Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date: 07/06/2023

TO WHOMESOEVER IT MAY CONCERN

This is to certify that the number of Add on / Certificate courses offered during the Academic Year 2022-23.

Academic Year	Number of Courses
2022-23	12

These add on / Certificate courses conducted by various department of our institute are not the part of curriculum prescribed by Rashtrasant Tukadoji Maharaj Nagpur University.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Dr. Sudhir N. Shelke
PRINCIPAL

Principal
Guru Nanak Institute of Technology

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date: -01/12/2022

To,

The Head of the Department,
Department of Applied Sciences & Humanities,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course "**APTITUDE WORKSHOP**" and appointment of faculty for course curriculum design for the academic year 2022-23 dated 05/12/2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am pleased to nominate the following faculty member for ADD-ON Course - **APPTITUDE WORKSHOP.**

1. Ms. Priti M. Nistane (Applied Science & Humanities)

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal

Principal
Guru Nanak Institute of Technology

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

(Session 2022-2023)

Syllabus for "Aptitude Workshop" (Add-On Course)

COURSE OBJECTIVES:

By being an **Aptitude course** certified - Associate, should be able to evaluate the requirements of the organization or the businesses and make architectural recommendations for implementation and deployment of the application on Aptitude test.

Syllabus:

Section 1: Fundamentals of Aptitude test

- Introduction to Aptitude workshop
- Necessary Quantitative aptitude,
- logical reasoning,
- Verbal reasoning.

Section 2: Content of Quantitative Aptitude

- Introduction to Number System
- Percentage
- Ratio and Proportion
- Profit & Loss
- Simple & Compound Interest
- Allegation and Mixture
- Average Time and Distance,
- Introduction to Coordinate Geometry
- Inequalities, Functions, Logarithm
- Introduction to Set Theory
- Progressions

Section 3: Content of Verbal Ability

- Introduction to verbal ability Improvement
- Reading Comprehension
- Sentence Re-arrangements
- Fill in the Blanks
- Theme Detection
- Analogy ,Vocab, Synonyms
- Words often confused and misused
- Introduction to Grammar
- Noun, pronoun, adjectives, tenses ,verbs, preposition ,article, conjuction.

Section 4: Content of Logical Reasoning

- Coding-Decoding
- Sitting Arrangements
- Data Sequence / Calendars, Direction Sense Test,Blood Relations
- Series, Analogy Classification, Alphabet Test, Clocks, Puzzle Test,
- Sentence and Arguments
- Non-Verbal Reasoning
- Probability

COURSE OUTCOMES: The students shall be able to

- Develop learning skill and ability, and critical thinking
- Improve basic mathematical skill
- Understand basic concept of quantitative aptitude and arithmetic techniques
- Understand different methods and Application level of aptitude test.
- Understand time savings strategies
- Communicate quantitative information, symbolically, visually, numerically, or verbally.
- Enrich knowledge and develop logical reasoning and thinking ability
- Interpret quantitative models and understand a variety of methods of communicating them, such as graphs, tables, formulae, and schematics.
- Effectively justify and communicate their conclusions in ways appropriate to the audience.

Topic Plan:

DAY	TOPICS	HOURS
1.	Introduction to Aptitude workshop	1
2.	Necessary Quantitative aptitude	1
3.	logical reasoning	1
4.	Verbal reasoning	1
5.	Introduction to Number System	1
6.	Percentage, Ratio and Proportion	1
7.	Profit & Loss, Simple & Compound Interest	1
8.	Allegation and Mixture	1
9.	Average Time and Distance	1
10.	Introduction to Coordinate Geometry	1
11.	Inequalities, Functions, Logarithm	1
12.	Introduction to Set Theory, Progressions	1
13.	Introduction to verbal ability Improvement, Introduction to Grammar	2
14.	Reading Comprehension	2
15.	Sentence Re-arrangements, Fill in the Blanks, Theme Detection	2
16.	Analogy ,Vocab, Synonyms, Words often confused and misused	2
17.	Noun, pronoun, adjectives, tenses, verbs, preposition , article, conjuction.	2
18.	Coding-Decoding, Sitting Arrangements	2
19.	Data Sequence / Calendars, Direction Sense Test, Blood Relations	2
20.	Series, Analogy Classification, Alphabet Test, Clocks, Puzzle Test	2
21.	Sentence and Arguments, Non-Verbal Reasoning, Probability	2

Coordinator

HOD

HOD
Department First Year
of Engineering
GNIT, Nagpur

Principal
Principal
Guru Nanak Institute of
Technology

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

Session 2022-2023

Date: 01-12-2022

ADD-ON COURSE SCHEDULE

"APTITUDE WORKSHOP"

Sr. No.	Roll No.	Course Duration			No. of Students	Day	Time
1	01-50	05-12-22	to	31-01-23	50	Monday to Friday	11:00 AM -12:00 PM
2	51-100	05-12-22	to	31-01-23	50		01:00 PM – 02:00 PM

Course Incharge: Ms. Priti M. Nistane (Applied Science & Humanities)

Coordinator

HOD

HOD
Department First Year
of Engineering
GNIT, Nagpur

Principal

Principal
Guru Nanak Institute of
Technology

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date: -02/02/2023

To

The Head of the Department,
Department of Computer Science & Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"Windows Application Programming"** and appointment of faculty for course curriculum design for the academic year 2022-23 dated 06/02/2023.

The undersign appreciates the department proposing to conduct such kind of course. As per yourrecommendation and referring to the above subject, Iam please to nominate the following faculty member for ADD-ON Course -Windows Application Programming.

1. Ms. Komal V. Utane, Computer Science & Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal
Principal
Guru Nanak Institute of Technology

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Session 2022-2023

Syllabus for "Windows Application Programming"

COURSE OBJECTIVES:

By being a Windows Application Programming - Associate, should be able to evaluate the requirements of code programs and develop interface using Visual Basic.Net and Perform tests, resolved defects, and revise existing code. Analyse program requirements and Design/develop programs with GUI interface.

