



# R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)

Opposite Ghatkopar Railway Station, Ghatkopar (West), Mumbai 400086, Maharashtra, INDIA.

Website: www.rjcollege.edu.in Email: rjcollege@rjcollege.edu.in Tel No: +91 22 25151763 Fax No: +91 22 25150957

College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

15<sup>th</sup> June 2021

## NOTICE

Department of Physics

Announces

VALUE ADDED COURSE

In

Understanding Physics using Computer Softwares

Date: 22<sup>nd</sup> June to 3<sup>rd</sup> July 2021.

Duration: 30 Hrs

Who are eligible: Undergraduate students

Credits: 02



  
PRINCIPAL  
RAMNIRANJAN JHUNJHUNWALA COLLEGE  
OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)  
Ghatkopar (W), Mumbai-400086, Maharashtra, INDIA

2019: Star College Status by DBT

2008: Best College by University of Mumbai 2010: IMC RBNQ Award 'Performance Excellence' for the year 2009

2011: 'Best Teacher Award' by Government of Maharashtra 2013: DST-FIST 2014: DBT STAR College

2013 & 2014: 'Jagar Jaanivancha Award' by Govt. of Maharashtra 2016: ISO 14001:2015 2016: ISO 9001:2015 2017: ISO 27001:2013

2018: Autonomous Status by University Grants Commission (No. F. 22-1/2018(AC) - 28.05.2018) & by University of Mumbai (No.Aff./ICD/18-19/440 - 08.06.2018)



# R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)

Opposite Ghatkopar Railway Station, Ghatkopar (West), Mumbai 400086, Maharashtra, INDIA.

Website: www.rjcollege.edu.in Email: rjcollege@rjcollege.edu.in Tel No: +91 22 25151763 Fax No: +91 22 25150957

College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

## Brochure



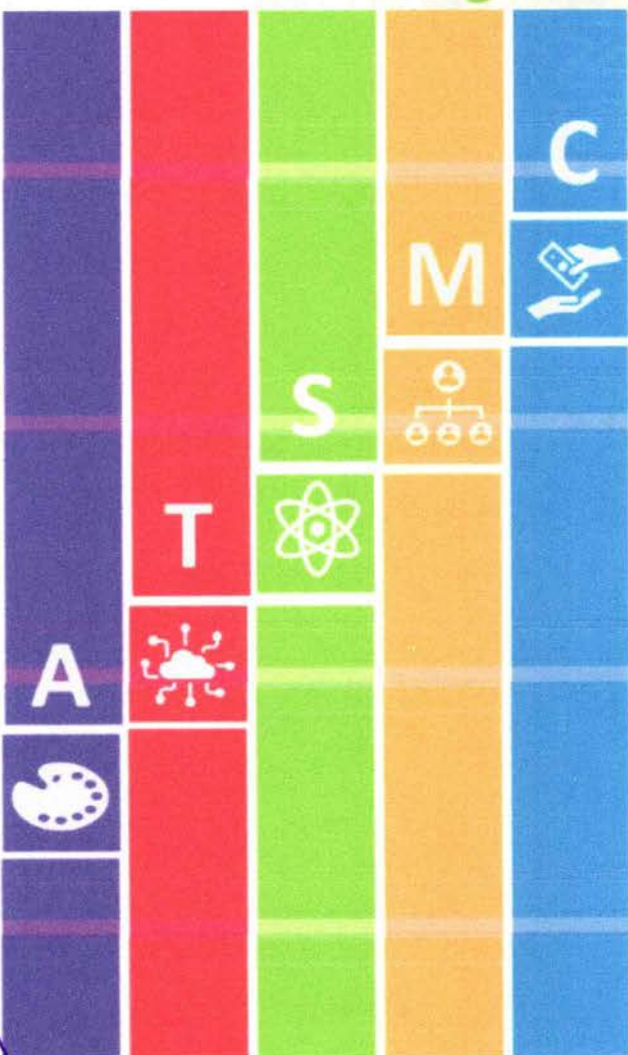
**AY 2021 Onwards**

### 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 || Recognized by UGC under 2f & 12B  
NAAC Accredited 'A GRADE' with CGPA 3.50

