The Associate Degree in the Caribbean with Particular Reference to the OECS

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Contents

Statistics

Spanish

French

Caribbean Studies

Appendix 2

THE ASSOCIATE DEGREE IN THE CARIBBEAN WITH PARTICULAR REFERENCE TO THE OECS

SECTION 1

THE ASSOCIATE DEGREE: DEFINITION AND ROLE

INTRODUCTION

The Associate Degree has been adopted in the Caribbean from the United States since the 1960s. Nationally and regionally, efforts are being made to integrate this qualification into the emerging qualifications framework for the region at the tertiary level. While the qualification itself has been undergoing certain kinds of adaptation to meet local needs, there have been parallel moves by the various tertiary institutions in the region to negotiate programme articulation arrangements with the University of the West Indies (UWI) so as to ensure wider recognition and portability of the qualification.

This document takes a brief historical look at the emergence of the Associate Degree in the United States and gives an overview of the different types of Associate Degrees that have evolved in the Caribbean. It also reviews the development of a framework for the Associate Degree for the OECS: Antigua & Barbuda, the British Virgin Islands, Dominica, Grenada, Montserrat, St. Kitts-Nevis, St. Lucia and St. Vincent and Grenadines. Additionally, some important initiatives which should contribute to the long-term viability of the Associate Degree in the sub-region are identified and examined.

BACKGROUND AND CONTEXT

The concept of the Associate Degree originated in the United States of America in the early nineteen hundreds. Over the century, it has found a niche in that society where there have been factors conducive to its development and expansion. These include the following:

1. Aspects of Community Colleges, the deliverers of Associate degrees and aspects of the universities, the target recipient of Associate degree graduates, are legally or voluntarily linked to allow student transfer. (Kintzer and Wattenberger, 1985; Salls, 1989).

2. The Associate degree has thrived in an environment where co-ordinated State systems exist and where tertiary education standards are mutually understood and externally, though only voluntarily, verified through accreditation.(Young, Chambers and Kells, 1983).

3. Universal access to tertiary education is a shared goal and is jointly achieved through diversity of educational offerings which cater to a diverse clientele operating at different educational levels in different modes and at convenient geographical locations, usually supported by community effort (Birnbaum, 1993; Kerr, 1994).

4. There are genuine attempts at according parity of esteem to academic as well as technical and vocational offerings.

5. Cultural pluralism thrives in that post-modern, academic culture and the developmentalists and negotiators have sufficient power to compete successfully with the prevailing influence of the collegial and management cultures (Berquist, 2000) and give needed impetus to more mass oriented qualifications like the Associate degree.

In other words, the survival and expansion of the associate degree in the USA can be attributed to, among other things, a shared educational philosophy of open access; a supportive organizational framework allowing for networking among institutions; an independent system of accreditation and articulation to assure standards and facilitate student mobility; and sufficient political will to accommodate diversity in formal tertiary education qualifications.

The context in the Anglophone Caribbean is different. The tertiary education system is still emerging and the concept of tertiary education is a contested one both in terms of its nature and its scope. With average tertiary education enrolment under 10% of the relevant age cohort 18-24, mass access to tertiary education is still only an ideal. At the same time, external validation of the Associate Degree at national or regional levels is at best sporadic. There is also some ambivalence on the part of most governments in the region in accepting Associate Degrees as a basis for the award of national scholarships. (The Associate Degree is accepted for the award of national scholarships in Barbados). Boards of Management in some colleges require the coupling of Associate Degrees with traditional externally examined programs like the Cambridge A level, presumably as a calibrating device. While student and employer demand for the Associate Degree continues to increase, there are factors in the Caribbean tertiary education environment which can retard its development and expansion. Countries such as those in the OECS are therefore being challenged to ensure that this type of certification can be accommodated within the tertiary education system.

In order to look at adaptation and accommodation, one needs first to look at the prototype. In this case, the prototype is being accepted as a program of studies which is usually comparable in content and level to the first two years of a USA Liberal Arts Baccalaureate degree. These were the first Associate degrees and can be viewed as transfer or academic associate degrees. Applied associate degrees have also become an established qualification but their structure reflects a greater emphasis on occupational preparation.

The American Association of Community Colleges (AACU, 1984) states that all associate

degree programs should reflect those characteristics that help define what constitutes an educated person. Such characteristics include a level of general education that enables the individual to understand and appreciate his/her culture and environment; the development of a system of personal values based on accepted ethics that lead to civic and social responsibility, and the attainment of skills in analysis, communication, qualification and synthesis necessary for further growth as a lifelong learner and a productive member of society. (AACC Policy Statement, 1984, p 1).

The Associate degree in name and concept is borrowed from the United States. It was developed there in the early nineteen hundreds in Junior Colleges which were assisting universities to cater to a wider clientele by offering the first two years of the university's programme (Ratcliff, 1994). This Associate degree was academic in focus and broad in scope with a Liberal Arts orientation mirroring that of the four-year colleges and universities. It sought then to foster academic functions. With the emergence and proliferation of the Community Colleges later in the 20th century and particularly in the 1960s, the Associate degree extended its original academic and transfer emphasis to occupational, general, remedial and even recreational goals. This inherent flexibility allowed for unprecedented responses to the diverse needs of Community College students.

The American Junior College's emphasis on the transfer function was a logical outcome of the historical period with the emergence of these colleges from the upper divisions of the high schools and the lower divisions of re-structured four year colleges, although some developed independently. Not surprisingly, between 1907 and 1940, transfer enrolment represented between 60% and 70% of total enrolment in these Colleges (Eaton, 1994).

Between 1950 and 1980, the Community College sector in the US expanded to meet the demands for not only academic but also technical/vocational, continuing, general and remedial education needs. New types of Associate degrees were developed while the emphasis on the transfer function waned. Eaton (1994) noted the changes as follows:

> **Relationships with business and industry became more important. More attention was paid to preparation for immediate employment than the development of generic intellectual skills needed for further collegiate work and earning the baccalaureate. (Eaton, 1994, p 29).**

In their native setting, Associate Degrees may have either an academic/university transfer focus or an occupational focus, although the latter may also be used for university transfer. The academic/university transfer programme embodies the principles of a broad, liberal education and as such mirrors the structure and content of the lower division of a four-year liberal arts bachelor s degree in the United States. It emphasizes a broad general education component,

allows the learner to build the foundation for a major in baccalaureate studies and enables the pursuit of elective subjects in an area of interest outside the area of specialization.

The Broward Community College Handbook (1997-1998) articulates the philosophy and purpose of their Associate degree and highlights the fundamental function and academic differences in their Associate of Arts (AA) and Associate of Science (AS) degrees.

The centre piece of the Associate in Arts and the US Baccalaureate degree is the General Education Component. The Handbook states that general education is the foundation for the specific academic and technical programmes at the community college and for further education towards a baccalaureate degree. Its intent is to provide social, technical and academic competencies for participation in a democratic society and a global environment; to provide an understanding of a variety of cultural and historical heritages, understanding of the role of the individual in a complex and rapidly changing world, and an understanding of the physical universe. It also prepares the student with the necessary communication and analytical skills.

The Associate Degree Structure: Caribbean Context

The term Caribbean is being used here to include the CARICOM countries associated with the University of the West Indies Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, British Virgin Islands, Dominica, Cayman Islands, Grenada, Jamaica, Montserrat, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago, and Turks and Caicos Islands. The Associate degree is offered in eleven of these sixteen countries - Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Jamaica, St Lucia, Trinidad and Tobago, and Turks and Caicos Islands.

It is useful at this point to consider forms of the associate degree in the Caribbean and the Association of Caribbean Tertiary Institutions (ACTI) definition is a good starting point. In the Caribbean, an Associate degree is a post-secondary, sub-Bachelors degree, academic or technical/vocational qualification like a certificate or diploma. It is usually awarded by colleges or universities after a student successfully completes a prescribed program of two to three years of full-time or equivalent part-time study. The program includes one or more major areas of study, a core of required general education courses and a set of elective courses. (ACTI, 2000).

The major area may be a professional/vocational area, e.g. Pharmacy or Agriculture or academic disciplines like Chemistry or History. The general education core may include English Language, Mathematics, History, Foreign Language and Computer Studies, for example. The elective courses are intended to cater to the interests of the individual student and by virtue of their selection from an area outside of the major discipline, give breadth to his/her studies.

The Associate degree programme usually includes at least sixty credits (about twenty courses) and is usually examined by the institutions themselves through continuous assessment and/or examination at the end of each course. There are scores of Associate degree programmes but

they can be conveniently grouped into four main categories: Associate degree in Arts, Associate degree in Science, Associate degree in Applied Arts and Associate degree in Applied Science (ACTI-2000). The former two usually have an academic focus and the latter two a vocational orientation. The majors normally define the Arts or Science category. All have the potential for university transfer but the applied programmes often have fewer counterpart programmes at the University of the West Indies, for example. One case of smooth transfer or two plus two arrangements is in the area of Hotel and Tourism Management.

Some Caribbean tertiary institutions have explained that they chose to develop or expand associate degree offerings in order to:

- provide an alternative qualification to Advanced Levels for university transfer
- facilitate access to higher education through the re-organisation of programmes into courses and assignment of credits to each course to make the course transfer process transparent and systematic
- provide opportunities for learning and inter-disciplinary teaching and so minimize the potential of course duplication, improve efficiency, and reduce programme delivery cost.

The structure of the Associate degree in the Caribbean conforms to some of the principles undergirding the USA Associate degree in its emphasis on general education and provision for electives, but deviates in its focus in the Caribbean on one or more majors.

SECTION 2

THE DEVELOPMENT OF AN OECS ASSOCIATE DEGREE MODEL

INTRODUCTION

As indicated earlier, the OECS colleges currently deliver a number of programme offerings - UWI programmes, Associate degrees, diplomas and certificates. Arising from discussions held with government officials in 1995, it was recommended to the OECS Secretariat that:

> **"... the resolution of the issue of Associate Degree offered by tertiary institutions is critical to resolving and rationalizing several important initiatives being actively considered and pursued on the Commonwealth Caribbean's education agenda.**

Subsequently, the TLI Unit of the UWI was contracted by the OECS to organize consultations and dialogue between UWI, Caribbean Examinations Council (CXC), the OECS governments and colleges with a view to linking the colleges with UWI through the Associate degrees.

The TLI Unit also developed a set of procedures for the assessment and articulation of Associate degree programmes with UWI Bachelor's degree programmes. These procedures were approved by the relevant UWI Boards. The procedures were used to assess Associate degree programmes in Agriculture from eight institutions including the Sir Arthur Lewis Community College (SALCC), St. Lucia, which earned advanced placement status. The procedures were also used to assess actual and proposed Associate degree programmes in Arts and Sciences from SALCC. The content of these Associate degrees major courses were aligned with UWI's Level 1 programmes which are currently delivered by SALCC. Many of the existing and proposed courses were adjudged by the assessment team to qualify students for advanced placement.

With these procedures and expectations in mind, the TLI Unit organized a workshop for OECS College principals, Deans and Heads of Departments to examine qualification options, review Associate degree offerings and agree on models which could be adopted by the sub-region. The Workshop was held on June 8 and 9, 1999 in Grenada, and was designed to:

1. examine post-secondary educational options in the OECS

2. explore Associate degree options for the OECS

3. discuss articulation of Associate degrees with UWI Bachelor s degree programmes.

4. decide on models for generic Associate degrees in Arts, Sciences and Social Sciences.

FRAMEWORK FOR THE ASSOCIATE DEGREE MODELS

Purpose

The Associate in Arts (AA), Applied Arts (AAA), Science (AS) and Applied Science (AAS) degrees should be designed to:

(a) provide certification/recognition to persons who complete education at tertiary level and who do not intend to proceed to a university to pursue a full degree programme.

(b) provide scope for transfer to or articulation with UWI primarily and with other extra-regional higher educational institutions.

(c) provide, in the case of the Applied Arts and Science, graduates who are ready to perform effectively in the work environment.

Nomenclature

The Associate degree should be classified into Pure and Applied Associate Degrees and also in terms of the nature of the major into Arts and Sciences.

The Associate of Arts (AA) degree will include those degrees in which the major falls within the Humanities and which is geared primarily for University transfer.

The Associate in Science (AS) degree will include those degrees in which the major falls within the Natural, Physical or Social Sciences and which is geared primarily for University transfer.

The Associate degree in Applied Arts (AAA) and Sciences (AAS) will include studies in Humanities and Sciences respectively but will have an occupational orientation.

Entry Requirements

The entry requirements for the Associate Degree programmes are those recommended by ACTI including the Caribbean Secondary Examination Certificate (CSEC) General Proficiency Level, Grade III.

Access courses should be developed where necessary, and special attention should be paid to

Mathematics and Statistics. These two courses should be taught in small components spread over the time-span of the Associate in Science degree.

Models of Associate Degrees

1. Associate Degree in Arts (AA)

To qualify for the AA a student should earn a minimum of 72 credits. The prescribed spread is as follows:

General Education courses:
6-8 three-credit courses - 18-24 credits

Major(s):
10-12 three-credit courses - 30-36 credits

Electives:
3-4 three-credit courses - 9-12 credits

2. Associate Degree in Applied Arts (AAA)

To qualify for the AAA a student should earn a minimum of 60 credits. The prescribed spread is as follows:

General Education courses:
7-8 three-credit courses - 21-24 credits

Major(s):
10-12 three-credit courses - 30-36 credits

Electives:
3-4 three-credit courses - 9-12 credits

Comments/ Explanations /Additional Information

In the event a student chooses to pursue one major, then that student should be required to take more General Education courses. It is important to note that generally students pursuing the Associate Degree in Arts should be discouraged from pursuing only one major. (Related to this is the view that institutional policy is important as it would serve to determine/guide what students do).

The major courses should be determined by course offerings of the receiving institutions, e.g. UWI.

The General Education courses should include the following:

- ? Information Technology
- ? Two Communication Studies courses
- ? One (1) Foreign Language: Functional French *or* Functional Spanish
- ? Statistical Analysis
- ? Caribbean Studies
- ? A Basic Science Course

The choice of electives would depend on individual student's interest and the availability of expertise at the educational institution to deliver the courses.

On the question of weighting as it relates to AAA, the majors should require more credits than in the case of the Associate degree in Arts to allow for the practical component of the programme.

3. Associate Degree in Science (Natural Sciences)

To qualify for the Associate Degree in Science (AS) a student should earn a minimum of 60 credits but specific programmes may require more than 60 credits to transfer to his/her institution of choice.

The allocation of credits should be as follows:

General Education courses:
6-12 three-credit courses - 18-36 credits

Major(s):
10-16 three-credit courses - 30-48 credits

For UWI: 24 preliminary credits, plus 24 Level I credits

4. Associate Degree in Applied Science

To qualify for the Associate Degree in Applied Science (AAS) a student should earn a minimum of 72 credits.

The allocation of credits should be as follows:

General Education courses:
10-12 three-credit courses - 30-36 credits

Major(s):

12 three-credit courses - 36 credits

Electives:

3 three-credit courses - 6 credits

Comments/ Explanations /Additional Information

The general education component should include courses from the following areas:

- Communication
- Biological and Physical Science
- Social Sciences
- Humanities and Arts
- Mathematics
- Information Technology.

One or more majors should be selected from the above areas and should range from 32-48 credits.

The Associate degree as developed should enable students to transfer smoothly into North American and regional universities with advanced placement.

Target Institution	**Course Requirements**
North America	General Education: minimum of 30 credits Major: 30 credits
UWI	General Education: minimum of 18 credits Major: preliminary courses 24 credits Level I courses: 24

With respect to the AAS, the term terminal degree should be avoided but the type of programme designed should reflect that students are more likely to enter the world of work on graduating.

Institutions to which graduates may transfer include UWI and other regional institutions (e.g. University of Guyana - UG, Suriname, Cuba, UTech, University of Virgin Islands - UVI, St. George's University, Grenada, and other regional and international universities).

