

Statistics - National Diploma (ND)

Semester: 4

Course: Design and Analysis of Experiments I (STA 221)	2
Course: Sampling Techniques I (STA 222).....	6
Course: Applied General Statistics I (STA 223).....	12
Course: Biostatistics I (STA 224)	16
Course: Mathematical Methods I (MTH 222)	21
Course: Management Information Systems (COM 224).....	26
Course: Small Business Management I (STA 226).....	32
Course: Project (STA 226)	39

Course: Design and Analysis of Experiments I (STA 221)

Programme: Statistics (National Diploma)			
Course: Design and Analysis of Experiments I	Course Code: STA 221	Total Hours:	5
Year: 2 Semester: 4	Pre-requisite:	Theoretical:	2 hours /week
		Practical:	3 hours /week
Goal: This course is designed to enable students be able to design experiments and analyse data and results			
General Objectives: On completion of this course the diplomate should be able to:			
<ol style="list-style-type: none">1. Understand the principles of planning simple statistical experiments.2. Understand simple experimental designs.3. Understand the role of analysis of variance in experimental design.			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (STA 221): Understand the principles of planning simple statistics experiments						
1	1.1 Define a simple statistical experiment. 1.2 Distinguish between statistical survey and experiment.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
2	1.3 Distinguish between sample statistics and population parameters. 1.4 Explain treatments, experimental units, factors and replicates.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
3	1.5 Explain randomization, pairing and replication. 1.6 State the reasons for randomization, pairing and replication.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
4	1.7 Identify random variations and experimental errors. 1.8 Determine appropriate sample size for a given situation.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
5	1.9 Compute standard error for differences between two treatments	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 2 (STA 221): Understand simple experimental design						
6	2.1 Explain some types of simple experimental design techniques like completely randomized and randomized blocks design.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
7	2.2 Plan a simple statistical experiment.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
8	2.3 Plan simple Experiments for tests concerning one mean.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
9	2.4 Design experiments for tests concerning difference involving paired and unpaired samples.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
10	2.4 (continued) Design experiments for tests concerning difference involving paired and unpaired samples.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 3 (STA 221): Understand the role of analysis of variance in experimental design						
11	3.1 Define fixed effects and random effects models. 3.2 Distinguish between the two models in 3.1 above.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
12	3.3 Describe a one - way classification and illustrate with examples.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
13	3.4 Explain analysis of variance (ANOVA) concept.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
14	3.5 Partition sums of squares for ANOVA.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
15	3.6 Apply fixed - effects models to one - way analysis of variance.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Assessment: Give details of assignments to be used:

Coursework/ Assignments %; Course test %; Practical %; Projects %; Examination %

Type of Assessment	Purpose and Nature of Assessment (STA 221)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	50
Test	At least 2 progress tests for feed back.	20
Practical	At least 5 homeworks to be assessed by the teacher	30
Total		100

Recommended Textbooks & References:

Fundamental Concept in the Design of Experiments, C. K. Hicks

Course: Sampling Techniques I (STA 222)

Programme: Statistics (National Diploma)			
Course: Sampling Techniques I	Course Code: STA 222	Total Hours:	5
Year: 2 Semester: 4	Pre-requisite:	Theoretical:	2 hours /week
		Practical:	3 hours /week
Goal: This course is designed to enable the student to carry out sampling.			
General Objectives: On completion of this course, the diplomate should be able to:			
<ol style="list-style-type: none">1. Understand the statistical universe and the sample.2. Understand methods of sampling.3. Understand the planning of a sample survey.4. Understand the execution of a sample survey.5. Understand the analysis of sample survey results.6. Understand errors and biases of sample surveys.7. Understand how to estimate population parameters under simple random sampling.8. Understand methods of regression and ratio estimation.			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (STA 222): Understand the statistical universe and the sample.						
1	1.1 Define statistical universe (population). 1.2 Distinguish between census and sample survey. 1.3 Distinguish between population parameter and sample statistics. 1.4 State when complete enumeration is necessary. 1.5 State advantages and disadvantages of taking a sample. 1.6 Identify a sampling frame.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 2 (STA 222): Understand methods of sampling.						
2	2.1 Distinguish between probability sampling and non-probability sampling. 2.2 State and illustrate types of non-probability sampling. 2.3 Identify types of probability sampling (SRSWOR, SRSWR, stratified sampling, systematic sampling, cluster sampling).	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
3	2.4 State the advantages and disadvantages of the types of sampling in 2.2 and 2.3 above. 2.5 Apply random number tables in probability sampling.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 3 (STA 222): Understand the planning of a sample survey.						
4	3.1 Identify the objectives of Sample Survey.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	3.2 Define Target Population.		Lecture Notes			Lecture Notes
	3.3 Identify methods for data collection (Direct Observation, Interview, Mail-questionnaire, e.t.c.).					
	3.4 State Advantages and Disadvantages of the Methods In 3.3 above.					
5	3.5 Design a good questionnaire or record schedules.	Explain and discuss the concepts covered	Textbooks	Introduce issue of current concern upon which a questionnaire will be designed	Explain and supervise student in discussion of chosen issue	Textbooks
	3.6 Decide on the Method of Sampling.		Lecture Notes			Lecture Notes
	3.7 Selecting and training of enumerators.		Media			Media
			Internet			Internet
General Objective 4 (STA 222): Understand the execution of a sample survey.						
6	4.1 Select and identify sample units	Explain and discuss the concepts covered	Textbooks	Undertake questionnaire on chosen issue	Explain and supervise student and assess student work	Textbooks
	4.2 Collect the required information from sample units		Lecture Notes			Lecture Notes
			Media			Media
			Internet			Internet

