



SHETTY INSTITUTE OF TECHNOLOGY, KALABURAGI

Date: 26/06/2019

CIRCULAR


All the Students are hereby informed to attend the Certification course on "ADVANCED C AND C++" from 1-Aug-19 in Seminar Hall. Attendance will be recorded.

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CERTIFICATION COURSE

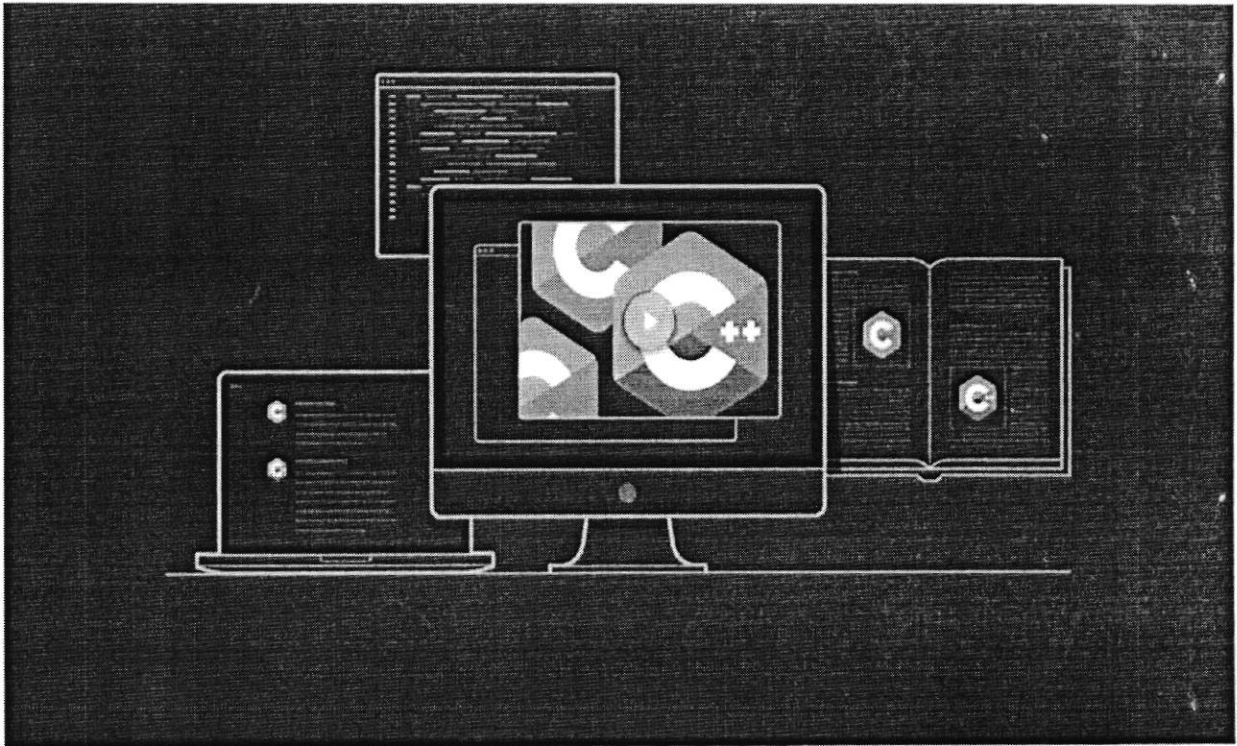
SYLLABUS

ACADEMIC YEAR 2019-2020


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ADVANCED C AND C++

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ADVANCED C AND C++

Course Objectives:

- Master advanced features of C and C++
- Develop efficient and optimized code
- Understand and implement complex data structures

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Advanced C Programming

1. Pointer Arithmetic and Memory Management

- Pointer arithmetic
- Dynamic memory allocation (malloc, calloc, realloc, free)
- Memory leaks and debugging tools

2. File I/O and Manipulation

- File handling in C (fopen, fclose, fread, fwrite, fprintf, fscanf)
- Binary vs. text file operations

Advanced Data Structures in C

1. Linked Lists and Other Structures

- Linked lists (singly, doubly)
- Stacks and queues

2. Bitwise Operations and Macros

- Bitwise operators and manipulation techniques
- Pre processor directives and macros