5. Associate in Science Degree (Social Sciences)

To qualify for the Associate in Science Degree (Social Sciences) a student should earn a

minimum of 70 credits.

The allocation of credits should be as follows:

General Education courses:

24 credits

Subject Specialisation (Two):

Major: 30 credits.
Minor: 10 credits.

Electives 6 credits:

Legal Systems
Statistics

Comments/Explanations/Additional Information

The philosophy of the Associate degree programme which is recommended is primarily General Education degree oriented.

The general education component should include courses from the following areas:

- English 1 (one)
- Elements of Literature
- Computer Science
- Caribbean History
- Maths 1 (one)
- One area of Natural Science
- Business Education, and
- A Foreign Language.

The subject specialisation should include a major and a minor and the courses to be undertaken would be negotiated by the receiving institution.

The Social Science courses should include:

- Economics
- Sociology
- Psychology
- Philosophy
- Accounts
- Social Policy
- Social Issues
- A Field-based project

? Management
? Political Science
? Social Work.

TABLE 1: SUMMARY OF AGREED MODELS FOR OECS ASSOCIATE DEGREES

	AA	**AAA**	**AS**	**AAS**	**AS (Social Sciences)**	**AAS/AAA (Technology)**
General Education	18-24 credits	21-24	30	36	24	15
Majors	30-36 credits	30 or more	32-48	36	20)	36
Minors					10)	
Electives	9-12 credits	9-12			6	9
General Education	3 Information Technology 3 Communication Studies 3 Modern Language 3 Statistics 3 Caribbean Studies 3 Natural Sciences					

Major/ Minor Examples	English Literature Geography History	Fine Arts Graphic Design Fashion Design Music Theatre Arts	Biology Chemistry Mathematics Physics Agriculture	Paramedics Laboratory Technicians Electronics Service and Repair Refrigeration Service and Repair Plumbing Electrical Installation Construction	Economics Sociology Psychology Philosophy Accounts Social Policy Social Issues Management Political Science Social Work	Civil Engineering Mechanical Engineering Electrical Engineering Electronics Land Surveying
Target Institutions	UWI UTECH UVI Suriname Guyana Cuba St. George's & Others					

Key:

UWI - University of the West Indies
UG - University of Guyana
AA - Associate Degree in Arts
AS - Associate Degree in Science

UTECH - University of Technology
UVI - University of the Virgin Islands
AAA - Associate Degree in Applied Arts
AAS - Associate Degree in Applied Science

SECTION 3

THE SIR ARTHUR LEWIS COMMUNITY COLLEGE (SALCC) MODEL: A CASE FOR ADVANCED PLACEMENT

BACKGROUND

Historically, Sir Arthur Lewis Community College (SALCC) delivered Associate Degree Programmes designed around the Cambridge Advanced Level syllabuses. Later, the College incorporated elements of the UWI Level I programmes with the Cambridge Advanced Level focus in the Associate Degree programmes. In the 1990s, SALCC took a decision to revise their Associate Degrees so that in most instances the second year courses are similar in scope, depth, level and rigour to UWI Year I courses, thus allowing for seamless transfer to the UWI and where warranted, advanced placement.

To achieve the articulation and advanced placement, the Associate in Arts, Social Sciences and Natural Sciences Programmes of SALCC were assessed using the assessment procedures prepared by TLI Unit and approved by the Board for Non-Campus Countries and Distance Education (BNCC&DE).

ASSESSMENT

First, the College provided the TLI Unit with course outlines, examinations, sample examination scripts of the Arts, Social Sciences and Natural Sciences Associate Degree programmes and a list of lecturers and curriculum vitae. Next, the TLI Unit convened a UWI 14-member cross-faculty team from the three campuses to do a paper-assessment of the Associate Degree courses. Upon completion of the paper assessment, the UWI team visited SALCC to observe the facilities and had discussions with faculty members to answer queries; share concerns; obtain missing information which the written narrative did not easily convey; elaborate on strengths and weaknesses and level of the courses in relation to UWI programmes. At the end of the visit, the UWI team made recommendations to the Board for Undergraduate Studies (BUS) through the BNCC&DE about the acceptance by UWI of the Associate Degrees for matriculation and Advanced Placement.

Observations

The following were the general observations:

The proposed Associate Degree programme in Natural Sciences was seen to be a plan which, if implemented as outlined, would warrant advanced placement for graduates in the areas of Chemistry, Physics, Mathematics and Computing but not Geography or Biology.

In the Division of Arts and General Studies, the Social Sciences Associate Degree programme was the only one that was currently being implemented. It was different from the full submission since it did not include the courses which were deemed to be equivalent to UWI Level I courses. It was recommended therefore that graduates of the existing programme could be awarded normal matriculation status. When implemented as submitted, graduates from the Social Sciences Associate Degree could receive advanced placement.

The submitted programme for Associate Degree in Arts was being implemented but the courses in English, French and Spanish had been changed since 1997. It was agreed that the amended outlines would be submitted for subsequent assessment.

Recommendations

Natural Sciences Associate Degree: The granting of normal matriculation to students who complete the Associate Degree majors in one or more of the following: (1) Biology, (2) Chemistry, (3) Physics (4) Mathematics (5) Computer Science, and (6) Geography.

Social Sciences Associate Degree: Normal matriculation plus the award of advanced placement to graduates of this programme, provided that the proposed programme shall be implemented as was submitted by the College for assessment.

The award of advanced placement to graduates of the Associate Degree programmes with double majors in the following subjects areas: (1) Chemistry, (2) Computer Science, (3) Mathematics, and (4) Physics, provided that the proposed programme shall be implemented as was submitted by the College for assessment.

General:

1. To be awarded normal matriculation, students must earn a minimum cumulative GPA of 2.5.

2. To be awarded advanced placement, students must earn a minimum cumulative GPA of 2.75.

3. In the first two years of implementation, the relevant programmes should be monitored through the use of UWI faculty as external examiners in the different subject areas. Subsequently, at a period to be determined, the programmes should be reviewed by the Quality Assurance Unit of the UWI.

Table 2:

THE SIR ARTHUR LEWIS COMMUNITY COLLEGE (SALCC) ASSOCIATE DEGREES ARTICULATION WITH UWI COURSE CREDITS AND EXEMPTIONS				
MAJORS	**SALCC COURSE NO. & TITLE**		**UWI EQUIVALENT**	
NATURAL SCIENCES				
CHEMISTRY	CHE 222 ? CHE 221 ? CHE 223 ? CHE 224 ?	- Introduction to Organic Chemistry - Introduction to Physical Chemistry - Introduction to Inorganic Chemistry - Chemistry of Biological Systems	C 06A ? and ? C 06B ?	- Elementary General & Physical Chemistry - Elementary Inorganic & Organic Chemistry
	CHE 233 CHE 234	- Introduction to Chemistry I - Introduction to Chemistry II	C 15A ? and ? C 15B ?	- Introductory General & Physical Chemistry - Introductory Inorganic & Organic Chemistry

COMPUTER SCIENCE	C 233 ? C 221 ? C 222 C 223 ? C 234 ?	- Introduction to Computer Science I - Computing I - Computing II - Computing III - Introduction to Computer Science	CS 11A ? and ? CS 11B ?	- Computer Science I - Computer Science II
MATHEMATICS	M 233 ? M 234 ?	- Introductory Mathematics - Functions of Real Variables	M 10A ? M 10B ?	- Basic Introductory Mathematics - Functions of Real Variables
	M 223 M 222 M 221	- Mechanics - Pure Mathematics II - Pure Mathematics I	M 08B ? M 08C ?	- Pre-Calculus - Calculus and Analytical Geometry
PHYSICS	PHY 222 ? PET 223 ? PHY 223 PHY 233 ? PHM 211 ? PHY 221 ?	- Oscillations, Waves and Electricity - Electronics and Telecommunications - Matter - Introductory Physics I - Materials and Fluid Physics - General Physics and Newtonian Mechanics	P 07A ? P 07B P 10C ? P 10D P 10E ? P 10F ?	- Preliminary Physics I - Preliminary Physics II - Mechanics - Electricity and Magnetism - Circuit Analysis - Digital Electronics

NOTE 1: In most cases it is a combination of SALCC courses that is equivalent to one or more UWI courses.

NOTE 2: Exemptions cited for Natural Sciences relate to the Cave Hill Campus but would apply to the equivalent courses at Mona and St. Augustine.

Table 2: Cont'd

THE SIR ARTHUR LEWIS COMMUNITY COLLEGE (SALCC) ASSOCIATE DEGREES ARTICULATION WITH UWI COURSE CREDITS AND EXEMPTIONS *(contd.)*				
MAJORS	**SALCC COURSE NO. & TITLE**		**UWI EQUIVALENT**	
SOCIAL SCIENCES				
POLITICS	GT 222	- Introduction to Politics	GT 11C	- Introduction to Politics I
SOCIOLOGY	SY 211 ? SY 221A SY 221B ? SY 232 SY 222A ? SY 222B SY 233 ? SY 223A SY 223B ? SY 234 ? SY 224 ?	- Introduction to Sociology - Fundamentals of Social Research I: Quantitative Research Methods - Sociological Perspectives - Caribbean Societies I - Inequality in the Caribbean - Fundamentals of Social Research - Quantitative Research Methods - Social Stratification and differentiation - Caribbean Societies II - social Institutions and Processes - Social Institutions - Contemporary Social Issues - Development Strategies in the Caribbean - Social Change and Development	SY 10A ? SY 13E and ? SY 13F ?	- Introduction to Sociology I - Introduction to Sociology II

ACCOUNTING	MS 221A? MS 221B MS 222A ? MS 222B MS 223 ? MS 234 ?	- Introduction to Financial Accounting - Introduction to Management Accounting - Intermediate Financial Accounting - Management Accounting - Advanced Financial Accounting - Advanced Management Accounting	MS 15E ? and ? MS 15F ?	- Introduction to Financial Accounting - Introduction to Cost and Management Accounting
ECONOMICS	EC 224B ? EC 224A EC 223A EC 222A ? EC 221B EC 221A ? EC 222B ? EC 223B ?	- Introduction to Caribbean Economics - Introduction to Macroeconomics II - Introduction to Macroeconomics I - Introduction to Microeconomics II - Introduction to Microeconomics I - Elements of Economics - Pure Mathematics for Social Science - Practical Statistics for the Social Sciences	EC 100 or EC 10F ? EC 14E EC 16A	- Introduction to Economics I - Introduction to Economics II - Introduction to Mathematics - Introduction to Statistics
NOTE 1:	**In most cases it is a combination of SALCC courses that is equivalent to one or more UWI courses.**			
NOTE 2:	**Exemptions cited for Social Sciences relate to the St. Augustine Campus but would apply to the equivalent courses at the Cave Hill and Mona Campuses.**			

SECTION 4

DEVELOPMENT AND ASSESSMENT OF GENERAL EDUCATION COURSES

BACKGROUND & RATIONALE

As noted earlier, most of the Tertiary Institutions in the Caribbean region develop, offer and certify their own Certificate, Diploma and Associate Degree programmes, many of which include general education courses.

Diversity exists in the design and composition of the courses and programmes and in order to facilitate portability of qualifications and regional mobility of human resources, the Association of Caribbean Tertiary Institutions (ACTI) has sought to develop regional guidelines for such programmes.

Over the years, The University of the West Indies (UWI) has been focussing on improving access to tertiary education through articulation of its programmes with those of the other tertiary Institutions. However, the efficiency of this process has been somewhat affected by the diversity of the offerings and involvement of the UWI in the development process.

With funding from the European Union, the OECS Tertiary Education Project requested the TLI Unit to assist the OECS colleges in (i) determination of a framework for Associate Degrees; (ii) identification of general education courses, and (iii) preparation of draft model course outlines and evaluation plans.

Other countries in the region indicated an interest in participating in the validation and acceptance of these course outlines for regional use and their assessment by UWI for course exemptions.

The purpose of the undertaking was to foster collaboration in programme development among tertiary institutions in the region and to facilitate articulation between the University of the West Indies (UWI) and other tertiary institutions.

Specifically, it was to:

(1) collaboratively validate for the region, model course outlines for six (6) General Education courses in Communications, Caribbean Studies, Information Technology, Introductory French, Introductory Spanish and Mathematics and Statistics;
(2) conduct UWI assessment of the courses to determine their equivalence with identified Foundation/Introductory or Beginners courses.

Teaching staff and administrators from TLIs, lecturers of the UWI's three campuses and representatives of ACTI and CXC were convened to examine, evaluate and determine if the proposed General Education courses were appropriate in content and level as well as equivalent to course currently offered by the UWI.

To conduct the exercise, the experts and specialists used the guidelines and procedures developed by the Tertiary Level Institutions Unit (TLIU) for the development and assessment of Associate Degree programmes by Caribbean Tertiary Institutions and the UWI.

THE GENERAL EDUCATION COURSE OUTLINES

The following eight General Education course outlines were developed for regional TLIs:

? ENGLISH AND COMMUNICATION I (COM 101)

? ENGLISH AND COMMUNICATION II (COM 101)

? INFORMATION TECHNOLOGY (IT 101)

? CARIBBEAN STUDIES (CS 101)*

? MATHEMATICS (MTH 001)*

? INTRODUCTORY STATISTICS (MTH 002)

? FRENCH (FRE 001), and

? INTRODUCTORY SPANISH (SPA 001).

The course outlines (Appendix 1) include assessment plans and suggested reading materials and in each case, model examinations and model answers are appended. The package of course materials reflect the collaborative effort and collective wisdom of disciplinary experts who are experienced practitioners in colleges and universities in the CARICOM region. The outlines embody therefore current and acceptable standards for college level general education courses and indicate best practice, the priority skills and a relevant range of content for such courses.

These course outlines are coded to indicate the depth of treatment of the subject matter and the level of operations which is expected of the learners.

* *undergoing further revision*

The first four courses were intentionally pitched at an introductory and not remedial level. The latter four were designed as access courses since Mathematics, Modern Languages and Sciences are not compulsory for entry to many colleges and as such, it had to be assumed that many students would be beginners in the true sense and that time would not allow for the achievement of a large number of higher order objectives within that single course. These four courses are expected to supplement the secondary education base and are pitched at the Caribbean Secondary Education Certificate (CSEC) Level.

Whereas the idea of these courses originated with the OECS colleges, the development and endorsement of the courses include the efforts of representatives from universities and colleges from the entire CARICOM region. The course outlines are therefore collectively owned by the tertiary education institutions in the region and may be freely adopted or adapted for use in their individual programmes. Recognition must be given, however, to the course writers who played the lead role in this exercise (see Appendix 2).

The eight courses provide a range of introductory courses for college use. It is worth noting that the University of the West Indies was involved in the development, review and assessment of these courses and is in the final stages of recognition of five of these courses as having equivalence to its own courses as follows:

GENERAL EDUCATION COURSES	**UWI COURSE EQUIVALENCE**
! English and Communication I and II (COM 101)	! FD10A: English for Academic Purposes; and ! FD 10B: Language: Argument
! Information Technology (IT 101)	! MS 18A: Introduction to Computers; ! CS 10K: Introduction to Computer Applications; and ! MS 11A: Fundamentals of Computers
! Mathematics (MTH 001)	! EC 08A: Remedial Mathematics

It is the expectation therefore that once formal approval is finalized, any student who creditably completes any of these courses in a TLI as a part of a UWI approved certificate, diploma or degree programme will be able to earn exemptions with credit from the equivalent course at UWI. The remaining 3 courses (Introductory Statistics, French and Spanish) will not earn exemptions from UWI courses but are important in that they can be used as access courses to meet entry requirements to other college courses or programmes by students who did not earn the relevant CSEC or equivalent qualification.

