

A. Up-gradation Course Contents, 2017

SL No	Course title and relevant information	Course Contents
01	<p>Course Code :ME-U328</p> <p>Maintenance & Troubleshooting of Compressors and Turbines</p> <p>Participants : Junior & Mid-level officers Duration : 15 ~ 26 January, 2017 Course Fee : Tk. 8500/- Per person</p>	Types, construction & working principles of compressors & turbines, Maintenance and troubleshooting of different compressors & turbines, Seals & Lubrication system of compressors & turbines, Different bearings used and their maintenance, Surging phenomenon & anti-surge control system of centrifugal compressor, Importance of inter-cooler & after-cooler to increase compressors efficiency and their maintenance, Boiler feed water treatment and steam generation for turbine, Vibration analysis technique used for troubleshooting & diagnosis of turbo-machinery problems, Inspection of compressor & turbine components by NDT, Labyrinth seal & plain bearing clearance measurement, Alignment of machine train.
02	<p>Course Code :EE-U313</p> <p>Industrial Motors: Problems and Remedies</p> <p>Participants : Junior & Mid-level officers Duration : 15 ~ 26 January, 2017 Course Fee : Tk. 8500/- Per person</p>	Working principle of various industrial motors: Induction, Synchronous, DC, universal motor etc. Constructional feature & operational behavior of various motors. Mechanical, Electrical & magnetic circuit problems & their remedies. Hands-on practice on assembly/ disassembly, start-up, control, protection, troubleshooting & maintenance of different types of motors. Industrial safety and safety in electrical maintenance.
03	<p>Course Code : IC - U117</p> <p>Programmable (SMART) Instruments and its Application</p> <p>Participants : Technicians and Operators Duration : 21 ~ 26 January, 2017 Course Fee :Tk.6,500/ Per Participant</p>	Industrial Programmable (SMART) Instrument & its Application; Developing trends of digital instruments and its wide application in process industries; Different types of SMART instrument: Transmitter, Controller, Recorder, Control Valve Positioner; SMART instrument terminology; Architecture of SMART Instrument; Programming language & Programming technique; Calibration; Maintenance & trouble shooting of SMART system.
04	<p>Course Code : IS-U301</p> <p>Industrial Safety & Prevention of Accidents</p> <p>Participants :Junior & Mid-level officers Duration : 05 ~ 16 February,2017 Course Fee : k. 8,500/- Per Participant</p>	Introduction to industrial safety and safety regulations, Danger of chemicals and their associated hazards, Toxic release, Fire and explosion hazards (with a special focus on water reactive chemical fire and explosion) and its prevention, Acoustic hazard and it's control, Personal protective equipment (PPE), Safe handling procedure of tools, machines and chemicals, Safety in mechanical maintenance, Safe handling of gas and gas cylinders, Accident and its prevention, Safety measures associated with confined space, Emergency response plan, Rescue operation, Electrical safety, Housekeeping & its importance, First aid, Practice on different safety equipment and PPE, Demonstration on fire and explosion hazards, Practice on different portable fire extinguishers, Practice on fixed fire extinguishing system, Practice on fire alarm system without FACP, Practice on rescue operation, Case study
05	<p>Course Code : CE-U119</p> <p>Quality Control in Process Industries.</p> <p>Participants : Operator/Technician Duration : 05 ~ 16 February, 2017 Course Fee : Tk. 8500/- Per person</p>	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. <i>Industrial safety</i>
06	<p>Course Code: CI- U301</p> <p>Computer & its Application.</p> <p>Participants : Junior & mid-level officers Duration : 11~16 Feb, 2017 Course Fee : Tk. 5,500/- Per Participant</p>	Introduction to Computer Hardware and Software. Introduction to MS office, Different Menu Bar or Icon meaning of MS office: File, Edit, View, Insert, Format, Tools, Table, Help etc.; Microsoft Word: Starting MS Word, Opening new file, Document preparation in different formats and editing, different types of table making and editing, file saving/opening old or recent file/editing/closing. Printing: Page set up, margin set up, paper orientation, print preview, printer ink selection, printer selection and printing. MS Excel: Starting MS Excel, Document preparation in different formats and editing for formula calculation, file saving/closing/opening. MS Excel: Different types chart and graph composing, File saving/closing/opening, printing. MS PowerPoint: Presentation document preparation for Multimedia Projector, file saving/opening, different slide pages making and presentation by multimedia. MS PowerPoint: Picture and image added/link in slide, Organization chart development, Import Excel and other charts / file in power Point, Printing procedure. Adobe Photoshop : Opening new file, adjust picture resolution, Import picture, move, selection, discussion various tools, making Image, shapes, color apply and adjustment, work with layer, apply effect, Printing procedure.
