Subject Description Form

Subject Code	ISE2127/IC2127
Subject Title	Computer Proficiency Training
Credit Value	2 Training Credits
Level	2
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject offers the application of software in computer-aided statistical analysis and project planning that aims at providing the necessary fundamental knowledge and computer skills to students.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Acquire a certain level of understanding and practical skill in using specific software in assisting their future study and professional *(Objective 1 and Syllabus Item 1-2). Category A*.
Subject Synopsis/ Indicative Syllabus	1) <u>TM3006 - Project Planning and Business Documentation</u> Project management concepts, project documentation, project management practice, business process documentation. 2) <u>TM3015 - Basic Computer-aided Statistical Analysis</u> Introduction to SPSS, data collection, questionnaire design, variables and reverse coding, descriptive statistics; non-normality handling, grouping, randomisation and transformation; bivariate statistics, confidence intervals and effect size; factor analysis, reliability analysis with measured and latent variables; simple and multiple linear regression, goodness-of-fit and multicollinearity; One-way and two-way ANOVA, F-ratio and planned comparison; visualising and reporting statistics with histograms, box-plots, line charts, scatter-plots.
Learning Methodology	Please refer to the individual Module Descriptions of TM3006 and TM3015 for details.
Assessment Methods in Alignment with Intended Learning Outcomes	Please refer to the individual Module Descriptions of TM3006 and TM3015 for details.

Student Study Effort Required	Class Contact	
	▪ Computer Training	60 Hrs.
	Total Study Effort	**60 Hrs.**
Reading List and References	Please refer to the individual module descriptions of TM3006 and TM3015 for details.	

Module Description Form

Module Code	TM3006
Module Title	Project Planning and Business Documentation
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This training module aims to equip students with knowledge of techniques of being a project planner and business charts designer. This module provides a comprehensive coverage for project management and business documentation tools. This module will also provide students with: 1) the ability to practice as a project planner to schedule tasks with project resources; 2) skills in project management operation in detail reporting as well as fine tuning and monitoring project progress; and 3) functional knowledge in design and technique of business flow diagram and customized enterprise-wide visuals.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) apply project management concepts and prepare project plans by specifying scope of project and allocation of resource and time. *(Objective 1 and Syllabus Items 1 & 3). Category A*; b) revise project plans for controlling cost and schedule as project managers execute in industrial practice. *(Objective 2 and Syllabus Item 3). Category A*; c) generate report views by selection of project data on purpose such as cost of each task. *(Objective 2 and Syllabus Item 2). Category A*; d) organize and explain ideas by structured graphical representations in typical business situations. *(Objective 3 and Syllabus Item 4). Category A*; and e) select and create visuals for effective diagramming and charting in project management reports for business documentation. *(Objectives 2 & 3 and Syllabus Items 2 & 4). Category A*.
Module Synopsis/ Indicative Syllabus	1) <u>Project Management</u> Project calendar, Gantt Chart and timeline, milestone, task relationships, dependence and constraints, recurring tasks, work and material resources, pay rates and cost per use, project baseline.

	2) <u>Project Documentation</u> Functions of templates. Formatting report views, overview, current activities, cost, assignments, workload, and customized view reports. Importing and exporting lists and charts between business documentation tools and project planning tools. 3) <u>Project Planning and Control</u> Setting up resource, resource allocation, resource leveling. Creating work breakdown structure. Setting task dependency, linking and unlinking task relationship, creating summary tasks. Progress tracking and project tracking with baseline. Comparing and fine tuning different project plans in terms of time, resource utilisation and cost. 4) <u>Business Process Documentation</u> Functions of stencil, template and shape, block diagram, organisation chart, flow chart. Importing timeline. Creating customized shapes, stencils and templates.
Teaching/Learning Methodology	Both practical and tutorial will be used to deliver the various topics. Some of them will be covered in a problem-based format where enhances the learning objectives, and the others through directed hands-on practice to enhance the students' ability in real-life situation. The major learning outcomes of this module are professional knowledge and skill based, the problem-based approach is also considered effective to align with the intended learning outcomes.
Assessment Methods in Alignment with Intended Learning Outcomes	(see table below)

Assessment Methods	Weighting (%)	Intended Learning Outcomes Assessed				
		a	b	c	d	e
1. Assignment and Report	70					
- Project Documentation				✓		✓
- Project Management, Planning and Control		✓	✓	✓		
- Business Process Documentation					✓	✓
- Individual Workshop Report		✓	✓	✓	✓	✓
2. Test	30	✓	✓	✓	✓	✓
Total	**100**					

TM3006: Project Planning and Business Documentation (160801LTC)

	The intended learning outcomes achieved by students are reflected by their ability in solving actual situation problems.
	Students are required to submit assignment(s)/task(s) in four major areas which are all based on realistic workplace scenarios. These areas are a) project planning; b) project operation management and reports; c) designing a series of master shapes and templates; and d) developing cross functional charts for organization and project management.
	The report is a reflective writing for the skill learned as in the assignment(s), personal comments on the technology and the functional knowledge.
	A test in the form of multiple choice questions will be conducted to assess students' declarative knowledge on the topics.

