

## AICTE Sponsored Short Term Course & Continuing Education Program On

### “Electron Microscopy & Microanalysis of Materials (EMMM2018)”

February 12-17, 2018

Department of Metallurgical Engineering  
Indian Institute of Technology (BHU), Varanasi



Quality Improvement Program Center  
&  
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### About the Course

Analytical electron microscopy and microanalysis has observed a paradigm shift over last two decades. Super-resolution microscopy, aberration correction, new imaging and spectroscopy techniques have pushed the resolution limit of electron microscopes below 1Å. It is intended to enlighten metallurgical and materials researchers from industries and academia on the fundamentals and recent developments so that the knowledge may be applied effectively in different fields of metallurgical and materials research. The institute (IIT-BHU) is celebrating its centenary of engineering education. The department in conjunction with the Electron Microscopy Society of India (EMSI) is organizing this workshop as a part of this centenary celebration.

### Course Content

- Operating principles of transmission electron microscopes, basic crystallography, electron and X-ray generation and diffraction, intensity of diffracted beams, reciprocal lattice, Ewald sphere, indexing single crystal and polycrystalline patterns.
- Dynamical and kinematical diffraction contrast, phase contrast and mass-thickness contrast imaging, analysis of defects, interfaces and complex microstructures.
- X-ray energy dispersive spectroscopy, electron energy loss spectroscopy, hyperspectral imaging, energy filtered imaging.
- Simulation of electron diffraction patterns and images.
- Techniques of sample preparation

### Course Coordinator(s)

Dr. Joysurya Basu  
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Indian Institute of Technology (BHU)

Varanasi, India

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### Registration:

#### Category I

**Registration for QIP Sponsored Teachers from AICTE approved Institutions:** Participants should bring a letter of nomination from their head of institution stating that they are being deputed for the course. **There is no registration accommodation fee.** However, a Demand Draft of Rs. 2,000/- (drawn in favor of “Registrar, IIT(BHU), Varanasi”) should be enclosed with the application form which will be refunded to the participants attending the course. Total reserved seats for QIP candidates is 30 which will be awarded on first-cum-first served basis. The refund amount will not be returned to those who will be absent.

#### Category II

#### Registration for Others (CEP)

1. Scientists / Technologists / Engineers from industry or government institutions: Course Fee Rs. 30,000/-
2. Faculties from University and Engineering Colleges not sponsored by AICTE: Course Fee: Rs. 15,000/-
3. Ph. D. Research Scholars: Course fee: Rs. 5000/-

Registration Fees may be paid either by electronic transfer, cheque or Demand draft. The bank account details are as follows:

Account Name: AMMDISMM 2018

Account Number: 50100222749687

Bank Name: HDFC Bank

Branch: Lanka

IFSC Code: HDFC0001465

Candidates will be provided course materials, working lunches, tea and snacks during the course hours. Registration fees, boarding and lodging expenses will be waived for QIP sponsored candidates. To-and-fro travel cost (up to A/C 3-tier rail fare only) by the shortest route between the place of work and the venue of the course will be reimbursed for Category I. It should be borne by the participants of **other category**. The

are requested to arrange their own accommodation. However, necessary help will be provided by the organizing committee.

Application Form for  
**QIP Short Term Course**  
&  
**Continuing Education Program**  
On  
**“Electron Microscopy & Microanalysis of Materials”**  
February 12-17, 2018

**1. Name (block letters):**

**2. Designation & pay scale:**

**3. Organization:**

**4. Address for communication:**

**Pin code:**

**Ph. No.:**

**Fax No.**

**E-mail:**

**5. Highest Academic Qualification:**

**6. Specialization:**

**7. Experience (in years):**

**(a) Teaching:**

**(b) Industrial:**

**8. Amount of TA required as per entitlement mentioned in the brochure (only for AICTE approved college teachers):**

Please register me for the course on “Electron Microscopy & Microanalysis of Materials” to be held at IIT (BHU) Varanasi.

Place:

Date:

Signature of the Applicant

### SPONSORSHIP

Prof./Dr./Mr./Ms./Mrs./\_\_\_\_\_ is an employee of our institute and his/her application is hereby sponsored. The applicant will be permitted to attend the short-term course “**Electron Microscopy & Microanalysis of Materials**” at IIT (BHU) Varanasi during date of Short Term Course, if selected.

Date: \_\_\_\_\_ Signature of Sponsoring Authority  
Designation: \_\_\_\_\_ Official Seal:

Registration Fee Details:  
DD/Cheque/Electronic Transaction No.  
Bank: \_\_\_\_\_ Date: \_\_\_\_\_

DD/Cheque/Electronic Transaction should be done in favour of AMMDISMM2018  
Refundable Security Deposit Details (for AICTE approved college teachers only):

DD No. \_\_\_\_\_ Date: \_\_\_\_\_  
Bank: \_\_\_\_\_  
Amount: ₹ 2000/- in favour of The Registrar, IIT(BHU), Varanasi  
Signature of the Applicant

### Important Dates

Last date for receiving application: January 31, 2018  
Intimation to the applicants: February 05, 2018

### Contact Details

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### General Information

Varanasi being a popular tourist destination, it is dotted with hotels and restaurants over a wide price range. Limited accommodation is available within the institute on sharing basis and it will be provided on first come first serve basis. However, it cannot be guaranteed. In case you are interested in staying within the campus, please contact along with your application.

### How to Reach

Varanasi is well connected and accessible to major Indian cities and tourist spots. There are daily domestic flights to and from Varanasi to several cities in India like New Delhi, Mumbai, Bangalore, Chennai, Hyderabad etc. Nearest railway stations are Varanasi Cantonment, Manduadih and Mughalsarai. The Institute is located in the south of the Varanasi city and about 7 km away from Varanasi Railway Station and 30 km from the Babatpur (Varanasi) airport. Taxis, Auto-rickshaws, are available as transport. Daily flights on Delhi-Agra-Khajuraho-Varanasi route are quite popular among the tourists.

### About Varanasi

Varanasi, the holy city of India, is also known by the names of Kashi and Benaras. Kashi, the city of Moksha for Hindus since centuries, is known for its fine-quality silks, 'paan' and Benares Hindu University and Avimukta of the ancient days. Varanasi is the most popular pilgrimage point for the Hindus. One of the seven holiest cities, Varanasi is the oldest city in the world. Varanasi is more than 3000 years old and is famous as the city of temples. Sarnath is about 10 Km from Varanasi. The museum, excavation sites and the Buddhist temples bear the testimony of amalgamation of Indian culture with the neighboring countries.