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
7	4.3 Follow up non-response cases	Explain and discuss the concepts covered	Textbooks	Undertake questionnaire on chosen issue	Explain and supervise student and assess student work	Textbooks
	4.4 Edit the results of sample survey		Lecture Notes			Lecture Notes
			Media			Media
			Internet			Internet
General Objective 5 (STA 222): Understand the analysis of sample survey results						
8	5.1 Sort out the result of a sampling survey.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	5.2 Apply the appropriate tabulation to the sorted out data.		Lecture Notes			Lecture Notes
	5.3 Draw appropriate diagrams of the data from a survey.					
9	5.4 Compute the point estimate of population parameter e.g. mean, variance, proportion, etc. for simple random sampling.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	5.5 Estimate sample sizes for the parameters in 5.4 above.		Lecture Notes			Lecture Notes
	5.6 Calculate the intervals estimates for the parameters in 5.4 above.					
	5.7 Carry out tests of significance on the parameters in 5.4 above					
General Objective 6 (STA 222): Understand errors and biases of sample surveys						
10	6.1 Distinguish between non-sampling and sampling errors	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	6.2 Identify the sources of sampling errors		Lecture Notes			Lecture Notes

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
11	6.3 Distinguish between response errors and non-response errors	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	6.4 Explain methods of minimising sampling and non-sampling errors		Lecture Notes			Lecture Notes
General Objective 7 (STA 222): Understand how to estimate population parameters under simple random sampling						
12	7.1 Estimate the mean, the total, the variance and proportion under SRSWR	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	7.2 Estimate the mean, the total, the variance and proportion under SRSWOR		Lecture Notes			Lecture Notes
13	7.3 Estimate confidence intervals for the mean and proportion	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 8 (STA 222): Understand methods of regression and ratio estimation						
14	8.1 State reasons for regression and ratio estimation	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	8.2 Estimate regression population, mean and total		Lecture Notes			Lecture Notes
15	8.3 Estimate population mean and total by ratio method	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Assessment: Give details of assignments to be used:

Coursework/ Assignments %; Course test %; Practical %; Projects %; Examination %

Type of Assessment	Purpose and Nature of Assessment (STA 222)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	50
Test	At least 2 progress tests for feed back.	20
Practical	At least 5 homeworks to be assessed by the teacher	30
Total		100

Recommended Textbooks & References:

Course: Applied General Statistics I (STA 223)

Programme: Statistics (National Diploma)			
Course: Applied General Statistics I	Course Code: STA 223	Total Hours:	5
Year: 2 Semester: 4	Pre-requisite:	Theoretical:	2 hours /week
		Practical:	3 hours /week
Goal: This course is designed to enable students to acquire knowledge of application of statistics.			
General Objectives: On completion of this course the diplomates, should be able to:			
<ol style="list-style-type: none">1. Understand the theory of linear regression.2. Understand association and correlation between two variables.3. Understand simple contingency table (m x n).4. Understand simple non-parametric tests.			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (STA 223): Understand the theory of linear regression						
1	1.1 Explain the meaning of linear regression. 1.2 State and interpret a simple linear regression model. 1.3 Estimate the parameters of a regression equation using the free-hand methods and centroid method.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
2	1.4 State the limitation of 1.3 above. 1.5 Estimate the parameters of a regression equation by the methods of least square.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
3	1.6 Interpret the coefficients of linear regression. 1.7 State the distribution of estimates of linear regression coefficients.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
4	1.8 Construct confidence intervals for regression coefficients. 1.9 Carry out tests of significance for regression coefficients.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 2 (STA 223): Understand association and correlation between two variables.						
5	2.1 Explain association between two variables. 2.2 Define and interpret correlation.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
6	2.3 Distinguish between sample correlation coefficient (r) and population correlation coefficient (ρ). 2.4 Derive a formula for computing correlation coefficient (r).	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
7	2.5 Test hypothesis for correlation coefficient.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
8	2.6 Construct confidence intervals for \bar{n}	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 3 (STA 223): Understand simple contingency table (m x n).						
9	3.1 Explain m x n contingency table. 3.2 Prepare simple contingency table.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
10	3.3 Compute expected values from contingency tables.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
11	3.4 Carry out tests for independence using chi-squared statistic. 3.5 State the assumptions underlining the use of the chi-square	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 4 (STA 223): Understand simple non-parametric tests						
12	4.1 Define non-parametric statistics 4.2 Distinguish between parametric and non-parametric statistics	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
13	4.3 Apply the median test for solving simple problems 4.4 Apply the Wilcoxon sign test for solving sample problems	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
14	4.5 Define the rank space sum tests	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	4.6 Apply rank space sum tests for solving one sample problems		Lecture Notes			Lecture Notes
15	4.7 Explain Spearman's rank correlation coefficient.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	4.8 Compute the estimate of ρ using Spearman's rank correlation formulae.		Lecture Notes			Lecture Notes

