

MS IN NANOSCIENCE & NANOTECHNOLOGY (MSNN)

2 years, full-time and residential



FOCUS AREAS

- ▶ Nanodevices
- ▶ Nanobiology
- ▶ Nanotools

“There’s plenty of room at the bottom.” - Richard P Feynman

The information age owes its origin to shrinking of devices’ dimensions. Nature inherently has things operating in ‘nano’ to ‘femto’ dimensions. The science of small things and the technology involving the assembly of atoms and molecules to create devices, systems and machines is revolutionizing every sphere of human life in general. Nanotechnology by its nature is interdisciplinary. Chemists, Physicists, Biologists, and Engineers, all have roles to play in the development and implementation of Nanotechnology. The development includes controlled manipulation of individual molecules and nano-scale structures, and their integration into larger material components, systems and architectures. Within these larger scale assemblies, the control and construction of their structures and components remains at the nanometer scale. Essential in nanotechnology, is to have a direct control of matter either between two nano-objects, or between a micro (or macro) object and a nano-object. This program covers broad range of Biological Sciences, Semiconductor device fabrication to applications in medicine and other spin off applications. The focus of the program will be on theoretical foundation and experimental techniques necessary to pursue scientific investigation in rapidly evolving areas, required by young researchers to enter the world of miniaturization.

ELIGIBILITY

Graduates with a Bachelors Degree in Physics / Biology / Chemistry / Botany / Mathematics / Computer Science / Computer applications / Agriculture / Electronics / Bioinformatics / Biotechnology (with minimum of 55 percent marks or equivalent grades)

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COURSE STRUCTURE

SEMESTER	CODE	COURSE NAME	CREDITS
SEMESTER I			
	MNNI-001	Basic Sciences I	6
	MNNI-002	Fundamentals of Nanoscience & Nanotechnology	6
	MNNI-003	Quantum Physics	6
	MNNI-004	Quantum Chemistry	6
	MNNI-005	Nanobiomaterials	6
	MNNI-006	Nanodevice Fabrication	6
	MNNI-007	Seminar	4
	MIN-001	Life Skill Development I	6
		Total	46
SEMESTER II			
	MNNI-008	Basic Sciences II	6
	MNNI-009	Nanodevices	6
	MNNI-010	Carbonnanotubes	6
	MNNI-011	Nano biosystems	6
	MNNI-012	Nanotechnology for medicine	6
	MNNI-013	Research Methods & Techniques	6
	MIN-002	Life Skill Development II	6
		Total	42
SEMESTER III			
	MNNL-001	Research Project Phase I	36
SEMESTER IV			
	MNNL-002	Research Project Phase II	48
Total Credits			172