TATA STEEL

Digi e-Shala

Learn • Innovate • Perform

TATA

E-learning
Product Catalogue

Disclaimer :

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All measures have been taken to ensure accuracy of data contained in this publication.

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Introduction
Learn the E-way...

The Shavak Nanavati Technical Institute(earlier Jamshedpur Technical Instutute) set up in 1921 was the 'first institute' in our country which provided technical training when it was unknown to the country. The 98-year-old institute has a legacy of training thousands of employees of Tata Steel and providing steel technologists not only to the company but also to many leading enterprises of the country. Over the years the Institute has changed and evolved to keep pace with the latest training scenario in the country. It offers a spectrum of employment-oriented and industry-focused training to not only its own employees but caters to its external stakeholders as well. Recently many e-learning courses has been added to the list and the wide scope of the training modules covers all branches from Mechanical, Electrical to Computer

Technical Curriculum

The module has a premium content creation by our 'subject matter experts'(SMEs). These courses act as a top-up to the skill levels of the students along with the academic curriculum being imparted in the institutes. The topics cover the crux of the syllabus for major three streams of Engineering/Diploma i.e. Mechanical, Electrical and Metallurgy. It also contains placement FAQs, Circuit Diagrams and graphs for better understanding and clarity on the topics.

Course Duration:
50 hrs

Validity
6 months

E-learning suite for Corporate Managers

The e-learning suite for Corporate Managers is a package for the academia through a digital learning initiative. Gearing up for higher growth and global expansion, it is imperative that candidates are adept and develop their skillset on an ongoing basis.

Course Duration:
200 hrs

Validity
12 months

Industry 4.0

Industry 4.0 refers to a new phase in the Industrial Revolution that focuses on interconnectivity, automation, machine learning, and real-time data. Industry 4.0, also sometimes referred to as IoT or smart manufacturing, marries physical production and operations with smart digital technology, machine learning, and big data to create a more holistic and better connected ecosystem for companies that focus on manufacturing and supply chain management. While every company and organization operating today is different, they all face a common challenge—the need for connectivity and access to real-time insights across processes, partners, products, and people. That's where Industry 4.0 comes into play.

Course Duration:
6 hrs

Validity
3 months

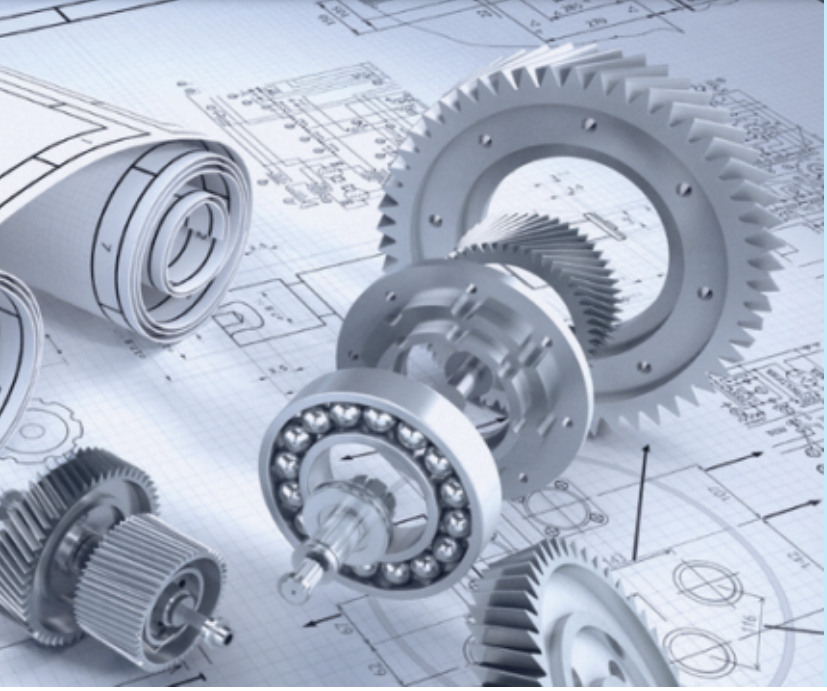
Total Quality Management (TQM)

Total Quality Management(TQM) is the way of managing organization to achieve excellence. TQM is a management philosophy embracing all activities through which the needs and expectations of the customer, and the objectives of the organisation are satisfied in the most efficient and cost effective manner by maximising the potential of all employees in a continuous drive for improvement.

Thus it is a way of organising and involving every department, activity and people at all level. It also ensures that management adopts a strategic overview of the quality and focusses on prevention rather than inspection. Therefore the module gives an overview of TQM, and focusses upon topics of Total Production Maintenance, Small Group Activity, QC tools & other techniques, Daily Management and 5S and Visual Workplace management.

Course Duration:
4 hrs

Validity
3 months



Industry oriented E-learning

The e-learning module on industry oriented practices is basically made to bridge the gap between the academic curriculum and the industry requirements. This e-learning basically deals with the practical concepts of different technical processes that take place in an industry. A visual format of Industrial concepts gives a clearer understanding on various industrial practices.

Bearing

Mechanical

Bearings have played a pivotal role in the nascent Industrial Revolution, allowing the new industrial machinery to operate efficiently. The term "bearing" is derived from the verb "to bear" being a machine element that allows one part to bear (i.e., to support) another. The simplest bearings are bearing surfaces, cut or formed into a part, with varying degrees of control over the form, size, roughness and location of the surface. Thus the module focuses on how Bearings play a major role in the proper functioning of heavy machinery.

Course Duration:
3 hrs

Validity
2 months

Advanced Lubrication

Mechanical

The module on Advanced Lubrication will provide the vital information regarding proper usage of lubricants in industrial machinery. Adequate lubrication allows smooth, continuous operation of machine elements, reduces the rate of wear, and prevents excessive stresses or seizures at bearings. When lubrication breaks down, components can rub destructively against each other, causing heat, local welding, destructive damage and failure.

Lubricants can be solids (such as Molybdenum disulphide solid/liquid dispersions (such as grease), liquids (such as oil or water), liquid-liquid dispersions[citation needed] or gases.

Course Duration:
4 hrs

Validity
2 months

Gear & Gear Systems

Mechanical

The module on Gear & Gear systems defines the importance of Gear systems in heavy mechanical machineries and also gives an insight on how power is transmitted through the gear system. Gears are toothed members which transmit power / motion between two shafts by meshing without any slip. Hence, gear drives are also called positive drives. In any pair of gears, the smaller one is called pinion and the larger one is called gear immaterial of which is driving the other.

When pinion is the driver, it results in step down drive in which the output speed decreases and the torque increases. On the other hand, when the gear is the driver, it results in step up drive in which the output speed increases and the torque decreases.

Course Duration: **1 hr**

Validity **2 months**

Measuring Instruments

Mechanical

A measuring instrument is a device for measuring a physical quantity. In the physical sciences, quality assurance, and engineering, measurement is the activity of obtaining and comparing physical quantities of real-world objects and events. Established standard objects and events are used as units, and the process of measurement gives a number relating the item under study and the referenced unit of measurement. Measuring instruments, and formal test methods which define the instrument's use, are the means by which these relations of numbers are obtained. All measuring instruments are subject to varying degrees of instrument error and measurement uncertainty. Hence this module gives us details of all the measuring instruments that are used in the industry for accurate and precise measurements.

Course Duration: **1 hr**

Validity **2 months**

Power Transmission

Mechanical

Power Transmission being the most important aspect for proper functioning of any industry, and thus the module explains the basics of power generation & transmission. Power transmission is the movement of energy from its place of generation to a location where it is applied to perform useful work. Mechanical power may be transmitted directly using a solid structure such as a driveshaft; transmission gears can adjust the amount of torque or force vs. speed in much the same way an electrical transformer adjusts voltage vs current.

Course Duration: **4 hrs**

Validity **2 months**

Bulk Material Handling

Mechanical

Bulk material handling is an engineering field that is centered on the design of equipment used for the handling of dry materials. Bulk materials are those dry materials which are powdery, granular or lumpy in nature, and are stored in heaps[1]. Examples of bulk materials are minerals, ores, coal, cereals, woodchips, sand, gravel, clay, cement, ash, salt, chemicals, grain, sugar, flour and stone in loose bulk form. It can also relate to the handling of mixed wastes. Bulk material handling is an essential part of all industries that process bulk ingredients, including: food, beverage, confectionery, pet food, animal feed, tobacco, chemical, agricultural, polymer, plastic, rubber, ceramic, electronics, metals, minerals, paint, paper, textiles and more.

The purpose of a bulk material handling facility may be to transport material from one of several locations (i.e. a source) to an ultimate destination or to process material such as ore in concentrating and smelting or handling materials for manufacturing such as logs, wood chips and sawdust at sawmills and paper mills. Other industries using bulk materials handling include flour mills and coal-fired utility boilers.

Providing storage and inventory control and possibly material blending is usually part of a bulk material handling system.

In ports handling large quantities of bulk materials continuous ship unloaders are replacing gantry cranes. The module provides entire concept of material handling in big industry.

Course Duration:
3 hrs

Validity
2 months

Industrial Water System

Mechanical

Water treatment is used to optimize most water-based industrial processes, such as heating, cooling, processing, cleaning, and rinsing so that operating costs and risks are reduced. Poor water treatment lets water interact with the surfaces of pipes and vessels which contain it. Steam boilers can scale up or corrode, and these deposits will mean more fuel is needed to heat the same amount of water. Cooling towers can also scale up and corrode, but left untreated, the warm, dirty water they can contain will encourage bacteria to grow, and Legionnaires' disease can be the fatal consequence. Water treatment is also used to improve the quality of water contacting the manufactured product e.g. semiconductors, and/or can be part of the product e.g. beverages, pharmaceuticals, etc. In these instances, poor water treatment can cause defective products.

This module on Industrial water treatment encompasses all these aspects which include industrial wastewater treatment, boiler water treatment and cooling water treatment.

Course Duration:
2 hrs

Validity
2 months

Hydraulics & Pneumatics

Mechanical

Nearly all industrial processes require objects to be moved, manipulated or subjected to some sort of force. Such movements and manipulations are frequently accomplished by means of devices driven by liquids (hydraulics) or air (pneumatics). Therefore the module touches upon those devices and their usages in industrial processes.

Course Duration: 9 hrs

Validity 2 months

Lifting Tools & Tackles

Mechanical / Electrical / Instrumentation

After going through this e-learning module participants will be able to:

- Identify rigging equipment
- Specify rigging tools
- Know about limitation and application of rigging tools
- Know rejection criteria and testing of rigging devices

Course Duration: 1 hr

Validity 2 months

Compressor

Mechanical

Compressor is one of the lifelines of any industry. Many industrial systems depend on compressed air to perform its basic function. The basic objective of this e -learning module on 'compressor' is to enhance knowledge on working principle of various type of air compressor like screw compressor, centrifugal compressor etc., function and application as well as its classification. In this e- learning module, participant will also learn how to shoot the trouble in a compressor.

Course Duration: 2 hr

Validity 2 months

Mechanics of Solids

Technical Curriculum
Mechanical

Mechanics of solids or Solid mechanics, is study of the behaviour of solid materials, like their deformation and motion under the action of temperature change, force applied, phase changes, and other external or internal agents.

Study of Solid mechanics is fundamental for mechanical, nuclear, aerospace, biomedical and civil engineering students.

The objective of the course is to make understanding about the anatomy of solids, and how Solid mechanics extensively uses tensors to describe stresses, strains, and the relationship among them. This course also create better understanding about Center of gravity, Moment of inertial and its various applications.

Course Duration: **7.5 hrs**

Validity **2 months**

Manufacturing Techology

Technical Curriculum
Mechanical

To turn raw materials into the affordable, quality goods essential to today's society, we need Manufacturing technology. It provides us the productive tools which facilitates production of all manufactured goods essential to us. In short, we make modern life possible by the help of Manufacturing technology.

By the help of this course you will learn about the various tools such as Lathe machine, drilling machine, milling machine, etc. and its usage

You will also learn about the various processes like Mattel Forming, Mattel Joining, casting process and casting defects etc.

