(2) Advanced Business Statistics - BSTA3013

<table>
<tr><td>1.</td><td>Name of Course</td><td colspan="5">Advanced Business Statistics</td></tr>
<tr><td>2.</td><td>Course Code</td><td colspan="5">BSTA3013</td></tr>
<tr><td>3.</td><td>Name(s) of academic staff</td><td colspan="5"></td></tr>
<tr><td>4.</td><td>Rationale for the inclusion of the course/module in the programme</td><td colspan="5">Core:
Statistics plays a vital role in every fields of human activity. Statistics has important role in determining the existing position of per capita income, unemployment, population growth rate, housing, schooling medical facilities etc…in a country. Statistics play an important role in business. A successful businessman must be very quick and accurate in decision making. He knows that what his customers wants, he should therefore, know what to produce and sell and in what quantities. Statistics helps businessman to plan production according to the taste of the costumers, the quality of the products can also be checked more efficiently by using statistical methods. So all the activities of the businessman based on statistical information. He can make correct decision about the location of business, marketing of the products, financial resources etc…</td></tr>
<tr><td>5.</td><td>Semester and Year offered</td><td colspan="5"></td></tr>
<tr><td rowspan="3">6.</td><td>Total Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td>Total Guided and Independent Learning</td></tr>
<tr><td>L = Lecture
T = Tutorial
P = Practical
O= Others</td><td>L

28</td><td>T

14</td><td>P

</td><td>O

84</td><td rowspan="2">Guided = 42
Independent = 84
Total = 126</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>7.</td><td>Credit Value</td><td colspan="5">3</td></tr>
<tr><td>8.</td><td>Prerequisite (if any)</td><td colspan="5">Business Statistics</td></tr>
<tr><td>9.</td><td colspan="6">Objectives:
• To develop a disciplined, objective approach to quantitative analysis.
• To improve communication skills.
• To improve spreadsheet skills, and learn spreadsheet skills for regression analysis.
• To understand the basics of linear regression and related statistical techniques, to implement these techniques using Microsoft Excel, and to interpret their results.</td></tr>
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10.	Learning outcomes: At the completion of the subject, students should be able to perform the following tasks: • Use scatter plots and estimated correlation coefficients to describe the relationship between two variables in a dataset. • Use linear regression to find a formula that relates the value of a dependent variable to one or more independent variables in a dataset. • Refine a regression model to be accurate while including only the most significant variables. • Describe the statistical precision of a regression model by performing hypothesis tests. • Ascertain when the mathematical assumptions of least squares regression are not satisfied by the variables in a model. • Describe the most common methods of time series forecasting. • Compute measures that describe the accuracy of forecasting systems over time. • Forecast a time series using a regression-derived trend line. • Forecast a time series using exponential smoothing with trend and seasonal adjustments.
11.	Transferable Skills: Statistics students learn to define problems, to think critically, to analyze, and to synthesize, which prepares them to explore widely throughout their professional lives and to be creative and productive citizens. They also learn to discover the integrity of data, the uncertainty of measurements and, through these, the development of understanding for the powers and limitations of science. The development of an statistical understanding of the powers and limitations of science is essential to rational participation in the resolution of societal issues. The language of statistics is a foreign language to most students. It is necessary for students to understand the language in order to understand the concepts and the statistical procedures. Learning the language of statistics provides students with insights and an awareness of ideas and thoughts beyond the realm of previous experience. Statistical language requires precision and careful attention to exactly communicate valid conclusions and interpretations which result from data analysis.

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<tr><td>12.</td><td>Teaching-learning and assessment strategy
A variety of teaching and learning strategies are used throughout the course, including:
• Lecture sessions
• Tutorial sessions
• Case Studies
• Student-Lecturer discussion
• Collaborative and co-operative learning
• Workshops and Training Seminars
• Independent study

Assessment strategies include the following:
• Ongoing quizzes
• Midterm tests
• Performance Assessment (Participation, project, Assigned exercises)
• Case Presentations</td></tr>
<tr><td>13.</td><td>Synopsis:

In today's uncertain economic climate, professionals need to ensure that their business decisions are based on correct factual analysis. This advance course in statistics takes the obscurity out of statistics so that students can analyze data with clarity and precision. By evaluating data using proven statistical business tools and techniques, students learn to make effective, fact-based business decisions.</td></tr>
<tr><td>14.</td><td>Mode of Delivery: Face to Face
• Lecture sessions
• Tutorial sessions</td></tr>
<tr><td>15.</td><td>Assessment Methods and Types:
The assessment for this course will be based on the following:

Coursework — 50%
Quizzes — 10%
Assignments — 10%
Project — 10%
Mid-Semester Exam — 20%
Final Examination — 50%.

Total — 100%</td></tr>
<tr><td>16.</td><td>Mapping of the course/module to the Programme Aims
The individual course is mapped to the programme aims using a scale of one to five where (one being the least relevant/related and five being the most relevant/ related).</td></tr>
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A1	A2	A3	A4	A5	A6
4	3	4	4	3	2

17. Mapping of the course/module to the Programme Learning Outcomes

The learning outcomes of this course are mapped to the eight MQF domains using a scale of **one** to **five** where (one being the least relevant/related and five being the most relevant/ related).

LO1	LO 2	LO3	LO4	LO5	LO 6	LO7	LO8	LO9	LO10	LO11	LO12
5	4	3	4	3	3	3	3	2	2	2	2

18. Content outline of the course/module and the SLT per topic

WEEK	Details	SLT			
		L	T	Indep.	Total
WEEK 1, 2	**Statistical estimation and hypothesis testing** • Point and interval estimates • Sample size, • One sample means test • One sample proportion test • One and two sample variance test	4	2	12	18
WEEK 3, 4	**C-Sample with numerical data** • One way ANOVA • Tukey Kramer procedure, • Two way ANOVA.	4	2	12	18
WEEK 5, 6	**C-Sample test with categorical data** • Chi Square test for difference in C-proportion • Chi Square test for goodness of fit.	4	2	12	18

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	WEEK 7, 8	**Non Parametric statistics** • Sign t-test, small and large samples • C Sample median • Wilcoxon signed rank • Mann-Whitney • Wilcoxon test • Kruskal Wallis test.	4	2	12	18
	WEEK 9, 10	**Non Parametric statistics** • Least square methods • Standardized regression and Beta coefficients • Residual analysis and measuring • Curvilinear regression models • Dummy variables and multicollinearity	4	2	12	18
	WEEK 11, 12	**Time Series analysis** • Moving averages method • Exponential smoothing • Least square trend fitting • Autoregressive models in forecasting • Choosing an appropriate forecasting model.	4	2	12	18
	WEEK 13, 14	**Multivariate analysis** • Factor analysis. Cluster analysis. • Conjoint analysis. • Canonical correlation analysis.	4	2	12	18
		Total	28	14	84	126
19.	**Main references supporting the course**: Levine, David, Berenson and Stephan (2010), *Statistics for managers using Microsoft Excel*, Pearson Group (6th Edition)					
	Additional references supporting the course: Hair, Anderson, Tatham and Black (2009), *Multivariate Analysis*, Pearson group, (7th Edition)					
20.	**Other additional information** All related subject materials will be available to the students during the period of the course					