

Up-gradation Training Courses- 2020

Course No. : 01
Course Title : **Instrumental Analysis for Quality Control in Process Industries**
Course Code : **CE-U343**
Duration : 02 Weeks
Period : 12 ~ 23 January, 2020
Nomination deadline : 1~2 Weeks before commencing date
No. of Participants : 20
Course fee : Tk. 12,300/- Per Participant
Designed for : Junior & Mid-level officers working in different industries and other establishments

Course Objectives:

- To learn the principles & instrumentation of spectrometric & chromatographic instruments
- To know the simple operation of analytical instruments
- To prepare samples for individual instruments
- To know the methods of simple maintenance & trouble shooting

Course Content:

Introduction to Quality control Fundamental features of chemical analysis, Industrial application of chemical analysis Spectrometric Methods of Analysis Chromatographic Methods of Analysis Pollution control in process industries Determination of Physical parameters- pH, Conductivity, Salinity, Turbidity; Mineral Content-Sodium & Potassium; Ca & Mg Hardness, Determination of CaCO₃ in lime stone and setting time of cement; Determination of PO₄ & NH₄ in water. Operation of Polarimeter, Refractometer, Calorimeters, Viscometer etc. Operation of UV/Vis spectrophotometer; Operation of ICP-OES; Operation of FTIR & EDXRF. Simple operation and data interpretation of GC & GC-MS; Simple operation and data interpretation of HPLC

Training Methodology:

- Class room lecture
- Use of Multimedia & Overhead Projector
- Recap Session
- Practical & Demonstration Session
- Review & Discussion
- Video Show

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor : Executive Director
Course Co-Advisor : Training Director
Course Director : Head of Analytical Chemistry & Environmental Science Department
Course Coordinator : Dr. AFM Hafizur Rahman, Asst. Chemist

Course No. : 06
Course Title : Basic Analytical Methods Used in Chemical Laboratory
Course Code : CE – U116
Duration : 01 Week
Period : 08 ~ 13 February, 2020
Nomination
deadline : 1~2 Weeks before commencing date
No. of Course: 01
No. of Participants: 20
Course fee : 7,800/- Per Participant
Designed for : Technicians and Operators working in different Industries and other establishment

Course Objectives:

- To know about different chemicals used in chemical laboratories
- To acquire knowledge on different essential laboratory equipment
- To develop knowledge on some conventional chemical analyses
- To build a confidence in handling laboratory equipment and chemicals

Course Content:

Introduction to quality control laboratory, Fundamental features of chemical analysis, Analytical reagent, chemical and solution, Essential apparatus, instrument & equipment, Apparatus for gravimetric & volumetric analysis, Potentiometric & Conductimetric instruments, Instruments used for physical parameters, Instruments for optical methods of analysis, Familiarization of GC and AAS.

Training Methodology:

- Class-room lecture
- Factory visit
- Practical & Demonstration class
- Case study

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor : Executive Director
Course Co-Advisor : Training Director
Course Director : Head of Analytical Chemistry & Environmental Science Department
Course Coordinator : Mohammad Ali, Chemist

Course No. : 17
Course Title : **Spectrophotometer: Use and Application**
Course Code : **CE- U117**
Duration : 1 Week
Period : 04 ~ 09 April, 2020
Nomination : 1~2 Weeks before commencing date
Deadline
No. of Course : 01
No. of Participants : 20
Course fee : Tk. 7,800/= per participant
Designed for : Junior & Mid-level officers working in different industries and other establishments

Course Objectives:

- To know the principle, construction and applications of spectrophotometers
- To grow knowledge on operational maintenance, troubleshooting and calibration of spectrophotometers
- To develop knowledge and skill on data acquisition and interpretation by spectrometric analysis

Course Content:

Principle and basic concept of spectroscopy; Absorption and Emission spectroscopy; multiple applications of different spectrophotometer, Anionic constituents determination in industrial water; Operational maintenance, troubleshooting and calibration of atomic absorption spectrophotometer, UV/Visible and Infrared spectrophotometer; Data acquisition, interpretation and their application.

Training Methodology:

- Class room lecture
- Practical & Demonstration Session
- Use of Multimedia & Overhead Projector
- Recap Session
- Review & Discussion
- Video Show

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor : Executive Director
Course Co-Advisor : Training Director
Course Director : Head of Analytical Chemistry & Environmental Science Department
Course Coordinator : Dr. A.N.M Al Razee, Deputy Chief Chemist

Course No. : 24
Course Title : **Understanding of Quality Management System based on ISO Standards**
Course Code : CE - U344
Duration : 01 Week
Period : 11 ~ 16 July, 2020
Nomination deadline : 1~2 Weeks before commencing date
No. of Participants : 20
Course fee : Tk. 7,800/- Per Participant
Designed for : Junior & Mid-level officers working in different industries and other establishments

Course Objectives:

- To know the quality standards in Bangladesh
- To acquire knowledge on quality management system, ISO 9001 & formulation of quality policy
- To acquire knowledge on developing Quality Management System and Internal auditing
- To acquire knowledge uncertainty calculation and reporting of results.

Course Content:

Definition and Terminology; Initiatives for Quality Assurance System; ISO Standards Related to Calibration and Testing; Necessity and Development of ISO Based Test and Calibration Service in Bangladesh; ISO based Industrial Quality Management; Implementation of ISO 9001; QMS for Testing and Calibration Labs; QMS Documentation; Development of Quality Manual and its Procedures and Selection of Methods; Statistical Treatment of Measurement Data; Internal Auditing and Measurement of Uncertainty; Practice of Uncertainty Calculation; Quality Assurance and Reporting of Results.

Training Methodology:

- Class room lecture
- Use of Multimedia & Overhead Projector
- Recap Session
- Practical & Demonstration Session
- Review & Discussion
- Video Show

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor : Executive Director
Course Co-Advisor : Training Director
Course Director : Head of Analytical Chemistry & Environmental Science Department
Course Coordinator : Md. Saif Uddin, Deputy Chief Chemist

Course No. : 30
Course Title : **Industrial Pollution Monitoring and Control**
Course Code : **CE-U348**
Duration : 01 Week
Period : 22 ~ 27 August, 2020
Nomination deadline : 1~2 Weeks before commencing date
No. of Participants : 20
Course fee : Tk. 7,800/- Per Participant
Designed for : Junior & Mid-level officers working in different industries and other establishments

Course Objectives:

- To know the environmental rules & regulations of Bangladesh
- To learn environmental quality standards
- To categorize the industrial emissions for treatment
- To develop bench & pilot scale treatment system
- To develop unit operation & process for effluent treatment plant

Course Content:

Principles of pollution prevention & environmental policy analysis, Pollution prevention on a selected industrial sector in Bangladesh, Commonly applied wastewater treatment process /technologies.

Practice on technology and design a wastewater treatment train, Sludge handling and treatment processes, Air pollution monitoring & treatment technique.

Training Methodology:

- Class room lecture
- Use of Multimedia & Overhead Projector
- Recap Session
- Practical & Demonstration Session
- Review & Discussion
- Video Show

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor : Executive Director
Course Co-Advisor : Training Director
Course Director : Head of Analytical Chemistry & Environmental Science Department
Course Coordinator : Efdtekhar Uddin Mohammad Aman, Deputy Chief Chemist

Course No. : 37
Course Title : Advance Technique of Chromatographic Analysis
Course Code : CE-U347
Duration : 01 Week
Period : 26 Sep.~ 01 October, 2020
Nomination deadline : 1~2 Weeks before commencing date
No. of Participants : 20
Course fee : Tk. 7,800/- Per Participant
Designed for : Junior & Mid-level officers working in different industries and other establishments

Course Objectives:

- To learn the working principles of chromatographic instruments
- To understand the sequential composition of instruments
- To operate GC & HPLC for simple analysis
- To prepare samples of different states
- To know the specific use & application of GC & HPLC

Course Content:

Principle, multiple application of Gas Chromatograph (GC), high performance liquid chromatograph (HPLC) and elemental analyzer. Operational maintenance, safety, trouble shooting and calibration of chromatographic instruments; Practice on gas chromatograph, high performance liquid chromatograph (HPLC) and elemental analyzer; Analytical data acquisition, recording & presentation.

Training Methodology:

- Class room lecture
- Use of Multimedia & Overhead Projector
- Recap Session
- Practical & Demonstration Session
- Review & Discussion
- Video Show

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor : Executive Director
Course Co-Advisor : Training Director
Course Director : Head of Analytical Chemistry & Environmental Science Department
Course Coordinator : Md. Zahed Hossien Ansary, Deputy Chief Chemist

Course No. : 44
Course Title : **Quality Control Technique in Process Industries**
Course Code : **CE-U306**
Duration : 1 Week
Period : 07 ~ 12 November, 2020
Nomination deadline : 1~2 Weeks before commencing date
No. of Participants : 20
Course fee : Tk. 7,800/- Per Participant
Designed for : Operator/Technician working in different industries and other establishments

Course Objectives:

- To strengthen the ideas of basic analytical methods
- To know the different fields of analytical chemistry
- To grow the ability of performing selective quality analysis jobs
- To build a knowledge on fundamental instrumental analysis
- To grow knowledge on quality testing of raw materials & products
- To develop knowledge on determination of few pollution
- To develop knowledge on safety measures in process industry

Course Content:

Quality control & Productivity; Industrial application of classical analysis; Analysis of Industrial water: Physical parameter and Mineral content; Principle, operation and application of Atomic Absorption Spectrophotometer, Operation and calibration of UV/Vis spectrophotometer; Principle, instrumentation and operation of GC and HPLC; Pollution control in process industries: Wastewater treatment techniques; Different testing methods used in process industries e.g Fertilizer, Cement etc. Air Pollution Monitoring: Stack chimney emission gas and indoor air quality monitoring.

Training Methodology:

- Class room lecture
- Use of Multimedia & Overhead Projector
- Recap Session
- Practical & Demonstration Session
- Review & Discussion
- Video Show

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor : Executive Director
Course Co-Advisor : Training Director
Course Director : Head of Analytical Chemistry & Environmental Science Department
Course Coordinator : Muhammad Ziaul Haq, Chemist

Special Training Courses - 2020

(For University Students)

Course No.	: 09
Course Title	: Chemical Analysis in Quality Control
Course Code	: CE-S105
Duration	: 4 Weeks
Nomination deadline	: 1~2 Weeks before commencing date
No. of Course	: 01
No. of Participants	: 25
Course fee	: Tk. 8,000/- Per Participant
Designed for	: Students of Chemistry Dept., CU, SUST, KU and BRU

Course Objectives:

- To strengthen the ideas of basic analytical methods
- To grow the ability of performing selective quality analysis jobs
- To build a knowledge on fundamental instrumental analysis
- To grow knowledge on quality testing of raw materials & products
- To develop knowledge on units of process industry
- To develop knowledge on safety measures in process industry

Course Content:

Introduction to quality control laboratory; Gravimetric methods of analysis; Titrimetric & volumetric methods of analysis; Spectrometric methods of analysis – use of Photometer, UV/Vis Spectrophotometer, Flame Photometer, Atomic Absorption Spectrophotometer (AAS); Chromatographic methods of analysis – use of Gas Chromatograph (GC), High Performance Liquid Chromatograph (HPLC), Elemental Analyzer; Quality testing of raw material and products; Analysis of industrial water; Determination of pollution control parameters; Unit operations in process industry; Safety measures in process industry.

Training Methodology:

- Class room lecture (Multimedia & Overhead Projector)
- Practical & Demonstration Session, Video Show
- Recap, Review & Discussion Session

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor	: Executive Director
Course Co-Advisor	: Training Director
Course Director	: Head of Analytical Chemistry & Environmental Science Department
Course Coordinator	: Teacher of ACESD

Course No.	: 10
Course Title	: Quality Control and Unit Operation in Food Industry
Course Code	: CE-S104
Duration	: 4 Weeks
Nomination deadline	: 1~2 Weeks before commencing date
No. of Course	: 01
No. of Participants	: 25
Course fee	: Tk. 8,000/- Per Participant
Designed for	: Students of Food Technology, CVASU, SUST, BAU and JUST

Course Objectives:

- To develop the basic ideas of food analysis
- To grow the ability of performing simple analysis of food quality
- To build basic knowledge on instrumental analysis
- To develop knowledge on units in process industry
- To develop knowledge on safety measures in process industry

Course Content:

Introduction to quality control laboratory; Gravimetric analysis of foodstuff; Titrimetric & volumetric methods of analysis; Analysis of starch, protein & fat in food; Hydrous test in sugar/molasses and formalin test in fish; Food & beverage analysis; Edible oil & fat analysis; Spectrometric methods of analysis - use of Photometer, UV/Vis Spectrophotometer, Flame Photometer, Atomic Absorption Spectrophotometer (AAS); Analysis of potable water; Chromatographic methods of analysis - use of Gas Chromatograph (GC), High Performance Liquid Chromatograph (HPLC), Pollution control in food processing industry; Unit operations in process industry; safety measures in process industry.

Training Methodology:

- Class room lecture (Multimedia & Overhead Projector)
- Practical & Demonstration Session
- Recap, Review & Discussion Session
- Video Show

Evaluation system:

Attendance, Class participation & Overall performance

Course Advisor	: Executive Director
Course Co-Advisor	: Training Director
Course Director	: Head of Analytical Chemistry & Environmental Science Department
Course Coordinator	: Teacher of ACESD