



Annual Report
for Academic Year
2022-23

Department of Physics
Shri Shivaji Education Society Amravati's
SCIENCE COLLEGE
NAGPUR

3S.S.E.S.AMRAVTI'S SCIENCE COLLEGE, NAGPUR

Annual Report for the Session 2022-23

Department of Physics

Year of Establishment: UG: 1960, PG: 2011-12, CoC: 2013-14, Ph. D /Lab Recognition: 2014-15, 2020-21

1. No of Certificate / Diploma / Advanced Diploma / PG Diploma Courses run by Departments: 00
2. Total Number of students

UG		PG		Ph. D.	Others	
B.SC. I	154	M.Sc. I	24	03		
B.SC. II	147	M.Sc. II	26			
B.SC. III	146	MCA-I				
BCA-I		MCA-II				
BCA-II		-				
BCA-III		-				
Total	447	Total	50	03		

3. Faculty profile of Regular / Permanent Teaching Staff with name, qualification, designation.

Name	Highest Qualification	Designation	Teaching Experience
1. Prof. S. W. Anwane	Ph.D.	Professor	22 Yrs
2. Dr R N Pathare	Ph.D.	Assistant Professor	15 Yrs
3. Dr S V Khangar	Ph.D.	Assistant Professor	03 Yrs
4. Mr B T Kumbhare	M.Sc.,SET	Assistant Professor	03 Yrs
5. Dr S K Sayyad	Ph.D.	Assistant Professor	03 Yrs
6. Dr. G. L. Jadhav	Ph.D.	Assistant Professor	03 Yrs

4. Faculty profile of Ad-hoc / Contributory Teaching Staff with name, qualification.

Name	Highest Qualification	Designation	Teaching Experience
1. Ms Isha Kapte	M.Sc.	Assistant Professor (Ad-hoc)	02 Yrs
2. Mr Yashpal Pawar	M.Sc.	Assistant Professor (Ad-hoc)	02 Yrs
3. Ms Roshni Pahuja	M.Sc.	Assistant Professor (Ad-hoc)	01 Yr
4. Dr. S.S. Pote	Ph.D.	Assistant Professor (CHB)	10 Yrs
5. Chaitanya Gajbhiye	M.Sc.	Assistant Professor (CHB)	00 Yrs
6. Amit Meshram	M.Sc.	Assistant Professor (CHB)	00 Yrs
7. Dr.Minakshi Ghate	Ph.D.	Assistant Professor (CHB)	10 Yrs

5. Details of Administrative and Technical staff

Sr No	Name of the staff	Designation	Permanent /Temporary/ Daily-wages
1	D.S.Wankhade	Lab.Assistant	Permanent
2	D.A.Thakare	Lab.Attent	Permanent
3	H.M.Dhawad	Lab.Attent	Permanent
4	Roshan Naik	Attendant	Daily Wages
5	Nikhil Bhurse	Attendant	Daily Wages

6. Faculty recognized as a Supervisor / No of Students Registered

Sr. No	Name of the Supervisor	No of Students Registered	Whether Ph. D. Awarded
1	Dr S W Anwane	02	01
2	Dr R N Pathare	01	-

7. Results of the RTM Nagpur university examinations Winter -2021

Class	Total No of Students admitted	Appeared	Passed	Fail	Distinction	Pass %
B.SC. Sem- I	153	153	153	0	86	100
B.SC. Sem-III	147	147	146	1	52	99.5
B.SC. Sem-V	146	146	146	0	52	100
M. Sc. Sem-I	25	25	25	0	3	100
M. Sc. Sem-III	24	24	24	0	5	100

8. Results of the RTM Nagpur university examinations Summer 2022

Class	Total No of Students admitted	Appeared	Passed	Fail	Distinction	Pass %
B.SC. Sem- II	149	149	145	4	34	97.31
B.SC. Sem-IV	151	151	151	0	110	100
B.SC. Sem-VI	146	146	146	0	123	100
M. Sc. Sem-II	25	25	25	0	3	100
M. Sc. Sem-IV	24	24	24	0	7	100