Syllabus:

Section 1:Overview Of .Net Framework

- Introductionto.Net Framework
- Compiling and Running Program in .Net Framework
- Components in .Net Framework
- Introduction to WPF (Windows Presentation Foundation)

Section 2: OVERVIEW OF C#

- Introduction to C#
- Input and output
- Variables and data Types
- Arrays
- Operators
- Control structures
- Functions and procedures
- Error handling

Section 3: OBJECT-ORIENTED PROGRAMMING IN C#

- Classes and Objects
- Attributes
- Methods
- Inheritances

Section 4: WINDOWS FORM PROGRAMMING

- Basic controls
- Properties
- Events ELBConfigurationElasticity

Section 5: PROGRAMMING WITH DATABASES

- Overview of ADO.Net
- Direct connection
- Indirect connection
- Report creatin

COURSE OUTCOMES: The students shall be able to

- Launch different servers like Linux, Windows, Mac and Manage Storages for Servers and Backups
- The programs of desktop applications run on the top of operating systems such as macOS, Linux, and Microsoft Windows.
- Moqups: It is a great tool for designing mockups, prototypes, and frameworks.
- Mock plus: Developers can create interactive prototypes and wireframes with this cloud-based tool.
- Monitor Server Resources and Account activities
- Setup Database Engines and Secure Servers and Services
- Storing files securely using Object Storage method
- Design the application
- Understand different encryption methods and Application level integration services

Topic Plan:

DAY	TOPICS	HOURS
1.	Introductionto.Net Framework	1
2.	Compiling and Running Program in .Net Framework	1
3.	Components in .Net Framework	1
4.	Introduction to WPF (Windows Presentation Foundation)	1
5.	Introduction to C#	1
6.	Input and output	1
7.	Variables and data Types	1
8.	Arrays	1
9.	Operators	1
10.	Control structures	1
11.	Functions and procedures	2
12.	Error handling	2
13.	Classes and Objects	2
14.	Attributes	2
15.	Methods	2
16.	Inheritances	2
17.	Basic controls	2
18.	Properties	2
19.	Events ELBConfigurationElasticity	2
20.	Overview of ADO.Net	2
21.	Direct connection	2
22.	Indirect connection	2
23.	Report creatin	2
24.	History of .Net	2

Coordinator

HOD

Head of the Department
Computer Sci & Engg
GNIT Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERRING

Session 2022-2023

Date: 02-02-2023

ADD-ON COURSE SCHEDULE

"Windows Application Programming"

Sr. No.	Roll No.	Course Duration			No. of Students	Day	Time
1	01-25	06-02-23	to	31-03-23	25	Monday to Friday	11:00 AM -12.00 PM
2	26-50	06-02-23	to	31-03-23	25		01:00 AM – 02:00 PM

Course In-charge: Ms. Komal V. Utane

Coordinator

HOD

Head of the Department
Computer Sci & Engg
GNIT Nagpur

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR
Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date: - 10/08/2022

To,

The Head of the Department,
Department of Computer Science &Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course "**Hardware and Network**" and appointment of faculty for course curriculum design for the academic year 2022-23 dated 15/08/2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - Hardware and Network.

1. Mr. Pawan H Raut, Computer Science & Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal
Principal
Guru Nanak Institute of Technology

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Session 2022-2023

Syllabus for Add-On Course on "Hardware and Network"

COURSE OBJECTIVES:

By being an Windows Application Programming - Associate, should be able to evaluate the requirements of code programs and develop interface using Visual Basic.Net and Perform tests, resolved defects, and revise existing code. Analyse program requirements and Design/develop programs with GUI interface.

Syllabus:

Section 1: Basic Electronics & Measuring Instruments

- Health and Safety
- basic electrical concepts, Basic electronic components
- Soldering and de-soldering
- Tools and measuring instruments, types of ICs

Section 2: Computer Hardware

- Computer History
- Computer Block Diagram
- Motherboard
- PC maintenance and its Schedule
- Assembling and disassembling of computer

Section 3: Microprocessor

- CISC
- RISC
- EPIC

Section 4: Storage Device

- Peripheral Device
- SMPS
- BIOS
- RAM & HDD

Section 5: Data Communications and Networking.

- LAN& WAN Network
- Basic concepts of Client, Server, Workstation, Hubs
- Types of Network Architectures
- Basic concept of Transmission Types
- Knowledge of Network Topologies

COURSE OUTCOMES: The students shall be able to

- Identify different parts of a computer system
- Install Test and Troubleshoot Switch Mode Power Supply & UPS (Uninterrupted Power Supply).
- Manage the resources of a Computer System (Windows and or Linux) according to users need.
- Create partition of the HDD, SSD of a Computer System (in Windows and or Linux) according to users need.
- Install RAM, SSD, HDD and explain Primary Memory (RAM & ROM) and Secondary Memory in a computer system
- Explain Working Principle of Communication and utility of Network in a big System.
- Connect computers in a networking system and able to share, files, printers or other resources in a system.
- Configure the router or modem and setup a secured connection via Internet.

Topic Plan:

DAY	TOPICS	HOURS
1.	Basic Electronics & Measuring Instruments	1
2.	Health and Safety	1
3.	Basic electrical concepts, Basic electronic components	1
4.	Soldering and de-soldering	1
5.	Tools and measuring instruments, types of ICs	1
6.	Computer History	1
7.	Computer Block Diagram	1
8.	Motherboard	1
9.	PC maintenance and its Schedule	1
10.	Assembling and disassembling of computer	1
11.	Microprocessor	2
12.	CISC	2
13.	RISC	2
14.	EPIC	2
15.	Storage Device	2
16.	Peripheral Device	2
17.	SMPS	2
18.	BIOS	2
19.	RAM & HDD	2
20.	Data Communications and Networking.	2
21.	LAN& WAN Network	2
22.	Basic concepts of Client, Server, Workstation, Hubs	2
23.	Types of Network Architectures	2
24.	Basic concept of Transmission Types	2
25.	Knowledge of Network Topology	2