These machine tools and processes make possible modern communications, affordable agricultural products, efficient transportation, innovative medical procedures, space exploration and the everyday conveniences.

Course Duration: **11 hrs**

Validity **2 months**

Industrial Engineering

Technical Curriculum
Mechanical

The optimization of complex systems and processes by developing, improving and implementing integrated systems of people, money, knowledge, information, equipment, energy and materials is Industrial engineering.

This domain needs specialized skills and knowledge in the physical, mathematical & social sciences, in sync with the principles and various methods of engineering analysis & design, to specify and evaluate the outcomes obtained from systems & process in order to create new systems, processes or situations for the useful coordination of labour, materials and machines.

By the end of this course you will learn about the Organisational Structure, Plant Layout, the starategies and importance of Production, planning and controling. Various network techniques and its relevance.

The objectives of the industrial engineering program is to produce experts who devote to the success of companies through effective problem solving skills. This course wll help students to learn all such skills.

Course Duration: **4.5 hrs**

Validity **2 months**

Material Science

Technical Curriculum
Mechanical

Materials Science is related to the design and discovery of new materials, specifically solids. The origins of materials science derive from the Enlightenment, when researchers started to use analytical thinking from chemistry, physics, and engineering to understand ancient, phenomenological observations in metallurgy and mineralogy.

By the end of the course you will be able to:

- Understand the design, selection and processing of materials for a wide range of applications in Industries and elsewhere.
- Understand how and why the properties of materials are controlled by structure and bonding at the atomic-scale, and by features at the microstructural and macroscopic levels.
- Understand the composition of a material may be controlled by processing.

Course Duration: **5 hrs**

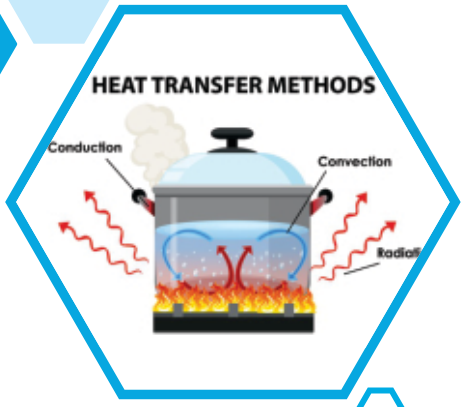
Validity **2 months**

Heat Transfer

Technical Curriculum
Mechanical

Heat transfer is a part of thermal engineering which deals with the exchange, conversion, use, and generation of thermal energy (heat) between physical systems. It is classified into various mechanisms, such as thermal convection, thermal conduction, thermal radiation, and transfer of energy during phase changes.

By the end of this course, Students will learn about the Conduction of Heat in steady and unsteady Conditions, importance of convection of Heat, Rdiation of Heat and Exchanger of heat.



Course Duration: **3.5 hrs**

Validity **2 months**

Power Plant Engineering

Technical Curriculum
Mechanical

Power plant engineering is a part of power engineering which is defined as the engineering and technology essential for the production of central station electric power. This field focuses on the generation of power for industries and communities. The engineering aspect of power plant management has evolved with technology and has become progressively more complicated.

By the end of this course students will learn:

- To design the Layouts of Power Plant and its Working.
- What is Generators & Steam Boilers and their Functionalities.
- Combustion Systems, Working of Turbines

Course Duration: **5.5 hrs**

Validity **2 months**

Coupling

Mechanical

A shaft coupling is a mechanical component that connects the drive shaft and driven shaft of a motor, pump etc., to transmit power. Shaft couplings introduce mechanical flexibility, providing tolerance for shaft misalignment. As a result, this coupling flexibility can reduce uneven wear on the bearing, equipment vibration, and other mechanical troubles due to misalignment. Shaft couplings serve as an important link to minimize impact and vibration, allowing smooth rotation to be transmitted.

This module covers the concept of coupling, its usages and introduction to various rigid and flexible couplings used in industries.

Course Duration: 1.5 hrs

Validity 2 months

Industrial Valves

Mechanical

A valve is a device or natural object that regulates, directs or controls the flow of a fluid (gases, liquids, fluidized solids, or slurries) by opening, closing, or partially obstructing various passageways. Valves are technically fittings, but are usually discussed as a separate category. Valves have various usages, including controlling water for irrigation, industrial uses for controlling processes, residential uses such as on/off and pressure control to dish and clothes washers and taps in the home.

In this module one can learn about the types of valves, functions, parts, advantages & disadvantages of different valves, selection of valves, specification, suitability of valve, operation and maintenance.

Course Duration: 1.5 hrs

Validity 2 months

Centrifugal Pumps

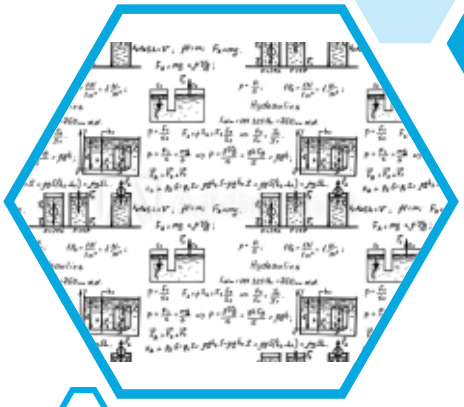
Mechanical

Centrifugal Pumps are the most popular and commonly used pump for the transfer of fluids. In simple words, it is a pump that uses a rotating impeller to move water or other fluids by using centrifugal force. These are the undisputed pump choice especially for delivering liquid from one location to another in numerous industries including agriculture, municipal (water and wastewater plants), industrial, power generation plants, petroleum, mining, chemical, pharmaceutical, and many others.

This module helps learn various types of centrifugal pump, its working mechanism, function of its various components, classification of centrifugal pump, advantages & disadvantages of etc.

Course Duration: 1.5 hrs

Validity 2 months



Fluid Mechanics

Technical Curriculum
Mechanical

Fluid mechanics concerned with the mechanics of fluids like liquids, gases, and plasmas and the forces on applied on them. It can be divided into fluid statics (the study of fluids at rest), and fluid dynamics (the study of the effect of forces on fluid motion). It is a branch of continuum mechanics. Fluid mechanics, especially fluid dynamics, is an active field of research, typically mathematically complex.

The objective of this Course is:-

- To provide the fundamental knowledge of fluid, its various properties and behavior under different conditions of internal and external flows.
- Students will develop the understanding about hydrostatic law, principle of buoyancy and stability of a floating body and
- application of mass, momentum and energy equation in fluid flow.
- Students will develop the understanding about the basic laws and equations used for analysis of static and dynamic fluids.
- Students will develop the understanding about the importance of fluid flow measurement and its applications in Industries.
- Students will develop the understanding about the fundamentals of Fluid Mechanics, which is used in the applications of Aerodynamics, Hydraulics, Marine Engineering, Gas dynamics etc.

Course Duration:
9.5 hrs

Validity
2 months

Thermodynamics

Technical Curriculum
Mechanical

Thermodynamics is a branch of physics that deals with heat and temperature, and their relation to energy, work, radiation, and properties of matter. The behaviour of these quantities is governed by the four laws of thermodynamics. It applies to a wide range of fields in engineering, especially chemical engineering and mechanical engineering, and also in fields as complex as meteorology. Thermo-dynamics is the subject of the relation of heat to forces acting between contiguous parts of bodies, and the relation of heat to electrical agency.

By the end of this Course students will learn about:-

- The Importance and working principle of Thermodynamics and Heat Transfer.
- Different laws of Thermodynamics and its applications.
- Identification and description about the energy exchange processes.
- Entropy with its various applications and usage.
- Different Power Cycles like Vapour, Gas, etc;
- How to apply ideal cycle analysis to simple heat engine cycles to estimate thermal efficiency and work as a function of pressures and temperatures at various points in the cycle.

Course Duration:
12.5 hrs

Validity
2 months

Machine Design

Machine Design is the essential part of Engineering-Science, to deal with the study of relative motion between the numerous parts of a machine, and forces applied on them. i.e. Theory of Machines and Machine Design basically study the dynamics of the machine components. The familiarity of this subject is very vital for an engineer to design the different segment of a machine. Theory of Machines can be mainly classified in 4 sub-branches: Kinematics, Dynamics, Kinetics, Statics.

By the end of this Course students will learn:-

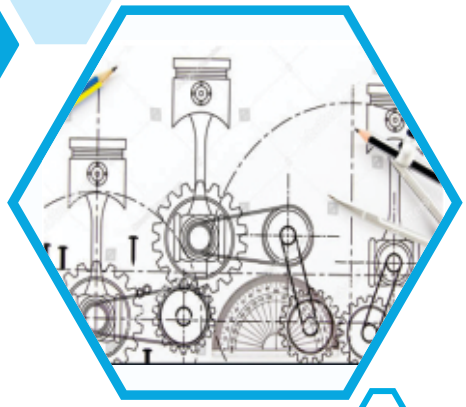
- How to apply the various concepts of stress analysis, theories of
- failure and material science to analyze, design or select commonly used machine components.
- How to apply mechanical engineering modal concept to identify and quantify machine elements in the design of commonly used mechanical systems.
- How to apply computer based techniques in the analysis, design and/or selection of machine components.
- About the Design against Static Load and Fluctuating Load, Power Screws, Various Joints, Shafts, Keys, Gears etc;

Course Duration: 20 hrs

Validity 2 months

Engineering Drawing

Mechanical



Technical drawing is the language of engineering. Engineering graphics is the method for documenting a design. A drawing is the scientific representation of an object, and according to certain national and international standards of practice it can be understood by all, with the knowledge of basic principles of drawing. Machine drawing is the indispensable communicating medium employed in industries, to furnish all the information required for the manufacture and assembly of the components of a machine. People associated with engineering must be familiar with standards of engineering graphics as it is expected in industry. 'CAD packages' make formal drawing easy. The module here explains the concept of Engineering drawing, and its various usages in an industry.

By the end of this course, you will be able to:

- Comprehend how industry communicates technical information.
- Visualize the design and drawing of various concepts.
- Decipher various conventions, standards, practices and methods used for technical drawings.
- Apply graphics theory and use tolls to create technical drawings and models.

Course Duration: 1.5 hrs

Validity 2 months

Gas Cutting

Mechanical

Oxy-fuel Cutting is indispensable in any industry today, it is one of the most widely used cutting processes due to low cost equipment, portability, suitable for site work and many more advantages. In this module, different aspect of gas cutting has been discussed including apparatus, regulators, hose, Cutting torch, fuels, types of flame, safety during gas cutting and gas Cutting Applications.

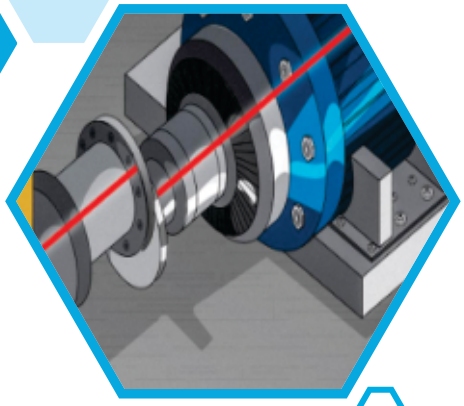
Oxy-fuel cutting works best on metals that oxidise readily but do not have high thermal conductivity. Metals whose oxidisation temperature is below their melting point can be cut by Oxy-fuel cutting Oxy-fuel cutting is also used for preparation of edges for welding Oxy-fuel cutting is used for cutting low carbon and low alloy steels only Cast iron and stainless steel cannot be cut by Oxy-fuel cutting.

