

## GURU NANAK INSTITUTE OF TECHNOLOGY

### MINUTES OF MEETING OF ACADEMIC COUNCIL

Venue:

Board Room

On

31.10.2022 at 11.00 AM



GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)  
Ibrahimpattam, R. R. District, Hyderabad-501506  
Telangana, India

Academic Council Meeting No.1/2022-2023

Venue: Board Room, Principal Office, GNIT

Date: 31.10.2023 at 11:00 a.m.

MINUTES

The Meeting of the Academic Council convened in the Board Room of the Principal's Office. The following distinguished members attended the meeting:

**Members Present:**

S.No.	Name and Designation	Position in Academic Council
1	Dr. S. Sreenatha Reddy Principal, GNIT	Chairman
2	Dr. H. S. Saini Managing Director, GNI	Member (Nominee by BOG)
3	Dr. J. Suresh Kumar Professor of ME, JNTUH, CEH	Member (University Nominee)
4	Dr. K. M. Lakshmana Rao, Professor of Transportation Engg., JNTUH, CEH	Member (University Nominee)
5	Dr. A. Raghuram Professor of EEE, JNTUH, CEH	Member (University Nominee)
6	Dr. M. Madhavi Latha Professor (ECE) & Director (Academic & Planning), JNTUH	Member (University Nominee)
7	Dr. P. Ramesh Babu Professor (ME), Osmania University	Member (Nominee by BOG)
8	Prof. Srinivasulu Tadisetty Dean Faculty of Engineering & Technology, KU	Member (Industry Nominee)
9	Mr. Meka Venkata Chalapathy Head, VIRTUSA, Hyderabad	Member (Industry Nominee)
10	Dr. B. Vijay Kumar Professor, HOD (ME) and Controller of Examinations	Member (Ex-officio HOD)
11	Dr. B. Santhosh Kumar Professor & HOD (CSE)	Member (Ex-officio HOD)
12	Dr. M. Sadish Senthil Professor & HOD (ET)	Member (Ex-officio HOD)
13	Dr. Shatrughna Prasad Yadav Professor & HOD (ECE)	Member (Ex-officio HOD)
14	Dr. S. M. Subash Associate Professor, HOD (CE)	Member (Ex-officio HOD)
15	Dr. S. Jayanthi Associate Professor, HOD (IT)	Member (Ex-officio HOD)
16	Dr. Ch. Nagaraja Kumari Associate Professor, HOD (EEE)	Member (Ex-officio HOD)
17	Dr. B. Madhusudhan Reddy Professor, HOD (MBA)	Member (Ex-officio HOD)
18	Dr. G. Srinivas Professor, HOD (H&S)	Member (Ex-officio HOD)

19	Dr. N. Bhasker Professor, H&S	Member
20	Dr. V Sessa Sai Kumar Assistant Professor, H&S	Member
21	Dr. Vishal Walia Professor, ECE	Member
22	Dr. P. Venkanna Asst. Professor, H & S	Member
23	Dr. Sanjeev Shrivastava Professor, CSE and Dean (Academics and R&D), GNIT	Member Secretary

Dr. S. Sreenatha Reddy, Chairman, Academic Council, welcomed all the members of the council and introduced the members to the council, and briefed them about the institute's activities, and achievements of the institute. Dr. S. Sreenatha Reddy, Chairman of, Academic Council, presented the agenda of the meeting.

The minutes of the meeting as per the agenda and item is given below:

**Agenda Point No.1 – Increase/ decrease in intake**

Dr. S. Sreenatha Reddy, Chairman, Academic Council, apprised the Academic Council members about the increase in the number of seats in B. Tech Artificial Intelligence and Data Science from 60 to 120 and B. Tech CSE (Artificial Intelligence and Machine Learning) from 60 to 120. Further, he added that there is a reduction of seats in B. Tech Civil Engineering is reduced from 120 to 60 and B. Tech Mechanical Engineering is reduced from 120 to 60.

**The council appreciated that the institute is evolving as a central hub for courses in Emerging Technologies.**

EOA 2022-23 from AICTE and JNTUH NOC is attached for ready reference as **Annexure-I a and Annexure 1b respectively.**

**Agenda Point No.2 - Approval of Course Structure for B. Tech, M. Tech, and M.B.A are to be finalized, R22 regulations issued by JNTUH are going to be implemented**

Chairman, Academic Council, described the Academic Council members about the new Course Structure for B. Tech, M.B.A, and M. Tech as per R22 regulations issued by JNTUH and proposed that same should be implemented at GNIT also.

**Dr. A. Raghuram**, suggested that as per new guidelines from UGC the overall degree should have 160 credits with a minimum of 20 credits in each semester. Dr. Raghuram also enquired about the inclusion of mandatory courses like Constitution of India, and Environmental Science. The Chairperson clarified about the inclusion of mandatory courses like the Constitution of India, Environmental Science, Gender Sensitization, etc. in the course structure. The Chairperson has informed that 160 credits are allotted.

Honorable member Dr. P. Ramesh Babu, OU Nominee enquired about 'Intellectual Property Rights (IPR)' and the number of credits allotted to it. The Chairman clarified that IPR is included under mandatory courses.

**The Council discussed various norms and approved that the same regulations as per JNTUH can be followed at GNIT and there should not be any deviation from JNTUH norms. The honorable members also approved the Lab masters of all UG (I and II years) and PG programs.**

Final R22 regulations for B. Tech, M. Tech, and M.B.A are attached as **Annexure-II a, Annexure-II b, and Annexure-II c respectively** and Final Course Structures along with lab

*M. Madhankumar*

Minutes of the Academic Council Meeting

*[Signature]*

*[Signature]*

*[Handwritten marks and signatures]*



masters for B. Tech, M. Tech, and M.B.A are attached as **Annexure-II d, Annexure-II e, and Annexure-II f** respectively.

**Agenda Point No.3 - Approval of BOS constitution as per UGC norms of all UG & PG Programs offered by our institution like B. Tech, M. Tech, and MBA including Humanities & Sciences.**

Dr. S. Sreenatha Reddy, Chairman, Academic Council, proposed the BOS constitution as per UGC norms for all UG & PG Programs offered by our institution like B. Tech, M. Tech, MBA including Humanities & Sciences for kind approval from the Academic Council.

**The council approved the above-mentioned BOS of all UG & PG Programs (B. Tech, M. Tech, MBA, and H&S).**

The BOS for the various departments is attached as **Annexure-III**.

**Agenda Point No. 4 – Relaxation of credits for promotion from AY 2021-22 to AY 2022-23.**

Following the guidelines issued by Registrar JNTUH vide letter no. JNTUH EB/Relaxation of Promotion Rules 2022 dated 17.10.22, it was proposed by the chairman of the Academic Council to allow the same relaxation at GNIT also.

Dr. M. Madhavi Latha, suggested that the students must earn a minimum of 25% credits in every year to qualify for the promotion to the next year. It was clarified that the proposed norms are also fulfilling the same condition with decimal rounding to the lower digit rounding off.

**All the members of the Academic Council accepted the relaxation of credits (25% of total credits) for credit-based detention of the B. Tech students for promotion to the next year (the academic year 2022-23), applicable for the academic year 2021-22 only.** The year-wise details are as follows:

Promotion from	Regular Student	Lateral Entry student
I year to II year*	9 credits out of 37	---
II year to III year*	19 credits out of 79	10 credits out of 42
III year to IV year*	30 credits out of 123	21 credits out of 86

**\* Secured credits to be considered up to October/November 2022 Examinations**

The JNTUH circular dated 17.10.2022 and GNIT notice regarding the relaxation in norms are attached as **annexure-IV**.

**Agenda Point No. 5 – Implementation of Pre-Covid norms from AY 2022-23**

All the Academic Council members discussed that the Covid-19 pandemic is over now and the institute need not to continue with the relaxation in attendance norms and examination pattern meant for the pandemic times. So, the institute should revert back to the Implementation of Pre-Covid norms from AY 2022-23 w. r. t. the maintenance of minimum attendance and pattern of the question paper.

The JNTUH notice as well as the GNIT notice regarding the implementation of pre-Covid norms from AY 2022-23 are attached as **Annexure-V**.

**Agenda Point No. 6 – Approval of Academic Calendars of all courses**

Minutes of the Academic Council Meeting



The Chairman of the Academic Council, proposed the Academic Calendar for AY 2022-23 to be followed in various UG and PG Programs. The Academic Council suggested that the requirement of the minimum number of working days i.e., 90 days must be fulfilled while preparing the academic calendar. It was then apprised by the Chairman of the Academic Council that due care has been taken while preparing the Academic Calendar. The Honorable members then approved the Academic Calendars for various programs. The Academic Calendars for all the programs are attached as **Annexure -VI**.

**Agenda Point No. 7 – Readmission into the appropriate semester with suitable regulations and substitute subjects.**

It was proposed to implement the Readmission rules so that students who were detained under R16 or R18 regulations and are now willing to continue with their degree can be admitted into the appropriate semester under R20 / R22 Regulations.

Dr. M. Madhavi Latha, discussed in detail about the procedural implementation of the readmission norms for the students under R16 and R18 regulations. Giving more clarity on the norms, the honorable member added that in case the student who has been detained in the first year of R18 Regulations due to lack of attendance shall be permitted to join the first year first Semester of R22 Regulations.

Whereas if a student of R16 or R18 Regulations is seeking readmission in subsequent years will only be allowed for the readmission if he/she has cleared all the subjects of the previous years in the parent regulation (R16 or R18 as the case may be) i.e., he has to clear all the subjects in which he was failing as per the parent regulation and earn all the credits for all the years preceding the readmission year. Thereafter, he has to earn all credits of corresponding years of the conforming regulation (R20 or R22- as the case may be).

**The Academic Council members after the discussion on various aspects approved the rules for Readmission into the appropriate semester with suitable regulations and choose the relevant substitute subjects which were not offered to him in the previous semesters.**

Academic Regulations (R22) have already been attached as **Annexure-II**.

**Agenda Point No. 8 – Minor and Honours Programme in B. Tech**

The Academic Council highlighted the key objectives of offering B. Tech. with Minor program to expand the domain knowledge of the students in one of the other branches of engineering and to increase the employability of undergraduate students keeping in view of better opportunities in interdisciplinary areas of Engineering & Technology.

**Keeping in view the benefits of Minor and Honours Programme the Academic Council approved Minor & Honours program for B. Tech for the academic year 2022-23.**

The details of the Minor and Honours Programme in B. Tech are attached herewith as **Annexure- VII a and Annexure- VII b respectively.**

**Agenda Point No. 9 – Moderation in Semester-End Question Paper, Evaluation, and process of result declaration.**

The members of the Academic Council minutely discussed the policy of Moderation in the Semester-End Question Paper, Adjustment of marks (Grafting), and Grace marks for improving Division and approved the same.

Dr. Raghuram suggested that the grafting rules should comply with the norms laid down by various governing bodies like UGC and JNTUH.

The honorable members also discussed about the evaluation process and concluded that the process of result declaration should be at par with JNTUH norms and approved the same. The related documents are enclosed herein as **Annexure – VIII**.

**Agenda Point No. 10 – Permission for the conduct of Computer Based Test (CBT)/ Special Mid Examination for Post Graduate students**

Dr. S. Sreenatha Reddy, Chairman, Academic Council, raised that permission may kindly be granted for the conduct of Computer Based Test (CBT)/ Special Mid Examination for Post Graduate programs in concurrence with Undergraduate programs.

**The members of the Academic Council denied the permission for the conduct of Computer Based Test (CBT)/ Special Mid Examination for Post Graduate students. Further, it was suggested by the honorable members that more efforts should be made to sensitize the students about the importance of Mid examination.**

**Agenda Point No. 11– Empowering Principal, GNIT to take emergency and time bound compliance related decisions to comply with the Government and JNTUH decisions and policies.**

Dr. S. Sreenatha Reddy, Chairman, Academic Council, raised that the Principal, GNIT should be empowered to take emergency and time bound compliance related decisions in conformance with the crucial Government and JNTUH decisions and policies.

**The honorable members of the Academic Council have given the approval to empower the Principal, GNIT to take emergency and time bound compliance related decisions in conformance with the crucial Government and JNTUH decisions and policies.**

The meeting has been concluded with a vote of thanks to all the members of the academic council.

  
Dr. S. Sreenatha Reddy  
Principal & Chairman - ACM

**Copy to:**

1. All the members of the Academic Council
2. Honorable Managing Director, GNI – for information, please
3. Honorable Vice Chairman, GNI – for information please



Approved by  
AICTE



Affiliated to  
JNTU



Accredited by  
National Assessment &  
Accreditation Council



**AUTONOMOUS**  
under Section  
2(f) of  
University Grants  
Commission Act

## GURU NANAK INSTITUTE OF TECHNOLOGY

**Academic Council Meeting No. 1/2022-23**

Venue: Board Room, Principal Office, GNIT date: 31-10-2022

Attendance Sheet

S.No.	Name and Designation	Position in Academic Council	Signature
1	Dr. S. Sreenatha Reddy Principal, GNIT	Chairman	
2	Dr. H. S. Saini, Managing Director, GNI	Member (Nominee by BOG)	
3	Dr. J. Suresh Kumar, Professor of ME, JNTUH, CEH	Member (University Nominee)	
4	Dr. K. M. Lakshmana Rao Professor of Transportation Engg., JNTUH, CEH	Member (University Nominee)	
5	Dr. A. Raghuram, Professor of EEE, JNTUH, CEH	Member (University Nominee)	
6	Dr. M. Madhavi Latha Professor (ECE) & Director (Academic & Planning), JNTUH	Member (University Nominee)	
7	Dr. P. Ramesh Babu Professor (ME), Osmania University	Member (Nominee by BOG)	
8	Prof. Srinivasulu Tadisetty Dean Faculty of Engineering & Technology, KU	Member (Industry Nominee)	
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11	Dr. B. Santhosh Kumar, Professor & HOD (CSE)	Member, (Ex-officio HOD)	
12	Dr. M. Sadish Senthil, Professor & HOD (ET)	Member, (Ex-officio HOD)	
13	Dr. Shatrughna Prasad Yadav, Professor & HOD (ECE)	Member, (Ex-officio HOD)	
14	Dr. S. M. Subash, Associate Professor, HOD (CE)	Member, (Ex-officio HOD)	
15	Dr. S. Jayanthi, Associate Professor, HOD (IT)	Member, (Ex-officio HOD)	
16	Dr. Ch. Nagaraja Kumari, Associate Professor, HOD (EEE)	Member, (Ex-officio HOD)	
17	Dr. B. Madhusudhan Reddy, Professor, HOD (MBA)	Member, (Ex-officio HOD)	
18	Dr. G. Srinivas, Professor, HOD (H&S)	Member, (Ex-officio HOD)	
19	Dr. V Sesha Sai Kumar, Asst. Prof. (H&S)	Member	
20	Dr. N. Bhasker, Professor, (H&S)	Member	
21	Dr. Vishal Walia, Professor, ECE	Member	
22	Dr. P. Venkanna, Asst. Professor, (H&S)	Member	
23	Dr. Sanjeev Shrivastava Professor, CSE and Dean (Academics and R&D), GNIT	Member Secretary	



**Annexure -II d**  
**Course Structure -B. Tech (All Programmes)**

**GURU NANAK INSTITUTE OF TECHNOLOGY**  
**(AUTONOMOUS)**



**GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)**

**Ibrahimpattanam, R. R. District, Hyderabad-501506**

**Telangana, India**

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING  
COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**I Year I Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3	ESC	22ES0EC01	Electronic Devices and Circuits	2	0	0	2
4	ESC	22ES0EE01	Basic Electrical Engineering	2	0	0	2
5	ESC	22BS0ME01	Computer-Aided Engineering Graphics	1	0	4	3
6	BSC	22BS0CH02	Engineering Chemistry Laboratory	0	0	2	1
7	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
8	ESC	22ES0CS05	IT Workshop	0	0	2	1
9	ESC	22ES0EE02	Basic Electrical Engineering Laboratory	0	0	2	1
10			Induction Programme				
			Total	11	3	12	20

**I Year II Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	BSC	22BS0PH01	Applied Physics	3	1	0	4
3	ESC	22ES0CS01	Programming for Problem Solving	3	0	0	3
4	ESC	22ES0ME02	Engineering Workshop	0	1	3	2.5
5	HSMC	22HS0EN01	English for Skill Enhancement	2	0	0	2
6	ESC	22ES0CS02	Elements of Computer Science & Engineering	0	0	2	1
7	BSC	22BS0PH02	Applied Physics Laboratory	0	0	3	1.5
8	ESC	22ES0CS03	Programming for Problem-Solving Laboratory	0	0	2	1
9	HSMC	22HS0EN01	English Language and Communication Skills Laboratory	0	0	2	1
10	MC	22MC0CE01	Environmental Science	3	0	0	0
			Total	14	3	12	20



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING  
COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**II Year I Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EC33	Digital Electronics	3	0	0	3
2	BSC	22BS0MA03	Computer-Oriented Statistical Methods	3	1	0	4
3	PCC	22PC0CS01	Data Structures	3	0	0	3
4	PCC	22PC0CS02	Computer Organization and Architecture	3	0	0	3
5	PCC	22PC0CS03	Object Oriented Programming through Java	3	0	0	3
6	PCC	22PC0CS04	Data Structures Lab	0	0	2	1
7	PCC	22PC0CS05	Object Oriented Programming through Java Lab	0	0	2	1
8	PCC	22PC0EC37	Digital Electronics Lab	0	0	2	1
9	MC	22MC0MB02	Constitution of India	3	0	0	0
10	PCC	22PC0CS06	Skill Development Course (Data Visualization-R Programming/ Power BI)	0	0	2	1
<b>Total Credits</b>				<b>14</b>	<b>1</b>	<b>12</b>	<b>20</b>

**II Year II Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA08	Discrete Mathematics	3	0	0	3
2	HSMC	22SS0MB01	Business Economics & Financial Analysis	3	0	0	3
3	PCC	22PC0CS07	Operating Systems	3	0	0	3
4	PCC	22PC0CS08	Design and Analysis of Algorithms	3	0	0	3
5	PCC	22PC0CS09	Database Management Systems	3	0	0	3
6	PCC	22PC0CS10	Operating Systems Lab	0	0	2	1
7	PCC	22PC0CS11	Database Management Systems Lab	0	0	2	1
8	PCC	22PC0CS12	Real-time Research Project/Societal-Related Project	0	0	4	2
9	MC	22MC0MB01	Gender Sensitization Lab	0	0	2	0
10	PCC	22PC0CS13	Skill Development Course (Node JS/React JS/ Django)	0	0	2	1
<b>Total Credits</b>				<b>18</b>	<b>1</b>	<b>8</b>	<b>20</b>



**GURU NANAK INSTITUTE OF TECHNOLOGY**
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**III YEAR I Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0AI01	Artificial Intelligence	3	0	0	3
2	PCC	22PC0CS14	Computer Networks	3	0	0	3
3	PCC	22PC0CS15	Software Engineering	3	0	0	3
4	PEC	-	<b>Professional Elective-I</b>	3	0	0	3
5	PEC	-	<b>Professional Elective -II</b>	3	0	0	3
6	PCC	22PC0CS16	Computer Networks Lab	0	0	3	1.5
7	PCC	22PC0CS17	Software Engineering Lab	0	0	3	1.5
8	HSMC	22BS0HS03	Advanced English Communication Skills Lab	0	0	2	1
9	MC	22MC0MB03	Intellectual Property Rights	3	0	0	0
10	PCC	22PC0CS18	Skill Development Course (UI Design-Flutter)	0	0	2	1
<b>Total Credits</b>				<b>18</b>	<b>1</b>	<b>8</b>	<b>20</b>

**III Year II Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0AI04	Machine Learning	3	0	0	3
2	PCC	22PC0CY05	Cryptography and Network Security	3	0	0	3
3	PCC	22PC0CS19	Formal Languages & Automata Theory	3	0	0	3
4	PEC	-	<b>Professional Elective - III</b>	3	0	0	3
5	OEC	-	<b>Open Elective-I</b>	3	0	0	3
6	PCC	22PC0AI05	Machine Learning Lab	0	0	2	1
7	PCC	22PC0CY06	Cryptography and Network Security Lab	0	0	2	1
8	PEC	-	<b>Professional Elective-III Lab</b>	0	0	2	1
9	PCC	22PC0CS20	Industry-Oriented Mini Project/ Internship/ Skill Development Course (Big Data-Spark)	0	0	4	2
10	MC	22MC0CY01	Fundamentals of Cyber Security	0	0	3	0
11	*MC	22MC0CE01	Environmental Science	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>3</b>	<b>8</b>	<b>20</b>

