**Final Control Programme for the Discipline: High-tech Food Production**

**Course Overview**

The "High-tech Food Production" course provides an in-depth exploration of advanced technologies used in modern food processing and production. It focuses on innovations that enhance food safety, nutrition, and sustainability. The course covers topics such as biotechnology, automation, food preservation methods, and the use of novel materials and techniques in food packaging and processing.

**Final Control Programme**

1. **Examination Format**
   * **Written Examination**: 60% of the total grade
   * **Practical Evaluation (Project or Case Study Presentation)**: 40% of the total grade
2. **Examination Components**

**A. Theoretical Knowledge Assessment (60%)** The written examination will assess the students' understanding of the theoretical concepts covered during the course. It will include the following types of questions:

* + **Multiple Choice Questions (MCQs)**: Focus on core principles and technologies in high-tech food production.
  + **Short Answer Questions**: Evaluate understanding of specific high-tech processes and innovations.
  + **Essay Questions**: In-depth questions assessing knowledge of emerging trends, sustainability challenges, and the application of advanced technologies in food production.

**Key Topics for Theoretical Assessment:**

* + **Innovations in Food Biotechnology**: Use of genetically modified organisms (GMOs), enzyme technologies, and fermentation processes in food production.
  + **Food Safety Technologies**: Role of high-pressure processing, irradiation, and antimicrobial packaging in enhancing food safety.
  + **Automation and Robotics in Food Production**: Implementation of robotics, AI, and IoT in food manufacturing plants.
  + **Novel Food Processing Techniques**: Cold plasma, pulsed electric fields (PEF), and supercritical CO2 extraction for improving food quality and shelf life.
  + **Sustainability in Food Production**: Technologies for reducing food waste, energy-efficient processing, and eco-friendly packaging solutions.
  + **Nutritional Enhancements through High-Tech Solutions**: Use of fortification, bioactive compounds, and functional foods.

**B. Practical Evaluation (40%)** The practical evaluation will involve either a project or a case study presentation, where students must demonstrate their ability to apply theoretical knowledge to real-world challenges in food production.

**Project Topics/Case Study Guidelines:**

* + **Project-based Assessment**: Students can choose a high-tech innovation in food production, design a conceptual plan, and explain its implementation, potential benefits, and challenges.
  + **Case Study Analysis**: Students will be provided with case studies related to contemporary challenges in high-tech food production, such as sustainable sourcing, regulatory issues, or consumer acceptance of new technologies. They must provide solutions and justify their approach based on knowledge from the course.

**Evaluation Criteria:**

* + **Technical Knowledge**: Demonstrated understanding of the chosen topic, clear explanation of processes and technologies.
  + **Critical Thinking**: Ability to assess challenges and provide innovative solutions based on technological advancements.
  + **Presentation Skills**: Clarity of presentation, logical structure, and depth of analysis.
  + **Application of Sustainability Concepts**: Emphasis on eco-friendly practices, resource efficiency, and long-term sustainability.

1. **Grading Scheme**
   * Written Examination: 60%
     + MCQs: 20%
     + Short Answers: 20%
     + Essay Questions: 20%
   * Practical Evaluation: 40%
     + Project or Case Study: 40%
2. **Learning Outcomes** Upon successful completion of the final control, students should be able to:
   * Demonstrate an understanding of cutting-edge technologies in food production.
   * Apply innovative processes to improve food safety, sustainability, and quality.
   * Analyze and solve complex problems in the food industry through the application of high-tech solutions.
   * Critically evaluate the impact of new technologies on the environment and society.
3. **Additional Instructions**
   * **Time Limit for the Written Examination**: 2 hours.
   * **Project/Case Study Submission Deadline**: [Insert Date] (Prior to final exams).
   * Students must ensure that their work is original and properly referenced to avoid plagiarism.