9. Awards / Recognitions (Merits, Gold Medal, Silver Medal etc.) received by students:

Sr. No.	Name of the Students	Class	Title
1	Miss. Niharika V. Saxena Secured 2nd Prize	B. Sc. SEM VI	VUPTA Seminar Competition
2	Abhinav P. Gotmare Secured 1st prize	B. Sc. SEM IV	VUPTA Seminar Competition
3	Mayur Bedarkar Secured 1st prize	M.Sc. SEM-IV	VUPTA Seminar Competition
4	Anuj Khapekar	B. Sc. SEM VI	Top IAPT Rank
5	Abhinav P. Gotmare Secured 2nd Rank	B. Sc. SEM IV	National Science Day celebration on Demonstration of Physics Experiment
6	Abhinav P. Gotmare Secured 3rd Position	B. Sc. SEM IV	AUPTA Presentation Competition of Experiment Demonstration at GSG Mahavidyalaya, Umerkhed

7	Abhinav P. Gotmare Secured 3rd Position	B. Sc. SEM IV	State Level online Powerpoint Presentation Competition by Kamla Nehru College, Nagpur
8	Anuj Khapekar	B. Sc. SEM VI	AIR 1637 in JAM Exam
9	Parth Hedau	B. Sc. SEM VI	AIR 587 in JAM Exam

10. Awards / Recognitions received by faculty:

Name of the Faculty	Details of the awards/ recognitions	International / National / State / University/ Dist/ College Level	Year
S W Anwane	Best Researcher Award for 2020-21	Parent Institute: Shri Shivaji Equation Society, Amravati's, Science College, Nagpur, MS, India	2020-21

11. Faculty participation in conferences/seminar/workshop and symposia:

Name of the Faculty	State Level		National Level		International Level	
	Attended	Presented papers	Attended	Presented papers	Attended	Presented papers
S W Anwane					01	
B. T. Kumbhare	Workshop -01					
G L Jadhav	Workshop -01					

12. Details of Major / Minor Projects and Research funds sanctioned and received from various funding agencies, industry and other organizations

Name of the Faculty	Major/ Minor/ Any other (Specify)	Duration From -To	Funding Agency	Grant sanctioned	Grant Received	Whether Completed/ Ongoing
Dr.D.K. Burghate	Major	2012-2015	UGC	11,42,800	11,42,800	Completed
Dr.S.B.Kondawar	Major	2008-2011	UGC	8,19,300	8,19,300	Completed
Dr.H.K.Dahule	Minor	2010-2012	UGC	1,20,000	1,20,000	Completed
Dr S W Anwane	Minor	2009-2011	UGC	1,55,000	1,55,000	Completed
Dr S S Darokar	Minor	2009-2011	UGC	1,65,000	1,37,500	Completed
Dr S W Anwane	CoC	2013-2018	UGC	9,00,000	9,00,000	Completed

13. No of research publications:

Name of the Faculty	Peer Review Journals			Non-Peer Review Journals			Conference proceedings		
	International	National	Other	International	National	Other	International	National	Other
Dr S W Anwane	01	00	00	00	00	00	00	00	00
Dr R N Pathare	02	00	00	00	00	00	00	00	00
Dr G L Jadhav	01	00	00	00	00	00	00	01	00
Dr S K Sayyad	01	00	00	00	00	00	00	02	00
Dr S V Khangar	01	00	00	00	00	00	00	01	00
Mr.B. T. Kumbhare	01	00	00	00	00	00	00	00	00

14. No of research publications listed in International Database (SCOPUS / Google Scholar)

Name of the Faculty	No of research publications in SCOPUS	No of research publications in Google Scholar	Citations	h-index	i10-index
Dr S W Anwane	15	18	76	5	3
Dr R N Pathare	10	13	195	6	6
Dr S K Sayyad	08	11	56	2	1
Dr S V Khangar	01	01	01	1	0
Dr G L Jadhav	02	05	22	2	1