Coordinator

HOD

Head of the Department
Computer Sci & Engg
GNIT Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERRING

Session 2022-2023

Date:10-08-2022

ADD-ON COURSE SCHEDULE

"Hardware And Network"

Sr. No.	Roll No.	Course Duration			No. of Students	Day	Time
1	01-30	15-08-22	to	10-10-22	30	Monday to Friday	11:00 AM -12.00 PM
2	31-55	15-08-22	to	10-10-22	25		01.00 PM - 02.00 PM

Course In-charge: Mr. Pawan H Raut, Computer Science & Engineering

Coordinator

HOD

Head of the Department
Computer Sci & Engg
GNIT Nagpur

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date :- 01/12/2022

To

The Head of the Department
Department of Computer Science Engineering
Guru Nanak Institute of Technology
Nagpur. 441501

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course "**Data Science Big Data and Learning Analytics**" and appointment of faculty for courses curriculum design for the academic year 2022-23 dated 05/12/2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - Data Science Big Data and Learning Analytics.

1. Ms. Namita A Gahukar, Computer Science and Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal

Principal
Guru Nanak Institute of Technology

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Session 2022-2023

Syllabus for Add-on Course on "Data Science and Learning Analytics"

COURSE OBJECTIVES:

- Students will study data science phenomena and how students work through a data science course. Blend of business acumen, machine learning techniques, algorithms and mathematics, Data Science helps to find out the hidden patterns from raw data.
- This skill becomes instrumental because this information will help the student make informed and big decisions relating to their application.
- Learning analytics is a method to collect, measure, analysis and reporting of data about learners and their interactions with a learning environment.
- Learning analytics is applying analytics on educational data to infer the student learning process and to provide support.
- Learning analytics is important course in the data era and it will help the learner to apply analytics on data from education domain and also in other relevant domain.

Syllabus:

Unit I:

Introduction to Data Science, Understanding Exploratory Data Analysis, Machine Learning, Model selection and evaluation

Unit II:

Data Warehousing, Data Mining, Data Visualization, Cloud Computing, Business Intelligence Storytelling with Data Communication and Presentation

Unit III:

What is LA? Definition and how it relates to Academic Analytics and EDM Learning Analytics Big-Picture, How it is related to ML, EDM Four Levels of Learning Analytics Overview, Data Collection – How Big is Education data, Data Collection from Learning Environments, Pre-Processing Ethics in Learning Analytics, Student Privacy.

Unit IV:

Descriptive Analytics, Data Visualization, Example Dashboard Analytics, Predictive Analytics, Linear Regression, Analytics Tools, Demo of Weka/Rapidminer, Demo of Linear Regression using Weka.

COURSE OUTCOMES: The students shall be able to

- Demonstrate proficiency with statistical analysis of data.
- Develop the ability to build and assess data-based models.
- Execute statistical analyses with professional statistical software.
- Demonstrate skill in data management.
- Understand descriptive analytics, data collection.
- Understand working of Weka

Topic Plan:

DAY	TOPICS	HOURS
1.	Introduction to Data Science	1
2.	Understanding Exploratory Data Analysis	1
3.	Machine Learning, Model selection and evaluation	2
4.	Data Warehousing	1
5.	Data Mining	1
6.	Data Visualization	1
7.	Cloud Computing	1
8.	Business Intelligence	1
9.	Storytelling with Data Communication and Presentation	2
10.	What is LA? Definition and how it relates to Academic Analytics and EDM Learning Analytics	2
11.	Big-Picture	2
12.	How it is related to ML, EDM Four Levels of Learning Analytics Overview	2
13.	Data Collection – How Big is Education data, Data Collection from Learning Environments	2
14.	Pre-Processing Ethics in Learning Analytics, Student Privacy.	2
15.	Descriptive Analytics	2
16.	Data Visualization	1
17.	Example Dashboard Analytics	1
18.	Predictive Analytics	1
19.	Linear Regression, Analytics Tools	2
20.	Demo of Weka/Rapidminer	2
21.	Demo of Linear Regression using Weka.	1

Coordinator

HOD

Head of the Department
Computer Sci & Engg
GNIT Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERRING

Session 2022-2023

Date: 01-12-2022

ADD-ON COURSE SCHEDULE

"Data Science and Learning Analytics"

Sr. No.	Roll No.	Course Duration			No. of Students	Day	Time
1	01-20	05-12-22	To	31-01-23	20	Monday to Friday	11:00 am -12.00pm
2	21-40				20		01:00 pm - 2.00pm

Course Incharge: Ms. Namita A. Gahukar, Computer Science and Engineering

Coordinator

HOD

Head of the Department
Computer Sci & Engg
GNIT Nagpur

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450

Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

Guru Nanak Institutions, Nagpur

• ENGINEERING • MBA • M.TECH • SCHOOL

ISO 9001 : 2008 Certified Institutions

NAAC ACCREDITED

Date:- 10-08-2022

To

The Head of the Department,
Department of Civil Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23–Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"SAP 2000"** and appointment of faculty for courses curriculum design for the academic year 2022-23 dated 15-08-2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course – **SAP 2000**

1. Mr. Pawan Barhate, Civil Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal

Principal
Guru Nanak Institute of Technology

DEPARTMENT OF CIVIL ENGINEERING

Session 2022-23

Add-On Course Name: ***SAP 2000***

COURSE OBJECTIVES:

By completing the ***SAP 2000 course***, students should be able to analyze and design structural systems using the software. The focus will be on understanding the fundamentals of structural analysis and applying them to real-world engineering problems.

