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 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 training co-ordinator.

Exercise in lieu of In-house Training

BE First Year Students (GEC)

Sr, No.	Exercise	How to write
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 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 identify terminals of a Transistor Using multimeter • How to Test MOSFET transistor using multimeter by some easy methods ? • How to test Transistor with Digital multimeter -Identify base emitter collector of PNP & NPN transistor? • How to Connect Multiple LEDs in Series Parallel Circuit | LED wiring basics with calculation? • How to make a simple rectifier circuit using diodes • How to measure amplitude & frequency using storage Oscilloscope?	**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/Ke_5xKlF78A https://youtu.be/IF740E5bm84 https://youtu.be/3MSeDl3Bjd4 https://youtu.be/z4nMBDDC9zw https://youtu.be/7TxFQnG02X0 https://youtu.be/D0OQvuux6CE https://youtube.com/watch?v=FkWE https://www.youtube.com/watch?v=FkWtPou_RGM

		Report Writing – Objective, Apparatus Required, Key specification of Apparatus, Connection Diagram, Method, Conclusion. Note: Topics will be given by Training Coordinator to each student
C.	Your idea of maintaining physical distance in a triple seated Hostel.	**Suggested Sources of Information-** 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 preparation-

Front page- Title, Student Name, Course, Registration No, Department Name, Institute Name and address

Followed by –Report on S. no. A, B & C as suggested above, each section to start with New page

(**Report must be written in your own handwriting, then take photo or scan of the report and must be sent to training coordinator**.)

Sant Longowal Institute of Engineering & Technology, Longowal

Exercise in lieu of Industrial Training

Degree Second Year Students (GEC)

Sr. No.	Exercise	How to write
A.	Identify the following for BE (Electronics & Communication Engineering) in i. Skillset ii. PersonalityTrait's	**Suggested Sources of Information-** https://www.zippia.com/electronics-engineer-jobs/skills/ https://www.bestsampleresume.com/job-descriptions/engineer/electronics-engineer.html **Report Writing –** List out skill set and personality traits for Electronics & Communication Engineer and put up your plan for next one year to acquire these skills and traits.
	Programming Modules (Any one to be opted out of MATLAB or PYTHON)	
B.	**Detailed activities of students for the MATLAB downloads, installation, and Tutorials:**	
	Introduction and Guide to learn MATLAB Programming	**Suggested Sources of Information-**
B1	MATLAB Download & Installation (It provide a free trial version for 30 days)	https://ch.mathworks.com/campaigns/products/trials/matlab.html
B2	Getting familiar with online programming interface by MATLAB	https://matlabacademy.mathworks.com/R2019b/portal.html?course=gettingstarted&s_tid=course_mlor_bodych1 (students can learn basic commands on online interface provided by Mathworks)
B3	Getting started with MATLAB	1. https://ch.mathworks.com/help/matlab/getting-started-with-matlab.html?s_tid=CRUX_lftnav 2. complete guide for beginners **Video Link (for students who are interested for advance learning in MATLAB)** https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/getting-started-with-matlab&page=1 **Pdf link for books and notes** 1. https://www.mn.uio.no/astro/english/services/it/help/mathematics/matlab/getstart.pdf 2. https://www.mccormick.northwestern.edu/documents/students/undergraduate/introduction-to-matlab.pdf 3. https://ocw.mit.edu/resources/res-18-002-introduction-to-matlab-spring-2008/lecture-notes/
	Day wise activity	**Suggested Sources of Information**
1	Language Fundamentals	https://ch.mathworks.com/help/matlab/language-fundamentals.html?s_tid=CRUX_lftnav **Video Link** https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/language-fundamentals&page=1
2	Entering Commands	https://ch.mathworks.com/help/matlab/entering-commands.html?category=entering-commands&s_tid=CRUX_topnav