Advanced C++ Programming

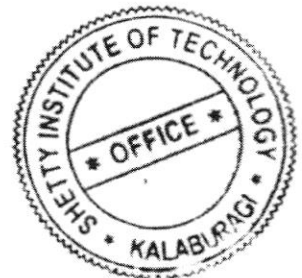
1. Object-Oriented Programming in Depth

- Class design and inheritance
- Polymorphism and abstract classes

2. Templates and Exception Handling

- Function and class templates
- Basics of exception handling (try, catch, throw)


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Advanced Data Structures in C++

1. STL Containers and Iterators

- STL containers (vector, list, deque)
- Iterators and algorithms

2. Smart Pointers and Memory Management

- Smart pointers (unique_ptr, shared_ptr)
- RAII (Resource Acquisition Is Initialization)

System-Level Programming and Optimization

1. Multithreading and Concurrency

- POSIX threads and C++11 threading basics
- Mutexes and thread synchronization

2. Performance Optimization and Debugging

- Profiling and benchmarking
- Debugging tools (gdb, valgrind)



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Date: 6/9/2019

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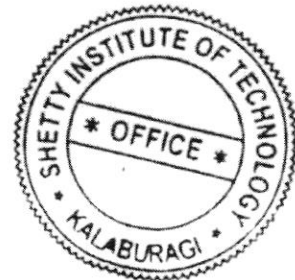
All students are informed that they must attend the Certification course on "INNOVATIVE DESIGN THINKING" beginning on September 16th, 2019 in the Seminar Hall. Each day, attendance will be recorded.

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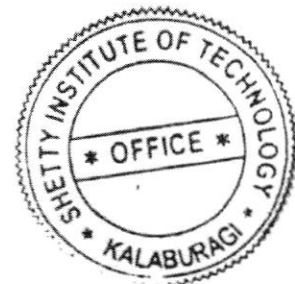
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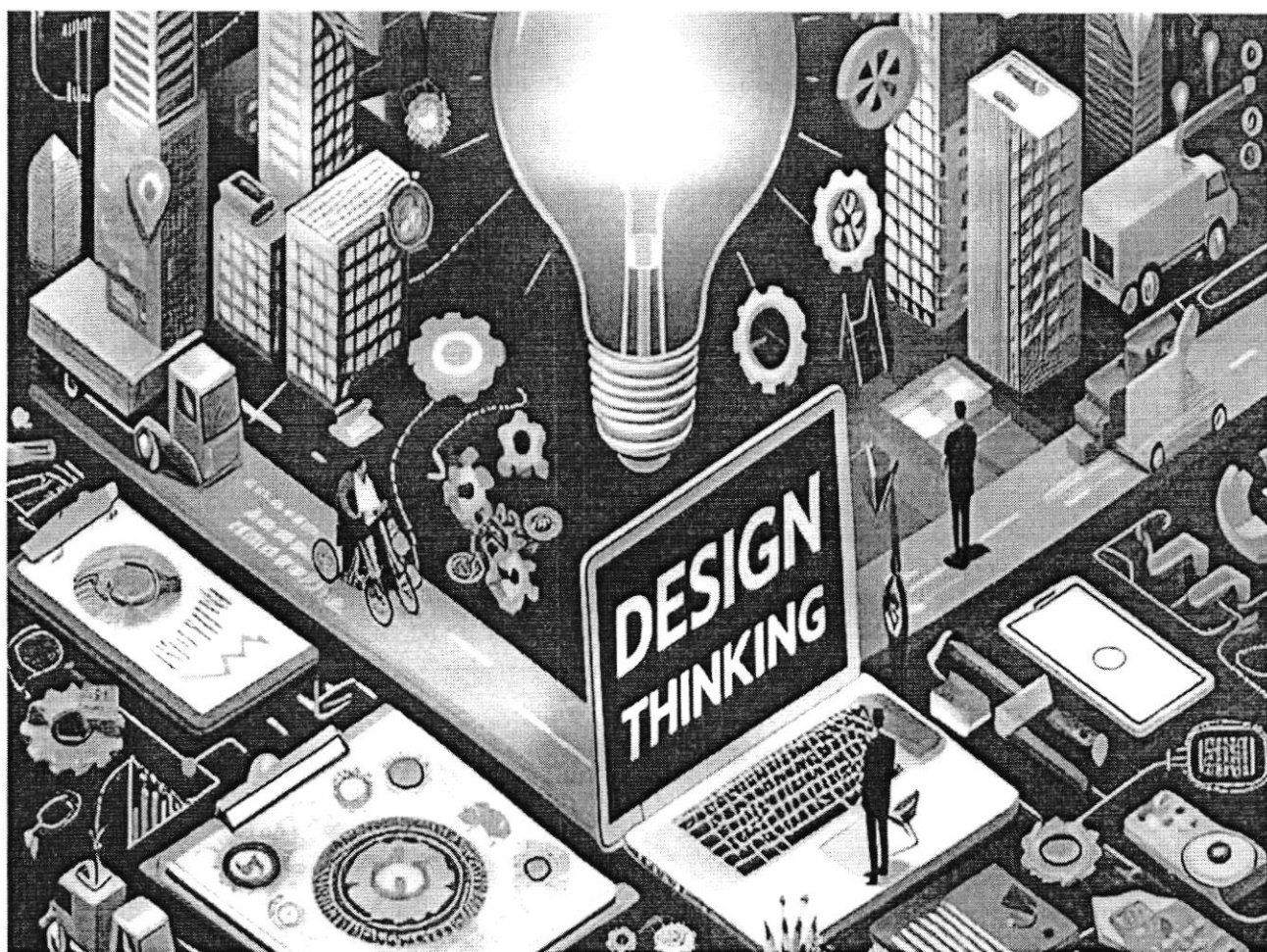
ACADEMIC YEAR 2019-2020