Syllabus:

Section 1: Introduction to Structural Analysis

- Introduction to Structural Engineering
- Basics of Structural Analysis
- Role of Software in Structural Analysis

Section 2: Introduction to SAP 2000

- Overview of SAP 2000 Software
- User Interface and Navigation
- Creating and Modifying Structural Models

Section 3: Structural Modeling

- Building 3D Structural Models
- Assigning Materials and Sections
- Defining Supports and Constraints

Section 4: Loadings

- Types of Loads in Structural Analysis
- Applying Loads in SAP 2000
- Load Combinations and Analysis

Section 5: Analysis and Design

- Linear Static Analysis
- Response Spectrum Analysis
- Design of Concrete and Steel Structures
- Code Checking
-

Section 6: Dynamic Analysis

- Time History Analysis
- Mode Shapes and Frequencies
- Seismic Analysis

Section 7: Post-Processing and Reporting

- Viewing Analysis Results
- Generating Reports and Documentation

COURSE OUTCOMES:

By the end of the course, students should be able to:

- Create and analyze 3D structural models using SAP 2000
- Apply various loading conditions and analyze structural responses
- Design concrete and steel structures based on code provisions
- Perform dynamic analysis for seismic considerations

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

Lesson Plan:

DAY	TOPICS	HOURS
1	Section 1: Introduction to Structural Analysis	1
2	Introduction to Structural Engineering	1
3	Basics of Structural Analysis	1
4	Role of Software in Structural Analysis	1
5	Section 2: Introduction to SAP 2000	1
6	Overview of SAP 2000 Software	1
7	User Interface and Navigation	1
8	Creating and Modifying Structural Models	1
9	Section 3: Structural Modeling	1
10	Building 3D Structural Models	1
11	Assigning Materials and Sections	1
12	Defining Supports and Constraints	1
13	Section 4: Loadings: Types of Loads in Structural Analysis	1
14	Applying Loads in SAP 2000	1
15	Load Combinations and Analysis	1
16	Section 5: Analysis and Design :Linear Static Analysis	1
17	Response Spectrum Analysis	1
18	Design of Concrete and Steel Structures	1
19	Code Checking	1
20	Section 6: Dynamic Analysis: Time History Analysis	1
21	Mode Shapes and Frequencies	2
22	Seismic Analysis	2
23	Section 7: Post-Processing and Reporting	2
24	Viewing Analysis Results	2
25	Generating Reports and Documentation	2

Coordinator

HOD
Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF CIVIL ENGINEERRING

Session 2022-23

Date: 10-08-2022

ADD-ON COURSE SCHEDULE

"SAP 2000"

Sr. No.	Sem.	Roll No.	Batches	Course Duration			No. of Students	Day	Time
1	III[rd]	01- 35	B-1	15-08-22	To	10-10-22	35	Mon To Fri	11:00 am -12.00pm
2		36- 70	B-2				35		01:00 am - 02.00pm

Course Coordinator: Prof. Raju Bondre

Coordinator

HOD

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR
Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date:- 10-08-2022

To

The Head of the Department,
Department of Civil Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"Project Management with Microsoft Project (MSP)"** and appointment of faculty for courses curriculum design for the academic year 2022-23 dated 15-08-2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - **Project Management with Microsoft Project (MSP)**

1. Mr. Raju Bondre, Civil Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal

Principal
Guru Nanak Institute of Technology

DEPARTMENT OF CIVIL ENGINEERING

Session 2022-23

Add-On Course Name: Project Management with Microsoft Project (MSP)

Syllabus:

COURSE OBJECTIVES:

- To understand project management processes, estimates, budgets, schedules and project feasibility.
- To cultivate right approach towards monitor and tract project performance and change control.
- To familiarize students with the applications of Microsoft project. It is designed to assist a project manager in developing a schedule, assigning resources to tasks, tracking progress, managing the budget, and analysing workloads.

COURSE OUTCOMES:

- Student will learn project management processes, estimates, budgets, schedules and project feasibility.
- Students will able to monitor and tract project performance and change control.
- This course will help the students with the applications of Microsoft project. Students will able to create project schedules, Ability to manage Multiple Projects, Ability to implement resources, Generates Project Reports etc.

Theory Syllabus:

Module 1: Project Management (PM): Integration & Scope Management

Definition, PM methodology and application, Project life cycle, Project stake holders and Organizational influences, Project charter, Project integration management, Identifying PM Processes, Groups, Functions of a Project Manager, Requirements and scope of project, Scope variation and control, WBS.

Module 2: Project budgeting, Cost and Time (Scheduling) Management

Levels of estimate, Top-down and bottom-up budgeting methods, Types of project costs and estimates, Curves on cost estimating and cost control. Project budgeting parameters, Scheduling tools – Bar charts, Gantt charts and Network analysis. Precedence relationships, determining task dependency, Sequencing, Estimating activity durations, Schedule development and schedule control.

Module 3: Project Feasibility Reports and Clearances

Pre-feasibility Report (PFR), Techno-economic and other feasibility studies and reports, Detailed Project Report (DPR), various project clearances.

Module 4: Quality, Communication & Performance Management

Concepts of Quality planning, Quality assurance & Quality control, Communication planning, Performance tracking and reporting, Earned value analysis, variance analysis.

Module 5: Change Control

Elements of good change control process, analyzing the change with respect to cost impact, schedule impact and risks.

Module 6: Project Closeout

Project closeout, Customer and Organizational closeouts, Lessons learned.

Lesson Plan:

DAY	TOPICS	HOURS
1	Definition, PM methodology and application, Project life cycle,	1
2	Project stake holders and Organizational influences, Project charter, Project integration management,	1
3	Identifying PM Processes, Groups, Functions of a Project Manager,	1
4	Requirements and scope of project, Scope variation and control, WBS.	1
5	Levels of estimate	1
6	Top-down and bottom-up budgeting methods	1
7	Types of project costs and estimates	1
8	Curves on cost estimating and cost control.	1
9	Project budgeting parameters	2
10	Scheduling tools – Bar charts, Gantt charts and Network analysis.	2
11	Precedence relationships, determining task dependency,	2
12	Sequencing, Estimating activity durations	1
13	Schedule development and schedule control.	2
14	Pre-feasibility Report (PFR)	2
15	Techno-economic and other feasibility studies and reports	2
16	Detailed Project Report (DPR), various project clearances.	2
17	Concepts of Quality planning	2
18	Quality assurance & Quality control, Communication planning	2
19	Performance tracking and reporting	2
20	Earned value analysis, variance analysis	2
21	Elements of good change control process	2
22	Analyzing the change with respect to cost impact, schedule impact and risks.	2
23	Project closeout	2
24	Customer and Organizational closeouts	2
25	Lessons learned.	2

