



Indian Institute of Technology, Mandi

Placement Brochure 2019-20

M.Tech in Communication & Signal processing,
School of Computing and Electrical Engineering

The Career & Placement Cell

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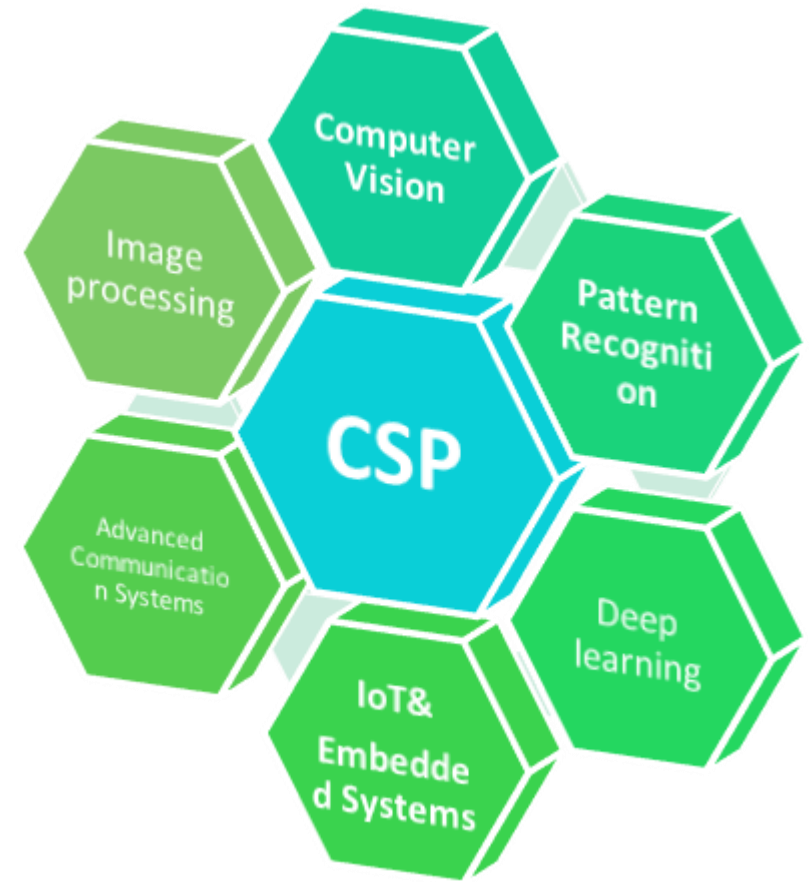
About the program

The MTech in Communications and Signal Processing is being offered in the School of Computing and Electrical Engineering (SCEE) since August 2017. The program aims to provide specialist knowledge and skills needed in the area of digital signal processing and communication theory and the application of both areas to machine learning, systems design, IoT etc, to meet the product design/research requirements of industry as well as academia.

The course curriculum includes one year of course work that contain core subjects as well as elective courses, followed by one year of thesis work. The core courses like Advanced digital signal processing, Matrix theory, Probability and Random processes, Advanced Communication theory, Estimation and Detection theory and Optimization theory ensures a strong foundation to application domains mentioned in the beginning. Other than core courses students are allowed to take up good

choice of free electives of their interests like Pattern recognition, Computer vision, Deep Learning, Internet of Things, Embedded systems, Speech processing, Transmission Lines etc. All these courses are supplemented with a fine set of relevant assignments and mini projects that develops an insight into the subject.

In addition to this, students are prepared to undertake research activities through a Supervised Research Exposure (SRE) program at the end of first semester itself. The second year dissertation work can be done either inside the campus under the guidance of a faculty member or students can go for a one year long internship program in a relevant industry. This M.Tech program falls in line with the demands of the industries, in addition to ensuring a knowledge level befitting to the academia.



Courses offered

CORE COURSES

- Advanced digital signal processing
- Probability and Random Processes
- Advanced Communication Theory
- Matrix Theory
- Optimization Theory
- Estimation and Detection theory

M.TECH DISSERTATION WORK

- The second year dissertation work can be done either inside the campus under the guidance of a faculty member
- Or students can go for a one year long internship program in a relevant industry.

ELECTIVE COURSES

- Pattern Recognition
- Computer Vision
- Deep Learning
- Speech Processing
- Embedded system
- Selected topics in IoT
- Radiating Systems
- Transmission lines and Basic Microwave engineering

SUPERVISED RESEARCH EXPOSURE

- Students are prepared to undertake research activities through a Supervised Research Exposure (SRE) program at the end of first semester in various areas of signal processing and its applications.

Facilities provided

- **Signal Processing and Communication Lab**

The objective of SPCOM lab is to give good understanding to students with the rapidly evolving world of modern communications. The students can be performed multiple experiments in communication theory by using lab instruments

- **Multimedia Analytics, Networks and Systems (MANAS) Research Lab**

The Multimedia Analytics, Networks and Systems group at IIT Mandi works in several diverse areas including communication networks, cloud computing, computer vision, data mining, machine learning techniques, signal processing and sensors.