3	Matrices and Arrays	https://ch.mathworks.com/help/matlab/matrices-and-arrays.html?s_tid=CRUX_lftnav **Video Link (For easy understanding)** 1. https://www.youtube.com/watch?v=ZBafH5fss1E 2. https://www.youtube.com/watch?v=83S48Fs9WhY
4	Data Types	https://ch.mathworks.com/help/matlab/data-types.html?s_tid=CRUX_lftnav
5	Operators and Elementary Operations	https://ch.mathworks.com/help/matlab/operators-and-elementary-operations.html?s_tid=CRUX_lftnav
6	Arithmetic Operators	https://ch.mathworks.com/help/matlab/arithmetic-operators.html **Video Link (first learn from video1 and then video 2)** 1. https://www.youtube.com/watch?v=lIJ-zF8kKlY 2. https://www.youtube.com/watch?v=ve_xPG3B2-Y
7	Relations Operations	https://ch.mathworks.com/help/matlab/relational-operators.html **Video Link** https://www.youtube.com/watch?v=4TWd_a55TYc
8	Logical Operations	https://ch.mathworks.com/help/matlab/logical-operations.html **Video Link** https://www.youtube.com/watch?v=Rt2kUq5Hyr4
9	Set operations	https://ch.**mathworks**.com/help/matlab/set-operations.html
10	Graphics a) 2-D and 3-D Plots b) Formatting and Annotation	https://ch.mathworks.com/help/matlab/graphics.html?s_tid=CRUX_lftnav a) https://ch.mathworks.com/help/matlab/2-and-3d-plots.html b) https://ch.mathworks.com/help/matlab/graphics.html?s_tid=CRUX_lftnav **Video Link** https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/2-and-3d-plots&page=1
C.	**Python Programming:**	
	Day wise activity	**Suggested Sources of Information**
1	Python installation	https://www.anaconda.com/distribution/
2	Getting familiar with offline programming interface spyder	https://docs.anaconda.com/anaconda/user-guide/tasks/integration/spyder/
3	Getting familiar with online programming interface jupyter	https://docs.anaconda.com/ae-notebooks/user-guide/basic-tasks/apps/jupyter/
4	Getting familiar with python	https://www.geeksforgeeks.org/python-tutorial/
5	Getting familiar with python	https://www.geeksforgeeks.org/python-tutorial/
6	Getting familiar with python	https://www.geeksforgeeks.org/python-tutorial/

7	Starting up with basic programming	https://www.geeksforgeeks.org/python-programming-examples/
8	Starting up with basic programming	https://www.geeksforgeeks.org/python-programming-examples/
9	Starting up with basic programming	https://www.geeksforgeeks.org/python-programming-examples/
10	Generalized array programming in python	https://www.geeksforgeeks.org/python-programming-examples/
11	Generalized array programming in python	https://www.geeksforgeeks.org/python-programming-examples/
12	Selecting any four alphabets and converting them into an array with python code	https://www.geeksforgeeks.org/python-programming-examples/
13	Converting the array into a picture with python code	https://github.com/python
14	Calculating the number of pixels in image with python code	https://www.geeksforgeeks.org/python-pil-getpixel-method/
15	Determining the size of image w.r.t to calculated pixels with python code	https://github.com/python

Guidelines for report preparation-

Front page- Title, Student Name, Course, Registration No, Department Name, Institute Name and address Followed by –Report on S. no. A, B or C as suggested above, each section to start with New page

(**Report must be written in your own handwriting, then take photo or scan of the report and must be sent to training coordinator**.)

Sant Longowal Institute of Engineering & Technology, Longowal

Exercise in lieu of Industrial Training

Degree Third Year Students (GEC)

Sr. No.	Exercise	How to write
A.	Identify the following opportunities for BE(Electronics & Communication Engineering) in i. Skillset ii. Employment (Industry/service sector) iii. Self-Employment (Start-up/business opportunity/ setting up of smallunit) iv. Higher studies	**Suggested Sources of Information-** https://www.zippia.com/electronics-engineer-jobs/skills/ https://engineering.eckovation.com/electronics-communication-resume-skills/ https://www.prospects.ac.uk/job-profiles/electronics-engineer https://engineering.eckovation.com/best-business-ideas-electronics-engineering/ **Report Writing –** List out skill set and personality traits for Electronics & Communication Engineer. Give names of industries along with role of Electronics and Communication Engineer, Self-employment opportunities, Options for Higher studies. Identify five Indian firms suitable for placement of SLIET student of GEC along with the details of HR personnel.
B.	Write a report on any one of following- • Global Positioning System (GPS) and applications • Global Positioning System GPS and its application in Forestry • 5G Technology: 5G mobile communications • Indian Spacecraft • Launchers • Applications of Satellite Communication • Consumer Electronics Industry in India • Research Laboratory • Any Telecom based Industry • Impact of COVID-19 on the Global Electronics/Semicondutor Industry, 2020	https://www.gps.gov/systems/ https://www.gps.gov/applications/ https://www.geospatialworld.net/article/global-positioning-system-gps-and-its-application-in-forestry/ https://www.electronics-notes.com/articles/connectivity/5g-mobile-wireless-cellular/technology-basics.php https://www.isro.gov.in/spacecraft https://www.isro.gov.in/launchers https://www.isro.gov.in/applications/satellite-communication https://www.electronicsb2b.com/editors-choice/consumer-electronics-market-indian-outlook/ **Report Writing –** Complete working of technology with proper block diagram/circuit, its applications, frequency spectrum, impact of technology on human race and future scope, post covid-19 impact on technology, environmental issues
C.	**Programming Modules (Any one to be opted out of MATLAB, PYTHON and PSPICE)**	
C1	**Detailed activities of students for the MATLAB downloads, installation, and Tutorials:**	
	Introduction and Guide to learn MATLAB Programming	**Suggested Sources of Information-**
	MATLAB Download & Installation (It provide a free trial version for 30 days)	https://ch.mathworks.com/campaigns/products/trials/matlab.html
	Getting familiar with online	https://matlabacademy.mathworks.com/R2019b/portal.ht