Course Duration: **1.5 hrs**

Validity **2 months**

Levelling & Alignment

Mechanical

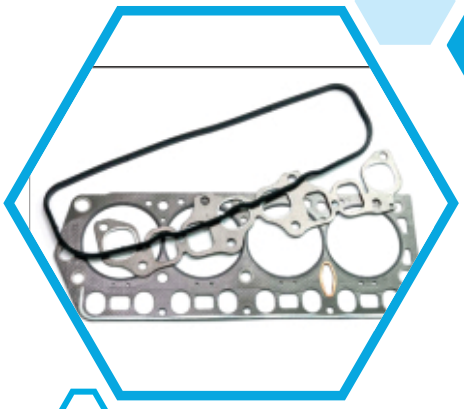


Performance of any moving machines largely depend on accuracy of installation and erection. Levelling and alignment are the basic maintenance practices carried out during the commissioning of any machineries which ensures the reliability. With this e-learning module the audience will enhance their knowledge on levelling and alignment.

In this module one can learn the basic concept of leveling, various methods of levelling, critical check points and standards required to be maintained during the levelling. Similarly, in Alignment, the concept behind various types of misalignment, measurement of misalignment values, corrective methods and pre-alignment checks as well as the critical check points and their adjustment have been well explained in the module. The module also covers the latest alignment technique, Laser technique.

Course Duration: **1.5 hrs**

Validity **2 months**



CDT & Inspection

Mechanical

This e- learning module aims to address the current trend of inspection based on sense organs as well as the latest gadgets. In this module, participants can acquire knowledge on how to inspect the various mechanical condition of the machineries during running and shutdown condition.

The following topics are included under this module:

- Inspection of gear boxes
- Inspection of seal and packings
- Inspection of lubrication system
- Inspection of locking and fastening devices
- Inspection of compressors and related accessories
- Inspection of Bearings
- Inspection of flange joints and gaskets
- Inspection of pump stuffing box and gland packing.

Course Duration: **6 hrs**

Validity **2 months**

Fundamentals of Metallurgy

Metallurgy refers to the science and technology of metals that is, the way in which science is applied to the production of metals, and the engineering of metal components used in products for both consumers and manufacturers. It is the study of physical and chemical behavior of metallic elements, their inter-metallic compounds, and their mixtures, which are called alloys.

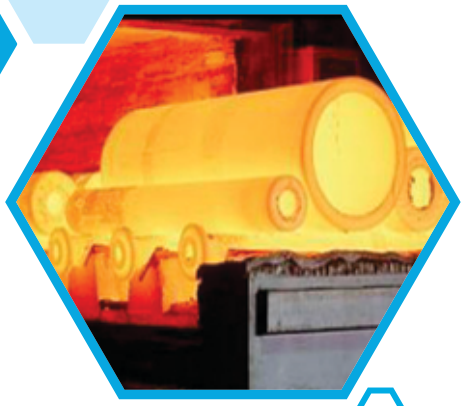
By the end of this Course Students will learn about the Various Properties of Materials and Metals. The two broad catagories of metalls i.e; chemical metallurgy and physical metallurgy, reduction and oxidation of metals and the chemical performance of metals.

Course Duration: 4.5 hrs

Validity 2 months

Heat Treatment

Mechanical / Metallurgy



Heat Treatment is the heating and cooling of metals to change their physical and mechanical properties without letting it change its shape. Heat treatment could be said to be a method for strengthening materials but could also be used to alter some mechanical properties such as improving formability, machining, etc. The module has different Heat Treatment process that are required to change the physical & chemical properties of metals.

Course Duration: 1 hr

Validity 2 months

Desulphurization

Metallurgy

Desulphurization of hot metal is an important step in the steel production process. Sulphur in steel negatively influences both mechanical and corrosion properties of the steel and causes hot shortness. A major source of sulphur in the hot metal is from the coal used in the blast furnace. As the usage of lower grade coal is being more common, more sulphur is introduced into the hot metal. Thus, there is an increasing need for efficient Desulphurization of hot metal. Thus the module explains the importance of Desulphurization in achieving the best quality of steel.

Course Duration: 1 hr

Validity 2 months

Basic Metallurgy

Metallurgy

Metallurgy is the science that explores why metals behave the way they do. It explains the properties, behaviour and internal structure of metals. Metallurgy also describes the treatments and processes that allow us to tailor a metal's properties to a specific application. As a materials engineer study of basic metallurgy will help you to develop, design and operate processes that transform raw materials into useful engineering products intended to improve the quality of our lives. The module therefore explains how to extract the metals for industrial practices.

Course Duration: 1 hrs

Validity 2 months

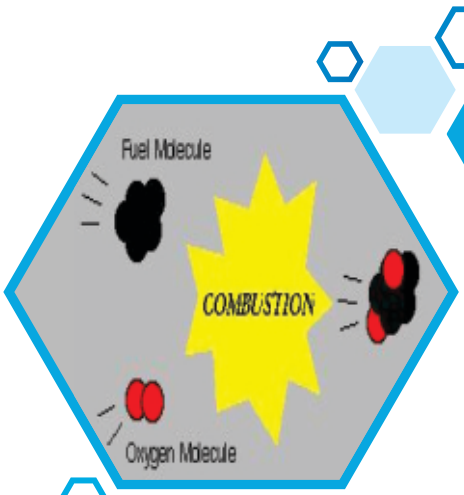
Primary Steel Making

Metallurgy

Steelmaking is the process for producing steel from iron ore and scrap. In steelmaking, impurities such as nitrogen, silicon, phosphorus, sulphur and excess carbon are removed from the sourced iron, and alloying elements such as manganese, nickel, chromium and vanadium are added to produce different grades of steel. Limiting dissolved gases such as nitrogen and oxygen, and entrained impurities (termed "inclusions") in the steel is also important to ensure the quality of the products cast from the liquid steel. The module takes us through the best steel making practices in an industry.

Course Duration: 1 hrs

Validity 2 months



Fuel & Combustion

Metallurgy

Combustion is the conversion of a substance called a fuel into chemical compounds known as products of combustion by combination with an oxidizer. Fuel is the back bone of any industry and the knowledge of the fuel properties helps in selecting the right fuel for the right purpose and efficient use of the fuel. The module explains the different types of fuels used in an industry and also explains the combination of those different fuels for combustion.

Course Duration: 9 hrs

Validity 2 months

Fuel Furnace & Refractory

Technical Curriculum
Metallurgy

Fuels, Furnaces and Refractories are the study of the sources and efficient use of energy available to modern industry. This Course introduces furnaces and refractories and explains the various design and operation aspects.

By the end of this Course Students will learn about :-

1. The thermodynamics, physics, chemistry, and kinetics of combustion of fuels.
2. The burner design.
3. The heat transfer and flow of gases through furnaces and flues.
4. Ways of controlling energy supply rates and temperatures.
5. The refractory materials, which are heat-resisting substances

Course Duration: 4.5 hrs

Validity 2 months

Iron Making

Technical Curriculum
Metallurgy

Iron ore as mined, is a combination of iron with oxygen and numerous of other unwanted substances, generally known as "gangue". The process to reduce iron ore to metallic iron is known as Iron Making. This process is carried out in a blast furnace, using coke as both a fuel and reducing agent.

By the end of this Course Students will learn about :-

- Raw materials involve in the process of Iron Making.
- History and some important facts of Iron Ore.
- Operations of Blast Furnace and its significance.
- Slag Formation process and facts in detail.
- Alternate process or routes of Iron making.

Course Duration: 7.5 hrs

Validity 2 months

Powder Metallurgy

Technical Curriculum
Metallurgy

Powder metallurgy is a concept which covers a wide range of possibilities in which materials or components can be made from metal powders. It is also used to design unique materials which is impossible to get from melting or forming in other ways. Powder metallurgy processes can avoid, or reduce, the dependency to use metal removal processes, thereby drastically reducing yield losses in manufacture and often resulting in lower costs.

Learning objectives of this course is:

- To understand the concept behind the Powder metallurgy and its need.
- Advantages, Applications, Limitations and scope of PM
- Basic methods and designing considerations in PM

Course Duration: 2 hrs

Validity 2 months

Thermodynamics

Technical Curriculum
Metallurgy

Thermodynamics is a branch of physics that deals with heat and temperature, and their relation to energy, work, radiation, and properties of matter. The behaviour of these quantities is governed by the four laws of thermodynamics. It applies to a wide range of fields in engineering, especially chemical engineering and mechanical engineering, and also in fields as complex as meteorology. Thermo-dynamics is the subject of the relation of heat to forces acting between contiguous parts of bodies, and the relation of heat to electrical agency

By the end of this Course students will learn about:-

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- Different laws of Thermodynamics and its applications.
- Identification and description about the energy exchange processes.
- Entropy with its various applications and usage.
- Different Power Cycles like Vapour, Gas, etc;
- How to apply ideal cycle analysis to simple heat engine cycles to estimate thermal efficiency and work as a function of pressures and temperatures at various points in the cycle.

Course Duration:
3.5 hrs

Validity
2 months

Steel Making

Technical Curriculum
Metallurgy

Steelmaking is the technics of generating steel from iron ore. In steelmaking process all impurities like silicon, nitrogen, sulphur, phosphorus and excess carbon (most important impurity) are removed from the sourced iron, and alloying elements such as nickel, chromium, manganese, vanadium and carbon are added to produce different types of steel. Limiting dissolved gases such as oxygen and nitrogen and entrained impurities in the steel is very necessary to ensure the quality of the steel cast from the liquid steel.

By the end of this Course Students will learn about :-

- Modern steelmaking Process and steps ivolved in it.
- Primary & Secondary steelmaking Process
- Continuous casting & Finishing operations and their defects.
- BOF and Desulphurization process and its importance during steelmaking.

Course Duration:
5.5 hrs

Validity
2 months

Physical Metallurgy

Technical Curriculum
Metallurgy

Physical metallurgy is basically the fundamentals and applications of the theory of phase transformations in metal and alloys. It deals mainly with mechanical and magnetic/electric/thermal properties of metals – treated by the discipline of solid state physics.

Learning objectives of this course is:

To develop understanding of and familiarization with the basic principles of Physical Metallurgy like heat treatments, phase transformations, phase diagrams, precipitation hardening and aging etc.

Course Duration: **1 hrs**

Validity **2 months**

Material Testing

Technical Curriculum
Metallurgy

Materials testing is a method which is used to define both the mechanical and physical properties of raw materials and components. It is use to examine almost everything example steel, ceramics or composite materials, etc. Materials testing can be divided into five categories: mechanical testing; testing for thermal properties; testing for electrical properties; testing for resistance to corrosion, radiation, and biological deterioration; and non-destructive testing.

Learning objectives of this course is:

- Students will get aware with the various material testing technology and its necessity.
- Get aware with different types of Material testing like Mechanical test, Physical tests, Chemical tests, and Structural tests.

Course Duration: **4 hrs**

Validity **2 months**

Mechanical Metallurgy

Technical Curriculum
Metallurgy

Mechanical metallurgy is basically the knowledge, which deals with different behaviour and response of metals based on applied forces. It primarily deals with the response of metal to forces or loads, these forces may arise from the use of the metals as a member or part in a structure or machine. So it is necessary to know about limiting values which can be withstood without failure.

By the end of this Course students will learn:-

- To classify the forming process & effects of temperature, Theory of strain and stress and their effects on metall.
- Different types of behaviour of metals and mechanism of Deformation etc.
- Students will get aware with the concepts of Rolling, Forging, Extrusion, Wire drawing and sheet metal froming etc.

Course Duration: **5 hrs**

Validity **2 months**

Extractive Metallurgy (nonferrous)

The Study of process and methods of extraction of valuable metals from their natural mineral deposits and refining the extracted raw metals into a purer form are known as Extractive metallurgy. It is a branch of metallurgical engineering. It covers all aspects of the verity of ore, washing, concentration, separation, chemical processes and extraction of pure metal and their alloying to suit various applications, for direct use as a end product.

Learning objectives of this course is:

- Knowledge of numerous techniques, process and operations used during metal extraction and refining.
- Knowledge of Extraction of metals from oxide ores, sulphide ores, and halides as well extraction of precious metals (Gold & Silver).
- To be able to select the correct process routes, reactors and be able to optimize and control them.

