ORGANISING COMMITTEE

Patrons

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Prof. Pramod Kumar, Vice President, PACT

Coordinator

Prof. Arun Maithani, Head of Department, Paint Tech.

Prof. P. K. Kamani, Hony. Gen. Secretary, PACT

Convenor

Er. Kuldeep Verma, Sai Consultancy Faridabad

Dr. Radha Sachan, Assistant Professor, Paint Technology

Organising Secretary

Dr. Durgesh Kumar Soni, Assistant Professor, Paint Tech.

Members

Mr. Ghanshyam, Guest Faculty, Paint Tech.

Mr. B. M. Singh, Guest Faculty, Paint Tech.

Mr. Sunil Mehrotra, Guest Faculty, Paint Tech.

CONTACT PERSON

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REGISTRATION FOR THE COURSE

The REGISTRATION FEE for the Course is as below:

Participants	Reg. Fee
HBTU Students	Free
Other Students	Rs. 5000/-
Faculty Members/Researchers	Rs. 10000/-
Partcicipants from Industry	Rs. 15000/-

Account Details for Payment

Name: Paint & Coating Technologists' Association
SB A/C No. 3106826027
IFS Code : CBIN0283288
Bank & Branch: Central Bank of India, HBTI Kanpur
MICR Code: 208016036

The last date of registration is 25th May 2026. The registration has to be done using the Link/QR Code given below.

https://forms.gle/Y2MWR9pp5WR2RnD38

The Course will be organized in ONLINE mode via Google Meet/Other platforms, on every Sunday. Active participation is mandatory for getting E-Certificates. Multiple assessment will be conducted, for all participants, during the course. Certificate will be provided upon successful completion of the assessment within stipulated period of time.

TARGET AUDIENCE

This Certificate Course is suitable for faculty members of engineering, technology, basic sciences, Lectures of Degree Colleges, Polytechnics and PG & PhD Scholars, and Industry Professionals related to Paint & Allied Industries.

ONE YEAR ONLINE

EXECUTIVE CERTIFICATE COURSE

on

Powder Coatings: Principles, Manufacturing, Application and Quality Control

(June 2026 to May 2027)

Organized By

Department of Paint Technology
School of Chemical Technology
Harcourt Butler Technical University, Kanpur

In association with

Paint & Coating Technologists' Association (PACT)

TRUE Colours

ABOUT HBTU, KANPUR

Harcourt Butler Technical University is a State Government Sponsored University located in Kanpur, Uttar Pradesh. The HBTU was named after Sir Spencer HarcourtButler, the then Governor of the United Provinces in British India. It is one of the oldest engineering education centers in the country. In 2016, it was granted university status and renamed Harcourt Butler Technical University under the HBTU Act, 2016 passed by the legislative assembly of Uttar Pradesh. On the academic front, the University is running schools with thirteen Undergraduate Programmes in Chemical Engineering, Computer Science & Engineering, Electrical Engineering, Electronics Engineering, Information Technology, Leather Technology, Mechanical Engineering, Biochemical Engineering, Food Technology, Oil Technology, Paint Technology, and Plastic Technology. Along with M.C.A., full-time M.Tech. and Ph.D. Programs in various disciplines are also running. Given the emerging need of the time, the University has started many new courses like BBA, MBA, M.Sc. in Physics, Chemistry, and a very advanced course M.Sc. in Mathematics & Data Science. The university is located in the Nawabganj area of Kanpur and is spread over two campuses, namely East & West campuses, constituting a total of 348 acres.

ABOUT PAINT TECHNOLOGY DEPARTMENT

The Paint Technology education in India was started during 1964 with "B.Sc. (Chem. Tech.) Paint Technology" degree, of 3 years duration. In 1991, the 4 years B.Tech. course was started on 10+2 criteria. Currently, the intake of students for B.Tech. course is 60. There are M.Tech. and Ph.D. programs as well. The department is well equipped with Laboratory equipment of general testing and sophisticated instrumental testing along with pilot plant on powder coating application, spray application, resin manufacturing and also paint, putty and ink manufacturing etc.

The department is government recognized for providing the certificates and test reports to various government and private agencies. The materials (paint, varnish, raw materials) are tested and evaluated. The consultancy and certificates are provided by experience faculty members of the department. The department is accredited by National Board of Accreditation (NBA) of All India Council for Technical Education (AICTE). The average placement of the department in last 10 years is 100%. The department is running Paint and Coating Technologists' Association (PACT) from more than 20 years.

ABOUT PACT

Paint and Coating Technologists' Association (PACT) was founded by Lt. Prof. S. Chandra on November 15-16,1997 was registered under the Society Registration Act 21,1860 at No. 1113 dated 7.10.1998. The Objectives of PACT is to promote the cause of an all-round, rational, and economic development in the country, of Paints, Coatings, and Allied Industries such as Printing Inks, Pigments and Dyes, Resins and Polymers, Packaging, Paint Application, etc. by way of encouraging Research, Product Development, Training, Employment, Consultancy, Testing, Education and fostering exchange and disposal of knowledge and information in relevant fields among professionals and public. To fulfill the long-felt need for an all-India body of paint technologists. The activities of PACT are to Organize seminars, Conferences, Symposia, Workshops, Exhibitions, and International Conferences, and to conduct short-term courses, and refresher training courses, to arrange employment, consultancy etc.

ABOUT SAI CONSULTANCY

Sai Consultancy, founded by Er. Kuldeep Verma, A B.Tech. graduate in Paint Technology in 1989, from HBTI Kanpur, is an organization that is willing to become a part of company, which is result oriented, solid through various plans, having proper systems.