## Knowledge is all Ambrosia



### CERTIFICATE COURSE IN

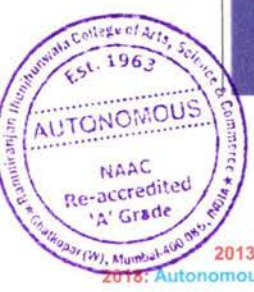
UNDERSTANDING  
PHYSICS USING  
COMPUTER SOFTWARES

www.rjcollege.edu.in

rjcollege@rjcollege.edu.in

+91 22 25151763

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



PRINCIPAL

RAMNIRANJAN JHUNJHUNWALA COLLEGE  
OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)  
Ghatkopar (W), Mumbai-400 086, Maharashtra, INDIA

2019: Star College Status by DBT

2008: Best College by University of Mumbai 2010: IMC RBNQ Award 'Performance Excellence' for the year 2009

2011: 'Best Teacher Award' by Government of Maharashtra 2013: DST-FIST 2014: DBT STAR College

2013 & 2014: 'Jagar Jaanivancha Award' by Govt. of Maharashtra 2016: ISO 14001:2015 2016: ISO 9001:2015 2017: ISO 27001:2013

2018: Autonomous Status by University Grants Commission (No. F. 22-1/2018(AC) - 28.05.2018) & by University of Mumbai (No.Aff./ICD/18-19/440 - 08.06.2018)





# R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)

Opposite Ghatkopar Railway Station, Ghatkopar (West), Mumbai 400086, Maharashtra, INDIA.

Website: www.rjcollege.edu.in Email: rjcollege@rjcollege.edu.in Tel No: +91 22 25151763 Fax No: +91 22 25150957

College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

## 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 reaccruited 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: **RJPHYC01**

Duration: **30** hours

Credits : **02**

## LEARNING OUTCOME

Students will learn to use various softwares for data fitting and visualization. They will also get hands-on experience in easy methods of carrying out numerical analysis using Excel and Scilab with applications to physical problems. Some software's for symbolic calculations will also be introduced. A software for tracking moving objects in a video will be demonstrated which will be useful in innovative physics experiments. Simulating electronic circuits on a computer and writing reports using LaTeX with easy typesetting of complicated equations will also be covered. Most of these software's can run on any Android mobile phone.



PRINCIPAL

RAMNIRANJAN JHUNJHUNWALA COLLEGE OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS) Ghatkopar (W), Mumbai-400086, Maharashtra, INDIA

2019: Star College Status by DBT

2008: Best College by University of Mumbai 2010: IMC RBNQ Award 'Performance Excellence' for the year 2009

2011: 'Best Teacher Award' by Government of Maharashtra 2013: DST-FIST 2014: DBT STAR College

2013 & 2014: 'Jagar Jaanivancha Award' by Govt. of Maharashtra 2016: ISO 14001:2015 2016: ISO 9001:2015 2017: ISO 27001:2013

2018: Autonomous Status by University Grants Commission (No. F. 22-1/2018(AC) - 28.05.2018) & by University of Mumbai (No.Aff./ICD/18-19/440 - 08.06.2018)



CERTIFICATE COURSE IN

**UNDERSTANDING PHYSICS USING COMPUTER SOFTWARES**

**COURSE CONTENT**

- Module 1** Graph plotting and data fitting using gnu plot: drawing simple, surface, contour plots, fitting curves to data, setting labels, legends and saving the figures in different formats, making batch file, etc.
- Module 2** Data visualisation and simple numerical analysis using Excel: Plotting different plots from the given data.
- Module 3** Perform simple numerical differentiation and integration: To solve some problems in physics, generate a trajectory of a simple nonlinear mapping and study various bifurcations, so on.
- Module 4** Symbolic computation using Sage or WxMaxima: learning to simplify algebraic, trigonometric expressions and solve equations involving them. Perform symbolic differentiation, integration, etc.
- Module 5** Introduction to Octave or Scilab: learning graph plotting commands for data visualization, learn to use the ODE solver to solve differential equations governing some physical problems.
- Module 6** Applications of Octave or Scilab: Examples can include, projectile motion with and without drift, simple harmonic motion to simple pendulum to double pendulum, nonlinear oscillator.
- Module 7** Writing reports and making presentations using LaTeX: writing simple text, typesetting equations, including and aligning figures, making presentations using document class beamer, and so on.
- Module 8** Using Tracker software to extract kinematical data of moving objects (I): recording and tracking motion to determine the position as a function of time and hence other derived quantities to determine or verify the laws governing the motion.
- Module 9** Using Tracker software to extract kinematical data of moving objects(II): Some more applications
- Module 10** Electronic Circuit Basics with Tinker CAD

English

**MEDIUM OF INSTRUCTION**



**EVALUATION**

Assignments & multiple choice test The students are required to write their feedback report in LaTeX.