Assessment: Give details of assignments to be used:

Coursework/ Assignments %; Course test %; Practical %; Projects %; Examination %

Type of Assessment	Purpose and Nature of Assessment (STA 223)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	50
Test	At least 2 progress tests for feed back.	20
Practical	At least 5 homeworks to be assessed by the teacher	30
Total		100

Recommended Textbooks & References:

Course: Biostatistics I (STA 224)

Programme: Statistics (National Diploma)			
Course: Biostatistics I	Course Code: STA 224	Total Hours:	5
Year: 2 Semester: 4	Pre-requisite:	Theoretical:	2 hours /week
		Practical:	3 hours /week
Goal: This course is designed to enable students apply statistics to biological data and medicine.			
General Objectives: On completion of this course, the diplomate will be able to:			
<ol style="list-style-type: none">1. Understand the importance of statistics in biology and medicine.2. Understand the concept of vital and health statistics.3. Understand standardised rates.4. Understand simple genetics and bioassays.			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (STA 224): Understand the importance of statistics in biology and medicine						
1	1.1 Explain the scope and uses of statistics in biology and medicine.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
2	1.2 State types and sources of biological and medical data such as states and National Health Services and agricultural returns.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
3	1.3 State problems associated with collection of biological and medical statistics. 1.4 Suggest various ways of tackling the problems identified in 1.3 above.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
4	1.5 State various types of variability associated with bio-medical data, e.g. response and reactions to drugs	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 2 (STA 224): Understand the concepts of vital and health statistics						
5	2.1 Classify vital and health statistics.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
6	2.2 Define basic vital statistical indices.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
7	2.3 Enumerate the uses of the indices in 2.2 above	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
General Objective 3 (STA 224): Understand standardized rates						
8	3.1 Define standardized rates.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
9	3.2 Distinguish between direct and indirect methods of standardization of rates.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
10	3.3 Illustrate methods in 3.2 above with examples	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
11	3.3 (cont.) Illustrate methods in 3.2 above with examples	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
General Objective 4 (STA 224): Understand simple genetics and bioassays						
12	4.1 Explain the meaning of genetics.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
13	4.2 Define simple Mendelian ratio.	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
14	4.3 Explain the fundamental principles of bioassay. 4.4 State the concepts of ED 50 and LD 50. (- effective dose, - letter dose)	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics
15	4.5 Explain relative potency. 4.6 Describe simple assays: direct and parallel lines	Explain and discuss the concepts covered	Textbooks Lecture Notes Secondary data from hospitals / clinics	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes Secondary data from hospitals / clinics

Assessment: Give details of assignments to be used:

Coursework/ Assignments %; Course test %; Practical %; Projects %; Examination %

Type of Assessment	Purpose and Nature of Assessment (STA 224)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	50
Test	At least 2 progress tests for feed back.	20
Practical	At least 7 homeworks to be assessed by the teacher	30
Total		100

Recommended Textbooks & References:

Statistical Methods in Agriculture & Experimental Biology, Mead, Curnow

Course: Mathematical Methods I (MTH 222)

Programme: Statistics (National Diploma)			
Course: Mathematical Methods I	Course Code: MTH 222	Total Hours:	5
Year: 2 Semester: 4	Pre-requisite:	Theoretical:	2 hours /week
		Practical:	3 hours /week
<p>Goal: To introduce the student to the study of ordinary differential equations and develop their ability to use equations to solve statistical and other application problems.</p> <p>General Objectives: On completion of this course, the diplomate should be able to:</p> <ol style="list-style-type: none"> 1. Understand the meaning of a complex number 2. Understand the algebra of complex numbers. 3. Understand the nature of a differential equation 4. Understand exact differential equations of first order. 5. Understand the theory of linear differential equations. 6. Understand the properties of plane and space vectors. 7. Understand scalar and vector products 8. Understand applications of the concept of vectors to plane geometry. 			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (MTH 222): Understand the meaning of a Complex number						
1	1.1 State simple definitions such as those of complex number, complex conjugate, and magnitude or absolute values of a complex number. 1.2 Determine the magnitude of a complex number. 1.3 Put a complex number in polar form. 1.4 Draw argand diagrams.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 2 (MTH 222): Understand the algebra of complex numbers						
2	2.1 Carry out addition, subtraction, multiplication, and division as defined for complex numbers.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 3 (MTH 222): Understand the nature of a differential equation						
4	3.1 Define a differential equation stating clearly what is meant by the order and the degree of such an equation. 3.2 Define an ordinary linear differential equation with constant (variable) coefficients.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
5	3.3 Explain what is meant by a solution to a differential equation and verify with some examples.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 4 (MTH 222): Understand exact differential equations of first order						
6	4.1 Define an exact differential equation of first order and give examples. 4.2 State necessary and sufficient conditions for the differential equation	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
	$M(x, y) dx + M(x, y) dy = 0$ to be exact and illustrate with examples. 4.3 Define an integrating factor.					
7	4.4 Transform a non-exact differential equation to an exact one using an integrating factor. 4.5 Solve an exact differential equation, and plot some of its integral curves.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 5 (MTH 222): Understand the theory of linear differential equations						
8	5.1 Distinguish between a homogeneous and non homogeneous linear differential equations. 5.2 Solve first order linear differential equations using integrating factors and by substitution.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
9	5.3 Use linear ordinary differential equation to solve application problems such as compound Interest problems and problems of growth and decay etc.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
General Objective 6 (MTH 222): Understand the properties of plane and space vectors.						
10	6.1 Define a vector. 6.2 State the difference between a vector and a scalar. 6.3 Represent a vector geometrically.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes
11	6.3 Determine the magnitude of a vector. 6.4 Identify position vectors.	Explain and discuss the concepts covered	Textbooks Lecture Notes	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks Lecture Notes

