Dayanand Education Society's, Latur

Dayanand Science College, Latur.

"अ नो भद्रा क्रतवो यन्तु विश्वत:"

Department of Physics

Action Taken Report (ATR)

ADD-ON / VALUE ADDED COURSES ON

Material Science and Nanotechnology

By

Dr. V. A. Chaudhari
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Department of Physics & Electronics
Dayanand Science College, Latur,
Maharashtra, India
Web:www.dsclatur.org FaxNo.0282221149 Pin:413510

(2022-2023)

Dayanand Science College, Latur.

Department of Physics

Events organized during the Academic year 2022-23

Action Taken Report of add on course 2022-23 **Materials Science and nanotechnology**

Events on Add-on / Value added Course

Sr. No.	Title	**Information**
1	Name of Department	Physics
2	Title of Event	**Course on Materials Science and Nanotechnology**
3	Date or Duration	13 to 30 March, 2023 and 30 contact hrs.
4	Venue of the Event	Dayanand Science College, Latur.
5	Sponsor/Collaboration	Department of Physics
6	Level of Event	College
7	Aims/Objectives of the Event	To get the knowledge of synthesis of materials and their characterizations
8	Beneficiaries/Participants	Students/Staff
9	Name of Participants	15
10	Name of Coordinators	Dr. V. A. Chaudhari, Miss. V. S. Chandak
11	Photographs	Attached
12	Evidence Produced	College letter, Students Name list, Student Attendance
13	Outcomes of the event	Smooth completion of Add-on-Course and students got hands-on training on synthesis of nanomaterials.
14	Any other Information	This course is beneficial to the students for their research.

Background: The department of Physics, Dayanand Science College, latur is one of the best departments in Marathawada region in SRTMUN. This department has UG, PG, Ph.D. courses and Research Centers in Physics. In the month of March from 13 to 30 March, 2023, the Add- on course on **Materials Science and nanotechnology** successfully held, which was organized by the Department of Physics, Dayanand Science College, Latur. The course was for UG students. The hand over training on experimental methods were demonstrated in the add-on course. laboratories for B.Sc. Students. The Course was attended by a total of 15 participants.

College will offer following carrier oriented courses with the help of outside experts and in-house experienced faculty. For each course coordinator is designated who takes responsibility of smooth conduction of the course. The objective of the Add-on/Value-Added course is to help the students to enrich their skills and increase employability. These courses are intended to provide the students advance skills that is going to be useful in their curriculum and placement.

IQAC of Dayanand Science College, Latur in its CDC meeting decided to introduce new pilot add-on courses for the academic sessions from session 2022-23. The continuation of these courses after three year will be depend on interest and participation of students, course outcomes and financial provisions from the Institution.

- **Aim and Objective**

1. To give a basic idea regarding synthesis and characterizations of nanomaterials and nanotechnology.
2. To provide different approach towards research and development.
3. To facilitate and promote the research in materials science and nanotechnology.
4. To facilitate and promote the students towards research.
5. To understand the use and applications of nanotechnology from future perspective

- **The proposed results were:**

1. Students understood about the basics of nanoscience and nanotechnology.
2. They understood about the future perversities of research and development.
3. Got knowledge regarding synthesis and characterization methods
4. On hand on training, students learnt about synthesis methods and some of the students also performed experiments.

- **Outcomes of This Add-on Course:**

1. Employment generation for rural youth.
2. To develop elementary understanding regarding nanomaterials.
3. To introduce them with materials science and nanotechnology applications.
4. To enhance their skills in instruments handling and precautions to be taken during handling an instrument.
5. To develop practical skill among the students

- **Participants:**

The Add-on Course brought together to B.Sc. students from institutions in DSC, Latur. It is important to emphasize the financial support provided by college authorities.

Course No.	Course Name	Contact Classes (Hour)	Laboratory Experiment (Hour)	Internal Marks	External Marks	Total Marks
					Theory Examination	
1	Materials Science and Nanotechnology	10	20	10	40	50

Eligibility: All students belong to UG / PG is eligible to enroll for course.

Course Fee: Not Applicable/ Free

No. of Seats: 15

Grading system: - Following Percentage based grading system will be applicable to the course.

