

# Advanced Postgraduate Program in Intelligent Systems & Robotics (APGP-ISR)

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

"We may be on the verge of a new era, when the PC will get up off the desktop and allow us to see, hear, touch and manipulate objects in places where we are not physically present."

- Bill Gates



Increasingly, living on earth means living with robots and intelligent systems; sharing the planet with ever more intelligent machines that perform tasks from the mundane like lawn mower that cuts grass, to the highly specialized like robot-doctors that do surgery. Robotics is a rapidly developing discipline that combines long-established areas of electronics and mechanical engineering with novel approaches in computing and life sciences. Intelligent systems and easy reconfiguration have made Robotics more applicable and cost effective in industries.

This Advanced Postgraduate Program is designed to create industry ready professionals with strong research background. Considering the human resource requirement in the Robotics, Automation and Product Development Industry in India, the course has been designed to equip students with necessary hardware and software skills. The curriculum starts with introductory concepts on basic systems, controllers, computational logic, signal processing and control theory. The program strongly focuses on the theoretical as well as the practical aspects of system design for hardcore industrial applications and also providing ample scope for students to pursue research in different domains of Robotics and future Intelligent Systems.

## ELIGIBILITY

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

## FOCUS AREAS

- ▶ Robotics
- ▶ Intelligent Systems
- ▶ Self-Learning Systems
- ▶ System on Chip for Automation
- ▶ Machine Vision
- ▶ Artificial Intelligence
- ▶ Digital Control Systems

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## COURSE STRUCTURE

	CODE	COURSE NAME	CREDITS*
<b>BRIDGE</b>	ISR001	Software Tools for Intelligent Systems	
	ISR002	Introduction to Electronic Design	
	ISR003	Signals and Systems	
	ISR004	Introduction to Applied Mechanics	
<b>COMMON</b>	COM001	Life Skills Development – I	2
	COM002	Life Skills Development - II	2
<b>FOUNDATION</b>	ISR501	Fundamentals of Robotics	3
	ISR502	Control Theory	3
	ISR503	Sensors and Actuators	3
	ISR504	Introduction to Artificial Intelligence	3
	ISR505	Introduction to Embedded Systems	3
	ISR506	Signal Processing for Intelligent Systems	3
	ISR507	System Design Lab	2
<b>CORE</b>	ISR601	Electromechanical System Modeling	3
	ISR602	System On Chip for Robotic Application	3
	ISR603	Tele-Robotics	2
	ISR604	Mobile Autonomous Robots	3
	ISR605	Technology Management	2
<b>ADVANCED</b>	ISR701	Intelligent Control Systems	3
	ISR702	Embedded Computing	3
	ISR703	Neural Networks and Neural Computation	3
	ISR704	Artificial Vision Systems	3
	ISR705	Ergonomics	2
<b>ELECTIVE (Choose any one)</b>	ISR821	Natural Language Processing	3
	ISR822	Intelligent Learning Systems	3
	ISR823	Software Engineering for Embedded Systems	3
	ISR824	RTOS Design and Linux	3
<b>PROJECT / THESIS</b>	ISR 901	Seminar / Mini Project – I	1
	ISR 902	Research Methodology and Mini Project – II	2
	ISR 903	Project / Thesis	32

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