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 7 (MTH 222): Understand scalar and vector products						
12	7.1 Compute the scalar product of two vectors written in cartesian form.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	7.2 Compute the vector product of two vectors.		Lecture Notes			Lecture Notes
13	7.3 Show the vector product as a determinant.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	7.4 State and prove simple properties of scalar and vectors products.		Lecture Notes			Lecture Notes
	7.5 State and apply the Cauchy-Schwarz inequality.					
General Objectives 8 (MTH 222): Understand applications of the concept of vectors to plane geometry						
14	8.1 Determine the angle between two vectors.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	8.2 Apply the concept of angle between two vectors to Pythagoras's theorem from the cosine rule.		Lecture Notes			Lecture Notes
	8.3 Add vectors geometrically by the triangle or parallelogram law.					
15	8.4 Prove that each side of a triangle can be seen as the sum or difference of other two sides considered as vectors.	Explain and discuss the concepts covered	Textbooks	Demonstrate understanding of the concepts covered by solving examples	Explain and supervise student exercises and assess student work	Textbooks
	8.5 Represent product in the form $V_a \rightarrow U_x$ $n_b \rightarrow U \cos Q$		Lecture Notes			Lecture Notes
	where $V = n = U = b$ and where Q is the angle between the vector $\rightarrow a$ and $\rightarrow b$					
	8.6 Define perpendicularity in terms of zero dot product and justify this definition.					

Assessment: Give details of assignments to be used:

Coursework/ Assignments %; Course test %; Practical %; Projects %; Examination %

Type of Assessment	Purpose and Nature of Assessment (MTH 222)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	60
Test	At least 2 progress tests for feed back.	20
Practical	At least 5 homeworks to be assessed by the teacher	20
Total		100

Recommended Textbooks & References:

Engineering Mathematics, K. A. Stroud

Introduction to Differential Equations, F. Braucek

Course: Management Information Systems (COM 224)

Programme: Statistics (National Diploma)			
Course: Management Information Systems	Course Code: COM 224	Total Hours:	4
Year: 2 Semester: 4	Pre-requisite:	Theoretical	2 hours /week
		Practical:	2 hours /week
Goal: This course is designed to enable introduce students to management information systems			
General Objectives: On completion of this course the diplomate should be able to:			
<ol style="list-style-type: none">1. Know different systems.2. Understand systems theory.3. Understand the concept of management information.4. Know the features of management information systems (MIS)5. Understand the concept of transaction processing.6. Understand the concept of office automation.7. Understand the different applications of MIS.8. Understand the principles of decision making9. Know the development cycle of an MIS10. Understand the principles of project management.11. Understand total systems.			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (COM 224): Know different systems.						
1	<p>1.1 Understand a system and its characteristics.</p> <p>1.2 Understand the taxonomy of systems; deterministic, probabilities, static, dynamic etc.</p> <p>1.3 Understand organization and business education as make up of systems or subsystems</p>	<p>Define a system</p> <p>State the characteristics of a system.</p> <p>Explain the taxonomy of a system: deterministic, probabilistic, static, dynamic etc.</p> <p>Explain organizations, business, education, etc as made up of systems or subsystems</p>	<p>A flip chart.</p> <p>OHP connected to PC.</p> <p>A white board.</p>	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
General Objective 2 (COM 224): Understand systems theory.						
2	<p>2.1 Understand closed and open loop systems.</p> <p>2.2 Understand feedback control in a system</p> <p>2.3 Understand a system model</p> <p>2.4 Understand how to represent a system</p>	<p>Distinguish between closed and open loop systems.</p> <p>Explain feed back control in system.</p> <p>Define a system model</p> <p>List types of models</p> <p>Represent systems as models.</p>	<p>A flip chart.</p> <p>OHP connected to PC.</p> <p>A white board.</p>	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
General Objective 3 (COM 224): Understand the concept of management information.						
3	<p>3.1 Understand management and it's functions</p>	<p>Define management</p> <p>List the functions of management</p>	<p>A flip chart.</p> <p>OHP connected to PC.</p> <p>A white board.</p>	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
4	3.2 Understand information needs of management levels.	Explain the information needs of management levels.	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	3.3 Understand attributes of information	Explain and give attributes of information	OHP connected to PC. A white board.			
General Objective 4 (COM 224): Know the features of management information systems (MIS)						
5	4.1 Understand an information system and it's characteristics.	Define information system.	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	4.2 Understand a management information system.	Explain the characteristics of an information system.	OHP connected to PC.			
	4.3 Appreciate the importance of MIS to business organizations.	Define management information system.	A white board.			
	4.4 Recognise features of information systems	Explain the importance of MIS to business organization. Explain the features of an information system.				
General Objective 5 (COM 224): Understand the concept of transaction processing.						
6	5.1 Understand the concept of data and information	Explain concept of data and information.	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	5.2 Understand data capture	Explain data processing stages.	OHP connected to PC.			
	5.3 Understand verification and validation	Explain the concepts of data capture, verification and validation.	A white board.			
	5.4 Understand data processing stages	Explain concepts of a database management system (DBMS)				
	5.5 Understand the concept of a database management system (DBMS), including insertion , delete and update operations.	Explain insertion, deletion and update operations				