\*MC -Only for Lateral Entry Students

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING  
 COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**IV Year I Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0AD02	Data Science	3	0	0	3
2	PCC	22PC0CS21	Compiler Design	3	0	0	3
3	PEC	-	<b>Professional Elective -IV</b>	3	0	0	3
4	PEC	-	<b>Professional Elective -V</b>	3	0	0	3
5	OEC	-	<b>Open Elective – II</b>	3	0	0	3
6	PCC	22PC0AD03	Data Science Lab	0	0	2	1
7	PCC	22PC0CS22	Compiler Design Lab	0	0	2	1
8	PCC	22PC0CS23	Project Stage-I	0	0	0	3
			<b>Total Credits</b>	<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

**IV Year II Semester**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	HSMC	22SS0MB01	Organizational Behavior	3	0	0	3
2	PEC	-	<b>Professional Elective - VI</b>	3	0	0	3
3	OEC	-	<b>Open Elective – III</b>	3	0	0	3
4	PCC	22PC0CS24	Project Stage-II	0	0	18	9
5	PCC	22PC0CS25	Seminar	0	0	4	2
			<b>Total Credits</b>	<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>

*[Handwritten signatures and marks]*



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**Professional Electives**

**Professional Elective – I**

22PE0CS1A	Computer Graphics
22PE0CS1B	Embedded Systems
22PE0CS1C	Data Mining
22PE0CS1D	Image Processing
22PE0CS1E	Principles of Programming Languages

**Professional Elective-II**

22PE0CS2A	Advanced Algorithms
22PE0CS2B	Advanced Computer Architecture
22PE0CS2C	Advanced Databases
22PE0CS2D	Advance Operating Systems
22PE0CS2E	Advanced Internet and Web Services

**Professional Elective-III**

22PE0CS3A	DevOps
22PE0CS3B	Scripting Languages
22PE0CS3C	Big Data Analytics
22PE0CS3D	Mobile Application Development
22PE0CS3E	Software Testing Methodologies

**Professional Elective-III Laboratory**

22PE0CS3F	DevOps Laboratory
22PE0CS3G	Scripting Languages Laboratory
22PE0CS3H	Big Data Analytics Laboratory
22PE0CS3I	Mobile Application Development Laboratory
22PE0CS3J	Software Testing Methodologies Laboratory

**Professional Elective-IV**

22PE0CS4A	Graph Theory
22PE0CS4B	Soft Computing
22PE0CS4C	Informational Retrieval Systems
22PE0CS4D	Robotic Process Automation
22PE0CS4E	Natural Language Processing

**Professional Elective-V**

22PE0CS5A	Computational Complexity
22PE0CS5B	Agile Methodology
22PE0CS5C	Distributed Systems
22PE0CS5D	Human-Computer Interaction
22PE0CS5E	Software Process & Project Management

**Professional Elective-VI**

22PE0CS6A	Quantum Computing
22PE0CS6B	Cloud Computing
22PE0CS6C	Deep Learning
22PE0CS6D	Blockchain Technology
22PE0CS6E	Cyber Law & Cyber Forensics

Note: The department may offer the above professional elective through Swayam MOOCs



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**OPEN ELECTIVES BY THE DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**OPEN ELECTIVE-I**

22OE0CS1A	Software Engineering
22OE0CS1B	Database Management System
22OE0CS1C	Artificial Intelligence

**OPEN ELECTIVE-II**

22OE0CS2A	Software Testing Methodologies
22OE0CS2B	Information Retrieval Systems
22OE0CS2C	Neural Networks

**OPEN ELECTIVE-III**

22OE0CS3A	Machine Learning
22OE0CS3B	Big Data Analytics
22OE0CS3C	Data Science

**Note: The department may offer the above open electives through Swayam MOOCs**

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**Lab Masters- I Year**

S. No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the Equipment Usage	No. of Units required
1	B.Tech	CSE/CSC/CSM/ AIDS/IT	CSE	1	I & II	22E50CS02	Elements of Computer Science & Engineering	Computer Systems with Basic Software	30
2	B.Tech	CSE/CSC/CSM/ AIDS/IT	CSE	1	I & II	22E50CS03	Programming and Problem-Solving Lab	Computer Systems with C language installed.	30
3	B.Tech	All Departments	CSE	I	I & II	22E50CS04	Python Programming Laboratory	Computer Systems with Python Software installed.	30
4	B.Tech	All Departments	CSE	I	I & II	22E50CS05	IT Workshop	All hardware computer components for Demo & Assembly	30
								Computer systems, with internet connectivity and with C, MS office/ Open office latex and MASM installed.	
5	B.Tech	EEE/Civil/ Mech/ECE	CSE	1	I	22E50CS07	C Programming and Data Structures Laboratory	Computer Systems with C language installed.	30

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**Lab Masters- II Year I Semester**

S. No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the Equipment Usage	No. of Units required
1	B.Tech	CSE	CSE	2	1	22PC0EC37	Digital Electronics Lab	RPS (0-30 V)	12
								CROs (0-20 Mhz)	12
								Function generators (0-1 Mhz)	12
								Bread Boards	12
							Full-wave & half-wave rectified boards	2	
							Fixed 5 v power supply boards	2	
							General-purpose analog digital IC trainee kits	2	
							Analog components - Resistors, capacitors, BJTS, FETs, Diodes cables	100	
							Ammeter (0-10 mA)	5	
							Ammeter (0-200 mA)	5	
							Voltmeters (0-50 v)	5	
							Digital ICS 74xx	25	
2				2	1	22PC0CS04	Data Structures Lab	Computer Systems with C Compiler Installed.	30
3				2	1	22PC0CS05	Object Oriented Programming through Java Lab	Computer systems with C++ installed.	30
4				2	1	22PC0CS06	Skill Development Course (Data visualization- R Programming/ Power BI)	Computer Systems with R- Programming installed	30

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**Lab Masters- II Year II Semester**

S.No	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the Equipment Usage	No. of Units required
1				2	2	22PC0CS11	Operating Systems Lab	Computer Systems with Linux OS and Turbo C installed	30
2				2	2	22PC0CS12	Database Management Systems Lab	Computer Systems with MySQL installed	30
3	B.Tech	CSE	CSE	2	2	22MC0EN01	Gender Sensitization Lab	An Activity-Based Course	NA
4				2	2	22PC0CS12	Real-time Research Project/Societal-Related Project	Computer Systems	30
5				2	2	22PC0CS13	Skill Development Course (Node JS/ React JS / Django)	Computer Systems with (Node JS/ React JS / Django) installed	30

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in CSE (CYBER SECURITY)**

**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**

Applicable from AY 2022-23 Batch

**I Year I Semester**

S. No.	Group	Course Code	Course	L	T	P	Credits
1.	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2.	BSC	22BS0PH01	Applied Physics	3	1	0	4
3.	ESC	22ES0ME05	Computer Aided Engineering Graphics	1	0	4	3
4.	ESC	22ES0CS01	Programming for Problem Solving	3	0	0	3
5.	ESC	22ES0ME01	Engineering Workshop	0	1	3	2.5
6.	ESC	22ES0CS02	Elements of Computer Science & Engineering	0	0	2	1
7.	BSC	22BS0PH02	Applied Physics Laboratory	0	0	3	1.5
8.	ESC	22ES0CS03	Programming for Problem Solving Laboratory	0	0	2	1
9.	MC	22MC0CE02	Environmental Science	3	0	0	0
			Induction Program				
<b>Total</b>				<b>13</b>	<b>3</b>	<b>14</b>	<b>20</b>

**I Year II Semester**

S. No.	Group	Course Code	Course	L	T	P	Credits
1.	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3.	HSMC	22HS0EN01	English for Skill Enhancement	2	0	0	2
4.	ESC	22ES0EE01	Basic Electrical Engineering	2	0	0	2
5.	ESC	22ES0EC02	Electronic Devices and Circuits	2	0	0	2
6.	BSC	22BS0CH02	Engineering Chemistry Laboratory	0	0	2	1
7.	ESC	22ES0EE02	Basic Electrical Engineering Laboratory	0	0	2	1
8.	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
9.	HSMC	22HS0EN02	English Language and Communication Skills Laboratory	0	0	2	1
10.	ESC	22ES0CS05	IT Workshop Lab	0	0	2	1
<b>Total</b>				<b>12</b>	<b>3</b>	<b>10</b>	<b>20</b>

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**II YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EC32	Digital Electronics	3	0	0	3
2	BSC	22BS0MA08	Discrete Mathematics	3	1	0	4
3	PCC	22PC0CS01	Data Structures	3	0	0	3
4	PCC	22PC0CS02	Computer Organization and Architecture	3	0	0	3
5	PCC	22PC0CS03	Object Oriented Programming through Java	3	0	0	3
6	PCC	22PC0EC36	Digital Electronics Lab	0	0	2	1
7	PCC	22PC0CS04	Data Structures Lab	0	0	2	1
8	PCC	22PC0CS05	Object Oriented Programming through Java Lab	0	0	2	1
9	PCC	22PC0CS06	Skill Development Course (Data visualization- R Programming/ Power BI)	0	0	2	1
10	MC	22MC0MB01	Gender Sensitization Lab	0	0	2	0
<b>Total</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>

**II YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA03	Computer Oriented Statistical Methods	3	1	0	4
2	HSC	22HS0MB01	Business Economics & Financial Analysis	3	0	0	3
3	PCC	22PC0CS07	Operating Systems	3	0	0	3
4	PCC	22PC0CS14	Computer Networks	3	0	0	3
5	PCC	22PC0CS15	Software Engineering	3	0	0	3
6	PCC	22PC0CS10	Operating Systems Lab	0	0	2	1
7	PCC	22PC0CS17	Computer Networks Lab	0	0	2	1
8	PCC	22PC0CY01	Real-time Research Project/ Field Based Project	0	0	2	1
9	PCC	22PC0CS13	Skill Development Course (Node JS/ React JS/ Django)	0	0	2	1
10	MC	22MC0MB02	Constitution of India	3	0	0	0
<b>Total</b>				<b>18</b>	<b>1</b>	<b>8</b>	<b>20</b>



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**III YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CS08	Design and Analysis of Algorithm	3	1	0	4
2	PCC	22PC0CY02	Cyber Security	3	0	0	3
3	PCC	22PC0CS09	Database Management Systems	3	0	0	3
4	PEC	-	Professional Elective – I	3	0	0	3
5	PEC	-	Professional Elective – II	3	0	0	3
6	PCC	22PC0CY03	Cyber Security Lab	0	0	2	1
7	PCC	22PC0CS11	Database Management Systems Lab	0	0	2	1
8	HSMC	22BS0HS03	Advanced Communication Skills Lab	0	0	2	1
9	PCC	22PC0CS19	Skill Development Course (UI design- Flutter)	0	0	2	1
10	MC	22MC0MB03	Intellectual Property Rights	3	0	0	0
<b>Total</b>				<b>18</b>	<b>1</b>	<b>8</b>	<b>20</b>

**III YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CS16	Formal Language and Automata Theory	3	0	0	3
2	PCC	22PC0CY04	Cyber Crime Investigation & Digital Forensics	3	0	0	3
3	PCC	22PC0CY05	Cryptography and Network Security	3	0	0	3
4	PEC	-	Professional Elective – III	3	0	0	3
5	OEC	-	Open Elective – I	3	0	0	3
6	PCC	22PC0CY06	Cryptography and Network Security Lab	0	0	2	1
7	PCC	22PC0CY07	Cyber Crime Investigation & Digital Forensics Lab	0	0	2	1
8	PEC	-	Professional Elective – III Lab	0	0	2	1
9	PCC	22PC0CY08	Industrial Oriented Mini Project / Summer Internship / Skill Development Course (Big data-Spark)	0	0	4	2
10	MC*	22MC0CE02	Environmental Science	3	0	0	0
<b>Total</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>

MC\* should be registered by lateral entry students only.

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**IV YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CY09	Vulnerability Assessment & Penetration Testing	3	0	0	3
2	PCC	22PC0CY10	Network Management Systems and Operations	3	0	0	3
3	PEC	-	Professional Elective – IV	3	0	0	3
4	PEC	-	Professional Elective - V	3	0	0	3
5	OEC	-	Open Elective – II	3	0	0	3
6	PCC	22PC0CY11	Vulnerability Assessment & Penetration Testing Lab	0	0	2	1
7	PCC	22PC0CY12	Network Management Systems and Operations Lab	0	0	2	1
8	PCC	22PC0CY13	Project Stage – I	0	0	6	3
9	PCC	22PC0CY14	Skill Development Course (Infection Monkey/ Conjur)	0	0	4	0
<b>Total</b>				<b>15</b>	<b>0</b>	<b>14</b>	<b>20</b>

**IV YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	HSMC	22HS0MB04	Organizational Behavior	3	0	0	3
2	PEC	-	Professional Elective – VI	3	0	0	3
3	OEC	-	Open Elective – III	3	0	0	3
4	PCC	22PC0CY15	Seminar	0	0	4	2
5	PCC	22PC0CY16	Project Stage – II	0	0	18	9
<b>Total</b>				<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**Professional Elective - I**

22PE0CY1A	Cyber Law
22PE0CY1B	Artificial Intelligence
22PE0CY1C	Advanced Databases
22PE0CY1D	Mobile Computing
22PE0CY1E	Authentication Techniques

**Professional Elective - II**

22PE0CY2A	Ethical Hacking
22PE0CY2B	Data Science
22PE0CY2C	Information Retrieval Systems
22PE0CY2D	Soft Computing
22PE0CY2E	Ad hoc & Sensor Networks

**Professional Elective - III**

22PE0CY3A	Mobile Application Security
22PE0CY3B	Machine Learning
22PE0CY3C	Data Mining
22PE0CY3D	Mobile Application Development
22PE0CY3E	Blockchain Technology

**Professional Elective - III Lab**

22PE0CY3F	Mobile Application Security Lab
22PE0CY3G	Machine Learning Lab
22PE0CY3H	Data Mining Lab
22PE0CY3I	Mobile Application Development Lab
22PE0CY3J	Blockchain Technology Lab

**Professional Elective -IV**

22PE0CY4A	Web & Database Security
22PE0CY4B	Reinforcement Learning
22PE0CY4C	Business Intelligence
22PE0CY4D	Cloud Computing
22PE0CY4E	Computer Security & Audit Assurance

**Professional Elective -V**

22PE0CY5A	Social Media Security
22PE0CY5B	Deep Learning
22PE0CY5C	Knowledge Representation and Reasoning
22PE0CY5D	Edge Computing
22PE0CY5E	Data Analytics for Fraud Detection

**Professional Elective - VI**

22PE0CY6A	Cloud Security
22PE0CY6B	Conversational AI
22PE0CY6C	Data Privacy
22PE0CY6D	Quantum Computing
22PE0CY6E	Digital Watermarking and Steganography

**NOTE: The Department may offer the above Professional Electives through Swayam MOOCs**

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**Open Electives offered by the Department of Emerging Technologies**

**B.Tech. CSE (Cyber Security)**

**Open Elective - I**

22OE0CY1A	Blockchain Technology
22OE0CY1B	Software Engineering
22OE0CY1C	Cyber Law

**Open Elective - II**

22OE0CY2A	Data Privacy
22OE0CY2B	Software Testing Methodologies
22OE0CY2C	Cyber Forensics

**Open Elective - III**

22OE0CY3A	5G Technologies
22OE0CY3B	Software Process and Project Management
22OE0CY3A	Fundamentals of Cyber Security

**Note: The department may offer the above open electives through Swayam MOOD**

**\*\* 22MC0CY01 Fundamentals of Cyber Security**

Mandatory course all UG programme except B.Tech. CSE (Cyber Security)

## GURU NANAK INSTITUTE OF TECHNOLOGY

### DEPARTMENT OF EMERGING TECHNOLOGIES

B.Tech. in CSE (CYBER SECURITY)

LAB MASTERS FOR THE A.Y 2022-23

For B.Tech - I, II Year

S.No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	ET	CSE (CSC)	1	1	22ES0CS03	Programming and Problem-Solving Lab	Computer Systems with C Compiler installed.	30
2	B.Tech	ET	CSE (CSC)	1	2	22ES0CS04	Python Programming Lab	Computer Systems with Python installed.	30
3	B.Tech	ET	CSE (CSC)	1	2	22ES0CS05	IT Workshop Lab	All hardware computer components for Demo & Assembly	2
4	B.Tech	ET	CSE (CSC)	1	2	22ES0CS05	IT Workshop Lab	Computer Systems with MSOffice Package installed.	30
5	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Realization of Boolean Expressions using Gates	2
6	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design and realization logic gates using universal gates	3
7	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Generation of clock using NAND / NOR gates	2
8	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design a 4 – bit Adder / Subtractor	2
9	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of a 4 – bit gray to Binary and Binary to Gray Converter	2
10	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of a 4 – bit pseudo random sequence generator using logic gates.	2
11	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of an 8 bit parallel load and serial out shift register using flip-flops.	2
12	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of a Asynchronous and Synchronous counter using flip-flops	2
13	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of 8x1 MUX using 2x1 MUX	2

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## GURU NANAK INSTITUTE OF TECHNOLOGY

14	B.Tech	ET	CSE (CSC)	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of 2-bit comparator	2
15	B.Tech	ET	CSE (CSC)	2	1	22PC0CS04	Data Structures Lab	Computer Systems with C Compiler Installed.	30
16	B.Tech	ET	CSE (CSC)	2	1	22PC0CS05	Object Oriented Programming through Java Lab	Computer Systems with MySQL and JDK installed	30



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)  
COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**

Applicable from AY 2022-23 Batch

**I YEAR I SEMESTER**

S.No.	Group	Course Code	Course	L	T	P	Credits
1.	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2.	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3.	ESC	22ES0EC02	Electronic Devices and Circuits	2	0	0	2
4.	ESC	22ES0EE01	Basic Electrical Engineering	2	0	0	2
5.	ESC	22ES0ME05	Computer Aided Engineering Graphics	1	0	4	3
6.	BSC	22BS0CH02	Engineering Chemistry Laboratory	0	0	2	1
7.	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
8.	ESC	22ES0CS05	IT Workshop Lab	0	0	2	1
9.	ESC	22ES0EE02	Basic Electrical Engineering Laboratory	0	0	2	1
10.	MC	22MC0CE02	Environmental Science	3	0	0	0
			Induction Program				
			<b>Total</b>	<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

**I YEAR II SEMESTER**

S.No.	Group	Course Code	Course	L	T	P	Credits
1.	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	BSC	22BS0PH01	Applied Physics	3	1	0	4
3.	ESC	22ES0CS01	Programming for Problem Solving	3	0	0	3
4.	ESC	22ES0ME01	Engineering Workshop	0	1	3	2.5
5.	HSMC	22HS0EN01	English for Skill Enhancement	2	0	0	2
6.	ESC	22ES0CS02	Elements of Computer Science & Engineering	0	0	2	1
7.	BSC	22BS0PH02	Applied Physics Laboratory	0	0	3	1.5
8.	ESC	22ES0CS03	Programming for Problem Solving Laboratory	0	0	2	1
9.	HSMC	22HS0EN02	English Language and Communication Skills Laboratory	0	0	2	1
			<b>Total</b>	<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)  
COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**

Applicable from AY 2022-23 Batch

**II YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA08	Discrete Mathematics	3	1	0	4
2	PCC	22PC0CS15	Software Engineering	3	0	0	3
3	PCC	22PC0CS01	Data Structures	3	0	0	3
4	PCC	22PC0CS02	Computer Organization and Architecture	3	0	0	3
5	PCC	22PC0CS03	Object Oriented Programming through Java	3	0	0	3
6	PCC	22PC0CS04	Data Structures Lab	0	0	2	1
7	PCC	22PC0CS18	Software Engineering Lab	0	0	2	1
8	PCC	22PC0CS05	Object Oriented Programming through Java Lab	0	0	2	1
9	PCC	22PC0CS06	Skill Development Course (Data visualization- R Programming/ Power BI)	0	0	2	1
10	MC	22MC0MB01	Gender Sensitization Lab	0	0	2	0
<b>Total</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>