Although the production of a set of model general education courses for regional TLIs is itself a laudable achievement, perhaps the more important feature of this exercise is the emergence of a process which has been identified and tested and which has proven to be an effective model for the harmonisation of courses, using agreed standards. The next logical step should be application of this process to the development of the other courses in the major areas and in the elective components of other TLI qualifications.

REFERENCES

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Appendices

GENERAL EDUCATION COURSE

MODEL SYLLABUS

Name of Course: **COM100 - English and Communications I**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **CXC English A, General Proficiency, Grades I, II or III**

Course Description

This course aims to enhance students' information gathering and processing skills. It focuses on both the reading and listening skills required for basic research, effective comprehension and assimilation and summary of information. The course is designed to alert students to the processes involved in reading and listening and the strategies that could aid those processes. Students are expected to utilise the available technology as well as all library resources.

Rationale

The post-CXC student is expected to interact with more sophisticated levels of language in the pursuit of academic knowledge at a tertiary institution. The student must meet the challenge of converting information in the form of lectures and reading materials, into clear and accurate notes and points. Preparation for the roles and responsibilities of a citizen also requires the student to employ sound reasoning and judgemental skills in weighing oral or written rhetoric. Consequently, he/she must draw increasingly on higher-level comprehension skills that will facilitate effective critical interaction with oral and written language. In order to use language proficiently, students must first be cognizant of the nature of language itself and recognise its various functions. Analytical awareness of language eventually translates (through the type of practice provided in Communications II), into proficient language production.

Course Objectives

This course is designed to enable students to:

1. Demonstrate an understanding of the nature and function of language.

2. Recognise and appreciate the variety of ways in which writers and speakers use language.

3. Utilise basic study and research skills and strategies.

4. Respond critically and creatively to samples of spoken and written material.

5. Select, retrieve, evaluate and combine information from a variety of textual and oral sources.

Content Outline

1. **The Communication Process** (6 hours)

   (a) elements of the process(sender message receiver)

   (b) describing the process
      i. conceptualisation, encoding, selecting channels, decoding, interpretation, feedback.

   (c) considering audience
      i. barriers to effective communication

   (d) forms of communication
      i. verbal
      ii. non- verbal
         - body language and dress
         - graphics

2. **Understanding language** (9 hours)

   (a) what is language?
      - systematic, symbolic, dynamic nature of language

   (b) purposes/uses of language
      - language as primary tool of communication
      - social, political, ethical and psychological roles of language
      - language variation
      - use of style and register

   (c) Caribbean languages

3. **Listening and Reading Skills** (22 hours)

   (a) setting purposes for listening and reading

(b) skimming and scanning
(c) identifying main idea
(d) understanding idea linkages
(d) outlining, note-taking, condensing, semantic mapping
(e) language usage
- figurative language
- rhetorical devices

(f) identifying details - major and minor
- word choice, idioms and cliches
- tone and allusion
- determining author/speaker intent
- denotation and connotation

4. **Study skills** (8 hours)

(a) Summary Writing
i. Outlining
ii. Note-taking from spoken and written sources

(b) Basic Research Skills
i. Locating information
ii. Citing sources
iii. Documentation Styles

Suggested Teaching/Learning Methods

Lecture; discussion; audio and videotape evaluation; field trips (library, House of Parliament, law courts etc.); student presentations; use of ALL language genres as stimulus material.

Assessment and Evaluation Procedures

(a) Course work 40 %:

i. Listening and writing exercise e.g. the critique of a film /drama piece depicting some aspect of communication. (20%)
ii. Portfolio e.g. assignments related to specific content topics. (20%)

(b) Examination 60%

i. Reading comprehension with summary

Required Texts

Rehner, Jan (1994). Practical Strategies for Critical Thinking. Houghton Mifflin.

Simmons-MacDonald, H., Fields, L. & Roberts, P. (1997). Writing in English: A Coursebook for Caribbean Students. Ian Randle.

Supplementary Reading Materials/Resources

Atkinson, R. H. & Longman, D.G. (1992)' Reading Enhancement & Development. West Publishing Company.

Jacobus, L.A. (1995), Developing College Reading. Harcourt College Publishers.

Johnson, B.E. (1998), Stirring up Thinking. Houghton Mifflin

Use of the Internet.

COM100 - English and Communications I

Sample Examination Paper

Duration: 2 hrs.

Directions: Read the following passage carefully and answer the questions set.

Adolescents use a number of means to cope with the stress they feel. Some are creative and productive. Athletic activity, for example, is both interesting in itself and a powerful and sophisticated stress reduction technique. There are other reactions to stress that can be devastating. These include depression or, in extreme cases, suicide; producing physiological relaxation and/or a heightened sense of well being by chemical means; and developing a group identity through collective delinquent behaviour. Although more frequent among poor teenagers, the use of these strategies is prevalent among all adolescents.

Depression in adolescents is more often a symptom than a disease, a heightening of some of the normal but painful feelings of growing up rather than a permanent condition. It is a state of mind in which one feels bad about oneself and discouraged about the future, hopeless about one's fate. Sadly, sometimes these feelings - the sense of hopelessness and helplessness - become so deep that young people attempt to kill themselves: There are currently approximately 500,000 reported suicide attempts among teenagers in the United States each year, an increase of some 300% since 1965. More than 5,000 teenagers actually do kill themselves each year. In addition, fatal accidents - some of which may be attributed to an excessive risk taking that is itself a thinly disguised form of suicide - are consistently one of the leading causes of death among adolescents.

Drugs and alcohol are ways of coping with stress, attempts to reduce anxiety and alleviate depression. Unfortunately, the attempted cure often becomes worse than the disease. Each year in the United States alone, some 4.6 million adolescents between the ages of 14 and 17 experience some of the negative consequences of drinking, including arrest, involvement in an accident, and impairment of health or job-performance; in addition, some 10,000 people between the ages of 16 and 24 die each year in alcohol- related incidents, including car accidents, drowning, homicides, suicides and fires.

Although less widespread than alcohol abuse, drug abuse is every bit as destructive. Marijuana, which may, if used occasionally, have few adverse consequences, all too easily becomes a means for coping with everyday stress. What was once recreational becomes habitual and, eventually, addictive. In many cases the long-term heavy use of marijuana produces a far deeper depression than the one that occasional use was meant to alleviate. And, for some young people, the drug becomes a way of life, a kind of detour from the ordinary satisfactions and learning experiences of adolescence.

To these common stresses are added others that are both more directly connected with the larger socioeconomic and political forces and more variable in their impact. These include the effects of racial and sexual prejudices, the norms of behaviour and the opportunities available in different communities, and changing patterns in employment and the economy. For example, in a time of economic uncertainty, when the disparity between the poor and wealthy is growing larger, when there is a heightened emphasis on individual self-sufficiency, every adolescent is going to be concerned about his or her ability to make a living. However, the kinds of stress and the solutions available are quite different for teenagers from impoverished backgrounds than they are for affluent or middle-class youth.

Questions

1. In one sentence, state the central theme of the passage. **[4 marks]**

2. What is the relation between paragraphs 2 and 3? **[4 marks]**

3. What point connects paragraphs 3 and 4? **[3 marks]**

4. (a) Identify one figure of speech in the passage.
   (b) Comment on its effectiveness. **[4 marks]**

5. What does "disparity" (paragraph 5) mean? **[2 marks]**

6. Explain in your own words "developing a group identity through collective delinquent behaviour." (Paragraph 1, line 7). **[5 marks]**

7. (a) What is the writer's intention in this passage?
   (b) Comment on the effectiveness of the strategies used to achieve this intention. **[8 marks]**

8. Briefly discuss the suitability of this passage for a general audience **[10 marks]**

Total 40 marks

Summary

In your own words, write a summary of the extract. Use no more than 200 words. **[20 marks]**

COM100 - English and Communications I

Sample Answers

1. Adolescent reactions to stress can be positive but in many cases are debilitating and destructive.

2. Paragraph 2 describes a reaction to of stress (depression), which is involuntary while paragraph 3 deals with voluntary attempts to deal with it.

3. Paragraphs 3 and 4 are connected by the point that drugs and alcohol are equally destructive.

4. (a) Metaphor (paragraph 4, line 6).
   (b) The taking of drugs is effectively described as a "detour" because it is not a normal behaviour but a deviation or emergency action to cope with a difficulty. The user "detours" or moves away from the norm.

5. "Disparity' means an inequality or difference between the rich and poor.

6. Adolescents try to establish a sense of belonging with their peers by indulging in misbehaviour as a group.

7. (a) The writer hopes to bring across the point that negative reactions to stress among adolescents can be devastating and are serious cause for concern.
   (b) He/she identifies the specific reactions which have serious consequences and lists their effects to give substance to his thesis. To increase veracity, the writer uses statistics to illustrate the gravity of the problem. However this would have been more effective had he/she indicated the relevant sources.

8. The passage is suitable for a general audience. Although the theme is adolescent stress, the consequences which he/she identifies are of interest to a wide range of persons, including parents, teachers, health workers, social workers, lawmakers. The writer does not make use of any jargon which may alienate an audience. Vocabulary is simple and everyday, in the vein of a newspaper article. Therefore the relevance and directness of the passage would appeal to a general audience.

Mark Scheme for Summary:

Inclusion of all relevant points	**[7 marks]**
Brevity/conciseness	**[5 marks]**
Use of language (diction, linkages, sentence structure)	**[5 marks]**
Mechanics and grammar	**[3 marks]**

GENERAL EDUCATION COURSE

MODEL SYLLABUS

Name of Course: **COM101 - English and Communications II**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **CXC English A, General Proficiency, Grades I, II or III**

Course Description

This course aims to develop students' ability to use Standard English structures to express themselves clearly, precisely and fluently in speech and writing and to evaluate that ability in themselves and their peers. It is designed to alert students to the process used in oral and written communication. The course also focuses on providing students with opportunities to produce different types of communication while selecting and combining forms, media, channels and technologies to maximise effective communication.

Rationale

Students at this level are expected to be fluent in expository modes of oral and written discourse. They should also be able to maintain coherent, logical lines of argument by using appropriate organising strategies and other rhetorical skills. Students also need to be able to manipulate language and utilize a variety of forms of communication for varied academic and non-academic purposes. In this course the analytical skills acquired in Communications I should be implemented in the students' own speech and writing.

Course Objectives

This course is designed to enable students to:

1. Employ different forms of functional writing to suit a range of purposes and audiences.

2. Demonstrate control of the grammar, vocabulary and mechanics of Standard English in speech and writing.

3. Produce coherent persuasive expository and argumentative compositions in speech and writing.

4. Identify and utilize the processes of speech and writing.

Content Outline

1. **The Writing Process** (23 hours)

   (a) prewriting strategies
   - journals, brainstorming, mapping, discussion, research

   (b) drafting
   (c) conferencing and revising
   (d) editing and proof reading
   - grammar
   - spelling
   - punctuation

   (e) Types of writing

   i. business communication
   - letter and memo writing
   - résumés and curriculum vitae

   ii public communication
   - articles and letters to the editor

   iii. academic discourse
   - content area essays
   - research reports

2. **Argumentation** (22 hours)

   (a) Writing the argumentative essay
   - outlining and defining scope
   - the thesis statement
   - types of argument
   - introductions and conclusions
   - logical linkages(within and between paragraphs)

   (b) Debates and speeches

Suggested Teaching/Learning Methods

Lectures; discussions; peer conferencing; editing groups; class debates; seminars; student presentations.

Assessment and Evaluation Procedures

(a) Coursework 40%:

Short Project of 1500-2000 words to include oral presentation

(b) Examination 60%:

Written composition: argumentative or expository (500 words)

Required Texts

Barnet & Badeau (1999). Critical Thinking Reading and Writing. S. Martin/Bedford
Hodge, Merle (1997). The Knots in English: A Manual for Caribbean Users. Calaloux Publications.

Simmons-MacDonald, H., Fields, L. & Roberts, P. (1997). Writing in English: A Coursebook for Caribbean Students. Ian Randle.

A good dictionary

Supplementary Reading Materials/Resources

Barnet, S. and Stubbs, M. (1995), Practical Guide to Writing. Marper-Collins. New York.

Kennedy, X.J., Kennedy, D. And Holladay, S. (1996), The Bedford Guide for College Writers. St. Martin's Press. New York.

Lucas, S.E. (1992), The Art of Public Speaking. McGraw-Hill. New York.

Ruggerio, V.R., Warwick, B. & Inch, E. (1996), Critical Thinking and Communication: The Use of Reason in Argument. MacMillan

COM101 - English and Communications II

Sample Examination Paper

Duration: 2½ hrs

Directions: Answer both questions

Write an essay of approximately 800 words on <u>one</u> of the following topics:

(a) Write an article in which you outline what "Sustainable Development" should mean in your island and how it may be achieved.

(b) Men: The Endangered Species

(c) The Importance of Sports to the Economic Life of the Region.

(d) Write a speech in which you defend the position that music and art ought to be a compulsory part. of the secondary school curriculum.

[40 marks]

Write on one of the following in no more than 450 words:

(a) Write a letter to the Editor of a local newspaper, in which you respond to a previous article which suggested that women are largely responsible for decaying morals in today's society.

(b) You have been experiencing poor service in your residential area from one of the public utility companies. Write a letter to the General Manager of the company, on this issue.

(c) On behalf of the Students' Council of your College, write a letter to the Principal on the problems affecting students at the institution.

[20 marks]

COM101 - English and Communications II

Sample Essay

Write an article in which you outline what "Sustainable Development' should mean in your island and how it may be achieved.

St. Lucia is at a point in its development, where careful reflection is necessary. Reflection should be focused on the attitudes of its citizens and the evaluation of its human and physical resources. Both of the preceding factors are crucial for the achievement of sustainable development in the island. As it stands, sustainable development may have various interpretations, depending on one's political and socio-economic status. However, the notion of sustainable development must be singular and clear in all our minds if it is to be achieved and become effective in making St. Lucia a more developed country.

Firstly, sustainable development can be viewed as commitments, policies or plans which after implementation will serve to generate long-term success, economically, socially and politically. One of the necessary contributing factors is a commitment by the government to provide adequate education for all St. Lucians. Policies must be implemented, which address the need for better adult education as well as the adequate qualification of the youth. Such measures will indeed provide an employable population as well as provide citizens with knowledge to exploit the self-employment sector of our economy. Employed citizens are productive citizens who can contribute greatly to the country's continued development.

Secondly, it is also vital that the private and public sectors of the economy capitalize on the omnipresence of science and technology by harnessing the opportunities provided by informational and technological advances. Such opportunities, if well handled, can aid in the diversification of agriculture on the island and the introduction of technologically sound methods of production. Sensitization to the benefits of science and technology may allow St. Lucians the means to explore potentially viable industries. Sustainability would thus mean more investment by the public and private sectors and also the provision of risk capital to such novel industries.

Sustainability must also encompass the identification of viable and necessary development projects, including infrastructural development. A country' s economy and commerce is highly dependant on a high quality of infrastructure. There must be a concerted effort by the leaders of the country to maintain satisfactory road networks, efficient ports and professionalism. These are all policies which would have lasting effects on St. Lucia's global reputation and long term development.

In light of these transparent arguments of the importance of sustainability and ways of achieving such development, it is not hard to understand the crucial role of every citizen of this country in such a movement. However, it is imperative that sustainable developmental efforts not be to the detriment and denigration of St. Lucia's natural, historic and cultural attributes. Plans and

strategies which may be implemented as part of the package of sustainability are generally long-term and policy makers must guard against the shortsightedness which may arise from political pressure.

It must be understood that the policies which would encourage sustainable development should not adversely affect our flora and fauna. On the contrary, the implementation of programs which focus on water, forestry and environmental protection would act to secure the sustainability of agriculture, forestry and fishing. It must be noted that development of areas considered to be of historical importance may occur but this should be done with sensitivity to social and cultural traditions. Therefore development plans ought not to be approved to the exclusion of the relevant interest groups.

