



**Dayananda Sagar College of Arts, Science & Commerce**

**B Sc-BU Department**

Shavige Malleshwara Hills, Kumaraswamy layout

Bangalore - 560 111

**C I R C U L A R**

Date: 17-03-2023

All the Physics students of the batch 2021-2023 of B.Sc BU are required to attend the 30 hours certification course on "Condensed matter physics-Applications of Superconductors" from 21.03.2023 to 20.04.2023 on the scheduled dates. The time table for the certification course is attached along with the circular. All the participating students kindly make a note of the dates and attend the certification course accordingly. No absentees will be permitted on the said dates.

All the participating students will be receiving a certificate for the same. Please note that there is no fee for attending this certification course. Hence all the B.Sc-Physics students are expected to make the best use of this opportunity.

**HOD/ Principal**

Dr. Kotresh Savanur B.Sc., B.Ed., KSET., Ph.D

Assistant Professor & HOD-B.Sc.  
Department of B.Sc.

Dayananda Sagar College of Arts, Science & Commerce  
Shavige Malleshwara Hills, Kumaraswamy Layout  
Bangalore - 560 111



**Dayananda Sagar College of Arts, Science & Commerce**

**Department of B Sc- BU**

**Add on Certification Course**

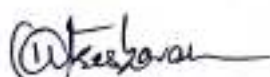
**Title-“Condensed matter physics-Applications of Superconductors” for B.Sc**

**Physics students**

**(Batch- 2021-2023)**

**Time Table**

<b>Date</b>	<b>Day</b>	<b>Hours</b>
21/03/2023	Tuesday	1.30 PM – 3.30 PM
22/03/2023	Wednesday	2.00 PM – 4.00 PM
23/03/2023	Thursday	1.30 PM – 3.30 PM
28/03/2023	Tuesday	2.00 PM – 4.00 PM
29/03/2023	Wednesday	3.00 PM – 5.00 PM
30/03/2023	Thursday	3.00 PM – 5.00 PM
4/04/2023	Tuesday	1.00 PM – 3.00 PM
5/05/2023	Wednesday	3.00 PM – 5.00 PM
6/04/2023	Thursday	3.00 PM – 5.00 PM
11/04/2023	Tuesday	1.30 PM – 3.30 PM
12/04/2023	Wednesday	2.00 PM – 4.00 PM
13/04/2023	Thursday	3.00 PM – 5.00 PM
18/04/2023	Tuesday	2.00 PM – 4.00 PM
19/04/2023	Wednesday	3.30 PM – 5.30 PM
20/04/2023	Thursday	3.30 PM – 5.30 PM

  
Faculty

  
HOD  
Dr. Kotresh Savanur M.Sc., B.Ed., KSET., Ph.D  
Assistant Professor & HOD-B.Sc.  
Department of B.Sc.,  
Dayananda Sagar College of Arts, Science & Commerce  
Shavige Malleshwara Hills, Kumaraswamy Layout  
Bengaluru - 560 111

**Dayananda Sagar College of Arts, Science & Commerce**  
**Department of B Sc- BU**  
**Add on Certification Course**  
**Title-“Condensed matter physics-Applications of Superconductors” for**  
**B.Sc Physics students**  
**(Batch- 2021-2023)**  
**Syllabus**

<b>Unit 1: Introduction and Properties</b>	<b>10Hrs</b>
Introduction, Discovery, Types of superconductors, Thermal properties of superconductors, Magnetic and electromagnetic properties of superconductors, Higher-temperature superconductivity.	
<b>Unit 2: Thermodynamics of superconductors</b>	<b>10 Hrs</b>
Application of basic thermodynamics to the superconducting transition. Discontinuity in the heat capacity, Persistent currents. Perfect diamagnetism and the Meissner effect.	
<b>Unit 3: London equations and DC Josephson effects</b>	<b>10 Hrs</b>
London equations and solution in simple geometries. Penetration depth. Implication for fields, potentials and wave functions of the choice of gauge.	
DC Josephson effect. AC Josephson effect. Inverse AC Josephson effect and Shapiro jumps. Superconducting quantum interference device (SQUID).	

By the end of the course the students will:

1. Understand the basic principles and properties of superconductors..
2. Demonstrate a range of practical skills to conduct and infer experiments independently and in groups.
3. Apply the key concepts and standard methodologies to solve problems related to physics and its allied areas

  
**Dr. Kotresh Savanur** M.Sc., B.Ed., KSET., Ph.D  
Assistant Professor & HOD-B.Sc.  
Department of B.Sc.,  
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**DAYANANDASAGAR COLLEGE OF ARTS SCIENCE AND COMMERCE**

ShivageMallechwara Hills, Kumaraswamy Layout, Bangalore-560082

Internal Quality Assurance Cell (IQAC)

Department of B Sc (PCM)