**II YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA04	Mathematical and Statistical Foundations	3	1	0	4
2	PCC	22PC0AI01	Artificial Intelligence	3	0	0	3
3	PCC	22PC0CS07	Operating Systems	3	0	0	3
4	PCC	22PC0CS09	Database Management Systems	3	1	0	4
5	PCC	22PC0CS10	Operating Systems Lab	0	0	2	1
6	PCC	22PC0CS11	Database Management Systems Lab	0	0	2	1
7	PCC	22PC0AI02	Artificial Intelligence Lab	0	0	2	1
8	PCC	22PC0AI03	Real-time Research Project / Field Based Project	0	0	4	2
9	PCC	22PC0CS13	Skill Development Course (Node JS/ React JS / Django)	0	0	2	1
10	MC	22MC0MB02	Constitution of India	3	0	0	0
<b>Total</b>				<b>18</b>	<b>2</b>	<b>12</b>	<b>20</b>



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)  
COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**

Applicable from AY 2022-23 Batch

**III YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CS08	Design and Analysis of Algorithm	3	1	0	4
2	HSMC	22HS0MB01	Business Economics & Financial Analysis	3	0	0	3
3	PCC	22PC0CS14	Computer Networks	3	0	0	3
4	PCC	22PC0AI04	Machine Learning	3	0	0	3
5	PEC	-	Professional Elective-I	3	0	0	3
6	PCC	22PC0AI05	Machine Learning Lab	0	0	2	1
7	PCC	22PC0CS17	Computer Networks Lab	0	0	2	1
8	HSMC	22BS0HS03	Advanced Communication Skills lab	0	0	2	1
9	PCC	22PC0CS19	Skill Development Course (UI design- Flutter)	0	0	2	1
10	MC	22MC0MB03	Intellectual Property Rights	3	0	0	0
<b>Total</b>				<b>18</b>	<b>0</b>	<b>8</b>	<b>20</b>

**III YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CS16	Formal Language and Automata Theory	3	0	0	3
2	PCC	22PC0AI06	Knowledge Representation and Reasoning	3	0	0	3
3	PCC	22PC0AI07	Natural Language Processing	3	0	0	3
4	PEC	-	Professional Elective – II	3	0	0	3
5	OEC	-	Open Elective-I	3	0	0	3
6	PCC	22PC0AI08	Natural Language Processing Lab	0	0	3	1.5
7	PCC	22PC0AI09	Knowledge Representation and Reasoning Lab	0	0	3	1.5
8	PCC	22PC0AI10	Industrial Oriented Mini Project/ Internship / Skill Development Course (DevOps)	0	0	4	2
9	MC	22MC0CY01	Fundamentals of Cyber Security	3	0	0	0
10	MC*	22MC0CE02	Environmental Science	3	0	0	0
<b>Total</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>

MC\* Only Lateral Entry students should register for Environmental Science course



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)**  
**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**

Applicable from AY 2022-23 Batch

**IV YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0AI11	Deep Learning	3	0	0	3
2	PCC	22PC0AI12	Big Data Analytics	3	0	0	3
3	PEC	-	Professional Elective -III	3	0	0	3
4	PEC	-	Professional Elective -IV	3	0	0	3
5	OEC	-	Open Elective - II	3	0	0	3
6	HSMC	22HS0MB03	Professional Practice, Law & Ethics	0	0	2	1
7	PEC	-	Professional Elective - III Lab	0	0	2	1
8	PCC	22PC0AI13	Project Stage - I	0	0	6	3
<b>Total Credits</b>				<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

**IV YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	-	Professional Elective - V	3	0	0	3
2	PEC	-	Professional Elective - VI	3	0	0	3
3	OEC	-	Open Elective - III	3	0	0	3
4	PCC	22PC0AI14	Seminar	0	0	4	2
5	PCC	22PC0AI15	Project Stage - II	0	0	18	9
<b>Total</b>				<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)**  
**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**  
 Applicable from AY 2022-23 Batch

**Professional Elective – I**

22PE0AD1A	Cyber Law
22PE0AD1B	Advanced Database Management Systems
22PE0AD1C	Web Programming
22PE0AD1D	Soft Computing
22PE0AD1E	Computer Graphics

**Professional Elective - II**

22PE0AD2A	Information Security
22PE0AD2B	Information Retrieval Systems
22PE0AD2C	Web Applications
22PE0AD2D	Mobile Computing
22PE0AD2E	Pattern Recognition

**Professional Elective - III**

22PE0AD3A	Cryptography and Network Security
22PE0AD3B	Data Mining
22PE0AD3C	Scripting Languages
22PE0AD3D	Mobile Application Development
22PE0AD3E	Image Processing

**Professional Elective – III Lab**

22PE0AD3F	Cryptography and Network Security Lab
22PE0AD3G	Data Mining Lab
22PE0AD3H	Scripting Languages Lab
22PE0AD3I	Mobile Application Development Lab
22PE0AD3J	Image Processing Lab

**Professional Elective -IV**

22PE0AD4A	Cyber Crime Investigation & Digital Forensics
22PE0AD4B	Distributed Databases
22PE0AD4C	Web Intelligence
22PE0AD4D	Cloud Computing
22PE0AD4E	Computer Vision and Robotics

**Professional Elective - V**

22PE0AD5A	Vulnerability Assessment & Penetration Testing
22PE0AD5B	Business Intelligence
22PE0AD5C	Web Security
22PE0AD5D	Edge Computing
22PE0AD5E	Augmented Reality & Virtual Reality

**Professional Elective – VI**

22PE0AD6A	Ethical Hacking
22PE0AD6B	Data Security
22PE0AD6C	Semantic Web
22PE0AD6D	Quantum Computing
22PE0AD6E	Speech and Video Processing

**NOTE: The Department may offer the above Professional Electives through Swayam MOOCs**

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)**  
**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**  
 Applicable from AY 2022-23 Batch

**Open Electives offered by the Department of Emerging Technologies**

**B.Tech. CSE (AIML)**

**Open Elective - I**

22OE0A11A	Artificial Intelligence
22OE0A11B	Software Engineering
22OE0A11C	Big Data Analytics

**Open Elective – II**

22OE0A12A	Machine Learning
22OE0A12B	Software Testing Methodologies
22OE0A12C	Predictive Analytics

**Open Elective – III**

22OE0A13A	Deep Learning
22OE0A13B	Software Process and Project Management
22OE0A13C	Web and Social Media Analytics

**Note: The department may offer the above open electives through Swayam MOOD**



# GURU NANAK INSTITUTE OF TECHNOLOGY

## DEPARTMENT OF EMERGING TECHNOLOGIES B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING) LAB MASTERS FOR THE A.Y 2022-23

For B. Tech - I, II Year

S.No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	ET	CSE(AIML)	1	1	22ES0CS04	Python Programming Lab	Computer Systems with Python installed.	30
2	B.Tech	ET	CSE(AIML)	1	1	22ES0CS05	IT Workshop Lab	All hardware computer components for Demo & Assembly	30
3	B.Tech	ET	CSE(AIML)	1	1	22ES0CS05	IT Workshop Lab	Computer Systems with MSOffice Package installed.	30
4	B.Tech	ET	CSE(AIML)	1	2	22ES0CS03	Programming and Problem-Solving Lab	Computer Systems with C Compiler installed.	30
5	B.Tech	ET	CSE(AIML)	2	1	22PC0CS18	Software Engineering Lab	Computer Systems with Star UML Installed.	30
6	B.Tech	ET	CSE(AIML)	2	1	22PC0CS04	Data Structures Lab	Computer Systems with C Compiler Installed.	30
7	B.Tech	ET	CSE(AIML)	2	1	22PC0CS05	Object Oriented Programming through Java Lab	Computer Systems with MySQL and JDK installed	30
8	B.Tech	ET	CSE(AIML)	2	1	22PC0CS06	Skill Development Course (Data visualization- R Programming/ Power BI)	Computer Systems with R- Programming installed	30
9	B.Tech	ET	CSE(AIML)	2	1	22MC0MB01	Gender Sensitization Lab	An Activity-Based Course	NA
10	B.Tech	ET	CSE(AIML)	2	2	22PC0AI02	Artificial Intelligence Lab	Computer Systems with python installed	30
11	B.Tech	ET	CSE(AIML)	2	2	22PC0CS10	Operating Systems Lab	Computer Systems with Linux OS and Turbo C installed	30
12	B.Tech	ET	CSE(AIML)	2	2	22PC0CS11	Database Management Systems Lab	Computer Systems with MySQL installed	30
13	B.Tech	ET	CSE(AIML)	2	2	22PC0AI03	Real-time Research Project / Field Based Project	Computer Systems	30



**GURU NANAK INSTITUTE OF TECHNOLOGY**

14	B.Tech	ET	CSE(AIML)	2	2	22PC0CS13	Skill Development Course (Node JS/ React JS / Django)	Computer Systems with(Node JS/ React JS / Django) installed	30
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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF EMERGING TECHNOLOGIES**

**B.Tech. in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**

Applicable from AY 2022-23 Batch

**I Year I Semester**

S. No.	Group	Course Code	Course	L	T	P	Credits
1.	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2.	BSC	22BS0PH01	Applied Physics	3	1	0	4
3.	ESC	22ES0ME05	Computer Aided Engineering Graphics	1	0	4	3
4.	ESC	22ES0CS01	Programming for Problem Solving	3	0	0	3
5.	ESC	22ES0ME01	Engineering Workshop	0	1	3	2.5
6.	ESC	22ES0CS02	Elements of Computer Science & Engineering	0	0	2	1
7.	BSC	22BS0PH02	Applied Physics Laboratory	0	0	3	1.5
8.	ESC	22ES0CS03	Programming for Problem Solving Laboratory	0	0	2	1
9.	MC	22MC0CE02	Environmental Science	3	0	0	0
10			Induction Program				
<b>Total</b>				<b>13</b>	<b>3</b>	<b>14</b>	<b>20</b>

**I Year II Semester**

S. No.	Group	Course Code	Course	L	T	P	Credits
1.	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3.	HSMC	22HS0EN01	English for Skill Enhancement	2	0	0	2
4.	ESC	22ES0EE01	Basic Electrical Engineering	2	0	0	2
5.	ESC	22ES0EC02	Electronic Devices and Circuits	2	0	0	2
6.	BSC	22BS0CH02	Engineering Chemistry Laboratory	0	0	2	1
7.	ESC	22ES0EE02	Basic Electrical Engineering Laboratory	0	0	2	1
8.	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
9.	HSMC	22HS0EN02	English Language and Communication Skills Laboratory	0	0	2	1
10.	ESC	22ES0CS05	IT Workshop Lab	0	0	2	1
<b>Total</b>				<b>12</b>	<b>3</b>	<b>10</b>	<b>20</b>

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**  
**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**  
**Applicable from AY 2022-23 Batch**

**II YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EC32	Digital Electronics	3	0	0	3
2	BSC	22BS0MA08	Discrete Mathematics	3	1	0	4
3	PCC	22PC0CS01	Data Structures	3	0	0	3
4	PCC	22PC0CS02	Computer Organization and Architecture	3	0	0	3
5	PCC	22PC0CS03	Object Oriented Programming through Java	3	0	0	3
6	PCC	22PC0EC36	Digital Electronics Lab	0	0	2	1
7	PCC	22PC0CS04	Data Structures Lab	0	0	2	1
8	PCC	22PC0CS05	Object Oriented Programming through Java Lab	0	0	2	1
9	PCC	22PC0CS06	Skill Development Course (Data visualization - R Programming/ Power BI)	0	0	2	1
10	MC	22MC0MB01	Gender Sensitization Lab	0	0	2	0
<b>Total</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>

**II YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA04	Mathematical and Statistical Foundations	3	1	0	4
2	PCC	22PC0AI01	Artificial Intelligence	3	0	0	3
3	PCC	22PC0CS07	Operating Systems	3	0	0	3
4	PCC	22PC0CS15	Software Engineering	3	0	0	3
5	PCC	22PC0CS09	Database Management Systems	3	0	0	3
6	PCC	22PC0CS10	Operating Systems Lab	0	0	2	1
7	PCC	22PC0CS11	Database Management Systems Lab	0	0	2	1
8	PCC	22PC0AD01	Real Time Research Project / Field Based Project	0	0	2	1
9	PCC	22PC0CS13	Skill Development Course (Node JS/ React JS / Django)	0	0	2	1
10	MC	22MC0MB02	Constitution of India	3	0	0	0
<b>Total</b>				<b>18</b>	<b>1</b>	<b>8</b>	<b>20</b>

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**

Applicable from AY 2022-23 Batch

**III YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CS08	Design and Analysis of Algorithm	3	0	0	3
2	HSMC	22HS0MB01	Business Economics & Financial Analysis	3	0	0	3
3	PCC	22PC0CS14	Computer Networks	3	0	0	3
4	PCC	22PC0AD02	Data Science	3	0	0	3
5	PEC	-	Professional Elective - I	3	0	0	3
6	PCC	22PC0AD03	Data Science using R Lab	0	0	3	1.5
7	PCC	22PC0CS17	Computer Networks Lab	0	0	3	1.5
8	HSMC	22BS0HS03	Advanced Communication Skills lab	0	0	2	1
9	PCC	22PC0AD03	Skill Development Course (ETL- Kafka / Talend)	0	0	2	1
10	MC	22MC0MB03	Intellectual Property Rights	3	0	0	0
<b>Total</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>

**III YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CS16	Formal Language and Automata Theory	3	0	0	3
2	PCC	22PC0AI04	Machine Learning	3	0	0	3
3	PCC	22PC0AD04	Big Data Analytics	3	0	0	3
4	PEC	-	Professional Elective – II	3	0	0	3
5	OEC	-	Open Elective-I	3	0	0	3
6	PCC	22PC0AI05	Machine Learning Lab	0	0	3	1.5
7	PCC	22PC0AD05	Big Data Analytics Lab	0	0	3	1.5
8	PCC	22PC0AD06	Industrial Oriented Mini Project/ Internship / Skill Development Course (UI design- Flutter)	0	0	4	2
9	MC	22MC0CY01	Fundamentals of Cyber Security	3	0	0	0
10	MC*	22MC0CE02	Environmental Science	3	0	0	0
<b>Total</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>

MC\* - Only Lateral Entry students should register for Environmental Science course



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**B.Tech. in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**  
**COURSE STRUCTURE, I & II YEAR SYLLABUS (R22 Regulations)**  
**Applicable from AY 2022-23 Batch**

**IV YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0AD07	Predictive Analytics	3	0	0	3
2	PCC	22PC0AD08	Web and Social Media Analytics	3	0	0	3
3	PEC	-	Professional Elective -III	3	0	0	3
4	PEC	-	Professional Elective -IV	3	0	0	3
5	OEC	-	Open Elective - II	3	0	0	3
6	HSMC	22HS0MB03	Professional Practice, Law & Ethics	0	0	2	1
7	PEC	-	Professional Elective -III Lab	0	0	2	1
8	PCC	22PC0AD09	Project Stage - I	0	0	6	3
<b>Total</b>				<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

**IV YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	-	Professional Elective - V	3	0	0	3
2	PEC	-	Professional Elective - VI	3	0	0	3
3	OEC	-	Open Elective - III	3	0	0	3
4	PCC	22PC0AD10	Seminar	0	0	4	2
5	PCC	22PC0AD11	Project Stage - II	0	0	18	9
<b>Total</b>				<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**Professional Elective – I**

22PE0AD1A	Cyber Law
22PE0AD1B	Advanced Database Management Systems
22PE0AD1C	Web Programming
22PE0AD1D	Soft Computing
22PE0AD1E	Computer Graphics

**Professional Elective - II**

22PE0AD2A	Information Security
22PE0AD2B	Information Retrieval Systems
22PE0AD2C	Web Applications
22PE0AD2D	Mobile Computing
22PE0AD2E	Pattern Recognition

**Professional Elective - III**

22PE0AD3A	Cryptography and Network Security
22PE0AD3B	Data Mining
22PE0AD3C	Scripting Languages
22PE0AD3D	Mobile Application Development
22PE0AD3E	Image Processing

**Professional Elective – III Lab**

22PE0AD3F	Cryptography and Network Security Lab
22PE0AD3G	Data Mining Lab
22PE0AD3H	Scripting Languages Lab
22PE0AD3I	Mobile Application Development Lab
22PE0AD3J	Image Processing Lab

**Professional Elective -IV**

22PE0AD4A	Cyber Crime Investigation & Digital Forensics
22PE0AD4B	Distributed Databases
22PE0AD4C	Web Intelligence
22PE0AD4D	Cloud Computing
22PE0AD4E	Computer Vision and Robotics

**Professional Elective - V**

22PE0AD5A	Vulnerability Assessment & Penetration Testing
22PE0AD5B	Business Intelligence
22PE0AD5C	Web Security
22PE0AD5D	Edge Computing
22PE0AD5E	Augmented Reality & Virtual Reality

**Professional Elective – VI**

22PE0AD6A	Ethical Hacking
22PE0AD6B	Data Security
22PE0AD6C	Semantic Web
22PE0AD6D	Quantum Computing
22PE0AD6E	Speech and Video Processing

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**NOTE: The Department may offer the above Professional Electives through Swayam MOOCs  
B.Tech. in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**Open Electives offered by the Department of Emerging Technologies**

**Open Elective - I**

22OE0AD1A	Artificial Intelligence
22OE0AD1B	Software Engineering
22OE0AD1C	Big Data Analytics

**Open Elective – II**

22OE0AD2A	Machine Learning
22OE0AD2B	Software Testing Methodologies
22OE0AD2C	Predictive Analytics

**Open Elective – III**

22OE0AD3A	Data Science
22OE0AD3B	Software Process and Project Management
22OE0AD3C	Web and Social Media Analytics

**Note: The department may offer the above open electives through Swayam MOOAD**

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## GURU NANAK INSTITUTE OF TECHNOLOGY

### DEPARTMENT OF EMERGING TECHNOLOGIES B.Tech. in CSE (ARTIFICIAL INTELLIGENCE AND DATA SCIENCE) LAB MASTERS FOR THE A.Y 2022-23

For B.Tech - I and II Year

S.No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	ET	AIDS	1	1	22ES0CS03	Programming and Problem Solving Lab	Computer Systems with C Compiler installed.	30
2	B.Tech	ET	AIDS	1	2	22ES0CS04	Python Programming Lab	Computer Systems with Python installed.	30
3	B.Tech	ET	AIDS	1	2	22ES0CS05	IT Workshop Lab	All hardware computer components for Demo & Assembly	2
4	B.Tech	ET	AIDS	1	2	22ES0CS05	IT Workshop Lab	Computer Systems with MSOffice Package installed.	30
5	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Realization of Boolean Expressions using Gates	2
6	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design and realization logic gates using universal gates	3
7	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Generation of clock using NAND / NOR gates	2
8	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design a 4 - bit Adder / Subtractor	2
9	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of a 4 - bit gray to Binary and Binary to Gray Converter	2
10	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of a 4 - bit pseudo random sequence generator using logic gates.	2
11	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of an 8 bit parallel load and serial out shift register using flip-flops.	2
12	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of a Asynchronous and Synchronous counter using flip-flops	2
13	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of 8x1 MUX using 2x1 MUX	2

GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)



**GURU NANAK INSTITUTE OF TECHNOLOGY**

14	B.Tech	ET	AIDS	2	1	22PC0EC36	Digital Electronics Lab	Design and realization of 2-bit comparator	2
15	B.Tech	ET	AIDS	2	1	22PC0CS04	Data Structures Lab	Computer Systems with C Compiler Installed.	30
16	B.Tech	ET	AIDS	2	1	22PC0CS05	Object Oriented Programming through Java Lab	Computer Systems with MySQL and JDK installed	30
17	B.Tech	ET	AIDS	2	1	22PC0CS06	Skill Development Course (Data visualization- R Programming/ Power BI)	Computer Systems with R-Programming installed	30
18	B.Tech	ET	AIDS	2	1	22MC0MB01	Gender Sensitization Lab	An Activity-Based Course	NA
19	B.Tech	ET	AIDS	2	2	22PC0CS10	Operating Systems Lab	Computer Systems with Linux OS and Turbo C installed	30
20	B.Tech	ET	AIDS	2	2	22PC0CS11	Database Management Systems Lab	Computer Systems with MySQL installed	30
21	B.Tech	ET	AIDS	2	2	22PC0AD01	Real Time Research Project / Field Based Project	Computer Systems	30
22	B.Tech	ET	AIDS	2	2	22PC0CS13	Skill Development Course (Node JS/ React JS / Django)	Computer Systems with(Node JS/ React JS / Django) installed	30