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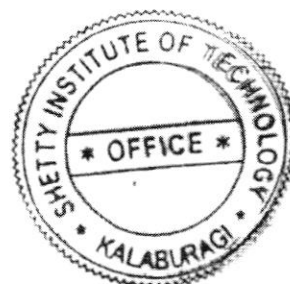


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INNOVATIVE DESIGN THINKING

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INNOVATIVE DESIGN THINKING

Course Objectives:

- Learn the steps of design thinking
- Understand user needs and problems
- Generate creative ideas and solutions
- Build and test prototypes

SYLLABUS

1. Introduction to Design Thinking

➤ What is Design Thinking?

- Basics and importance of design thinking
- The five steps: Empathize, Define, Ideate, Prototype, Test

2. Empathize

➤ Understanding Users

- How to talk to users and gather information (interviews, surveys)
- Creating empathy maps to visualize user feelings and needs

➤ Gathering Insights

- Identifying user problems and needs
- Creating user personas to represent different types of users

3. Define

➤ Defining the Problem

- Writing clear problem statements
- Creating point of view statements to focus your design efforts

4. Ideate

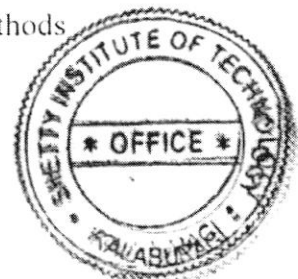
➤ Generating Ideas

- Brainstorming techniques to come up with lots of ideas
- Encouraging creativity and thinking outside the box

➤ Selecting Ideas

- Choosing the best ideas using criteria and evaluation methods


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5. Prototype

➤ Building Prototypes

- Creating simple models of your ideas (low-fidelity and high-fidelity prototypes)
- Techniques for rapid prototyping

➤ Iteration

- Improving prototypes based on feedback
- The importance of failing fast and learning from mistakes



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Date: 29/10/2019

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All the Students are hereby informed to attend the Certification course on "**LOGICAL REASONING APTITUDE**" from 4-Nov-19 onwards in Seminar Hall without fail. Attendance will be taken every day.

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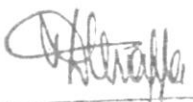
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CERTIFICATION COURSE