Coordinator

HOD

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF CIVIL ENGINEERRING

Session 2022-23

Date: 01-12-2022

ADD-ON COURSE SCHEDULE

"Project Management with Microsoft Project (MSP)"

Sr. No.	Sem.	Roll No.	Batches	Course Duration			No. of Students	Day	Time
1	III[rd]	01- 40	B-1	15-08-22	To	10-10-22	Min. 40	Mon To Fri	11:00 am -12.00pm
2		41- 80	B-2				Min. 40		01:00 am - 02.00pm

Course Coordinator: Prof. Sushant M. Gajbhiye

Coordinator

HOD

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date:- 01-12-2022

To

The Head of the Department,
Department of Civil Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"Building Information Modelling (BIM)"** and appointment of faculty for courses curriculum design for the academic year 2022-23 dated 05-12-2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - **Building Information Modelling (BIM)**

1. Mr. Sushant Gajbhiye, Civil Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal

Principal
Guru Nanak Institute of Technology

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

DEPARTMENT OF CIVIL ENGINEERING

Session 2022-23

Add-On Course Name: Building Information Modelling (BIM)

COURSE OBJECTIVES:

- To study BIM Concept, Benefits, Uses, BIM Processes, overview of Various Tools & Techniques used for implementing BIM on Projects.

COURSE OUTCOMES:

- Student will learn BIM Concept, Benefits, Uses, BIM Processes, overview of Various Tools & Techniques used for implementing BIM on Projects.

Syllabus:

1) Workshops on Autodesk Revit
2) Workshops on Autodesk Navisworks
3) Workshops on Autodesk BIM360 Collaborate Pro
4) Workshop on Autodesk Civil 3D
5) Workshop on Autodesk Infraworks

Projects: Student will work on developing Industry Level Projects here for the following:

1) Infrastructure Modeling using Autodesk Infraworks
2) Creating a Revit Model for an Industry Equivalent Project and conduct the following use cases:

a. Architecture, Structural and MEP Model Development
b. Producing Drawings from Model
c. Clash Detection & Coordination
d. Cloud based Live Model Collaboration
e. Model Visualization
f. Quantities Extraction and BoQ
g. 4D & 5D BIM using Navisworks

Exercises:

1. Building Information Modelling (BIM): Global Digital Project Information Management Standard
2. Building Information Modelling (BIM): Digital Twin
3. Building Information Modelling (BIM): 4D & 5D BIM
4. Minimum 5 case-studies to be discussed (The Case-Studies should have based on One International, One Natation and One Local example)

Lesson Plan:

DAY	TOPICS	HOURS
1	Workshops on Autodesk Revit	3
2	Workshops on Autodesk Navisworks	3
3	Workshops on Autodesk BIM360 Collaborate Pro	3
4	Workshop on Autodesk Civil 3D	3
5	Workshop on Autodesk Infraworks	3
6	Infrastructure Modeling using Autodesk Infraworks	2
7	Architecture, Structural and MEP Model Development	2
8	Producing Drawings from Model	2
9	Clash Detection & Coordination	2
10	Cloud based Live Model Collaboration	2
11	Model Visualization	2
12	Quantities Extraction and BoQ	2
13	4D & 5D BIM using Navisworks	2
14	Building Information Modelling (BIM): Global Digital Project Information Management Standard	2
15	Building Information Modelling (BIM): Digital Twin	2
16	Building Information Modelling (BIM): 4D & 5D BIM	2
17	Minimum 5 case-studies to be discussed (The Case-Studies should have based on OneInternational, One Natation and One Local example)	3

Coordinator

HOD

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF CIVIL ENGINEERRING

Session 2022-23

Date: 01-12-2022

ADD-ON COURSE SCHEDULE

"Building Information Modelling (BIM)"

Sr. No.	Sem.	Roll No.	Batches	Course Duration			No. of Students	Day	Time
1	VIIth	01- 50	B-1	05-12-22	To	31-01-23	50	Mon To Fri	11:00 am -12.00pm
2		51- 100	B-2				50		01:00 am - 02.00pm

Course Coordinator: Prof. Sushant M. Gajbhiye

Coordinator

HOD

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR
Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date:- 01/02/2023

To,

The Head of the Department,
Department of Structural Engineering,
Guru Nanak Institute of Technology,
Nagpur. 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"STAAD PRO"** and appointment of faculty for courses curriculum design for the academic year 2022-23 dated 06/02/2023.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course -Design and Analysis of structures Using STADDPRO.

1. Ms. Pritika Holey, Civil Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal
Principal
Guru Nanak Institute of Technology

DEPARTMENT OF STRUCTURAL ENGINEERING

Session 2022-23

Syllabus for STAAD Pro (Add-On Course)

COURSE OBJECTIVES:

The course will cover all the steps involved in structural analysis & designing of concrete & steel. This course will introduce one to STAAD Pro's state of the art user interface, prevailing analysis and design engines with a sophisticated finite element (FEM), visualization tools, and dynamic analysis capabilities.

Unit – I

Introduction to STAAD.Pro® V8i
Model Generation and Editing

Unit – II

Introduction to Loading
Automatic Load Generation

Unit – III

Concrete Design
Seismology
FEM / FEA

Unit – IV

Steel Design
Report Generation
Foundation Design

COURSE OUTCOMES: The students shall be able to

i. Student will be able to complete object-oriented instinctive 2D/3D graphic model generation.
ii. Student will learn to use pull-down menus, tool-tip help, and floating toolbars.
iii. Student will be able for carrying out flexible zooms and multiple views.
iv. Student will know to make isometric & perspective views and 3D shapes.
v. Student will know the use of simple command language and built-in command file editor.
vi. Student will learn how to generate graphics/text input.