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## GURU NANAK INSTITUTE OF TECHNOLOGY

### Course Structure for B.Tech. Information Technology

#### COURSE STRUCTURE (R22)

Applicable From 2022-23 Admitted Batch

#### I YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3	ESC	22ES0EC01	Electronic Devices and Circuits	2	0	0	2
4	ESC	22ES0EE01	Basic Electrical Engineering	2	0	0	2
5	ESC	22BS0ME01	Computer Aided Engineering Graphics	1	0	4	3
6	BSC	22BS0CII02	Engineering Chemistry Laboratory	0	0	2	1
7	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
8	ESC	22ES0CS05	IT Workshop	0	0	2	1
9	ESC	22ES0EE02	Basic Electrical Engineering Laboratory	0	0	2	1
			Induction Program				
<b>Total Credits</b>				<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>

#### I YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	BSC	22BS0PH01	Applied Physics	3	1	0	4
3	ESC	22ES0CS01	Programming for Problem Solving	3	0	0	3
4	ESC	22ES0ME02	Engineering Workshop	0	1	3	2.5
5	HSC	22HS0EN01	English for Skill Enhancement	2	0	0	2
6	ESC	22ES0CS02	Elements of Computer Science & Engineering	0	0	2	1
7	BSC	22BS0PH02	Applied Physics Laboratory	0	0	3	1.5
8	ESC	22ES0CS03	Programming for Problem Solving Laboratory	0	0	2	1
9	HSC	22HS0EN01	English Language and Communication Skills Laboratory	0	0	2	1
10	MC	2MC0CE01	Environmental Science	3	0	0	0
<b>Total Credits</b>				<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>



## GURU NANAK INSTITUTE OF TECHNOLOGY

### II YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EC33	Digital Electronics	3	0	0	3
2	PCC	22PC0CS01	Data Structures	3	0	0	3
3	BSC	22BS0MA03	Computer Oriented Statistical Methods	3	1	0	4
4	PCC	22PC0EC34	Computer Organization and Microprocessor	3	0	0	3
5	PCC	22PC0CS03	Object Oriented Programming through Java	2	0	0	2
6	PCC	22PC0EC37	Digital Electronics Lab	0	0	2	1
7	PCC	22PC0CS04	Data Structures Lab	0	0	3	1.5
8	PCC	22PC0CS05	Object Oriented Programming through Java Lab	0	0	3	1.5
9	MC	22MC0EN01	Gender Sensitization Lab	0	0	2	0
10	PCC	22PC0CS06	Skill Development Course (Data visualization- R Programming/ Power BI)	0	0	2	1
<b>Total Credits</b>				<b>14</b>	<b>1</b>	<b>12</b>	<b>20</b>

### II YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA09	Discrete Mathematics	3	0	0	3
2	HSMC	22HS0MB01	Business Economics & Financial Analysis	3	0	0	3
3	PCC	22PC0CS07	Operating Systems	3	0	0	3
4	PCC	22PC0CS09	Database Management Systems	3	0	0	3
5	PCC	22PC0EC35	Introduction to IoT	2	0	0	2
6	PCC	22PC0CS10	Operating Systems Lab	0	0	2	1
7	PCC	22PC0CS11	Database Management Systems Lab	0	0	2	1
8	PCC	22PC0EC38	Internet of Things Lab	0	0	2	1
9	PCC	22PC0IT01	Real-time Research Project/ Societal Related Project	0	0	4	2
10	MC	22MC0MB02	Constitution of India	3	0	0	0
11	PCC	22PC0CS13	Skill Development Course (Node JS/ React JS/ Django)	0	0	2	1
<b>Total Credits</b>				<b>17</b>	<b>0</b>	<b>12</b>	<b>20</b>



## GURU NANAK INSTITUTE OF TECHNOLOGY

### III YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0CS15	Software Engineering	3	0	0	3
2	PCC	22PC0IT02	Data Communications and Computer Networks	3	1	0	4
3	PCC	22PC0AI04	Machine Learning	3	0	0	3
4	PEC	-	Professional Elective – I	3	0	0	3
5	PEC	-	Professional Elective – II	3	0	0	3
6	PCC	22PC0IT03	Software Engineering & Computer Networks Lab	0	0	2	1
7	PCC	22PC0AI05	Machine Learning Lab	0	0	2	1
8	HSC	22HS0EN03	Advanced Communication Skills Lab	0	0	2	1
9	PCC	22PC0CS19	Skill Development Course (UI design- Flutter)	0	0	2	1
10	MC	22MC0CY01	Fundamentals of Cyber Security	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>1</b>	<b>8</b>	<b>20</b>

### III YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0IT04	Automata Theory and Compiler Design	3	0	0	3
2	PCC	22PC0IT05	Algorithm Design and Analysis	3	0	0	3
3	PCC	22PC0EC44	Embedded Systems	3	0	0	3
4	PEC	-	Professional Elective –III	3	0	0	3
5	OEC	-	Open Elective-I	3	0	0	3
6	PCC	22PC0IT06	Compiler Design Lab	0	0	2	1
7	PCC	22PC0EC45	Embedded Systems Lab	0	0	2	1
8	PEC	-	Professional Elective-III Lab	0	0	2	1
9	PCC	22PC0IT07	Industrial Oriented Mini Project/ Internship/ Skill Development Course (Big data-Spark)	0	0	4	2
10	MC	22MC0CE01	Environmental Science	3	0	0	0
11	MC	22MC0EN03	Intellectual Property Rights	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>

## GURU NANAK INSTITUTE OF TECHNOLOGY

### IV YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0IT08	Information Security	3	0	0	3
2	PCC	22PC0IT09	Cloud Computing	3	0	0	3
3	PEC	-	Professional Elective -IV	3	0	0	3
4	PEC	-	Professional Elective -V	3	0	0	3
5	OEC	-	Open Elective-II	3	0	0	3
6	PCC	22PC0IT10	Information Security Lab	0	0	2	1
7	PCC	22PC0IT11	Cloud Computing Lab	0	0	2	1
8	PCC	22PC0IT12	Project Stage - I	0	0	6	3
<b>Total Credits</b>				<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

### IV YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22HSMB04	Organizational Behavior	3	0	0	3
2	PEC	-	Professional Elective - VI	3	0	0	3
3	OEC	-	Open Elective - III	3	0	0	3
4	PCC	22PC0IT13	Project Stage - II including Seminar	0	0	22	9+2
<b>Total Credits</b>				<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>



# GURU NANAK INSTITUTE OF TECHNOLOGY

## PROFESSIONAL ELECTIVES

### Professional Elective - I

22PE0IT1A	Biometrics
22PE0CS2B	Advanced Computer Architecture
22PE0IT1B	Data Analytics
22PE0CS1D	Image Processing
22PE0CS1E	Principles of Programming Languages

### Professional Elective - II

22PE0CS1A	Computer Graphics
22PE0CS6A	Quantum Computing
22PE0CS2D	Advanced Operating Systems
22PE0IT2A	Distributed Databases
22PE0IT2B	Pattern Recognition

### Professional Elective - III

22PE0IT3A	Full Stack Development
22PE0CS1C	Data Mining
22PE0CS3B	Scripting Languages
22PE0CS3D	Mobile Application Development
22PE0CS3E	Software Testing Methodologies

### Professional Elective - III Lab

22PE0IT3A	Full Stack Development Lab
22PE0IT3B	Data Mining Lab
22PE0CS3G	Scripting Languages Lab
22PE0CS3I	Mobile Application Development Lab
22PE0CS3J	Software Testing Methodologies Lab

# Courses in PE - III and PE - III Lab must be in 1-1 correspondence.

### Professional Elective -IV

22PE0CS5D	Human Computer Interaction
22PE0IT4A	High Performance Computing
22PE0IT4B	Artificial Intelligence
22PE0IT4C	DevOps
22PE0IT4D	Ad-hoc & Sensor Networks



**GURU NANAK INSTITUTE OF TECHNOLOGY****Professional Elective -V**

22PE0IT5A	Intrusion Detection Systems
22PE0IT5B	Real Time Systems
22PE0CS6D	Blockchain Technology
22PE0CS6C	Deep Learning
22PE0CS5E	Software Process & Project Management

**Professional Elective -VI**

22PE0CS4E	Natural Language Processing
22PE0CS5C	Distributed Systems
22PE0IT6A	Augmented Reality & Virtual Reality
22PE0IT6B	Web Security
22PE0IT6C	Cyber Forensics

Note: The department may offer the above Professional Electives through Swayam MOOCs

**OPEN ELECTIVES BY THE DEPARTMENT OF INFORMATION TECHNOLOGY****Open Elective -I**

22OE0IT1A	Java Programming
22OE0IT1B	Object Oriented Programming using C++
22OE0IT1C	Cyber Law & Ethics

**Open Elective -II**

22OE0IT2A	Scripting Languages
22OE0IT2B	Software Testing Methodologies
22OE0IT2C	Full Stack development

**Open Elective -III**

22OE0IT3A	Big Data Technologies
22OE0IT3B	DevOps
22OE0IT3C	PHP Programming

Note: The department may offer the above Open Electives through Swayam MOOCs.

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**Lab Masters (2023-2024)**

S.No	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the Equipment Usage	No. of Units required
1								RPS (0-30 V)	12
2								CROs (0-20 Mhz)	12
3								Function generators (0-1 Mhz)	12
4								Bread Boards	12
5								Full wave & half wave rectified boards	2
6								Fixed 5 v power supply boards	2
7				2	1	22PC0EC37	Digital Electronics Lab	General purpose analog digital IC trainee kits	2
8								Analog components - Resistors, capacitors, BJTS, FETs, Diodes cables	100
9	B.Tech	IT	IT					Ammeter (0-10 mA)	5
10								Ammeter (0-200 mA)	5
11								Voltmeters(0-50 v)	5
12								Digital ICS 74xx	25
13				2	1	22PC0CS04	Data Structures Lab	Computer Systems with Turbo C Installed.	30
14				2	1	22PC0CS05	Object Oriented Programming through Java Lab	Computer Systems with Eclips / Net Beans IDE, JDK and MySQL installed	30
17				2	1	22MCOEN01	Gender Sensitization Lab	An Activity-Based Course	Not Applicable
				2	1	22PC0CS06	Skill Development Course (Data Visualization - R Programming / Power BI )	Computer Systems with R Software, Metabase / Talend / Redash	30



**GURU NANAK INSTITUTE OF TECHNOLOGY**

18			2	2	22PC0CS10	Operating Systems Lab	Computer Systems with LINUX OS and C installed	30
19			2	2	22PC0CS11	Database Management Systems Lab	Computer Systems with MySQL installed	30
20			2	2	22PC0EC38	Internet of Things Lab	Raspberry, microSD, usb cam, LED, LCD, IR sensor, normal switches, ads1115, soil moisture sensor, usb wifi module, FM transmitter, 7-segment display, ldr module, adx 1335	30
21			2	2	22PC0IT01	Real - Time Research Project / Societal Related Project	Computer Systems with Anaconda Navigator, Net Beans IDE, Eclipse, MySQL	30
22			2	2	22PC0CS13	Skill Development Course (Node JS / React JS / Django)	Computer Systems with Node.js, React.js Framework, Django Framework installed	30

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## GURU NANAK INSTITUTE OF TECHNOLOGY

### CIVIL ENGINEERING (CE) R 22

Effective from Academic Year 2022 -23 Admitted Batch

### COURSE STRUCTURE

#### I Year I Semester

S.No.	Group	Course Code	Course Title	L	T	P	Credits
1.	BSC	22BSOMA01	Matrices and Calculus	3	1	0	4
2.	BSC	22BSOPH01	Applied Physics	3	1	0	4
3.	ESC	22ESOCSS06	C Programming and Data Structures	3	0	0	3
4.	ESC	22ESOME01	Engineering Workshop	0	1	3	2.5
5.	ESC	22ESOME03	Engineering Mechanics	3	0	0	3
6.	PCC	22PCOCE01	Elements of Civil Engineering	0	0	2	1
7.	BSC	22BSOPH02	Applied Physics Laboratory	0	0	3	1.5
8.	ESC	22ESOCSS07	C Programming and Data Structures Laboratory	0	0	2	1
9.	MC	22MCOCE01	Environmental Science	3	0	0	0
			Induction Programme				
<b>Total Credits</b>				<b>15</b>	<b>3</b>	<b>10</b>	<b>20</b>

#### I Year II Semester

S.No.	Group	Course Code	Course Title	L	T	P	Credits
1.	BSC	22BSOMA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	BSC	22BSOCH01	Engineering Chemistry	3	1	0	4
3.	ESC	22ESOME05	Computer Aided Engineering Graphics	1	0	4	3
4.	HSMC	22HSOEN01	English for Skill Enhancement	2	0	0	2
5.	HSMC	22HSOEN02	English Language and Communication Skills Laboratory	0	0	2	1
6.	PCC	22PCOCE02	Surveying	2	0	0	2
7.	ESC	22ESOCSS04	Python Programming Laboratory	0	1	2	2
8.	BSC	22BSOCHO2	Engineering Chemistry Laboratory	0	0	2	1
9.	PCC	22PCOCE03	Surveying Laboratory - I	0	0	2	1
<b>Total Credits</b>				<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>

## GURU NANAK INSTITUTE OF TECHNOLOGY

### CIVIL ENGINEERING (CE) R 22 Effective from Academic Year 2022 -23 Admitted Batch COURSE STRUCTURE

#### II Year I Semester

Sl. No.	Group	Course Code	Course Title	L	T	P	C
1.	BSC	22BSOMA05	Probability and Statistics	3	1	0	4
2.	PCC	22PCOCE04	Building Materials and Construction Practices	3	0	0	3
3.	PCC	22PCOCE05	Engineering Geology	3	0	0	3
4.	PCC	22PCOCE06	Strength of Materials – I	3	0	0	3
5.	PCC	22PCOCE07	Fluid Mechanics	3	0	0	3
6.	PCC	22PCOCE08	Surveying Laboratory – II	0	1	2	2
7.	PCC	22PCOCE09	Strength of Materials Laboratory	0	0	2	1
8.	PCC	22PCOCE10	Computer Aided Drafting Laboratory	0	0	2	1
9.	MC	22MCOMB02	Constitution of India	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>2</b>	<b>6</b>	<b>20</b>

#### II Year II Semester

Sl. No.	Group	Course Code	Course Title	L	T	P	C
1.	ESC	22ES0EE03	Basic Electrical and Electronics Engineering	3	0	0	3
2.	PCC	22PCOCE11	Concrete Technology	3	0	0	3
3.	PCC	22PCOCE12	Strength of Materials – II	3	0	0	3
4.	PCC	22PCOCE13	Hydraulics and Hydraulics Machinery	3	0	0	3
5.	PCC	22PCOCE14	Structural Analysis – I	3	0	0	3
6.	PCC	22PCOCE15	Fluid Mechanics and Hydraulics Machinery Laboratory	0	0	2	1
7.	ESC	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	0	0	2	1
8.	PCC	22PCOCE16	Concrete Technology Laboratory	0	0	2	1
9.	PCC	22PCOCE17	Real time Research Project/ Field Based Project	0	0	4	2
10.	MC	22MCOMB01	Gender Sensitization Laboratory	0	0	2	0
<b>Total Credits</b>				<b>15</b>	<b>0</b>	<b>12</b>	<b>20</b>



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**CIVIL ENGINEERING (CE) R 22**

Effective from Academic Year 2022 -23 Admitted Batch

**COURSE STRUCTURE**

**III Year I Semester**

Sl. No.	Group	Course Code	Course Title	L	T	P	C
1.	PCC	22PCOCE18	Structural Analysis – II	3	0	0	3
2.	PCC	22PCOCE19	Soil Mechanics	3	0	0	3
3.	PCC	22PCOCE20	Design of Reinforced Concrete Structures	3	0	0	3
4.	HSMC	22HSOMB01	Business Economics & Financial Analysis	3	0	0	3
5.	PCC	22PCOCE21	Transportation Engineering	3	0	0	3
6.	PCC	22PCOCE22	Water Resources Engineering	3	0	0	2
7.	PCC	22PCOCE23	Transportation Engineering Laboratory	0	0	2	1
8.	PCC	22PCOCE24	Soil Mechanics Laboratory	0	0	2	1
9.	MC	22MCOMB03	Intellectual Property Rights	3	0	0	0
<b>Total Credits</b>				<b>21</b>	<b>0</b>	<b>4</b>	<b>20</b>

**III Year II Semester**

Sl.No.	Group	Course Code	Course Title	L	T	P	C
1.	PCC	22PCOCE25	Environmental Engineering	3	0	0	3
2.	PCC	22PCOCE26	Foundation Engineering	3	0	0	3
3.	PCC	22PCOCE27	Design of Steel Structures	3	0	0	3
4.	PEC	22PEOCEXX	Professional Elective – I	3	0	0	3
5.	OEC	22OEOXXX	Open Elective – I	3	0	0	3
6.	PCC	22PCOCE28	Environmental Engineering Laboratory	0	0	2	1
7.	PCC	22PCOCE29	Computer Aided Design Laboratory	0	0	2	1
8.	HSMC	22HSOEN03	Advanced English Communication Skills Laboratory	0	0	2	1
9.	PCC	22PCOCE30	Industry oriented Mini Project/Internship	0	0	4	2
10.	MC	22MCOCY01	Fundamentals of Cyber Security	3	0	0	0
11.	MC	22MCOCE01	Environmental Science	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>

Environmental Science in IIIYr II Sem Should be Registered by Lateral Entry Students Only.