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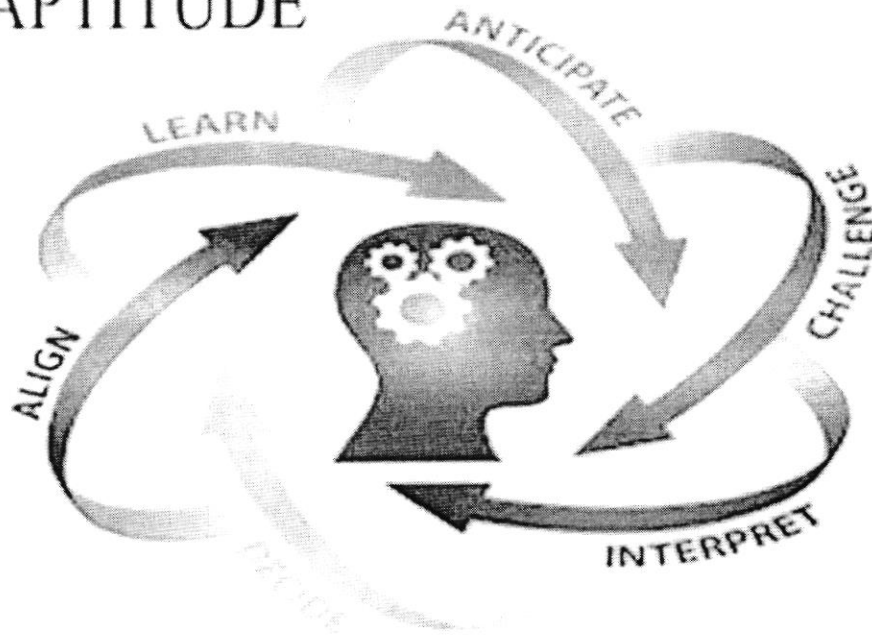
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APTITUDE



LOGICAL REASONING APTITUDE

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LOGICAL REASONING APTITUDE

Course Objectives:

- Understand different types of logical reasoning questions
- Develop strategies to solve logical reasoning problems
- Improve critical thinking and analytical skills

Syllabus

1. Introduction to Logical Reasoning

- What is Logical Reasoning?
 - Definition and importance
 - Different types of logical reasoning (deductive, inductive, abductive)

2. Analytical Reasoning

- Patterns and Sequences
 - Identifying patterns in numbers and letters
 - Completing sequences
- Series and Analogies
 - Understanding and solving series
 - Finding analogies and relationships between elements

3. Deductive Reasoning


- Syllogisms
 - Understanding syllogisms and logical arguments
 - Solving syllogism problems
- Logical Deductions
 - Drawing conclusions from given premises
 - Using logic to solve problems

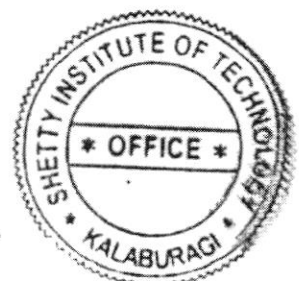
4. Inductive Reasoning

- Classification
 - Grouping items based on common properties
 - Identifying the odd one out
- Cause and Effect
 - Understanding causal relationships
 - Solving problems based on cause and effect

5. Logical Puzzles

- Grid Puzzles
 - Solving grid-based logical puzzles

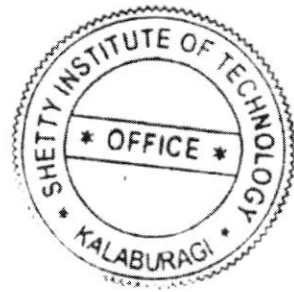

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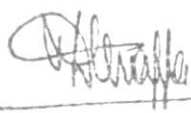


- Using elimination and deduction
- Arrangement Puzzles
 - Solving puzzles involving arrangements of people, objects, or events
 - Strategies for solving complex arrangement problems

6. Critical Thinking

- Assumptions and Conclusions
 - Identifying assumptions in arguments
 - Drawing logical conclusions
- Evaluating Arguments
 - Analyzing the strength of arguments
 - Identifying fallacies and biases





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Date: 27/09/2019


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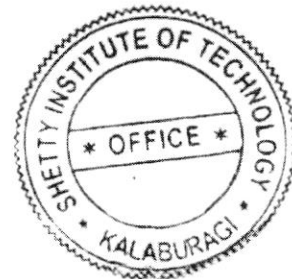
All the Students are hereby informed to attend the Certification course on "STAAD PRO" from 3-Oct-19 onwards in Seminar Hall without fail. Attendance will be recorded every day.