Course Duration: 6 hrs

Validity 2 months

Secondary Steel Making

Metallurgy

Steel Making can be divided into three parts. Primary Steel Making, Secondary Steel making and Casting. Secondary Steel making Process is the process where final refining and finishing treatment is done after primary steelmaking to achieve required quality of Steel. With increase of stringent quality requirement of steel, the role of secondary steel making in steel making is getting more important. Keeping in view of the increasing importance of Secondary Steel making in Steel making process, the E-Learning module in Secondary Steel making has been made which help in learning following things:- The definition and importance of Secondary Steel making Process flow of different secondary steel making route Basic principle applied in Secondary Steel making process Detail description, working principle and operation of different Secondary Steel making Process This module is suitable for the people who are working in steel plant and its supply chain, wants to work in steel plants and its supply chain or wants to understand the process of Steel Plant.

By the end of the module, you will be able to:

- Expalin the importanse of secoundry steel making
- Brief on the concept of On LIne Purging
- Describe the reactions take place in Landle Furnace.
- Explain the RH process

Course Duration: 1 hrs

Validity 2 months

Refractories and Heating

Metallurgy

Refractory is the backbone of Steel Industry. In depth understanding of 'Refractory application and maintenance' will enable us to manage operational excellence as per current industrial requirements. The E-learning course on "Refractories and heating" will help acquire knowledge in the following areas. Basics of refractory material Types of refractory Monolithic application Properties and testing of refractories. Application of refractory in steel industry. This module is equally useful for people working in Steel Industry & students of Ceramic & Metallurgical discipline.

- Define refractory and explain its use.
- Classify refractory.
- Understand the properties of refractory.
- Explain the selection criteria of refractory.
- Understand the application areas of refractory.
- Describe the testing of Refractory.

Course Duration: 1 hrs

Validity 2 months

Indian Electricity Rules

Electrical

The e-learning course module on Indian Electricity(IE) rules is divided into four parts. By the end of this course the participant will be able to enhance their knowledge in these following areas: Understand the genesis and relevance of IE Rules Basic terms related to IE rules and safety regulations Know about general conditions relating to supply and use of electricity List of safety provisions for electrical installations and apparatus of voltage not exceeding 650 volts Learn Safety requirements for overhead lines, underground cables and generating stations

By the end of this session, you will be able to:

- Understand the basic definitions and general safety requirements.
- List the general conditions related to supply and use of energy.
- Describe the testing, operation, and maintenance of electric supply lines and apparatus
- List the safety requirements for overhead lines, underground cables and generating stations

Course Duration: 1.5 hrs

Validity 2 months

Going digital is no longer an option it is the default.

- N Chandrasekaran

Induction Motors

(Electrical / Electronics)

The module focusses on the basic concept of Induction Motors. An **induction motor** is the most modest electrical machine from constructional point of view. Induction motor is basically referred as the horse power of the industry. Induction machines are by far the most common type of motor used in industrial, commercial or residential settings because it has:

- Simple and rugged construction
- Low cost and minimum maintenance
- High dependability and sufficiently high proficiency
- Needs no additional starting motor and necessity not be synchronized

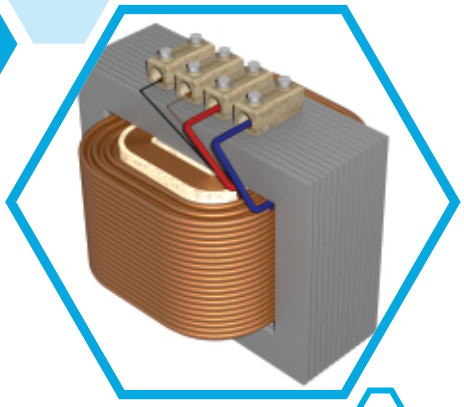
Course Duration: 3 hrs

Validity 2 months

Transformers

(Electrical / Electronics)

Transformers are electrical devices consisting of two or more coils of wire used to transfer electrical energy by means of a changing magnetic field. The transformer does this by linking together two or more electrical circuits using a common oscillating magnetic circuit which is produced by the transformer itself. A transformer operates on the principals of "electromagnetic induction", in the form of Mutual Induction. Therefore the focus of the module is on Transformers and its industrial usages.



Course Duration: 2 hrs

Validity 2 months

PLC Basics

Electronics / Instrumentation / Telecommunication / Electrical

PLC being the backbone of all big industry today, the module thus focusses on industrial use of PLC. A programmable logic controller (PLC) or programmable controller is an industrial digital computer which has been ruggedized and adapted for the control of manufacturing processes, such as assembly lines, or robotic devices, or any activity that requires high reliability control and ease of programming and process fault diagnosis. The main difference from most other computing devices is that PLCs are intended-for and therefore tolerant-of more severe conditions (such as dust, moisture, heat, cold), while offering extensive input/output (I/O) to connect the PLC to sensors and actuators.

Course Duration: 2 hrs

Validity 2 months

Process Instrumentation

Electronics / Instrumentation / Telecommunication / Electrical

Instrumentation is the science of automated measurement and control. Applications of this science abound in modern research, industry and everyday living. From automobile engine control systems to home thermostats to aircraft autopilots to the manufacture of pharmaceutical drugs, automation is everywhere around us. This piece will focus on the fundamental principle of measurement terminology. The module covers the basics of Process Instrumentation and its various applications.

Course Duration: **2 hrs**

Validity **2 months**

Basic Electrical Engineering

Electrical

This e-learning module on "Basic Electrical Engineering" will help the participants know about conductor and insulators, resistance law, ohms law, series and parallel circuit, work power and energy, AC and DC circuit , magnetism & electromagnetism etc.

Course Duration: **4 hrs**

Validity **2 months**

Electrical Cables

Electrical

By the end of this module, the participants will be able to define an electrical power cable, explain its construction, describe the guidelines for cable laying and installation, describe the methods of cable laying and installation, explain the jointing of cables and list the design factors of a power cable. It will also enable them to explain stress control, identify the methods of stress control, describe the method of tracking, explain the method of weathering and define the process of cable maintenance.

Course Duration: **2 hrs**

Validity **2 months**

Fan and Blower

(Electrical / Mechanical)

In steel industry, the role of fan and blower is very important. These equipment plays vital role in conveying the dust, fluids etc. through pipes. Hence understanding the basic function, types, working principle as well as the operation and maintenance of the same becomes important. Through this e -learning module, participants will enhance their knowledge on construction and selection of fan and blower based on the types of fluid to be handled.

Course Duration: **2 hrs**

Validity **2 months**

Earthing & Shock

Electrical

The e-learning module on Earthing & Shock will help the participants define earthing system, describe the significance and purpose of earthing in power systems and define terminologies related to earthing. It will also enable them to identify what needs to be earthed and explain the specifications of earth continuity conductor. The course will further describe the different types of earthing, differentiate between the types of neutral earthing, describe the specifications for testing earthing resistance and describe the design and application considerations for earthing. The module also covers the Indian Standard Rules specified for earthing, the maintenance practices of earthing pits. It will also discuss briefly about the dimensions required for Deep bore earthing, describe the design of an HT Transmission line, the specifications for Tower earthing and about earthing of Lightning arrestors.

Course Duration: **2 hrs**

Validity **2 months**

Power System

Electrical

This module will provide a brief overview of Generation, Transmission and Distribution of power. By the end of this course, the participants will be able to define electrical power generation, illustrate how our home gets electric power, list various sources of energy for power plants, explain construction and working principle of Alternators and Generator Transformers in a power plant and compare various energy sources. The module will also discuss about the transmission line equipment and the various effects observed in Transmission line. It further discusses the electrical power distribution system, list types of distribution system and understand distribution Transformer.

Course Duration: **8 hrs**

Validity **2 months**

Fundamentals of Electrical Engineering

Technical Curriculum
Electrical

Fundamentals of Electrical Engineering deals with the study, design and application of equipment, devices and systems which use electricity, electronics, and electromagnetism. Electrical Engineering concentrates on representation, manipulation, transmission, and reception of information by electrical means. Electrical engineers work in a very wide range of industries and the skills required are likewise variable. These range from circuit theory to the management skills of a project manager.

The objective of the course is to describe:-

- What information is, how engineers quantify information, and how electrical signals represent information.
- Basic Concept of Electrical Engineering
- Various types of Circuits, Capacitor and Storage Batteries etc;

Course Duration: 8 hrs

Validity 2 months

Electrical Power Generation

Technical Curriculum
Electrical

Electrical Power Generation is the process of generation of electric power from primary sources of energy. Electricity is usually generated at a power plant by electromechanical generators, which is driven by heat engines fuelled by combustion or nuclear fission, but also by other means such as the kinetic energy of flowing water and wind.

The objective of the course is to describe:-

- Concepts and methods of Electrical Power Generation.
- About Power Stations (Thermal, Nuclear, Hydro, Diesel) with various applications and importance.
- About Production of Electrical Power and Economics of Power Generation
- Environmental concerns during Electrical Power Generation.

Course Duration: 6.5 hrs

Validity 2 months

Transmission & Distribution of Electric Power

Technical Curriculum
Electrical

Transmission & distribution of electric power refers to the various mount of carrying electricity over poles and wires from generators to a home or a business. The difference between the Transmission & distribution is the voltage level at which electricity moves in each stage. Transmission and distribution are two separate stages or systems on the grid.

The objective of the course is to describe:-

- The usage of passive elements in various Power Transmission Systems.
- The factors affecting Insulators and also in Under Ground cables.
- The power system fundamentals to the design of a system that meet specific needs.
- Imporatnce of Voltage Transmission with all factors.

Course Duration: 5 hrs

Validity 2 months

Switchgear & Protection

Technical Curriculum
Electrical

Every electrical circuit along with high voltage electrical power system requires switching and protective devices. But in high voltage and extra high voltage system, such switching and protective scheme becomes difficult for high fault current interruption in safe and secure way. In addition to that from commercial scenario every electrical power system needs measuring, controlling and regulating arrangement, which is collectively known as switchgear & protection of power system.

The objective of the course is to describe:-

- Fundamental principle of Switchgear & Protection
- Various types of Circuit interrupting devices
- Protection concept of Alternator, Transformer, Motor, Busbar & Transmission line.
- Concept of Neutral Earthing and How to protect from Over voltage.

Course Duration: 6.5 hrs

Validity 2 months

D.C. Machines & Transformers

Technical Curriculum
Electrical

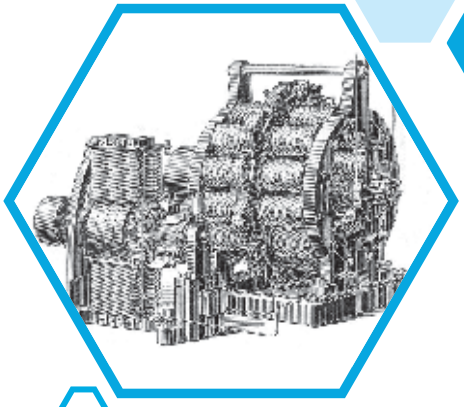
A DC machine is an electromechanical energy alteration device. The working principle of a DC machine is when electric current flows through a coil within a magnetic field, and then the magnetic force generates a torque which rotates the dc motor where as a transformer is an electrical equipment used to transfers electrical energy from one electrical circuit to another, or multiple circuits without changing the frequency. Transformers can also be used for isolation, where the voltage in equals the voltage out, with separate coils not electrically bonded to one another.

The objective of the course is to describe:-

- Functionality of DC Machines and DC Motors with their classification.
- Working of Single phase Transformer and Three phase Transformer with application and functionality.

Course Duration: 5 hrs

Validity 2 months



A C Machines

Technical Curriculum
Electrical

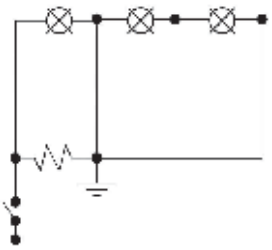
AC machines are motors use to convert mechanical energy to Alternating Current electricity, because power transferred into the field circuit is much less than power transferred into the armature circuit, AC Machine nearly always have the field winding on the rotor and the armature winding on the stator. The two major classes of ac machines are synchronous and induction machines.

