MTECH in Integrated Sensor Systems (ISS) - Interdisciplinary Program

Background:
Since 2020, IIT Hyderabad has started an interdisciplinary MTech degree program in Integrated Sensor Systems (ISS). Candidates admitted into the program will require to do 52 credits which included 28 credits for course work and 24 credits for thesis work. The course work will provide all necessary basic and applied skills for design, fabrication and testing of integrated sensor system in all area of importance by using the concept of interdisciplinary science and technology. During the course work, candidates may take courses in Basic Concepts of Smart Materials and Devices, Physics of Low Dimensions Devices, Computational Modelling Techniques, Micro and Nanofabrication Technologies, Circuit and Packaging, Embedded Programming (Design and Lab), Intelligent Signal Processing using AI/IoT, and elective courses in other allied fields. Additionally, in thesis project, a candidate is required to design, analysis, fabricate, and characterize a device to achieve excellent thesis grade which will enable him/her to get confidence and skills in Integrated Sensor Systems. Most of the projects will be based on industry oriented problems. The program will help the candidates to get excellent industrial as well as academic career. The program also includes Industry lectures and a course in English communication. The overall program will develop manpower and technopreneurs in the area of sensors technology.

Duration: Two years

Eligibility:
BE / B Tech or equivalent degree in any discipline with GATE paper in AE, BT, BM, CE, CH, EE, EC, IN, ME, MT, PH, XE OR M Sc or equivalent degree in Electronics, Physics, Chemistry with GATE paper in CY, EC, IN, PH.

Selection Procedure:
The MHRD supported candidates will be selected based on **GATE ranking**. Self-Sponsored and Industry sponsored candidates will be selected based on **written exam and/or interview**.

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Total Credit: 52 (28 Theory + 24 Thesis)

Semester 1	
Smart Material and Transducers	2
Fabrication Technology and Characterization (Theory+Lab)	3
Physics of low dimensional device	3
Computational modelling techniques	2
Elective –I	2
English Communication	1
Industry Lectures	1
Total	**14**

Semester 2	
Circuits and Packaging	3
Elective - II	2
Elective - III	2
Elective - IV	2
Embedded Programming (Design+ Lab)	3
Intelligent Processing using AI/IoT	2
Total	**14**

Semester 3	
Thesis	12

Semester 4	
Thesis	12

Elective – I (Fundamental/Generic)	Elective – II (Circuit specific)	Elective – III (Device specific)	Elective – IV (Technology Specific)
Sensors Modelling and Simulation	Analog circuit design	Biomedical devices	Flexible sensors
Nanophotonics	Noise Analytics in Sensors	Science and Technologies of semiconductor	Quantum dots based sensors
Nanomaterials synthesis and properties	Integrated Chip to System Design	Micro/Nanofluidics and Biosensor	Micromachining
Nano medicine			3D Printing in Sensors