15. Details on Impact factor of publications:

Range Average h-index Nos. in SCOPUS

16. Details of publication of Chapter in Book/ Book Edited/ Book Published by the faculty

Name of the Faculty	Chapter in Book	Book Edited	Book Published			Year of Publication
			Title of the Book Published	ISBN/ISSN	Publisher	
Dr S W Anwane		1	The Special & General Theory of	9798539250829	KDP Amazon	2021

			Relativity			
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17. Areas of consultancy and Revenue generated through consultancy

Areas of consultancy	Revenue generated through consultancy before the assessment period	Revenue generated through consultancy during the assessment period
Characterization of Samples	0	Rs 7200/-

18. Conferences/Seminar /workshop/Guest Lect. organized by the Department.

- **Students Induction Programme - 1st Oct 2021, Nagpur:** “*I can*” is sometimes more important than “*IQ*” – Dr Sunil Pande, Ex-HOD, Department of Physics, Ramdeobaba College of Engineering & Management (RCOEM). Students Induction Programme was organized for the newly inducted M.Sc. Physics Students of 2021 at the Department of Physics, Shri Shivaji Science College, Nagpur. Due to the Covid-19 norms, the program was held online. Dr. Sunil Pande, Ex-HOD, Department of Physics, RCOEM was the Chief guest to address the students. While speaking he stated that the study of Physics is also an adventure. You will find it challenging, sometimes frustrating, occasionally painful and often richly rewarding. Further, he added, Imagination is more important than knowledge. Students should not study only from the examination point of view, but they should grab all the basic knowledge of physics. He motivated and inspired all the students with his remarkable speech.
- In November 2021, faculty members had procured a 10” Dobsonian Astronomical telescope. A webinar was organized by **Shivaji Space Explorer Club** on ‘GSNST-A sky survey to search for transient using an array of Robotic Telescopes’ delivered by Mr. Malhar Kendurkar, President at Prince George Astronomical Observatory, Canada - alumni of Shivaji Science College, Nagpur.
- Physics society held a webinar on ‘Advanced Functional Materials’ which was delivered by Dr. Oroosa Subohi, Asst. Professor, VNIT.
- In December 2021, a guest lecture was organized on ‘Molecular Spectroscopy’ which was delivered Dr. S S Dhondge, Ex- Principal of SK Porwal College.

19. Academic Activities for students and Faculty members of the Department

Udemy Course Instructor – S W Anwane

Udemy has approved and made live on 23th Nov 2021 the course A boot camp to the Special Theory of Relativity. This course is for amateurs as well as for those pursuing undergraduate programme. In this course, we will begin with the history of formulation of the special theory of relativity and will derive Einstein’s famous equation $E = mc^2$. We shall conventionally build the subject, that covers syllabi’s of most of the universities looking at the student’s interest. This course essentially covers all the traditional topics. In the last lecture Relativistic Lagrangian is developed to quickly descend upon energy and relativistic momentum. This

course has video lecture content of 8.5 hrs that is divided into 4 sections spread over 27 lectures followed by a Quiz at the end of each lecture.

2275 STUDENTS 4.66 RATING 51 REVIEWS in December 2022 <https://www.udemy.com/course/a-boot-camp-to-special-theory-of-relativity/>

Udemy Course Instructor – S W Anwane

Udemy has approved and made it live on 23rd May 2022 the course A boot camp to Nuclear Physics. This course is for amateurs as well as for those pursuing undergraduate program in Physical Sciences and Medical sciences. This course has video lecture content of 10 hrs that is divided into 7 sections spread over 48 lectures followed by a Quiz at the end of each section. This course expectedly covers all the traditional topics that are part of the Undergraduate Program in most Universities. Amateurs in Physics and those having love for Physics can quench their thirst for learning by subscribing to this online program.