**100 MARKS**



**PASSING 40**

For Physics Undergraduate and PG students

**WHO SHOULD DO IT?**



*(Signature)*  
 PRINCIPAL

RAMNIRANJAN JHUNJHUNWALA COLLEGE OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS) Ghatkopar (W), Mumbai-400 086, Maharashtra, INDIA

2019: Star College Status by DBT

2008: Best College by University of Mumbai 2010: IMC RBNQ Award 'Performance Excellence' for the year 2009

2011: 'Best Teacher Award' by Government of Maharashtra 2013: DST-FIST 2014: DBT STAR College

2013 & 2014: 'Jagar Jaanivancha Award' by Govt, of Maharashtra 2016: ISO 14001:2015 2016: ISO 9001:2015 2017: ISO 27001:2013

2018: Autonomous Status by University Grants Commission (No. F. 22-1/2018(AC) - 28.05.2018) & by University of Mumbai (No.Aff./ICD/18-19/440 - 08.06.2018)



# R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)

Opposite Ghatkopar Railway Station, Ghatkopar (West), Mumbai 400086, Maharashtra, INDIA.

Website: www.rjcollege.edu.in Email: rjcollege@rjcollege.edu.in Tel No: +91 22 25151763 Fax No: +91 22 25150957

College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

## Report

A value added course on “*Understanding Physics using Computer Softwares*” was organized from 22<sup>nd</sup> June to 3<sup>rd</sup> July 2021. The students learnt graph plotting and curve fitting using advanced Excel and GNU plot softwares, symbolic computation using WxMaxima, report writing and PPT making using LaTeX software, electronic circuit construction using Tinker CAD, tracker software for extracting kinematic data from moving objects etc. 110 undergraduates registered for the course and 26 students successfully completed the course.



  
PRINCIPAL  
RAMNIRANJAN JHUNJHUNWALA COLLEGE  
OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)  
Ghatkopar (W), Mumbai-400 086, Maharashtra, INDIA

2019: Star College Status by DBT

2008: Best College by University of Mumbai 2010: IMC RBNQ Award 'Performance Excellence' for the year 2009

2011: 'Best Teacher Award' by Government of Maharashtra 2013: DST-FIST 2014: DBT STAR College

2013 & 2014: 'Jagar Jaanivancha Award' by Govt. of Maharashtra 2016: ISO 14001:2015 2016: ISO 9001:2015 2017: ISO 27001:2013

2018: Autonomous Status by University Grants Commission (No. F. 22-1/2018(AC) - 28.05.2018) & by University of Mumbai (No.Aff./ICD/18-19/440 - 08.06.2018)





# R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)

Opposite Ghatkopar Railway Station, Ghatkopar (West), Mumbai 400086, Maharashtra, INDIA.

Website: www.rjcollege.edu.in Email: rjcollege@rjcollege.edu.in Tel No: +91 22 25151763 Fax No: +91 22 25150957

College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

## Participants list

Sr No	Name	Class	Roll No
1	Anjali Mohanlal Pal	SYBSc	30
2	Ankita Mohanlal pal	FYBSc	336
3	ANSARI MOHD ADNAN SANAULLAH	SYBSc	1
4	Ansari shifa parveen noorul hasan	TYBSc	3
5	AZMI SHUMYLA TAMKIN MOHAMMED ZIA	SYBSc	3
6	Chinmay Sanjay Shinde	FYBSC-D	775
7	Ganesh Nandlal Pandey	SYBSC	235
8	Gopi Panchamram Vishwakarma	FYBSc	788
9	KUSUM PINGALPRASAD SHARMA	SYBCOM	308
10	Mithilesh Rajdatta Shinde	FYBSC	73
11	Nidhi Ravindra Yadav	TYBSC	106
12	Om Umanath Maurya	SYBSC	105
13	Parvati Mantosh Mishra	TYBCOM	118
14	Priyanka virendra gupta	SYBCOM	234
15	Sandip Krishankumar Singh	SYBSC	219
16	Sareeka Devram Borhade	Sybcom	210
17	Shikha Anilkumar Pandey	Tybsc	227
18	Shivam Anand Mishra	FYBSc	800
19	Shubham Dinesh Yadav	Sybsc	225
20	Sneha Suryabhan Chauhan	Fybsc	705
21	Swapnali Krishna Nakti	TYBCOM	530
22	Ujala Indrapal Yadav	FYBSc	105
23	Vipul Sureshkumar Dwivedi	S.Y.B.Sc.	203
24	Vivek Vishwas Nikam	FYBSC	47
25	Zain Dabir	SYBSC	605
26	Anjali Rudramani Dubey	SYBCOM	418