Range of % of marks	Grade
85- 100	A++
80-<85	A+
75-<80	A
65-<75	B++
55-<65	B+
45- <55	B
40- <45	C
<40	Fail

Quality Assurance Mechanism: The quality of the course will be ensured through continuous evaluation of feedback from students and course coordinator by IQAC of the College**.**

Course Duration: The duration of Add-on / Value added course is 30 hours with a combination of theory and practical. However, the combination of theory and practical shall be decided by the course teacher with the approval of the Head of the Department. Lectures, Practical's and Field Visit were conducted during Holidays, Sunday, & as per the convenience of students.

Course evaluation: Practical skill, attendance, examination, and lab work require to be taken during course period to evaluate the methodology.

Theory + Practical + examination - 40 marks x 1= 40
Attendance + Viva - 10 marks x 1 =10
==========
Total = 50

Dayanand Education Society's

Dayanand Science College, Latur

Affiliated to Swami Ramanand Teerth Marathwada University, Nanded

NAAC A+ with CGPA 3.40

"अ यो मद्रा क्रतवो यन्तु विश्वतः"

Department of Physics

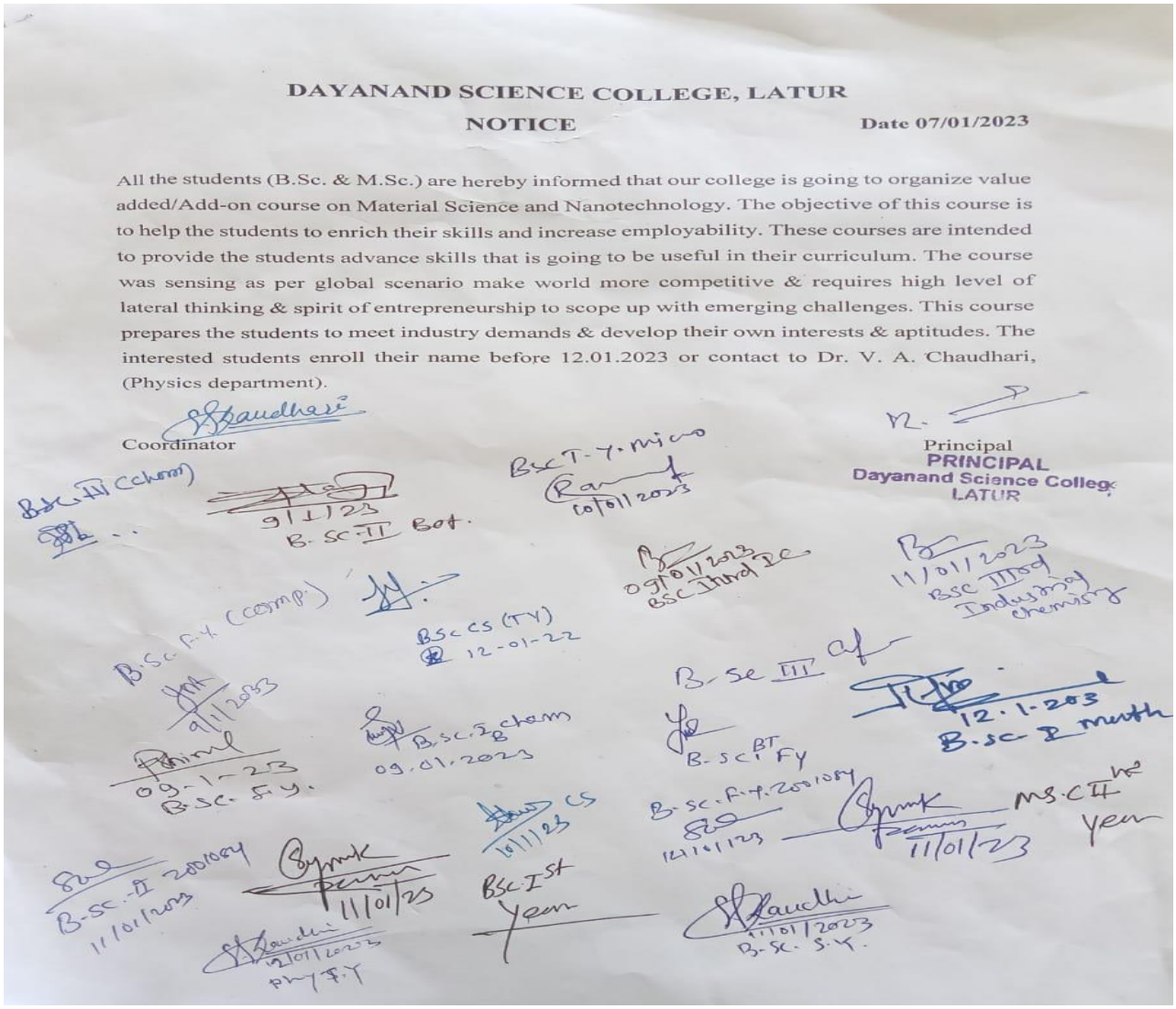
Organizes

Add-on / Value Added course on

Materials Science and Nanotechnology

Duration: 13 to 30 March-2023

Coordinator	Organizer	Chairman
Miss. V. S. Chandak	HoD	Principal
	Dr. V. A. Chaudhari	Dr. J. S. Dargad



DAYANAND SCIENCE COLLEGE, LATUR

NOTICE

Date 07/01/2023

All the students (B.Sc. & M.Sc.) are hereby informed that our college is going to organize value added/Add-on course on Material Science and Nanotechnology. The objective of this course is to help the students to enrich their skills and increase employability. These courses are intended to provide the students advance skills that is going to be useful