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 6 (COM 224): Understand the concept of office automation.						
7	6.1 Understand office automation and its components, e-mail, voice mail, fax machine, teleconferencing	Define office automation.	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	6.2 Understand telecommuting	Explain components of office Automation i.e. e-mail, voice-mail fax machine, teleconferencing,	OHP connected to PC.			
	6.3 Understand the importance of office automation (OA) to an organization	Explain telecommuting. Explain the importance of office automation (O.A.) to an organization.	A white board.			
General Objective 7 (COM 224): Understand the different applications of MIS.						
8	7.1 Understand various types of information systems and their objectives.	List the various types of information system.	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	7.2 Recognise the elements required for any information system	Explain the objectives of each type of information system	OHP connected to PC.			
	7.3 Understand reports required for any types of information system	Explain the elements required for any information system. Explain the nature of reports required for each type of information system.	A white board.			
9	7.4 Understand sources of data for each type of information system	Identify sources of data for each type of information system.	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	7.5 Understand the information needs, strategic technical and operational advantages of MIS	Identify information needs: strategic, technical, and operational. Identify some advantages of MIS	OHP connected to PC. A white board			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 8 (COM 224): Understand the principles of decision making						
10	8.1 Understand the stages in decision making 8.2 Understand various approaches to decision making 8.3 Undertake application of some decision making techniques	Explain decision making. Teacher to represent this diagrammatically. Teacher to explain the approaches to decision making. Teacher to give students a case study on decision making techniques	A flip chart. OHP connected to PC. A white board.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
General Objective 9 (COM 224): Know the development cycle of an MIS						
11	9.1 Understand the need for information system development	Explain the need for information system development	A flip chart. OHP connected to PC. A white board.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
12	9.2 Understand the phases and importance in the development cycle of MIS	Identify the phases in the development cycle of MIS State the importance of each phase Describe each of the phases of the development cycle of an MIS.	A flip chart. OHP connected to PC. A white board.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
General Objective 10 (COM 224): Understand the principles of project management.						
13	10.1 Understand project management and its objectives. 10.2 Understand some tools used in project management and their application	Define project management Explain the objectives of project management. Identify tools to be used in project management. Apply the tools	A flip chart. OHP connected to PC. A white board.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 11 (COM 224): Understand total systems.						
14	11.1 Understand the objectives of a total system.	State the objectives of a total system	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	11.2 Understand rationalization of information flows, timing and accuracy of destination of output.	Explain rationalizing information flows, timing and accuracy of destination of output.	OHP connected to PC. A white board.			
15	11.3 Understand the effect of time lag on inputs	Explain the effect of time lag on inputs.	A flip chart.	To be able to develop a simple MIS	To assist student in developing a simple MIS	OHP connected to PC in a networked laboratory.
	11.4 Understand the effect of deviating from standards.	Explain the effect of deviating from standards. Develop an MIS.	OHP connected to PC. A white board.			

Assessment: Give details of assignments to be used:

Coursework/ Assignments %; Course test %; Practical %; Projects %; Examination %

Type of Assessment	Purpose and Nature of Assessment (COM 224)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	50
Test	At least 2 progress tests for feed back.	20
Practical	At least 5 homeworks to be assessed by the teacher	30
Total		100

Recommended Textbooks & References:

Course: Small Business Management I (STA 226)