PRINCIPAL  
RAMNIRANJAN JHUNJHUNWALA COLLEGE  
OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)  
Ghatkopar (W), Mumbai-400 086, Maharashtra, INDIA

2019: Star College Status by DBT

2008: Best College by University of Mumbai 2010: IMC RBNQ Award 'Performance Excellence' for the year 2009

2011: 'Best Teacher Award' by Government of Maharashtra 2013: DST-FIST 2014: DBT STAR College

2013 & 2014: 'Jagar Jaanvancha Award' by Govt. of Maharashtra 2016: ISO 14001:2015 2016: ISO 9001:2015 2017: ISO 27001:2013

2018: Autonomous Status by University Grants Commission (No. F. 22-1/2018(AC) - 28.05.2018) & by University of Mumbai (No.Aff./ICD/18-19/440 - 08.06.2018)



# R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)

Opposite Ghatkopar Railway Station, Ghatkopar (West), Mumbai 400086, Maharashtra, INDIA.

Website: www.rjcollege.edu.in Email: rjcollege@rjcollege.edu.in Tel No: +91 22 25151763 Fax No: +91 22 25150957

College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

## CERTIFICATES

 Hindi Vidya Prachar Samiti's  
**RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce**  
**(AUTONOMOUS)**  
Opposite Ghatkopar Railway Station, Ghatkopar (W), Mumbai 400 086.

*Certificate of Completion*

This is to certify that

**PAL ANKITA MOHANLAL SUMAN**

of Class SYBSC Roll No. 1

has successfully completed the Value-Added Course in Understanding Physics using Computer Softwares organized by Department of Physics and conducted from 22/06/2021 to 03/07/2021

**COURSE CODE**  
**RJPHYC01**

Issue Date: 24 June, 2022

 Value Added Course 2021-22

Dr. Himanshu Dawda  
Principal

**CERTIFICATE ID: RJC-VAC-202122-1146**

 Hindi Vidya Prachar Samiti's  
**RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce**  
**(AUTONOMOUS)**  
Opposite Ghatkopar Railway Station, Ghatkopar (W), Mumbai 400 086.

*Certificate of Completion*

This is to certify that

**CHAUHAN SNEHA SURYABHAN SHIVKUMARI**

of Class SYBSC Roll No. 203

has successfully completed the Value-Added Course in Understanding Physics using Computer Softwares organized by Department of Physics and conducted from 22/06/2021 to 03/07/2021

**COURSE CODE**  
**RJPHYC01**

Issue Date: 24 June, 2022

 Value Added Course 2021-22

Dr. Himanshu Dawda  
Principal

**CERTIFICATE ID: RJC-VAC-202122-1190**



2019: Star College Status by DBT

2008: Best College by University of Mumbai 2010: IMC RBNQ Award 'Performance Excellence' for the year 2009

2011: 'Best Teacher Award' by Government of Maharashtra 2013: DST-FIST 2014: DBT STAR College

2013 & 2014: 'Jagar Jaanivancha Award' by Govt. of Maharashtra 2016: ISO 14001:2015 2016: ISO 9001:2015 2017: ISO 27001:2013

2018: Autonomous Status by University Grants Commission (No. F. 22-1/2018(AC) - 28.05.2018) & by University of Mumbai (No. Aff./ICD/18-19/440 - 08.06.2018)

PRINCIPAL  
RAMNIRANJAN JHUNJHUNWALA COLLEGE  
OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)  
Ghatkopar (W), Mumbai-400 086, Maharashtra, INDIA