in their curriculum. The course was sensing as per global scenario make world more competitive & requires high level of lateral thinking & spirit of entrepreneurship to scope up with emerging challenges. This course prepares the students to meet industry demands & develop their own interests & aptitudes. The interested students enroll their name before 12.01.2023 or contact to Dr. V. A. Chaudhari, (Physics department).

Coordinator

Principal
PRINCIPAL
Dayanand Science College
LATUR

Dayanand Science College, Latur
Department of Physics
Add-on / Value added Course Syllabus
Materials Science and nanotechnology
Duration: 13 to 30 March, 2023

Unit 1: Crystal structure (6 hrs)
Introduction, Crystal Lattices and Translation vectors, Unit cell, Basis, Symmetry operations, Point groups, space group, Types of lattices, Simple crystal structure (HCP, FCC, BCC, SC), Structure of Diamond, NaCl,

Unit 2: X-Ray Diffraction (6 hrs)
X-ray diffraction and Reciprocal lattice, Generation and interaction of X-ray, Bragg's law and experimental methods: Laue method, Rotating crystal method, powered method o Reciprocal lattice and diffraction condition of atomic scattering factor and Geometrical structure factor

Unit 3: Introduction to Nanoscience and nanotechnology (6 hrs)
Introduction to Nanoscience and nanotechnology, Nanoscience and nanotechnology, Quantum structures, Nanoclusters, organic nanocrystals, thin film deposition methods, Introduction to Thin Films, Physical Methods, Sputtering process, Chemical Methods Common CVD reactions, Methods of film preparation, Chemical bath deposition, Spray pyrolysis, spin coating

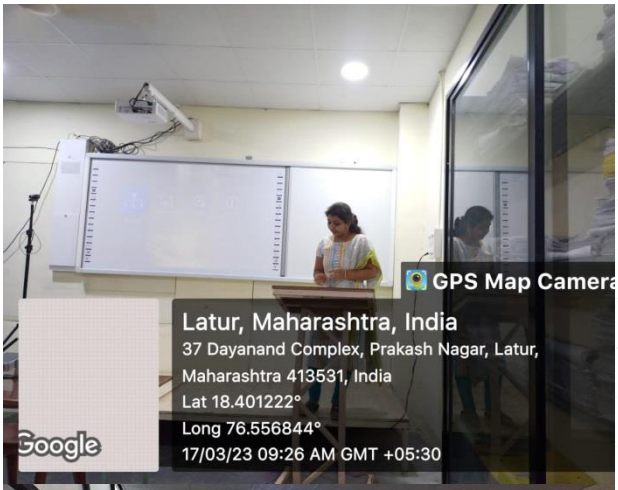
Unit 4: Application of Nanotechnology (6 hrs)
Nanobiology, nanocatalysis, nanoelectrodes, nanoswitches, nanocomputers