The objective of the course is to build-

- Understanding about the term "ac circuit."
- Understanding about "how to analyze ac circuits" and basic construction and operation of an ac machine..
- Concept of Induction motor, Synchronous Motors, Special Machines, etc.

Course Duration: 3.5 hrs

Validity 2 months



Basic Electronics

Technical Curriculum
Electrical

Basic electronics constitute the "electronic instruments" which become a part of everyday electronic machineries. These electronic machineries include capacitors, diodes, transistors, resistors, inductors and transformers. Powered through a battery, they are build to work under certain laws and principles of physics.

By the end of this Course students will build fundamental skills to understand the basic concept & function of semiconductor and other components like diode, Rectifiers & Filters, transistor, and operational amplifier. It will build mathematical and numerical background for design of electronics circuit & component value. The knowledge and training provided in this course will help students to design, develop and operate in the different area of electronics system .

Course Duration: **7 hrs**

Validity **2 months**

Digital Electronics

Technical Curriculum
Electrical

Digital electronics are electronics that operate on digital signals. The techniques used in Digital electronics are helpful because it is very easier to get an electronic device to convert into one of a number of known states than to accurately reproduce a continuous range of values.

At the end of this course, students should be able to:

- Express positive integers in different number systems (binary, octal, decimal hexadecimal).
- Design and use standard combinational circuit & Sequential Circuits building blocks.
- Design and use Logic gates & Converters DAC and ADC.

Course Duration: **5 hrs**

Validity **2 months**

Instrumentation

Technical Curriculum
Electrical

Instrumentation engineering is the study of the measurement and control of process variables within a production or manufacturing area.

At the end of this course, students should be able to:

- Define the static and dynamic characteristics of an instrument.
- Calculate and analyze the measurement error, accuracy, precision and limiting error
- Describe the basic elements of electronic instrument.

Course Duration: **6 hrs**

Validity **2 months**

Power System Protection

Electrical

This course will familiarize participants with the different concepts related to Power Systems Protection. This course is divided into three parts. Part-1 deals with the basics of power systems protection, that include nature of faults, qualities and basic principles of protection, and the components of protection. Part -II deals with the function, operation and classification of Relays. Finally, Part -III deals with the setting of protection relay.

By the end of this course participants will be able to:

- Explain the significance of power system protection
- Define the nature of faults
- Explain a few abnormal conditions arising from different types of faults
- Explain the essential qualities of protection
- Explain the operation of Protective relay
- Classify and discuss each type of relay
  - Electromagnetic Relay
  - Static Relay
  - Numerical Relay

Course Duration: 3 hrs

Validity 2 months

Power Electronics and Drives

Technical Curriculum

Electrical

The application of solid-state electronics used to control and convert the electric power is known as Power Electronics and Drives. In modern systems, the conversion is performed with semiconductor switching devices.

The objective of the Course is:

- To make the students to design triggering circuits.
- To introduce various power electronic components.
- To introduce with various application and functionality of Power Electronic devices

Course Duration: 5.5 hrs

Validity 2 months

Micro processors and Micro controllers

Technical Curriculum

Electrical

Microprocessors used in personal computers or other general purpose applications consisting of various discrete chips, where as in contrast the Microcontrollers are designed for embedded applications.

The objective of the Course is:

- Introduction to architecture, internal operations, instructions and timings of microprocessors and microcontrollers.
- To introduce 8051 architecture and programming of microcontroller.
- To introduce basic concepts of interfacing memory and peripheral devices to a microprocessor & microcontroller.

Course Duration: 5 hrs

Validity 2 months

MS office

IT & CS

M S Office E-Learning program contains learning videos which deals with the basic understanding of MS –Word, Excel and Power Point. In MS Word, the training imparted is on basic editing of documents, bullets and numbering, inserting and editing of tables.MS Excel gives an overview of excel, basic excel formulas, sorting and filtering of data. In Power Point the training gives an overview of Power point, how to add slides, edit in master slides, and basic animation.

Course Duration: 1 hr

Validity 2 months

Advance Excel

IT & CS

Advanced Excel is a comprehensive tutorial that provides a good insight into the latest and advanced features available in Microsoft Excel 2013. This tutorial has been designed for all those readers who depend heavily on MS-Excel to prepare charts, tables, and professional reports that involve complex data. It will help all those readers who use MS-Excel regularly to analyse data.

Course Duration: 4 hrs

Validity 2 months

Machine Learning Fundamentals

IT & CS

Machine Learning Fundamentals is a 4 hours module on Machine Learning (ML) which is the core of analytics in today's world and is turning out to be a game-changer in various industries including manufacturing. This module aims at providing conceptual understanding of various basic aspects related to ML. The idea is to help you in understanding some key aspects(including some key models) of ML without going into the technicalities of implementing ML through programming languages (like R/Python).

Course Duration: 4 hrs

Validity 2 months

English Proficiency

This course in English proficiency looks at the way grammar can be used as a tool for adapting our communication (both written and spoken). With the help of animations, the storyline revolves around an electrician working in a manufacturing set up whose senior helps him boost his ability to communicate proficiently in English by making him undergo a training module. It touches upon the various elements of grammar like Noun, pronoun, adjective, prepositions etc. The clear grammar explanations and example will help gain confidence in using the language for effective communication. The grammar knowledge can be put into practice by doing the exercises at the end of each module as well as at the end of the course.

By the end of this course, you will be able to:

- Define bsic English proficiency tools like noun, pronouns, articles, etc.
- Use Grammar elements in sentence making like verbs, adjectives, etc.

Course Duration: 1 hrs

Validity 2 months

Emission Pollution & Control

Pollution control system is widely understood as only air-pollution control system. But it also covers noise pollution control, water pollution control, soil pollution control etc. Companies who care for pollution from its source have a variety of pollution control systems which focuses on different sectors. Pollution Control system helps reducing or preventing polluting particle of hazardous particles to get directly into the environment. Nowadays air pollution control system is a very important concern for industries as many industries release toxic waste in air.

- Briefly learn about environment and polluting industries.
- Discuss Environmental issues in India
- Describe the global issues.
- Describe each layer of Atmosphere.
- Understand the greenhouse effect and Global Warming.
- Classify pollution and learn about each type in detail.

Course Duration: 1.5 hrs

Validity 2 months

UG Mine planning (Surveying)

Mining

Surveying is an art of determining the relative positions of various points on, above or below the surface of the earth by means of direct or indirect measurement of distance, direction and elevation. As per CMR-2017 Every mine plan should have name of the mine and name of the owner and the purpose, clear indication of true north, or the magnetic meridian and date. The scale of the plan shall be at least 25 centimeters long and suitably subdivided & representative factor of 2000:1 or 1000:1. Properly inked in on durable paper, tracing cloth or on polyester film and be kept in good condition. All the reference stations at surface and the reference points of underground surveys shall be shown in their correct position relative to the survey of India national grid within the limits of error of survey and plotting.

Enhancing knowledge & skill of mine surveying.

You will learn classification & benchmark of surveying, modern survey tools & instruments, procedure of surveying , difference between map & plan. You will be able to do mine planning with the knowledge of dip & fault, Contouring, subsidance survey, plotting & maintanance of mine plan.

Course Duration: **1.5 hrs**

Validity **2 months**

UG - Stowing

Mining

Stowing is a method in which the goaf is completely packed with incombustible material like sand or fly ash etc. and is generally practiced where it is necessary to keep the surface and strata above the seam intact. Sand-stowing was practised for the first time in United States of America about in the year 1892 with the object of protecting buildings on the surface and also the surface itself. In India the introduction of this process is comparatively new; it was first tried at Ballarpur in Madhya Pradesh about in 1914 and subsequently introduced in the Jharia coalfield about in 1919. Stowing as measure against protective measure -To protect surface structures (township, industrial plant, railways, roads etc) which can't be shifted. It also to protect dangers arising

The objective of this course is to improve the knowledge & skill of stowing crew. You would learn different type of stowing materials & stowing operations. Laying of stowing pipe range and Hydraulic profile. Mixing chamber and sand water ratio. Hazards associated with stowing operation and during transportation of sand.

Different types of bends & dismantling or shifting of pipes etc.

Course Duration: **2 hrs**

Validity **2 months**

UG - HEMM operation (UG Face Machinery)

Mining

In underground mining, mine face is a common term which means the area where the mining work is advancing. Face machineries play an important role in coal production. Most common face machineries used in underground mines are; Side discharge loader (SDL), Load haul dump machine (LHD), Road Header, Continuous Miner , Twin bolter or Quad bolter, Feeder breaker, Shuttle car & Extensible belt conveyor, Chain conveyor etc. Locomotives, which are used as utility van in the mine district. All face machinery shall be under charge of competent person. As per CMR 2017 "competent person" in relation to any work or any machinery, plant or equipment means a person who has attained the age of twenty years and who has been duly appointed in writing by the manager as a person competent to supervise or perform that work, or to supervise the operation of that machinery, plant or equipment, and who is responsible for the duties assigned to him, and includes a shot firer.

The objective of this course is to get an overview of different face machineries used in underground mines & to recognize the purpose and application of the machineries in underground mines.This course will help to SDL/LHD Face crew /Operator & supervisor of underground mines to develop themselves and to enhance their knowledge & skill.

Course Duration: **1 hr**

Validity **2 months**

Haulage & hoist

Mining

Haulage arrangement operates between the working faces and the main loading points . A hoist or winder is used to raise and lower the man & matrials. The transport system must be designed considering the many other elements of the

mining operation, and we must take into account the number of possible steps from the extraction site (face) to the shaft or ramp portal. As prescribed in CMR-2017 Haulage roadway shall be of adequate dimensions and, as far as practicable, shall be straight and of regular gradient and have tracks properly laid with rails of adequate section.Pulleys, sheaves and rollers that alter the direction of a rope shall be securely fixed.

The objective of this course is to improve the safety, knowledge and skill of persons engaged in Haulage Operation and Maintenance. They will be learnt different types of haulage, main components of haulage, Instalation & preparation of haulage, saftey of haulage tubs & safety device of haulage roadway etc.

Course Duration: 1 hr

Validity 2 months

Gas Testing

Mining

Underground coal mines are hazardous as it has risky fumes and the hazardous gases that may be present in an influential quantity that can have physiological effects on the human body and can even be lethal. Timely Detection of these hazardous gases is a major challenge and needs to be followed for the safety of the miners present in the mine. As per CMR-2017 No person shall be appointed as a competent person unless he holds a Gas Testing Certificate. In a gassy seam of the second or third degree no person shall be appointed to supervise or operate any electrical machinery, apparatus or appliance other than a telephone or signaling device or an electric lamp or light, unless he holds a gas-testing certificate.

The objective of the course is to make fully conversant with the hazard due to Mine Gases to avoid explosion of gases and to prevent endangering person from the harmful and poisonous effect of the gasses. Difference between Oxidation, Combustion, Explosion and Detonation.Type of underground mine gaes & physiological effect of gas. How to checking of gas with gas detactor & flame safety lamp.

Course Duration: 1 hr

Validity 2 months

First aid

Mining

First aid is the first and immediate assistance given to any person suffering from either a minor or serious illness or injury.As per mines rule Every underground mine shall be adequate and suitable arrangements are made for the speedy removal from the mine to a dispensary or hospital ,of persons employed in the mine who while on duty suffers from serious bodily injury or illness of a serious nature.At every mine employing more than 150 persons on any one day of the preceding calendar year, there shall be provided and maintained in good order a suitable first-aid room & A first aid station shall be established at the bottom of every shaft where men or material are normally wound, near the drive end of every haulage and at the entrance to every district or section of the mine.

The objective is to improve the knowledge and skill of First Aider deployed in Mines. you will learnt the proper uses of Splinters and Sling , process of CPR, Wounds and Bleeding & handle the burn injury.

Course Duration: 1 hr

Validity 2 months

UG - Inspection & Examination

Mining

Inspection & Examination is a necessary measures to eliminate or minimize the risks to safety and health of persons employed in underground mines.In this process ensure the monitoring, assessment and regular inspection of the working environment to identify the various hazards to which the workers may be exposed and to assess their level of exposure.

