



**Certificate Course in Domestic Equipment
Maintenance
(Sponsored under PM-USHA “Grants to
Strengthen Colleges” Scheme)
(January 2026 to March 2026)**

Faculty of Science and Technology
Department of Physics and Electronics
Certificate Course in Domestic Equipment Maintenance
(Sponsored under PM-USHA “Grants to Strengthen Colleges” Scheme)
Under PM-USHA

Course Type: Certificate Course Under PM Usha Scheme

Credits: 02

Max. Marks: 50

Course Duration: January 2026 to March 2026
w.e.f. December, 2025

Organized by
Departments of Physics & Electronics
Rajarshi Shahu Mahavidyalaya, Latur
(Empowered Autonomous)

Report on PM-USHA Sponsored Certificate Course in Domestic Equipment Maintenance

Resource Person: Mr. Yogesh Gangthade

College Name: Rajarshi Shahu Mahavidyalaya, Latur (Empowered Autonomous)

Department: Physics and Electronics

Course Title: Certificate Course in Domestic Equipment Maintenance

Scheme: PM-USHA (Grants to Strengthen Colleges)

No. of students: 23

1. Introduction

The Department of Physics and Electronics at Rajarshi Shahu Mahavidyalaya, Latur, successfully organized a 30-hour Certificate Course in "Domestic Equipment Maintenance" under the prestigious PM-USHA scheme. The course was designed to provide students with hands-on technical skills and theoretical knowledge required for the maintenance and repair of common household appliances.

2. Role of the Resource Person

Mr. Yogesh Gangthade served as a key resource person for this course. His expertise was instrumental in bridging the gap between theoretical physics concepts and practical engineering applications. He led sessions focusing on:

- **Technical Demonstrations:** Providing detailed instruction on the construction and working principles of appliances such as Electric Irons, Mixers, Fans, and Water Heaters.
- **Practical Training:** Supervising hands-on "Dismantling and Reassembling" sessions where students learned to identify internal components and troubleshoot common faults.
- **Safety Standards:** Educating students on critical safety protocols, including the rescue of persons from live wires and the importance of proper earthing to prevent fire and shock.


3. Course Highlights & Skills Imparted


Under the guidance of the resource persons, students achieved the following learning outcomes:

- **Foundational Knowledge:** Mastery of basic electronics, including Ohm's Law, soldering techniques, and the use of measuring instruments like multimeters and testers.
- **Maintenance Proficiency:** Ability to perform basic maintenance such as cleaning filters and checking plugs to ensure appliance longevity.
- **Entrepreneurial Readiness:** Skills developed during the course empower students to detect faults and potentially establish their own small-scale repair businesses.

4. Conclusion

The contribution of Mr. Yogesh Gangthade significantly enhanced the quality of the program. His practical approach ensured that students did not just learn the science behind the equipment but also gained the confidence to handle real-world maintenance tasks. The course concluded successfully, fulfilling its objective of strengthening vocational skills under the PM-USHA framework.


HEAD
Department of Physics & Electronics
Rajarshi Shahu Mahavidyalaya, Latur
(Autonomous)


Principal
PRINCIPAL
Rajarshi Shahu Mahavidyalaya, Latur
(Autonomous)



**Photographs of the
Certificate Course in Domestic Equipment
Maintenance
(Sponsored under PM-USHA “Grants to Strengthen
Colleges” Scheme)
(January 2026 to March 2026)**

**Faculty of Science and Technology
Department of Physics and Electronics**

**Certificate Course in Domestic Equipment Maintenance
(Sponsored under PM-USHA “Grants to Strengthen Colleges” Scheme)**

Under PM-USHA

Course Type: Certificate Course Under PM Usha Scheme

Credits: 02

Max. Marks: 50

**Course Duration: January 2026 to March 2026
w.e.f. December, 2025**

**Organized by
Departments of Physics & Electronics
Rajarshi Shahu Mahavidyalaya, Latur
(Empowered Autonomous)**

**Certificate Course in Domestic Equipment Maintenance
(Sponsored under PM-USHA "Grants to Strengthen Colleges" Scheme)
(January 2026 to March 2026)**



Shri Yogesh Gangthade explaining basics of Domestic Equipment Maintenance



A close-up shot of a electric iron internal components, now cleaned and prepared for reassembly, showcasing a key part of the maintenance process.