References:
Solid State Physics- R. K. Puri and Babbar
Thin Film Phenomena by K L Chopra McGraw -Hill Book Company
Nanotechnology: S. K. Kulkarni

Practical work:
Total hours: 6 hrs
1. Thin film deposition by Chemical bath deposition technique
2. Thin film deposition by Successive Ionic Layer Absorption and Reaction (SILAR)
3. Thin film deposition Deposition by spray pyrolysis technique
4. Crystal growth by gel technique
5. Synthesis of nanoparticles by using coprecipitation method
6. Determination of optical band gap by using UV-Vis spectrophotometer
7. https://www.elsevier.com/search-results?query=material%20science%20and%20nanotechnology

Glimpses of the Material Science and Nanotechnology Course


GPS Map Camera
Latur, Maharashtra, India
37 Dayanand Complex, Prakash Nagar, Latur,
Maharashtra 413531, India
Lat 18.401222°
Long 76.556844°
17/03/23 03:19 PM GMT +05:30
Google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Latur, Maharashtra, India
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Maharashtra 413531, India
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GPS Map Camera
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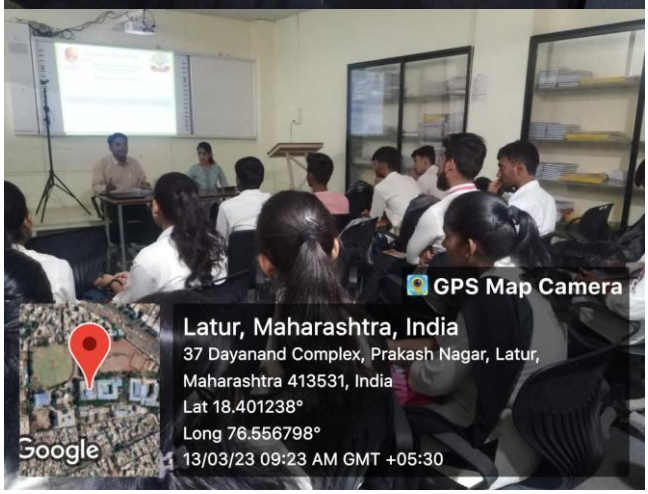
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Maharashtra 413531, India
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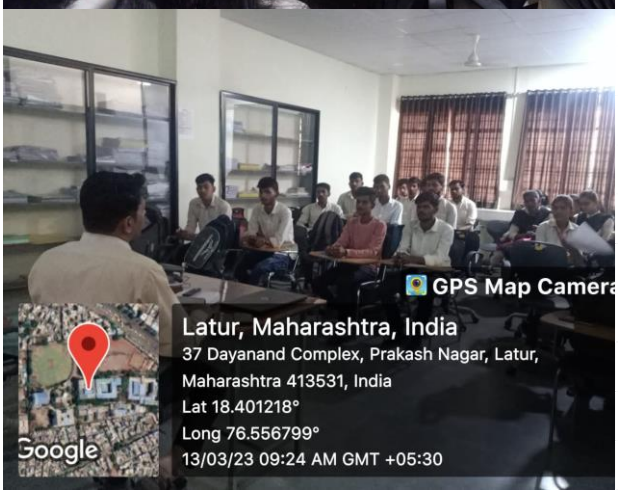
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Maharashtra 413531, India
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Google