In conclusion, it can be said that sustainable development can only occur in an atmosphere of enlightenment and education. A national attitude has to develop in favour of sustainability, and encouragement must be given to the policies of the public and private sector which seek to advocate such long-term development.

COM101 - English and Communications II

Mark Scheme

Essay

Level and appropriateness of content	**[16 marks]**
Organization of thought	**[8 marks]**
Mechanics	**[6 marks]**
Use of language (vocabulary, diction & grammar)	**[10 marks]**

Letter

Level and appropriateness of content	**[7 marks]**
Use of language (vocabulary, diction & grammar)	**[5 marks]**
Organization of thought	**[3 marks]**
Conventions & format	**[3 marks]**
Mechanics	**[2 marks]**

GENERAL EDUCATION COURSE
MODEL SYLLABUS

Name of Course: **IT101 - Information Technology**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **None**

Course Objectives

Specific Objectives - Unit One

At the end of the unit students should be able to:

(a) distinguish between information and data
(b) define the term "Information Technology"
(c) distinguish between bits and bytes
(d) distinguish between hardware and software
(e) identify input devices including devices for special needs population
(f) identify output devices including printers
(g) describe the functions of the central processing unit
(h) distinguish between different storage devices
(i) select a particular storage device for a given task
(j) discuss the reasons for the use of computer systems in society
(k) identify four problems associated with the use of computers (remove four)
(l) identify two emerging IT technologies
(m) describe the configuration of a typical computer system
(n) distinguish between memory types
(o) distinguish between types of computers

Specific Objectives - Unit Two

At the end of the unit students should be able to:

(a) describe three types of interface
(b) define terms associated with a graphical user interface: menus, icon, pointer, drag and drop
(c) use at least two user interfaces to interact with a computer
(d) classify software into groups based on common functions or uses
(e) use a word processor to input, edit, format and print a document
(f) make a backup of selected small document files
(g) describe functions of an operating system (at least two)
(h) identify two operating systems

Specific Objectives - Unit Three

At the end of the unit students should be able to:

(a) define terms associated with a spreadsheet: cell, column, formula, worksheet
(b) use a spreadsheet to develop a worksheet
(c) justify the selection of a given productivity tool for a particular task
(d) understand the functions of a database
(e) distinguish between a field, record, file and database
(f) Explain where word processing tool is appropriate
(g) Explain where spreadsheet is appropriate
(h) Explain where database is appropriate
(i) recognize that Information Technology tools may sometimes be inappropriately used.

Specific Objectives - Unit Four

At the end of the unit students should be able to:

(a) use the Internet to locate specific data
(b) identify four sources of information (remove four)
(c) discuss three characteristics of information (remove three)
(d) justify the use of a specific piece of information obtained from the Internet for a given task
(e) use an e-mail and system to share data/information
(f) discuss some of the ethical issues involved in the use of the Internet and computer in general: copyright, hacking, privacy
(g) discuss the benefits and problems associated with the use of the Internet
(h) discuss the role of information in decision-making
(i) the risks of virus attacks

(j) describe the functions of a modem
(k) understanding the limitations of modems in transferring data
(l) describe a typical network system
(m) make an oral presentation on a topic related to Information Technology or be a contributing member of a team making a presentation

Content Outline

1 **Unit One**

(Week 1-2)

Computer Systems and Concepts

1.1.1 Benefits and limitations of computer systems

1.1.2 Definitions: computer, technology, knowledge, information, data

1.1.3 Overview of computer development

1.1.4 Devices and Systems

Hardware

Input and data capture: keyboards, mouse, switches, scanners, sensors, trackballs, cameras

Memory: RAM, ROM, bits, bytes, kilo bytes, mega bytes, giga bytes

Output: printers, speakers, monitors, control systems

Processing: CPU: functions, brands

Storage: optical and magnetic systems: DVD, floppy, zip, hard drives; tracts, sectors, files

1.1.5 Computers systems: embedded, micro, mini, mainframe, supercomputers

1.1.6 Rationale and uses of computers: speed, accuracy, storage; statistical, general productivity, publishing, accounting, management

1.1.7 Emerging Hardware Technologies: eye gaze systems, security systems.

2 **Unit Two**

(Week 3-6)

Computer Interfaces. Software and Word processing

2.1.1 Classification of software
Special Purpose
General Purpose
System: programming
Applications: productivity tools, educational
Purpose of different application tools (check!!!)

2.1.2 Interfaces: Command, Menu, Graphical

2.1.3 Overview of the functions of an Operation system

2.1.4 File management e.g. transferring small files from hard disk to floppy medium (Backup).

2.1.5 Using a Word processor
Input
Editing: delete, cut and paste, copy
Formatting features
Printing
Deleting files

3 **Unit Three**

(Week 7-11)

Introduction to Spreadsheet and Database

3.1.1 Spreadsheet
Input
Editing
Formatting features
Printing
Creating worksheets

3.1.2 Database systems
Input
Editing

Formatting features
Printing
Creating
Functions / uses / benefits
Examples of databases
Field, record, file, database and queries.

3.1.3 Software selection for a task

Appropriateness of different application tools- wordprocessors, spreadsheets, databases.

4 **Unit Four**

(Week l2-15)

Information and the Internet

4.1.1 Use of information
Characteristics of information
Information sources

4.1.2 Communication devices & Networks: cables, modems, NICs

4.1.3 Use o f the Internet: Browsers, e-mail systems

4.1.4 Legal and other issues associated with computers: privacy, copyright, hacking, health issues, virus attacks

4.1.5 The role of information in decision-making.

Suggested Teaching/ Learning Methods

Teacher Activities

Lecturing, demonstrating, discussing, challenging students to use Information Technology tools as means to individual and societal development. Encouraging students to develop both their written and verbal communication skills. Reflecting on the teaching/learning process.

Student Activities

Reading and completing home assignments, gathering information/data and discovery, participating actively in class, engaging in frequently practical exercises: word processing, spreadsheet, database software, using the internet. Reflecting on course concepts and making oral presentations.

GENERAL EDUCATION COURSE

MODEL SYLLABUS

Name of Course: **MTH001 - Mathematics**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **None**

Course Description

This is a general education core course which is compulsory for all students following the Associate Degree programme and should be taken in Term 1 or 2 or Semester 1 or 2 of Year 1. However, those students who have gained passes in the CXC General Mathematics may be exempted from this course. This mathematics syllabus requires understanding of the basic mathematical concepts their application and the ability to express these concepts by clear expression and logical reasoning. Contact Hours - Three (3) hours per week for fifteen weeks or four (4) hours per week for eleven and a half weeks, depending on whether a semester or term system is employed.

Rationale

In almost all countries, mathematics is a compulsory subject. Although nearly everyone admits that every school leaver should be proficient in mathematics, in reality only a small proportion of students seem to like it or seem to be able to do it well. It is therefore essential that all students be taught to use and understand mathematics. This is necessary as an increasing number of subjects in the curricula require Mathematics and so too do a number of careers, both technical and professional.

This course in not intended as a specialized course, but rather to expose students to those areas that will be considered beneficial to them, keeping in mind the fact that most students do not continue Mathematics as a major, although a sizeable number do. As a result, topics such as

Consumer Arithmetic and Computational Skills were included, as well as Algebra which poses difficulty for almost all students.

Nowadays, one may not be justified in giving students long complicated calculations with fractions, instead students need to know what calculations should be performed and to have an idea of the answer. More importantly, they should be able to perform the calculation on a calculator. As a result, the use of the calculator should play an integral part in this course.

It is intended that this course be taught in a practical manner using real life examples and situations.

It is hoped that this course will enable students to develop their ability to communicate using mathematics as well as to develop their computational skills, understanding and use of the calculator.

Course Objectives

This course is designed to enable students to:

1. acquire and apply skills and knowledge as related to the number system, measurement and geometry;
2. acquire a foundation that will allow further study of Mathematics as well as skills and knowledge that will be useful in other disciplines;
3. derive satisfaction and confidence from the mastery of skills as well as the understanding of concepts;
4. develop the use of mathematical language as a means of communicating;
5. develop their intellectual curiosity;
6. enable students to develop skills in the use of the calculator.

General Objectives

1. To develop in students an appreciation of the use of Mathematics as a language.
2. To help students develop their reasoning skill.
3. To develop in students the ability to reason logically.
4. To enable students to develop skills in the use of the calculator.
5. To make students aware of the need for accuracy in calculation.
6. To develop in students the ability to use algebraic techniques to solve problems.
7. To help students appreciate that consumer arithmetic is necessary in everyday life.
8. To make students competent in performing the calculations necessary in computing their personal budgets as well as in business transactions.
9. To make students aware of the different ways of investing money, their advantages and disadvantages.

Specific Objectives

1. **The Number System**

Students should be able to:

1 distinguish between sets of numbers e.g. integers, whole numbers, rational numbers, etc.;
2 identify a given set of numbers as a subset of another set e.g. N W Z Q R, where N represents the set of natural numbers, W the set of whole numbers, Z the set of integers, etc.

2. **Sets**

Students should be able to:

1 Construct and use Venn diagrams to find the union, intersection and complement of sets.

3. **Arithmetic**

Students should be able to:

1 simplify fractions and decimals;
2 solve problems involving fractions and decimals;
3 calculate profit or loss as a percentage;
4 approximate a value to a given number of significant places;
5 estimate a decimal to a specified number of decimal places;
6 express a rational number in standard form;
7 solve problems involving ratio and proportion;

4. **Geometry**

Students should be able to:

1 recall and apply the properties of a rectangle, triangle, circle, trapezium, parallelogram;
2 calculate the perimeter and area of a rectangle, triangle, circle, trapezium, parallelogram;
3 calculate the volume of a cube, cuboid, cylinder, sphere;
4 apply Pythagoras' Theorem.

5. **Algebra**

Students should be able to:

1 expand, simplify and factorise algebraic expressions;
2 change the subject of a formula;
3 solve linear equations in one variable;
4 obtain the solution set of linear inequalities in one variable;
5 solve a pair of simultaneous equations in two unknowns, at least one of which is linear and at most one of which is quadratic;
6 solve quadratic equations in one variable by :
  (i) factorization,
  (ii) expressing $ax^2 + bx + c$ in the form $a(x+d)^2 + e$ where a, d, e are constants,
  (iii) using the quadratic formula;
7 formulate and solve simple linear and quadratic equations and inequalities from worded problems;
8 use the laws of indices to simplify expressions including expressions involving negative and rational indices;
9 simplify expressions by using the laws of logarithms, such as
  $\ln(AB) = \ln A + \ln B$
  (i) $\ln(A/B) = \ln A - \ln B$, $\ln P^n = n \ln P$;
10 transpose between logarithmic and exponential forms.

6. **Co-ordinate Geometry**

Students should be able to:

1 calculate the coordinates of the midpoint, the length and the gradient of a line segment joining two points;
2 identify the equation of a straight line in the form $y = mx + c$, $y - y_1 = m (x - x_1)$ $ax + by + c = 0$;
3 deduce the equation of a straight line given the Cartesian coordinates of two points on the line, or the gradient of the line and the Cartesian coordinates of a point on the line;
4 graph a straight line given the gradient and a point or two points.
5 Apply the relationship between the gradients of parallel and perpendicular lines.

7. **Relations and Functions**

Students should be able to:

1 write a relation as a set of ordered pairs;

2 define a function as a many-to-one or one-to-one relation
3 identify one-one functions;
4 graph functions;
5 illustrate on a graph a one-one function;
6 calculate f(c) where the value of c is give;
7 find the domain and range of linear, quadratic, logarithmic, exponential and simple hyperbolic functions;
8 use functional notations , such as $y = f(x)$; $f : x \; x^2$ or $f(x) = x^2$ for given domains.

8. Graphs

Students should be able to:

1 label the Cartesian axes, plot Cartesian coordinates and draw graphs;
2 represent inequalities on a number line;
3 graph a quadratic function;
4 find the maximum and minimum of a quadratic function from its graph;
5 use the graph of a quadratic function to obtain the solution of the quadratic equation
6 Graph curves and identify
   (i) increasing and decreasing functions,
   (ii) stationary and turning points
   (iii) points of inflexion;

9. Trigonometry

Students should be able to:

1 define the trigonometric functions sin x, cos x and tan x for positive values of angle x;
2 graph the trigonometric functions sin x, cos x and tan x for positive and negative values of angle x;
3 obtain from the calculator, the inverse of a trigonometric equation, for example if $\sin A = c$, then $A = \sin^{-1} c$;

10. Matrices

Students should be able to:

1 use matrices to represent information;
2 perform matrix operations, such as addition, subtraction and multiplication;
3 multiple matrices by a scalar;
4 evaluate the determinant of a 2 x 2 matrix;
5 identify a singular 2 x 2 matrix;

6 obtain the inverse of a non-singular matrix;
7 solve simple problems in Algebra using matrices.

Content Outline

1. **The Number System**
    - 1.1. The real number system
    - 1.2. The number line

2. **Sets**
    - 2.1. Language of sets

3. **Arithmetic**
    - 3.1. Fractions
    - 3.2. Decimals
    - 3.3. Approximations and estimations
    - 3.4. Percentages
    - 3.5. Ratio and proportion

4. **Geometry**
    - 4.1. Properties of a rectangle, triangle, circle, trapezium, parallelogram
    - 4.2. Perimeter and area of a rectangle, triangle, circle, trapezium, parallelogram
    - 4.3. Volume of a cube, cuboid, cylinder, sphere
    - 4.4. Pythagoras' Theorem and its application

5. **Algebra**
    - 5.1. Expansions, simplification and factorisation of algebraic expressions
    - 5.2. Change of subject
    - 5.3. Systems of linear equations
    - 5.4. Quadratic equations
    - 5.5. Factorization of quadratic equations
    - 5.6. Linear inequalities
    - 5.7. Linear Functions
    - 5.8. Indices
    - 5.9. Logarithms
    - 5.10. Solution of logarithmic equations of the form $a^x = b$
    - 5.11. Transposition between the logarithmic and exponential forms

6. **Co-ordinate Geometry**
    - 6.1. Properties of a straight line
    - 6.2. Gradient of a straight line
    - 6.3. Equation of a straight line
    - 6.4. Graph of a straight line
    - 6.5. Parallel and perpendicular lines

7. **Relations and Functions**
    - 7.1. Relation
    - 7.2. Function
    - 7.3. Ordered pairs
    - 7.4. Domain and range of a function
    - 7.5. Functional notation

8. **Graphs**
    - 8.1. The Cartesian coordinate system
    - 8.2. Graphical representation of an inequality on the number line
    - 8.3. The axes of the real lines
    - 8.4. Plotting of graphs
    - 8.5. General form of the quadratic function
    - 8.6. Graph of the quadratic function
    - 8.7. Graphical representation of the roots of a quadratic equation
        - 8.7.1. Graphical representation of a quadratic function showing the maximum and minimum points
        - 8.7.2. Representation of curves: increasing and decreasing functions, stationary points and inflexions

9. **Trigonometry**
    - 9.1. Definition of sine, cosine and tangent
    - 9.2. Graph of the above trigonometric functions
    - 9.3. Inverse trigonometric functions
    - 9.4. Solution of simple trigonometric equations

10. **Matrices**
    - 10.1. Simple matrix algebra

Suggested Teaching/Learning Methods

This is a lecture course with tutorial sessions. Where possible, project work should be incorporated into the course.

Assessment and Evaluation Procedures

The course will be assessed using continuous assessment and a final examination. The continuous assessment will contribute 40% of the total assessment, while the final examination will contribute 60% of the total assessment.

The continuous assessment will be based on three 1-hour class tests and two homework assignments. The final examination will be taken at the end of the term or semester in which the course is taken.

The Final Examination

(i) Structure of the paper

The final examination will be a 3 hour paper consisting of 15 or 16 questions divided into two sections. The first section will consist of 10 compulsory short answer questions, and will require knowledge of all topics in the course, but may not necessarily carry equal marks. The second section will consist of 5 or 6 structured questions from which the candidate will be required to answer 4.