Programme: Statistics (National Diploma)			
Course: Small Business Management I	Course Code: STA 226	Total Hours:	2
Year: 2 Semester: 4	Pre-requisite:	Theoretical:	1 hour /week
		Practical:	1 hour /week
<p>Goal: This course is designed to provide the student with the basic knowledge on the various tools used in the management of small-scale businesses.</p> <p>General Objectives: On completion of this course, the diplomate will be able to:</p> <ol style="list-style-type: none"> 1. Understand the nature of small-scale enterprises. 2. Understand the legal framework for small-scale enterprises. 3. Understand the role of governments in small-scale enterprises in Nigeria 4. Understand a business plan for a small-scale business enterprise. 5. Understand marketing management in a small business enterprise 6. Understand the general concept of production management 7. Know human capital needs for an enterprise 			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (STA 226): Understand the nature of small-scale enterprises.						
1	1.1 Define the range and scope of a small business. 1.2 Explain the importance of a small business. 1.3 Describe the problems associated with small business operations.	Explain range, scope and importance of a small scale business. Explain problems associated with small business operations.	Text Books Journals Publications	Select a small business enterprise and indicate its signs of success and failures. Use case studies based on a local organisation.	Guide students in identifying range, scope and importance of a small scale business.	Internet and relevant websites Guest speaker on small businesses
2	1.4 Describe types of businesses that could be run on a small scale. 1.5 Describe the merits and demerits of being self-employed 1.6 Identify the starting problems and signs of failure of a small business	Explain types of businesses that could be run on small scale, their associated problems and signs of failure during operations. Explain wage employment and self employment. Explain the merits and demerits of self employment.	Text Books Journals Publications	Select a small business enterprise and indicate its signs of success and failures. Use case studies based on a local organisation.	Guide students in identifying types of businesses that could be run on small scale, their associated problems and signs of failure during operations.	Internet and relevant websites Guest speaker on small businesses
General Objective 2 (STA 226): Understand the legal framework for small-scale enterprises.						
3	2.1 Explain the types of business organization. 2.2 Identify the legal form of business.	Explain the types of business organization Explain legal formation and regulatory status of small business. Explain environmental factors of business.	Text Books Journals Publications	Use CAMB to explain the regulatory frame work of small business. Group work to set up a small business - realistic scenarios Use of relevant documentation taken from the internet.	Guide students to identify the legal formation and regulatory status of small business.	Internet and relevant websites

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
4	<p>2.3 Describe the environmental factors of business - law of sales, licenses, failure signs, etc.</p> <p>2.4 Explain regulatory status and formation of small business.</p>	<p>Explain legal formation and regulatory status of small business.</p> <p>Explain environmental factors of business.</p>	<p>Text Books</p> <p>Journals</p> <p>Publications</p>	<p>Use CAMB to explain the regulatory frame work of small business.</p> <p>Group work to set up a small business - realistic scenarios</p> <p>Use of relevant documentation taken from the internet.</p>	<p>Guide students to identify the environmental factors of business.</p>	<p>Internet and relevant websites</p>
General Objective 3 (STA 226): Understand the role of governments in small-scale enterprises in Nigeria						
5	<p>3.1 Explain government policies for small enterprises development.</p> <p>3.2 Explain the effects of government policies on direct and indirect assistance to small businesses</p>	<p>Explain government policies for small enterprises development and effects of the policies on direct and indirect assistance to these enterprises.</p>	<p>Text Books</p> <p>Journals</p> <p>Publications</p>	<p>Identify government policies and their effects on small scale business.</p>	<p>Guide students to evaluate the contributions of the promoting bodies (IDC, NASA, NERFUND, NDE, NAPEP etc to growth of small business in Nigeria.</p>	<p>Internet and relevant websites</p>
6	<p>3.3 State the role of the following institutions in promoting small enterprises</p> <p>(a) Industrial Development Centre (IDC)</p> <p>(b) State Ministries of Commerce and Industries.</p> <p>(c) State Export Promotion Committees.</p> <p>(d) Centre for Management Development (CMD)</p>	<p>Explain the following institutions and their roles in promoting small scale enterprises.</p> <p>- IDC, State Ministries of Commerce, State Export Promotion Committees, CMD, NDE, NAPPEP, CIRD NERFUND NACRDB, NEPC NASSI, NASME, etc</p>	<p>Text Books</p> <p>Journals</p> <p>Publications</p>	<p>Identify and explain beneficiaries of the bodies. Promotion SME in Nigeria.</p>	<p>Guide students to evaluate the contributions of the promoting bodies (IDC, NASA, NERFUND, NDE, NAPEP etc to growth of small business in Nigeria.</p>	<p>Internet and relevant websites</p>