1164 STUDENTS 4.69 RATING 34 REVIEWS in November 2022 <https://www.udemy.com/course/a-boot-camp-to-nuclear-physics/>

YouTube Channel-an innovative way to reach students at large

S W Anwane:

The You Tube channel <http://bit.ly/37UDXoq> offers about **116 Video Lectures** on a variety of topics in Undergraduate Physics. The major playlists are as following:

1. Band Theory & Semiconductors [UG Level, 04 Lectures 4.5 hrs]
2. Simple Harmonic Motion [UG Level, 3.5 Lectures 6 hrs]
3. Complex Numbers [PG Level, 23 Lectures 16 hrs]
4. Differential Equations using Maple [Invited Talk in FDP-2020 Webinar, 1.5 hr]
5. Black Holes & Complementarity [Invited Talk in National Conference, 1 hr]
6. Special Relativity using Perplex Numbers [Research Level, 5 Lectures 1.5 hrs]
7. Quantum Mechanics [UG Level, 11 Lectures, 4 hrs]
8. Fluid Mechanics [UG Level Engg, 10 Lectures, 5.5 hrs]
9. Gravitation [UG Level, 6 Lectures, 2.5 hrs]
10. Quantum Mechanics [UG Level, 11 Lectures, 4 hrs]
11. Statistical Mechanics [UG Level, 5 Lectures, 5.5 hrs]
12. Time Varying Fields [UG Level, 13 Lectures, 4 hrs]
13. Electrostatics & Dielectrics [UG Level, 3 Lectures, 3 hrs]
14. MAPLE [Cert Course, 7 Lectures, 3.75 hrs]
15. Introduction to Black Holes [UG Level, 2 Lectures, 0.5 hr]
16. Crystallography [UG Level, 3 Lectures, 0.75 hr]

G L Jadhav:

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|---|---------------------------|---|
| 1 | Interference of Light (1) | https://youtu.be/XmX12S57pBk |
| 2 | Interference of Light (2) | https://youtu.be/VjtYhjoNg3E |
| 3 | Interference of Light (3) | https://youtu.be/oyRZTBSNpmY |
| 4 | Interference of Light (4) | https://youtu.be/_uMFS056ypA |
| 5 | Interference of Light (5) | https://youtu.be/gDHd-CS2IAA |
| 6 | Interference of Light (6) | https://youtu.be/hZ-QmhhVnO4 |

- 7 Interference of Light (7) https://youtu.be/yAhzGDD_dC4
- 8 Field Effect Transistor (1) <https://youtu.be/fdhh9aURsRM>
- 9 Field Effect Transistor (2) <https://youtu.be/bzOmac2yivo>
- 10 Field Effect Transistor (3) <https://youtu.be/afhYEGTCpLM>
- 11 Polarization of Light <https://youtu.be/QuTH33peSuo>

Dr. Sugandha V. Khangar (Wagh) - YouTube and LMS in the session 2020-21.

Links of YouTube lecture and LMS are given below:

1. LMS link for B. Sc. SEM-I & SEM-II: <https://class.ssesa.live/b/mah-0xa-bit-n1p>
2. LMS link for B. Sc. SEM-III & SEM-IV: <https://class.ssesa.live/b/mah-skk-vvr>
3. B.Sc. SEM-II Laws of thermodynamics – Carnot’s cycle You Tube link:
<https://www.youtube.com/watch?v=Elix1XVKU80&t=233s>
4. B.Sc. SEM-III “Atmosphere and Geophysics” YouTube links:
 - i. <https://www.youtube.com/watch?v=IS1Emq5lveo&t=45s>
 - ii. https://www.youtube.com/watch?v=SEYc513ZE_g&t=1s
 - iii. https://www.youtube.com/watch?v=_5CqpvONfVQ&t=54s
 - iv. <https://www.youtube.com/watch?v=BHD7JqG8swU&t=55s>
 - v. <https://www.youtube.com/watch?v=G6sSF1SAVCc&t=5s>
 - vi. <https://www.youtube.com/watch?v=OHj1IcO5MMc&t=50s>
 - vii. <https://www.youtube.com/watch?v=lyVM1lrP1Xs&t=451s>
 - viii. <https://www.youtube.com/watch?v=pUeBi2MZ0MY>
 - ix. <https://www.youtube.com/watch?v=0cuUZ7M1Wtw&t=19s>
 - x. <https://www.youtube.com/watch?v=fiqw3c7D80o>
5. B.Sc. SEM-IV “LASER and OPTICAL FIBER” YouTube links:
 - i. <https://www.youtube.com/watch?v=rk7918ykQyw&t=119s>
 - ii. <https://www.youtube.com/watch?v=xLmjAZUsGt8&t=32s>
6. B. Sc. SEM-I Experiments YouTube links
 - i. Modulus of Rigidity:
<https://www.youtube.com/watch?v=qqaerRKcEYg&t=9s>
 - ii. Moment of Inertia of fly wheel:
<https://www.youtube.com/watch?v=RbZr85SkjOs&t=334s>
 - iii. Study of Phase shift oscillator

Dr. S K Sayyad - YouTube and LMS in the session 2020-21.

- FTIR : <https://youtu.be/GOha8uVvoVg>
- Hydrothermal method: <https://youtu.be/e-Fv94L7gYU>

20. Details on student enrichment programs (special lectures/workshops/seminar) with external experts:

Title/ Topic of the Program	Whether lectures/ workshops/seminar /other	Name of the external experts	Details of the external experts	Period of Program
Students Induction Programme for PG Students	SIP	Dr Sunil Pande	Ex Professor RKNEC	Oct 1, 2021

GSNST-A sky survey to search for transient using an array of Robotic Telescopes'	Guest Lecture	Mr. Malhar Kendurkar	President at Prince George Astronomical Observatory, Canada	Nov 2021
Advanced Functional Materials	Guest Lecture	Dr. Oroosa Subohi	Asst. Professor, VNIT	Dec 2021
Molecular Spectroscopy	Guest Lecture	Dr. S S Dhondge	Ex- Principal of SK Porwal College.	Dec 2021
Intellectual Property Rights and Patent Process	Webinar	Dr. Bharat N Suryawanshi	Assistant Controller of Patent & Design, RGNIIPM, Nagpur	Nov 2021

21. Participation in Institutional Social Responsibility (ISR) and Extension activities:

Name of the faculty	Details of participation in co-curricular activities	Details of participation in extracurricular activities	Details of participation in extension activities including institutional social responsibilities	Details with dates and period
Dr S W Anwane	Member of IQAC, Member of Criterion-V (Student Support and Progression)		Coordinator of CPE Programme and Convener of Planning and Follow-Up Action Committee (UGC/CPE/RUSA/ALLOCATION AND MAINTAINANCE)	Session 2021-22
Dr R N Pathare	Member of Admission committee, Member of Student Council committee			Session 2021-22
Dr S V Khangar			Co-officer of NSS committee	23 March to 29 March 2022
Mr B T Kumbhare			Member of NSS committee	23 March to 29 March 2022
Dr S K Sayyad	NET/SET guidance committee		Member of Value Education & Extension Activities	Session 2021-22
Dr G L Jadhav	STUDENT COUNCIL Member	Convener of Publicity & Digitalization	Convener of Internal Committee (Provision of Right of Persons with	Session 2021-22

		Committee, Member of Training and Placement Cell	Disability Act 2016), Convener of Value Education & Extension Activities	
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22. List of Alumni of the Departments:

Sr No	Name and available details
1	Ashish A. Mahabal Senior Research Scientist At Cal. Tech. U.S.A.
2	Appulingam Shriram Working in NABARD
3	Dr. Ashish A. Deshmukh Pursuing Ph.D. IISC Baglore
4	Mr.Prafulla D.Vairagade M.Sc. Applied Geology IIT Mumbai.
5	Ku.Pooja Pingale Canara Bank Mumbai
6	Ku.Roop Singh. IIM
7	Dr.Kamlesh Moon M.P. Deo Science College, Nagpur
8	Dr.S.N.Patil M.Sc.Physics ,Associate Prof .Nashik.
9	Shri Rahul D.Khade Advocate High Court Nagpur
10	Dr.Vikas Bangre , Institute of Science, Mumbai
11	Mr. R. J. Sasan Indian Air Force
12	Mr. A. M. Lele Multinational Based Elect. Space Company U.S.A.
13	Mr. G. Agarwal IIT Guwahati
14	Mr. V. S. Marathe UK
15	Ku. Sandhya U.S.A.
16	Mr. Joshi S. S. Indian Air Force
17	Dr. Varambhe Prof. Food & Tech LIT Nagpur
18	P. V. Dhanodkar System Engg. United Bank Of India Pune
19	Shri Jayant M. Borade NIC Nagpur
20	Shri. Arora Programmer UK
21	Dr. Satish Sangode Scientist E Wadia Inst. of Himalaya Geology Deharadoun (UP)
22	Shri V. K. Patkhmode Hydrologist GSDA Pune
23	Shri Devendra Mahajan Hydrologist Sahara India, Lonawala
24	Shri Anup Fartode Lecturer KDK Engg. College, Nagpur
25	Appulingam Shriram Geologist Nabard Patna Bihar
26	Shri D. M. Kolte ,Nagpur
27	Shri. Ravi Bhoyar Adv. High Court Nagpur
28	Shri. Arora Programmer UK
29	Shri V. K. Patkhmode Hydrologist GSDA Pune
30	Shri Devendra Mahajan Hydrologist Sahara India, Lonawala
31	Shri Anup Fartode Lecturer KDK Engg. College, Nagpur
32	Appulingam Shriram Geologist Nabard Patna Bihar
33	Shri D. M. Kolte ,Nagpur
34	Shri. Ravi Bhoyar Adv. High Court Nagpur
35	Shri. Arora Programmer UK
36	Dr.S.N.Patil M.Sc.Physics ,Associate Prof .Nashik.
37	Dr.Kamlesh Moon M.P. Deo Science College, Nagpur
38	Mr. Malke Govt Poly,Sadar Nagpur.
39	Mr. C.G.Pande WCL
40	Mr. Y.S. Tijare,Nagpur.
41	Mr.Mukwane Meyo Hospital, Nagpur
42	Ku.Nikita Mathankar Enthrall Tech Pune
43	Ku.Renuka Raut Enthrall Tech Pune

44	Padwe Prathesh madhukar
45	Harshal Ravindra Zilpe
46	Padmakshi Naresh Parwe
47	Ghodmare Anjali Krishnaji
48	Anjali Fulkar
49	Aishwarya Sawarkar
50	Anuj Chandrasekhar Ghatate
51	Pranay Babalu Billore
52	Gaurav s. Nirwan
53	Rahul Borkar
54	Ankita C. Bandhekar
55	Pratik Surendra Ghorpade
56	Shweta Kuntawar
57	Amruta Arvind Dadmal
58	Ragini Sunil Meshram
59	Bhakti Jaywant Deshpande
60	Shriya Shrikant Patankar
61	Paris Sudesh More
62	Aditya Shekhar Jogwar
63	Apurva Tiwari
64	Anjali Agrawal
65	Vishwajit Manohar Gaikawad

23. Plan for the Current Academic Session (2022-23) :

To strengthen academic activities in the department for various courses viz; UG, PG, CoC, Research Centre.

24. Future plan for Next Academic Session (2023-24) :

To strengthen academic activities in the department for various courses viz; UG, PG, CoC and Research Centre.

25. Any other information: -

Date:19/01/2023

Signature
Head
Department of Physics