To prevent workplace injury and illness by providing the awareness and training to people on inspection and examination process, places, tools & tackles, duties & responsibilities and maintaining record and their follow-up in Underground Mines.

Course Duration: 1.5 hr

Validity 2 months

UG - Dressing

Mining

Coal by nature creates sedimentary rock with shale and sand stone. These sedimentary rocks in roof create cleats and cracks naturally or due to mining. With time, moisture and air contact or after blasting these cracks and cleats loosen which creates safety risk as these loose parts can come down and injury someone. So, in underground coal mines, Dressing activity is done by skilled and experienced human dresser carefully. All technical inputs related to the Dressing operation has been covered in the module.

The objective of these module is to be reduce the likelihood of gatting injury due to failure in identifying the hazard, taking improper shelter during & after dressing operation and for improper/inadequate dressing.

Course Duration: 1.5 hrs

Validity 2 months

UG - Drilling

Mining

Drilling is a cutting process that uses a drill bit to cut a hole of circular cross-section in solid materials. Mining drilling are used for two main purposes: 1. exploration drilling which aims to identify the location and quality of a mineral, and 2. production drilling, used in the production-cycle for mining. Underground mining (hard /soft rock) uses a variety of drill rigs dependent on the desired purpose, such as production, bolting, cabling, and tunneling. The drilling operation In connection with methane exploration or extraction activities in a belowground mine or part thereof, the conditions and other details for the conduct of drilling operation shall be specified by the Chief Inspector, by a special order.Different type of drilling machine used in underground coal mines like; Electric coal drill machine, pneumatic drill machine, jackhammer drill machine, & Universal drill machine.

The objective is to reduce the likelihood of getting injury due to failure in identifying the hazard during drilling, sharpening drill bit and to get optimum pull per blast.

This module is applicable for all driller- (SDL-Side discharge loader) crew/LHD-(Load Haul dumper) crew, face crew and multi skill crew working in belowground mines for different drilling job in soft or hard rock/coal.

Course Duration: 1.5 hrs

Validity 2 months

UG coal mining process and method of working

Mining

Underground mining involves opening one or more portals or shafts into the earth that follow or intercept coal seams that are too deep for surface mining methods.

Method of Work is Bord & Pillar method & longwall method for extraction of coal.

There are two stages of board & pillar mining i.e Development & Depillaring.

Development: It is method of making drivage of gallery by drilling and blasting for establishing & extending ventilation, traveling roadway, haulage roadway for material flow, making sump area, panel making (sectionalisation) etc.

Depillaring: Final extraction of coal from pillars,

Depillaring is done thru two Methods: 1. Caving 2. Stowing

Caving: Allowed roof to cave in after final extraction of coal pillar in slices in a sequence manner, Permitted when no surface feature. In caving process development of crack/subsidence up to surface thus danger of fire- Air flowing through cracks developing conditions of Spontaneous heating of coal, inrush of water from upper seam-inundation, release of gas. It required land filling & degradation, reclamation and plantation/vegetation.

Stowing: Filling of Sand, Other Incombustible Material- Flyash, LD Slag in de-coaled area, Sand on Lease- Collection of sand at river.

Followed the all legal requirement subjected to method of working.

In this course you will learn about underground mine planning process & coal winning process.All methods for extraction of coal from underground. Formation of coal & their rank, types & grade of coal. All statutory requirement of Working Under Railway, Public Road etc. Working near Mine Boundary, Working under water body

&.Multi Seam or Section Working

Course Duration: **1.5 hrs**

Validity **2 months**

UG - Face ventilation

Mining

The purpose of face ventilation is to clear away smoke, steam and dust, to dilute gases that are inflammable or noxious so as to render them harmless, to provide air containing sufficient oxygen and to prevent excessive rise of temperature or humidity which may be harmful to the health of persons working in face.

The face ventilation i.e ventilation of headings, ventilation of ventilation districts, mine including old workings etc. is applicable to all parts of belowground mines.The major difference between main ventilation and face ventilation is the number and nature of the ventilation control devices (fans, stoppings, doors, regulators, and air-crossings).The Air circulation is achieved by creating a pressure difference between the mine workings and the surface through the use of fans.

The objective is to reduce the likelihood of getting injury & occupational health problem to all persons working belowground mines due to failure in identifying the hazards of ventilation-Gas-Inflammable & poisonous etc., dust, temperature & humidity etc., during installation operation and maintenance of fans (Main Mechanical Ventilator, Booster fan, Auxiliary fan) and ventilation appliances (Brattice, Stoppings, Doors, Air Crossing etc.) and coal getting process.

Course Duration: **2 hrs**

Validity **2 months**

UG - Supporting

Mining

Mines support is essential to the safety of every underground deployed people. supports are interact with the ground to create a stable rockstructure.So that, the owner, agent and manager of every mine shall prepare, formulate and implement a Strata Control and Monitoring Plan (SCAMP).It includes System and organization for procurement & supply, method of handling including assembling, dismantling & transport of support materials. The system & organization for maintenance & checking of supports dressing of roof & sides, erecting ,examining and retightening of supports & re erecting dislodged supports. The manner setting & withdrawal of supports including setting of extra supports to control collapse of roof from which supports are being withdrawn.

Mine supporting module would make you fully conversant with the plan of strata control and monitoring, support plan and the codes of standing orders there-in to secure the roof and sides of belowground workplaces, and strata around mine openings.

Course Duration: **1 hr**

Validity **2 months**

UG - Blasting

Mining

Blasting is the process of breaking of bulk rock masses into loose forms, using explosive compounds. Here, the primary role is played by the explosives. The explosives are the substances or devices used in blasting. The explosives are used to produce a volume of rapidly expanding gas that exerts sudden pressure on its surroundings and break the mass into pieces But when it comes to underground coal mining, all coal seams are considered gassy and the degree of the gas present may vary from I to III. Then only permitted explosive & approved detonators are to be used.

Concepts of solid off Blasting;-Freedom to Move : In situ Coal needs free passage to move out during blasting, i.e. Free face to be created by Creating wedge opening by drilling and blasting a few additional holes preferably Solid Blasting :

The objective is to reduce the likelihood of getting injury & occupational health problem and to increase the technical knowledge & skill to all associated person engaged for charging & blasting operation. It is essential that a blaster have a good knowledge & skill of blasting process. With this e-module technical aspects related to storage & transportation of the explosive can be learnt.

Course Duration: **1 hr**

Validity **2 months**

UG - Coal loading & evacuation

Mining

There are several methods for moving prepared coal from the mine face to surface. In early days of mining the manual loading and transportation of coal can be done with Loading of coal into tubs. Now, we use of SDL/LHD loading of coal & Belt conveyors for carrying coal over long distances. Side discharge loader (SDL) is one such machine which is designed to work in underground mines. They typically scoop coal from face and load run into transportation equipment's such as coal tubs, chain or belt conveyors.

The objective is to reduce the likelihood of getting injury & occupational health problem and to increase the technical knowledge & skill to all associated person engaged for coal evacuation process. This is for belowground coal mines. Applicable for machine operator, Maintenance Crew & Supervisor.

Course Duration: **1 hr**

Validity **2 months**

Opencast Mine planning-Geology

Mining

Geology describes the structure of the Earth on and beneath its surface, and the processes that have shaped that structure. Geologists use a wide variety of methods to understand the Earth's structure and evolution, including field work, rock description, geophysical techniques, chemical analysis, physical experiments, and numerical modelling. In practical terms, geology is important for mineral and hydrocarbon exploration and exploitation. In mining industry, it plays an important role in preparing pit design, conducting exploration to know the quality & quality of different grades of ore present in ore body, preparation of long term, medium term & short term excavation plans to ensure quality of product as per customer requirement.

In this course you will learn about Geology, types of rocks found in iron ore mining, methods of exploration, types of exploration, mjne planning process, methods of quality assurance & quality control, types of sampling.

Course Duration: 1 hr

Validity 2 months

Opencast Mine maintenance

Mining

Mine maintenance is a general term used to cover all the operation and maintenance activities for day to day smooth operation of a mine, facilitate ease of operation in shift workings and preparatory work for overall advancement of mine. It predominanly includes maintenanvce of haul roads/ramps, management of dumps/stock piles, face dressing, maintenance of berms , preparation and maintennace of drainage system.

In this course you will learn about different mine design terms , elements of mine maintennace like haul road width & gradient, maintenance & upkeep of dumps & stock piles, safe operation of ancilliary equipments used for mine maintenance like grader, dozer, backhoe/excavator,JCB, rock breaker

Course Duration: 1.5 hrs

Validity 2 months

Opencast Mine planning-Survey

Mining

Mine surveying is a branch of mining science and technology. It includes all measurements, calculations and mapping which serve the purpose of ascertaining and documenting information at all stages from prospecting to exploitation and utilizing mineral deposits both by surface and underground working. By use of survey we come to know about the status of compliance of statutory plans & section. We also measure the quantity of excavation done during a particular period and quantity of material available in stocks & dumps.

In this course you will learn about types & methods of survey, diferent typoes of survey instruments, advancement in surveying technology, statutory requirement in mine survey, use of survey methods in mine level survey, mine face survey & stock survey

Course Duration: 1.5 hrs

Validity 2 months

Opencast Mine Safety

Mining

Open Cast Mine safety refers to the management of operations and events within the mining industry, for protecting miners by minimizing hazards, risks and accidents. Most of the safety issues related to mining are addressed in the relevant laws, compliance and best practices that are to be considered for the best possible protection of the mining workers. Employees are to abide by the laws and practices to ensure the maximum observances of safety.

Mine safety practice involves the implementation of recognized hazard controls and/or reduction of risks associated with mining activities to legally, socially and morally acceptable levels. While the fundamental principle of mine safety is to remove health and safety risks to mine workers, mining safety practice may also focus on the reduction of risks to plant (machinery) together with the structure and orebody of the mine.

The Course objective is to reduce the occurrence of injuries and illnesses of employees, which may result from exposure to hazardous workplace conditions and from hazardous work practices. The scope of open cast mine safety is for providing a place of employment which is safe and healthful, as well as identify specific hazards in the workplace, and will provide appropriate advice and assistance in establishing or improving the employees safety and health program and in correcting any hazardous conditions identified. This is applicable to all parts of Open cast & belowground mines.

Course Duration: **1.5 hr**

Validity **2 months**

HEMM Operation & Maintenance

Mining

In any opencast mining, the major part of initial capital investment goes towards the transportation and excavation equipment, their objective is to get maximum return per unit of investment. Time loss in operation due to idleness, breakdown of machine is no more affordable to mine management in recent years. Improper utilization of HEMMs have negative consequences on the production, productivity and production cost leading to loss of revenue. It is important to analyse the performance of those equipment, at regular intervals to achieve cost- effectiveness in excavation and transportation operations. Heavy Earth Moving Machinery or HEMM are the machines that are used in opencast mines for digging, drilling (excluding handheld drills and drill machines capable of drilling hole of a diameter up to 50 millimetres), dredging, ripping, dozing, grading, excavating, loading or transporting minerals or overburden.

The main objective of this E Learning module is to determine the best method for the maintenance and operation of the HEMM and upkeep of this equipment. It is now important to reduce the unscheduled and unplanned down time by making use of the suitable preventive maintenance measures. If the maintenance is not carried up to the adequate level, the mining machines can result into lower speed of operation, premature failure, and reduced capacity or even can demand replacement of the costly equipment and it is also not advisable to keep the standby equipment due to high procurement cost.

Course Duration: **1.5 hrs**

Validity **2 months**

Ore Processing & Dispatch

Mining

Iron ore processing is the art of treating crude ores and mineral products in order to separate the valuable minerals from the waste rock or gangue. It is the process that most ores undergo after mining in order to provide a more concentrated material for the procedures of extractive metallurgy. Creating steel from low-grade iron ore requires a long process of Drilling, Blasting, Shoveling, Wet and Dry Processing, and Beneficiation, Conveying, and finally Loading and Dispatch. The lump ore is between 10mm and 40mm in size, while anything less than 10mm is considered fines.