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**CIVIL ENGINEERING (CE) R 22**

**Effective from Academic Year 2022 -23 Admitted Batch**

**COURSE STRUCTURE**

**IV Year I Semester**

S.No.	Group	Course Code	Course Title	L	T	P	C
1	PCC	22PC0CE31	Quantity Survey & Valuation	2	0	0	2
2	PCC	22PC0CE32	Project Management	2	0	0	2
3	PEC	22PE0CEXX	Professional Elective – II	3	0	0	3
4	PEC	22PE0CEXX	Professional Elective – III	3	0	0	3
5	PEC	22PE0CEXX	Professional Elective – IV	3	0	0	3
6	OEC	22OE0XXXX	Open Elective – II	3	0	0	3
7	PCC	22PC0CE33	Civil Engineering Software Laboratory	0	0	2	1
8	PCC	22PC0CE34	Project Stage – I	0	0	6	3
<b>Total Credits</b>				<b>16</b>	<b>0</b>	<b>8</b>	<b>20</b>

**IV Year II Semester**

S. No.	Group	Course Code	Course Title	L	T	P	C
1	PEC	22PE0CEXX	Professional Elective – V	3	0	0	3
2	PEC	22PE0CEXX	Professional Elective – VI	3	0	0	3
3	OEC	22OE0XXXX	Open Elective – III	3	0	0	3
4	PCC	22PC0CE35	Project Stage – II	0	0	22	11
<b>Total Credits</b>				<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>

**GURU NANAK INSTITUTE OF TECHNOLOGY****CIVIL ENGINEERING (CE) R 22**

Effective from Academic Year 2022 -23 Admitted Batch

**COURSE STRUCTURE****PROFESSIONAL ELECTIVES****Professional Elective –I**

22PE0CE01	Green Building Technologies
22PE0CE02	Geomatic Applications in Civil Engineering
22PE0CE03	Smart Cities Planning and Management

**Professional Elective–II**

22PE0CE04	Prestressed Concrete
22PE0CE05	Elements of Earthquake Engineering
22PE0CE06	Advanced Structural Analysis

**Professional Elective-III**

22PE0CE07	Earth Retaining Structures
22PE0CE08	Ground Improvement Techniques
22PE0CE09	Stability Analysis of Slopes

**Professional Elective-IV**

22PE0CE10	Design of Hydraulic Structures
22PE0CE11	Advanced Water Resources Engineering
22PE0CE12	Ground Water Hydrology

**NOTE: The Department may offer the above Professional Electives through Swayam MOOCs**

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**Professional Elective –V**

22PEOCE13	Solid Waste Management
22PEOCE14	Environmental Impact Assessment for Civil Engineers
22PEOCE15	Air pollution

**Professional Elective-VI**

22PEOCE16	Airports, Railways and Waterways
22PEOCE17	Pavement Asset Management
22PEOCE18	Pavement Analysis & Design

**NOTE: The Department may offer the above Professional Electives through Swayam MOOCs**

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## GURU NANAK INSTITUTE OF TECHNOLOGY

### CIVIL ENGINEERING (CE) R 22 Effective from Academic Year 2022 -23 Admitted Batch COURSE STRUCTURE

#### OPEN ELECTIVES BY DEPARTMENT OF CIVIL ENGINEERING

##### Open Elective-I

22OE0CE01	Disaster Preparedness & Planning Management
22OE0CE02	Building Management Systems
22OE0CE03	Environmental Impact Assessment
22OE0CE04	Hydrogeology

##### Open Elective-II

22OE0CE05	Remote Sensing & Geographical Information Systems
22OE0CE06	Sustainable Infrastructure Development
22OE0CE07	Solid Waste Management
22OE0CE08	Smart Cities

##### Open Elective-III

22OE0CE09	Energy Efficient Buildings
22OE0CE10	Multi Criterion Decision Making
22OE0CE11	Environmental Pollution

**NOTE: The Department may offer the above Open Electives through Swayam MOOCs**

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF CIVIL ENGINEERING**

Lab Masters (I and II year) A.Y.2022-23

S.No	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the Equipment and usage	No. of Units required
1	B.Tech	CE	CE	I	I	22PC0CE01	Elements of Civil Engineering	Rock specimens	23
2	B.Tech	CE	CE	I	I	22PC0CE01	Elements of Civil Engineering	Mineral specimens	85
3	B.Tech	CE	CE	I	I	22PC0CE01	Elements of Civil Engineering	Models of structural Geology	10
4	B.Tech	CE	CE	I	I	22PC0CE01	Elements of Civil Engineering	Geological Maps of India	1
5	B.Tech	CE	CE	I	I	22PC0CE01	Elements of Civil Engineering	Compressive Testing Machine	1
6	B.Tech	CE	CE	I	I	22PC0CE01	Elements of Civil Engineering	Water Bath	5
7	B.Tech	CE	CE	I	I	22PC0CE01	Elements of Civil Engineering	Measuring Tapes (5 Mts)	5
8	B.Tech	CE	CE	I	II	22PC0CE03	Surveying Laboratory -I	Chains/tapes/ranging rods/cross staffs/arrows	17/06/30/9/62
9	B.Tech	CE	CE	I	II	22PC0CE03	Surveying Laboratory	Compass/tripods/optical square	14/38/1
10	B.Tech	CE	CE	I	II	22PC0CE03	Surveying Laboratory	Plantable/Alidade/Plumbing fork/tough compasses	7/6/7/6
11	B.Tech	CE	CE	I	II	22PC0CE03	Surveying Laboratory	Leveling instruments and leveling staves	7/11
19	B.Tech	CE	CE	II	I	22PC0CE08	Surveying Laboratory -II	Theodolite	5
20	B.Tech	CE	CE	II	I	22PC0CE08	Surveying Laboratory -II	Tacheometer	1
21	B.Tech	CE	CE	II	I	22PC0CE08	Surveying Laboratory -II	Total station	3
22	B.Tech	CE	CE	II	I	22PC0CE08	Surveying Laboratory -II	GPS	2
25	B.Tech	CE	CE	II	I	22PC0CE09	Strength of Materials Laboratory	UTM	1
26	B.Tech	CE	CE	II	I	22PC0CE09	Strength of Materials Laboratory	Torsion test	1
27	B.Tech	CE	CE	II	I	22PC0CE09	Strength of Materials Laboratory	Brinell Hardness Test	1
28	B.Tech	CE	CE	II	I	22PC0CE09	Strength of Materials Laboratory	Compression Testing Machine	1
29	B.Tech	CE	CE	II	I	22PC0CE09	Strength of Materials Laboratory	Rock Hardness test	1
30	B.Tech	CE	CE	II	I	22PC0CE09	Strength of Materials Laboratory	Izod Impact Testing Machine	1
32	B.Tech	CE	CE	II	I	22PC0CE10	Computer-Aided Drafting Laboratory	Licensed Software of Autocad 30 users Licensed/ Open Source	30

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GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)



**GURU NANAK INSTITUTE OF TECHNOLOGY**

33	B.Tech	CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	Pelton wheel experimental setup	1
34	B.Tech	CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	Francis turbine experimental setup	1
35	B.Tech	CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	Single stage and multistage setup for centrifugal pump	1
36	B.Tech	CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	Reciprocation pump setup	1
37	B.Tech	CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	Impact of jet	1
38	B.Tech	CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	Rectangular notch setup/triangular notch/trapezoidal notch	1
39	B.Tech	ME/CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	Kaplan turbine setup	1
40	B.Tech	ME/CE	CE	II	II	22PC0CE15	Fluid Mechanics and Hydraulics Machinery Laboratory	open channel setup to study Hydraulic jumps	1
41	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Dual Channel Regulated Power Supply (0-30V, 2A)	6
42	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Function Generators (0-1MHz)	2
43	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Cathode Ray Oscilloscopes	2
44	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Decade Resistance Box (0-10MΩ)	4
45	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Decade Inductance Box (0-10MH)	3
46	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Decade capacitance Box (0-10μF)	3
47	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Digital Portable Meters (0-30V), (0-75V), (0-100V), (0-150V), (0-200μA), (0-10mA), (0-50mA), (0-200mA)	10
48	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Bread Boards	8

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

49	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Digital Multimeters(0-750VAC)	5
50	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	1-phase Auto Transformer (10A,0-230V)	1
51	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Voltmeters (AC) (0-300/600V)	2
52	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Single Phase Transformer (coupled coil)	1
53	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	3-phase Auto Transformer (0-440V,4A)	1
55	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Star-connected load (resistive load)	1
56	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Wattmeters (UPF),(0-150/300/600V,20A)	2
57	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Ammeters (AC) (0-10/20A)	1
58	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Resistors	100
59	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Diodes	50
60	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	DC shunt motor with a suitable arrangement. ACCESSORIES: Meters: Ammeter (MC); Ammeter (MC); Voltmeter (MC); Motor Rheostat.	2
61	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	Squirrelcage3Phase Induction Motor With Mechanical Loading Arrangement .ACCESSORIE:Meters:Ammeter(MI)0-20A; Voltmeter(MI)0-750V, Wattmeter(UFP)- (10/5A,150/300/600V); Wattmeter(LPF)	1
62	B.Tech	EEE	ME & CE	2	2	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	1-Phase transformer: 2kVA,230/115V,5/10A	2
63	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	L- Box	1

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## GURU NANAK INSTITUTE OF TECHNOLOGY

64	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Flow Table	1
65	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Set of sieves both for fine and coarse aggregates	1
66	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Le-chatleau apparatus/ Auto claw apparatus	1
67	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Mould of 150 * 150 Cylindrical	6
68	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Specific Gravity and Water Absorption	3
69	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Penetration Test set up	1
70	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Abrasion test set up	1
71	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Aggregate Crushing value	1
72	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Softening Point Test setup	3
73	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Shape tests- length gauge and Shape tests- Thickness gauge	1
74	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Ductility Test set up	1
75	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Marshal Stability Test	1
76	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Sieves for Sieve Analysis of Aggregate	1
77	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Viscometer for Viscosity	1
78	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Pensky Martin apparatus for flash and fire	1
79	B.Tech	CE	CE	II	II	22PC0CE16	Concrete Technology Laboratory	Specific Gravity bottle Bitumen for Specific Gravity	2



## GURU NANAK INSTITUTE OF TECHNOLOGY

### ELECTRICAL AND ELECTRONICS ENGINEERING (EEE) R 22

Effective from Academic Year 2022-23 Admitted Batch

#### COURSE STRUCTURE

I Year I Semester							
S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2	BSC	22BS0PH01	Applied Physics	3	1	0	4
3	ESC	22ES0CS06	C Programming and Data Structures	3	0	0	3
4	ESC	22ES0EE05	Electrical Circuit Analysis – I	3	0	0	3
5	ESC	22ES0ME01	Engineering Workshop	0	1	3	2.5
6	ESC	22ES0EE06	Elements of Electrical and Electronics Engineering	0	0	2	1
7	BSC	22BS0PHO2	Applied Physics Laboratory	0	0	3	1.5
8	ESC	22ES0CS07	C Programming and Data Structures Laboratory	0	0	2	1
9	MC	22PC0CE02	Environmental Science	3	0	0	0
Total Credits				15	3	10	20

I Year II Semester							
S.No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3	ESC	22ES0ME05	Computer Aided Engineering Graphics	1	0	4	3
4	HSMC	22HS0EN01	English for Skill Enhancement	2	0	0	2
5	ESC	22ES0EE07	Electrical Circuit Analysis - II	2	0	0	2
6	BSC	22BS0CH02	Engineering Chemistry Laboratory	0	0	2	1
7	HSMC	22HS0EN02	English Language and Communication Skills Laboratory	0	0	2	1
8	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
9	ESC	22PC0EE08	Electrical Circuit Analysis Laboratory	0	0	2	1
Total Credits				11	3	12	20



## GURU NANAK INSTITUTE OF TECHNOLOGY

**ELECTRICAL AND ELECTRONICS ENGINEERING (EEE) R 22**  
 Effective from Academic Year 2022 -23 Admitted Batch

### COURSE STRUCTURE

II Year I Semester							
S.No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EE01	Electrical Machines-I	3	1	0	4
2	PCC	22PC0EE02	Electro Magnetic Fields	3	0	0	3
3	PCC	22PC0EC35	Analog Electronic Circuits	3	0	0	3
4	ESC	22PC0ME06	Solid Mechanics & Hydraulic Machines	3	0	0	3
5	BSC	22BS0MA07	Numerical Methods and Complex variables	3	1	0	4
6	PCC	22PC0EE03	Electrical Machines Laboratory-I	0	0	2	1
7	PCC	22PC0EC38	Analog Electronic Circuits Laboratory	0	0	2	1
8	PCC	22PC0EE04	Electrical Simulation Laboratory	0	0	2	1
9	MC	22MC0MB01	Gender Sensitization Laboratory	0	0	2	0
<b>Total Credits</b>				<b>15</b>	<b>2</b>	<b>8</b>	<b>20</b>

II Year II Semester							
S.No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EE05	Power System-I	3	0	0	3
2	PCC	22PC0EE06	Measurements and Instrumentation	3	0	0	3
3	PCC	22PC0EE07	Electrical Machines-II	3	0	0	3
4	PCC	22PC0EC32	Digital Electronics	2	0	0	2
5	PCC	22PC0EE08	Control Systems	3	1	0	4
6	PCC	22PC0EC36	Digital Electronics Laboratory	0	0	2	1
7	PCC	22PC0EE09	Measurements and Instrumentation Laboratory	0	0	2	1
8	PCC	22PC0EE10	Electrical Machines Laboratory-II	0	0	2	1
9	PCC	22PC0EE20	Research Oriented Project/ Field Based Project	0	0	4	2
10	MC	22MC0MB02	Constitution of India	3	0	0	0
11	MC	22PC0CE02	Environmental Science*	3	0	0	0
<b>Total Credits</b>				<b>17</b>	<b>1</b>	<b>10</b>	<b>20</b>

**\*Environmental Science – Should be Registered by Lateral Entry Students Only.**

## GURU NANAK INSTITUTE OF TECHNOLOGY

### ELECTRICAL AND ELECTRONICS ENGINEERING (EEE) R 22

Effective from Academic Year 2022 -23 Admitted Batch

#### COURSE STRUCTURE

III Year I Semester							
S.No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EE11	Power Electronics	3	1	0	4
2	PCC	22PC0EE12	Power System-II	3	1	0	4
3	PCC	22PC0EC39	Microprocessors & Microcontrollers	3	0	0	3
4	PEC	22PE0EE1X	Professional Elective-I	3	0	0	3
5	HSMC	22HS0MB01	Business Economics and Financial Analysis	3	0	0	3
6	PCC	22PC0EC40	Microprocessors & Microcontrollers Laboratory	0	0	2	1
7	PCC	22PC0EE13	Control Systems Laboratory	0	0	2	1
8	HSMC	22HS0EN03	Advanced English Communication Skills Laboratory	0	0	2	1
9	MC	22MC0CY01	Fundamentals of Cyber Security	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>2</b>	<b>6</b>	<b>20</b>

III Year II Semester							
S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EE14	Power System Protection	3	0	0	3
2	PCC	22PC0EE15	Power System Operation and Control	3	0	0	3
3	PCC	22PC0EC41	Digital Signal Processing	3	0	0	3
4	OEC	22OE0XXXX	Open Elective-I	3	0	0	3
5	PEC	22PE0EE2X	Professional Elective-II	3	0	0	3
6	PCC	22PC0EE16	Power System Laboratory	0	0	2	1
7	PCC	22PC0EE17	Power Electronics Laboratory	0	0	2	1
8	PCC	22PC0EC42	Digital Signal Processing Lab	0	0	2	1
9	PCC	22PC0EE21	Industry Oriented Mini Project/ Internship	0	0	4	2
10	MC	22MC0MB03	Intellectual Property Rights	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>





## GURU NANAK INSTITUTE OF TECHNOLOGY

### ELECTRICAL AND ELECTRONICS ENGINEERING (EEE) R 22

Effective from Academic Year 2022 -23 Admitted Batch

#### COURSE STRUCTURE

IV Year I Semester							
S.No.	Group	Course Code	Course Title	L	T	P	Credits
1	PC	22PC0EE18	Power Semiconductor Drives	3	1	0	4
2	PEC	22PE0EE3X	Professional Elective-III	3	0	0	3
3	PEC	22PE0EE4X	Professional Elective-IV	3	0	0	3
4	OEC	22OE0XXXX	Open Elective-II	3	0	0	3
5	HSMC	22HSOMB02	Fundamentals of Management for Engineers	2	0	0	2
6	PCC	22PC0EE19	Electrical and Electronics Design Lab	0	0	4	2
7	PCC	22PC0EE22	Project Stage - I	0	0	6	3
			Total Credits	17	1	10	20

IV Year II Semester							
S.No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	22PE0EE5X	Professional Elective-V	3	0	0	3
2	PEC	22PE0EE6X	Professional Elective-VI	3	0	0	3
3	OEC	22OE0XXXX	Open Elective-III	3	0	0	3
4	PCC	22PC0EE23	Project Stage – II including Seminar	0	0	22	9+2
			Total Credits	9	0	22	20



# GURU NANAK INSTITUTE OF TECHNOLOGY

## Professional Electives

### Professional Elective - I

S. No.	Course Code	Course Title
1	22PE0EE1A	Power Converters Control and Integration
2	22PE0EE1B	High Voltage Engineering
3	22PE0EE1C	Renewable Energy Sources

### Professional Elective - II

S. No.	Course Code	Course Title
1	22PE0EE2A	Distributed Generation and Micro Grid
2	22PE0EE2B	Power Electronic Applications to Renewable Energy Systems
3	22PE0EE2C	Electrical Machine Design

### Professional Elective-III

S. No.	Course Code	Course Title
1	22PE0EE3A	Smart Grid Technologies
2	22PE0EE3B	Electrical Energy Conservation & Auditing
3	22PE0EE3C	Electric and Hybrid Vehicles

### Professional Elective-IV

S. No.	Course Code	Course Title
1	22PE0EE4A	HVDC Transmission
2	22PE0EE4B	Power System Reliability
3	22PE0EE4C	AI Techniques in Electrical Engineering

### Professional Elective-V

S. No.	Course Code	Course Title
1	22PE0EE5A	Power Quality & FACTS
2	22PE0EE5B	Optimization Techniques
3	22PE0EE5C	Control System Design

### Professional Elective-VI

S. No.	Course Code	Course Title
1	22PE0EE6A	Smart Grid Technologies
2	22PE0EE6B	Electrical Distribution Systems
3	22PE0EE6C	Industrial Electrical Systems

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# GURU NANAK INSTITUTE OF TECHNOLOGY

Open Electives offered by the Department of Electrical and Electronics Engineering

## Open Elective I

S. No.	Course Code	Course Title
1	22OE0EE1A	Renewable Energy Sources
2	22OE0EE1B	Energy Sources and Applications

## Open Elective II

S. No.	Course Code	Course Title
1	22OE0EE2A	Utilization of Electrical Power
2	22OE0EE2B	Energy Storage Systems

## Open Elective III

S. No.	Course Code	Course Title
1	22OE0EE3A	Electrical Energy Conservation and Auditing
2	22OE0EE3B	Electric Vehicles

## GURU NANAK INSTITUTE OF TECHNOLOGY

Department of Electrical and Electronics Engineering  
 LAB MASTERS FOR THE A.Y 2022-23

S.No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE04	Electrical Simulation Lab	Computers with minimum i3 Processor, 4GB RAM	30
2	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE04	Electrical Simulation Lab	MATLAB/SIMULINK/NGSPIC E/Equivalent Software	30
3	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE03	Electrical Machines Lab - I	DC shunt motor coupled with DC shunt generator(MG) set.ACCESSORIES:Meters:Am meter(MC);Ammeter(MC); Volt meter(MC);Motor Rheostat;	2
4	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE03	Electrical Machines Lab - I	Two identical DC series machines coupled with Base plate and Coupling.ACCESSORIES:Metes: Ammeter(MC);Ammeter(MC); Voltmeter(MC); Voltmeter(MC);	1
5	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE03	Electrical Machines Lab - I	DC compound generator with suitable arrangement.Ammeter(MC);Am meter(MC); Voltmeter(MC); Volt meter(MC); Voltmeter(MC);	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

14	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE03	Electrical Machines Lab - I	LPF Wattmeters	1
15	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE03	Electrical Machines Lab - I	1-Phase variac, 0-300V	2
16	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EE03	Electrical Machines Lab - I	3-Phase variac, 0-600V	1
17	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	Squirrel cage 3 Phase Induction Motor With Mechanical Loading Arrangement ACCESSORIE: Meters: Ammeter (MI) 0-20A; Voltmeter (MI) 0-750V, Wattmeter (UJPF) (10/5A, 150/300/600V); Wattmeter (LPP)	1
18	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	MG set consisting of DC shunt motor with 3-phase Alternator ACCESSORIE: Meter s; Ammeter-(0-2A) MC; Ammeter (MI) 0-20A; Voltmeter (MI) 0-750V; Voltmeter (MI) (0-300/600V) Rheostats 200Ω/1.7A; excitation Box-2A;	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

19	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	3-Phase rotorwound/stator excited seperately excited salient pole type auto synchronous motor with damper windings for auto induction star complete with mechanical loading arrangement.ACCESSORIE:Met ers:Ammeter(MI);Ammeter(MC); Voltmcter(MI); Wattmeter(U	1
20	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	Single Phase Induction motor with necessary arrangements.ACCESSORIE:M eters:Ammeter(MI);Ammeter(MC); Voltmeter(MI); Wattmeter(U PF)300/600V-5/10A	1
21	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	MG set consisting of DC shunt motor with 3-phase AlternatorACCESSORIE:Meter s:Ammeter(MC);0- 2A;Ammeter(MI)0- 20A; Voltmeter(MI)0- 750V;Rheostats 200Ω/1.7A;excitation Box-2A;	1
22	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	3-Phase inductive load as per ratings of motors	1
23	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	Voltmeter (MI) 0-300V	5

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

24	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	Voltmeter (MI) 0-600V	4
25	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	Ammeters (MI)	9
26	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	UPF Wattmeters	4
27	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	LPF Wattmeters	1
28	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	1-Phase variac, 0-300V	3
29	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE10	Electrical Machines Lab - II	3-Phase variac, 0-600V	1
30	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Cathode Ray Oscilloscope (0-20MHz)	12
31	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Function Generator (0- 1 MHz)	12
32	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Regulated Power Supply (0- 30 V)	12

**GURU NANAK INSTITUTE OF TECHNOLOGY**

33	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Decade Resistance Box	12
34	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Decade Capacitance Box	8
35	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Decade Inductance Box	8
36	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Multimeters	8
37	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	IC 741 OP-AMP	30
38	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Bread Boards Components	12
39	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Current Shunt Feedback amplifier kits	2
40	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	RC Phase shift Oscillator kits	2
41	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	1	22PC0EC38	Analog Electronic Circuits Lab	Hartley and Colpitt's Oscillators kits	2

