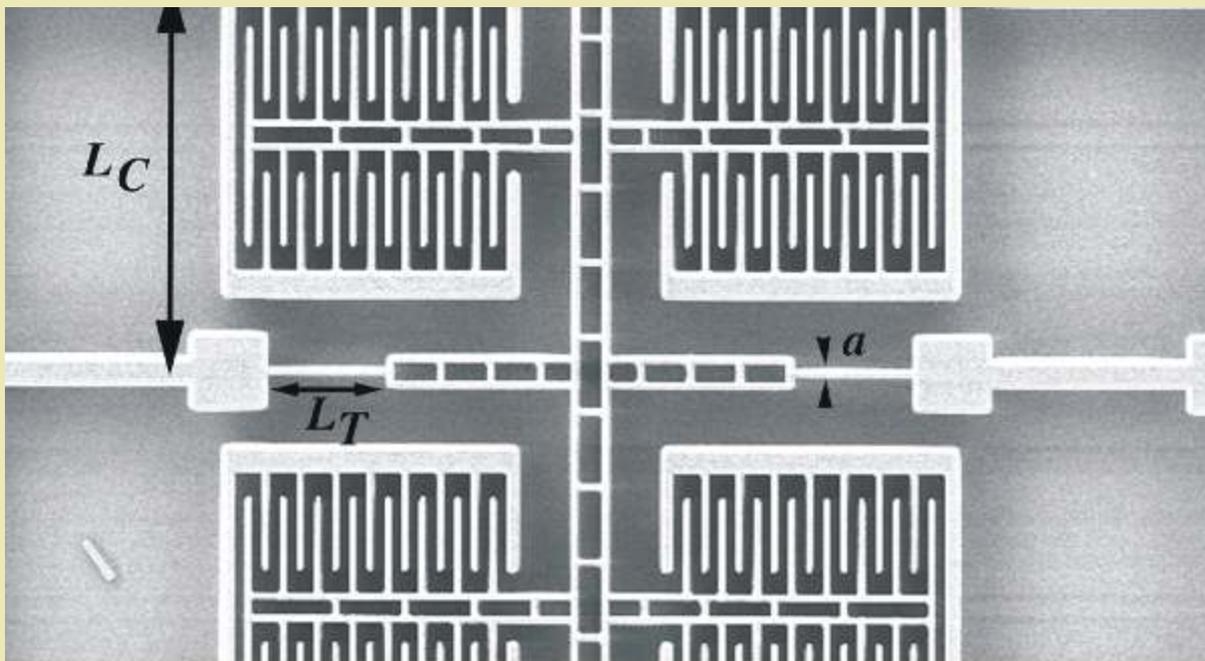


# Advanced Postgraduate Program in Nanoelectronics (APGP-NE)

An Autonomous Full-Time Residential Postgraduate Program (24 months)

“Why cannot we write the entire 24 volumes of the Encyclopedia Britannica on the head of a pin?”

- Richard P Feynman



Nanoelectronics is where physics, material science, chemistry, electrical and electronics engineering converge. Today's commercial transistors are well below 100 nanometers in size and are therefore entering the nanoworld. The tremendous miniaturization in electronic devices has not only led to increased capacity and performance, but also to the discovery of new phenomena and applications. It is obvious that Moore's Law cannot hold forever, at some moment the fundamental limits set by nature awaits us. Getting a grip on the fundamental properties of Nanoelectronics devices is therefore of crucial importance and at the same time, a very exciting scientific challenge. Considering this, the program focuses strongly on exploring the possibilities of different Nanomaterials for different types of Nanodevices.

This Advanced Postgraduate Program is designed to create an opportunity for the students to establish an international research career with focus on Nanomaterials Synthesis, Nanodevice Design and Fabrication.

## ELIGIBILITY

Graduates / Postgraduates with a Bachelors Degree in Engineering / Technology in Electrical / Electronics / Communication / Instrumentation / Chemical / Polymer / Computer Science / IT or MSc Physics / Electronics / Chemistry / Computer Science / MCA or equivalent (with minimum 55 percent marks or equivalent grades)

## FOCUS AREAS

- ▶ Nanodevices
- ▶ Nanooptics
- ▶ Nanofabrication
- ▶ Nano Device Modeling

# Advanced Postgraduate Program in Nanoelectronics (APGP-NE)

## COURSE STRUCTURE

	CODE	COURSE NAME	CREDITS*
<b>BRIDGE</b>	NE001	Introduction to Nanotechnology	
	NE002	Bio-Inspired Nanotechnology	
	NE003	Fundamentals of Photonics	
	NE004	Fundamentals of Electronics	
<b>COMMON</b>	COM001	Life Skills Development – I	2
	COM002	Life Skills Development - II	2
<b>FOUNDATION</b>	NE501	Introduction to Nanoscience	3
	NE502	Introduction to Semiconductor Physics and Devices	3
	NE503	Nanochemistry	3
	NE504	Nanomaterial Characterization	3
	NE505	Experimental Techniques for Nanotechnology	3
	NE506	Nanodevice Fabrication and Processing	3
	NST507	Computational Techniques for Nanotechnology	1
<b>CORE</b>	NE601	Nanoelectronics	3
	NE602	Nanooptics	3
	NE603	Nanobioelectronics	3
	NE604	Computational Physics and Device Modeling	3
	NST605	Ethical Issues and Nanotechnology	3
<b>ADVANCED</b>	NE705	Nanosensors	3
	NE702	MEMS & NEMS	3
	NE703	Advanced Nanomaterials	3
	NB704	Lab-On-Chip	3
	NB705	Nanodevice Lab	2
<b>ELECTIVES</b> (Choose any one)	NB821	Nuerbioelectronics	3
	NE822	Spinatronics	3
	NE823	Ion Beam Technology	3
	NE824	Quantum Computation	3
<b>PROJECT / THESIS</b>	NE901	Seminar / Mini Project - I	1
	NE902	Research Methodology / Mini Project - II	2
	NE903	Project / Thesis	32

\*1 Credit Hr = 16 Class Hrs / 32 Lab Hrs in a semester