The critical final step: testing the repaired appliance to ensure it is both functional and safe for household use



Students becoming familiar with the essential toolkit required for effective domestic equipment repair eelctric water heater.



A student carefully takes apart a ceiling fan, learning the step-by-step process of dismantling as the first stage in maintenance training.



Focused troubleshooting: identifying the cause of a malfunction in a common household appliance, such as an electric iron or hairdryer



शिव छत्रपती शिक्षण संस्थेचे,
राजर्षी शाहू महाविद्यालय, लातूर
(अधिकारप्रदत्त स्वायत्त)
भौतिकशास्त्र आणि इलेक्ट्रॉनिक्स विभाग
सूचना

दि. १५/१२/२०२५

महाविद्यालयातील सर्व विद्यार्थ्यांना सूचित करण्यात येते की, पीएम-उषा (PM-USHA) योजनेअंतर्गत भौतिकशास्त्र आणि इलेक्ट्रॉनिक्स विभागामार्फत 'सर्टिफिकेट कोर्स इन डोमेस्टिक इक्विपमेंट मेंटेनन्स' (Certificate Course in Domestic Equipment Maintenance) हा नवीन प्रमाणपत्र अभ्यासक्रम डिसेंबर २०२५ पासून सुरू करण्यात येत आहे.

हा अभ्यासक्रम विद्यार्थ्यांना घरगुती विद्युत उपकरणांच्या (उदा. इलेक्ट्रिक इस्त्री, हिटर, मिक्सर, पंखा, गिझर इ.) दुरुस्ती आणि देखभालीचे कौशल्य शिकवण्यासाठी तयार करण्यात आला आहे.

अभ्यासक्रमाची ठळक वैशिष्ट्ये:

- अभ्यासक्रमाचे नाव: सर्टिफिकेट कोर्स इन डोमेस्टिक इक्विपमेंट मेंटेनन्स
- योजना: पीएम-उषा (PM-USHA)
- क्रेडिट्स: ०२ (02)
- कालावधी: ३० तास (व्याख्याने) आणि ३० तास (प्रात्यक्षिक प्रशिक्षण)
- उद्दिष्टे: घरगुती उपकरणांमधील बिघाड शोधणे, दुरुस्ती करणे आणि स्वयंरोजगार (Self-business) स्थापन करण्यास सक्षम करणे.

तरी इच्छुक विद्यार्थ्यांनी या अभ्यासक्रमासाठी आपली नोंदणी 20/12/2025 पर्यंत भौतिकशास्त्र आणि इलेक्ट्रॉनिक्स विभागात श्री अमर बोईनवाड यांच्याकडे किंवा खालील लिंकद्वारे ऑनलाईन पद्धतीने करावी. जागा मर्यादित असल्याने लवकरात लवकर नोंदणी करावी.

<https://forms.gle/Nj9A3nY7dX1m4duP7>


विभाग प्रमुख

भौतिकशास्त्र आणि इलेक्ट्रॉनिक्स विभाग


प्राचार्य

प्राचार्य

राजर्षी शाहू महाविद्यालय, लातूर
(स्वायत्त)



Shiv Chhatrapati Shikshan Sanstha's
Rajarshi Shahu Mahavidyalaya, Latur



(Empowered Autonomous Institute)

NAAC A+ Grade (4th Cycle) with 3.49 CGPA,
UGC-CPE (Phase-III) & DST-FIST Status

Structure and Curriculum of
Certificate Course

in

Domestic Equipment Maintenance

(Under PM-USHA)