**Title-“Condensed matter physics-Applications of Superconductors” for B.Sc Physics students  
(Batch- 2021-2023)**

Department: B Sc (PCM)

Date: 22.04.2023

Sl. No.	Particulars	Event related Details			
1.	Event*	ADD on CERTIFICATION PROGRAM			
2.	Title of the Event	Condensed matter physics-Applications of Superconductors			
3.	Date	21.03.2023 TO 20.04.2023			
4.	Time	Tuesday: 1.30 pm to 3.30 pm Wednesday: 3 pm to 5 pm Thursday: 3.30 pm to 5.30 pm			
5.	Venue	Room No. 201 , Ground Floor. BCA Block			
6.	Resource Person 1 Details ** (Profile to be enclosed)	Dr. Kotresh Savanur			
7.	Topics Covered	<ul style="list-style-type: none"><li>To understand Superconductors and its applications</li><li>To develop understanding and fabrication of superconductor devices.</li></ul>			
8.	Resource Person 2 Details** (Profile to be enclosed)	NA			
9.	Topics Covered	NA			
10.	No. Faculty Participants (Enclose a copy of names with signatures)	Internal: Nil		External: Nil	
11.	No. Student Participants (Enclose a copy of names with signatures)	Internal:14		External: Nil	
12.	Faculty Coordinator/s	Dr. Kotresh Savanur			
13.	Student Coordinator/s	Mr. Venugopal HKL-V Sem and Mr. Srinidhi –III Sem			
14.	Total Expenditure (Details to be enclosed)	NA			
15.	Sponsors and Amount (if any)	NA			
16.	Agenda of the Event (Enclose a copy)	NA			
17.	Report uploaded on college website? If yes, give details:				

Sl. No.	Particulars	Event related Details
18.	Report sent to media? If yes, give details:	NIL
19.	Report uploaded in Social Media? If yes, give details:	-
20.	Certificates Printed? (Enclose a copy***)	-
21.	Feedback Collected? (Enclose a copy***)	-
22.	Summary of the Event (Minimum 100 words)	Our students were motivated and gained an understanding of the need for science in real world applications such as the properties and functions of materials. Especially, in the behaviors of superconductor materials with respect to temperatures which they explained in detail-a mechanism used in bullet trains. This certification course enables the students to understand materials properties and fabrication of devices. The course was scheduled for 30 hours three days a week. It commenced on 21 <sup>st</sup> March 2023 and concluded on 20 <sup>th</sup> April 2023.
23.	Photographs of the Event (At least 10 relevant, clear, and appropriate photos with title and explanation. The jpg files need to be attached)	Photographs attached

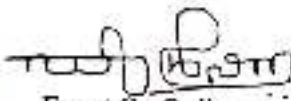
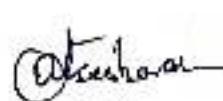

**Notes:**

\* Seminar / Workshop / Symposium / Conference / Cultural Fest / Quiz / Sports / Literature Fest, etc.

\*\* Name / Organization / Designation / Area of Expertise

\*\*\* Format Copy need to be attached and hard copy need to be filed


PS: Whichever column is not applicable, write as NA.

  
 Event Co-Ordinator  
  
 HOD  
  
 IQAC Co-Ordinator

Dr. Kotresh Savanur M.Sc., B.Ed., KSET, Ph.D.  
 Assistant Professor & HOD-B.Sc.  
 Department of B.Sc.

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 Shree Maheshwara Hills, Kumaraswamy Layout  
 Bengaluru - 560 111

  
 VICE-PRINCIPAL

  
 PRINCIPAL



Dayananda Sagar College of Arts, Science & Commerce  
 Department of B.Sc - BU  
 Condensed matter physics-Applications of Superconductors- Certification Course  
 Attendance Sheet

Sl. No	USN	Name of the Student	Attendance Sheet															
			21-02-2023	22-02-2023	23-02-2023	24-02-2023	25-02-2023	26-02-2023	27-02-2023	28-02-2023	01-03-2023	02-03-2023	03-03-2023	04-03-2023	05-03-2023	06-03-2023	07-03-2023	
1	107	SANJAY J. S	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
2	111	Rashmi R. Rao	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	
3	148	Nanda Kumar	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
4	135	Anwar Pratin Prudh	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	A.P	
5	113	K. S. Talim Hussain	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
6	149	Meharaj B. Jai	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
7	138	Sanjitha D. Dethy	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
8	122	Kroothi Kumar	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
9	127	Prigayathu Das	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
10	123	Channan K. S	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	Att	
11																		
12																		
13																		
14																		

*Kotresh Savanur*  
Faculty Signature

*Kotresh Savanur*  
 HOD/Principal  
**Dr. Kotresh Savanur** M.Sc., B.Ed., KSET., Ph.D  
 Assistant Professor & HOD-B.Sc.  
 Department of B.Sc.,  
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