	programming interface by MATLAB	ml?course=gettingstarted&s_tid=course_mlor_bodych1 (students can learn basic commands on online interface provided by Mathworks)
	Getting started with MATLAB	1. https://ch.mathworks.com/help/matlab/getting-started-with-matlab.html?s_tid=CRUX_lftnav 2. complete guide for beginners **Video Link (for students who are interested for advance learning in MATLAB)** https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/getting-started-with-matlab&page=1 **Pdf link for books and notes** 1. https://www.mn.uio.no/astro/english/services/it/help/mathematics/matlab/getstart.pdf 2. https://www.mccormick.northwestern.edu/documents/students/undergraduate/introduction-to-matlab.pdf 3. https://ocw.mit.edu/resources/res-18-002-introduction-to-matlab-spring-2008/lecture-notes/
	Day wise activity	**Suggested Sources of Information**
1	Language Fundamentals	https://ch.mathworks.com/help/matlab/language-fundamentals.html?s_tid=CRUX_lftnav **Video Link** https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/language-fundamentals&page=1
2	Entering Commands	https://ch.mathworks.com/help/matlab/entering-commands.html?category=entering-commands&s_tid=CRUX_topnav
3	Matrices and Arrays	https://ch.mathworks.com/help/matlab/matrices-and-arrays.html?s_tid=CRUX_lftnav **Video Link (For easy understanding)** 1. https://www.youtube.com/watch?v=ZBafH5fss1E 2. https://www.youtube.com/watch?v=83S48Fs9WhY
4	Data Types	https://ch.mathworks.com/help/matlab/data-types.html?s_tid=CRUX_lftnav
5	Operators and Elementary Operations	https://ch.mathworks.com/help/matlab/operators-and-elementary-operations.html?s_tid=CRUX_lftnav
6	Arithmetic Operators	https://ch.mathworks.com/help/matlab/arithmetic-operators.html **Video Link (first learn from video1 and then video 2)** 1. https://www.youtube.com/watch?v=lIJ-zF8kKlY 2. https://www.youtube.com/watch?v=ve_xPG3B2-Y
7	Relations Operations	https://ch.mathworks.com/help/matlab/relational-operators.html **Video Link** https://www.youtube.com/watch?v=4TWd_a55TYc
8	Logical Operations	https://ch.mathworks.com/help/matlab/logical-operations.html **Video Link**

		https://www.youtube.com/watch?v=Rt2kUq5Hyr4
9	Set operations	https://ch.mathworks.com/help/matlab/set-operations.html
10	Loops and conditional Statements a) Conditionals Statements b) Loop Control Statements	https://ch.mathworks.com/help/matlab/control-flow.html?s_tid=CRUX_lftnav a) https://ch.mathworks.com/help/matlab/matlab_prog/conditional-statements.html **Video link** 1. https://www.youtube.com/watch?v=F2__CSOMdjw 2. https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/control-flow&page=1 b) https://ch.mathworks.com/help/matlab/control-flow.html?s_tid=CRUX_lftnav **Video link** 1. https://www.youtube.com/watch?v=O2UpnPF_tWQ 2. https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/control-flow&page=1
11	Mathematics a) Elementary Math (Trigonometry, exponentials and logarithms, complex values, rounding, remainders, discrete math) b) Linear Algebra (Linear equations, eigenvalues, singular values, decomposition, matrix operations, matrix structure)	a) https://ch.mathworks.com/help/matlab/mathematics.html?s_tid=CRUX_lftnav b) https://ch.mathworks.com/help/matlab/linear-algebra.html
12	Numerical Integration & differentiation	https://ch.mathworks.com/help/matlab/numerical-integration-and-differentiation.html
13	Graphics a) 2-D and 3-D Plots b) Formatting and Annotation c) Image d) Graphics Objects	https://ch.mathworks.com/help/matlab/graphics.html?s_tid=CRUX_lftnav a) https://ch.mathworks.com/help/matlab/2-and-3d-plots.html b) https://ch.mathworks.com/help/matlab/graphics.html?s_tid=CRUX_lftnav c) https://ch.mathworks.com/help/matlab/images_btfntr_-1.html d) https://ch.mathworks.com/help/matlab/graphics-objects.html **Video Link** https://ch.mathworks.com/support/search.html?q=&fq=asset_type_name:video%20category:matlab/2-and-3d-plots&page=1
The excercise for MATLAB scripts to be attempted will be given separately		