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
	(e) National Directorate of Employment (NDE) (f) NAPPEP (g) CIRD (h) NERFUND (i) NACRDB, NEPC (j) NASSI, NASME, etc					
General Objective 4 (STA 226): Understand a business plan for a small-scale business enterprise.						
7	4.1 Explain business plan. 4.2 Explain the purpose of business plan 4.3 Identify the components of a business plan from project development up to project cost.	Explain business Plan, its purpose and components from project development to project cost.	Text Books Journals Publications	Identify business plan. Identify how to plan in small business. Formulate a business plan for a particular project.	Guide students to:- Work in pairs to develop a relevant business plan. Refer to business planning information on the internet project. Present the plans and justify the goals	Internet and relevant websites
8	4.4 State the necessary steps in carrying out financial analysis and planning for a small business 4.5 Compare personal goal and business goals. 4.6 Identify influences of family goals in business goals	Explain steps in carrying out financial analysis and planning for a small business. Explain personal goals and business goals. Explain influences of family goals in business goals. Invite a successful entrepreneur to give a talk.	Text Books Journals Publications	Identify business plan. Identify how to plan in small business. Formulate a business plan for a particular project.	Guide students to:- Work in pairs to develop a relevant business plan. Refer to business planning information on the internet project. Present the plans and justify the goals	Internet and relevant websites
General Objective 5 (STA 226): Understand marketing management in a small business enterprise						
9	5.1 Understand the basic concept of marketing. 5.2 Identify the steps in	Explain basic concepts of marketing. Explain steps in conducting	Text Books Journals Publications	Identify the process of conducting a marketing survey.	Guide students to use the internet to identify the marketing needs of small business enterprises.	Internet and relevant websites

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
	conducting market surveys to determine demand and supply for particular products. 5.3 Identify markets for specific products.	marketing survey to determine demand and supply for particular products. Explain how to identify markets for specific products.		Identify appropriate training strategies for products produced on a small scale.		
10	5.4 Identify channels of distribution for a selected product or service. 5.5 Explain the promotional and sales activities for a selected product or service 5.6 Explain appropriate pricing strategies	Explain channels of distribution for a selected product or service. Explain promotional and sales activities for a selected product or service Explain appropriate pricing strategies	Text Books Journals Publications	Identify the process of conducting a marketing survey. Identify appropriate training strategies for products produced on a small scale.	Guide students to use the internet to identify the marketing needs of small business enterprises.	Internet and relevant websites
General Objective 6 (STA 226): Understand the general concept of production management						
11	6.1 Explain the basic concepts of production 6.2 Explain choice of appropriate technology 6.3 Identify types and sources of machinery and equipment. 6.4 Explain the installed capacity. 6.5 Explain the utilized capacity.	Explain the basic concepts of production Explain choice of appropriate technology Explain types and sources of machinery and equipment, their installed and utilized capacity.	Text Books Journals Publications Sample business	Identify appropriate technology for different types of SME. Identify sources of machinery and material from the internet. Identify appropriate locations and their problems for SMES	Guide students to prepare a case study on the location of an industry and factory layout Oversee group work and guide reference to relevant web sites	Internet and relevant websites

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
12	6.6 Identify sources of raw materials.	Explain sources of raw materials.	Text Books	Identify appropriate technology for different types of SME.	Guide students to prepare a case study on the location of an industry and factory layout	Internet and relevant websites
	6.7 Describe factory location and factors in the selection of site.	Explain factory location, its layout and safety measures.	Journals Publications			
	6.8 Describe factory layout.	Explain Plant and machinery maintenance.	Sample business	Identify sources of machinery and material from the internet.	Oversee group work and guide reference to relevant web sites	
	6.9 Explain plant and machinery maintenance.	Explain plan and scheduling.		Identify appropriate locations and their problems for SMES		
	6.10 Explain Plan and scheduling.					
13	6.11 Explain quality control issues.	Explain quality control.	Text Books	Identify appropriate technology for different types of SME.	Guide students to prepare a case study on the location of an industry and factory layout	Internet and relevant websites
	6.12 Explain factory safety measures.	Explain problems of production in the Nigerian situation and how to cope with them.	Journals Publications			
	6.13 Identify problems of production in the Nigerian situation.	Organise a field trip to a successful small business establishment.	Sample business	Identify sources of machinery and material from the internet.	Oversee group work and guide reference to relevant web sites	
	6.14 Explain how to cope with production problems in Nigeria.			Identify appropriate locations and their problems for SMES		
General Objective 7 (STA 226): Know human capital needs for an enterprise						
14	7.1 Identify human capital needs for an enterprise.	Explain human capital management and its needs for small business enterprises.	Text Books	Identify the recruitment compensation and training procedures of workers in SMES.	Guide students to prepare organizational charts for SME and how to forecast their employment needs.	Internet and relevant websites
	7.2 Explain recruitment procedures.		Journals Publications			
	7.3 Explain need for training	Explain recruitment procedures	Cardboard	Identify problems of human capital		

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
	of workers. 7.4 Explain how to motivate workers.			management and how to solve them in SMEs		
15	7.5 Explain how to compensate workers. 7.6 Explain organization of work force, organizational chart. 7.7 Explain problems of human capital management in small business enterprises. 7.8 Explain how to cope with the problems of human capital management.	Explain need for training of workers. Explain how to motivate. and compensate workers Explain organization of work force. Guide students to prepare organizational, chart for a small business enterprise. Explain problems of human capital management in small business enterprises and how to cope with them.	Text Books Journals Publications Cardboard	Identify the recruitment compensation and training procedures of workers in SMES. Identify problems of human capital management and how to solve them in SMEs	Guide students to prepare organizational charts for SME and how to forecast their employment needs.	Internet and relevant websites

Assessment: Give details of assignments to be used:
Coursework/ Assignments %; Course test %; Practical %; Project %; Examination %