07	<p>Course Code: IC-U320</p> <p>Programmable Logic Controller (PLC) & Programmable Instruments</p> <p>Participants :Junior & Mid-level officers Duration : 26 Feb. ~ 09 March, 2017 Course Fee :Tk. 11,000/- Per Participan</p>	Hardware and Software of PLC and Programmable Instruments. Functional description of PLC and Programmable Instruments. Installation, programming, maintenance and troubleshooting of PLC and Programmable Instruments.

08	<p>Course Code: PT- U106</p> <p>Industrial Boilers & Operation of Steam Generation system</p> <p>Participants : Operator/Technicians Duration : 26 Feb. ~ 09 March, 2017 Course Fee : Tk. 8,500/- Per Participant</p>	<p>Introduction to Industrial Boiler and steam system, Process symbols & Process diagrams, Familiarization with constructional parts of boiler, External treatment for boiler feed water, Internal treatment for boiler water, Combustion management of boiler, Burner & firing system of boiler, Control & Safety system of boiler, Standard operating procedure (SOP) of boiler, Boiler blow-down, heat recovery and de-aerator, Boiler energy efficiency, Cleaning & preservation of boiler, Sequential logic interlock system, Industrial Safety etc. Basic concept of industrial productivity; Industrial safety, Personal protective equipment and fire protection arrangement.</p>
09	<p>Course Code: EE-U334</p> <p>Electrical Maintenance Techniques</p> <p>Participants : Junior & Mid-level officers Duration : 18 ~ 23 March, 2017 Course Fee : Tk. 5500/- Per person</p>	<p>Different maintenance methods preventive maintenance, inspection & monitoring of switchgear system, Generator, Transformer, motor and other electrical equipment. Hands-on practice on preventive maintenance scheduling & execution. Electrical safety.</p>
10	<p>Course Code : CE-U345</p> <p>Industrial Effluent Treatment Techniques & ETP Design</p> <p>Participants : Junior & Mid-level officers Duration : 18 ~ 23 March, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>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.</p>
11	<p>Course Code : CI-U101</p> <p>Computer & its Application.</p> <p>Participants : Operator/Technicians Duration : 18~23 Mar, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Introduction to computer Types: Familiarize with different types of computer; Structure of personal computers: Understand hardware parts of computer- Meaning of Main body, Monitor, Keyboard, Printer, Speaker, Microphone, Router, and other peripherals, Understand software parts of computer- Meaning of BIOS(Basic Input Output System), Drivers, OS(Operating System), and Applications software(MS-office etc.); MS Word: Basic screen configuration, documentation concept of documentation, save need for save, and various types of documents; Document passwords enabling & disabling, understanding of Zoom in/out-screen Zoom/out, Find/Replace, Undo/Redo, features of Memo, and Spelling checker; Concept of Fonts, Font colors, Font sizes, Underline and Shades; Adjusting Character spacing/set Width; Function of Paragraphs and Multi-stage, Style; How to use Shapes and Objects; Organize Tables, Cells, and Pages; Function of Footnotes, Endnotes, Headers, Footers, Inserting, and Sorting; Features of Multi-stage alignment, Caption, and Text substitution; Printing procedure. MS Excel: Basic screen configuration and its elements; Display types of characters and numeric data; How to adjust row and column sizes; Concept of worksheets and defining names; Necessity of Fill handle and data validation; Page layout and background pictures; Differences among Absolute address, Relative address, and Mixed address; Creating a formula by names; Formula calculation using the auto sum feature; Understanding of various functions; Adjusting grid spacing and labels, and display the legend; Necessity of Pivot table; Understanding of Database functions used in Excel; How to implement Macros and Hyperlinks; Printing procedure. MS PowerPoint: Basic screen composition and Theme; Move/Copy/Delete slides; Understanding of Drawing, Painting, and Style; Customizing Ribbon menu; Concept of Font, Color, Logo, Theme, Bullets, Line and Paragraph Spacing and adjust List level; How to merge several Shapes; Understanding of Shape align, Color extraction, two and three-dimensional shapes; Features of Smart Art; Converting your texts or pictures using SmartArt graphics; How to insert video clips and audio clips; Image setting and compressing media files; Means of video files and PDF documents; Applying Object animations/Screen transition to slide presentation; Recording Slide show/Online presentation; Printing procedure.</p>
