



Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE (AUTONOMOUS)

(Also known as R. J. College of Arts, Science & Commerce as per UGC Notification)

Affiliated to UNIVERSITY OF MUMBAI II Recognized by UGC under 2f & 12B
NAAC Accredited 'A GRADE' with CGPA 3.50

Knowledge is all Ambrosia

CERTIFICATE COURSE IN

ROBOTICS

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M

C



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Opposite Railway Station, Ghatkopar (W),
Mumbai 400 086, Maharashtra, INDIA.



ABOUT US

Hindi Vidya Prachar Samiti was incepted on the auspicious day of Shri Krishna Janmashtami, 15th August 1938. A brain child of a visionary Late Shri Nandkishore Singh Jairamji, samiti was established with the objectives of catering to the educational needs of the Hindi speaking community. Ramniranjan Jhunjhunwala College came into existence in 1963, enabling a larger section of the society to take advantage of the facilities provided for higher education.

From 1999-2000 the College has added a number of self-financing courses like B.M.S., B.B.I., B.Sc. in Computer Science, Information Technology, Biotechnology, M.Sc. in Computer Science, Biotechnology and Information Technology as well as add on courses, which further hone the special skills of the students.

The college has been reaccredited with 'A' Grade by NAAC in 2014 with a CGPA 3.50 and received the Best College Award (2007-2008) of the University of Mumbai. The College has been bestowed with IMC "Ramkrishna Bajaj Performance Excellence Trophy", 2010.

The Principal of the college was awarded "Best Teacher" by Government of Maharashtra in 2011.

Government of Maharashtra conferred the college with "JAAGAR JAANIVANCHA" (First in Mumbai Suburban- in 2013 and Second in Mumbai Suburban- in 2014) for safety of girls.

Course Code: **RJITC06**

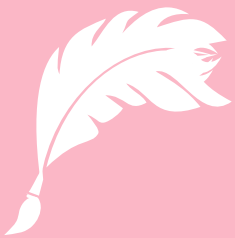
Duration: **30** hours

Credits : **02**

ABOUT COURSE

The course aims to introduce the basic concepts of Robotics and Robotic programming





COURSE OBJECTIVE

The course will provide knowledge about different sensors and other components used by Robotic applications. The course provides a detailed view on motion analysis and control of Robots. It also aims to develop the skill of robotic programming in students.

COURSE CONTENT

Module	Topics	Hours
1	Introduction Automation and Robotics, Robotics in Sci Fi, History of Robotics, Robotics and Market, Future Prospects Fundamentals of Robot Technology Robot anatomy, Robot Drive Systems, Control systems and dynamic performance, Precision of movement, End Effectors	4 Hrs
2	Components Controllers, Robot activation and feedback components, position and velocity sensors, Actuators, Power Transmission system, Robot joint control design Sensors in Robotics Transducers and Sensors, Tactile sensors, proximity and range sensors, Miscellaneous sensors and sensor based systems	4 Hrs
3	Robot motion Analysis and Control Robot dynamics, configuration of robot controller Machine Vision Sensing and Digitizing function in machine vision, Image Processing and analysis	4 Hrs

COURSE CONTENT

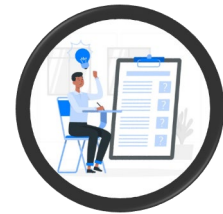
Module	Topics	Hours
4	<p>Robot Programming Methods of Robot Programming, A Robot program as a path in space, WAIT, SIGNAL and DELAY commands, Branching</p> <p>Robot Languages Textual Robot languages, generation of Robot Programming languages, Robot Language structure, constants, variables and other data objects, Motion commands, computations and Data Processing, Monitor mode commands</p>	4 Hrs
5	<p>Robotics & AI Introduction, Goals of AI research, AI techniques, LISP programming, LISP in factory</p> <p>Social Issues and Future of Robotics Robotics and labour, education and training, international impacts, Mobility, Locomotion and Navigation, characteristics of future robotics</p>	4 Hrs
6	Hands on Robotics with UI Path with relevant examples.	10 Hrs

COURSE OUTCOME

After completion of the course students will be able to -

- Understand concepts of Robotic Application Development.
- Design Robotic applications with appropriate sensors and other components.
- Learn different Robotic programming techniques and write basic programs

EVALUATION



Mode of Assessment	Maximum Marks (50)	Minimum Marks (20)
Programming Exercise	20	8
Assignment	40	16
Project	40	16

100 MARKS



PASSING 40

WHO SHOULD DO

Basic Digital Electronic concepts (covered in XII Science) Basic knowledge of any programming language – C / Java

IT?