**(Sponsored under PM-USHA "Grants to Strengthen Colleges"
Scheme)**

Approved by

Board of Studies in Physics and Electronics

Rajarshi Shahu Mahavidyalaya, Latur
(Empowered Autonomous Institute)

w. e. f. December, 2025



Shiv Chhatrapati Shikshan Sanstha's
Rajarshi Shahu Mahavidyalaya, Latur
(Empowered Autonomous Institute)



Certificate Course under PM- USHA
Domestic Equipment Maintenance
SYLLABUS
(Free of Cost Certificate Course)

Credits: 02

Max. Marks: 50

Lectures: 30 Hrs.

Learning Objectives:

- LO1. To understand the construction, working and types of Domestic Electrical Appliances.
- LO2. To understand maintenance details of Domestic Electrical Appliances
- LO3. Check the electrical connections at house-hold but will also learn the skill to repair the electrical appliances for the general troubleshoots and wiring faults.
- LO4. Understand the working principles of different household domestic appliances.
- LO5. Understand and carry out basic maintenance to ensure appliances remain safe (e.g., cleaning filters, checking plugs).

Course Outcomes:

After completion of the course, students will be able to-

- CO1. Develop detailed knowledge about few Domestic Electric Appliances
- CO2. Enhance maintenance skill of Domestic Electric Appliances
- CO3. To test and detect faults in home appliance and Establish Self business
- CO4. Identify various parts of home appliances product
- CO5. To realize basic working principal of home appliances.
- CO6. To identify possible risks associated with the incorrect use of domestic appliances (e.g., electric shock, fire, burns).

Unit No.	Title of Unit & Contents	Hrs.
I	Basic Electronics	7
	1. Electrical Conductors and Insulators, 2. Voltage, Current, Resistance, Various measuring units, Ohm's Law, 3. Capacitance, Inductance, Series and Parallel Combinations of Resistors, Inductors and capacitors, symbol of various components, 4. basics of Galvanometer, Ammeter, Voltmeter, Multimeter, Transformers, 5. switches and its types, fuse, thermostat, heating elements, 6. wires and cables, Concept of live wire, 7. Energy, Power, Watt, Kilowatt Hour (kWh), Horse Power, Consumption of Electrical Power, 8. concept of Earthing. Soldering.	

	<p>Unit Outcomes:</p> <p>UO1. To understand the working principles of different household domestic appliances</p> <p>UO2. Acquire working knowledge on multimeters, galvanometers, ammeters, voltmeters, ac/dc generators, transformers.</p>	
II	Domestic Electric Appliances	8
	<p>Construction, Working, Identification of various parts, electrical diagram of</p> <ol style="list-style-type: none"> 1. Electric Iron, 2. Water Heaters, 3. Electric Kettle, 4. Coffee Maker, 5. Electric Mixer, 6. Egg Beaters, 7. Electric Fan, 8. Hair Drier, 9. Electric Bell, Buzzer, 10. Electric Pump, 11. Food processor, Fridge and Air conditioner. 	
	<p>Unit Outcomes:</p> <p>UO1. Develop detailed knowledge about few Domestic Electric Appliances</p> <p>UO2. To realize basic working principal of home appliances</p>	
III	Safety Precautions	8
	<ol style="list-style-type: none"> 1. Introduction, 2. Safety Precautions While Handling Tools and Repairing Appliances, 3. Importance of Earthing, 4. Safety Practices like Fires in electrical Circuits & Precautions, Fire Extinguishers & its Types, 5. General Safety of Tools & equipment, 6. Rescue of person who is in contact with live wire, Treat a person for electric shock/ injury. 	
	<p>Unit Outcome:</p> <p>UO1. Identify possible risks associated with the incorrect use of domestic appliances (e.g., electric shock, fire, burns).</p> <p>UO2. Demonstrate understanding of general electrical safety rules (e.g., dry hands, unplug after use, check cords).</p>	
IV	Maintenance in Domestic Appliances	7
	<p>Tools for Maintenance:</p> <ol style="list-style-type: none"> 1. Electric Tester, 2. Driver, Nut Driver, Benches, Wrenches, Hammers, Pliers, Cutters, 3. Soldering Gun, Multimeter, 	

