



GUJARAT TECHNOLOGICAL UNIVERSITY
(Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

No: GTU/Training/2017/8680

Date: 29/11/2017

CIRCULAR

Larsen and Tubro (L & T) is going to provide training to final and pre-final year B.E. students of Civil, Electrical and Mechanical disciplines. The place of this training is L & T Power Plant, Vadodara. The duration of training is of 10 days divided into 2 modules of 5 days each. For final year students, 10 days training is going to start from **26th Dec, 2017**. For pre-final year students, first module is going to start from **January-2018** and second module will be in the month of **April-2018**.

Training fees: Rs.8000/- + GST per student (it includes lunch and tea/biscuits)

Accommodation (if required): Rs.400/- per day per student (There will be separate floor for girl students)

Eligibility: Interested students having **CGPA 6.5 or above** can register at below given link **on or before 9/12/17**.

<https://goo.gl/forms/T2RSPXWd2yhqt0pa2>

Selection: GTU will notify selected students and respective college by an e-mail

Contact for any query:

- (i) For GTU: Mr. Mahesh Panchal (9824642969)
- (ii) For L & T: Mr. Sidharth Raina (9824221108)
- (iii) For Accommodation: Mr. Himanshu (8320999989)

Sd/-

Registrar

Attachments:

- (i) Training module for Civil Engg. Students
- (ii) Training module for Electrical Engg. Students
- (iii) Training module for Mechanical Engg. Students

**Internship Program on
“INDUSTRIAL APPLICATIONS OF CIVIL ENGINEERING: PHASE - I”
(For the Civil Engineering Students)**

| DAY | COURSE CONTENT |
|------------|---|
| Day-1 | <ul style="list-style-type: none"> ● Familiarization of Project Execution Business Processes ● Familiarization of Manufacturing Business Processes |
| Day-2 | <ul style="list-style-type: none"> ● Introduction to industrial structures i.e. Power Project ● Input Collection and Verification – Layout and Loading data ● Overview of applicable Codes and Standards |
| Day-3 | <ul style="list-style-type: none"> ● Planning of design activities and concept finalization ● CPM / PERT techniques and its application to design/ construction |
| Day-4 | <ul style="list-style-type: none"> ● Design Methodology and acceptance criteria ● Selection of Analysis software for different types of problems |
| Day-5 | <ul style="list-style-type: none"> ● Load Calculations and Load Combinations – working loads, limit loads and serviceability ● Wind loads ● Seismic Analysis ● Valediction / Feedback |

**Internship Program on
“INDUSTRIAL APPLICATIONS OF CIVIL ENGINEERING: PHASE -II”
(For the Civil Engineering Students)**

| DAY | COURSE CONTENT |
|------------|---|
| Day-1 | <ul style="list-style-type: none">• On site |
| Day-2 | <ul style="list-style-type: none">• On site |
| Day-3 | <ul style="list-style-type: none">• On site |
| Day-4 | <ul style="list-style-type: none">• On site |
| Day-5 | <ul style="list-style-type: none">• On site |

**Training Program on
“INDUSTRIAL APPLICATIONS OF ELECTRICAL ENGINEERING”
(Module – 1 For the Electrical Engineering Students)**

| DAY | SESSION | FOCUS AREA |
|---|---------|--|
| Business Process | | |
| Day-1 | FN-1 | Familiarization of Project Execution Business Processes |
| | FN-2 | Familiarization of Project Execution Business Processes |
| | AN-1 | Familiarization of Manufacturing Business Processes |
| | AN-2 | Familiarization of Manufacturing Business Processes |
| Overview of Continuous Process Plant – (Example Power Plant) | | |
| Day-2 | FN-1 | <ul style="list-style-type: none"> Coal to Electricity indicating Main Systems & equipment, BOPs & Sub-plants. |
| | FN-2 | Overview of Electrical System in continuous Process Plant |
| | AN-1 | Sizing criteria of Electrical equipment, Operating Philosophy of Electrical Equipment w.r.t the overall Plant operation and Redundancy consideration |
| | AN-2 | -do- |
| Day-3 | FN-1 | Electrical rotating machines – Features, Technical parameters, Selection / Design criteria, acquaintance with Industry Standard. |
| | FN-2 | Switchgears – Features, Technical parameters, acquaintance with Industry Standard. |
| | AN-1 | Busducts, cables, UPS and Emergency DG – Features, Technical parameters, acquaintance with Industry Standard. |
| | AN-2 | Visit to Laboratory / Electrical installation |
| LAYOUT ENGINEERING AND CODE REQUIREMENT | | |
| Day-4 | FN-1 | Switchyard 220 kV and 400 kV AIS. 400 kV Gas Insulated Substations |
| | FN-2 | Transformer yard, layout for oil filled and station auxiliary transformers |
| | AN-1 | MV Switchgear and LV Switchgear Room |
| | AN-2 | Cable Raceway systems, Cable scheduling |

