

# M.Tech. IN ADVANCED INFORMATION TECHNOLOGY WITH SPECIALIZATION IN EMBEDDED SYSTEMS DESIGN (MTECHSD)

2 years, full-time and residential



## FOCUS AREAS

- ▶ Automotive Embedded Systems
- ▶ Access Technologies - Smart Cards and RFID
- ▶ Virtual Instrumentation and Control
- ▶ Image Processing
- ▶ Multimedia and Display Technology
- ▶ DSP on FPGA
- ▶ Robotics and Artificial Intelligence

"Everything will be connected and I mean literally everything. Not just electronic devices, but everything down to your piano. We'll have as many as four or five (embedded) internet devices on our bodies." - John Chambers

Embedded Systems Design has become the design methodology of choice in new applications in computing, communications, networking, automotive electronics, medical electronics, avionics and the like. A three-dimensional growth is taking place in this high-end technology sector, with increasingly powerful micro-controllers and digital signal processors competing with emerging tools in Field Programmable Gate Arrays (FPGAs). Embedded systems range in size from pacemakers and intelligent sensors to cell phones and PDA's to stand alone and distributed elements like set top boxes, modems, network elements and to large scale systems deployed in process control, manufacturing, power generation, defense applications, telecommunications, automotive electronics, air traffic control, video on-demand and video conferencing. This M.Tech. Degree Program introduces students both to the state-of-the-practice in the broad field of embedded and real-time computing control and communication. This enables them to pursue rewarding careers in these frontier areas of technology.

## ELIGIBILITY

Graduates with a Bachelors Degree in Engineering / Technology (with minimum 55 percent marks or equivalent grades) in Electrical / Electronics / Instrumentation / Communication / Information Technology / Computer Science, MSc in Electronics or equivalent with at least 55 percent marks at the graduation level.

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## COURSE STRUCTURE

SEMESTER	CODE	COURSE NAME	CREDITS
<b>SEMESTER I</b>			
	MINI-027	Electronics Circuit, Board and System Design	6
	MINI-028	Microcontroller Systems Design I	6
	MINI-029	Embedded C & C++ Programming Languages	6
	MINI-030	Digital Signal Processing	6
	MINE-044*	Embedded Operating Systems	6
	MINE-045*	Embedded Instrumentation & control	6
	MINE-046*	Embedded Automotive Systems I	6
	MINE-047*	Access Technology	6
	MINI-031	Seminar	4
	MIN-001	Life Skills Development I	6
		<b>Total</b>	<b>46</b>
<b>SEMESTER II</b>			
	MINI-032	Embedded Design Cycle	6
	MINI-033	Microcontroller Systems Design II	6
	MINE-048*	Embedded Automotive Systems II	6
	MINE-049*	Smart Card Technologies	6
	MINE-050*	Advance Signal and Image Processing	6
	MINE-051*	Real Time Embedded Systems	6
	MINE-052*	FPGA Based Embedded System Design	6
	MIN-002	Life Skills Development II	6
		<b>Total</b>	<b>42</b>
		*Electives: Choose Any two for Semester I	
		*Electives: Choose Any four for Semester II	
<b>SEMESTER III</b>			
	MINP-005	Project Phase I	36
<b>SEMESTER IV</b>			
	MINP-006	Project Phase II	48
<b>Total Credits</b>			<b>172</b>