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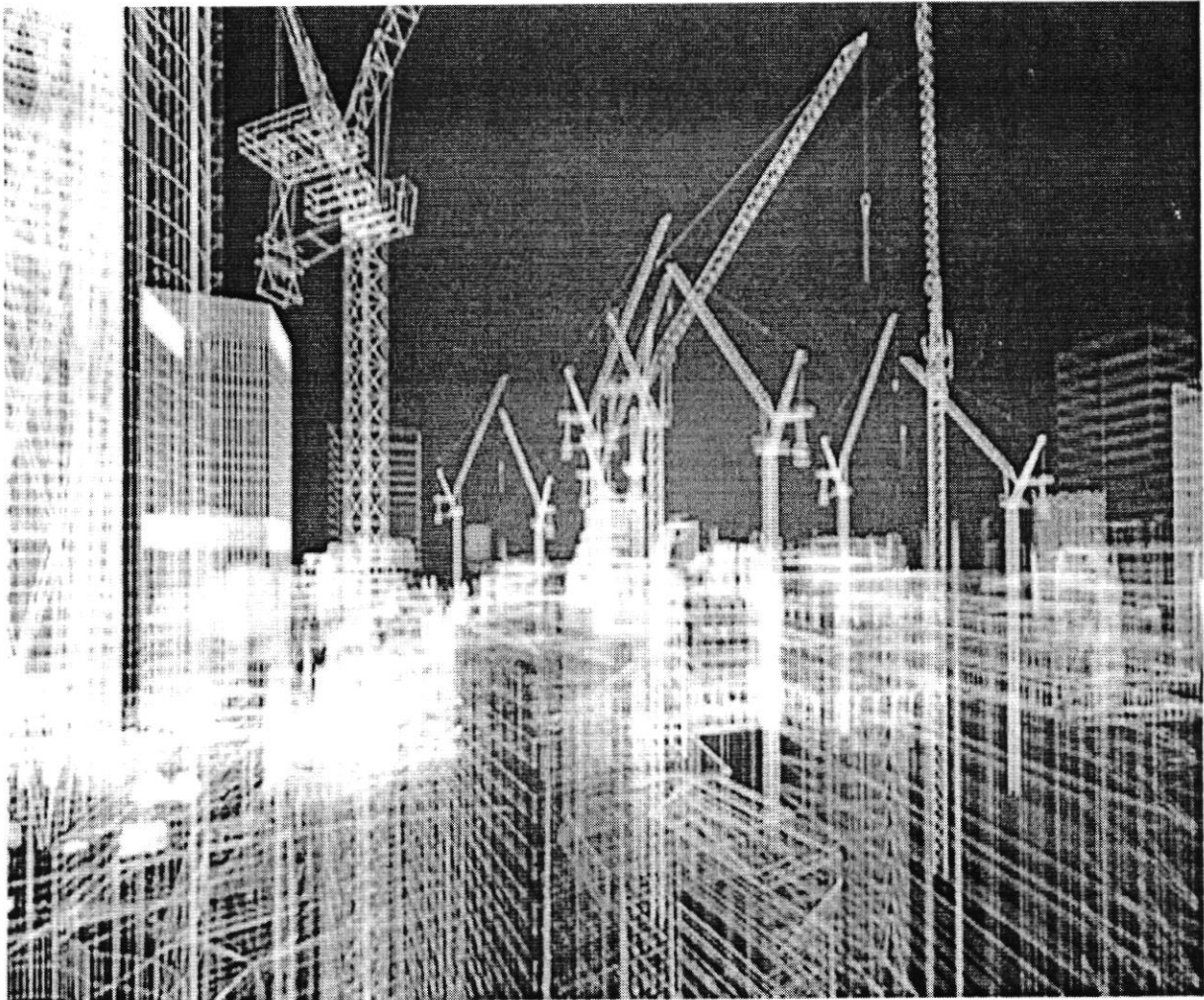
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STAAD PRO

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STAAD Pro

Course Objectives:

- Understand the basics of STAAD Pro
- Learn how to create and analyse structural models
- Design basic structures using STAAD Pro

SYLLABUS

1. Introduction to STAAD Pro

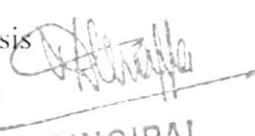
- What is STAAD Pro?
 - Overview of the software
 - Key features and capabilities
- Installing and Setting Up
 - How to install STAAD Pro
 - Setting up the workspace

2. Basic Modelling

- Creating a Model
 - Drawing basic structural elements (beams, columns, etc.)
 - Defining material properties
- Geometry and Coordinates
 - Setting up the coordinate system
 - Inputting geometric data

3. Loading and Analysis

- Applying Loads
 - Types of loads (dead loads, live loads, wind loads, etc.)
 - How to apply loads to the model
- Running Analysis
 - Performing structural analysis
 - Interpreting analysis results