GPS Map Camera
Latur, Maharashtra, India
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Maharashtra 413531, India
Lat 18.401225°
Long 76.556802°
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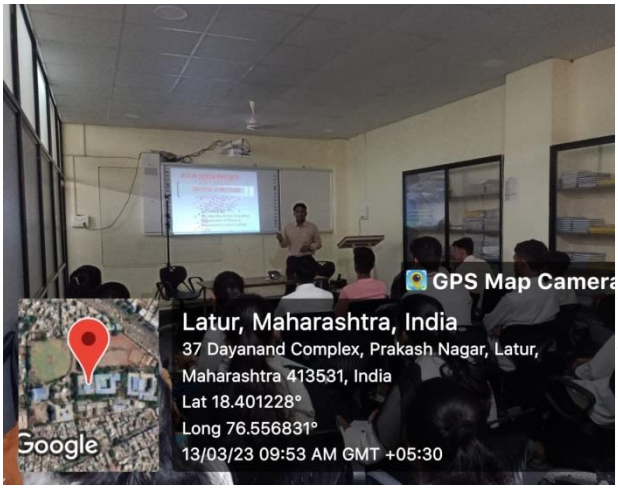
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SILAR Equipment


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413531, India
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Certificates

Dayanand Education Society's

Dayanand Science College, Latur

(NAAC 'A+' (3.40 CGPA), Shahu - Phule - Ambedkar Maharashtra Govt. Award, UGC-CPE, Best College Award by STRMUN, DST-FIST, RUSA funded)

Department of Physics and Electronics

Add - on / Value Added Course

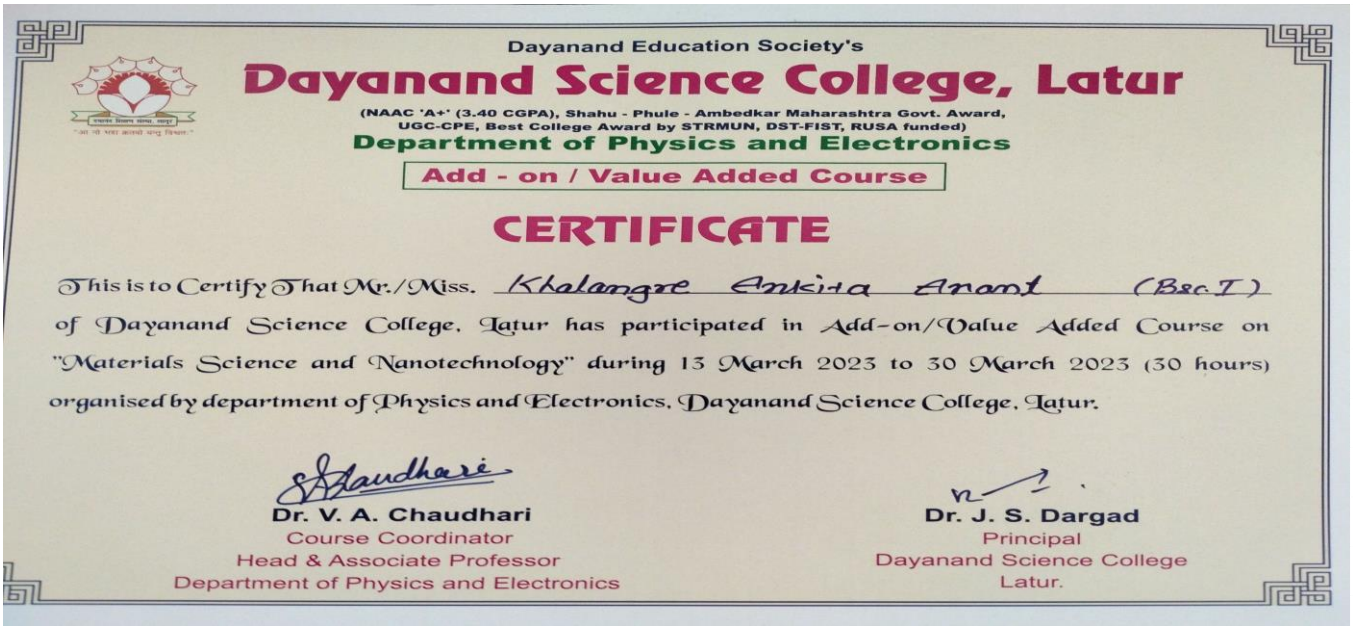
CERTIFICATE

This is to Certify That Mr./Miss. Harale Ashwin Anil (BSc. I)

of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.



