

Sant Longowal Institute of Engineering & Technology, Longowal

Preamble: The present situation has forced most of us to work from home. In such a scenario it will not be possible for students to conduct training / Project in normal fashion. So, in view of giving our student to complete course requirement, SLIET, Longowal has thought to give suitable exercise to cover the said aspect of course. In this exercise, each student is expected to write a report in given format for the given exercise. The report should be submitted in PDF format to designated email id in case submission does not fall in the period of institute working, otherwise a bounded report is to be submitted to respective faculty co-ordinator.

Exercise in lieu of In-house Training ICD First Year Students : CSMM- DIN

Sr, No.	Exercise	How to write
1. A.	List the following for an Instrument Technician i. Skills required. ii. Tools likely to be used. iii. Components likely to be used. iv. Instruments likely to be used.	Suggested Sources of Information- a. CTS%20Instrument%20Mechanic_CTS_NSQF-5.pdf b. Curriculum for Instrument Mechanic Trade By Skill Development ministry, Government of India c. https://youtu.be/6Maq5IyHSuc Report Writing – Give bullet points for each with possible applications of Tools, Components and Instruments
B.	Explain any one Electrical/ Electronic instrument used for the measurement purpose. For example Ammeter for current measurement, Voltmeter for voltage measurement, Wattmeter for Power measurement etc.	Suggested Sources of Information- a. https://en.wikipedia.org/wiki/Ammeter b. https://circuitglobe.com/ammeter.html c. Text Books Report Writing – Definition, Symbol, How to connect in circuit?, Different Types, Applications, Important specifications, Different Types of faults, Fault Diagnosis
C.	Your idea of maintaining physical distance in a triple seated Hostel.	Suggested Sources of Information- a. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html Report Writing – Identify touch points in room, corridor, Mess, Common Places Suggest methods to minimize the touch at least at five places

Guidelines for Report-

Front page : Project Name, Student Name, Course, Registration No, Institute Logo, Department Name, Institute Name and address,

Second Page: Certificate,

Third Page : Dedication/Acknowledgement, followed by – Contents, Followed BY –Report on 1A, B & C as suggested above, each section to start with New page,

In the End : References and Appendix (if Required).

Format : Font-12 Pt Arial, 1.5 line spacing, Both Side printing, Main Heading 14 Bold, Sub Heading 12 Bold

Exercise in lieu of In-house Training

BE First Year Students (GIN)

Sr, No.	Exercise	How to write
1. A.	List the following for an Instrument Technician i. Skills required. ii. Tools likely to be used. iii. Components likely to be used. iv. Instruments likely to be used.	Suggested Sources of Information- a. CTS%20Instrument%20Mechanic_CTS_NSQF-5.pdf b. Curriculum for Instrument Mechanic Trade By Skill Development ministry, Government of India c. https://youtu.be/6Maq5IyHSuc Report Writing – Give bullet points for each with possible applications of Tools, Components and Instruments
B.	Write a report on any two of following- • How to use digital multimeter? • How to Test Capacitors with and without using Multimeter.? • How to identify the resistor wattage (Both fixed & variable resistors) ? • How to test diode using digital multimeter? • How to Test the Voltage of Zener Diode without variable DC power supply? • How to Check Earthing is Provided or Not with Test Lamp and Multimeter? • How to Test MOSFET transistor using Multimeter by some easy methods ? • How to test Transistor with Digital Multimeter -Identify base emitter collector & PNP NPN transistor? • How to Connect Multiple LEDs in Series Parallel Circuit LED wiring basics with calculation? • How to test a Transformer using digital multimeter?	Suggested Sources of Information- https://youtu.be/zyT5EPqFQXs https://youtu.be/NqvL7Cyemiw https://youtu.be/b4X0wWfXr7o https://youtu.be/mL_xU3Gd-K4 https://youtu.be/75H9p-eJQVA https://youtu.be/3JEZ4vYVEqM https://youtu.be/IF740E5bm84 https://youtu.be/3MSeDI3Bjd4 https://youtu.be/z4nMBDDC9zw https://youtu.be/D00Qvuux6CE Report Writing – Objective, Apparatus Required, Key specification of Apparatus, Connection Diagram, Method, Conclusion
C.	Your idea of maintaining physical distance in a triple seated Hostel.	Suggested Sources of Information- a. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html Report Writing – Identify touch points in room, corridor, Mess, Common Places Suggest methods to minimize the touch at least at five places

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Exercise in lieu of Industrial Training

ICD second Year Students (CSMM-DIN)

