

MID-WESTERN UNIVERSITY, FACULTY OF MANAGEMENT
 MASTER IN BUSINESS ADMINISTRATION (MBA), SYLLABUS 2072 (2016)

Course Title		Quantitative Approach to Management
Course Code Number		MGT 516
Credit Hours		03
Year: I		Semester: I
Course Objectives:		
Main objective		The course is designed to give the students the basic quantitative skills to solve managerial problems. It also helps the students to promote the practice of the scientific method of study to interpret, communicate and exchange results. Various statistical tools and optimization techniques under this course help the students enhance their level of decision making power based on critical reasoning.
Enabling objectives		After the completion of this subject, students will be able to: <ul style="list-style-type: none"> • Select appropriate technique among a number of quantitative techniques to a given problem, • Apply statistical Package (SPSS) and Spreadsheet to in the selected tools of analysis, • Understand why the observations (data) are important in taking decisions.
Learning Unit (LU)	Learning Hours (LH)	Contents
LU 1	5	General Probability Theory Basic terms: Random experiment, favourable event, dependent event, independent events or cases, Mutually exclusive cases, Exhaustive cases, Equally likely cases. Permutation and combination approach to probability problems. Subjective and objective probability, Additive and Multiplicative law of probability on mutually exclusive and independent events). Mathematical expectation and variance of a random variable.(Use of Ms-excel to solve permutation and combination cases.) Conditional probability, prior and posterior probability in Bayes' Theorem.
LU 2	5	Theoretical Probability Distribution Binomial, Poisson and Normal distribution to solve the probability problems. Properties of Binomial and Poisson distribution. Poisson approximation to Binomial. Binomial vs. Normal distribution. Standard Normal Distribution. Areas Under Normal probability curve (Ms- excel functions on theoretical distributions). Fitting of binomial and Poisson to a given frequency distribution.
LU 3	4	Sampling Census vs. Sampling. Random vs non-random sampling. Selection of appropriate sampling techniques: simple random, stratified, systematic, Cluster, Multistage, Judgement, Exercises on random table and computer generated random numbers to select the samples
LU 4	7	Estimation Introduction to sampling distributions, sampling distribution of mean

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		and proportion Estimation: Characteristics of good estimator, Point and Interval estimates, Confidence interval estimate of the population mean and proportion, Determining the sample size of a population mean and sample proportion. Difference among sample standard deviation, population standard deviation, standard error. Exercises on Ms-excel functions to find mean and standard deviation of series.
LU 5	8	Hypothesis testing Null and alternative hypothesis, Steps in hypothesis testing, Level of significance, critical value, one and two-tailed test, Type I and Type II error, Large sample-size test: single mean test, test of difference between two means, simple proportion test, test of difference between two proportions. Small sample-size test: t-test for both dependent and independent sample cases. F-ratio between two population variances, One way ANOVA. Application of SPSS and MS-excel in t-test and ANOVA. Interpretation of SPSS and MS-excel outputs
LU 6	6	Non-parametric test Nominal, Ordinal, Interval and Ratio scale of measurement. Parametric vs. No-parametric test. Chi-square test of independence (SPSS procedure). Chi-square test to fit to binomial distribution. SPSS use in hypothesis testing for Run and Sign test.
LU 7	7	Correlation and Regression Analysis Simple correlation Analysis (Karl Pearson). SPSS to find correlation coefficients. Correlation vs. Regression Analysis. Multiple correlation, Coefficient of Determination, Standard error of estimate. Interpretation of SPSS regression output. (students are required to learn on how to apply SPSS and MS-excel commands in solving regression problems specially for more than 3-variable case)
LU 8	6	Linear Programming Concept of Linear Programming, Steps in the formulation of Linear Programming Problem, Graphical method to solve linear programming problem. Ms-excel solver to solve linear programming problems
References		<ol style="list-style-type: none"> 1. Levin, David S. Rubin. Statistics for Management, Pearson Education, 7th Edition, 2011 2. Siegel, S., Nonparametric Statistics: For the Behavioral Sciences. New York: McGraw-Hill, 1956. 3. Richard I. Levin, Rubin, Stinson and Gardner. Quantitative Approaches to Management

Net Contact Hour is 48 excluding the exams and tests.

Evaluation Module: 50 percent will be assessed through the internal evaluation and 50 percent will be assessed through end semester examination