(ii) Allocation of marks

The total marks on the paper will be 100, with 12 marks for each question in section 2. The marks for each question or part of a question will be indicated on the paper. Fifty-two (52) marks will be allocated to section 1 and 48 marks to section 2.

(iii) Award of marks

A candidate will obtain full marks for questions provided that correct answers and working are shown. In the case of an incorrect answer, the candidate may be awarded some of the marks provided that correct arguments are shown in their working.

(iv) Use of calculators

Each candidate should have a scientific calculator with trigonometric and statistical functions for the final examination.

Suggested Textbooks

Certificate Mathematics by A. Greer and C.E. Layne ISBN 0- 85950-565-0 Stanley Thornes

Core Maths for A- Level by L. Bostock and S. Chandler ISBN 07487 1779X Stanley Thornes

Introducing Pure Mathematics by Robert Smedley and Garry Wiseman ISBN 01991 4400 I Oxford University Press.

MTH001 - Mathematics
Sample Exam Paper

SECTION 1

Answer ALL questions in this section.

1. (a) Calculate the exact value of $\left(5\frac{1}{6} - 1\frac{2}{3}\right) - 2\frac{1}{9}$ **[4 marks]**

   (b) Calculate $\frac{0.278}{25}$ giving your answer:

   (i) exactly, **[1 mark]**
   (ii) correct to 3 significant figures **[1 mark]**

   (c) Calculate $\frac{3.6x10^5}{9x10^8}$ giving your answer in standard form. **[2 mark]**

2. (a) Factorize $9x^2 - 25y^2$ **[1 mark]**

   (b) Solve the equation $6x2 + 13x - 5 = 0$ **[4 marks]**

3. Make *x* the subject of the formula $\frac{\sqrt{(xy)}}{a} = 2b$ **[3 marks]**

4. Joan borrowed $3,500 at 10% simple interest for two years. In order to process the loan, Joan must pay a fee of $240. Calculate:

   (a) the amount of money Joan will have to repay at the end of the two years. **[3 marks]**

   (b) the monthly instalments, if she is to repay the loan in 24 equal monthly instalments. **[3 marks]**

5. Solve the equation $3^{x+1} = 5$ **[4 marks]**

6. Express $4x^2 - 8x + 1$ in the form $a(x + b)^2 + c$, where a, b and c are constants **[4 marks]**

7. Solve the simultaneous equations:

$$xy = 2$$

$$2x + 3y = 13$$ **[5 marks]**

8. Find the range of values of x which satisfy the inequality: $3 - 2x > 11$ **[2 marks]**

9. Indicate which of the following series are Arithmetic Progressions and which are Geometric Progressions. In each case, write down the appropriate common difference or common ratio.

(a) $8 + 11 + 14 + 17 + 20 + 23$ **[2 marks]**

(b) $2 + 6 + 18 + 54 + 162 + 486$ **[2 marks]**

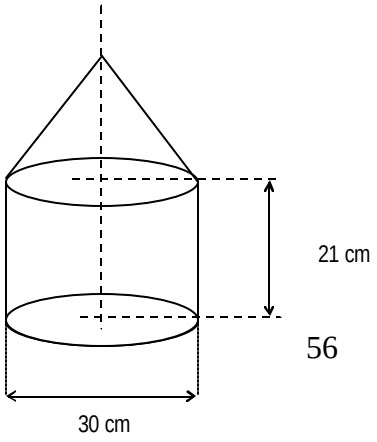
(c) $1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \frac{1}{16} - \frac{1}{32}$ **[2 marks]**

10. Given the points A (2,5) and B (-2,3) find:

(a) the co-ordinates of M, the midpoint of AB **[2 marks]**

(b) the length of the line joining A and B **[2 marks]**

(c)



The figure above represents a cage in the form of a cylinder with a cone mounted on top. The diameter of the cylinder is 30 cm and its height is 21 cm. The total volume of the cage is 18,150 cm^3. Calculate the total height of the cage (Use π as $\frac{22}{7}$). **[5 marks]**

SECTION 2

Answer any FOUR questions in this section.

11. Give the points A (1,5) and B (-2, 8), find:

(a) the gradient of AB, **[2 marks]**

(b) the equation of the line AB, **[3 marks]**

(c) the equation of the line, L, through P (2, 3), which is perpendicular to AB. **[5 marks]**

(d) C is the point on this line, L, with x-co-ordinates of –5. Find the y-co-ordinate of C. **[2 marks]**

12. Find all the angles between 0° and 360° inclusive which satisfy the equations:

(a) $\tan x = ½$ **[2 marks]**

(b) $\cos 2x = -0.4$ **[4 marks]**

(c) $2\sin^2 x + 3\sin x - 2 = 0$ **[6 marks]**

13. Students in a Mathematics class were asked to make demonstration cubes. They were allowed to use cardboard and masking tape for the edges, and each edge *e* of their cube was to be 12 cm.

(a) Write down the total surface area of a cube in terms of *e* **[2 marks]**

(b) How many square centimetres of cardboard were used if the class was to make 24 cubes? Ignore waste. **[5 marks]**

The cubes are stacked into three tiers so that each tier contained 8 cubes to form a rectangular solid.

(c) Find the length, breadth and width of the rectangular solid, and hence calculate its volume. **[5 marks]**

14. The tangent to the curve, $y = x^2 - 6x + 11$ at P (1, 6), meets the y-axis at A and the x-axis at B and has a gradient of –4. Find:

(a) the equation of the tangent, **[3 marks]**

(b) the coordinates of A and B, **[3 marks]**

(c) show A, P, B lie on a straight line **[3 marks]**

(d) the area of triangle AOB, where O is the origin. **[3 marks]**

15. Mr. Jones earns $4167 per month. His taxable income is found by deducting the following from his salary:

A married man's allowance	$15000
Children's allowance	$ 2000
Mortgage interest	$ 3500

He then pays tax on the taxable income at the rate of 25% up to the first $24,200 and 40% on the remainder. Calculate Mr. Jones':

(a) annual salary, **[1 mark]**

(b) total allowances **[2 marks]**

(c) taxable income, **[2 marks]**

(d) total payable tax. **[4 marks]**

If Mr. Jones prepaid the Inland Revenue Department $ 9,000, determine whether or not Mr. Jones is entitled to a refund and if he is, state the value of the refund.

[3 marks]

MTH001 - Mathematics
Answer Sheet & Mark Scheme

SECTION 1

1. (a) $\left(5\frac{1}{6} - 1\frac{2}{3}\right) \div 2\frac{1}{9}$

$\left(\frac{31}{6} - \frac{5}{3}\right) \div \frac{19}{9}$ **[1]**

$\left(\frac{93 - 30}{18}\right) \div \frac{19}{9}$ **[1]**

$\frac{63}{\cancel{18}_{2}} \times \frac{\cancel{9}^{1}}{19} = \frac{63}{38}$ **[1]** $= 1\frac{25}{38}$

(b) (i) $\frac{0.278}{25} = 0.01112$ **[1]**

(ii) 0.111 to 3 significant figures. **[1]**

(c) $\frac{3.6 \times 10^{5}}{9 \times 10^{8}} = 0.4 \times 10^{-3}$ **[1]** $= 4 \times 10^{-4}$ **[1]**

2. (i) $9x^2 - 25y^2 = (3x - 5y)(3x + 5y)$ **[1]**

(ii) $6x^2 + 13x - 5 = 0$
$(3x - 1)(2x - 5) = 0$ [1]
$3x - 1 = 0$ or $2x + 5 = 0$ [1]
$x = \frac{1}{3}$ **[1]** or $x = -\frac{5}{2}$ **[1]**

3. $\frac{\sqrt{xy}}{a} = 2b$

[1] **[1]**

Squaring $\frac{xy}{a^2} = 4b^2$

$x = \frac{4b^2a^2}{y}$ **[1]**

4. Simple Interest, $I = \frac{PRT}{100}$

$= \frac{3500x10x2}{100} = \$700$ **[1]**

(a) Amount of money Joan will have to repay at end of 2yrs.

= \$3500 + \$700 + 240 **[1]**
= \$4440 **[1]** CAO *(Allowance should be made for carry forward error ie, 1 mark for 'his' sum)*

(b) Joam pays 24 equal monthly instalments of $\frac{4440}{24}$ **[1]**

= \$185 **[1]** CAO

1 mark for division by 24

5. $3^{x+1} = 5$

$(x + 1)\log 3 = \log 5$ **[1]**

$x + 1 = \frac{\log 5}{\log 3}$ **[1]**

$x = \frac{\log 5}{\log 3} - 1$ **[1]**

$x = 0.46$ to 2dp

[1] CAO

6. $4x^2 - 8x + 1 = 4(x^2 - 2z) + 1$ **[1]**

$= 4(x^2 - 2x + 1 - 1) + 1$ **[1]**

$= 4(x - 1)^2 - 4 + 1$ **[1]**

$= 4(x - 1)^2 - 3$ **[1]**

7. $xy = 2$ — (1)

$2x + 3y = 13$ — (2)

sub $y = \frac{2}{x}$ in (2) to give **[1]** *for using* $y = \frac{2}{x}$ *or* $x = \frac{2}{y}$

$2x + \frac{6}{x} = 13$ **[1]** *for substitution*

$2x^2 + 6 = 13x$

$2x^2 + 13x + 6 = 0$ **[1]**

$(2x - 1)(x - 6) = 0$ **[1]** *for factorization*

$x = \frac{1}{2}$ or $x = 6$

$\therefore$ when $x = \frac{1}{2}$, $y = \frac{2}{\frac{1}{2}} = 4$ **[1]**

when $x = 6$, $y = \frac{2}{6} = \frac{1}{3}$

8. $3 - 2x > 11$

$-2x > 11 - 3$ **[1]**

$-2x > 8$

$x < -4$ **[1]**

[1] **[1]**

9. (a) $8 + 11 + 14 + 17 + 20 + 23$ is an AP with common difference of 3 **[1]**

(b) $2 + 6 + 18 + 54 + 162 + 486$ is a GP with common ratio of 3 **[1]**

(c) $1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \frac{1}{16} - \frac{1}{32}$ is a GP with common ratio of $-\frac{1}{2}$ **[1]**

10. (a) A (2, 5) B (-2, 3)

Co-ordinates of M the mid-point of AB $= \left(\frac{2-2}{2}, \frac{5+3}{2}\right)$ **[1]**

$= (0, 4)$ **[1]** *CAO*

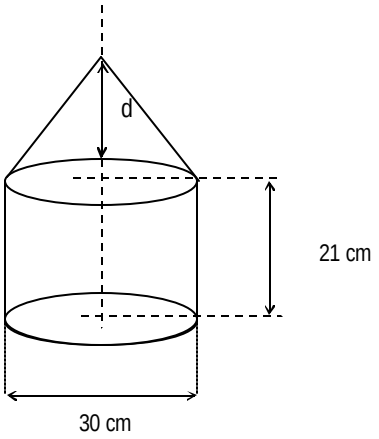
(b) Length of AB $= \sqrt{(2+2)^2 + (5-3)^2}$ **[1]**

$= \sqrt{16+4}$

$= \sqrt{20} = 2\sqrt{5}$

[1]

(c)



Volume of cylinder $\pi r^2 h = \pi(15)^2(21) = \frac{22}{7} \times 15^2 \times 21 cm^3$ **[1]**

Voume of cone $= \frac{1}{3}\pi r^2 d = \frac{1}{3} \times \frac{22}{7} \times 15^2 \times d$ **[1]**

Total volume of cage $= \frac{22}{7} \times 225\left(\frac{d}{3} + 21\right) = 18150$ **[1]**

$\frac{d}{3} + 21 = \frac{18150 \times 7}{22 \times 225} = \frac{77}{3}$ *('d' is height of cone)*

$\frac{d}{3} = \frac{77 - 63}{3} = \frac{14}{3}$

$\therefore$ d = 14cm **[1]** CAO

[1] *'his sum*

Total height of cone = 21cm + 14cm = 35cm

SECTION 2

11. A (1, 5) B (-2, 5)

(a) Gradient of AB = $\frac{8-5}{-2-1} = \frac{3}{-3} = -1$ **[1]**

(b) Equation of line AB is $y - 5 = -1\,(x - 1)$ **[1]**

$y - 5 = -x + 1$ **[1]**

$y = -x + 6$ **[1]** CAO

[1] [1] [1]

(c) Equation of line, L is $y - 3 = 1\,(x - 2)$

$y - 3 = x - 2$ **[1]**

$y = x + 1$ **[1]** CAO

(d) Since $y = x + 1$ is equation of L, then point C on L with x-co-ordinate of –5 has a y-co-ordinate of

$y = -5 + 1$ **[1]** *for substituion in 'his' equation*
$y = -4$ **[1]** CAO

12. (a) $\tan x = ½$
$x = 26.6^o, 206.6^o$

(b) $\cos 2x = -0.4$

$2x = 113.58^o,$	$246.42^o,$	$473.58^o,$	606.42^o	**[1]**
$x = 56.79^o,$	$123.21^o,$	$236.79^o,$	303.21^o	**[1]**
$x = 56.8^o,$	$123.2^o,$	$236.8^o,$	303.2^o to 1 dec. pl.	

*(***[1]** *for any 2 correct,* **[2]** *for all correct).*

(c) $2\sin^2 x + 3\sin x - 2 = 0$
$(2 \sin x - 1)(\sin x + 2) = 0$ **[1]**

$\sin x = ½$ **[1]** or $\sin x = -2$ **[1]**
$x = 30^o$ **[1]**, 150^o **[1]** *invalid* **[1]**

13. (a) Total surface area, A, of a cube is six tiems the area of one face **[1** *seen or implied***]**

ie, $A = 6e^2$ where e is the length of the edge of the cube.

(b) Area of 1 cube = (6×12^2) cm^2 **[1]**
= 864 cm^2 **[1]**
Area of 24 cubes = 24 x 864 cm^2 **[1]**
= 20736 cm^2 **[1]**

\ 20736 cm^2 of cardboard were used by the class **[1]**

(d) In order to stack the cubes in 3 tiers, each tier must contain 8 cubes. Thus

Length of rectangluar solid = 12 cm x 4 = 48 cm **[1]**
Height " " " = 3 x 12 cm = 36 cm **[1]**
Width " " " = 2 x 12 cm = 24 cm **[1]**

Volume of rectangluar solid = (48 x 36 x 24) cm^3 **[1]**
= 41472 cm^3 **[1]**

14. A is the point where the curve meets the y-axis \ $x = 0$ and $y = 11$

(a) $y = mx + c$ is the equation of tangent
$6 = -4(1) + c$ **[1]** *sub (1, 6)*
$c = 10$ **[1]**

[1] [1]

or (Equation of tangent is $y - 6 = -4(x - 1)$)

$y = -4x + 10$ **[1]**

(b) Where tangent meets y-axis, x = 0
ˆ co-ordinates of A = (0, 10) **[1]**

To find co-ordinates of B, put $y = 0$

ˆ $0 = -4x + 10$

$\frac{5}{2}$

x = **[1]** for sub y = 0 in 'his' equation

$\therefore B\left(\frac{5}{2}, 0\right)$ **[1]**

(c) Gradient $AP = \frac{10-6}{0-1} = -4$ **[1]**

Gradient $PB = \frac{6-0}{1-2.5} = -4$ **[1]**

Since gradients are equal and P is common then A, P, B line on a straighty line **[1]**

(d) Area of $\in$ AOB $= \frac{1}{2} OB \bullet OA$

$= \frac{1}{2} \times \frac{5}{2} \times 10 = \frac{25}{2} = 12.5 units^2$ **[1]**

[1] *for formula (seen or implied ie SOI)*
[1] *correctly substituting in formula*

15. (a) Mr Jones' annual salary = \$4,167 x 12 = \$50,004 **[1]**

(b) Mr Jones' total allowances = \$ (15,000 + 2,000 + 3,500) **[1]**
= \$20,500 **[1]**

(c) Mr Jones' taxable income = \$50,004 - \$20,500 **[1]**
=\$29,504 **[1]**

[1] **[1]**

(d) Tax payable = \$24,200 x 0.25 + \$5,304 x 0.40
= \$6,050 + \$2,121.60 **[1]**
= \$8,171.60 **[1]**

[1]

(e) Since Mr Jones paid Inland Revenue \$9,000 > \$8,171.60 he is entitled to a refund of \$ (9,000 – 8,171.60) **[1]**
= \$828.40 **[1]**

GENERAL EDUCATION COURSE
MODEL SYLLABUS

Name of Course: **MTH002 - Introduction to Probability and Statistics**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **None**

Course Description

This is a general education core course which is compulsory for all students following the Associate Degree programme and should be taken in Term 1 or 2 or Semester 1 or 2 of Year 1.