	4. replacement of various parts of various domestic appliances, 5. Troubleshooting for various faults. 6. Dismantling and reassembling of Ordinary type and Automatic/Thermostat control type Electric Iron.	
	Unit Outcome: UO1. Understand and carry out basic maintenance to ensure appliances remain safe (e.g., cleaning filters, checking plugs).	
	Hands on Training / Practical	30
	1. Dismantling, Reassembling, Testing and Repairing of Electric Kettle. 2. Dismantling, Reassembling, Testing and Repairing of Electric Fan. 3. Dismantling, Reassembling, Testing and Repairing of Egg Beater. 4. Dismantling, Reassembling, Testing and Repairing of Coffee Maker. 5. Dismantling, Reassembling, Testing and Repairing of Electric Mixer. 6. Dismantling, Reassembling, Testing and Repairing of Testing and Repairing of Hair Drier. 7. Dismantling, Reassembling, Testing and Repairing of Water Heater. 8. Dismantling and Reassembling of Ordinary Type and Automatic/Thermostat Control Type Electric Iron.	

Learning Resources:

1. Troubleshooting and Repair of Appliances-Eric Kleinert, 3rd Edition, 2012, Mc-Graw Hill Publishers
2. Study of Electrical Appliances & Devices-K.B. Bhatia (ISBN: 978-93-87394-22-3)
3. Fundamentals of Maintenance of Electrical Equipments- K.B. Bhatia (ISBN: 978-93-87394-31-5)
4. Electrical Machines and Appliances theory-Tamilnadu Textbook corporation, College Road, Chennai - 600 006.
5. A Text book on Electrical Technology, B.L. Theraja, S. Chand & Co.
6. A Text book on Electrical Technology, A.K. Theraja., S. Chand & Co.
7. Performance and design of AC machines, M.G. Say, ELBS Edn.
8. Consumer Electronics, S.P. Bali, Pearson.
9. Domestic Appliances Servicing, K.P. Anwer, Scholar Institute Publications,
10. Handbook of Repair & Maintenance of domestic electronics appliances; BPB Publications.



**Shiv Chhatrapati Shikshan Sanstha's
Rajarshi Shahu Mahavidyalaya, Latur**
(Empowered Autonomous)
Faculty of Science and Technology
Department of Physics and Electronics

Course Type: Certificate Course Under PM Usha Scheme

Course Title: Certificate Course in Domestic Equipment Maintenance

Credits: 02

Max. Marks: 50

Lectures: 30

Examination Framework

Continuous Assessment Test (CAT):

5 marks allocated for attendance and two internal tests of 15 marks each, scaled and consolidated to a total of 15 marks.

Semester End Examination (SEE):

Practical examination carrying 30 marks.

Dr.A.A.Yadav

Chairman

Board of Studies in **Physics and Electronics**

Rajarshi Shahu Mahavidyalaya, Latur

(Empowered Autonomous Institute)

Dr. Mahadev Gavhane

Principal

Rajarshi Shahu Mahavidyalaya, Latur

(Empowered Autonomous Institute)

पीएम-उषा

PM-USHA



Shiv Chhatrapati Shikshan Sanstha's

Rajarshi Shahu Mahavidyalaya, Latur

(Empowered Autonomous)

NAAC accredited with 'A⁺⁺' Grade (Cycle IV) with CGPA 3.49

Certificate Course in Domestic Equipment Maintenance

Under PM-USHA Scheme

CERTIFICATE OF COMPLETION

This is to certify that **Omkar Rajendra Suryawanshi** of **B.Sc. CA F.Y.** has successfully completed the **Certificate Course in Domestic Equipment Maintenance** organized by the **Department of Physics and Electronics** during the academic year **2025-2026**.