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

42	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Crompton D.C Potentiometer Kit	1
43	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Stranded Cell 1.0186V	1
44	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Volt- Ratio box	1
45	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Galvano Meter	1
46	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Energy Meter (1-Phase)	1
47	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Wattmeters (UPF)	5
48	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Wattmeters (LPP)	1
49	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	MI Voltmeters	7
50	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	MI Ammeters	7

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

51	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Auto Transformer (1-Phase, 10A)	4
52	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Auto Transformer (3-Phase, 8A)	1
53	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Auto Transformer (1-Phase, 2A)	1
54	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Digital Stop Watch	1
55	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Resistive Load Bank (1-Phase, 10A)	1
56	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Inductive Load (1-Phase, 10A)	2
57	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Inductive Load (3-Phase )	1
58	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Capacitive Load (3-Phase, 10A)	1
59	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Fixed Inductive Load	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

60	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Dynamometer type Power Factor Meter	1
61	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Kelvin Double Bridge kit	1
62	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Knife Switches	1
63	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Current Transformers	2
64	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Dielectric Oil Testing kit	1
65	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Schering Bridge Kit	1
66	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Anderson Bridge	1
67	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Chock Coil	1
68	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	2	22PC0EE09	Measurements and Instrumentation Lab	Head Phones	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

69	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Bridge Oscillator	1
70	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	LVDT Trainer kit	1
71	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Strain Guage Measurement Trainer kit	1
72	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Rheostat	2
73	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Potential Transformer Testing Panel with Phase Shifting Transformer	1
74	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Transformer Turns Ratio Meter	1
75	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EE09	Measurements and Instrumentation Lab	Current Transformers Testing Kit	1
76	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Realization of Boolean Expressions using Gates Kits	2
77	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization logic gates using universal gates K its	2

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

78	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Generation of clock using NAND / NOR gates Kits	2
79	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design a 4 – bit Adder / Subtractor Kits	2
80	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization a 4 – bit gray to Binary and Binary to Gray Converter Kits	2
81	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization of a 4 bit pseudo random sequence generator using logic gates Kits	2
82	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization of an 8 bit parallel load and serial out shift register using flip-flops Kits	2
83	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization a Synchronous and Asynchronous counters using flip-flops Kits	2
84	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization of Asynchronous counters using flip-flops Kits	2
85	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization 8x1 using 2x1 mux Kits	2
86	B.Tech	Electrical and Electronics Engineering	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Design and realization 2 bit comparator Kits	2

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

87	B.Tech	Electrical and Electronics Engineering	2	2	22PC0EC36	Digital Electronics Lab	Verification of truth tables and excitation tables Kits	2
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## GURU NANAK INSTITUTE OF TECHNOLOGY

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

#### COURSE STRUCTURE

Applicable From 2022-23 Admitted Batch

#### I YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1.	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2.	BSC	22BS0PH01	Applied Physics	3	1	0	4
3.	ESC	22ES0CS06	C Programming and Data Structures	3	0	0	3
4.	ESC	22ES0ME01	Engineering Workshop	0	1	3	2.5
5.	HSC	22HS0EN01	English for Skill Enhancement	2	0	0	2
6.	PCC	22ES0EC01	Elements of Electronics and Communication Engineering LAB	0	0	2	1
7.	BSC	22BS0PH02	Applied Physics Laboratory	0	0	3	1.5
8.	HSC	22HS0EN02	English Language and Communication Skills Laboratory	0	0	2	1
9.	ESC	22ES0CS07	C Programming and Data Structures Laboratory	0	0	2	1
10.	ESC		Induction Programme				
<b>Total</b>				<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>

#### I YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1.	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3.	ESC	22ES0ME05	Computer Aided Engineering Graphics	1	0	4	3
4.	ESC	22ES0EE01	Basic Electrical Engineering	2	0	0	2
5.	PCC	22ES0EC02	Electronic Devices and Circuits	2	0	0	2
6.	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
7.	BSC	22BS0CH02	Engineering Chemistry Laboratory	0	0	2	1
8.	ESC	22ES0EE02	Basic Electrical Engineering Laboratory	0	0	2	1
9.	PCC	22ES0EC03	Electronic Devices and Circuits Laboratory	0	0	2	1
10.	MC	22PC0CE01	Environmental Science	3	0	0	0
<b>Total</b>				<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>



## GURU NANAK INSTITUTE OF TECHNOLOGY

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING COURSE STRUCTURE

Applicable From 2022-23 Admitted Batch

#### II YEAR I SEMESTER

S. No.	Group	CourseCode	Course Title	L	T	P	Credits
1	PCC	22PC0EC01	Analog Circuits	3	1	0	4
2	PCC	22PC0EC02	Network analysis and Synthesis	3	0	0	3
3	PCC	22PC0EC03	Digital Logic Design	3	0	0	3
4	PCC	22PC0EC04	Signals and Systems	3	1	0	4
5	PCC	22PC0EC05	Probability Theory and Stochastic Processes	3	0	0	3
6	PCC	22PC0EC06	Analog Circuits Laboratory	0	0	2	1
7	PCC	22PC0EC07	Digital logic Design Laboratory	0	0	2	1
8	PCC	22PC0EC08	Modeling and Simulation Laboratory	0	0	2	1
9	MC	22MC0MB02	Constitution of India	3	0	0	0
<b>Total Credits</b>				<b>18</b>	<b>2</b>	<b>6</b>	<b>20</b>

#### II YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA07	Numerical Methods and Complex Variables	3	0	0	3
2	PCC	22PC0EC09	Electromagnetic Fields and Transmission Lines	3	0	0	3
3	PCC	22PC0EC10	Analog and Digital Communications	3	0	0	3
4	PCC	22PC0EC11	Linear and Digital IC Applications	3	0	0	3
5	PCC	22PC0EC12	Electronic Circuit Analysis	3	0	0	3
6	PCC	22PC0EC13	Analog and Digital Communications Laboratory	0	0	2	1
7	PCC	22PC0EC14	Linear and Digital IC Applications Laboratory	0	0	2	1
8	PCC	22PC0EC15	Electronic Circuit Analysis Laboratory	0	0	2	1
9	PCC	22PC0EC16	Real Time Project/ Field Based Project	0	0	4	2
10	MC	22MC0MB01	Gender Sensitization Lab	0	0	2	0
<b>Total Credits</b>				<b>15</b>	<b>0</b>	<b>12</b>	<b>20</b>

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**III YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EC17	Microcontrollers and Interfacing	3	1	0	4
2	PCC	22PC0EC18	IoT Architectures and Protocols	3	0	0	3
3	PCC	22PC0EC19	Control Systems	3	1	0	4
4	HSMC	22HS0MB01	Business Economics & Financial Analysis	3	0	0	3
5	PEC		Professional Elective – I	3	0	0	3
6	PCC	22PC0EC20	Microcontrollers and Interfacing Laboratory	0	0	2	1
7	PCC	22PC0EC21	IoT Architectures and Protocols Laboratory	0	0	2	1
8	HSMC	22HS0EN03	Advanced English Communication Skills Laboratory	0	0	2	1
9	MC	22MC0MB03	Intellectual Property Rights	3	0	0	0
			<b>Total Credits</b>	<b>18</b>	<b>2</b>	<b>6</b>	<b>20</b>

**III YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EC22	Antennas and Wave Propagation	3	0	0	3
2	PCC	22PC0EC23	Digital Signal Processing	3	0	0	3
3	PCC	22PC0EC24	CMOS VLSI Design	3	0	0	3
4	PEC		Professional Elective - II	3	0	0	3
5	OEC		Open Elective – I	3	0	0	3
6	PCC	22PC0EC25	Digital Signal Processing Laboratory	0	0	2	1
7	PCC	22PC0EC26	CMOS VLSI Design Laboratory	0	0	2	1
8	PCC	22PC0EC27	Advanced Communication Laboratory	0	0	2	1
9	PCC	22PC0EC28	Industry Oriented Mini Project/ Internship	0	0	4	2
10	MC	22MC0CS01	Fundamentals of Cyber Security	3	0	0	0
			<b>Total Credits</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>

**Environmental Science in III Year II Semester Should Be Registered by Lateral Entry Students Only.**

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**  
**COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**IV YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC0EC29	Microwave and Optical Communications	3	1	0	4
2	PEC		Professional Elective – III	3	0	0	3
3	PEC		Professional Elective – IV	3	0	0	3
4	OEC		Open Elective – II	3	0	0	3
5	HSMC	22HS0MB03	Professional Practice, Law & Ethics	3	0	0	2
6	PCC	22PC0EC30	Microwave and Optical Communications Laboratory	0	0	4	2
7	PCC	22PC0EC31	Project Stage – I	0	0	6	3
			<b>Total Credits</b>	<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>

**IV YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC		Professional Elective – V	3	0	0	3
2	PEC		Professional Elective – VI	3	0	0	3
3	OEC		Open Elective – III	3	0	0	3
4	PCC	22PC0EC32	Project Stage – II including Seminar	0	0	22	9+2
			<b>Total Credits</b>	<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>

\*MC – Satisfactory/Unsatisfactory





**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**PROFESSIONAL ELECTIVES**

**Professional Elective – I**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	22PE0EC01	Computer Organization & Operating Systems	3	0	0	3
2	PEC	22PE0EC02	Data Communications and Computer Networks	3	0	0	3
3	PEC	22PE0EC03	Electronic Measurements and Instrumentation	3	0	0	3

**Professional Elective – II**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	22PE0EC04	Digital Image Processing	3	0	0	3
2	PEC	22PE0EC05	Mobile Communications and Networks	3	0	0	3
3	PEC	22PE0EC06	Embedded System Design	3	0	0	3

**Professional Elective – III**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	22PE0EC07	Radar Systems	3	0	0	3
2	PEC	22PE0EC08	CMOS Analog IC Design	3	0	0	3
3	PEC	22PE0EC09	Artificial Neural Networks	3	0	0	3

**Professional Elective – IV**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	22PE0EC10	Network Security and Cryptography	3	0	0	3
2	PEC	22PE0EC11	Introduction to Global Navigation Satellite Systems (GNSS)	3	0	0	3
3	PEC	22PE0EC12	Biomedical Instrumentation	3	0	0	3

**Professional Elective – V**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	22PE0EC13	Artificial Intelligence	3	0	0	3
2	PEC	22PE0EC14	Next Generation Communication	3	0	0	3
3	PEC	22PE0EC15	Machine learning	3	0	0	3

**Professional Elective – VI**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	22PE0EC16	Multimedia Database Management Systems	3	0	0	3
2	PEC	22PE0EC17	System on Chip Architecture	3	0	0	3
3	PEC	22PE0EC18	Wireless sensor Networks	3	0	0	3

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**GURU NANAK INSTITUTE OF TECHNOLOGY****DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING  
COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**OPEN ELECTIVES****Open Elective-I**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	OEC	22OE0EC01	Fundamentals of Internet of Things	3	0	0	3
2	OEC	22OE0EC02	Principles of Signal Processing	3	0	0	3
3	OEC	22OE0EC03	Digital Electronics for engineering	3	0	0	3

**Open Elective-II**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	OEC	22OE0EC04	Electronic Sensors	3	0	0	3
2	OEC	22OE0EC05	Electronics for Health Care	3	0	0	3
3	OEC	22OE0EC06	Telecommunications for Society	3	0	0	3

**Open Elective-III**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	OEC	22OE0EC07	Measuring Instruments	3	0	0	3
2	OEC	22OE0EC08	Communication Technologies	3	0	0	3
3	OEC	22OE0EC09	Fundamentals of Social Networks	3	0	0	3

## GURU NANAK INSTITUTE OF TECHNOLOGY

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING COURSE STRUCTURE

Applicable From 2022-23 Admitted Batch

#### List of Service Subjects Offered by the ECE Department

##### I YEAR I & II SEMESTER

S. No.	Group	Course Code	Course Title
1.	PCC	22ES0EC01	Elements of Electronics and Communication Engineering Laboratory
2.	PCC	22ES0EC02	Electronic Devices and Circuits
3.	PCC	22ES0EC03	Electronic Devices and Circuits Laboratory

##### II YEAR I SEMESTER

S. No.	Group	Course Code	Course Title
1.	PCC	22PC0EC33	Digital Electronics (CSE, IT, AI & DS, CS)
2.	PCC	22PC0EC34	Computer Organization and Microprocessor (IT)
3.	PCC	22PC0EC36	Analog Electronic Circuits (EEE)
4.	PCC	22PC0EC37	Digital Electronics Lab (IT, AI & DS)
5.	PCC	22PC0EC39	Analog Electronic Circuits Lab (EEE)

##### II YEAR II SEMESTER

S. No.	Group	Course Code	Course Title
1.	PCC	22PC0EC35	Introduction to IOT (IT)
2.	PCC	22PC0EC33	Digital Electronics (EEE)
3.	PCC	22PC0EC38	Internet of Things Lab (IT)
4.	PCC	22PC0EC37	Digital Electronics Lab (EEE)

##### III YEAR I SEMESTER

S. No.	Group	Course Code	Course Title
1.	PCC	22PC0EC40	Microprocessors and Microcontrollers (EEE)
2.	PCC	22PC0EC41	Microprocessors and Microcontrollers Lab (EEE)

##### III YEAR II SEMESTER

S. No.	Group	Course Code	Course Title
1.	PCC	22PC0EC42	Digital Signal Processing (EEE)
2.	PCC	22PC0EC43	Digital Signal Processing Lab (EEE)
3.	PCC	22PC0EC44	Embedded Systems (IT)
4.	PCC	22PC0EC45	Embedded Systems Lab (IT)



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## IV YEAR I SEMESTER

	NIL
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## IV YEAR II SEMESTER

	NIL
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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING  
 COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**Course Structure of the B. Tech. with Minor Degree in Internet of Things**

S. No.	Year/Semester	Theory (3credits,3 Hours)	Laboratory (1.5 Credits, 3 Hours)	Total Credits
1.	III - I Semester	1.Introduction to IOT 2.Sensors, Actuators & Sensor Networks for IOT	-	06
2.	III - II Semester	Elective-1	Sensors Networks and IOT Laboratory	4.5
3.	IV - I Semester	1.Privacy & Security in IOT 2.Elective-II	-	6.0
4.	IV - II Semester	-	Mini Project	1.5
Total Credits				18

**Elective-1:**

1. Fog and Edge Computing
2. ANN and Deep Learning

**Elective-2:**

1. Cloud Computing
2. Industrial IOT(IOT)

**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING  
 COURSE STRUCTURE**

Applicable From 2022-23 Admitted Batch

**Course Structure of the B. Tech. with Honors degree in Internet of Things**

No.	Year / Semester	Course to be chosen from/studied	Mode of Learning	No. of Credits
1	III-1	PE-1 or PE-2	Blended/Conventional	3
2	III-2	Research Methodologies	Conventional	3
3	III-2	PE-3	Conventional	3
4	IV-1	PE-4	Conventional	3
5	IV-1	PE-5	Conventional	3
6	IV-2	Technical Paper writing	Under the mentorship of a supervisor	2
7	IV-2	PE-6 or an Interdisciplinary subject as suggested by university	MOOCS	3
<b>Total Credits</b>				<b>20</b>

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING  
LAB MASTERS**

S.No.	Degree	Dept	Splz	Year	Sem	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Cathode Ray Oscilloscope (0-30MHz and 0-20MHz)	12
2.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Dual Regulated Power Supply 0-30V, 2A DC	12
3.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Function Generator 0-1MHz	12
4.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Spectrum Analyzer	1
5.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Amplitude modulation and demodulation	2
6.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Frequency modulation and demodulation	2
7.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Decade Resistance box 0-10Mohms	12
8.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Decade Inductance box 0-1000mH	12
9.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Decade Capacitance box 0-10microF	12
10.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Digital Multimeters 0-750VAC	5
11.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB	Ammeters 0-100µA	5

**GURU NANAK INSTITUTE OF TECHNOLOGY**

12.	B. Tech	ECE	ECE	1	1	22ES0EC01	Elements of Electronics and Communication Engineering LAB		Ammeters 0-50µA	5
S. No	Degree	Dept	Splz	Year	Sem	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required	
1	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Cathode Ray Oscilloscope (0-30MHz and 0-20MHz)	12	
2	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Dual Regulated Power Supply 0-30V, 2A DC	12	
3	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Function Generator 0-1MHz	12	
4	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Decade Resistance box 0-10Mohms	12	
5	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Decade Inductance box 0-1000mH	12	
6	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Decade Capacitance box 0-10microF	12	
7	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Digital Multimeters 0-750VAC	5	
8	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Ammeters 0-100µA	5	
9	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Ammeters 0-50µA	5	
10	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Voltmeters(0-50mV)	2	
11	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Voltmeters(0-5mV)	2	
12	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Voltmeters(0-100mV)	10	
13	B. Tech	ECE	ECE	1	2	22ES0EC03	Electronic Devices and Circuits Lab	Bread Boards	12	

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

S. No	Degree	Dept	Splz	Year	Sem	Lab Code	Name of the Lab	Name of the equipment
1	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Cathode Ray Oscilloscope 30MHz and 0-20MHz)
2	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Function Generator 0-30V
3	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Regulated Power Supply 30V
4	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Multimeters
5	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Bread boards
6	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Transistors BC107
7	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Resistors
8	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	Capacitors
9	B.Tech	ECE	ECE	2	1	22PC0E C06	Analog Circuits Lab	FET

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

S.No	Degree	Dept	Splz	Year	Sem	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Realization of Boolean Expressions using Gates	2
2	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design and realization logic gates using universal gates	3
3	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Generation of clock using NAND / NOR gates	2
4	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design a 4 – bit Adder / Subtractor	2
5	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design and realization of a 4 – bit gray to Binary and Binary to Gray Converter	2
6	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design and realization of an 8 bit parallel load and serial out shift register using flip-flops.	2
7	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design and realization of a Synchronous and Asynchronous counter using flip-flops	2
8	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design and realization of Asynchronous counters using flip-flops	2
9	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design and realization of 8x1 MUX using 2x1 MUX	2
10	B.Tech	ECE	ECE	2	1	22PC0EC07	Digital Logic Design Lab	Design and realization of 4 bit comparator	2
11	B.Tech	ECE	ECE	2	1	22PC0EC08	Modeling and Simulation Lab	Computers I3 processors with MAT LAB software	32

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

S.No	Degree	Dept	Spiz	Year	Sem	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Amplitude modulation and demodulation	2
2	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Frequency modulation and demodulation	2
3	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	DSB-SC Modulator & Detector	2
4	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	SSB-SC Modulator & Detector (Phase Shift Method)	2
5	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Frequency Division Multiplexing & De multiplexing	2
6	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Pulse Amplitude Modulation & Demodulation	2
7	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Pulse Width Modulation & Demodulation	2
8	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Pulse Position Modulation & Demodulation	2
9	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	PCM Generation and Detection	2
10	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Delta Modulation	2
11	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Frequency Shift Keying: Generation and Detection	2
12	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Binary Phase Shift Keying: Generation and Detection	2
13	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Generation and Detection (i) DPSK (ii) QPSK	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

14	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Spectrum Analyzer	1
15	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Cathode Ray Oscilloscope (0-30MHz and 0-20MHz)	12
16	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Function Generator 0-1MHz	12
17	B.Tech	ECE	ECE	2	2	20PC0EC13	Analog and Digital Communications Lab	Regulated Power Supplies: 0-30V	16

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

S. No	Degree	Dept	Spiz	Year	Sem	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Cathode Ray Oscilloscope (0-30MHz and 0-20MHz)	12
2	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Function Generator 0-1MHz	12
3	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Regulated Power Supplies: 0-30V	12
4	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	5 V Fixed Regulated Power Supply/ 0-5V or more Regulated Power Supply.	4
5	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Bread board and components/ Trainer Kit.	10
6	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Multimeter.	8
7	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Active filter Applications-LPF, HPF (First Order)	2
8	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	. IC 741 waveform Generators-Sine, Square wave and Triangular Waves.	2
9	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Multimeter.	8
10	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Active filter Applications-LPF, HPF (First Order)	2
11	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	. IC 741 waveform Generators-Sine, Square wave and Triangular Waves.	2
12	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Mono-Stable Multivibrator using IC 555.	2
13	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Astable multivibrator using IC 555	2
14	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Schmitt Trigger Circuits using IC 741	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

15	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	. IC 565-PLL Applications	2
16	B.Tech	ECE	ECE	2	2	22PC0EC14	Linear and Digital IC Applications Lab	Voltage Regulator using IC 723	1