Sr, No.	Exercise	How to write
1. A.	Identify the suitable opportunities for ICD (instrumentation) in i. Employment (Industry/service sector) ii. Self-Employment (Start-up/business opportunity/ setting up of small plant) iii. Higher studies	Suggested Sources of Information- a. CTS%20Instrument%20Mechanic_CTS_NSQF-5.pdf b. Curriculum for Instrument Mechanic Trade By Skill Development ministry, Government of India Report Writing – Give names of industries along with application of Instrumentation, Self-employment opportunities, Options for Higher studies
B.	Write a report on any one of following- • Any process industry • Hospital • Test Laboratory • Research Laboratory • Air-conditioning of a big building • Any other Instrumentation based industry or process	Suggested Sources of Information- https://insights.globalspec.com/article/10752/temperature-measurements-in-cement-manufacture https://www.thermofisher.com/blog/mining/the-cement-manufacturing-process/ https://www.epa.ie/pubs/advice/brefs/cement.pdf https://www.planete-energies.com/en/medias/close/three-stages-refining https://www.e-education.psu.edu/eme801/node/470 https://www.quickmedical.com/blog/post/how-to-sterilize-medical-equipment https://www.eieinstruments.com/general-laboratory-testing-instruments.html http://twentyonecelsius.com.au/blog/everything-you-need-to-know-about-hvac-systems/ Report Writing – Explain the process/processes, Find out three sensors/transducer and measurement system along with range of parameters and specification of the instruments used in the Process
C.	If you were asked to automate an existing manual procedure from our daily lives for COVID-19 situation, what would you choose to automate? Give reasons for choosing the particular procedure. How would you do it?	Suggested Sources of Information- https://nevonprojects.com/motion-based-automatic-door-opener-project/ Report Writing – Name the process to be automated, Reason for choosing the process, Explain how to automate

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Sant Longowal Institute of Engineering & Technology, Longowal

Exercise in lieu of Industrial Training

Degree Second Year Students (GIN)

Sr, No.	Exercise	How to write
1. A.	Identify the following for BE(instrumentation) in i. Skill set ii. Personality Trait's	Suggested Sources of Information- https://www.zippia.com/instrumentation-control-engineer-jobs/skills/ https://www.bestsampleresume.com/job-descriptions/engineer/instrument-engineer.html Report Writing – List out skill set and personality traits for instrumentation Engineer and put up your plan for next one year to acquire these skills and traits.
B.	Write a report on any one of following- • Any process industry • Hospital • Test Laboratory • Research Laboratory • Air-conditioning of a big building • Any other Instrumentation based industry or process	Suggested Sources of Information- https://insights.globalspec.com/article/10752/temperature-measurements-in-cement-manufacture https://www.thermofisher.com/blog/mining/the-cement-manufacturing-process/ https://www.epa.ie/pubs/advice/brefs/cement.pdf https://www.planete-energies.com/en/medias/close/three-stages-refining https://www.e-education.psu.edu/eme801/node/470 https://www.quickmedical.com/blog/post/how-to-sterilize-medical-equipment https://www.eieinstruments.com/general-laboratory-testing-instruments.html http://twentyonecelsius.com.au/blog/everything-you-need-to-know-about-hvac-systems/ Report Writing – complete layout of the plant, process flow drawings of each section, instrumentation studied in each section of the plant. Identify the sensors, controllers, actuators used and their specifications, instruments installed in the plant from the safety and environment pollution point of view, Energy conservation steps
C.	Automation reduces manpower, thus some people lose their jobs to machines. Is it justified to automate a factory to improve productivity and while the workers and their families suffer? Support your answer with COVID-19 situation.	Suggested Sources of Information- https://www.mckinsey.com/featured-insights/future-of-work/how-will-automation-affect-jobs-skills-and-wages https://www.washingtonpost.com/politics/2019/10/17/are-jobs-lost-due-bad-trade-policy-or-automation/ Report Writing – Self Explanatory

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Exercise in lieu of Industrial Training
Degree Third Year Students (GIN)

