

Topic Synopsis (SGUS Robotic and Automation)

1. Certificate in Communication and Interpersonal Skills

Topic 1: Mindset Transformation for Workplace

This workshop incorporates insights, methodologies and practical approaches in SP's 4-T Mindset Transformation model to help participants manage change and embrace innovation. The contents are designed to develop the mindset, skills-sets and behaviours (practices) to enable participants to learn, adapt and improve by acquiring relevant updated or new skills relevant for the workplace.

Topic 2: Intergenerational Communication

Individuals and managers everywhere must now navigate and cope with the confluence of different needs, expectations and age span present in the modern workplace. But does the multi-generational workforce equate to more opportunities or challenges? Should we pop the champagne or pull our hair out at this new development? 'Intergenerational Communication' examines the value of having multi-generational team members in terms of the strengths and challenges of working with people from different age groups. It covers the expectations from different age groups, by exploring individual personalities and their preferred work styles. Broad strategies will be introduced to build effective multi-generational teams at the workplace.

Topic 3: 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 4: Digital Confidence for Communication and Collaboration

This course focuses on using various digital tools for effective online communication and collaboration in the workplace. Participants will be equipped with the knowledge and skills to plan and execute a productive online communication and collaboration experience.

Participants will be equipped with the tools to evaluate various digital tools for online communication and collaboration; practise using digital tools; appreciate the elements of effective digital storytelling, and apply these digital tools at the workplace.

2. Certificate in Introduction to Analytics, Cyber Security, AI and Blockchain

Topic 1: Fundamental Data Analysis Using Excel 2016

The objective of the course is to equip learners with relevant skills to use Excel for the purpose of organize and analysing data for visual presentation and improve decision making in business development.

By the end of the course, learner will have:

- An understanding of how to apply most commonly used statistical and lookup functions;
- The ability to gather data and organize the data for analysis in business;
- The know-how on how to generate and interpret charts;
- Be able to build dashboards using PivotTables and PivotCharts; and
- Skills in using Excel What-If Analysis and Data Analysis tools for generating different scenarios of business environment and aiding decision making.

Topic 2: Essential Statistical Analysis

The course aims to equip the participant with the following:

Knowledge and Understanding: An understanding of the main basic principles for preparing data for statistical analysis; carry out and interpret statistical analysis such as exploratory analysis and testing for differences and associations.

Intellectual skills: Skills in problem solving, data analysis and evaluation methods through lectures, practical, and independent reading.

Practical skills: Skills in using social science datasets and practical experience of sampling and data analysis including using software (Excel or Minitab Express).

Transferable skills and personal qualities: Data handling, interpretation and reporting of statistical analysis. Social statistics and data analysis skills are highly in demand in the labour market. This will also aid the student in the development of their communication and team working skills.

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

- Organize, manage and present data
- Use and apply basic specific statistical methods to infer data, such as estimation, testing for difference and association.
- Use appropriate statistical software for data analysis
- Analyse and interpret statistical output and charts.

Topic 3: 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 4: 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)

Topic 5: Introduction to Blockchain

This course aims to equip participants with a strong fundamental knowledge on Blockchain technology and educate them on the underlying mechanisms that make up a blockchain. Participants will also be familiarized with certain cryptocurrencies, such as Bitcoin to augment their understanding of Blockchain Technology.

Upon completion of this course participants will be able to:

- Explain the fundamental principles of Blockchain Technology.
- Describe and appraise the encryption technology used in Blockchain.
- Develop a crypto currency wallet and complete a transaction.

Topic 6: Introduction to AI and Machine Learning

This course aims to introduce artificial intelligence (AI) and machine learning (ML). The course focuses on learning how to apply AI and ML to solve real-life problems. Through practical sessions, participants will experience the setting up and use of a simple machine learning tools that do not require coding.