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# GURU NANAK INSTITUTE OF TECHNOLOGY

## Department of Mechanical Engineering (ME) R 22

Effective from Academic Year 2022 -23 Admitted Batch

### COURSE STRUCTURE

#### I YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA01	Matrices and Calculus	3	1	0	4
2	BSC	22BS0PH01	Applied Physics	3	1	0	4
3	ESC	22ES0CS06	C Programming and Data Structures	3	0	0	3
4	ESC	22ES0ME01	Engineering Workshop	0	1	3	2.5
5	HSC	22HS0EN01	English for Skill Enhancement	2	0	0	2
6	ESC	22ES0ME02	Elements of Mechanical Engineering	0	0	2	1
7	BSC	22BS0PH02	Applied Physics Laboratory	0	0	3	1.5
8	HSC	22HS0EN02	English Language and Communication Skills Laboratory	0	0	2	1
9	ESC	22ES0CS07	C Programming and Data Structures Laboratory	0	0	2	1
			Induction Programme				
<b>Total</b>				<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

#### I YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	BSC	22BS0MA02	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	BSC	22BS0CH01	Engineering Chemistry	3	1	0	4
3	ESC	22ES0ME05	Computer Aided Engineering Graphics	1	0	4	3
4	ESC	22ES0ME03	Engineering Mechanics	3	0	0	3
5	ESC	22ES0ME04	Engineering Materials	2	0	0	2
6	ESC	22ES0CS04	Python Programming Laboratory	0	1	2	2
7	BSC	22BS0CH02	Engineering Chemistry Laboratory	0	0	2	1
8	BSC	22ES0ME07	Fuels & Lubricants Laboratory	0	0	2	1
9	*MC		Environmental Science	3	0	0	0
<b>Total</b>				<b>15</b>	<b>3</b>	<b>10</b>	<b>20</b>



## GURU NANAK INSTITUTE OF TECHNOLOGY

### Department of Mechanical Engineering (ME) R 22

Effective from Academic Year 2022 -23 Admitted Batch

#### COURSE STRUCTURE

##### II YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	HSC	22BS0MA06	Probability, Statistics & Complex Variables	3	1	0	4
2	PCC	22PC0ME01	Mechanics of Solids	3	0	0	3
3	PCC	22PC0ME02	Metallurgy & Material Science	3	0	0	3
4	PCC	22PC0ME03	Production Technology	3	0	0	3
5	PCC	22PC0ME04	Thermodynamics	3	1	0	4
6	PCC	22PC0ME05	Production Technology Laboratory	0	0	2	1
7	PCC	22PC0ME06	Material Science & Mechanics of Solids Laboratory	0	0	2	1
8	PCC	22PC0ME07	Computer Aided Machine Drawing	0	0	2	1
9	MC	22MC0EN02	Constitution of India	3	0	0	0
			Total Credits	18	2	6	20

##### II YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	ESC	22ES0EE03	Basic Electrical and Electronics Engineering	3	0	0	3
2	PCC	22PC0ME08	Kinematics of Machinery	3	0	0	3
3	PCC	22PC0ME09	Fluid Mechanics & Hydraulic Machines	3	0	0	3
4	PCC	22PC0ME10	IC Engines & Gas Turbines	3	0	0	3
5	PCC	22PC0ME11	Instrumentation and Control Systems	3	0	0	3
6	ESC	22ES0EE04	Basic Electrical and Electronics Engineering Laboratory	0	0	2	1
7	PCC	22PC0ME12	Fluid Mechanics & Hydraulic Machines Laboratory	0	0	2	1
8	PCC	22PC0ME13	Instrumentation and Control Systems Laboratory	0	0	2	1
9	PCC	22PC0ME14	Real Time Research Project/ Field Based Project	0	0	4	2
10.	MC	22MC0EN01	Gender Sensitization Lab	0	0	2	0
			Total Credits	15	0	12	20

# GURU NANAK INSTITUTE OF TECHNOLOGY

## Department of Mechanical Engineering (ME) R 22

Effective from Academic Year 2022 -23 Admitted Batch

### COURSE STRUCTURE

#### III YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1.	PCC	22PC0ME15	Dynamics of Machinery	3	0	0	3
2.	PCC	22PC0ME16	Design of Machine Elements	3	0	0	3
3.	PCC	22PC0ME17	Metrology & Machine Tools	3	0	0	3
4.	HSC	22HS0MB01	Business Economics & Financial Analysis	3	0	0	3
5.	PCC	22PC0ME18	Steam Power & Jet Propulsion	3	0	0	3
6.	PCC	22PE0ME19	CAD/CAM	2	0	0	2
7.	PCC	22PC0ME20	Thermal Engineering Laboratory	0	0	2	1
8.	PCC	22PC0ME21	Metrology & Machine Tools Laboratory	0	0	2	1
9.	PCC	22PC0ME22	Kinematics & Dynamics Laboratory	0	0	2	1
10.	MC	22MC0EN03	Intellectual Property Rights	3	0	0	0
			<b>Total Credits</b>	<b>20</b>	<b>0</b>	<b>6</b>	<b>20</b>

#### III YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1.	PCC	22PC0ME23	Machine Design	3	0	0	3
2.	PCC	22PC0ME24	Heat Transfer	3	0	0	3
3.	PCC	22PC0ME25	Finite Element Methods	3	0	0	3
4.	PCC	22PC0ME26	Professional Elective – I	3	0	0	3
5.	PCC	22OE0XXXX	Open Elective – I	3	0	0	3
6.	PCC	22OE0ME27	Heat Transfer Lab	0	0	2	1
7.	PCC	22PC0ME28	Computer Aided Engineering Laboratory	0	0	2	1
8.	HSC	22HS0EN03	Advanced English Communication Skills Laboratory	0	0	2	1
9.	PCC	22INMME01	Industry Oriented Mini Project/ Internship	0	0	4	2
10.	MC		Fundamentals of Cyber Security	3	0	0	0
11.	*MC		Environmental Science	3	0	0	0
			<b>Total Credits</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>20</b>




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Commission Act

# GURU NANAK INSTITUTE OF TECHNOLOGY

## Mechanical Engineering (ME) R 22

Effective from Academic Year 2022 -23 Admitted Batch

### COURSE STRUCTURE

#### IV YEAR I SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1.	PCC	22PCOME29	Industrial Management	2	0	0	2
2.	PCC	22PEOME30	Refrigeration & Air Conditioning	3	0	0	3
3.	PCC	22PEOMEXX	Professional Elective – II	3	0	0	3
4.	PCC	22PEOMEXX	Professional Elective – III	3	0	0	3
5.	PCC	22PEOMEXX	Professional Elective – IV	3	0	0	3
6.	PCC	22OE0XXXX	Open Elective – II	3	0	0	3
7.	PCC	22 MAJPR01	Project Stage – I	0	0	6	3
<b>Total Credits</b>				<b>17</b>	<b>0</b>	<b>6</b>	<b>20</b>

#### IV YEAR II SEMESTER

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1.	PCC	22PEOMEXX	Professional Elective – V	3	0	0	3
2.	PCC	22PEOMEXX	Professional Elective - VI	3	0	0	3
3.	PCC	22OE0XXXX	Open Elective – III	3	0	0	3
4.	PCC	22MAJPR02	Project Stage – II including seminar	0	0	22	9+2
<b>Total Credits</b>				<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>



# GURU NANAK INSTITUTE OF TECHNOLOGY

## Mechanical Engineering (ME) R 22

Effective from Academic Year 2022 -23 Admitted Batch

### COURSE STRUCTURE

#### Professional Elective – I

22ME0PE1A	Unconventional Machining Processes
22ME0PE1B	Power Plant Engineering
22ME0PE1C	Mechanical Vibrations
22ME0PE1D	Microprocessors in Automation

#### Professional Elective – II

22ME0PE2A	Artificial Intelligence in Mechanical Engineering
22ME0PE2B	Automobile Engineering
22ME0PE2C	Industrial Robotics
22ME0PE2D	Mechatronics

#### Professional Elective – III

22ME0PE3A	Production Planning & Control
22ME0PE3B	Computational Fluid Dynamics
22ME0PE3C	Composite Materials
22ME0PE3D	Solar energy technology

#### Professional Elective – IV

22ME0PE4A	Re-Engineering
22ME0PE4B	Non-Conventional Energy Sources
22ME0PE4C	Operations Research
22ME0PE4D	Electric and Hybrid Vehicles

#### Professional Elective – V

22ME0PE5A	Automation in Manufacturing
22ME0PE5B	Turbo Machinery
22ME0PE5C	Additive Manufacturing
22ME0PE5D	Energy Conservation and Management

#### Professional Elective – VI

22ME0PE6A	Industry 4.0
22ME0PE6B	Fluid Power System
22ME0PE6C	Fuzzy Logic and ANN
22ME0PE6D	Total Quality Management

## GURU NANAK INSTITUTE OF TECHNOLOGY

**Note:** The Department may offer the above Professional Electives through SWAYAM MOOCs

- As per the instructions of UGC, AICTE and MHRD, Govt. of India, JNTUH has implemented MOOCs through SWAYAM(NPTEL) platform as Electives in B. Tech.
- Students can register from the tentative list provided in the particular semester provided any one of the subjects from the elective bunch of the institute is available.
- Interested students need to contact Academic Coordinator in Department.
- There is no supplementary examination for the students who fail in Swayam MOOCs. Whereas students need to attend same external exam from the institution
- Once the students complete the course and submit the certificate same credits will be transferred

### Open Electives Offered by the Department of Mechanical Engineering for other Branches of Engineering

#### Open Electives - I

22ME00E1A	Optimization Techniques
22ME00E1B	Renewable Energy Sources
22ME00E1C	Mechatronics

#### Open Electives - II

22ME00E2A	3 D Printing
22ME00E2B	Fundamentals of Robotics
22ME00E2C	Automation in Manufacturing

#### Open Electives - III

22ME00E3A	Industry 4.0
22ME00E3B	World Class Manufacturing
22ME00E3C	Electric and Hybrid Vehicles

**Note:** The Department may offer the above Open Electives through SWAYAM MOOCs



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF MECHANICAL ENGINEERING  
 LAB MASTERS FOR THE A.Y 2022-23**

S.No.	Degree	Department	Specialization	Year	Semester	Lab code	Name of the Lab	Name of the equipment usage	No. of Units required.
1	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	BENCH VICE	12
2	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	DRILLING CHECK	1
3	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	FITTING FILES	12
4	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TRY SQUARE 4"	12
5	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	ODD LEG CALIPERS	2
6	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	INSIDE LEG CALIPERS	2
7	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	OUTSIDE	2
8	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	BALL PEEN HAMMER 200gms	8
9	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	DIVIDER	5
10	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SCRIBER	8
11	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	CENTER PUNCH	4
12	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	DOT PUNCH	4
13	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	NEEDLE FILE	4
14	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SURFACE GAUGE	2
15	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HACKSAW FRAME	12
16	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	STEEL RULE	12
17	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	COLD CHISELS	2
18	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SURFACE GAUGE9"	2
19	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	DISPANSER SET	2
20	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	DE SPANNER Set	1
21	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	PIPE WRENCH 600mm	1
22	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	PIPE WRENCH 30mm	2
23	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HALF ROUND FILE 200mm	4
24	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TRIANGULAR FILE 250mm	4
25	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TRIANGULAR 8"	4

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

26	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TAPS AND DIES SET	1
27	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SCREW SPANNER 6"	2
28	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SCREW SPANNER 15"	1
29	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	LETTER PUNCH	2
30	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	NUMBER PUNCH	2
31	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	VERNIER CALLIPER 150mm	2
32	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TUBULAR SPANNER	6
33	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	PIPE VICE	2
34	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SQUARE FILE	2
35	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HSS DRILL BITS	10
36	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	BENCH GRINDER	1
37	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	ROUND FILE	2
38	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HALF ROUND FILE ROUGH 6"	4
39	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HALF ROUND FILE SMOOTH 6"	2
40	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	ANGLE PLATE 4" x 4"	2
41	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	ALLEN KEY SET	2
42	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	METAL TAPS 3 MTS	2
43	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	RATCHET DIE SET	1
44	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	MASON SQUARE	1
45	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	CHISEL 10"	2
46	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	CHISEL 8"	2
47	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SURFACE PLATE STAND	2
48	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TRY SQUARE 4"	8
49	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	MEASURING TAPE 5mts	2
50	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	STRAIGHT SNIP	8
51	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	BEND SNIP	2
52	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	WIRE GAUGE	2
53	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	CUTTING PLIER	8
54	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TRAMMEL	1

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## GURU NANAK INSTITUTE OF TECHNOLOGY

55	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SHEARING MACHINE	1
56	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	BALL PEEN HAMMER 200gms	12
57	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	WOODEN MALLETS	12
58	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	FUNNEL STAKE	2
59	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	HORSE HEAD STAKE	2
60	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	CONVEX STAKE	2
61	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	HATCHET STAKE	2
62	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	BEAK HORN STAKE	2
63	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	WELDING TRANSFORMER	2
64	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	HOLDER	2
65	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	EARTH CLAMP	3
66	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	CHIPPING HAMMER	2
67	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	HAND SHIELD	3
68	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	WELDING CABLE	2
69	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	MOULDING BOX	2
70	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	RAMMER	2
71	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	RUNNER AND RISER	2
72	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	TROWEL	2
73	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SHOVELS	4
74	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	STRIKE OFF BAR	2
75	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	LIFTER	2
76	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	BELLON	2
77	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	MOULDING PATTERNS	4
78	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	ANVIL	2
79	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SWAGE BLOCK	2
80	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	LEG VICE	1
81	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SET HAMMER	1
82	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SLEDGE HAMMER 8lb	2
83	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SLEDGE HAMMER 4lb	2



**GURU NANAK INSTITUTE OF TECHNOLOGY**

84	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	BRASS RULE	2
85	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	FLATTERS	2
86	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	FULLER TOP AND BOTTOM	1
87	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SWAGE TOP AND BOTTOM	1
88	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HOT CHISEL WITH HANDLE	1
89	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	COLD CHISEL WITH HANDLE	2
90	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	FLAT TONGS	2
91	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	ROUND TONGS	2
92	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TONGS	2
93	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SMITHY CALIPER	1
94	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	DRILLING MACHINE 1/2"	2
95	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	NOSE PLIERS	8
96	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SCREW DRIVERS 300mm	2
97	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SCREW DRIVERS 250MM	2
98	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SCREW DRIVERS 150MM	2
99	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	BALL PEEN HAMMER 1/2 lb	10
100	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	POKER	2
101	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SOLDERINGIRON BITS	2
102	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SCREWDRIVER KIT	2
103	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	SIDE CUTTER 6"	2
104	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	METAL JACK PLANE 9"	3
105	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	METAL JACK PLANE 6"	8
106	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HANDSAW 8"	6
107	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	HANDSAW 18"	8
108	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	COMPASS SAW	2
109	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	TRYSQUARE 12"	3
110	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	FIRMER CHISEL	4
111	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	MARKING GUAGE	4
112	B. Tech	ME	ME	I	I	22ES0ME01	Engineering Work Shop	CLAW HAMMER	3

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## GURU NANAK INSTITUTE OF TECHNOLOGY

113	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	TRIANGULAR FILE 100mm	8
114	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	ELECTRICAL DRILLING MACHINE	1
115	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	CARBORUNDUM STORE	2
116	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	PINCER 6"	2
117	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	WOOD RASP FILE	6
118	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	FLAT WOOD RASP FILE 8"	8
119	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	CARPENTRY VICE 9"	10
120	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	DEWALT CUTTOFF MACHINE	1
121	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	DEWALT HAND GRINDING	1
122	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	TESTERS	10
123	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	WIRE STIPPER	6
124	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SURFACE PLATE 18"x18"	2
125	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	KNIFE EDGE FILE 8"	3
126	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	CONDUCTORS 4"	3
127	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	WOOD RASP FILE 10"	4
128	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	BEVEL SQUARE	2
129	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	HALFROUND WOOD RASP FILE	2
130	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	CARPENTRY SCREW DRIVER 12"	2
131	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	TRIANGULAR FILE 6"	4
132	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	TENON SAW	4
133	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	CIRCULAR SAW MACHINE	2
134	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	ELECTRICAL PLANNER MACHINE	2
135	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	SCREW DRIVER MACHINE	2
136	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	ELECTRICAL BLOWER	2
137	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	JIG SAW MACHINE	2
138	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	ANGLE GRINDER	2
139	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	ELECTRICAL IMPACT WRENCH	2
140	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	16" CHAIN SAW MACHINE	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

141	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	WIRE STRIPPERS	6
142	B. Tech	ME	ME	I	I	I	22ES0ME01	Engineering Work Shop	MARBLE CUTTER	2
143	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Gear teeth Vernier Calipers..	1
144	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	2-wire and 3-wire with fixtures and micrometer.	1
145	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Surface Plate	1
146	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Spirit Level	2
147	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Dial Indicators	2
148	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Lathe Machines	3
149	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Radial Drilling machine	1
150	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Surface Grinding Machine	1
151	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Universal Milling Machine	1
152	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Simple Pendulum apparatus	1
153	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Compound pendulum apparatus	1
154	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Assembled and disassembled parts of IC Engine.	1
155	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Boiler models.	1
156	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Gear box	1
157	B. Tech	ME	ME	I	I	I	22ES0ME02	Elements of Mechanical Engineering	Soldering iron	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

158	B. Tech	ME	ME	I	I	22ES0ME02	Elements of Mechanical Engineering	Brazing setup	1
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S. No	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the Equipment Usage	No. of Units required
1	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Foundry tools	10
2	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Cope and Drag with sweeps	1
3	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Different patterns	10
4	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Core Boxes	2
5	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Permeability Testing equipment	1
6	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Sand strength machine	1
7	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Induction furnace for metals	1
8	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Arc welding Machine	1
9	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Spot welding Machine	1
10	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Tig Welding Machine	1
11	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Plasma Cutting Machine	1
12	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Brazing setup	1
13	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Simple press tools	1
14	B. Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	compound press tools	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

15	B.Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	progressive press tools	1
16	B.Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Hydraulic press	1
17	B.Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Injection Moulding Machine	1
18	B.Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Blow Moulding Machine	1
19	B.Tech	ME	ME	II	I	22PC0ME05	Production Technology Lab	Wood turning Lathe for pattern making	1
20	B.Tech	ME	ME	II	I	22PC0ME07	Computer Aided machine drawing	Computers	30
21	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Monocular Metallurgical Micro scope	3
22	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Binocular Metallurgical Microscope	3
23	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Double Disc Polisher	1
24	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Belt Grinder	1
25	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Muffle Furnace	1
26	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Jomincy End Quench Apparatus	1
27	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Specimen leveller	1
28	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Polishing stand	1
29	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Universal Testing Machine	1
30	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Torsion Testing Machine	1
31	B.Tech	ME	ME	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Rockwell hardness tester	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

32	B.Tech	ME	ME	II	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Impact Testing Apparatus	1
33	B.Tech	ME	ME	II	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Simply Supported Beam Apparatus	1
34	B.Tech	ME	ME	II	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Cantilever beam apparatus	1
35	B.Tech	ME	ME	II	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Spring Testing Machine	1
36	B.Tech	ME	ME	II	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Brinall hardness tester	1
37	B.Tech	ME	ME	II	II	I	22PC0ME06	Material Science and Mechanics of Solids Lab	Punch shear test rig	1
38	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Dual Channel Regulated Power Supply (0-30V,2A)	6
39	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Function Generators (0-1MHz)	2
40	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Cathode Ray Oscilloscopes	2
41	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Decade Resistance Box (0-10M $\Omega$ )	4
42	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Decade Inductance Box (0-10MH)	3
43	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Decade capacitance Box (0-10 $\mu$ F)	3
44	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Digital Portable Meters(0-30V),(0-75V),(0-100V),(0-150V),(0-200 $\mu$ A),(0-10mA),(0-50mA),(0-200mA)	10
45	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Bread Boards	8
46	B.Tech	ME	ME	II	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Digital Multimeters(0-750VAC)	5

