

Course: PUSASQF 503	Model Documentation Analysis and Reporting (Credits : 3 Lectures/Week : 5)	
Objectives: The objective of this course is to introduce the concept of documenting the analysis and reporting the steps and results to your superiors.		
Expected Learning Outcomes: At end of the course, students will be able to: 1) Use appropriate tools and assumptions for statistical analysis 2) Develop and document model with appropriate audit trail 3) Comment on the reasonableness of the results under different scenarios 4) Interpret and communicate the results effectively		
Unit I	Data analysis Use appropriate tools for cleaning, restructuring and transforming data to make it suitable for analysis. Summarise data using appropriate analysis, descriptive statistics and graphical representation. Select and carry out appropriate statistical tests of reasonableness. Make appropriate assumptions about the data provided. Repair corrupt or missing data.	12L
Unit II	Model development and documentation Plan and produce a spreadsheet model to solve a specified problem. Document the results of the model including justification of key assumptions, detailing the methodology adopted, an appropriate level of reasonableness checks, sensitivities and limitations. Produce and audit trail enabling detailed checking and high-level scrutiny of the model by a fellow student and a senior actuary.	12L
Unit III	Methods and model outputs Perform checks on the results of a model, including applying sensitivity and/or scenario tests. Comment on the reasonableness of the results under different scenarios	12L
Unit IV	Application and interpretation of results Apply the results to the problem set, suggesting solutions. Summarise the results using appropriate charts and tables. Consider possible next steps. Communication Plan and draft a summary document to cover the data, approach, assumptions, results, conclusions and suggested next steps for presentation to a senior actuary. Create appropriate data visualisations to communicate the key conclusions of an analysis.	12L

Text books and References:

1. How to solve it: a new aspect of mathematical method. Polya, G. Penguin, new ed, 1990
2. Mastering financial mathematics in Microsoft Excel: a practical guide for business calculations. 2nd ed. Day, A. Financial Times-Prentice Hall, 2010.
3. Spreadsheet check and control: 47 key practices to detect and prevent errors. O'Beirne, P. Systems Publishing, 2005.
4. Successful ICT projects in Excel. 3rd ed. Heathcote, P. M. Payne-Gallway, 2002.