- **Fully fledged working space for M.Tech CSP students**



Students sitting space



Signal Processing and Communication Lab

Facilities provided

HARDWARE SUPPORT

- USRP-2920, USRP-2921
- Spartan 6 FPGA Kit (Xilinx)
- NVIDIA JETSON TK1 development kit
- NVIDIA JETSON TX2 SOM
- Waspnote Kits
- Beagle Board
- Raspberry Pi
- Arduino Boards (UNO, Mega)
- XBeeS2C modules , Sensors , Node MCU

(All these modules are available in sufficient numbers)



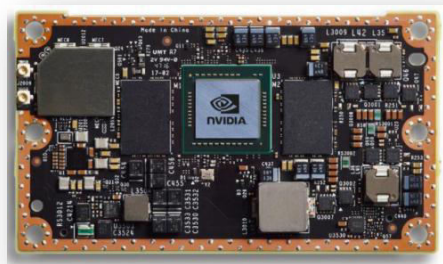
USRP-2920



Spartan 6 FPGA Kit (Xilinx)



NVIDIA JETSON TK1



NVIDIA JETSON TX2 SOM



Waspnote Kits



Raspberry Pi



Node MCU



Beagle Board



XBeeS2C



Arduino Board



Sensors

Facilities provided

SOFTWARE SUPPORT

- Matlab R2018a, R2016b, R2015b by MathWorks, Inc
- LabView 2012 by National Instruments



(SPCOM Lab systems are installed with these softwares. In addition to this from IIT Mandi Wing portal, students are freely allowed to download and install licensed versions of MATLAB and other necessary softwares on their personal systems.)

GPU SUPPORT

- To support students in their research/project activities, access to more than 15 powerful GPU machines with high processing capacity are provided.

(GeForce GTX 1080 , GeForce GTX 1080 Ti)



Faculties

Core Faculty Involved In Signal processing and communication from SCEE :



Dr. Renu M Rameshan

Image processing
Computer vision
Ill-posed problems



Dr. Anil K. Sao

Medical Image Processing
Speech processing
Microscopy Image processing
Sparse representation



Dr. Samar Agnihotri

Information Theory,
Wireless Communications and
Networks, Computational and
Communication Complexity



Dr. Dileep A. D

Pattern Recognition
Kernel Methods for Pattern Analysis
Machine Learning
Speech Technology
Computer Vision



Dr. Arnav Bhavsar

Computer vision
Image Analysis
Machine Learning



Dr. Aditya Nigam

Deep Learning, Biometrics,
Medical Image Processing
Computer Vision & Machine
Learning..



Dr. Padmanabhan Rajan

Speech and audio processing
Analysis of music, Bioacoustics,
Machine learning and pattern
recognition



Dr. Satyajit Thakor

Information theory
Network coding and algorithms.



Dr. Siddhartha Sarma

Resource allocation in wireless
networks, Wireless sensor network
and IoT, Wireless energy
harvesting, Crowd sensing, Smart
grid

Interlinked Faculty Involved In Signal processing and communication from SCEE :



Dr. Shubhajit Roy Chowdhury

Biomedical Embedded Systems, Non
invasive diagnostic systems, Near Infrared
Spectroscopy, VLSI Architectures

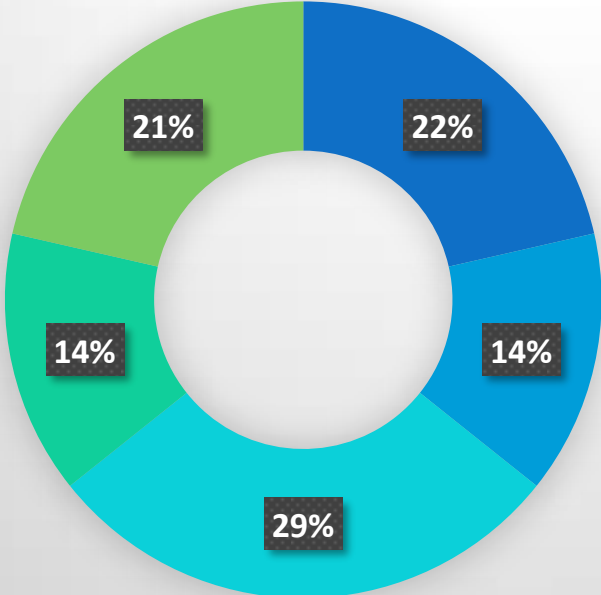
Student Activities

PROJECTS DONE

- Music generation using deep learning
- Siamese LSTM based Fiber Structure Similarity Network(FS2Net) for rotation invariant Brain Tractography Segmentation.
- Learning spatial-spectral features of hyperspectral images and their classification
- Reconstruction of compressively sensed resting-state fMRI
- Setting up WSN using Contiki
- Exposing digital forgeries from JPEG Ghosts.
- A Gaussian Mixture Model Representation of Endmember Variability
- Setting up WSN using RIOT
- Image forensics using jpeg dimples.

PLACEMENT RECORD

JOB STATISTICS



- PPO
- PHD
- PRIVATE JOB
- PREPARING FOR GOVT.JOB
- UNDER PROCESS

Contact us

Faculty Advisor (M.Tech CSP)

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Student Representative

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Faculty Advisor (CNP Cell)

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