

**QIP Sponsored 2-week  
Online Short Term Course on  
“Magnetism and Electrical  
Transport in Materials”  
08/11/2021 to 22/11/2021**



**Indian Institute of Technology Delhi**



**Program Coordinator**

**Prof. Ratnamala Chatterjee**  
Department of Physics

### **INTRODUCTION**

The course aims to discuss the fundamental theories of magnetism which will be useful for researchers as well as undergraduate students. The contents include types of magnetic materials, magnetic anisotropy, indirect exchange, electrical resistance of metal and alloys and magnetoresistance phenomena.

### **PROGRAMME OBJECTIVES**

- ✚ Understanding History of Magnetism
- ✚ Electrical Resistivity of Metals and Alloys
- ✚ Recent R & D in Magnetic Materials based on Magnetoresistance Phenomena

### **PROGRAMME CONTENTS**

- ✚ Fundamentals of magnetism including diamagnetism, paramagnetism, ferromagnetism, nanomagnetism and superparamagnetism.
- ✚ Magnetic anisotropy and its role in indirect exchange.
- ✚ Behaviour of electrical resistivity of metals and alloys.
- ✚ Different types of indirect exchange.
- ✚ Magnetoresistance effects including GMR, AMR, TMR and CMR.

### **PREREQUISITE**

- ✚ Basic Solid State Physics at M.Sc./M. Tech. level

### **EXPERTS DETAILS**

**Prof. A. K. Majumdar**  
Professor (Retired), IIT Kanpur

### **COMMUNICATION ADDRESS**

**Prof. Ratnamala Chatterjee**  
Department of Physics  
Indian Institute of Technology Delhi  
Hauz Khas, New Delhi -110 016

### **WHO CAN ATTEND**

**Only candidates as full time regular/permanent faculty of AICTE approved Degree Level Institutions/ Colleges.**

### **PROGRAMME MODE - ONLINE**

### **REGISTRATION**

Please email a scanned copy of your duly filled registration form latest by **25-10-2021** to Email [rmalachatterjee@gmail.com](mailto:rmalachatterjee@gmail.com).

## APPLICATION FORM

Online QIP/STC “Magnetism and Electrical Transport in Materials”

Department of Physics, IIT Delhi

08/11/2021 to 22/11/2021

Name: .....

Designation: .....

Department: .....

Organization: .....

Current Academic Duties: .....

Communication Address: .....

.....

Tel: ..... Mobile: ..... Email: .....

DECLARATION: This is to certify that Ms./Mr. \_\_\_\_\_ is a regular faculty of our organisation and is permitted to attend the Short term programme on Magnetism and Electrical Transport in Materials to be held on 08/11/2021 to 22/11/2021 at IIT Delhi.

Applicant Signature

Head of the Institution/ College  
(Signature with Seal)