This Statistics syllabus requires understanding of the basic mathematical concepts their application and the ability to express these concepts by clear expression and logical reasoning. Contact hours – Three (3) hours per week for fifteen weeks or four (4) hours per week for eleven and a half weeks, depending on if a semester or term system is employed.

Rationale

Statistics as a subject is very powerful in that it allows students to collect, organise and analyse data. It is therefore essential that this course reflect the practical nature of the subject by allowing students to take part in exercises that will enable them to collect data, organise the data and make decisions.

Since this statistics course is not meant to be a specialized course, but rather to expose all students to some of the fundamental concepts in statistics, the subject matter should be so developed and taught as to address the needs of those students who are interested in career development as well as those students who will be going into the work place. It will also be useful for those wishing to pursue advanced studies in Statistics.

The course therefore requires that students understand the statistical concepts as applied to practical situations. Also, the advances in technology require that use of the calculator be an integral part of the course.

Course Objectives

This course should enable students to:

1. use and write correct statistical language;
2. be more proficient in the use of the calculator;
3. develop confidence in using statistical methods in real life problems;
4. collect, organise and analyse data and hence make valid decisions;
5. develop a spirit of inquiry;
6. expose all students to statistical techniques.
7. develop research skills that could be useful in the world of work or in continuing education.

General Objectives

1. To develop in students the ability to reason logically.
2. To enable students to develop skills in the use of the calculator.
3. To make students aware of the need for accuracy in calculation.
4. To encourage students to use correct statistical language.
5. To make students aware of the use made of statistics in decision making
6. To make students competent in drawing conclusions.
7. To make students aware of the advantages and disadvantages of the different ways of representing data.

Specific Objectives

1. **Types of Data and Some Sampling Techniques**

   Students should be able to:

   1. distinguish between qualitative and quantitative data;
   2. distinguish between discrete and continuous data;
   3. define a population, a target population, an accessible population, a sample;
   4. explain the difference between a population and a sample;
   5. explain why sampling is necessary;
   6. explain the concept of simple random sampling;
   7. explain and apply the concept of lottery technique to obtain a simple random sample
   8. explain the concept of bias and give examples of how it arises and how it may be avoided.

2. **Graphical Methods for Representing Data**

Students should be able to:

1. construct frequency distribution from raw data;
2. construct and use histograms with equal and unequal class widths, bar charts, pie
3. charts, stem-and-leaf diagrams, frequency polygons;
4. construct and use cumulative frequency curves;
5. construct and use box-and-whisker plots;
6. state advantages and disadvantages of the box-and-whisker plots and the stem-and-leaf diagrams;
7. represent bivariate data on a scatter diagram.

3. **Numerical Measures For Representing Data**

Students should be able to:

1. distinguish between class interval, class boundaries and class width;
2. calculate the mean, median and mode for grouped and ungrouped data;
3. discuss the advantages and disadvantages of the measures of central tendency, e.g. the mean, median, mode;
4. identify and state the modal class of a grouped frequency distribution;
5. estimate the mode and median from a histogram of equal class width;
6. calculate quartiles and percentiles for ungrouped data;
7. estimate quartiles and percentiles from a cumulative frequency curve;
8. calculate the range, interquartile range, semi-interquartile range, standard deviation, variance of grouped and ungrouped data.

4. **Linear Regression and Correlation**

Students should be able to:

1. distinguish between dependent and independent variables;
2. represent bivariate data by a scatter diagram;
3. calculate or obtain from calculator the regression lines of y on x and x on y;
4. draw the regression lines of y on x and x on y;
5. use the appropriate regression line to interpolate;
6. calculate and interpret Pearson's product moment correlation coefficient, r.

5. **Time Series Analysis**

Students should be able to:

1. identify the components in time series, e.g. trend, cyclical movements, seasonal movements and irregular movements;
2. use moving averages to extract the trend;

3. calculate seasonal variation in order to adjust and forecast the series.

6. **Probability Theory**

Students should be able to:

1. identify a sample space for a given experiment;
2. calculate the probability of event A, P(A), using P(A) = n(A)/ n(S) where n(A) is the number of elements in event A and n(S) is the number of elements in the sample space.
3. know and use the property that $0 < P(A) < 1$
4. know and use the property that the sum of n probabilities is 1;
5. know and use the fact that P(A) is the probability the event A does not occur, and that P(A) = 1- P(A)
6. calculate P(A B) and P(A B);
7. define and identify mutually exclusive events;
8. know and use the definition P(A B) = 0 when A and B are mutually exclusive events;
9. define and identify independent events;
10. use the definition P(A B) = P(A). P(B) where A and B are independent events;
11. define conditional probability, P(A/B), as the probability that event A will occur given that event B has already occurred: P(A/B) = P(A B)/ P(B);
12. know and use the fact that when A and B are independent events, P(A/B) = P(A);
13. construct and use Tree and Venn diagrams in solving simple problems in probability;
14. calculate probabilities using contingency tables;
15. solve problems involving probability.

7. **Fallacies in Statistics**

Students should be able to:

1. identify whether a given method of reporting statistical information is appropriate;
2. comment on the advantage and disadvantage of reporting statistical information in a given way, e.g. percentages.

Learning objectives

Upon completion of this course students should able to:

1. **Types of Data and Some Sampling Techniques**
   - 1.1. distinguish between qualitative and quantitative data;
   - 1.2. distinguish between discrete and continuous data;

1.3. explain the concept of bias using examples where appropriate.

2. **Graphical Methods for Representing Data**

2.1. demonstrate knowledge, by construction of the various methods used for representing data e.g. histograms, bar charts, pie charts, stem-and-leaf diagrams, frequency polygons, cumulative frequency curves, box-and-whisker plots;

2.2. state the advantage and disadvantage of each of these methods of representation of data.

3. **Numerical Measures for Representing Data**

3.1. calculate and interpret measures of central tendency e.g. mean, median and mode and quartiles for grouped and ungrouped data;

3.2. calculate and interpret measures of dispersion e.g. range, standard deviation and variance for grouped and ungrouped data..

4. **Linear Regression and Correlation**

4.1. plot scatter diagrams;

4.2. state, using the information from a scatter diagram, whether a relationship between two variables is linear or non-linear;

4.3. calculate, or obtain from calculator, the regression lines of y on x and x on y and draw these on the scatter diagram;

4.4. calculate and interpret Pearson's product moment correlation coefficient, r.

5. **Time Series Analysis**

5.1. identify the components in time series, e.g. trend, cyclical movements, seasonal

5.2. movements and irregular movements;

5.3. use moving averages to extract the trend;

5.4. calculate seasonal variation in order to adjust and forecast the series.

6. **Probability Theory**

6.1. understand and use the concepts of set theory;

6.2. know and use the laws of probability relating to mutually exclusive events, independent

6.3. events and conditional probability;

6.4. represent probability on a Tree diagram, Venn diagram or in a Contingency table.

7. **Fallacies in Statistics**

7.1. identify whether a given method of reporting statistical information is appropriate;

7.2. comment on the advantage and disadvantage of reporting statistical information in a given way, e.g. percentages.

Content Outline

1. **Types of Data and Some Sampling Techniques**
   - 1.1. Quantitative and qualitative data
   - 1.2. Discrete and continuous data
   - 1.3. Population, sample
   - 1.4. Simple random sampling
   - 1.5. Lottery technique

2. **Graphical Methods for Representing Data**
   - 2.1. Histograms, bar charts, pie charts, stem-and-leaf diagrams,
   - 2.2. Cumulative frequency curves, frequency polygons
   - 2.3. Box-and-whisker plots
   - 2.4. Bivariate data
   - 2.5. Scatter diagrams

3. **Numerical Measures for Representing Data**
   - 3.1. Mean, median, mode, percentiles, quartiles
   - 3.2. Standard deviation, variance, range, interquartile range, semi-interquartile range

4. **Linear Regression and Correlation**
   - 4.1. Bivariate data
   - 4.2. Scatter diagrams
   - 4.3. Linear regression using least square method
   - 4.4. Pearson's product moment correlation coefficient

5. **Time Series Analysis**
   - 5.1. Trend
   - 5.2. Moving averages and forecasting

6. **Probability Theory**
   - 6.1. Union and intersection of sets
   - 6.2. Concepts of probability
   - 6.3. Mutually exclusive events
   - 6.4. Independent events
   - 6.5. Conditional probability
   - 6.6. Venn diagrams
   - 6.7. Tree diagrams
   - 6.8. Contingency tables

7. **Fallacies in Statistics**
   - 7.1. Truncated scales

Suggested Teaching /Learning Methods

This is a lecture course with tutorial sessions and wherever possible projects will be incorporated**.**

Assessment and Evaluation Procedures

The course will be assessed using continuous assessment and a final examination. The continuous assessment will contribute 40% of the total assessment, while the final examination will contribute 60% of the total assessment.

The continuous assessment will be based on three 1 hour class tests and two homework assignments. The final examination will be taken at the end of the term or semester in which the course is taken.

The Final Examination

(i) Structure of the paper

The final examination will be a 3 hour paper consisting of 15 or 16 questions divided into two sections. The first section will consist of 10 compulsory short answer questions, and will require knowledge of all topics in the course, but may not necessarily carry equal marks. The second section will consist of 5 or 6 structured questions from which the candidate will be required to answer 4.

(ii) Allocation of marks

The total marks on the paper will be 100, with 12 marks for each question in section 2. The marks for each question or part of a question will be indicated on the paper. Fifty-two (52) marks will be allocated to section 1 and 48 marks to section 2.

(iii) Award of marks

A candidate will obtain full marks for questions provided that correct answers and working are shown. In the case of an incorrect answer, the candidate may be awarded some of the marks provided that correct arguments are shown in their working.

(iv) Use of calculators

It is strongly recommended that each candidate have a scientific calculator with trigonometric and statistical functions for the examination.

Suggested Textbooks

A Concise course in A Level Statistics by J. Chambers and J. Crawshaw ISBN 0748717579 Stanley Thornes

Introducing Statistics by Graham Upton and Ian Cook ISBN 019914561X Oxford University Press

Core Maths for A- Level by L.Bostock and S. Chandler ISBN 07487 1779X Stanley Thornes

Cartoon Guide to Statistics by Larry Gonick and Woollcott Smith ISBN 006273102J Harper Collins

MTH002 - Introduction to Probability and Statistics

Sample Exam Paper

SECTION 1

Answer ALL questions in this section.

1. Classify each variable as discrete or continuous.

   (a) Number of cars passing certain roundabout in 30 minutes.
   (b) Type of car in a certain car park.
   (c) Speed of vehicles passing a certain point.
   (d) Colour of cars in a showroom.
   (e) Time taken by each member in the Mathematics class to complete a project.

   [5 marks]

2. (a) Explain briefly the difference between a population and a sample. **[2 marks]**
   (b) Explain why sampling is necessary. **[2 marks]**

3. The stem-and -leaf diagram below shows the points scored by a basketball team in 33 games.

3.

STEM	LEAF									
0	2	3								
1	0	0	1	2	2	3	9			
2	2	4	5	7	9	9	9			
3	0	0	1	1	1	2	5	6	6	7
4	4	5	5	6						
5	2	3	3				Key: 3/1 means 31			

   Find
   (a) the median score of team. **[1 mark]**

(b) the interquartile range. **[3 marks]**

4. A and B are events such that P(A) =0.5, P(B)= 0.4 and P(A/B) = 0.2

(a) State, with reason whether the events A and B are independent. **[2 marks]**
(b) Find the value of :
(i) P(A 1 B) **[2 marks]**
(ii) P(A χ B) **[3 marks]**

5. The following data represent the scores obtained in a Mathematics test out of 50 by 20 students.

40 31 24 50 27 41 49 49 41 40

18 27 49 31 31 50 40 31 31 50

(a) Construct a frequency distribution of the data. **[3 marks]**
(b) State the mode of the distribution. **[1 mark]**
(c) State one advantage of representing the data on a stem-and-leaf diagram. **[1 mark]**

6. Ten numbers have a mean of 22. Given that the first nine numbers have a total of 201, determine the value of the tenth number. **[3 marks]**

7. For the sample space, S, it is given that: P(A) = 0.5, P(A χ B) = 0.9 and P(A 1 B) = 0.3

(a) Draw a Venn diagram to illustrate the above information. **[4 marks]**
(b) Find P(A' 1 B') **[2 marks]**

8. David L. Martin points out another method of distorting the truth with descriptive techniques. Italicized comments are Martin's.

25 percent of the 16 and 17 year olds in the Portland, Me., Bayside East Housing Project were out of school. *Only 8 children were surveyed; two were found to be out of school.*

Of all the secondary schools students who had been suspended more than once in census tract 22 in Columbia, S.C., 33 percent had been suspended two times and 67 percent had been suspended three or more times. *CDF found only three children in that entire census tract who had been suspended; one child was suspended twice and the other two children, three or more times.*

In the Portland *Bayside* East Housing Project, CDF says that 50 percent of all the secondary school children who had been suspended more than once had been suspended three or more times. *The survey found two secondary school children had been suspended in that area; one of them had been suspended three or more times.*

Comment on the appropriateness of the method of reporting the statistical information. **[2 marks]**

Source: Martin, D.L. Children out of school: Firsthand report how flawed statistics can make an ugly picture look even worse, *American School Board Journal, 1975, 163,* 57-59.

9. A die is rolled 25 times with the following results.

Outcome (x)	1	2	3	4	5	6
Frequency (f)	2	4	a	7	2	5

(i) Calculate the value of a . **[2 marks]**

(ii) Show that the mean number of outcomes is 3.72 **[3 marks]**

(iii) Calculate the standard deviation. **[4 marks]**

10. The table below shows the U.S. farm production (in millions) for the years 1973 - 1983.

Year	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Farm Population (Millions)	9.47	9.26	8.86	8.25	7.81	8.01	7.55	7.24	7.01	6.88	7.03

Source: U.S. Department of Agriculture cited in Spiegel. M, 1990 Statistics Schaum's Outline Series 2nd edition.

(a) Construct a 5-year moving average. **[3 marks]**

(b) Describe how to use the moving-averages method to compute the trend values for the data. **[3 marks]**

(c) State one disadvantage of the moving-average method. **[1 mark]**

SECTION 2

Answer ANY FOUR questions in this section.