Type of Assessment	Purpose and Nature of Assessment (STA 226)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	0
Test	At least 1 progress test for feed back.	25
Practical / Project	Project with group (25%) and individual (50%) components to be assessed by the teacher	75
Total		100

Recommended Textbooks & References:

Course: Project (STA 226)

Programme: Statistics (National Diploma)			
Course: Project	Course Code: STA 226	Total Hours:	5
Year: 2 Semester: 4	Pre-requisite:	Theoretical: Practical:	0 hours /week 5 hours /week
Goal: This course is designed to enable the student to undertake an individual project and write a report on it.			
General Objectives: On completion of this course, the diplomate should be able to: <ol style="list-style-type: none">1. Research a chosen topic at ND level from available sources.2. Collect data on the chosen topic.3. Produce a report on the chosen topic.			

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
General Objective 1 (STA 226): Research a chosen topic at ND level from available sources.						
1	1.1 Choose, under guidance, an appropriate topic of interest.	Provide guidance in finding suitable topics.	Textbooks Lecture Notes Internet	Selection of a topic of interest.	Provide guidance in finding suitable topics.	Textbooks Lecture Notes Internet
2	1.2 Research a chosen topic from available sources.	Provide guidance in finding suitable sources.	Textbooks Lecture Notes Internet	Demonstrate research ability	Provide guidance in finding suitable sources.	Textbooks Lecture Notes Internet
3	1.2 (continued) Research a chosen topic from available sources.	Provide guidance in finding suitable sources.	Textbooks Lecture Notes Internet	Demonstrate research ability	Provide guidance in finding suitable sources.	Textbooks Lecture Notes Internet
4	1.2 (continued) Research a chosen topic from available sources.	Provide guidance in finding suitable sources.	Textbooks Lecture Notes Internet	Demonstrate research ability	Provide guidance in finding suitable sources.	Textbooks Lecture Notes Internet
General Objective 2 (STA 226): Collect data on the chosen topic.						
5	2.1 Collect data on the chosen topic from available sources.	Provide guidance in collecting data	Textbooks Lecture Notes Internet	Demonstrate ability to collect data	Provide guidance in collecting data.	Textbooks Lecture Notes Internet
6	2.1 (continued) Collect data on the chosen topic from available sources.	Provide guidance in collecting data	Textbooks Lecture Notes Internet	Demonstrate ability to collect data	Provide guidance in collecting data.	Textbooks Lecture Notes Internet
7	2.1 (continued) Collect data on the chosen topic from available sources.	Provide guidance in collecting data	Textbooks Lecture Notes Internet	Demonstrate ability to collect data	Provide guidance in collecting data.	Textbooks Lecture Notes Internet
8	2.1 (continued) Collect data on the chosen topic from available sources.	Provide guidance in collecting data	Textbooks Lecture Notes Internet	Demonstrate ability to collect data	Provide guidance in collecting data.	Textbooks Lecture Notes Internet

Theoretical Content				Practical Content		
Week	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
9	2.1 (continued) Collect data on the chosen topic from available sources .	Provide guidance in collecting data	Textbooks Lecture Notes Internet	Demonstrate ability to collect data	Provide guidance in collecting data.	Textbooks Lecture Notes Internet
General Objective 3 (STA 226): Produce a report on the chosen topic.						
10	3.1 Produce a report on the chosen topic.	Provide guidance in report writing	Textbooks Lecture Notes Internet	Demonstrate ability in report writing	Provide guidance in report writing	Textbooks Lecture Notes Internet
11	3.1 (continued) Produce a report on the chosen topic.	Provide guidance in report writing	Textbooks Lecture Notes Internet	Demonstrate ability in report writing	Provide guidance in report writing	Textbooks Lecture Notes Internet
12	3.1 (continued) Produce a report on the chosen topic.	Provide guidance in report writing	Textbooks Lecture Notes Internet	Demonstrate ability in report writing	Provide guidance in report writing	Textbooks Lecture Notes Internet
13	3.1 (continued) Produce a report on the chosen topic.	Provide guidance in report writing	Textbooks Lecture Notes Internet	Demonstrate ability in report writing	Provide guidance in report writing	Textbooks Lecture Notes Internet
14	3.1 (continued) Produce a report on the chosen topic.	Provide guidance in report writing	Textbooks Lecture Notes Internet	Demonstrate ability in report writing	Provide guidance in report writing	Textbooks Lecture Notes Internet
15	3.1 (continued) Produce a report on the chosen topic.	Provide guidance in report writing	Textbooks Lecture Notes Internet	Demonstrate ability in report writing	Provide guidance in report writing	Textbooks Lecture Notes Internet

Assessment: Give details of assignments to be used:

Coursework/ Assignments %; Course test %; Practical %; Projects %; Examination %

Type of Assessment	Purpose and Nature of Assessment (STA 226)	Weighting (%)
Examination	Final Examination (written) to assess knowledge and understanding	0
Test	0 progress tests	0
Practical	Report of 20 - 30 pages length	100
Total		100

Recommended Textbooks & References: