

# Topic Synopsis (SGUS Food Manufacturing)

## 1. Certificate in Essential Skills to Enhance Employability

This certificate covers essential communication areas which include emotional intelligence (EQ), digital marketing and essential job search skills. It introduces key concepts in the areas of data and visual analytics using Power BI, statistics and cyber security. It introduces key concepts in the areas of data and visual analytics using Power BI, statistics and cyber security.

### Topic 1: Emotional Intelligence (EQ) for Career Decision Making

This 2 days' workshop is an enhanced training in which participants will acquire job-seeking related skills, capabilities and the ability to expand employment opportunities.

Emotional Intelligence (EQ) facilitates career decision-making process and leads to decisions that can achieve greater satisfy career-related interests, values, and aspirations. Emotions experienced during this process have implications for the perception of risk related to specific career options, the kind of self-exploration individuals will engage in, and how information related to career choice will be processed.

Through EQ, participants will be able to cope and learn to manage one's self-awareness which affect their overall well-being and decision making.

### Topic 2: Getting ready for Your Next Job

This course equips participants with the essential job search skills, knowledge and tools that will allow them to present themselves positively on paper, in person and on professional networking sites.

Participants will learn how to craft resumes that get the attention of prospective employers and recruiters and pivot their experiences to succeed and leave a good impression at job interviews (face-to-face or digital). This course also helps jobseekers to get started on using the popular professional networking site, LinkedIn, to create a professional brand for job search and networking.

### Topic 3: Digital Marketing with Personal Branding

This course introduces students to tools for establishing a personal brand online and importance of establishing digital marketing strategy to promote their own personal brand.

### Topic 4: Visual Analytics using Power BI

The course aims to equip the participant with the following:

Knowledge and Understanding: An understanding of how a dashboard works; its advantages and disadvantages and how it will be useful at workplaces.

Intellectual skills: How to apply the knowledge received during the course in developing the dashboard and using DAX functions, filters etc.

Practical skills: Participants will be developing their own dashboard. This exercise will enable them to show their creativity, skills obtained from the course and a satisfaction from attending the Power BI course.

Transferable skills and personal qualities: The knowledge and skills acquired from this course can be used at workplaces especially for those involved in KPI reporting, dashboard development or someone who have regular management meetings.

By the end of the course, learners will be able to:

- Upload data & and create data models
- Use DAX functions to enhance dashboards
- Associate links between variables for visual and descriptive analytics
- Find hindsight and insights from dashboard

### **Topic 5: Cyber Security for Non-IT Professionals**

The objectives of the course is to create awareness and understanding of common cyber threats, both at home and at work. Typical mitigation methods will be discussed to help participants make better use of the available cyber security tools to protect themselves against cyber adversaries.

Upon completion of this course participants will be able to:

- Relate what is Cyber Security what are at stake
- Examine common threats (e.g. Phishing, malware)
- Use common mitigation methods
- Use basic wireless and smartphone security
- Outline security related laws (e.g. PDPA, CMA)

## **2. Certificate in Sectoral Fundamentals for Manufacturing Science**

This certificate introduces key concepts of manufacturing science, which includes chemical & biosafety, instrumental analysis, materials & energy balance and microbiology. The synopsis of the modules are as follows:

### **Topic 1: Chemical & Biosafety**

The module aims to provide knowledge on important topics such as risk groups; risk assessment; handling of Biohazardous materials and chemical waste; storage and disposal of biohazards. Laboratory design, safe practices and containment equipment of the four biosafety levels, routes of transmission and decontamination are taught. In addition, implications of local regulations to laboratory operations are examined such as the Workplace Safety and Health Act (WSHA) and the Biological Agents and Toxin Act (BATA).

### **Topic 2: Instrumental Analysis**

The module covers practical laboratory skills and theoretical knowledge to perform chemical analysis using analytical instruments such as gas and liquid chromatograph, ultra-violet visible, infra-red spectrophotometer, etc. It provides trainees with a capability for problem solving, independent thinking and innovation so that they can work effectively in research teams and chemical analysis.

### **Topic 3: Materials & Energy Balance**

The module covers principles of material and energy balances. It enables learners to perform material and energy balances on common unit operations of chemical processes. Learners will apply the principles through hands-on sessions using small-scale pilot plant, process dynamic simulation software and process design simulation software.

#### **Topic 4: Heat & Mass Transfer**

The module covers the fundamental principles and processes of heat and mass transfer as well as their application in the process industry.

#### **Topic 5: Microbiology**

The module provides a good understanding of microbiology which includes methodologies to study of microorganisms and reinforced with hand-on practical to acquire bench skills in aseptic techniques. In addition, an overview of the importance of and use of microbes, treatment of environmental oil spills and bioremediation, geochemical life cycles and human diseases.

### **3. Certificate in Job Specialisation for Food Manufacturing Specialists**

This certificate provide trainees will essential skills and competencies for food manufacturing. The synopsis of the modules covered are as follows:-

#### **Topic 1: Food Product Design**

The module covers a deep understanding of the approach by which consumers' needs; identified through design thinking process are translated into innovative and commercially viable products. There is also an analysis of the innovation process with emphasis on factors such as constraints of time, cost and manufacturing issues.

#### **Topic 2: Food Safety Management System**

The module emphasizes auditing techniques using the key concepts of different food safety management systems like ISO22000, British Retail Consortium (BRC) and crisis management programme. Case studies are included to deepen their understanding of safety management including current Good Manufacturing Practices (cGMP) and Hazard Analysis Critical Control Point (HACCP) system.

#### **Topic 3: Applied Food Packaging**

The module integrates knowledge of food chemistry with packaging design and materials science. This is to develop competency in applying food packaging knowledge into the shelf life assessment of food products in accordance with performance, economics, and brand value for the company.

#### **Topic 4: Applied Food Microbiology**

The module explores advanced topics in food microbiology including biofilm formation and the pathogenesis of foodborne pathogens and cutting-edge techniques to detect and identify microorganisms associated with food. Updates to microbiological standards, guidelines and specifications will also be covered.

#### **Topic 5: Sustainable Food Manufacturing**

The module covers sustainability issues in food manufacturing. Novel technologies and processes for converting food wastes to value-added products are included. The concepts and application of Lean Six-Sigma System is introduced and applied to improve food processes in order to eliminate waste, decrease variation, enhance product quality and increase productivity.

#### **Topic 6: Consumer & Sensory Studies**

The module provides deep knowledge and hand-on in experimental design and sensory analysis. Case studies combined with hands-on sessions using statistical methods needed for sensory and consumer insights are used to reinforce understanding.