Upon completion of this course participants will be able to:

- Illustrate the project workflow in a machine learning project
- Classify and frame industry problems as supervised learning or unsupervised learning problems
- Select suitable machine learning algorithms
- Use online/cloud-based machine learning tools

3. Certificate in Essential and Emerging Skills for Employability

Topic 1: 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 2: HR for Non-HR Professionals

The 1-day workshop will introduce participants to what Human Resource Management is about, key Human Resource functions and how it impacts business success. Using an interactive approach, participants will gain a better understanding and exposure of the HR-related issues that they may face as a manager or employee spanning recruitment, development, engagement and separation from the firm.

Topic 3: Finance Fundamentals

A basic knowledge of finance is essential for any non-financial professionals to function effectively in his/her current capacity. The ability to understand finance is not only useful as a life skill, but a much needed requirement for non-financial professionals occupying or about to assume a greater leadership role in the organization.

The 1-day course allows participants to:

- Interpret financial information correctly for decision-making
- Understand the impact of your decisions and actions (or non-action) on the “bottom-line” performance of your organization
- Bridge your communication gap with colleagues from the finance department
- Understand the common yardsticks used in project evaluation

Topic 4: Design Thinking for Business Innovation

Businesses, social entrepreneurs, and other innovators have used human-centered design for decades to create solutions for many different types of challenges. This workshop will teach you the human-centered design process so you can be more people-centric when problem solving.

In this two day workshop, tools such as Deep User Interview, Persona, Gmap and Rapid Prototyping will be introduced to identify and execute opportunities for growth and innovation.

Topic 5: Robotic Process Automation

Robotic Process Automation is the application of technology that allows employees in a company to configure software or a “robot” to capture and interpret existing applications for processing a transaction, manipulating data, triggering responses and communicating with other digital system. This course will show how businesses can automate some of the internal process to bring about an improvement in productivity and get employees to move up the work value chain. This 1 & ½ day course aims to equip participants with the skills to easily create useful RPA scripts to automate their own desktop processes, without coding or programming knowledge. They will learn how to achieve this.

Topic 6: 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.

4. Certificate in Sectoral Fundamentals for Mechanical Engineering

Topic 1: Thermofluid Power

This topic provides trainees with fundamental knowledge and basic principles in the Second Law of Thermodynamics Power Cycles, Air compressors, Conservation of Momentum and Conservation of Energy. Hands-on laboratory classes will reinforce the concepts learnt and will allow to develop robust practical skill-sets on the topics studied.

Topic 2: Mechanics of Materials and Machines

This covers basic concepts of Direct Stress and Strain, Shear Force and Bending Moment Diagrams, First and Second Moment of Area, Bending Theory, Torsion Theory, Torque and Moment of Inertia, Work Power Energy, Simple Lifting Machines and Centripetal Force. These will enable trainees to apply these to analyse the forces and stresses acting on simple engineering structures and machines.

Topic 3: Engineering Materials

This topic introduces the basic properties and applications of general engineering materials such as steel, cast iron, aluminium, copper, thermo-setting and thermo-plastics. Trainees will also be taught the practical skills in mechanical testing, common Non-Destructive Testing

(NDT) and metallographic techniques, as well as the knowledge in heat treatment of metallic materials and casting processes.

5. Certificate in Job Specialisation for Manufacturing Specialist

Topic 1: Robotic Integration and Programming

This topic introduces the basics of robot hardware, software and their integration. It includes micro-controller, display components, actuators and sensors. Trainees will get to design, build and test an autonomous robot system.

Topic 2: Industrial Automation

This topic provides knowledge of automated control operations in local manufacturing industries. It includes pneumatics, relay control system, programmable logic controller, actuators and sensors.

Topic 3: Program and Operate Robots in Manufacturing

Trainees will be equipped to apply robot safety, robot terminology, basic robot operations, robot pendant operations, controller error handling and robot programming. They will also learn how to program and operate a robot for a pick and place application.

Topic 4: Programmable Logic Controllers

This topic covers fundamental concepts and examples to understand the operation and capabilities of programmable logic controllers as an important tool for factory automation. Simple control strategies using ladder diagram are implemented.

6. Practicum

It provides opportunities for learners embark on an industry project either in-house or in an attachment to a company.