The candidate has earned **02 Credits** by fulfilling the requirements of **30 Hours** of theory and **Hands-on Training** with a consolidated performance evaluation of **40/50**.

Course Highlights:

- **Basic Electronics:** Electrical conductors, insulators, Ohm's Law, and measuring instruments.
- **Domestic Appliances:** Construction and working of Electric Irons, Mixers, Fans, and Water Heaters.
- **Safety Precautions:** Handling tools, importance of earthing, and rescue from electric shock.
- **Maintenance Skills:** Troubleshooting, dismantling, and reassembling household equipment.

Date of Issue: 27/03/2026

Certificate No: 23


Dr. Abhijit Yadav
Course Coordinator



Dr. Mahadev Gavhane
Principal

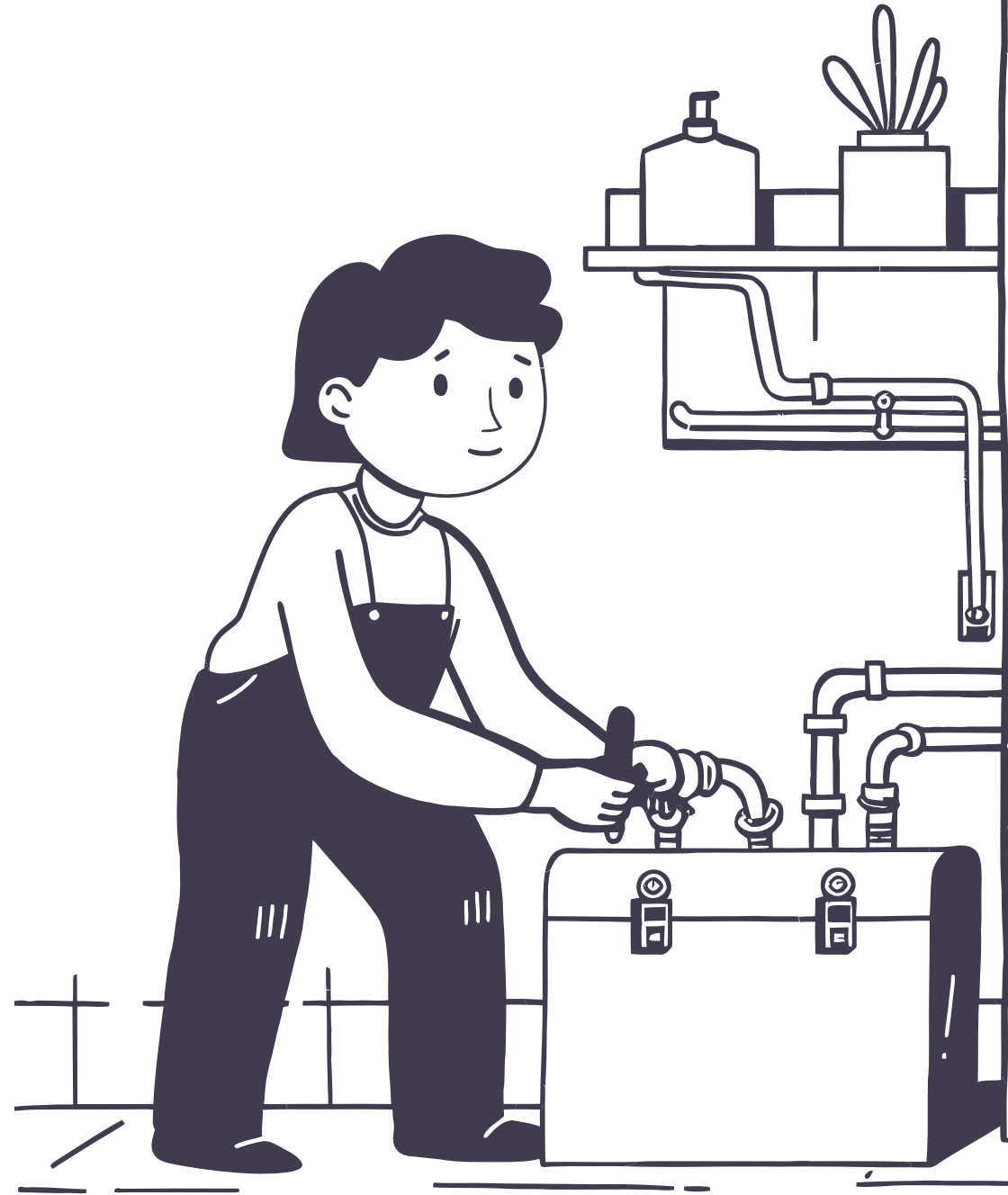
 **Skill Up Your Future!** 

Certificate Course in Domestic Equipment Maintenance

Presented by: Department of Physics and Electronics, Faculty of Science and Technology, Rajarshi Shahu Mahavidyalaya, Latur (Autonomous)

[Enroll Today](#)

[Learn More](#)



**Shiv Chhatrapati Shikshan Sanstha's
Rajarshi Shahu Mahavidyalaya, Latur**

(Empowered Autonomous)

Faculty of Science and Technology

Department of Physics and Electronics

Certificate Course in Domestic Equipment Maintenance

(December 2025 to March 2026)

List of Students Successfully Completing the Course