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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Khalangre Ankita Anant (Bsc.I)

of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

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Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
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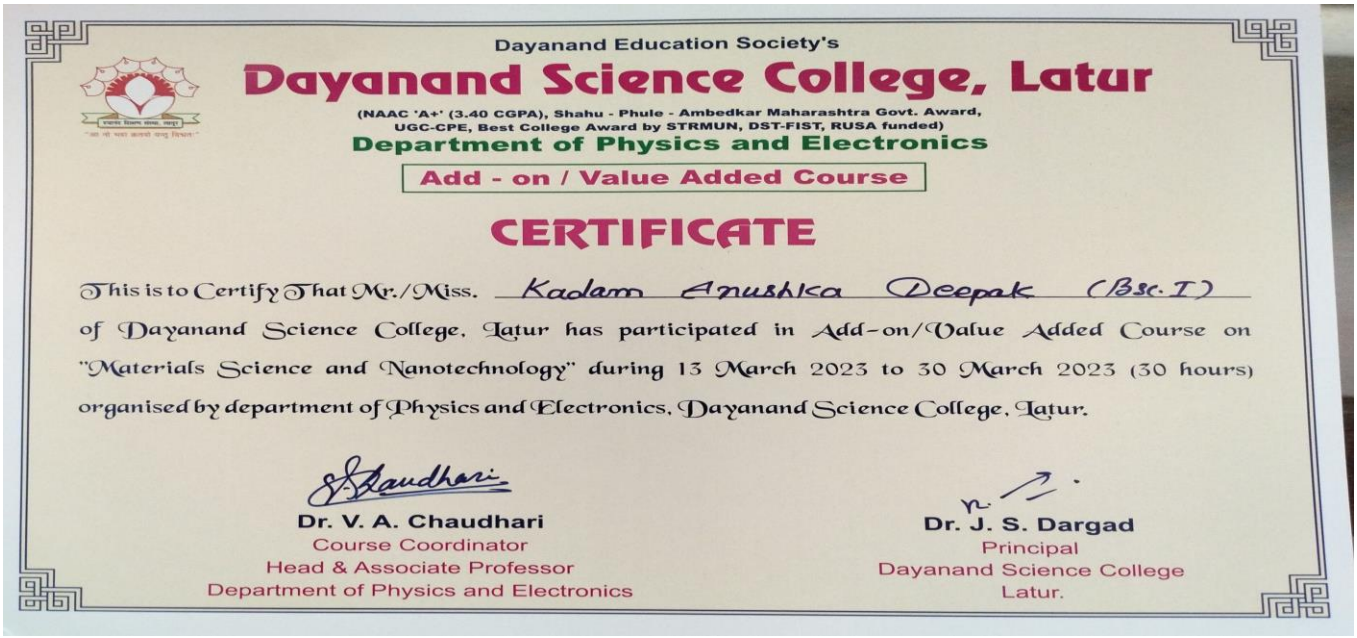
Latur.



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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Kadam Anushka Deepak (Bsc. I)

of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

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Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.

Dayanand Science College, Latur

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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Natu Vishwjeet Tanaji (Bsc. I)

of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

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Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Rathod Abhay Ashok (Bsc. I)

of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Jadhav Avinash Vikas (Bsc. I)

of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

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Head & Associate Professor
Department of Physics and Electronics

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Principal
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Dayanand Education Society's

Dayanand Science College, Latur

(NAAC 'A+' (3.40 CGPA), Shahu - Phule - Ambedkar Maharashtra Govt. Award, UGC-CPE, Best College Award by STRMUN, DST-FIST, RUSA funded)

Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Kharose Nandini Narayan (Bsc. I) of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.

Dayanand Education Society's

Dayanand Science College, Latur

(NAAC 'A+' (3.40 CGPA), Shahu - Phule - Ambedkar Maharashtra Govt. Award, UGC-CPE, Best College Award by STRMUN, DST-FIST, RUSA funded)

Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. More Gayatri Raju (BSc I) of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.

Dayanand Education Society's

Dayanand Science College, Latur

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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Deshmukh Yogita Ankush (BSc.III) of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
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Latur.

Dayanand Education Society's

Dayanand Science College, Latur

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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Khandade Shubhangi Gopal (Bsc. III) of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.

