acquainted with the interesting world of Microwaves, LAN, GSM, Digital Communication etc.

**PC & EMBEDDED SYSTEM LABS**

OrCAD, Internet facilities are available here. These labs make students acquainted with the working & architecture of micro-controllers and their applications in technological arena.

**BASIC ELECTRONICS, DIGITAL & LIC LABS**

Semi-conductors, transistors, circuits, gates, flip-flops, counters etc. are the domain of these labs. In LIC Lab Op-Amps 741 and 555 timer rule. Students learn how linear circuits perform various operations & get acquainted with the Chebyshev and Butterworth filter design.

**INDUSTRIAL ELECTRONICS LAB**

This lab aims at familiarizing the students with high power devices & components from thyristor to triac to very instrumental SCRs & their applications in modern industrial know how.
**Ongoing Projects**

* **SMDP-II Project**: Department of E&CE, jointly with Dept. of CSE has received a project on ‘Special Manpower Development Programme for VLSI Design & related softwares’ (SMDP-II) for a period of five years from the Ministry of Communication and Information Technology, Department of Information Technology, Govt. of India, New Delhi. It is an important and prestigious project through which quality manpower in the area of VLSI Design and related software is planned to be created, to cater to the pressing demand of VLSI engineers and Designers in the country. Project Coordinator: Dr. Rajeevan Chandel.

* **UPA Project**: The E&CE Department has Urban Poverty Alleviation Project (UPA) from MUD, Govt. of India for Rs. 2.5 Lacs. Project Coordinator is Dr. Rajeevan Chandel.

* **Five Projects** have been accomplished earlier in E&CE Department.

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**Recent Papers in International Journals**


**National Conferences**

* NATIONAL CONFERENCE on “Design Techniques for modern electronic devices, VLSI & Communication systems DTVC-2007” was a very successful & Major Event of E&CED, 14-15 May 2007. The conference was well attended by twelve world renowned academician experts and over hundred delegates from all over the country. Dr. R. L. Chauhan Chairman BOG of NIT Hamirpur was the chief guest. Dr. C.P. Ravikumar Sr. Dir. /Tech. Texas Instruments Lmt. Bangalore was keynote speaker. Prof. I.K. Bhat, Prof. GS Visweswaran IIT Delhi, Prof. Dinesh Sharma IIT Bombay, Prof. D. Mukhopadhaya from J.U., Prof. S. Sarkar , Prof. A.K. Saxena IIT Roorkee, Prof. Ajay Sharma NITJ, Dr. S.S. Rajput Sc-E NPL India, were the main experts of the Conference. Dr. Rajeevan Chandel Head E&CED NIT Hamirpur was the General Chair of the conference. Conference was sponsored by TEGIP. NIT Hamirpur, SMDP-II, VLSI Society of India (VSI) Bangalore and others.

* A workshop on B. Tech. E&CE Curriculum was conducted on 10 Feb 2007, in which syllabus & Scheme were modified. New Courses in emerging areas were introduced as electives with scope for inviting Experts from Industry. Inputs from various experts from academic institutes and feedback from Alumni & students was incorporated. Workshop Coordinator: Dr. Rajeevan Chandel

* National workshop on VLSI & Comm. Systems was organised on 5-6 June 2008 in which 67 participants benefitted. Er. Ramesh Kumar, Texas Instruments Bangalore & the Faculty of NIT Hamirpur were the experts. Coordinators: Dr. R. Chandel, Er. Gargi Khanna, Er. Krishan.

**Guest Lectures**

The E&CED organized numerous guest lectures on emerging technologies by experts from all over the country:

1. Dr. S. Sarkar, Prof. & Head E&CE Mody Institute of Technology & Science Sikar, Rajasthan, delivered expert lectures June 2006, on “VLSI Design,” in summer school on VLSI Design & Optimization Techniques VDOT-2006.
4. Prof Iirene Sarkar, MITS Raj, delivered an expert lecture on “Classical Optimization Techniques,” on 6 June 06.
5. An expert Lecture was delivered by Prof. R.S Tomar, LMIIT, Jaipur on “Microwave Transreceivers & Power Amplifiers for Satellite Communication,” on 15 May, 2006.
8. Dr. C.P. Ravi Kumar delivered keynote address “VLSI Design & Test challenges & opportunities,” 14 May, DTVC- 07.
Department Activities

**STC on Use of Multimedia & Electronics Equipments**
It was organized by E&CED under Services to Community programme of TEQIP from 27th Sep to 1st Oct 2007, for official staff of various Govt. departments viz. Office of DC, SP, DFO, CMC, HPSEB Hamirpur, Colleges, Technical and non-technical Institutes and schools. 45 participants benefitted. Coordinators: Dr. Rajeevan Chandel, Er. Gargi Khanna & Er. Meenakshi.

**STTPs on “HDL & EDA Tools” & “VLSI Design & Tools”**
Two STTPs were conducted from 21-25 May 2007 & 4-8 Dec. 2007. 75 participants benefitted in these courses. Under these courses VHDL, Verilog, Spice were taught & working of FPGA kits demonstrated. Participants were trained in Modelism, Xilinx, Tanner Tools. Coordinators: Dr. Rajeevan Chandel & Er. Philemon Daniel

**Winter School on VLSI Design & Nano-Electronics**
VDNE 2006 was conducted from Dec 18-22, 2006, under TEQIP. Experts were Prof. R.P. Agarwal, Dr. S.S. Rajput, Dr. S. Dasgupta IIT Roorkee and NIT Hamirpur Faculty. The course gave a broad view of VLSI and recent trends in technological issues to 55 participants. Coordinators: Dr. Rajeevan Chandel & Er. Ashwani Rana.

**Summer School on VLSI Design & Optimization Techniques**
VDOT-2006 was conducted from June 05-09, 2006 under TEQIP. The course provided an exposure in the emerging field of VLSI and application of modern optimization Techniques to 40 participants of technical institutes from all over India. A penal discussion on ‘VLSI Education in India’ was also conducted. The Experts were Prof. I.K. Bhat, Prof. S. Sarkar, Prof. R.P. Agarwal, Prof. Irene & NIT H Faculty. Coordinators: Dr. Rajeevan Chandel, Dr. Ashwani Chandel

**STCs on “Repair & maintenance of Electronic Gadgets”**
Two STCs were organized rom June 11-15, 2007 & April 7-11, 2008 The participants were trained to handle different electronic gadgets viz. T.V., mobile, computer, house wiring components. These courses were conducted under UPA project grant. 80 participants benefitted from these STCs. Coordinators: Dr. R. Chandel & Er. S.K. Soni

**SPEC & Students of E&CE**
Society for promotion of Electronic Culture (SPEC) of E&CED organised first technical SPEC-Fest from 22-24 March 08 in which students of all branches of NIT Hamirpur participated in various technical events. E&CE students actively participate in NIMBUS, Cultural Fests, sports & are also sent to present research work in other institutes.

For Further Details Please visit:
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**FORTHCOMING EVENTS**
MHRD summer schools for faculty of Engg. institutes of India:
1. MATLAB & Or CAD/SPICE, 30 June - 11 July 08.
2. Design Techniques for VLSI, 12-21 July 08.
National Workshop on VLSI Design & Test, March 2009.