The main objective of this E Learning module is to familiarize with ore processing & dispatch which involves Mineral Beneficiation, Size reduction Laws, Primary crushing, Secondary Crushing (Wet & Dry Processing) Grinding, Screening, Classifiers, Jigging & Hydro cyclone, Overview of Rapid Loading System, its components & Sequence of operation of Rapid Loading System etc

Course Duration: **1.5 hr**

Validity **2 months**

Opencast - Drilling

Mining

Drilling is set of processes for breaking rock to produce bore-holes/shot holes, sampling, and excavations and is used mainly for resource extraction. In drilling process a drill bit is used to cut a hole of circular cross-section in solid materials. Mining drilling is used for two main purposes: Exploration drilling which aims to identify the location and quality of a mineral, and Production drilling used in the production-cycle for mining. Drilling also helps in scientific studies of earth and sub surface.

There are three types of drilling method:

- Percussion—(a) Top hammer and (b) bottom hammer
- Rotary- (a) Auger drill (b) Diamond drill.
- Rotary percussion—(a) DTH – Down the hole drill (b) top hammer drill.

The objective of this course is to improve the safety, knowledge and skill of persons engaged in Drilling operation. Drilling is the major part of Open cast operation for optimum fragmentation of blasted rocks, equipment productivity and overall cost effectiveness with full safety. In this course you would learn all the details about Open cast drilling operation, its types and patterns, various applications of Drilling, factors affecting drilling, associated risk & Hazards and its preventive measures.

Course Duration: **5 hrs**

Validity **2 months**

Opencast - Blasting

Mining

Blasting is the process of breaking of bulk rock masses into loose forms, using explosive compounds. Here, the primary role is played by the explosives. Keeping the powder factor and number of choices of explosives available as constant and by varying the parameters like drill hole diameter, number of holes can compare the explosive performance and accordingly helps taking a decision to select the proper type of explosives for blasting. The explosives are used to produce a volume of rapidly expanding gas that exerts sudden pressure on its surroundings and break the mass into pieces. Only permitted explosive & approved detonators are to be used.

The objective of this course is to improve the safety, knowledge and skill of persons engaged in Blasting operation. Main purpose and objective of blasting energy in the rock-breaking process is to reduce blasting cost through less explosive consumption and less wastage of explosive energy in blasting, less throw of materials, and reduction of blast vibration resulting in greater degrees of safety and stability to the nearby structures. Selection of proper explosive in any blasting round is an important aspect of optimum blast design foe safe and effective blasting.

Course Duration:
1.5 hr

Validity
2 months

Coal Processing & Despatch (Coal Beneficiation & Despatch)

Mining

the coal delivered from the mine that reports to the coal preparation plant is called run –of-mine or ROM coal. ROM coal can have a large variability moisture and maximum particle size. Coal handling & its preparation, or washing is a facility that washes coal, crushes it into graded sized chunks, stockpiles grades preparation for transport to market. The more of the waste material that can be removed from coal, the lower its total ash convert, the greater its market value and the lower its transportation costs.

The objective of this course is to improve the safety, knowledge and skill of persons engaged in Coal processing and despatch operation. In this module you would learn about the Objective & overview of open cast coal Mines, Brief Introduction of Coal Beneficiation, Primary Crushing, Secondary Crushing (Wet & Dry Processing), Grinding, Screening, Classifiers, Hydro cyclone Plant, Overview of Rapid Loading System(RLS) & Components etc.

Course Duration:
1 hr

Validity
2 months

Cranes Safety

Basic / Advance

Safety

Working with cranes poses many hazards, and unsafe working practices can result in injuries, fatalities and costly damage to buildings and materials. Therefore, it's important you're aware of the main hazards and how you can avoid them.

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Course Duration: (Basic) 20 min

Course Duration: (Advance) 1 hr

Validity 2 months

Material Storage and Handling Safety

Basic / Advance

Safety

The efficient handling and storing of materials are vital to industry. In addition to raw materials, these operations provide a continuous flow of parts and assemblies through the workplace and ensure that materials are available when needed in a safe way.

In this module, safely lifting and moving materials, Maintain the correct posture, avoid bending over and keep lifts close to the body, Lift in a careful, deliberate manner and avoid any sudden lift movements etc. and other vital points related to Material handling safety has been illustrated.

Course Duration: (Basic) 15 min

Course Duration: (Advance) 40 min

Validity 2 months

Excavation Safety

Basic / Advance

Safety

Excavation and trenching are amongst the most dangerous operations in the construction industry. Dangers can include cave-ins, falling loads, hazardous atmospheres and hazards from using heavy equipments. Regular pre-work inspections can reduce hazards and serious risk of injury.

In this module we will learn about the type of excavation being conducted, support and warning systems in place, access areas, weather conditions, heavy equipments and PPE.

Course Duration: (Basic) 25 min

Course Duration: (Advance) 45 min

Validity 2 months

Positive Isolation Safety

Basic / Advance

Safety

The primary objective of positive isolation is to provide a safe environment for performing maintenance, repair or replacement operations on process facilities.

Positive isolation while performing maintenance or repair activities on process facilities means that, All the hazardous energy sources must be identified. Positive isolation is a method to totally isolate equipment or a section of the plant from a live process where in no leakage of any energy source such as electricity, gases, high pressurized liquids/ fluids, steam etc. is tolerated due to the risks involved. A risk assessment should be performed to develop an appropriate isolation scheme. All these we learn in this module.

Course Duration: (Basic) 15 min

Course Duration: (Advance) 1 hr

Validity 2 months

Underground Mines Strata Control Safety

Basic / Advance

Safety

The term "strata control" generally refers to controlling the strata to maintain stability around the mine openings underground where operations are or will be taking place. It does not cover such subjects as subsidence or strata remote from the workings.

Underground Mines Strata Control is the science (some would suggest art) of utilizing various techniques to prevent or control failure of the strata around mine openings at least for the period where access is required. For different locations in the mine this period may be for the life of the mine (which can be considered as permanent), such as the main mine accesses from the surface, or for a matter of less than an hour, such as a lift off a coal pillar with a continuous miner.

Course Duration: (Basic) 15 min

Course Duration: (Advance) 1 hr

Validity 2 months

Working on Gas Line Safety

Basic / Advance

Safety

This module intends to learn about how to reduce the risk to safety at work from fire or other explosive events due to flammable gases and also to reduce the risk of inhalation of poisonous gases being used in industry.

It includes the gas safety standards and regulations that govern the management of the safe flow, use and handling of gases as well as the hazards and its consequences along with the control measures during any misshapenness, Companies rules and regulations for the health, safety and welfare of people on their premises who are involved in working on these gas related equipments and its handling

Course Duration: (Basic) 15 min

Course Duration: (Advance) 40 min

Validity 2 months

Temporary Electrical Wiring Safety

Basic / Advance

Safety

Temporary electrical power is utilized in many places, most commonly on constructions sites. It is also used in plants and buildings during renovation operations. Any electrical installation, whether it is permanent or temporary, should be installed according to all applicable codes, standards, and regulations. Many of today's construction sites are unsafe because the electrician or electrical contractor did not install an adequate temporary wiring, use equipment that is in a good working order, or take the precautions to protect the wiring and equipment being installed.

Only qualified workers who have been trained in the avoidance of electrical hazards are permitted to work on or near exposed energized parts. Safety related work practices are employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contact when work is performed near or on equipment or circuits which are or may be energized. The specific safety-related work practices must be consistent with the nature and extent of the associated electrical hazards.

Course Duration: (Basic) 15 min

Course Duration: (Advance) 40 min

Validity 2 months

Work Permit Safety

Basic / Advance

Safety

Work permit safety (also known as a "permit to work") is a document that includes a description of the work to be performed, the hazards involved, the precautions to take, the required authorizations, and other elements. It is a written record authorizing a specific work at a specific location, and for a specific time available.

Course objective includes:

- Risk is identified
- Job is authorised and informed to all the concerned people
- It is ensured that only trained people are at the job
- Work area is specified
- Job duration is specified
- People doing the job are identified
- Recorded with the safety department and acts as a help during incident investigation
- Ensured that people get the required protection
- Ensured that area is free of hazards
- Ensured that the work is closed safely

Course Duration: (Basic) 10 min

Course Duration: (Advance) 40 min

Validity 2 months

Working at Height Safety

Basic / Advance

Safety

Working at height remains one of the biggest causes of fatalities and major injuries in an large scale industry. Common cases include falls from ladders, high rise structures and during erection of structures and through fragile surfaces.

Work at height' safety means work in any place where, if there were no precautions in place, a person could fall a distance liable to cause personal injury. This module shows how employees and workmen can take simple, practical measures to reduce the risk of any fall, while working at height.

Course Duration: (Basic) **20 min**

Course Duration: (Advance) **40 min**

Validity **2 months**

Working in Electrical Room Safety

Basic / Advance

Safety

Electrical room safety is a system of organizational measures and technical means to prevent harmful and dangerous effects on workers from electric current, electric arc, electromagnetic field and static electricity. The major hazards associated with electricity are electrical shock, fire and arc flash.

Electrical shock occurs when the body becomes part of the electric circuit, either when an individual comes in contact with both wires of an electrical circuit, one wire of an energized circuit and the ground, or a metallic part that has become energized by contact with an electrical conductor. The severity and effects of an electrical shock depend on a number of factors, such as the pathway through the body, the amount of current, the length of time of the exposure, and whether the skin is wet or dry. The effect of the shock may range from a slight tingle to severe burns to cardiac arrest. All these hazards and safety measures along with wiring and earthing has been included in this module, also you will learn about latest electrical safety equipments and PPE used in Industry for electrical jobs.

Course Duration: (Basic) **20 min**

Course Duration: (Advance) **1 hr**

Validity **2 months**

Successful Digital Marketing

Managerial

In the current business environment it is vital for any marketing professional to have a clear grasp of the fundamentals of digital marketing and how to adapt marketing strategies suitably using the latest tools. This course will focus on "digital" and its impact on the overall marketing mix.

In this Course you will learn about:

- Digital consumers
- Traversing through the digital landscape
- How digital can be used for improving your product
- Leveraging digital communication
- Creating a marketing mix that embraces the benefits of digital

Course Duration: 5 hrs

Validity 3 months

Enhancing your Selling Skills

Managerial

To be successful as a sales person, it is essential that you adopt a proven customer-oriented sales process and associated techniques. The ability to build relationships with prospects, persuade them to make purchases and generate repeat business is at the heart of selling.

In this course, you will learn about:

- The elements of successful selling
- Connecting effectively with prospects
- Recognizing your prospect's requirements
- Persuasively presenting your offering aligned to prospect's requirements and motivations
- Effectively addressing concerns / objections
- Closing the deal

Course Duration: 10 hrs

Validity 6 months

Unleashing the Potential of Sales Team

Managerial

To be a successful sales manager, it is important to coach and develop your sales team so that they deliver outstanding performance. The focus of this course is on equipping you with key insights about how to unleash the potential of your sales team.

In this course, you will learn about:

- The roles of a sales manager
- Adapting coaching to performance
- Delivering ongoing training
- Setting team goals and motivate wins
- Running a sales meeting
- The best way to address poor performance

Course Duration: 5 hrs

Validity 3 months

Shaping a Delightful Customer Experience

Managerial

As a Sales / Customer Service associate you consistently want to deliver customer delight. In this course, the focus will be on understanding every aspect of the customer's experience, and exploring how to make a positive difference.

In this course, you will learn about:

- How to amaze your customers
- Motivating your customers
- Being responsible to your customers
- Winning your customers' confidence
- Delivering a lasting impact and building customer loyalty

Course Duration: 8 hrs

Validity 6 months

Enhancing Customer Value Through Solution Selling

Managerial

Get ready to enhance your thinking about Sales. Selling solutions instead of just products means that you will need to understand your clients well. This involves work, but the rewards are for the taking in terms of both higher sales and stronger customer relationships.