Student Study Effort Expected	**Class Contact**	
	▪ Training	27 Hrs.
	▪ On-line self-learning and individual report	3 Hrs.
	Total Study Effort	**30 Hrs.**

Reading List and References	1) Teresa Stover, Microsoft Office Project 2007 Inside Out, Microsoft Press, ISBN:0735623279
	2) Mark H. Walker, Microsoft Office Project 2007 Step by Step, Microsoft Press, ISBN:0735619557
	3) Mark H. Walker, Microsoft Office Visio 2007 Inside Out: Microsoft Press, ISBN: 0735623295

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Module Description Form

Module Code	TM3015
Module Title	Basic Computer-aided Statistical Analysis
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Equip students with practical knowledge and hands-on ability in using computer-aided statistical packages to analyze engineering and business problems.
Intended Learning Outcomes	Upon completion of this module, students will be able to: a) Formulate engineering and business problems in statistical models suitable for computer-aided analysis; b) Apply computer-aided statistical analysis to discover hidden patterns and trends in survey data sets; c) Apply computer-aided statistical analysis on experiment data sets so as to validate hypothesis; d) Compose analysis results section in formal papers and reports base on computer-aided analysis outputs.
Module Synopsis/ Indicative Syllabus	1) Introduction: SPSS environment; Refreshment on common statistical terminologies and procedures; 2) Data collection considerations for computer-aided statistical analysis: Questionnaire design; Categorical, ordinal, and scalar variables; Reverse coding; 3) Importing data: Generating descriptive statistics; Detecting and handling Non-normality, outliers, and missing values; Grouping; Randomisation; Transformation; 4) Generating Bivariate Statistics: Bivariate and partial correlation matrices; Significance, confidence intervals, and effect size; 5) Running Factor Analysis: Factor analysis procedure; Factor rotation; Factor scores; Reliability analysis; Measured and latent variables; 6) Running Linear Regression: Simple and multiple linear regression procedures; Interpret goodness-of-fit outputs; Detecting and handling multi-collinearity 7) Running ANOVA: One-way and two-way ANOVA procedures; F-ratio; Planned comparison procedures; Visualising and reporting results: Histograms; Box-plots; Line charts; Scatter-plots; Reporting statistical procedures and parameters used.
Teaching/Learning Methodology	Lecture, demonstration and real-life case study will be used to showcase the features and functions of the software.

	Problem based learning with hand-on exercises will be used throughout the course to help students solve common statistical problems and discover common application mistakes. Group discussions and Q&A section after each problem will be used for reflection, checking misunderstandings and prompt feedback.
Assessment Methods in Alignment with Intended Learning Outcomes	

Assessment Methods	Weighting (%)	Intended Learning Outcomes Assessed			
		a	b	c	d
1. Statistical analysis tasks	50	✓	✓	✓	✓
2. Individual workshop report	20	✓	✓	✓	
3. Test	30		✓	✓	✓
Total	**100**				

Students are required to submit 5-8 short in-class assignments in the form statistical analysis tasks. The tasks will be based on realistic engineering and management scenarios, including but not limited to questionnaire design, data cleansing, latent variables identification, hypothesis validation, and data visualisation.

The individual workshop report is a reflective writing on the skill learned in the assignments, and personal comments on the technology.

A test in the form of multiple choice questions and short questions will be conducted to assess students' declarative knowledge on the topics.

Student Study Effort Expected	**Class Contact**	
	▪ Mini-Lectures, demonstrations, and guided practise	12 Hrs.
	▪ In-class assignments and test	18 Hrs.
	Total Study Effort	**30 Hrs.**
Reading List and References	1) PASW Statistics 17 Made Simple, Hove, East Sussex: Psychology Press, 2010 2) Discovering statistics using SPSS, London: SAGE Publications, 2009. 3) Applied statistics using SPSS, STATISTICA and MATLAB, Berlin; Hong Kong: Springer, c2003.