Sant Longowal Institute of Engineering & Technology, Longowal

C2.	Python Programming:	
	Day wise activity	**Suggested Sources of Information**
1	Python installation	https://www.anaconda.com/distribution/
2	Getting familiar with offline programming interface spyder	https://docs.anaconda.com/anaconda/user-guide/tasks/integration/spyder/
3	Getting familiar with online programming interface jupyter	https://docs.anaconda.com/ae-notebooks/user-guide/basic-tasks/apps/jupyter/
4	Getting familiar with python	https://www.geeksforgeeks.org/python-tutorial/
5	Getting familiar with python	https://www.geeksforgeeks.org/python-tutorial/
6	Getting familiar with python	https://www.geeksforgeeks.org/python-tutorial/
7	Starting up with basic programming	https://www.geeksforgeeks.org/python-programming-examples/
8	Starting up with basic programming	https://www.geeksforgeeks.org/python-programming-examples/
9	Starting up with basic programming	https://www.geeksforgeeks.org/python-programming-examples/
10	Generalized array programming in python	https://www.geeksforgeeks.org/python-programming-examples/
11	Generalized array programming in python	https://www.geeksforgeeks.org/python-programming-examples/
12	Selecting any four alphabets and converting them into an array with python code	https://www.geeksforgeeks.org/python-programming-examples/
13	Converting the array into a picture with python code	https://github.com/python
14	Calculating the number of pixels in image with python code	https://www.geeksforgeeks.org/python-pil-getpixel-method/
15	Determining the size of image w.r.t to calculated pixels with python code	https://github.com/python

Sant Longowal Institute of Engineering & Technology, Longowal

C3.	PSpice Programming:	
	Day wise activity	**Suggested Sources of Information**
1	PSpicedownloads	https://www.electronics-lab.com/downloads/circutedesignsimulation/?page=5&fid=313
2	PSpice installation	https://www.youtube.com/watch?v=webgPoGDcoI
3	PSpice user's guide	https://www.electronics-lab.com/wp-content/uploads/2015/08/PSPICE.pdf
4	PSpice user's guide	https://www.electronics-lab.com/wp-content/uploads/2015/08/PSPICE.pdf
5	Use of Schematic in PSpice	https://www.youtube.com/watch?v=hT2rSq_ey-I&feature=youtu.be
6	**1st Tutorial on PSpice:** Introduction	http://www.uta.edu/ee/hw/pspice/pspice01.htm
7	**2nd Tutorial on PSpice:** Simple Dependent Sources	http://www.uta.edu/ee/hw/pspice/pspice02.htm
8	**3rd Tutorial on PSpice:**Simple Sub circuits in PSpice	http://www.uta.edu/ee/hw/pspice/pspice03.htm
9	**4th Tutorial on PSpice:**Linear Inductors in PSpice	http://www.uta.edu/ee/hw/pspice/pspice04.htm
10	**5th Tutorial on PSpice:**Steady-State AC Analysis in PSpice	http://www.uta.edu/ee/hw/pspice/pspice05.htm
11	**6th Tutorial on PSpice:**Mutual Inductances in PSpice	http://www.uta.edu/ee/hw/pspice/pspice06.htm
12	**7th Tutorial on PSpice:**Frequency Sweeps in PSpice	http://www.uta.edu/ee/hw/pspice/pspice07.htm
13	**8th Tutorial on PSpice:**Special Sources in PSpice	http://www.uta.edu/ee/hw/pspice/pspice08.htm
14	**9th Tutorial on PSpice:**Parametric Sweep Analysis of Passive Devices Using PSpice	http://www.uta.edu/ee/hw/pspice/pspice09.htm
15	**10th Tutorial on PSpice:**Voltage & Current Controlled Switches	http://www.uta.edu/ee/hw/pspice/pspice10.htm

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 A, B and C1 or C2 or C3 as suggested above, each section to start with New page

IntheEnd : 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