Dayanand Education Society's

Dayanand Science College, Latur

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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Mude Abhishek Eshvar (Bsc. III) of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.

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Department of Physics and Electronics

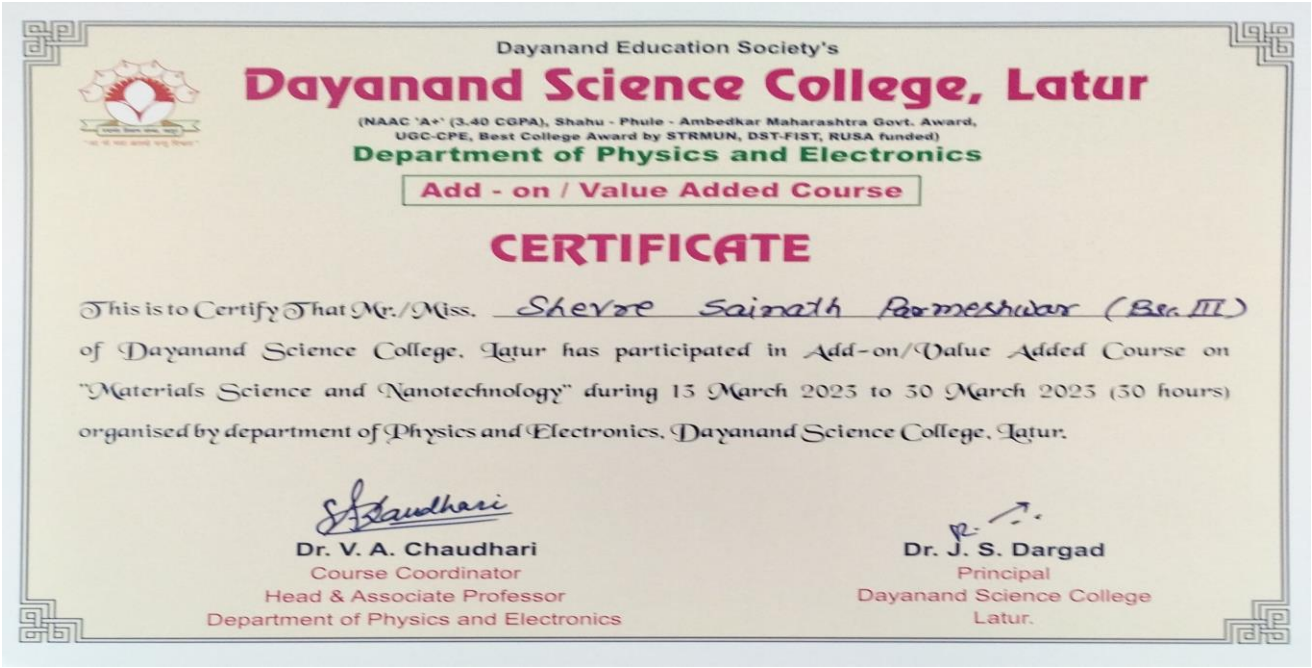
Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Nalu Vishal Tanajirao (Bsc. III) of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 13 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.



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Department of Physics and Electronics

Add - on / Value Added Course

CERTIFICATE

This is to Certify That Mr./Miss. Shevre Sainath Parmeshwar (Bsc. III) of Dayanand Science College, Latur has participated in Add-on/Value Added Course on "Materials Science and Nanotechnology" during 15 March 2023 to 30 March 2023 (30 hours) organised by department of Physics and Electronics, Dayanand Science College, Latur.

Dr. V. A. Chaudhari
Course Coordinator
Head & Associate Professor
Department of Physics and Electronics

Dr. J. S. Dargad
Principal
Dayanand Science College
Latur.

IQAC - Coordinator
Dayanand Science College,
Latur, M.S. (INDIA)

Principal
Dayanand Science College
LATUR 413512

Dr. V. A. Chaudhari	**Dr. S. S. Bellale**	**Dr. J. S. Dargad**
Course Coordinator	**IQAC Coordinator**	**Principal**

Dayanand Science College LATUR 413512