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Lesson Plan:

S. N.	TOPICS	HOURS
1	Introduction to STAAD.Pro® V8i	3 hours
2	Model Generation and Editing	3 hours
3	Introduction to Loading	4 hours
4	Automatic Load Generation	4 hours
5	Concrete Design	6 hours
6	Seismology	5 hours
7	FEM / FEA	4 hours
8	Steel Design	4 hours
9	Report Generation	4 hours
10	Foundation Design	3 hours

Coordinator

HOD

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF STRUCTURAL ENGINEERRING

Session 2022-23

Date: 01-02-2023

ADD-ON COURSE SCHEDULE

"STAAD Pro"

Sr. No.	Roll No.	Batches	Course Duration			No. of Students	Day	Time
1	01-25	B-1	06-02-23	To	31-03-23	25	Mon to Fri	11:30 AM To 12.30PM

Coordinator: Ms. Pritika Holey, Civil Engineering.

Coordinator

HOD

Head
Dept. of Civil Engineering
Guru Nanak Institute of Technology
Nagpur

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450

Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

Guru Nanak Institutions, Nagpur

• ENGINEERING • MBA • M.TECH • SCHOOL

ISO 9001 : 2008 Certified Institutions

NAAC ACCREDITED

Date: - 01-12-2022

To

The Head of the Department,
Department of Mechanical Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"Computer Aided Drafting & Designing (ME)"** and appointment of faculty for course curriculum design for the academic year 2022-23 dated 5/12/2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - Computer Aided Drafting & Designing.

1. Mr. Suyog B. Bhajankar, Mechanical Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal

Principal
Guru Nanak Institute of Technology

Guru Nanak Educational Society's

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR
Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

DEPARTMENT OF MECHANICAL ENGINEERING

Session 2022-2023

Syllabus for "Computer Aided Drafting & Designing (ME)"

COURSE OBJECTIVES:

By being a Computer Aided Drafting & Designing Certified Solution Architect - Associate, should be able to evaluate the requirements of the organization or the businesses and to groom the students to become intellectually creative, professionally competitive and Applicable.

Syllabus:

Section 1: Fundamentals of CAD – Computer Aided Design involves creating computer models defined by geometrical parameters.

- Introduction to CAD
- The hardware of CAD system
- Input Devices
- Functions of secondary memory

Section 2: Curves and Surfaces

- Introduction to curve representation
- Classification of curves, Line generation algorithm
- Bezier Curve
- Properties and advantages of B-Splines
- Various types of surfaces along with their typical applications.

Section 3: Mathematical representation of solids

- Geometry and Topology
- Properties of solid model
- Boolean operations
- Comparison of wireframe

Section 4: Geometric Transformations -

- Homogeneous representation
- Translation
- Auto Scaling
- Scaling
- Reflection,
- Sweep representation
- Orthographic and perspective projections

Section 5 VISUAL REALISM

- Hidden – Line-Surface-Solid
- Shading – colouring – computer animation.

COURSE OUTCOMES: The students shall be able to

- To understand an overview of how computers are being used in design, development of manufacturing plans and manufacture.
- To Understand the Mathematical representations of curves and surfaces used in geometric construction.
- To Understand the Mathematical representations of solids used in geometric construction
- To Understand the transformation of 2D and 3D parts
- To understand the applications of computer in the design and manufacturing.

Topic Plan:

DAY	TOPICS	HOURS
1.	Introduction to Computers in Industrial Manufacturing	1
2.	Product cycle,	1
3.	CAD / CAM Hardware, Basic structure	1
4.	Display Devices: Cathode Ray Tube,	1
5.	DVST	1
6.	Raster display, pixel value and lookup table, estimation of graphical memory	1
7.	LCD, LED fundamentals.	1
8.	Concept of Coordinate Systems: Working Coordinate System,	1
9.	Model Coordinate System,	1
10.	Screen Coordinate System.	1
11.	Graphics exchange standards and Database management systems.	1
12.	Curves and Surfaces: Introduction to curve representation,	1
13.	Classification of curves, Line generation algorithm: DDA and Curve generation algorithm:	1
14.	Bresenham's algorithm. Synthetic Curves: Concept of continuity, Cubic Spline: equation, properties and blending.	1
15.	Bezier Curve: equations, properties; Properties and advantages of B-Splines .	1
16.	Various types of surfaces along with their typical applications.	1
17.	Geometry and Topology, Comparison of wireframe, surface and solid models,	1
18.	Properties of solid model,	1
19.	Properties of representation schemes, Concept of Half-spaces, Boolean operations.	2
20.	Schemes: B-rep, CSG, Sweep representation, ASM, Primitive instancing, Cell Decomposition and Octree encoding	2
21.	Homogeneous representation; Translation,	2
22.	Scaling, Reflection, Rotation, Shearing in 2D;	2
23.	Orthographic and perspective projections.	2
24.	VISUAL REALISM: Hidden – Line-Surface-Solid removal algorithms – shading – colouring – computer animation	2

Coordinator

HOD

Head

Dept. of Mechanical Engineering

Guru Nakak Institute of Technology

Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF MECHANICAL ENGINEERRING

Session 2022-2023

Date: 01-12-2022

ADD-ON COURSE SCHEDULE

"Computer Aided Drafting & Designing"

Sr. No.	Roll No.	Course Duration			No. of Students	Day	Time
1	01-25	05-12-22	to	31-01-23	25	Monday to Friday	11:00 AM -12.00 PM
2	26-50	05-12-22	to	31-01-23	25		01.00 PM - 02.00 PM

Course Incharge: Prof. Suyog B. Bhajankar

Coordinator

HOD

Head
Dept. of Mechanical Engineering
Guru Nakak Institute of Technology
Nagpur

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date:- 02/02/2023

To

The Head of the Department,
Department of Heat Power Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course "**Refrigeration & Air Conditioning**" and appointment of faculty for course curriculum design for the academic year 2022-23 dated 06/02/2023.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - **Refrigeration & Air Conditioning**

1. Mr. Avinash Mankar, Heat Power Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal
Principal
Guru Nanak Institute of Technology