**Training Program on
“INDUSTRIAL APPLICATIONS OF ELECTRICAL ENGINEERING”
(Module – 1 For the Electrical Engineering Students)**

| | | |
|--------------|------|---|
| Day-5 | FN-1 | Construction of Large scale synchronous Generator – Super critical Power Projects |
| | FN-2 | Generator Excitation and Capability curve |
| | AN-1 | Generator Auxiliaries |
| | AN-2 | Doubt Clearing Session |

FN – Fore noon AN – After Noon

**Training Program on
“INDUSTRIAL APPLICATIONS OF ELECTRICAL ENGINEERING”
(Module – 2 For the Electrical Engineering Students)**

| DAY | SESSION | FOCUS AREA |
|--|---------|--|
| FACTORY ACCEPTANCE TEST OF ELECTRICAL EQUIPMENT | | |
| Day-1 | FN-1 | Synchronous Generator |
| | FN-2 | Transformers <ul style="list-style-type: none"> • Oil filled • Dry type |
| | AN-1 | Switchgears <ul style="list-style-type: none"> • SF6 switchgears • Vacuum switchgears |
| | AN-2 | Cables |
| ERECTION OF ELECTRICAL SYSTEMS AND EQUIPMENT | | |
| Day-2 | FN-1 | Erection methodology for <ul style="list-style-type: none"> • Switchyard Equipment • Transformers • Busducts • Switchgears |
| | FN-2 | |
| | AN-1 | Erection methodology for cable laying <ul style="list-style-type: none"> • Various components and apparatus for cable laying • Types of jointing and termination kits • Methodology for termination in various equipment |
| | AN-2 | Quality Control and Assurance of Electrical Equipment during Erection. |
| Day-3 | | Electrical System Protection Philosophy and Relay coordination |
| Day-4 | | Visit to Thermal Power Plant |
| Day-5 | | LV Switchgear Fundamentals, type 2 co-ordination, various starter schemes and visit to Switch Gear Manufacturing Plant |

FN – Fore noon AN – After Noon

L&T Power Training Institute

Training Program on

“INDUSTRIAL APPLICATIONS OF MECHANICAL ENGINEERING”

(For the 6th / 8th Semester Mechanical Engineering Students)

Phase-I

| DAY | SESSION | TOPICS |
|--|---|--|
| INDUSTRIAL BUSINESS PROCESSES & SCOPE OF MECHANICAL ENGINEERS | | |
| Day-1 | FN-1 | <ul style="list-style-type: none"> Familiarization of Industrial Project Execution Business Processes |
| | FN-2 | <ul style="list-style-type: none"> Familiarization of Process Industry Business Activities Familiarization of Manufacturing Industry Business Processes |
| | MAJOR MECHANICAL SYSTEMS AND EQUIPMENT IN A PROCESS INDUSTRIES | |
| | AN-1 | Overview of a Process Plant (Coal based Thermal Power Plant) <ul style="list-style-type: none"> Layout of coal based Power plant Mechanical Systems & equipment in Coal Based Thermal Power plant and their interface with others |
| | AN-2 | ---Do--- |
| Day-2 | FN-1 | Industrial Boiler: <ul style="list-style-type: none"> Types of Boilers, Functions of Boiler, Applications in industries, Boilers used in Process Industries, |
| | FN-2 | <ul style="list-style-type: none"> High pressure Boiler Concept of Subcritical & Supercritical Boiler Combustion Mechanism in Boiler Furnace |
| | AN-1 | Steam Turbine <ul style="list-style-type: none"> Fundamentals of Steam Turbine Industrial applications of Steam Turbine Major Components of a steam Turbine |
| | AN-2 | ---Do--- |
| | FN-1 | Gas Turbine Package <ul style="list-style-type: none"> Fundamentals of Gas Turbine Major Components of Gas Turbine |