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4. Design and Optimization

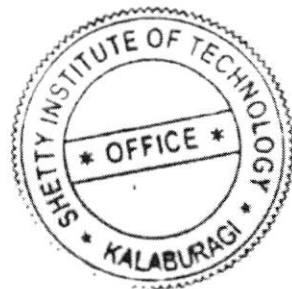
- Design Basics
 - Introduction to design codes and standards
 - Designing structural elements (beams, columns, etc.)
- Optimization Techniques
 - Improving design efficiency
 - Using STAAD Pro tools for optimization

5. Advanced Modelling

- Advanced Features
 - Introduction to advanced modelling techniques
 - Using STAAD Pro for complex structures
- Practical Examples
 - Working on real-world examples and projects

6. Review and Final Project

- Reviewing Key Concepts
 - Summary of key points covered in the course



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Date: 4/5/2020

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All the Students are hereby informed to attend the Certification course on "**ADVANCED SURVEYING**" from 11-May-20 onwards in Seminar Hall without fail. Strictly Attendance will be recorded every day.

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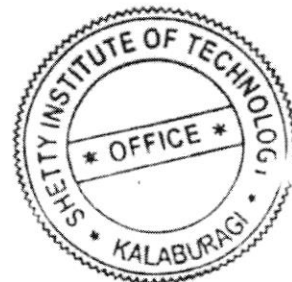
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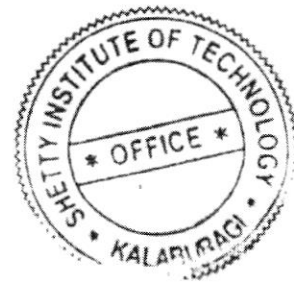


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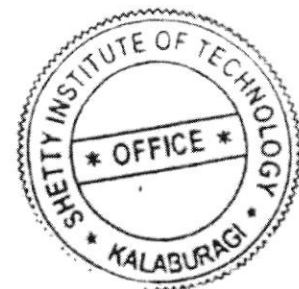
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ADVANCED SURVEYING

Course Objectives:

- Understand advanced surveying techniques
- Learn to use modern surveying equipment
- Apply surveying methods to real-world scenarios

SYLLABUS

1. Introduction to Advanced Surveying

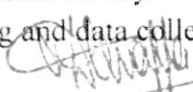
- Overview of Advanced Surveying
 - Importance and applications
 - Difference between basic and advanced surveying

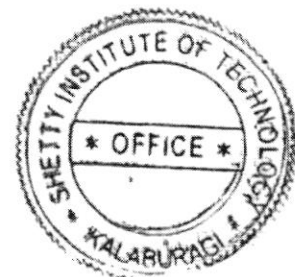
2. Modern Surveying Equipment

- Electronic Distance Measurement (EDM)
 - Principles and uses of EDM instruments
 - Operating EDM equipment
- Total Stations
 - Components and functions
 - Using a total station for data collection
- GPS and GNSS
 - Basics of GPS and GNSS systems
 - Applications in surveying

3. Advanced Surveying Methods

- Topographic Surveying
 - Conducting and interpreting topographic surveys
 - Creating topographic maps
- Hydrographic Surveying
 - Principles of hydrographic surveying
 - Equipment and techniques used
- Aerial and Satellite Surveying
 - Basics of aerial and satellite surveys
 - Applications in mapping and data collection


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4. Data Collection and Analysis

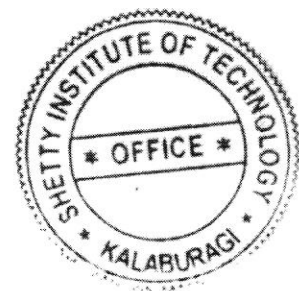
- Field Data Collection
 - Best practices for accurate data collection
 - Recording and managing survey data
- Data Processing and Analysis
 - Using software for data processing
 - Analyzing and interpreting survey data


5. Surveying Applications

- Construction Surveys
 - Surveying techniques for construction projects
 - Layout and control surveys
- Land and Boundary Surveys
 - Conducting land and boundary surveys
 - Legal and regulatory considerations

6. Project and Practical Applications

- Real-World Surveying Project
 - Applying learned techniques to a real-world project
 - Presenting findings and solutions




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