Sai Consultancy provides world class specialized in the field of Liquid Paint and Powder coating, starting from formulation to application. They are in this business since 2013 and successfully providing satisfactory result to our clients. They are master in providing the tailor-made services as per requirements of the company. Sai consultancy, also doing Indenting business of Raw material from China, from quality manufacturer of raw material, having more than 30 years of Technical experience.

ABOUT THE COURSE

The One Year Online Executive Certificate Course on "Powder Coatings: Principles, Manufacturing, Application and Quality Control" is a comprehensive, industry-oriented program designed to provide in-depth knowledge of powder coating technology. The course covers fundamental principles of powder coatings, including resin chemistry, formulation design, and curing mechanisms, along with detailed insights into manufacturing processes such as extrusion, grinding, and classification. It also emphasizes application techniques like electrostatic spray deposition and curing, highlighting factors affecting coating performance and efficiency.

In addition, the program focuses on quality control aspects, including testing methods, defect analysis, and standards to ensure consistent coating performance. Tailored for professionals, researchers, and engineers in the coatings and allied industries, this course aims to bridge the gap between theoretical understanding and practical implementation, enabling participants to enhance their technical expertise and contribute effectively to advancements in powder coating technology.

The program also incorporates case studies, industrial best practices, and emerging trends such as sustainable and low-VOC coating systems. Participants will gain exposure to real-world challenges and innovative solutions, preparing them for leadership roles in the coatings industry.

CERTIFICATE COURSE LAYOUT

POWDER COATINGS TECHNOLOGY (50 LECTURES)

MODE: ONLINE (LIVE + RECORDED); DURATION: 50 LECTURES (~60–90 MIN EACH)

LEVEL: DIPLOMA / GRADUATE / INDUSTRY PROFESSIONALS

OUTCOME: FORMULATION + APPLICATION + TROUBLESHOOTING + PLANT UNDERSTANDING

Module I: Powder Coating Introduction and Overview (Lectures 1–5)

1. Introduction to Coatings and Role of Powder Coatings
2. History and Evolution of Powder Coating Technology
3. Advantages and Limitations of Powder Coatings
4. Comparison with Liquid Coatings (Environmental & Performance Aspects)
5. Overview of Powder Coating Process Flow

Module II: Raw Materials – Pigments/Fillers/Synthetic Resins/Additives (Lectures 6–15)

6. Overview of Raw Materials in Powder Coatings
7. Polyester Resins: Chemistry and Properties
8. Epoxy Resins and Hybrid Systems
9. Acrylic and Polyurethane Powder Coatings
10. Curing Agents: Types and Mechanisms
11. Pigments: Types, Dispersion, and Selection Criteria
12. Fillers and Extenders: Role and Performance Impact
13. Additives: Flow Modifiers, Degassing Agents, Stabilizers
14. Special Effect Materials: Metallics, Textures, Functional Additives
15. Formulation Principles and Optimization

Module III: Manufacturing (Lectures 16–22)

16. Overview of Powder Coating Manufacturing Process
17. Premixing and Feeding Systems
18. Extrusion: Types, Parameters, and Optimization
19. Cooling and Flaking
20. Grinding and Classification Techniques
21. Particle Size Distribution and Its Importance
22. Storage, Packaging, and Handling of Powder Coatings

Module IV: Surface Preparation (Lectures 23–27)

23. Importance of Surface Preparation
24. Mechanical Cleaning Methods (Blasting, Grinding)
25. Chemical Pretreatment (Phosphating, Chromating)
26. Conversion Coatings and Advanced Pretreatments (Zr-based, Nano-coatings)
27. Surface Defects and Their Impact on Coating Performance

Module V: Application (Lectures 28–34)

28. Fundamentals of Electrostatic Spray Deposition
29. Corona vs Tribo Charging Systems
30. Spray Booth Design and Powder Recovery Systems
31. Curing Mechanisms and Oven Types
32. Film Formation and Coating Thickness Control
33. Automation in Powder Coating Lines
34. Safety Practices in Powder Coating Application

Module VI: Quality Control (Lectures 35–40)

35. Introduction to Quality Control in Powder Coatings
36. Powder Testing: Particle Size, Flow, Gel Time
37. Film Properties: Adhesion, Hardness, Flexibility
38. Surface Properties: Gloss, Color, Texture Measurement
39. Corrosion Testing (Salt Spray, Humidity Testing)
40. Standards and Specifications (ISO, ASTM)

Module VII: Types & Uses (Lectures 41–44)

41. Thermoset vs Thermoplastic Powder Coatings
42. Industrial Applications: Automotive, Appliances, Architecture
43. Functional Coatings: Anti-corrosion, Heat Resistant, Electrical Insulation
44. Decorative and Special Purpose Coatings

Module VIII: Recent Trends (Lectures 45–47)

45. Low-Temperature Curing Powder Coatings
46. Sustainable and Eco-Friendly Developments
47. Digitalization and Smart Coating Technologies

Module IX: Troubleshooting and Industrial Problems (Lectures 48–50)

48. Common Coating Defects and Root Cause Analysis
49. Process Troubleshooting in Manufacturing and Application
50. Industrial Case Studies and Problem-Solving Approaches

ADDITIONAL

WEEKLY FORMAT: 1 LECTURE + QUIZ + ASSIGNMENT

EVERY 5-10 LECTURES: CASE STUDY / INDUSTRY INTERACTION

VIDEO DEMONSTRATIONS: EXTRUSION, SPRAY APPLICATION, TESTING METHOD