Sr. No.	Name	Seat No.	Class	Remarks
1	Amardip P. Kamble	RAS2640086	B.A. F. Y.	
2	Aditya D. Sonkamble	RGS2624120	M.A. F.Y.	
3	Mrunmai R. Ghuge	RBS2620867	B.Sc. F.Y.	
4	Priya M. Gangapure	RBS2620866	B.Sc. F.Y.	
5	Sayyed Ayesha M.	RBS2620877	B.Sc. F.Y.	
6	Shraddha A. Dhakpade	RBS2620865	B.Sc. F.Y.	
7	Rutuja Limbraj Makne	RBS2620878	B.Sc. F.Y.	
8	Sachin Vishwanath Dalve	RBS2640872	B.Sc. S.Y.	
9	Mahesh Pandhari Landge	RBS2640875	B.Sc. S.Y.	
10	Sakshi Vaijanath Dhanve	RBS2640873	B.Sc. S.Y.	
11	Aditi Ankush Birle	RBS2640871	B.Sc. S.Y.	
12	Maheshwari Parmeshwar Beste	RBS2640870	B.Sc. S.Y.	
13	Ayesha Rajak Momin	RBS2640876	B.Sc. S.Y.	
14	Misbah Taher Sayyed	RBS2640877	B.Sc. S.Y.	
15	Prachi Sudhir Usture	RBS2640878	B.Sc. S.Y.	
16	Charushila Ravindra Kadam	RLS2625504	M.Sc. F.Y.	
17	Narsinha Nilesh Jadhav	RDS2662693	B.Sc. C.S. T.Y.	
18	Jatin Kamalakar Shinde	RDS2662809	B.Sc. CS T.Y.	
19	Vishnudas Baliram Kale	RDS2662863	B.Sc. CS T.Y.	
20	Adil Nabi Pathan	RES2643279	B.Sc. CA S.Y.	
21	Sanjana Nagnath Kakde	RES2623156	B.Sc. CA F.Y.	
22	Snehal Nandkishor Lahoti	RES2623171	B.Sc. CA F.Y.	
23	Omkar Rajendra Suryawanshi	RDS2662831	B.Sc. CS T.Y.	


HEAD
Department of Physics & Electronics
Rajarshi Shahu Mahavidyalaya, Latur
(Autonomous)


Principal
PRINCIPAL
Rajarshi Shahu Mahavidyalaya, Latur
(Autonomous)