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

DEPARTMENT OF HEAT POWER ENGINEERING

Session 2022-23

Syllabus for Add-On Course on Refrigeration & Air Conditioning Add-On Course

Sr. No.	Content	Time	Remarks by Third Party Expert (Validation)
1	Introduction of Refrigeration	1 Hr.	**All these points, of course, are totally suitable and excellent to the said training program.**
2	Simple Vapour Compression Refrigeration System	2 Hr.	
3	Actual Vapour Compression Refrigeration System	2 Hr.	
4	Vapour Absorption Refrigeration System	2 Hr.	
5	Aqua Ammonia, Lithium Bromide –Water System	2 Hr.	
6	Compressor, Condenser, Expansion Device, Evaporator	2 Hr.	
7	Refrigerants	2 Hr.	
8	Multiple Evaporator System	2 Hr.	
9	Air Cycle Refrigeration	2 Hr.	
10	Defrosting, Refrigeration Controls	2 Hr.	
11	Introduction to Air Conditioning, Properties of Moist Air	2 Hr.	
12	Psychometric Chart, psychometric process	2 Hr.	
13	Cryogenics	2 Hr.	
14	Air Transmission & Heat Load Calculation	2 Hr.	
15	Method of duct Design	2 Hr.	
16	Application of psychometric to various air conditioning system	2 Hr.	
17	Demonstration on vapour compression test rig.	2 Hr.	
18	Demonstration on air conditioning test rig.	2 Hr.	
19	Demonstration on desert cooler to evaluate its performance	2 Hr.	

HOD
Dept. of. Heat Power Engg.
Guru Nanak Institute of Technology
Nagpur.

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF HEAT POWER ENGINEERRING

Session 2022-23

Date: 02-02-2023

ADD-ON COURSE SCHEDULE

"Refrigeration & Air Conditioning"

Sr. No.	Roll No.	Batches	Course Duration			No. of Students	Day	Time
1	1-10	B-1	06-02-23	To	31-03-23	10	Mon To Fri	11:00 am -12.00 pm

Course Co-ordinator: Mr. Avinash Mankar, Heat Power Engineering.

Coordinator

HOD
Head
Dept. of. Heat Power Engg.
Guru Nanak Institute of Technology
Nagpur.

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date: - 10/08/2022

To,

The Head of the Department,
Department of Mechanical Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"CATIA"** and appointment of faculty for course curriculum design for the academic year 2022-23 dated 15/08/2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - CATIA.

1. Mr. Suyog B. Bhajankar, Mechanical Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Technology GNIT 4196 Nagpur

Principal
Principal
Guru Nanak Institute of Technology

Guru Nanak Educational Society's

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR
Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

DEPARTMENT OF MECHANICAL ENGINEERING

Session 2022-23

Syllabus for Add-On Course on CATIA

OBJECTIVES:

The objective of this course is to teach students the basic commands and tools necessary for professional 3D drawing, design and drafting using CATIA.

Unit – I

INTRODUCTION TO CATIA: CATIA Workbenches System Requirements Getting Started with CATIA Important Terms and Definitions Understanding the Functions of the Mouse Buttons Toolbars Hot Keys Colour Scheme.

Unit – II

CREATING DRESS-UP AND HOLE FEATURES : Advanced Modelling Tools, Creating Hole Features, Creating Fillets, Creating Chamfers, Adding a Draft to the Faces of the Model.

Unit – III

EDITING FEATURES Editing Features of a Model, Editing Using the Definition Option, Editing by Double-Clicking, Editing the Sketch of a Sketch-Based Feature Redefining the Sketch Plane of Sketches, Managing Features and Sketches by using the Cut, Copy, And Paste, Functionalities Understanding the Concept of Update Diagnosis Cut, Copy, and Paste Features and Sketches Copying Features Using Drag and Drop Copying and Pasting Part Bodies Deactivating Features Activating Deactivated Features

Unit – IV

ADVANCED MODELING TOOLS-II Advanced Modelling Tools, Creating Rib Features, Creating Slot Features, Creating Multi-Sections Solid Features.

Unit V: WORKING WITH SHEET METAL COMPONENTS

The Sheet metal Component Starting a New File in Generative Sheet Metal Workbench Setting Sheet Metal Parameters Parameters Tab Bend Extremities Tab Bend Allowance Tab Introduction to Sheet Metal Walls Creating the Base Wall.

COURSE OUTCOMES: The students shall be able to

1. Learn basic drawing and modifying techniques for drafting and technical drawing, using Catia to create drawings that can be used to build and real objects both mechanical and architectural.
2. We'll cover basic methods of printing and plotting layouts and sheets, working between model space and paper space, and scaling drawings through viewports.
3. Learn techniques for inserting blocks, making text, dimensioning drawings, and working with layers and templates.

LESSON PLAN:

DAY	TOPICS	HOURS
1	Catia versions Interface	1
2	Function keys, Catia basics	1
3	Absolute coordinate system, Relative coordinate system	1
4	Line command, Poly line command & Rectangle command	1
5	Move, Rotate, Scale, copy, Mirror, erase, trim, extend	1
6	Linear, Aligned, Radius, Angular, Arc length	1
7	Single line text, Multiline text, Insert blocks, Layer properties	1
8	Geometric, Dimensional, Manage	1
9	Isometric top, left, right, Isometric diagrams	2
10	Isometric diagrams exercise	2
11	Drawing units , Sheet settings	2
12	Save files, Export pdf. plot	1
13	Drawing Area Setup, Visual reference	2
14	Grid snap mode	2
15	Creating Fillets	2
16	Creating Chamfers	2
17	Editing Features of a Model	2
18	Editing by Double-Clicking	2
19	Plane of Sketches	2
20	Advanced Modelling Tools	2
21	Creating Rib Features	2
22	Creating Multi-Sections Solid Features	2
23	Sheet metal Component	2
24	Drawing partitions	2
25	Catia workspaces are sets of menus	2