**GURU NANAK INSTITUTE OF TECHNOLOGY**

47	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	1-phase Auto Transformer (10A,0-230V)	1
48	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Voltmeters (AC) (0-300/600V)	2
49	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Single Phase Transformer(coupled coil)	1
50	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	3-phase Auto Transformer (0-440V,4A)	1
51	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Star connected load (resistive load)	1
52	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Wattmeters (UPF),(0-150/300/600V,20A)	2
53	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Ammeters (AC) (0-10/20A)	1
54	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Resistors	100
55	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Diodes	50
56	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	DC shunt motor with suitable arrangement.ACCESSORIES:Meters: Ammeter(MC);Ammeter(MC);Voltmeter(MC);Motor Rheostat;	2
57	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	Squirrelcage3Phase Induction Motor With Mechanical Loading Arrangement .ACCESSORIES:Meters:Ammeter(MI)0-20A;Voltmeter(MI)0-750V,Wattmeter(UPF)-(10/5A,150/300/600V);Wattmeter(LPF)	1
58	B.Tech	ME	ME	II	II	22ES0EE04	Basic Electrical and Electronics Engineering	1-Phase transformer:2kVA,230/115V,5/10A	2

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

61	B.Tech	ME	ME	II	II	ME	II	II	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Impact jet on Vanes	1
62	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Pelton Wheel Test rig	1
63	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Francis Turbine test rig	1
64	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Kaplan Turbine test rig	1
65	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Single Stage Centrifugal pump test rig	1
66	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Multi Stage Centrifugal pump test rig	1
67	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Reciprocating Pump test rig.	1
68	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Determination of friction factor for a given pipe line	1
69	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Venturimeter and Orifice test rig	1
70	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Flow through pipes to study minor losses and major losses	1
71	B.Tech	ME	ME	II	II	ME	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Bernoulli Apparatus	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

72	B.Tech	ME	ME	II	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Flash and Fire Point Apparatus	1
73	B.Tech	ME	ME	II	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Carbon Residue Measuring Test	1
74	B.Tech	ME	ME	II	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab &	Redwood Viscometer	
75	B.Tech	ME	ME	II	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Saybolt Viscometer	1
76	B.Tech	ME	ME	II	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Bomb Calorimeter	1
77	B.Tech	ME	ME	II	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Junkers Calorimeter	1
78	B.Tech	ME	ME	II	II	22PC0ME12	Fluid Mechanics and Hydraulic Machines Lab & Thermodynamics Lab	Grease Penetration Test	1
79	B.Tech	ME	ME	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Calibration of Pressure Gauge test rig.	1
80	B.Tech	ME	ME	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Temperature measurement apparatus.	1
81	B.Tech	ME	ME	II	II	22PC0ME13	Instrumentation and Control Systems Lab	LVDT transducer for displacement measurement.	1
82	B.Tech	ME	ME	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Strain Gauges test rig	1
83	B.Tech	ME	ME	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Calibration of thermocouples test rig	1
84	B.Tech	ME	ME	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Angular displacement measurement kit.	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

85	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Photo and magnetic speed pick-up test rig.	1
86	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Resistance Temperature Detector(RTD)	1
87	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Rotameter test rig.	1
88	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Seismic pickup test rig.	1
89	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Vacuum gauge test rig.	1
90	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Pressure controlling SCADA System.	1
91	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Application of SCADA system for measurement of water level.	1
92	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Application of SCADA system for measurement of temperature.	1
93	B.Tech	ME	ME	II	II	II	22PC0ME13	Instrumentation and Control Systems Lab	Calibration of Pressure Gauge test rig.	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF H&S**

**APPLIED PHYSICS LAB MASTERS AY 2022-23**

S. No.	Degree	Department	Specialization	Year	Semester	Lab code	Name of the Lab	Name of the equipment	No. of Units required.
1	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	RC CIRCUITS KIT	4
2	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	LCR CIRCUITS KIT, FUNCTION GENERATOR	4
3	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	SOLAR CELL KIT, DECADE RESISTANCE BOX	4
4	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	BEAM DIVERGENCE OF LASER BEAM KIT	3
5	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	DETERMINATION OF DIELECTRIC CONSTANT OF A GIVEN MATERIAL KIT	4
6	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	ENERGY GAP KIT	4
7	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	LED V-I CHARACTERISTICS KIT	4
8	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	STUDY OF B-H CURVE OF MAGNETIC MATERIAL KIT	4
9	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	PHOTOELECTRIC EFFECT KIT	4
10	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	INPUT AND OUTPUT CHARACTERISTICS OF BJT	4
11	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	V-I CHARACTERISTICS OF JUNCTION DIODE AND ZENAR DIODE KIT	4
12	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	DETERMINATION OF NUMERICAL APERTURE AND ACCEPTANCE ANGLE KIT	3
13	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	LEAST SQUARES METHOD-TORSIONAL PENDULUM	4
14	B Tech	H&S	PHYSICS	I	I & II	22BS0PH02	APPLIED PHYSICS LAB	HALL EFFECT SET UP	2

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF H&S**  
**ENGINEERING CHEMISTRY LAB MASTERS AY 2022-23**

S. No.	Degree	Department	Specialization	Year	Semester	Lab code	Name of the Lab	Name of the equipment usage	No. of Units required.
1	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Pipette 20 mL	40
2	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Burette 50 mL	60
3	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Beaker 250 mL	40
4	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Standard flask 100 mL	10
5	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Conical flask 250 mL	60
6	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Conductivity meter	4
7	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Potentiometer	4
8	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Ostwald's Viscometer	40
9	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Stop Clocks	10
10	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Stalagmo Meter	40
11	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Analytical/Digital balance	4
12	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Water distillation set	2
13	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Wash bottles	4
14	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Water baths (12 Holes)	2
15	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Magnetic stirrers	3
16	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Funnels	30
17	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Measuring jar (5ml)	2
18	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Measuring jar (10ml)	4
19	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Measuring jar (100ml)	10
20	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	TLC Chambers	8
21	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	TLC plates (Silica coated)	3 Boxes
22	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	UV chamber (optional)	1
23	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Iodine blowers	3

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

24	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	calorimeter	3
25	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	PH meters	4
26	B.Tech	H&S	CHEMISTRY	I	I&II	22BS0CH02	Engineering Chemistry Lab	Reagent bottles	30

**DEPARTMENT OF H&S**  
**ENGLISH LANGUAGE COMMUNICATION SKILLS LAB MASTERS AY 2022-23**

S. No.	Degree	Department	Specialization	Year	Semester	Lab code	Name of the Lab	Name of the equipment usage	No. of Units required.
1	B. Tech	H&S	ENGLISH	I	I & II	22HS0EN02	English Language and Communication Skills Lab (CALL)	1. Monitors 2. Keyboards 3. Headphones 4. CPU 5. Walden Software 6. Digital stereo	35 35 35 35 For all 35 users 1
2	B. Tech	H&S	ENGLISH	1	I & II	22HS0EN02	English Language and Communication Skills Lab (ICS)	1. Movable chairs 2. Conference table 3. Speakers 4. LCD Projector 5. Movable chairs (for lab activity) 6. Podium 7. Camcorder 8. Mike 9. mirror	35 1 2 1 35 1 1 1 1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF H&S**

**BASIC ELECTRICAL ENGINEERING LAB MASTERS AY 2022-23**

S.No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	OHM's LAW kit	1
2	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	KVL & KCL kit	1
3	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Transient response of series RL & RC kit	1
4	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Series & Parallel Resonance kit	1
5	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Function Generator (1M Hz)	3
6	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Bread Boards	10
7	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	DC Rectifier (220V/10A)	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

9	B.Tech	H & S	ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Digital Voltmeters (DC)	5
10	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Digital Voltmeters (AC)	5
11	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Digital Ammeters (AC)	5
12	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Digital Ammeters (DC)	5
13	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Decade Resistance Box	5
14	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Decade Inductance Box	4
15	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Decade Capacitance Box	4
16	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	MultiMeters	4

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

17	B.Tech	H & S	ECE, CSE, IT, CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	RPS 2 channel 0-30V/2A	4
18	B.Tech	H & S	ECE, CSE, IT, CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Single Phase Transformer Unit (230/115V, 50Hz 2KVA with lapping, 1-phase auto T/F DC digital meters, panel mounted wattmeter)	1
19	B.Tech	H & S	ECE, CSE, IT, CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Three Phase Transformer Unit (3-Phase auto T/F-8A 1200VA 3-Phase T/F & Digital Meters)	1
20	B.Tech	H & S	ECE, CSE, IT, CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Measurement of Active & Reactive Power Unit (3-phase auto T/F-4A Digital Voltmeters, Digital Ammeters, Panel Mounted Wattmeter)	1
21	B.Tech	H & S	ECE, CSE, IT, CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Separate Excited DC Sump Motor Unit (5HP, 220VDC 1500 rpm with DC drive, 5HP 1-phase auto T/F DC Bridge for Separate Excitation Digital Meters)	1
22	B.Tech	H & S	ECE, CSE, IT, CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	DC Compound Motor Unit (5HP, 220VDC 1500 rpm, 4 Point starter, Digital Meters)	1
23	B.Tech	H & S	ECE, CSE, IT, CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Benlec Alternator 3.0KVA V=415V, 4.2 amps	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

24	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	ELCB	1
25	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	MCB	1
26	B.Tech	H & S	ECE,CSE,IT,CSM (I Sem) ECE, AIDS, CSC (II Sem)	I Year	I & II	22ES0EE02	BASIC ELECTRICAL ENGINEERING LAB	Earth Resistance Tester	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**DEPARTMENT OF H&S**

**ELEMENTS OF ELECTRICAL AND ELECTRONICS ENGINEERING LAB MASTERS AY 2022-23**

S.No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the equipment Usage	No of Units required
1	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Dual Channel Regulated Power Supply (0-30V,2A)	6
2	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Function Generators (0-1MHz)	2
3	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Cathode Ray Oscilloscopes	3
4	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Decade Resistance Box (0-10MΩ)	4
5	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Decade Inductance Box (0-10MH)	3
6	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Decade capacitance Box (0-10μF)	3

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

7	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Digital Portable Meters(0-30V),(0-75V),(0-100V),(0-150V),(0-200μA),(0-10mA),(0-50mA),(0-200mA)	10
8	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Bread Boards	8
9	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Digital Multimeters(0-750VAC)	5
10	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	1-phase Auto Transformer (10A,0-230V)	1
11	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Voltmeters (AC) (0-300/600V)	2
12	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Single Phase Transformer(coupled coil)	1
13	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	3-phase Auto Transformer (0-440V,4A)	1
14	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Star connected load (resistive load)	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

15	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Wattmeters (UPF),(0-150/300/600V,20A)	2
16	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Ammeters (AC) (0-10/20A)	1
17	B.Tech	H & S	Electrical and Electronics Engineering	1	1	22ES0EE06	Elements of Electrical and Electronics Engineering	Resistors	100

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

8	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Bread Boards	8
9	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Digital Multimeters(0-750VAC)	5
10	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	1-phase Auto Transformer (10A,0-230V)	1
11	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Voltmeters (AC) (0-300/600V)	2
12	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Single Phase Transformer(coupled coil)	1
13	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	3-phase Auto Transformer (0-440V,4A)	1
14	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Star connected load (resistive load)	1
15	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Wattmeters (UPF),(0-150/300/600V,20A)	2
16	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Ammeters (AC) (0-10/20A)	1

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

17	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Harmonic analyzer kit with All Accessories	1
18	B.Tech	H & S	Electrical and Electronics Engineering	1	2	22ES0EE08	Electrical Circuits Analysis Laboratory	Resistors	100

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Annexure -II e

Course Structure -M. Tech (CSE)

**GURU NANAK INSTITUTE OF TECHNOLOGY  
(AUTONOMOUS)**



**GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)**

**Ibrahimpattanam, R. R. District, Hyderabad-501506**

**Telangana, India**

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**GURU NANAK INSTITUTE OF TECHNOLOGY**

**R22 Regulation**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**COURSE STRUCTURE**  
**Applicable From 2022-23 Admitted Batch**  
**I YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC1CS01	Mathematical Foundations of Computer Science	3	0	0	3
2	PCC	22PC1CS02	Advanced-Data Structures	3	0	0	3
3	PEC	PE-I	22PE1CS1A Information Security 22PE1CS1B Mobile Application Development 22PE1CS1C Machine Learning	3	0	0	3
4	PEC	PE-II	22PE1CS2A Network Security 22PE1CS2B Cloud Computing 22PE1CS2C Data Mining	3	0	0	3
5	PCC	22PC1CS03	Advanced Data Structures Lab	0	0	4	2
6	PCC	22PC1CS04	Machine Learning Lab	0	0	4	2
7	PCC	22PC1CS05	Research Methodology & IPR	2	0	0	2
8	PCC	22PC1CS06	Audit Course - I	2	0	0	0
			<b>Total Credits</b>	<b>16</b>	<b>0</b>	<b>8</b>	<b>18</b>

**I YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PCC	22PC1CS07	Advanced Algorithms	3	0	0	3
2	PCC	22PC1CS08	Advanced Computer Architecture	3	0	0	3
3	PEC	PE-III	22PE1CS3A Web and Database Security 22PE1CS3B Internet of Things 22PE1CS3C Data Science	3	0	0	3
4	PEC	PE-IV	22PE1CS4A Cyber Security 22PE1CS4B Advanced Computer Networks 22PE1CS4C Big Data Analytics	3	0	0	3
5	PCC	22PC1CS09	Advanced Algorithms Lab	0	0	4	2
6	PCC	22PC1CS10	Data Science Lab	0	0	4	2
7	PROJ	PROJ	Mini Project with Seminar	0	0	4	2
8	PCC	22PC1CS11	Audit Course - II	2	0	0	0
			<b>Total Credits</b>	<b>14</b>	<b>0</b>	<b>12</b>	<b>18</b>



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**R22 Regulation**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**COURSE STRUCTURE**  
Applicable From 2022-23 Admitted Batch

**II YEAR I SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PEC	PE-V	22PE1CS5A Digital Forensics 22PE1CS5B High-Performance Computing 22PE1CS5C Deep Learning	3	0	0	3
2	OEC	OEC	<b>Open Elective</b>	3	0	0	3
3	PROJ	20CS3DSL1	Dissertation Work Review - II	0	0	12	6
			<b>Total Credits</b>	<b>6</b>	<b>0</b>	<b>12</b>	<b>12</b>

**II YEAR II SEMESTER**

S. No.	Group	Course Code	Course Title	L	T	P	Credits
1	PROJ	20CS3DSL2	Dissertation Work Review - III	0	0	12	6
2	PROJ	20CS3DVL1	Dissertation Viva-Voce	0	0	28	14
			<b>Total Credits</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>20</b>

**AUDIT COURSE I & II:**

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by yoga
8. Personality Development Through Life Enlightenment Skills



APPROVED BY  
 JALANDHAR



ACCREDITED BY  
 ASSOCIATION OF AMBA



NATIONAL BOARD OF EXAMINATIONS  
 UGC (MCI) 100

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 University Grants  
 Commission Act

## GURU NANAK INSTITUTE OF TECHNOLOGY

### DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (PG)

#### Lab Masters (2022-2023)

S. No.	Degree	Department	Specialization	Year	Semester	Lab Code	Name of the Lab	Name of the Equipment Usage	No. of Units required
1	M.Tech	CSE	CSE	1	1	22PC1CS03	Advanced-Data Structures Lab	Computer Systems with C Compiler Installed.	30
2	M.Tech	CSE	CSE	1	1	22PC1CS04	Machine Learning Lab	Computer Systems with Jupyter Installed	30
3	M.Tech	CSE	CSE	1	2	22PC1CS09	Advanced Algorithms Lab	Computer Systems with C compiler installed	30
4	M.Tech	CSE	CSE	2	2	22PC1CS10	Data Science Lab	Computer Systems with Python/Anaconda installed	30

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Annexure -II f

Course Structure -MBA

**GURU NANAK INSTITUTE OF TECHNOLOGY  
(AUTONOMOUS)**



**GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)**

**Ibrahimpattanam, R. R. District, Hyderabad-501506**

**Telangana, India**

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# GURU NANAK INSTITUTE OF TECHNOLOGY

## MASTER OF BUSINESS ADMINISTRATION (MBA) R 22

Effective from Academic Year 2022 -23 Admitted Batch

### COURSE STRUCTURE


#### I Semester

Sl. No	Group	Course Code	Course Title	L	T	P	C
1	PCC	22CC1MB01	Management and Organizational Behaviour	4	0	0	4
2	PCC	22CC1MB02	Business Economics	4	0	0	4
3	PCC	22CC1MB03	Financial Reporting & Analysis	4	0	0	4
4	BSC	22CC1MB04	Research Methodology and Statistical Analysis	4	0	0	4
5	PCC	22CC1MB05	Legal and Business Environment	4	0	0	4
6	PCC	22OE1MB01A	Business Ethics and Corporate Governance	3	0	0	3
		22OE1MB01B	Project Management				
		22OE1MB01C	Sustainability Management				
		22OE1MB01D	Cross Cultural Management				
7	HSC	22CC1MB06	Business Communication Lab.	0	0	2	2
8	BSC	22CC1MB07	Statistical Data Analysis Lab	0	0	2	2
<b>TOTAL</b>				<b>23</b>	<b>0</b>	<b>4</b>	<b>27</b>

#### II Semester

Sl. No.	Group	Course Code	Course Title	L	T	P	C
1	PCC	22CC1MB08	Human Resource Management	4	0	0	4
2	PCC	22CC1MB09	Marketing Management	4	0	0	4
3	PCC	22CC1MB10	Financial Management	4	0	0	4
4	BSC	22CC1MB11	Quantitative Analysis for Business Decisions	4	0	0	4
5	PCC	22CC1MB12	Entrepreneurship and Design Thinking	4	0	0	4
6	PCC	22CC1MB13	Logistics & Supply Chain Management	4	0	0	4
7	PCC	22OE1MB02A	Total Quality Management	3	0	0	3
		22OE1MB02B	Marketing Research				
		22OE1MB02C	International Business				
		22OE1MB02D	Rural Marketing				
8	PCC	22FW1MB01	Summer Internship (Evaluated in the III Semester and credits will be given in the III Semester)	0	0	0	0
<b>TOTAL</b>				<b>27</b>	<b>0</b>	<b>0</b>	<b>27</b>

**Internship during Summer vacation (after Semester –II)**

  
 GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)



**GURU NANAK INSTITUTE OF TECHNOLOGY**

**MASTER OF BUSINESS ADMINISTRATION (MBA) R 22**

Effective from Academic Year 2022 -23 Admitted Batch

**COURSE STRUCTURE**

**III Semester**

Sl. No.	Group	Course Code	Course Title	L	T	P	C
1	PCC	22CC1MB14	Production & Operations Management	4	0	0	4
2	PCC	22CC1MB15	Management Information Systems	4	0	0	4
3	PCC	22CC1MB16	Business Analytics	4	0	0	4
4	PCC	22MK1MB01 22FM1MB01 22HR1MB01 22EN1MB01	Digital Marketing Security Analysis and Portfolio Management Talent and Performance Management Systems Start-up and MSME Management	4	0	0	4
5	PCC	22MK1MB02 22FM1MB02 22HR1MB02 22EN1MB02	Sales and Promotion Management Risk Management and Financial Derivatives Learning and Development Technology Business Incubation	4	0	0	4
6	PCC	22MK1MB03 22FM1MB03 22HR1MB03 22EN1MB03	Consumer Behaviour Strategic Cost and Management Accounting Employee Relations Innovation and Entrepreneurship	4	0	0	4
7	PCC	22FW1MB01	Summer Internship-Evaluation	0	0	2	2
<b>TOTAL</b>				<b>24</b>	<b>0</b>	<b>2</b>	<b>26</b>

**IV Semester**

Sl. No.	Group	Course Code	Course Title	L	T	P	C
1	PCC	22CC1MB17	Strategic Management	4	0	0	4
2	PCC	22MK1MB04 22FM1MB04 22HR1MB04 22EN1MB04	International Marketing International Financial Management International Human Resource Management Entrepreneurial Finance	4	0	0	4
3	PCC	22MK1MB05 22FM1MB05 22HR1MB05 22EN1MB05	Services Marketing Strategic Financial Management Leadership and Change Management Entrepreneurial Marketing	4	0	0	4
4	PCC	22MK1MB06 22FM1MB06 22HR1MB06 22EN1MB06	Marketing Analytics Financial Analytics HR Analytics Family Business Management	4	0	0	4
5	PCC	22PJ1MB01	Pre-submission project Seminar	0	0	2	2
6	PCC	22PJ1MB02	Main Project Viva-Voce	0	0	4	4
<b>TOTAL</b>				<b>16</b>	<b>0</b>	<b>6</b>	<b>22</b>