I'd be happy to help you with study plans for each course. Here they are:

24-25_SEM2_CE122_A - Applied Programming for Engineers

Summary:

This course explores the practical applications of programming in engineering, focusing on topics such as programming languages, data structures, algorithms, and software engineering.

Key Topics to Focus On:

1. Introduction to programming in Python

2. Data structures: arrays, lists, dictionaries, stacks, and queues

3. Control structures: if-else statements, loops, and conditional statements

4. Functions and modules

5. Object-Oriented Programming (OOP)

6. Database interactions

7. Error handling and debugging

8. Testing and version control

Practice Questions:

1. Write a Python function to calculate the sum of all elements in a list.

2. Implement a stack using a list and perform push, pop, and peek operations.

3. Write a Python program to read data from a CSV file and store it in a dictionary.

4. Create a Python class to represent a simple banking system, including methods for deposit, withdrawal, and account balance inquiry.

5. Write a Python script to implement a simple calculator with basic arithmetic operations (add, subtract, multiply, divide).

24-25_SEM2_EE222_A - Circuits and Electronics

Summary:

This course covers the fundamental principles of circuits and electronics, including circuit analysis, electronics components, and electrical systems.

Key Topics to Focus On:

1. Circuit analysis: Kirchhoff's laws, nodal analysis, mesh analysis, and Thevenin's theorem

2. Electronics components: resistors, capacitors, inductors, diodes, and transistors

3. DC circuits: circuit theorems, superposition theorem, and Norton's theorem

4. AC circuits: sinusoidal circuit analysis, impedance, and power calculations

5. Electronic devices: amplifiers, filters, and oscillators

6. Electromagnetic compatibility (EMC) and safety considerations

Practice Questions:

1. Calculate the equivalent resistance of two parallel resistors with values of 2 kÎ© and 4 kÎ©.

2. Determine the current flowing through a 10 kÎ© resistor connected to a 12V DC voltage source.

3. Design an RC filter to attenuate frequencies above 1000 Hz in a audio signal.

4. Calculate the transfer function of an RC low-pass filter with a cutoff frequency of 500 Hz.

5. Determine the power consumption of an LED connected to a 9V DC battery with a resistance of 220 Î©.

24-25_SEM2_ENGL113_B - Text and Meaning

Summary:

This course explores the art of reading and interpreting texts, focusing on linguistic and cultural contexts, critical thinking, and effective communication.

Key Topics to Focus On:

1. Introduction to literary theory and critical analysis

2. Close reading: practical skills for reading and interpreting texts

3. Cultural contexts: historical, social, and cultural background of texts

4. Critical thinking: identifying and analyzing literary devices, themes, and motifs

5. Effective communication: writing, speaking, and presentation skills

Practice Questions:

1. Analyze a poem using a literary theory (e.g., Marxist, feminist, or poststructuralist).

2. Identify and discuss the themes and motifs in a short story.

3. Write a critical essay on a novel, exploring its cultural and historical context.

4. Create a presentation summarizing the main ideas of a non-fiction text.

5. Write a reflective essay on a personal experience or event, using literary devices and techniques.

24-25_SEM2_MATH251_B - Differential Equations and Numerical Methods

Summary:

This course covers the fundamentals of differential equations and numerical methods, including ordinary differential equations, partial differential equations, and numerical solution techniques.

Key Topics to Focus On:

1. Introduction to differential equations: definition, types, and basic theory

2. Ordinary differential equations (ODEs): Euler method, Runge-Kutta methods, and numerical solution techniques

3. Partial differential equations (PDEs): wave equation, heat equation, and diffusion equation

4. Numerical methods: finite difference, finite element, and spectral methods

5. Applications of differential equations: population models, electrical circuits, and mechanical systems

Practice Questions:

1. Solve a simple ODE using Euler's method.

2. Use the Runge-Kutta method to solve a second-order ODE.

3. Model a population growth using a differential equation and verify the results using numerical simulation.

4. Use the finite difference method to solve a PDE.

5. Implement a numerical scheme to solve a system of ODEs and PDEs.

24-25_SEM2_SC221_A - Materials Science & Chemistry

Summary:
This course introduces the fundamental principles of materials science and chemistry, including the

structure, properties, and applications of various materials.

Key Topics to Focus On:

1. Structure and bonding: atomic structure, molecular bonding, and crystal structures

2. Materials properties: mechanical, thermal, electrical, and magnetic properties

3. Materials classification: metals, polymers, ceramics, and composite materials

4. Chemical reactions: chemical bonding, thermodynamics, and kinetics

5. Applications of materials science and chemistry: engineering materials, biotechnology, and environmental science

Practice Questions:

1. Identify the structural arrangement of atoms in a given material (e.g., crystal structure).

2. Compare and contrast the thermal properties of metals and polymers.

3. Write an equation for a chemical reaction and explain the reaction mechanism.

4. Design an experiment to test the mechanical properties of a new material.

5. Analyze the environmental impact of a chemical process and propose sustainable alternatives.

24-25_SEM2_SOAN311_E - Leadership Seminar III: The Economic Organization of a Good Society

Summary:

This course explores the relationship between economics and social organization, focusing on the role of leadership and governance in promoting social and economic progress.

Key Topics to Focus On:

1. Introduction to econometrics and economic indicators

2. Economic systems: market, command, and mixed economies

3. Economic development: theories, models, and policies

4. Leadership and governance: roles, responsibilities, and challenges

5. Case studies: successful and unsuccessful economic development initiatives

Practice Questions:

1. Analyze a case study of an economically successful country and identify key factors contributing

to its success.

2. Develop a plan to implement a microfinance program in a developing country.

3. Compare and contrast the economic systems of different countries.

4. Design an experiment to test the effectiveness of a economic policy.

5. Write a reflective essay on the role of leadership in promoting economic development and social

progress.

2025 Career Fair Programming Challenge

Summary:

This coding challenge is designed to test your programming skills and prepare you for the 2025

Career Fair.

Key Topics to Focus On:

1. Programming languages: JavaScript, Python, or Java

2. Data structures and algorithms

3. Web development: HTML, CSS, and React

4. Problem-solving and debugging techniques

5. Time management and team collaboration

Practice Questions:

1. Implement a web scraper using JavaScript to extract data from a website.

2. Develop a game using React and JavaScript, featuring a character that can be moved left, right, up, or down using arrow keys.

3. Write a Python program to solve a classic algorithm problem (e.g., sorting, searching, or graph traversal).

4. Design a database schema for storing user information and implementing a simple CRUD (Create, Read, Update, Delete) interface.

5. Participate in a mock coding challenge with a team to practice problem-solving and debugging techniques.

Remember to focus on the key topics, practice questions, and study materials provided for each course. Good luck with your studies!