In this course, you will learn about:

- Gain customer's interest
- Use the consultative selling process
- Shift from Product-selling to Solution-Selling
- Outshine in client meetings
- Negotiate effectively using empathy
- Enhance customer satisfaction

Course Duration: 7 hrs

Validity 6 months

Successful Key Account Management

Managerial

A key account manager's main objective is to generate as much value as possible from key accounts. Gaining and maintaining in-depth knowledge of your accounts, building a network of strategic relations, and correctly assessing your accounts are the key skills that you need to master in order to build profitable relations with your clients.

In this course, you will learn about:

- Role of a key account manager
- Selecting your key accounts
- Managing key accounts
- Building strong customer relations
- Enhancing revenue generation

Course Duration: 6 hrs

Validity 3 months

Demystifying Project Management

Managerial

Complex project management involves effectively handling the 3 the phases of launching, controlling and completing the project, while engaging with key stakeholders and providing leadership to people deployed on the project.

In this course, you will learn about:

- Defining and launching the project
- Making the right decisions to meet project deliverables
- Involving different people on the project
- Managing the project within budget
- Finishing the project successfully

Course Duration: 7 hrs

Validity 6 months

Essentials of Lean Management

Managerial

This course seeks to answer a fundamental question: What is the best process for you, and how can you most effectively deploy it? You are about to discover the lean management toolkit and how it can help you eliminate waste.

In this course, You will will learn about:

- The lean philosophy
- Key metrics for upgrading processes
- Continuous Improvement
- Increasing Quality at the source
- On-time management

Course Duration: 10 hrs

Validity 6 months

Financial Analysis for Decision Making

Managerial

As a Manager, it is important to understand, analyze and evaluate the financial implications of proposals or decisions that you make. The focus of this course is on the key concepts of corporate finance and the financial tools that will help you make the right decisions from a value creation perspective.

In this course, You will learn about:

- The 3 main Financial Documents
- Important keys to financial analysis
- Analyzing the profitability of a Project
- Creating value through business decision

Course Duration: 6 hrs

Validity 3 months

Recruiting & Retaining Best Talent

Managerial

Recruitment and retention of key people is vital for sustained organizational success. While it is getting easier for us to find the right people through digital technology, this just as easily allows our rivals to poach them from us. We thus need to rise to the challenge of employing all the best practices for acquiring and keeping top talent.

In this course, you will learn about:

- Mapping required knowledge and skills for identified roles
- Attracting talent and encouraging applications
- Recruiting the best candidates - through assessing fit on competencies and culture
- Encouraging loyalty among team members

Course Duration: 4 hrs

Validity 3 months

Effective Talent Management

Managerial

In a highly competitive talent market, organizations must set up an effective talent management system that will benefit both employees and the company. They must acknowledge that human resources are their most important asset, and hold the key to competitive advantage.

In this course, you will learn about:

- Understanding the labor/talent market
- Motivating the team through meaningful work design
- Developing and retaining in-house talent
- Seeking the right talent from outside
- Engaging in shared leadership

Course Duration: 7 hrs

Validity 6 months

Happiness at Work

Managerial

As a manager, if you want your team to be competent and engaged, you need to create a happy work environment.

In this course, you will learn about:

- Adopting a positive mindset
- Creating a positive team atmosphere
- Understanding team well-being
- Making the office a happy place

Course Duration: 5 hrs

Validity 3 months

Establishing & Leading a Remote Team

Managerial

Getting the team to work in a remote setup and maintaining productivity is a great challenge nowadays. As a manager, it is imperative that you ensure team engagement and alignment towards a common goal, even as your team works remotely. The focus of this course is on how to setup and develop the best possible remote team as a manager.

You will learn about:

- Setting up a remote team
- Laying good foundations for remote teams
- Fostering teamwork and trust
- Motivating and supporting the team
- Delivering results

Course Duration: 5 hrs

Validity 3 months

Building Customer Focus in your Team

Managerial

To succeed and thrive in today's intensely competitive environment, it is vital to offer quality service that meets or exceeds customers' expectations. This also helps to significantly enhance the company's image.Customer orientation is a long-term strategy that must involve the entire organization.

In this course, you will learn about:

- Understanding quality customer service
- Identifying customer expectations
- Matching service to customer expectations
- Motivating your team to be more customer focused
- Dealing with difficult customers

Course Duration: 5 hrs

Validity 3 months

Fostering Team Learning

Managerial

In an increasingly complex and dynamic environment, companies and their employees must be able to learn, change and reinvent themselves constantly. To be innovative and adaptable, the ability to learn has become a key factor in the success of organizations, teams and individuals.

In this course, you will learn about:

- Becoming a learning leader
- Encouraging a learning environment
- Developing new skills in the team
- Using technology to learn more efficiently

Course Duration: 6 hrs

Validity 3 months

Productively Engaging Your Team

Managerial

As managers we of course want our teams to approach every day giving their best and being engaged. This is achievable, and managers play a crucial role in fostering the team motivation that makes this happen.

In this course, you will learn about:

- Creating motivation in the team
- Defining engaging roles
- Promoting team harmony
- Creating an energizing workplace
- Encouraging remote teams

Course Duration: 6 hrs

Validity 3 months

Developing Collaboration in Your Team

Managerial

Collaboration has become a major factor that contributes to competitiveness and performance. Organizations must become much less compartmentalized, and employees must learn to leverage differences, handle conflicts constructively, and work together more effectively.

In this course, you will learn about:

- Promoting cooperation and sharing vision
- Handling different generations
- Dealing with team conflicts
- Communicating remotely

Course Duration: 6 hrs

Validity 3 months

Stepping Up Your Team's Performance

Managerial

Managers must define the team's framework and drive team dynamics, producing the conditions necessary for high performance. This course focuses on what it means to be a real team, and the four important stages of team development: forming, storming, norming and performing.

You will learn about:

- Getting a "real team" in place
- Defining team's stages of development
- Enabling the team to progress through the stages of development
- Handling conflicts between members
- Managing team's performance

Course Duration: 10 hrs

Validity 6 months

Leveraging Emotions to Enhance Your Effectiveness

Managerial

Managing our emotions well and responding meaningfully to the emotions of others is crucial for working collaboratively with others and achieving productive outcomes. Developing empathy and connection with others enables us to create a harmonius work environment, leads us to better decisions and positively impacts innovation.

This course will enable you to develop your empathy in order to:

- make better decisions
- improve your communication
- work better with employees and/or colleagues
- improve your own performance as well as that of your team.

Course Duration: 6 hrs

Validity 3 months

Design Thinking of Powerful Solutions

Managerial

Design Thinking is an effective approach to solve complex, difficult problems. This course will help you to understand how to apply design thinking, through a step-by-step journey which will bring you closer to resolving the problems that you are confronted with.

You will learn about:

- Principles of Design Thinking
- Finding the root cause of a problem
- Re-defining a problem from different perspectives
- Designing, developing and testing the solution

Course Duration: 4 hrs

Validity 2 months

Manager as a Coach

Managerial

Being a good coach is about supporting your team to succeed, not through instructions and close supervision, but through developing their capabilities and confidence to take on tasks and challenges. This means a move from "doing everything" to "getting everything done" — and gradually resting aside your technical capability. Coaching techniques, in so far as they foster autonomy, are an essential management tool.

In this course, you will learn about:

- Understanding what is coaching
- Observing and listening to your team members
- Providing constructive feedback
- Helping team members to develop self-confidence
- Enabling people to change for the better

Course Duration: 5 hrs

Validity 2 months

Managing in an Agile Organization

Managerial

Management is a process of engaging people, working effectively with stakeholders, and enhancing value for clients. To get the best out of people in an agile organization, we must empower them to share responsibility in achieving organizational outcomes.

In this course, you will learn about:

- Recognizing the benefits of effective management
- Motivating and inspiring team members
- Strengthening collaboration in teams
- Giving and receiving right feedback
- Handling failures and successes

Course Duration: 7 hrs

Validity 6 months

Conducting Effective Performance Reviews

Managerial

Three qualities make performance reviews more effective. Performance reviews should be achievement-oriented, fair and accurate, and developmental for the reviewee.

In this course, you will learn about:

- The key elements of a performance review
- Conducting the performance review
- Defining motivating goals
- Communicating feedback and managing difficult situations

Course Duration: 6 hrs

Validity 3 months

Performing Effectively as a First-time Manager

Managerial

As a manager, your main challenge will be to make sure the work gets done, which is much more difficult than just doing it yourself. Being a manager involves a lot of big changes in terms of status, responsibilities and tasks. The first 100 days are crucial for first-time managers - you will have to get off on the right foot and set yourself up for success.

In this course, you will learn about:

- Management fundamentals and the new role
- Placing your team within its environment
- Measuring team's performance
- Helping your team succeed

Course Duration: 7 hrs

Validity 6 months

Successful Remote Working

Managerial

Remote working is quite common these days. It means working from home, operating from a different location or from a remote office. It does require some special skills and adaptations.

In this course, you will learn about:

- The risks and rewards of remote working
- How do we adapt and stay motivated
- The keys to communicate effectively
- How to communicate across cultures
- How can we encourage remote team collaboration

Course Duration: 5 hrs

Validity 3 months

Becoming an Intrepreneur

Managerial

Did you ever have an idea that could bring value to your organization? This is the first step toward becoming an intrapreneur, in other words an entrepreneur within your company. Being an intrapreneur is primarily a state of mind. It is about discovering new ways of working on an exciting project or an opportunity to invent.

In this course, we will learn about:

- Adopting the entrepreneurial mindset
- Discovering to invent solutions
- Moving from an idea to innovation
- Selling ideas to our colleagues
- Working with synergy in a team

Course Duration: 7 hrs

Validity 6 months

Develop your Creative Thinking

Managerial

Creative thinking is emerging as a key skill to effectively address today's problems and challenges. Most of us only use intellect and emotions to deal with any situation.The practices discussed in this course will help you develop your creative thinking, discover the importance of harnessing intuition, and how to do it.

You will learn about:

- Moving out of your comfort zone
- Asking questions that lead to insights
- Thinking for innovative ideas
- Promoting group inventiveness

Course Duration: 6 hrs

Validity 3 months

Step Up Your Communication Skills

Managerial

Communication is a fundamental human skill that is required to connect with people, lead them effectively and contribute to organizational excellence. This course helps you to hone your overall communication skills so that you could enhance your personal and professional effectiveness across the different roles that you play in life.

In this course, you will learn about:

- The keys to communication
- Giving impactful messages
- Bonding with an audience
- Being assertive in sensitive situations
- Connecting with people working remotely

Course Duration: 7 hrs

Validity 6 months

Enhancing your Personal Effectiveness

Managerial

Personal effectiveness integrates ideas from the power of positive thinking and positive psychology. It means making use of all the resources you have, both personal and professional, like your talents, strengths, skills, energy and time. It enables you to master life and achieve both work and life goals.

In this course, you will learn how to:

- Manage stress
- Manage task and time effectively
- Communicate effectively using email
- Give powerful presentations
- Own self-development

Course Duration: 6 hrs

Validity 3 months

Effective Prioritization & Time Management

Managerial

Prioritization helps you determine what you need to do and why it is important. It also helps you to identify the most urgent items you must tackle first. Along with prioritizing tasks, you also need to manage the time to be more productive. Time management refers to the way you organize and plan how much time you spend on specific activities.

In this course, you will learn how to:

- Avoid main time-killers
- Schedule work and set priorities
- Use simple rules to manage time better
- Handle requests from team members
- Maintain work-life balance

Course Duration: 4 hrs

Validity 3 months


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THE TATA TITANS

In a free enterprise, the community is not just another stakeholder in business, but is in fact the very purpose of its existence.

- Jamsetji Tata, Founder (Tata Group)

Always aim at perfection for only then will you achieve excellence.

- JRD Tata, Former Chairman, Tata Sons

I do not believe in taking right decisions...
I take decisions & then make them right...
So always believe in your ability & efforts...

- Ratan Tata (Chairman, Emeritus Tata Sons)

Capability Development

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