11. The frequency distribution in the table below gives the masses, in kg, to the nearest kg of 40 dogs.

Mass in kg	10-19	20-29	30-39	40-49
Frequency	4	17	14	5

(a) State the class boundaries of the interval 20-29 and its width. **[2 marks]**

(b) Construct a histogram to represent the distribution. **[4 marks]**

(c) Use the histogram to estimate the mode. **[3 marks]**

(d) Calculate the mean mass of the dogs. **[3 marks]**

12. The table below shows the distribution of students by subject and year group.

	Year 1	Year 2	Year 3
Mathematics	100	90	55
Physics	40	30	15
Chemistry	80	65	25

A student is chosen at random. Find the probability that the student is:

(a) taking Mathematics. **[2 marks]**

(b) a Year 2 student taking Physics. **[2 marks]**

(c) taking either Chemistry or is a Year 3 student. **[3 marks]**

(d) taking neither a Year 1 student nor taking Physics. **[3 marks]**

(e) a Year 3 student taking either Physics or Chemistry. **[2 marks]**

13. Six pairs of observations are such that the values of x are exact, but the values of y are liable to error.

x	1	2	3	4	5	6
y	2.6	16.1	30.4	43.3	46.6	70.1

$\Sigma x = 21$, $\Sigma y = 209.1$, $\Sigma xy = 952.8$, $\Sigma x^2 = 91$, $\Sigma y^2 = 10150.59$

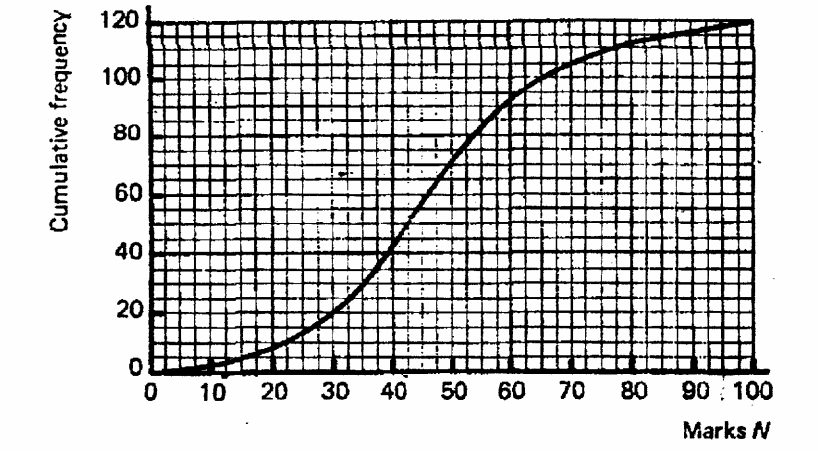
(a) State the independent variable. **[1 mark]**

(b) Represent the data on a scatter diagram. **[3 marks]**

(c) Calculate the equation of the estimated regression line of y on x . Plot (x, y) and draw in the regression line on the scatter diagram. **[6 marks]**

(d) Use your graph to estimate the value of y when x = 3.5. **[2 marks]**

14. The graph below shows the cumulative frequency for the distribution of the number of marks in the range 0 to 99 insclusive obtained by 120 students.



(a) Use the graph to estimate:

(i) the median mark, **[1 mark]**

(ii) the interquartile range, **[3 marks]**

(iii) the number of students who scored less than 50 marks. **[2 marks]**

(b) Construct a box-and-whisker diagram. **[4 marks]**

(c) State two advantages of the box plot. **[2 marks]**

15. A certain bowler delivers off-breaks (O) and bouncers (N) with probabilities of 0.6 and 0.4 respectively. The probability that a batsman is bowled (B) by an off-break is 0.3 and the probability that the batsman is bowled by a bouncer is 0.5.

(a) Draw the tree diagram to represent this information, showing the appropriate probabilities on all branches. **[4 marks]**

(b) Find the probability that the bowler delivers a bouncer and the batsman is bowled. **[2 marks]**

(c) Find the probability that the batsman is bowled by the next ball delivered. **[3 marks]**

(d) Find the probability that the ball was an off-break given that the batsman was bowled. **[3 marks]**

MTH002 - Introduction to Probability and Statistics
Answers and Mark Scheme

SECTION 1

1. (a) Discrete **[1]**

   (b) Discrete **[1]**

   (c) Continuous **[1]**

   (d) Discrete **[1]**

   (e) Continuous **[1]**

2. (a) A population is a set of data **[1]** (or measurements) that characterises some phenomenon. A populations may be large or infinitely large. On the other hand, a sample is a representative subset (part) of data selected from the population. *(or any suitable answer)* **[1]**

   (b) Sampling is necessary because we use the information in the smaller set of measurements (the sample) to make decisions, predictions or generalisations about the large or whole set of measurements (ie, the population) without actually studying the whole of the larger set. **[1]** **[1]**

3.

STEM	LEAF
0	2 3
1	0 0 1 2 2 3 9
2	2 4 5 7 9 9 9
3	0 0 1 1 1 2 5 6 6 7
4	4 5 5 6
5	2 3 3

   (a) Median score = 30 **[1]**

   (b) Lower quartile = $\frac{13 + 19}{2} = 16$ **[1]**

Upper quartile = $\frac{36 + 37}{2}$ 36.5 **[1]**

Interquartile range = 36.5 – 16 = 20.5 **[1]**

4. P(A) = 0.5, P(B)=0.4, P(A/B) = 0.2

[1]

(a) A and B are NOT independent events since

P(A/B) P(A) **[1]**

(b) (i) $P(A/B) = \frac{P(A \cap B)}{P(B)}$

$\hat{}$ P(A 1 B) = P(A/B) ≅ P(B) **[1]**

= (0.2) (0.4)

= 0.08 **[1]**

(ii) P(A χ B) = P(A) + P(B) – P(A 1 B) **[1]**

= 0.5 + 0.4 – 0.08 **[1]** *for subsituting 'his' P(A 1 B)*

= 0.082 **[1]**

5. (a) Score in test:

18	24	27	31	40	41	49	50
Number of students							
1	1	2	5	3	2	3	3

[1] *for 3 correct*
[2] *for 6 correct*
[3] *for all correct*

(b) Mode is 31 **[1]**

(c) Stem-and-leaf diagrams retain the original data information, but present it in a compact way. **[1]**

6. Mean of ten numbers = 22

Total Mean of ten numbers = 22 x 10 =220 **[1]** $\left[\text{Using } \frac{\sum x}{10} = 22\right]$

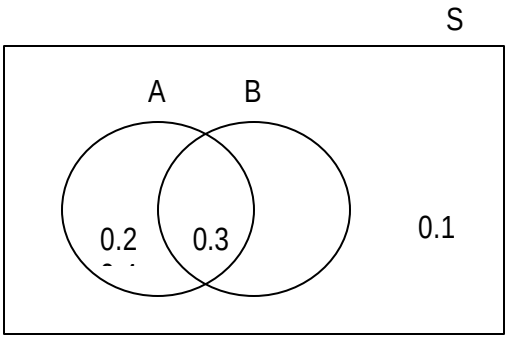
Total of nine numbers = 201 $\sum x = 220$

Tenth number = total of ten numbers – total of 9 numbers

= 220 – 201 **[1]** *for subtraction*

Tenth number = 19 **[1]**

7. (a)



[1] *for diagram*
[1] *for correctly placing P(A 1 B)* = 0.3
[1]*for correctly placing 0.1 outside of A & B but within space S.*
[1] *for correctly placing <u>either</u> 0.2 or 0.4*

(b) P(A' 1 B') = 0.1 from diagram **[2]**

<u>OR</u>

P(A' 1 B') = 1 – P(A χ B) **[1]**
= 1 – 0.9
= 0.1 **[1]**

8. In each of the examples given reporting in percentages instead of the numbers themselves is misleading. **[1]** Any inference drawn from these examples would not reliable. In fact, the numbers alone should have been reported instead of the percentages or in order to give a **[1]** true picture of the situation. (OR) Alternatively, the report should have stated that the numbers were too small to be reported by region and so, if several **[1]** regions were combined, the numbers (and percentages) would be more meaningful. *(Or any suitable answer)*

9.

Outcome (x)	1	2	3	4	5	6
Frequency (f)	2	4	a	7	2	5

(i) $\sum f = n$

2 + 4 + a + 7 + 2 + 5 = 25 **[1]**

$20 + a = 25$

$a = 25-20$

$a = 5$ **[1]**

(ii) Mean, $\bar{x} = \dfrac{\sum fx}{\sum f} = \dfrac{1\times 2 + 2\times 4 + 3\times 5 + 4\times 7 + 5\times 2 + 6\times 5}{25}$ **[1]**

$= \dfrac{93}{25} = 3.72$ **[1]** *as* **[1]**

(iii) Standard Deviation, $s = \sqrt{\dfrac{\sum fx^2}{\sum f} - (\bar{x})^2}$ **[1]**

$= \sqrt{\dfrac{1^2\times 2 + 2^2\times 4 + 3^2\times 5 + 4^2\times 7 + 5^2\times 2 + 6^2\times 5 - (3.7)}{25}}$

$= \sqrt{\left(\dfrac{2 + 16 + 45 + 112 + 50 + 180 - (3.75)^2}{25}\right)}$ **[1]**

$= \sqrt{\left(\dfrac{405}{25} - (3.72)^2\right)}$ **[1]**

$= 1.54$ to 2 decimal places **[1]**

10 (a)

Year	Data	5-Year Moving Total	5-Year Moving Average
1973	9.47		
1974	9.26		
1975	8.86	43.65	8.73
1976	8.25	42.19	8.44
1977	7.81	40.48	8.10
1978	8.01	38.86	7.77
1979	7.55	37.62	7.52
1980	7.24	36.69	7.34
1981	7.01	35.71	7.14
1982	6.88		
1983	7.03		

[1] for 3 correct moving averages
[2] for 5 correct " "

(b) By drawing the graph of the original data (as a solid line) and the graph of the moving averages (as a dashed line) it is possible to identify whether the moving average has smoothed the graph of the original data thus showing the trend line. **[1]**

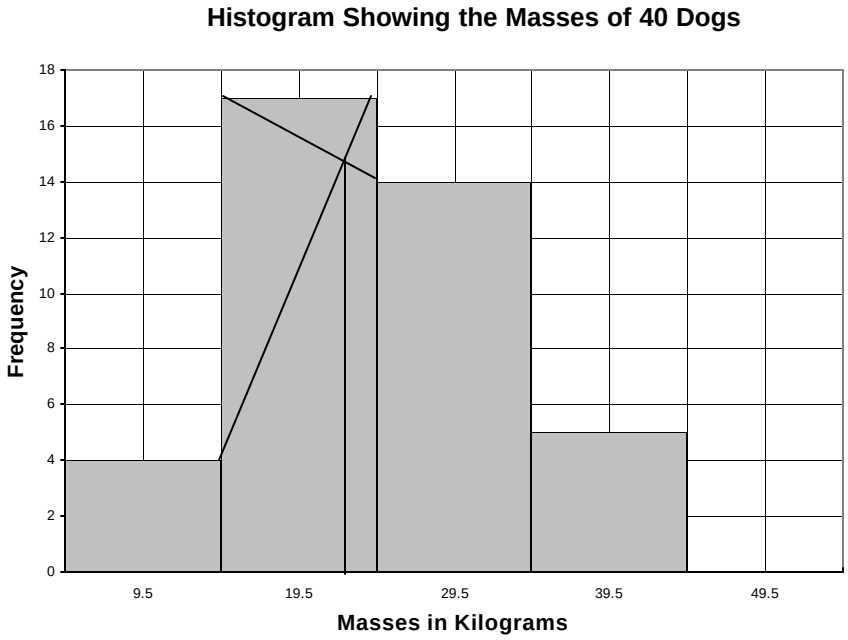
As a result we can use the averages obtained as the trend values for the years 1975 to 1981 ie 8.73 for 1975, 8.44 for 1976 …. 7.14 for 1981. **[1]**

Note that this method makes the trend values unavailable for the years 1973, 1974, 1982 and 1983. **[1]** However, extrapolation of the graph could obtain estimates of these values.

SECTION 2

11. (a) Class boundaries of the interval 20 – 29 are 19.5 and 29.5
Width = 29.5 –19.5 = 10 **[1]**

(b) Histogram — **[1]** correctly labelling x-axis, **[1]** correctly labelling y-axis, **[1]** correct frequency, **[1]** drawing rectangles



Mode . 27.5

(c) **[1]** correct lines, **[1]** identifying point, **[1]** obtaining correct mode

(d)

12. Mean, $\bar{x} = \frac{\sum fx}{\sum f}$ **[1]** *SOI*

	Year 1	Year 2	Year 3
Mathematics	100	90	55
Physics	40	30	15
Chemistry	80	65	25

[1] *using mid-points of*

$= \frac{14.5 \times 4 + 24.5 \times 17 + 34.5 \times 14 + 44.5 \times 5}{40}$

$= 29.5$ **[1]**

(a) $P(\text{Maths}) = \frac{245}{500}$ **[1]**

[1]

(b) P(Year 2 student taking Physics) = $\frac{30}{500} = \frac{3}{50}$

[1]

(c) P(Student taking either Chemistry or is Year 3) = $\frac{240}{500} = \frac{12}{25}$

or $\frac{170}{500} + \frac{95}{500} - \frac{25}{500} = \frac{240}{500}$

[1] **[1]**

(d) P(neither Year 1 student nor taking Physics) = $\frac{145}{500} + \frac{90}{500} = \frac{235}{500}$

[1] **[1]**

(e) P(Year 3 student taking either Physics or Chemistry) = $\frac{15}{500} + \frac{25}{500}$ **[1]**

$= \frac{40}{500} = \frac{2}{25}$ **[1]**

13.

x	1	2	3	4	5	6
y	2.6	16.1	30.4	43.3	46.6	70.1

(a) Independent variable is *x* **[1]**

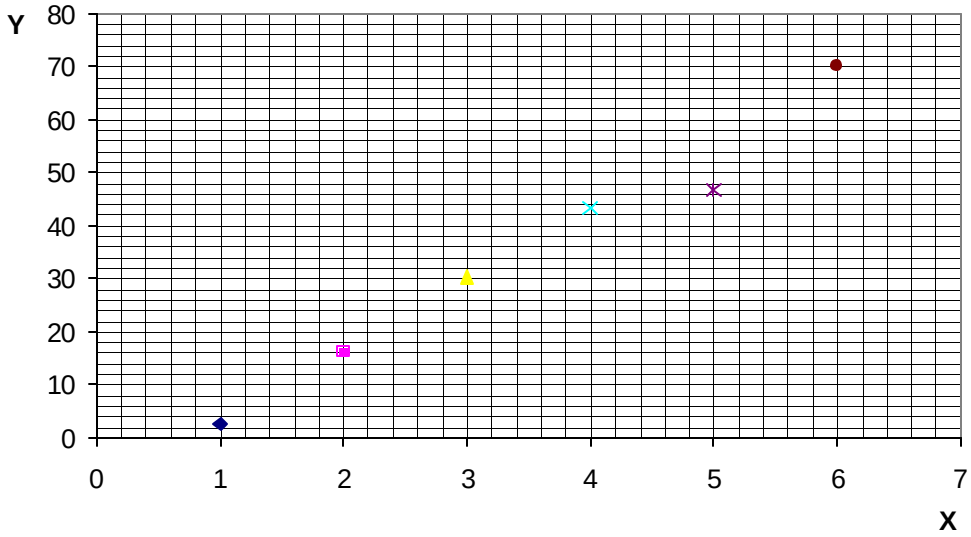
(b) See scatter diagram

[1] *for labelling axes,*

[1] *for correctly plotting 3 points,*

[2] *for correctly plotting all points*

Scatter Diagram



(c) To find regression line of y on x, use

$$y - \bar{y} = m(x - \bar{x}) \quad \textbf{[1]}$$

where $m = \dfrac{n\sum xy - \sum x \sum y}{n\sum x^2 - \left(\sum x\right)^2} = 12.6$

$y = 12.6x - 9.4$ **[1]**

and $\bar{y} = \dfrac{\sum y}{n}$, $\bar{x} = \dfrac{\sum x}{n}$

Note **[1]** correctly calculated $\bar{y}$, **[1]** $\bar{x}$, **[1]** m, **[1]** regression line (see diagram).

or obtain regression line from calculator.