12	<p>Course Code: ME- U103</p> <p>Alignment Technology of Rotating Machines, Level-1</p> <p>Participants: Operator/Technicians</p> <p>Duration : 02 ~ 13 April, 2017 Course Fee : 8,500/- Per person</p>	<p>Introduction to alignment techniques of rotating machine, Equipment used & terms related to misalignment, Importance of alignment for different types of coupling, General description of different methods of alignment, Centering of rotor and casing, Thermal effect on alignment, Alignment practice on turbine & compressor, Alignment of chain & sprocket, Alignment of coupling with feeler gauge & knife edge, Alignment of V-belt, Alignment by rim & face method of a machine train, Alignment of gear & pinion, Demonstration on LASER alignment. Industrial safety and safety in mechanical maintenance.</p>
13	<p>Course Code: IS-U305</p> <p>Risk Awareness & Risk Management in Process Industries</p> <p>Participants: Junior & Mid-level officers Duration : 02 – 13 April, 2017 Course Fee : 8,500/- Per person</p>	<p>Introduction to risk awareness and its management; Safety regulations and safety sign; Safety in chemical process plant operation; Inspection, Auditing & Recording system of process equipment; Fire and Explosion hazards; Toxic hazard; Personal protective equipment; Electrical hazards; Safety measures in confined spaces; Effect of preventive maintenance on safety; Use of process Hazard identification and assessment tools e.g. HAZOP & HAZAN, FTA, FMEA, QRA etc. Practice on safety equipment.</p>

14	<p>Course Code: IC –U105</p> <p>Industrial transducers & Transmitters: Maintenance and Troubleshooting</p> <p>Participants : Operator/Technicians Duration : 08 ~ 13 April, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Process parameter sensing elements and transducers: Pressure, level, flow, temperature & analytical measurements; Construction and working principle of pneumatic and electronic transmitters; Calibration, troubleshooting, maintenance of transmitter & transmission system</p>
15	<p>Course Code: PT- U321</p> <p>Industrial Corrosion & Corrosion Control</p> <p>Participants : Junior & Mid-level officers Duration : 22 ~ 27 April, 2017 Course Fee :Tk. 5500/- Per person</p>	<p>Introduction to industrial corrosion; (Corrosion principles, Effects of corrosion, Cause of corrosion, Cost of corrosion); Classification of corrosion; Classification based on Mechanism, Environment, Corrosivity effect; Factors influencing corrosion (Metallurgical aspects, Mechanical factors, Environmental factors); Corrosion in aqueous environment (Corrosion in cooling water system and steam circuits); Corrosion of pipelines in soil;- Nature of soil corrosion ; - Biological corrosion - Testing and remedial measures; Protection against corrosion:- Change in design; Selection of material; - Change in environment; Corrosion prevention:- by using inhibitors - by using surface coating, linings and paints; Principles & Application of Cathodic and anodic protection; Determination of galvanic potential of different metals, Cathodic protection by sacrificial anode (lab test). Industrial safety</p>
16	<p>Course Code : ID- U309</p> <p>Industrial Productivity Improvement</p> <p>Participants :Junior & Mid-level officers Duration : 22 ~ 27 April, 2017 Course Fee :Tk. 5500/- Per pers</p>	<p>Basic concept of productivity, Productivity improvement: 5s Approach & motivation, Productivity improvement: Kaizen method & benchmarking, Value added productivity, Productivity measurement, monitoring & analysis, Quality control circle and Total quality management system, Waste management & Green productivity, Productivity activist scheme & Suggestion scheme, Just in time manufacturing techniques, Industrial engineering & Machine management.</p>
17	<p>Course Code : EE- U118</p> <p>Electrical Maintenance Techniques</p> <p>Participants : Operator/Technicians Duration : 22 ~ 27 April, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Different maintenance methods preventive maintenance, inspection & monitoring of switchgear system, Generator, Transformer, motor and other electrical equipment. Hands-on practice on preventive maintenance scheduling & execution. Safety in electrical maintenance</p>
18	<p>Course Code: IC-U332</p> <p>Advanced PLC with SCADA system & its Application in Process Automation and Control.</p> <p>Participants : Junior & Mid-level officers Duration : 14 ~ 25 May, 2017 Course Fee : Tk. 13,000/Per person</p>	<p>Introduction to Advance PLC and Control system; Architecture and Functional Description of Advanced PLC and Operator Station (OS); Programming languages and Programming Techniques; Interface devices and software; PC-based system, Operation station and SCADA software; Program Development practice for different languages; Installation, Maintenance and Troubleshooting PLC.</p>
19	<p>Course Code : IS-U101</p> <p>Industrial Safety & Prevention of Accidents</p> <p>Participants : Operator/Technician Duration : 14 ~ 25 May, 2017 Course Fee : Tk. 8,500/- Per person</p>	<p>Introduction to industrial safety and safety regulations, Danger of chemicals and their associated hazards, Toxic release, Fire and explosion hazards (with a special focus on water reactive chemical fire and explosion) and its prevention, Acoustic hazard and it's control, Personal protective equipment (PPE), Safe handling procedure of tools, machines and chemicals, Safety in mechanical maintenance, Safe handling of gas and gas cylinders, Accident and its prevention, Safety measures associated with confined space, Emergency response plan, Rescue operation, Electrical safety, Housekeeping and its importance, First-aid, Practice on different safety equipment and PPE, Demonstration on fire and explosion hazards, Practice on different portable fire extinguishers, Practice on fixed fire extinguishing system, Practice on fire alarm system without FACP, Practice on rescue operation, Case study</p>
20	<p>Course Code : PT-U108</p> <p>Industrial Water Treatment & Operation of Water Treatment Plan</p> <p>Participants : Operator/Technicians Duration : 09 ~ 20 July, 2017 Course Fee Tk. 8,500/- Per person</p>	<p>Introduction to Industrial Water Treatment ; Raw Water Treatment; Process Symbols and Process Diagrams; Ion Exchange Process and Regeneration of Ion Exchanger; Water Conditioning for Boiler; Cooling Water and its Treatment; Water Treatment by Membrane Separation Processes; Water Treatment Plant Instrumentation; Principal Constituents of Concerns in Wastewater Treatment; Waste Water Treatment Techniques; Troubleshooting of Water Treatment Plant; Practice on Process Drawing; Water Treatment (Lime-Soda softening); Water Demineralization by Ion Exchange and Reverse Osmosis; Analysis Key Parameters for Water Quality: Hardness, Turbidity, Acidity, Alkalinity BOD and COD etc.; Jar test for Optimum Chemical Dosing; Industrial safety</p>

21	<p>Course Code:EE-U303</p> <p>Electrical Power Generation</p> <p>Participants :Junior & Mid-level officers Duration : 09 ~ 20 July, 2017 Course Fee : Tk. 8500/- Per person</p>	<p>Introduction to different types of power generating plant and energy resources. Mechanical & electrical features of generators; Excitation system, Prime movers : Diesel Engine, gas turbine & Steam turbine, Lube oil, gas & steam system for turbine, Steam boilers, Operational control & safety devices for prime movers. Control & Protective devices for generator. Voltage & frequency Control of generator. Start-up, Synchronization & loading of generator.</p> <p>Practice on generator operation; Troubleshooting & maintenance. . Industrial safety and Electrical safety</p>
22	<p>Course Code:ME-U344</p> <p>Bearings & Industrial Lubricants</p> <p>Participants : Junior & mid-level officers Duration : 15 ~ 20 July, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Selection criteria of bearings, Different types of bearings: Construction,. Material and Designation, Bearing tolerance and fit system, Causes of bearing failure and storage of bearings; Importance of lubricants, Selection criteria of lubricants, Properties of different types of lubricants, ISO viscosity grades of lube oil, NLGI grades of greases, Lube oil purification and storage, Environmental impact of lubricants. Safety in mechanical maintenance</p>
23	<p>Course Code:EE-U309</p> <p>Electrical Sub-station : Troubleshooting & Maintenance</p> <p>Participants: Junior & Mid-level officers Duration : 29 July ~ 03 August, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Electric power distribution system requirements; Circuit breakers, isolators & bus bar; Control & protective devices; Testing & maintenance of power transformer, current transformer & potential transformer; Electrical storage batteries;</p> <p>Testing of relays; Testing of high voltage cables & transformer oil; Testing & calibration of control & protective devices; Power factor improvement devices; Shop practice on sub-station switch gear. Electrical safety</p>
24	<p>Course Code:IS-U114</p> <p>Industrial Safety in Mechanical Maintenance</p> <p>Participants : Operator/Technicians Duration : 29 July ~ 03 August, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Introduction to industrial safety and safety regulations, Safety in mechanical maintenance, Safe working practice during welding and fabrication, Safe use of hand tools and portable tools, Arrangement of scaffolding works and work platforms, Personal Protective Equipment, Safety measures associated with confined space, Safe handling of gas and gas cylinders, Danger of chemicals and their associated fire and explosion hazards, Electrical safety</p> <p>Safe use of hoisting and transportation equipment and ladder practice, Demonstration on PPE and fire protection arrangements, Practice on different safety equipment</p>
25	<p>Course Code : CI-U101</p> <p>Computer & Its Application</p> <p>Participants : Operator/Technicians</p> <p>Duration : 29 July ~03 August, 2017 Course Fee : Tk. 5500/- Per person</p>	<p>Introduction to computer Types: Familiarize with different types of computer; Structure of personal computers: Understand hardware parts of computer- Meaning of Main body, Monitor, Keyboard, Printer, Speaker, Microphone, Router, and other peripherals, Understand software parts of computer- Meaning of BIOS(Basic Input Output System), Drivers, OS(Operating System), and Applications software(MS-office etc.); MS Word: Basic screen configuration, documentation concept of documentation, save need for save, and various types of documents; Document passwords enabling & disabling, understanding of Zoom in/out-screen Zoom/out, Find/Replace, Undo/Redo, features of Memo, and Spelling checker; Concept of Fonts, Font colors, Font sizes, Underline and Shades; Adjusting Character spacing/set Width; Function of Paragraphs and Multi-stage, Style; How to use Shapes and Objects; Organize Tables, Cells, and Pages; Function of Footnotes, Endnotes, Headers, Footers, Inserting, and Sorting; Features of Multi-stage alignment, Caption, and Text substitution; Printing procedure. MS Excel: Basic screen configuration and its elements; Display types of characters and numeric data; How to adjust row and column sizes; Concept of worksheets and defining names; Necessity of Fill handle and data validation; Page layout and background pictures; Differences among Absolute address, Relative address, and Mixed address; Creating a formula by names; Formula calculation using the auto sum feature; Understanding of various functions; Adjusting grid spacing and labels, and display the legend; Necessity of Pivot table; Understanding of Database functions used in Excel; How to implement Macros and Hyperlinks; Printing procedure. MS PowerPoint: Basic screen composition and Theme; Move/Copy/Delete slides; Understanding of Drawing, Painting, and Style; Customizing Ribbon menu; Concept of Font, Color, Logo, Theme, Bullets, Line and Paragraph Spacing and adjust List level; How to merge several Shapes; Understanding of Shape align, Color extraction, two and three-dimensional shapes; Features of Smart Art; Converting your texts or pictures using SmartArt graphics; How to insert video clips and audio clips; Image setting and compressing media files; Means of video files and PDF documents; Applying Object animations/Screen transition to slide presentation; Recording Slide show/Online presentation; Printing procedure.</p>
26	<p>Course Code : ME-U306</p> <p>Non-Destructive Testing(NDT) Methods</p> <p>Participants: Junior & Mid-level officers</p> <p>Duration : 19 ~ 24 August, 2017 Course Fee : 5,500/- Per person</p>	<p>Introduction to NDT methods; Physical & Mechanical properties of metal; Defects & Discontinuities during metal casting & welding; Defects & Discontinuities of metals for forging, rolling, heat treatment & machining; General description, job preparation, application & observation of DPT; General description, sources of magnetic fields, equipment & materials, application & observation of MPT Method; Principles, fundamentals, calibration of equipment & test procedure of Ultrasonic Testing Method; Reporting of NTD result.</p>

27	<p>Course Code: CE-U110</p> <p>Quality Control of Industrial Water</p> <p>Participants : Operator/Technicians</p> <p>Duration : 19 ~ 24 August, 2017</p> <p>Course Fee : Tk. 5500/- Per person</p>	<p>Analysis & monitoring of raw water, treated water, boiler water, cooling water and process water for industries; Problems of analysis & their solutions; Treatment and supply system; Quality checking of industrial water.</p> <p>Analysis of Industrial water with spectrophotometer: Operation & application of Atomic Absorption Spectrophotometer, Operation & calibration of UV/Vis spectrophotometer.</p>
28	<p>Course Code : CI-U102</p> <p>Application of Computer Based ICT</p> <p>Participants : Operator/Technicians</p> <p>Duration : 22~24 August, 2017</p> <p>Course Fee :Tk. 3,500/- Per person</p>	<p>Introduction to Computer Based ICT; Hardware Assembling/Dismantling, Software Installation, Troubleshooting etc.; Networking Concept: LAN, Wi-Fi; Practical on Networking Concept: LAN, Wi-Fi; Email & Internet Browsing Concept and its Software; Practical on Email & Internet Browsing; Online Video Conference and Others: Skype, CTconference, Shareit etc.; Practice on Online Video Conference and Others: Skype, Shareit; Different types of Online Information Exchanging system: Railway/Bus online ticket booking, Online shopping, Educational application, Online passport form fill-up, Voter ID, Online TIN Registration.; Practical for Different types of Online Information Exchanging system; Special application software for Laptop/Desktop Computer for information exchange : Team viewer; Review and Closing Session</p>
29	<p>Course Code : IC-U332</p> <p>Advanced PLC with SCADA system & its Application in Process Automation and Control</p> <p>Participants: Junior & Mid-level officers</p> <p>Duration : 17 ~ 28 September, 2017</p> <p>Course Fe : Tk. 13000/- Per person</p>	<p>Introduction to Advance PLC and Control system; Architecture and Functional Description of Advanced PLC and Operator Station (OS); Programming languages and Programming Techniques; Interface devices and software; PC-based system, Operation station and SCADA software; Program Development practice for different languages; Installation, Maintenance and Troubleshooting PLC.</p>
30	<p>Course Code :PT-U102</p> <p>Measuring & Control of Process Parameters</p> <p>Participants : Operator/Technicians</p> <p>Duration : 17 ~ 28 September, 2017</p> <p>Course Fee : Tk. 8500/- Per person</p>	<p>Introduction to Control Technique of Process Parameters; Indicating, Recording and Counting Instruments; Process Symbols and Process Diagram; Pressure and Differential Pressure Measurement; Liquid Level Measurement; Fluid flow and temperature measurement; Transmitters; Controllers and It's Mode of Operation; Process Control Loops; Single Control Loop: Open, Close Loops, Feed Forward, Feed Back- Control Loops, Up stream, Downstream Control etc.; Complex Control Loop: Ratio Control Loop, Cascade Control Loop, Split-Range Control Loop; Control Valve; Sequential Logic Inter-lock Diagram; Industrial Safety;</p> <p>Practice on Process Symbols and ProcessDiagram; Level Measurement by Using Immersed Body (Displacer);Input-Output(I/O),relationship of a Transmitter; Study of Process Response For Level Control Loop By Using Different Size Liquid Tank; Study of Level Flow Cascade Control Loop and Determination of Valve Characteristics; Sequential Logic Operation</p>
31	<p>Course Code : ME-U345</p> <p>Welding Technology</p> <p>Participants : Junior & Mid-level ficers</p> <p>Duration : 23 ~ 28 September, 2017</p> <p>Course Fee :Tk. 5500/- Per person</p>	<p>Introduction to different welding methods, Familiarization with Iron & Steel materials, Oxy-Acetylene gas welding and cutting, SMAW, TIG, MIG/MAG welding methods, Welding consumables, Welding positions & symbols, Joint design, Pre & Post heat treatment, Welding defects & their remedy,</p> <p>Practice on different types of welding methods, Welding safety and Mechanical safety</p>
32	<p>Course Code : IC - U333</p> <p>Application of PLC in Industries</p> <p>Participants :Junior & Mid-level officers</p> <p>Duration : 08 ~ 19 October, 2017</p> <p>Course Fee : Tk. 11000/- Per person</p>	<p>Hardware description of PLC, Basic Programming of PLC, Sensors and Transducers, Data Communication, Application of Control Theory, Sequence Logic Circuit, Ladder diagram developing, Testing Functions, Installation of Program, Operation of Peripheral Devices, Operation and Maintenance</p>
33	<p>Course Code: PT- U305</p> <p>Heat Transfer & Operation of Heat Exchanger</p> <p>Participants: Junior & Mid-level officers</p> <p>Duration : 14 ~ 19 October, 2017</p> <p>Course Fee : Tk. 5500/- Per person</p>	<p>Mode of Heat Transfer and Heat Transfer Media, Basic system of Heat Transfer and Types of Heat Exchanger, Heat Transfer Equipment and Their Application, Constructional Parts of Heat Exchanger, Performance Criteria and Operational Features of Heat exchanger, Corrosion, Scaling, Fouling and Effect of Cooling Water on Heat Exchanger, Chemical Cleaning and Passivation of Heat Exchanger, Inspection and Trouble Shooting of Heat Exchanger, Exchanger effectiveness determination. <i>Industrial safety</i>.</p> <p>Practice and Study of Shell & Tube Heat Exchanger, NTU Method, Flow influence on the heat transfer. Reynolds number calculation, etc.</p>
34	<p>Course Code: CI- U302</p>	<p>Introduction to computer Types: Familiarize with different types of computer, Choice proper type of computer for use, understanding the benefits of each type computers; Structure of personal computers: Understand hardware parts of</p>

	<p>Computer Maintenance & Troubleshooting</p> <p>Participants : Junior & mid-level officers Duration : 28 Oct-02 Nov, 2017 Course Fee :Tk. 5500/- Per person</p>	<p>computer- Meaning of Main body, Monitor, Keyboard, Printer, Speaker, Microphone, Router, and other peripherals, Understand software parts of computer- Meaning of BIOS(Basic Input Output System), Drivers, OS(Operating System), and Applications software(MS-office etc.); Understanding of PC Components: Main board, Power Supply, CPU, RAM, HDD, ODD, SSD, Video Card, LAN card. Monitor, Keyboard, etc.; Internal structure of PC main body: Functions of Main Board, Power Supply, CPU, HDD, RAM, Video Card, Floppy, CD/DVD drive, several interfaces, etc.; Selecting the parts suitable for purpose: Understanding of motherboard components term(CPU, FSB, Memory, AGP, PCI, North Bridge, South Bridge, IDE, ATA, SATA, USB, Ethernet, Audio Codec, BIOS, LPC bus, ISA Bus, PC/AT bus, and CMOS; Other capabilities of the components (Power supply, Graphic card, ODD, SSD, Sound card, LAN card, etc.) ; Disassembling and Assembly PC: Safety rules about computer repair, How to avoid an electric shock, Understanding of functions of major components (Main body, Power Supply, CPU, RAM. HDD, ODD, SSD, Video Card, LAN card, Monitor, Keyboard, Speaker, Microphone, etc.); PC Repairing: Reset Settings (BIOS setup, etc.), How to check PC using the diagnosis program, Checking the appearance of parts, Inspection of assembled parts.</p>
35	<p>Course Code : CE-U347 Advanced Techniques of Chromatographic Analysis</p> <p>Participants: Junior & Mid-level officers Duration : 28 Oct. ~ 02 Nov, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>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.</p>
36	<p>Course Code : ME- U129</p> <p>Installation, Maintenance & Operation of Industrial Pumps</p> <p>Participants: Operator/Technicians Duration : 28 Oct. ~ 02 November, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Classification of pumps and their use; Construction and working principle of centrifugal & reciprocating pumps; Installation procedure of pump; Maintenance of centrifugal and reciprocating pumps; Disassemble and assemble practice of pumps; Alignment of pump; Operational behavior of centrifugal pump; Safety in mechanical maintenance.</p>
37	<p>Course Code: EE-U335</p> <p>Industrial Motor Control (Level-1)</p> <p>Participants : Junior & mid-level officers Duration : 12 ~ 23 November, 2017 Course Fee :Tk. 8,500/- Per person</p>	<p>Introduction to motor control, history of motor control, Electrical tools & instruments, Electrical symbols and electrical diagrams, Logic and sequence diagrams, Magnetism and magnetic solenoids, AC/DC magnetic contactors and motor starters, Timer, time delay and logic, Electrical hazard & safety. Selection of motor control devices, Direct on line (DOL) motor circuits, Reversing motor circuits, Star-delta motor circuit, Reversing star-delta motor circuit, two speed motor circuit, Power distribution for motor control, fuse, breaker and relays for motor control, practice on controls wiring, Preventive maintenance and troubleshooting of motor control circuit..</p>
38	<p>Course Code : CI- U303</p> <p>Computer Networking & Maintenance</p> <p>Participants : Junior & Mid-level officers Duration : 18~23 Nov, 2017 Course Fee : Tk. 5,500/- Per person</p>	<p>Understanding of Network: Concept of Communication protocol and the TCP/IP, OSI reference model, Feature of the network topology, Types of Network, Network Components ; LAN cable manufacturing: Performance index of the UTP Cable, The difference between Baseband & Broadband, Kinds of UTP cable, Local Area Network (LAN) Cables for PC to PC, Local Area Network (LAN) Cables for PC to HUB, Local Area Network (LAN) Cables for HUB to HUB ; LAN Network installation & IP Configuration: Understanding of Bulletin board, mini-homepage, blogs, mini blogs, and virtual meeting space, Function of the switching hub and Network Router, installation of Local Area Network (LAN), configuration of IP addresses, test IP addresses & communication ; Network router installation & configuration: installation of Router, configuration of IP addresses, test signal, password & communication ; Wireless AP / LAN: How to firewall settings, How to Set Up Wireless LAN Card Mode, How to Set Up Access Point Mode, installation of WAP Configuration of IP addresses, test signal, password & communication; Network Troubleshooting: Diagnosing the connection status, Computer configuration problem ; Setting Internet start page: Entering the desired start page, Fixing the Start Page</p>
39	<p>Course Code : IC - U334</p> <p>Distributed Control System (DCS) in Industries</p> <p>Participants: Junior & Mid-level officers Duration : 26 Nov. ~ 07 December, 2017 Course Fee : Tk. 11000/- Per person</p>	<p>Industrial Computerized process control technology, Architecture and Application of DCS operation, difference between manual system and DCS system, Different programming, Demonstration of control loop operation, Start and shutdown procedure in DCS, Symbol and drawing Hardware configuration, Explanation of process unit , Data communication and control network, Interfacing Device, Programming of different control loop, Configuration of stardom, Recourse configuration, component of control application, Logic designer engineering procedure , I/O Processing and Authorization, Alarming, History and Reporting , Maintenance and trouble - shooting of DCS</p>
40	<p>Course Code : CE-U346</p>	<p>Introduction to instrumental analysis, Principles and instrumentation of Spectrophotometric analysis: UV-Vis spectrophotometer, FTIR, AAS, ICP-OES, ED-XRF.</p>

	<p>Instrumental Methods of Chemical Analysis Participants : Junior & Mid-level officers Duration : 26 Nov. ~ 07 Dec., 2017 Course Fee :Tk. 8,500/- Per person</p>	<p>Industrial applications and analysis by UV-Vis spectrophotometer, FTIR, AAS, ICP-OES and ED-XRF. Operational maintenance and safety of those instrument, Industrial application of classical analysis</p>
41	<p>Course Code : PT- U336 Process Simulation Using Aspen Plus Software Participants:Junior & Mid-level Officers Duration : 09 ~ 14 December, 2017 Course Fe : Tk. 5,500/- Per person</p>	<p>Introduction to Aspen plus, Aspen Plus start-up, Built-in function, Physical property estimation, Various flash calculations, Heat exchanger simulation, Basic distillation, Reactor modeling, Converting a process from steady-state to dynamic simulation (<i>Theory included in practice session</i>).</p>
42	<p>Course Code : ME - U346 Basic Mechanical Design by AutoCAD 2D & 3D Participants:Junior & Mid-level Officers Duration : 09 ~ 14 December, 2017 Course Fe : Tk. 5,500/- Per person</p>	<p>Basic knowledge on Computer, Installation of AutoCAD software, Creating Workspace & Interface for 2D & 3D Drawing, Drawing techniques using coordinate entry method, Sketch Basic Elements for 2D drawings, Editing the 2D drawings, Input Character & Dimensioning of the drawings, Setting Layers & Organizing the drawings with layers, 2D Drawing Examples & tutorials for Mechanical Components, Sketch Basic Solid Bodies (3D), Editing the Solids (3D), 3D Drawing Examples with tutorials of Mechanical 3D Modeling, Prepare drawing necessary information for plotting, Printing out Drawing both 2D & 3D drawings.</p>
43	<p>Course Code : IS-U122 Safe Handling of Chemicals in Laboratories & Other Establishment Participants: Operator/Technicians Duration : 09 ~ 14 December, 2017 Course Fee :Tk. 5500/- Per person</p>	<p>Introduction to industrial safety and safety rules, Identification of hazardous chemicals, Chemical hazards, Chemical fire involving water reactive chemicals, Safe Handling of industrial chemicals, Storage of chemicals with special focus on reactive chemicals, Safe disposal of chemicals, Fire and Explosion hazard and its prevention, Material Safety Data Sheet (MSDS), Exhaust and Ventilation system, Personal Protective Equipment, Pressurized Vessels: Hazard and Handling, Demonstration on personal protective equipment and fire extinction, Practice on Chemical incompatibility test, Practice on Different safety equipment</p>