| | | |
|-------|------|--|
| Day-3 | | <ul style="list-style-type: none"> • Combustor |
| | FN-2 | Heat Exchangers <ul style="list-style-type: none"> • Types of Heat Exchangers • Recuperative & Regenerative Heat Exchangers • Tubular Type Heat Exchangers • Duplex Tubular Type Heat Exchangers |
| | AN-1 | Heat Exchangers <ul style="list-style-type: none"> • Plate Type Heat Exchanger • Condenser -Types, functions & features • Heat Transfer in Heat Exchanger |
| | AN-2 | Air System & Industrial Fans: <ul style="list-style-type: none"> • Fan Types & Characteristics, • Working principles of Radial fans, • Selection and applications of Radial Fans • Applications of Radial Fans • Constructional details of Radial Fans |
| Day-4 | FN-1 | Air System & Industrial Fans <ul style="list-style-type: none"> • Working Principle of Axial Fans • Selection and applications of axial fans • Description of Axial Fans • Constructional details of various axial Fans • Air Flow control Systems |
| | FN-2 | Water Systems: <ul style="list-style-type: none"> • Raw water quality and its effect on selection of Water Treatment Plant • Circulating/ Cooling Water System, |
| | AN-1 | Water Treatment Plant <ul style="list-style-type: none"> • Pre-water Treatment Plant & • DM Plant, • RO System |
| | AN-2 | Material Handling Plant: <ul style="list-style-type: none"> • Layout & process Flow paths of Material Handling Plant, • Material Unloading System & Equipment • Conveyor Belt System • Material Crushing & Sizing Equipment |
| | FN-1 | Compressed Air System: <ul style="list-style-type: none"> • Systems and its Function in Process Plant, • Process Flow paths, • Description of Reciprocating Air Compressor & Air Drier, |

| | | |
|-------|------|---|
| Day-5 | FN-2 | Fundamentals of Industrial Pumps: Pump classification, characteristics, Selection Criteria of pumps Orientation of pumping Systems Concepts of NPSH & Cavitation |
| | AN-1 | Centrifugal Pumps: <ul style="list-style-type: none"> • Industrial Applications of Centrifugal pumps in Industries • Constructional Details of Single Stage & multi-stage Centrifugal Pumps, • Various Impellers & their Materials Description of some industrial Centrifugal pumps |
| | AN-2 | Positive Displacement Pump: <ul style="list-style-type: none"> • Industrial applications of various Positive Displacement Pumps • Constructional Details of various Rotary Pumps, • Spur Gear, Helical Gear, Herringbone gear Pump, • Screw Pump etc. used in Fuel Oil systems |

L&T Power Training Institute

Training Program on

“INDUSTRIAL APPLICATIONS OF MECHANICAL ENGINEERING”

(For the 6th/ 8th Semester Mechanical Engineering Students)

Phase-II

| DAY | SESSION | TOPICS |
|-------|---------|--|
| Day-6 | FN-1 | <p>Fundamentals of Industrial Valves:</p> <ul style="list-style-type: none"> • Classification of Valves by Functions, Valve Fluid Tightness, • Elements of valves, • Selection Criteria & Sizing of Valves • Industrial applications of different valves • Types of Gate & Globe Valves and their constructional details • Constructional Details of Different Types of Plug Valves, Ball Valves, Butterfly Valves, Non-Return Valve (NRV) |
| | FN-2 | <p>Industrial Piping Systems:</p> <ul style="list-style-type: none"> • Piping-Classification, • Piping Fittings • Piping Supports • Selection Criteria & Application Codes |
| | AN-1 | <ul style="list-style-type: none"> • Lab Demonstration on Valves |
| | AN-2 | <ul style="list-style-type: none"> • Lab Practical on Valves |
| Day-7 | FN-1 | <p>Introduction to Bearings:</p> <ul style="list-style-type: none"> • Classification of Bearings & their Characteristics, • Construction of Journal Bearing & Pedestals • Bearing Materials, Lead Based & Tin Based Materials, Babbitt materials for plain Bearings <p>Rolling Element Bearings:</p> <ul style="list-style-type: none"> • Description & construction of Rolling Element Bearings, Deep Groove Ball Bearing, • Cylindrical & Taper Roller bearings |
| | FN-2 | <ul style="list-style-type: none"> • Mechanical Maintenance Tools & Instruments |

| | | |
|--------|----------------------------|--|
| | AN-1 | <ul style="list-style-type: none"> • Lab Practical on Bearings • Lab Practical on Bearing Condition Analyzer |
| | AN-2 | <ul style="list-style-type: none"> • Practical on Mechanical Maintenance Tools & Instruments • Lab Practical on Bearing Vibration Measurement Techniques |
| Day-8 | 08:30 AM to 05:30 PM | Industry Visit & Practical Training |
| Day-9 | 08:30 AM to 05:30 PM | Industry Visit & Practical Training |
| Day-10 | 08:30 AM to 05:30 PM | Industry Visit & Practical Training |