Sr. No.	Exercise	How to write
2. A.	Identify the suitable opportunities for BE(instrumentation) in iii. Employment (Industry/service sector) iv. Self-Employment (Start-up/business opportunity/ setting up of small plant) v. Higher studies	Suggested Sources of Information- a. https://www.prospects.ac.uk/job-profiles/control-and-instrumentation-engineer b. https://www.naukrigulf.com/instrumentation-engineer-jobs Report Writing – Give names of industries along with role of instrumentation Engineer, Self-employment opportunities, Options for Higher studies. Identify five Indian firms suitable for placement of SLIET student of GIN along with the details of HR personnel
B.	Write a report on any one of following- • Any process industry • Hospital • Test Laboratory • Research Laboratory • Air-conditioning of a big building • Any other Instrumentation based industry or process	Suggested Sources of Information- https://insights.globalspec.com/article/10752/temperature-measurements-in-cement-manufacture https://www.thermofisher.com/blog/mining/the-cement-manufacturing-process/ https://www.epa.ie/pubs/advice/brefs/cement.pdf https://www.planete-energies.com/en/medias/close/three-stages-refining https://www.e-education.psu.edu/eme801/node/470 https://www.quickmedical.com/blog/post/how-to-sterilize-medical-equipment https://www.eieinstruments.com/general-laboratory-testing-instruments.html http://twentyonecelsius.com.au/blog/everything-you-need-to-know-about-hvac-systems/ Report Writing – complete layout of the plant, process flow drawings of each section, instrumentation studied in each section of the plant. All the specifications of the sensors, controllers, actuators, P & I Drawings, logic diagrams of PLC, relay wiring, describe control systems like DCS, PLC, PID controllers, calibration of the transmitters and wiring of the control panels etc, instruments installed in the plant from the safety and environment pollution point of view
C.	What are the differences between AI, Strong AI, and Automation? What are their similarities? Which do you think would be more helpful to humanity, AI or Automation, and why? Justify your answer in view of COVID-19 situation.	Suggested Sources of Information- https://www.researchgate.net/publication/336085049_Artificial_Intelligence_in_Automation Report Writing – Self-Explanatory
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Exercise in lieu of Project

ICD Third Year Students (CSMM-DIN)

Sr, No.	Exercise	How to write
1.	<p>Learn about the aurdino-</p> <ul style="list-style-type: none"> • Arduino: Hardware Overview • Download and install the Arduino IDE • Arduino IDE and Sketch Overview • Understanding Arduino Syntax • Arduino: Understanding Variables <p>And</p> <p>Work for any one of the following project reports-</p> <ul style="list-style-type: none"> • Arduino: How to Blink an LED • Automatic Alcohol Dispenser <p align="center">OR</p> <p>Study the daily routine of the following essential workers to find out probable risks of contracting the COVID-19 virus. Also list precautionary measures to reduce risk of contracting the virus for each of the following categories.</p> <ol style="list-style-type: none"> Doctors Nurses Police personnel Municipal workers Bank employees Shopkeepers <p>Suggest some innovative technological interventions that can help the aforementioned essential workers.</p> <p align="center">OR</p> <p>Any Other technological solution for handling the COVID 19</p>	<p>Suggested Sources of Information-</p> <p>https://youtu.be/09zfRaLEasY</p> <p>https://youtu.be/w55Pd4dU5-w</p> <p>https://youtu.be/YDkdVZ7e3OY</p> <p>https://youtu.be/AJkEQ9t4WfY</p> <p>https://youtu.be/QNTaQ5qiniE</p> <p>Report Writing –</p> <p>Write introduction to aurdino hardware and software</p> <p>https://youtu.be/33sNhlekRV8</p> <p>https://youtu.be/5yobj3vL-go</p> <p>Report Writing –</p> <p>Objective, Motivation, Project details, Circuit diagram or layout, Components with specifications</p>

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Exercise in lieu of Project

Degree Fourth Year Students (GIN)

Sr, No.	Exercise	How to write
1. A.	<p>Learn about the aurdino-</p> <ul style="list-style-type: none"> • Arduino: Hardware Overview • Download and install the Arduino IDE • Arduino IDE and Sketch Overview • Understanding Arduino Syntax • Arduino: Understanding Variables <p>And Work for any one of the following project reports- Touchless bell for home applications</p> <p style="text-align: center;">OR</p> <p>Study the daily routine of the following essential workers to find out probable risks of contracting the COVID-19 virus. Also list precautionary measures to reduce risk of contracting the virus for each of the following categories.</p> <ol style="list-style-type: none"> Doctors Nurses Police personnel Municipal workers Bank employees Shopkeepers <p>Suggest some innovative technological interventions that can help the aforementioned essential workers.</p> <p style="text-align: center;">OR</p> <p>Any Other technological solution for handling the COVID 19</p>	<p>Suggested Sources of Information- https://youtu.be/09zfRaLEasY https://youtu.be/w55Pd4dU5-w https://youtu.be/YDkdVZ7e3OY https://youtu.be/AJkEQ9t4WfY https://youtu.be/QNTaQ5qiniE</p> <p>Report Writing – Write introduction to aurdino hardware and software</p> <p>Report Writing – Objective, Motivation, Project details, Circuit diagram or layout, Components with specifications</p>

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