Prof. S.B.Bhajankar
Coordinator

HOD

Head
Dept. of Mechanical Engineering
Guru Nanak Institute of Technology
Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF MECHANICAL ENGINEERRING

Session 2022-23

Date: 08-10-2022

ADD-ON COURSE SCHEDULE

"CATIA"

Sr. No.	Sem.	Roll No.	Batches	Course Duration			No. of Students	Day	Time
1	7th	1-20	B-1	15-08-22	To	10-10-22	Min. 20	Mon To Fri	11:00 am -12.00 pm
2		21-40	B-2				Min. 20		01.00 pm - 02.00 pm

Course Co-ordinator: 1. Prof. S. B. Bhajankar

Prof. S. B. Bhajankar
Coordinator

HOD

Head
Dept. of Mechanical Engineering
Guru Nanak Institute of Technology
Nagpur

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR

Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

Date:- 10/08/2022

To

The Head of the Department,
Department of Mechanical Engineering,
Guru Nanak Institute of Technology,
Nagpur- 441501.

Sir,

Sub:- Assigning of the faculty for ADD-ON Course curriculum designing for the academic year 2022-23 –Reg.

Ref:- Letter of Requisition for the permission for ADD-ON Course **"SOLIDWORKS"** and appointment of faculty for course curriculum design for the academic year 2022-23 dated 15/08/2022.

The under sign appreciates the department proposing to conduct such kind of course. As per your recommendation and referring to the above subject, I am please to nominate the following faculty member for ADD-ON Course - **SOLIDWORKS.**

1. Mr. Ishan Lade, Mechanical Engineering.

The above mentioned faculty is hereby instructed to design the curriculum taking in to consideration the thrust areas of the respective fields and ensure it should enhance the employability opportunities for the students.

Guru Nanak Institute of Tech. GNIT 4196 Nagpur

Principal
Principal
Guru Nanak Institute of Technology

Guru Nanak Educational Society's

GURU NANAK INSTITUTE OF TECHNOLOGY

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR
Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

DEPARTMENT OF MECHANICAL ENGINEERING

Session 2022-23

Syllabus for Add-On Course on "SOLIDWORKS"

OBJECTIVES:

The objective of this course is to teach students the basic commands and tools necessary for professional 3D drawing, design and drafting using **SOLIDWORKS**.

Unit – I

INTRODUCTION TO SOLIDWORKS: Introduces design concepts, SOLIDWORKS terminology, and provides an overview of help options.

Unit – II

SKETCHING WITH SOLIDWORKS: Demonstrates design methods, tools, and features commonly used to make parts.

Unit – III

PART MODELING: Part Modeling, Extrude and Cut extrude, Revolve and Sweep, View toolbar, Creating Reference geometries, Fillet and Chamfer, Hole wizard, Calculating weight/mass & other geometric properties, Export / Import of CAD files

Unit – IV

ADVANCED MODELING TOOLS-II Discusses drawing sheet formats, views, dimensions, annotations, and bills of materials.

Unit V: ADVANCED PART MODELING

Adding ribs and draft, Circular and rectangular pattern, Shell and Boss feature, Configuration and Design Tables, Material Library & Assigning Material, Library Features & Smart Fasteners Boolean operations

COURSE OUTCOMES: The students shall be able to

1. Learn basic drawing and modifying techniques for drafting and technical drawing, using SOLIDWORKS to create drawings that can be used to build and real objects both mechanical and architectural.
2. We'll cover basic methods of printing and plotting layouts and sheets, working between model space and paper space, and scaling drawings through viewports.
3. Learn techniques for inserting blocks, making text, dimensioning drawings, and working with layers and templates.

Guru Nanak Educational Society's

Guru Nanak Institutions, Nagpur
• ENGINEERING • MBA • M.TECH • SCHOOL
ISO 9001 : 2008 Certified Institutions

GURU NANAK INSTITUTE OF TECHNOLOGY

APPROVED BY AICTE, DTE & AFFILIATED TO RTM NAGPUR UNIVERSITY, NAGPUR
Dahegaon, Opp. IOC Petrol pump, Kalmeshwar Road, Nagpur-441501 Ph.: 07118-661450
Website : www.gninagpur.info E-mail : gni.principalgnit@gmail.com

NAAC ACCREDITED

LESSON PLAN:

DAY	TOPICS	HOURS
1	Graphic User Interface	1
2	Parametric design	1
3	Basic part modelling	1
4	Feature based modelling	1
5	File Management	1
6	Managing Solid Works environment	1
7	2D Sketching	1
8	Sketching entities and relations	1
9	3D Sketching	2
10	Editing & its features	2
11	Dimensions	2
12	Sketch tool Mirror, Convert entity	1
13	Creating Reference geometries	2
14	Fillet and Chamfer	2
15	Hole wizard	2
16	Calculating weight/mass & other geometric properties	2
17	Export / Import of CAD files	2
18	Adding ribs and draft	2
19	Circular and rectangular pattern	2
20	Shell and Boss feature	2
21	Mirror, Convert entity	2
23	Material Library & Assigning Material	2
24	Library Features & Smart Fasteners	2

Co-ordinator

HOD

Head
Dept. of Mechanical Engineering
Guru Nakak Institute of Technology
Nagpur

GURU NANAK INSTITUTE OF TECHNOLOGY

NAAC ACCREDITED

Dahegaon, Kalmeshwar Road, Nagpur 441501

DEPARTMENT OF MECHANICAL ENGINEERRING

Session 2022-23

Date: 10-08-2022

ADD-ON COURSE SCHEDULE

"SOLIDWORKS'"

Sr. No.	Sem.	Roll No.	Batches	Course Duration			No. of Students	Day	Time
1	5th	1-40	B-1	15-08-22	To	10-10-22	40	Mon To Fri	11:00 am -12.00 pm
2		41-88	B-2				44		01.00 pm - 02.00 pm

Course Co-coordinator: Mr. Ishan Lade, Mechanical Engineering.

Coordinator

HOD

Head
Dept. of Mechanical Engineering
Guru Nanak Institute of Technology
Nagpur