Plot $(\bar{x},\bar{y})$ on a scatter diagram **[1]**
Draw the estimated regression line to pass through $\bar{x},\bar{y}$ **[1]**

(d) Use your graph to find the value of y when $x = 3.5$

[1] *for identifying x =3.5 on regression line*
[1] *for correctly reading y value when x = 3.5*

14. From the graph

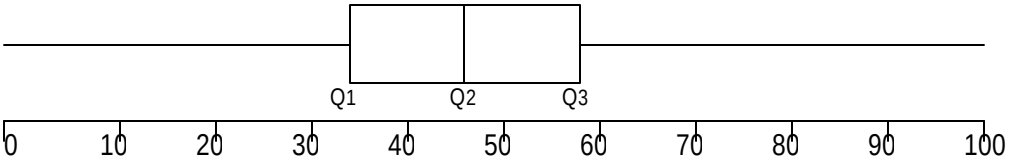
(i) the Median . 46 **[1]**

(ii) the interquartile range = $Q_3 - Q_1$. 58 – 35 = 23

[1] **[1]** **[1]** also accept 57.5 and 22.5

(iii) the number of students who scored less than 50 = 70 **[2]**

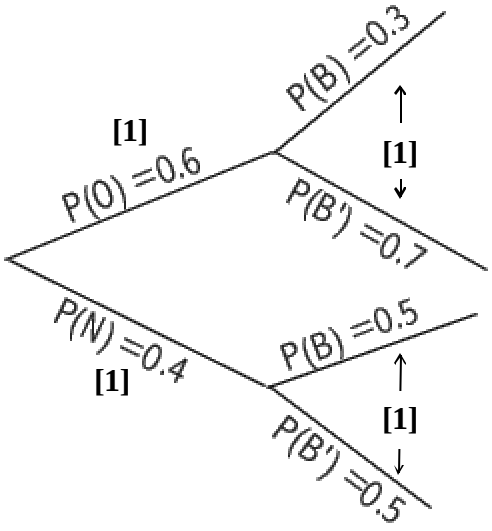
(b)



[1] *correctly plotting Q_2*
[1] *correctly plotting Q_1 & Q_3*
[1] *boxing Q_1, Q_2, Q_3*
[1] *drawing 'ears' or 'whiskers'*

(c) The box plot gives the impression of a positively skewed distribution, with the middle 50% of the distribution lying between 35 marks and 58 marks. **[1]** It also illustrates the spread (range) of the data. **[1]**

15. (a)



[1] **[1]** **[1]** **[1]**

[1]

(b) $P(N \cap B) = 0.4 \times 0.5 = 0.2$ **[1]**

(c) $P(B) = P(O \cap B) + P(N \cap B) = (0.6)(0.3) + (0.4)(0.5)$

$= 0.18 + 0.20$

$= 0.38$ **[1]**

(d) $P(O / P) = \dfrac{P(O \cap B)}{P(B)}$ **[1]**

$= \dfrac{0.18}{0.38}$ **[1]**

$= \dfrac{9}{19}$ **[1]**

GENERAL EDUCATION COURSE

MODEL SYLLABUS

Name of Course: **S010 - Introduction to Spanish**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **None**

Course Description

This course in intended for students with no prior knowledge of Spanish. Therefore, it is aimed at developing basic communicative competence in the target language by equipping students with both the receptive skills (listen, read) and the productive skills (speak, write) to function in common real-life situations where the target language is used. It is also expected to serve as a foundation course for continued studies in the language.

Course Objectives

This course aims to develop in students the ability and desire to use Spanish effectively for purposes of practical communication in basic everyday situations.

Specific Objectives

At the end of the course, students should be able to:

1. Listen to and understand simple spoke language in a variety of situations
2. Read simple continuous texts in Spanish
3. Respond clearly and appropriately (orally and in writing) to stimuli in Spanish
4. Demonstrate knowledge of socio-cultural norms in Spanish-speaking countries.

Learning Objectives

On completion of the course students should be able to:

5. Listen to and extract specific information from oral stimuli such as instructions, requests, announcements, short dialogues

6. Read and extract relevant information from signs, advertisements, short texts such as brochures, letters and other samples of continuous writing

7. Elicit and provide information both orally and in writing on self, family, home, hobbies, daily routine, etc., and respond spontaneously to a number of real-life situations

8. Respond to simple text (short sentences and paragraphs) in the form of dialogues, letters, brochures, etc.

N.B. It is understood that the level of accuracy expected will be well within the context of the grammatical structures and elements outlined in the content of the syllabus. It is also expected that cultural components would be an integral part of the topics taught.

Content Outline

Introduction: the sounds, accent and stress, spelling.

	Topics	**Functions**
1.	***Personal Identification***	Meeting people (greetings) Socializing (forms of address) Talking about oneself (age, occupation ...) and family (descriptions) Saying where you are from (countries, nationalities) Counting (1-50)

Suggested structures and expressions
Masculine/Feminine; Singular/Plural; Nouns/Adjectives; Present tense of "ser" (to be), "tener" (to have), "llamarse" (to be called); the Imperative.

2.	***Daily Activities***	Describing the working day Telling the time Counting (50-100; expressing telephone numbers)

Suggested structures and expressions
Present tense of regular verbs - Stem-changing verbs; Reflexive verbs; Adverbs of time.

3.	***Expressing Likes and Dislikes***	Expressing opinions, wishes and wants Talking about free time, hobbies, activities, sports

Suggested Structures and expressions
Present tense of "gustar" (to like) and "querer" (to want); "ir a"; negation

4. ***Location***
   Saying where you are
   Asking and saying where places are
   Identifying and describing places (e.g. home and environment)
   Giving and asking for directions.

Suggested structures and expressions
Prepositions of place; Interrogatives; Present tense of "estar"; Comparisons; The Imperative

5. ***The Weather***
   Talking about weather conditions and seasons
   Identifying and using the months of the year and the date in context
   Using numbers 100 and up

Suggested structures and expressions
"Tener" + noun; idioms with "hacer"

6. ***Food and Drink/Shopping***
   Expressing thirst and hunger
   Ordering food and drink
   Selling/buying (market, store ...)
   Asking about and stating cost, weight, quantity ...)

Suggested structures and expressions
"Hay" (there is/are); "¿Cuánto/a/os/as?" (How much/many?); "Este/os/as" (this, these); More verbs ("comprar", "vender", etc.)

Suggested Teaching/Learning Methods

Situational role play
Mini-Dialogues
Use of authentic material for listening and reading
Producing advertisements, notices, signs, etc.
Making diary entries
Laboratory exercises to enhance listening and pronunciation.

Assessment and Evaluation Procedures

Students will be assessed throughout the course as well as at the end. The in-course evaluation will comprise four tests (2 oral/aural, 2 reading/writing). This continuous evaluation could consist of a variety of exercises testing the relevant skills. The final examination will be based on the material studied during the semester and will test the four skills outlined in the objectives.

!	**Continuous Assessment**:	Oral/aural	-	40%
		Reading/writing	-	20%
!	**Final Examination**:	Oral/aural	-	20%
		Reading/writing	-	20%

Required Texts

Dawson, L.M. & Dawson, A.C. (1997. Fifth Edition). *Dicho y Hecho. Beginning Spanish*. New York: John Wiley & Sons Inc.

Martin, R.M., & Ellis Martyn (1991). *Pasos. A first course in Spanish*. London: Hodder and Stoughton. (Support book and set of 2 cassettes)

Samaniego, F.A. et al. (1998, third edition). ¡Dímelo tú! Forth Worth: Holt, Rinehart and Winston. Harcourt Brace College Publishers.

Supplementary Reading Materials/Resources

Periodicals, magazines, newspapers
Use of Internet
Language Laboratory

S010 Introduction to Spanish

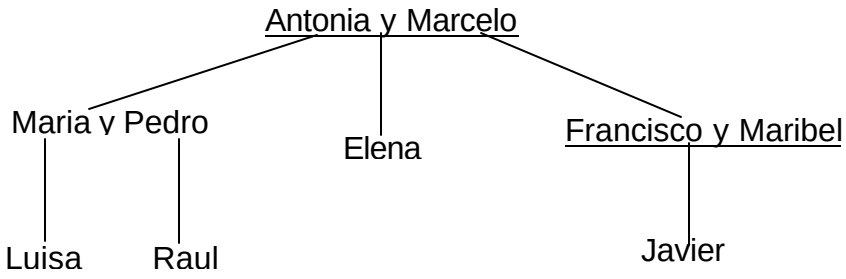
Sample Examination Paper

Duration: 2 hrs

Directions: This exam comprises four parts. You must answer all parts. Read carefully the rubrics and answer according the instructions given.

Part I – Reading Comprehension – (40 minutes)

(A) Study carefully the following family tree and answer in **SPANISH** the questions that follow.



1. ¿Cuántos varones tienen Antonia y Marcelo?
2. ¿Cómo se llamma la esposa de Francisco?
3. ¿Quién es la sobrina de Elena?
4. ¿Cómo se llaman las cuñadas de María?
5. ¿Cuántos nietos tienen Antonía y Marcelo?
6. ¿Cuál es el estado civil de Elana?

[6 marks]

(B) Read the following selection and answer in **ENGLISH** the questions that follow.

Descuento en Discos Compactos

Gran descuento en lad tienda "Vibes". Compra dos discos compactos y recibe otro a medio precio. Esta oferta continua hasta el jueves próximo.

7. What is being advertised here?
8. What is the offer?

9. How long will the offer last? **[3 marks]**

(C) Read the following selection and answer in **ENGLISH** the question that follow.

Vamos a la Playa

¡Es un día magnífco! Hace sol y mucho calor. Marisel y sus amigas han decidido ir a la playa. Están muy contenas porque no hay mucha gente allí este domingo como es el día de la madre. Dos de ellas, Marisel e Isabel deciden entrar en el agua inmediatamente pero Pepita y Ramona quieren tomarel sol. A eso de mediodía tienen mucha hambre. Se sientan a la sombra debajo de un arbol y comen su merienda. Han llevado bocadillos de jamon y queso. Tambien tienen refrescos.

10. What is the weather like?
11. Where are the girls going?
12. Why aren't there many people?
13. What are Pepita and Ramon doing?
14. Where do they have lunch?
15. What do they have to eat for lunch?

[6 marks]

Part II – Writing – (45 minutes)

(D) Write a short paragraph in **SPANISH** (80-100 words) about your plans for your Christmas holidays/summer holidays.

[15 marks]

(E) Write an advertisement for a newspaper seeking a roommate for an apartment (50 words) mention the following:

- Who you are looking for
- A description of the apartment

[10 marks]

Part III - Grammar Exercises - (20 minutes)

(F) Fill in the blanks with the appropriate form of the word that is given in brackets.

En el Restaurante

El señor Machado _____ (invitar) a su esposa al restaurante. Deben salir de la casa
1
a las siete de la tarde. Ellos ____ ___ (querer) comer langostas y van a ir a la
2
Langosta Roja. La señora se viste con una falda _____ (amarillo) y una blusa
3
_____ (bordado) al estilo mexicano. El camarero les _____ (dar) el
4 5
menu. La señora _____ (pedir) de entrada sopa de calabaza pero el esposo
6
_____ (preferir) empezar con alcachofas. Luego, los dos _____ (comer)
7 8
todas las langostas que _____ (poder). Para beber _____ (tomar) vino blanco.
9 10

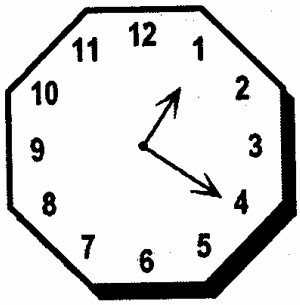
[10 marks]

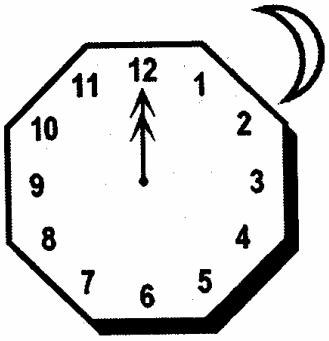
(G) Make correct sentences using the appropriate form of "ser" or "estar".

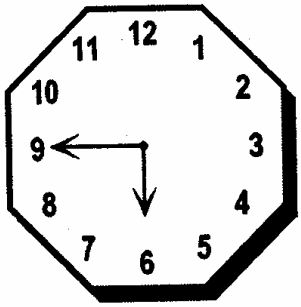
11. rojo / el coche
12. simpáticas / las amigas
13. muy contenta / la familia
14. archítecta / la madre
15. Luísa y Pedro / enfermos

[10 marks]

H) Express in **SPANISH** the time as illustrated.

16. 

17. 

18. 

[3 marks]

I. State in **SPANISH** the dates as indicated in the following calendars.

19.

July 2000						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9 ...					

20.

January 2000						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	*10* ...			

[2 marks]

Part IV - Listening Comprehension

Listen to the following selections and answer in **ENGLISH** the questions which follow. Each selection will be read/heard twice.

(J) El vuelo FL108 de Tampa a San Juan tiene dos hors de demora. Les vamos a informar de su llegada en otro anuncio. ¡Rogamos discuplen las molestias!

1. What is being announced here?
2. What is the destination?

3. How long is the delay?

[3 marks]

(K) Se ofrece a todos los jóvenes una experiencia estupenda en el mes de agosto. Pueden hacer actividades como artesanía, teatro, deportes. Sólo $20 para matricularse. Para más informacion, llame al 65-40-32.

4. What are young people invited to participate in?
5. When will it take place?
6. What should one do to get more information?
7. How much is it to register?

[5 marks]

(L) Nuestro cine solo presenta las más últimas películas. Hay tres presentaciones cada día, a las cuatro, las siete y las nueve.

8. What is this cinema advertising?
9. At what times can the films be viewed?

[2 marks]
Total 10 marks

EXAM TOTAL = 75 MARKS

S010 Introduction to Spanish

KEY

Part I - Reading Comprehension

(A)

1.	¿Cuántos varones tienen Antonia y Marcelo?	Pedro y Francisco /2	**[1]**
2.	¿Cómo se llamma la esposa de Francisco?	Maribel	**[1]**
3.	¿Quién es la sobrina de Elena?	Lusia	**[1]**
4.	¿Cómo se llaman las cuñadas de María?	Elena y Maribel	**[1]**
5.	¿Cuántos nietos tienen Antonía y Marcelo?	3	**[1]**
6.	¿Cuál es el estado civil de Elana?	Está soltera	**[1]**

(B)

7.	What is being advertised here?	Compact disks	**[1]**
8.	What is the offer?	Buy one and get one at ½ price	**[1]**
9.	How long will the offer last?	Until next Thursday	**[1]**

(C)

10.	What is the weather like?	It's a beautiful/ sunny and hot day	**[1]**
11.	Where are the girls going?	To the beach	**[1]**
12.	Why aren't there many people?	It's mother's day	**[1]**
13.	What are Pepita and Ramon doing?	Sunbathing	**[1]**
14.	Where do they have lunch?	Under a tree	**[1]**
15.	What do they have to eat for lunch?	Ham and cheese sandwiches/ sandwiches	**[1]**

Total 15 marks

Part II – Writing – (45 minutes)

(D) Write a short paragraph in **SPANISH** (80-100 words) about your plans for your Christmas holidays/summer holidays. **[15 marks]**

This will be assessed on content [5 marks] and clarity of expression [10 marks].

Content

5 = Very good organisation and coverage of topic presented in a coherent manner.

4-3	=	Good organisation and coverage of topic presented in a fairly coherent manner.
2	=	Satisfactory organisation and coverage of topic.
1	=	Poor organisation and coverage of topic. Incoherent.
0	=	Very poor. Ungradable.

Clarity of Expression

10	=	Very good. Uses the language appropriately and accurately; occasional minor errors.
9-8	=	Good. Uses the language appropriately and accurately; some minor errors not affecting meaning.
7-6	=	Adequate grasp of essential structures; marked inaccuracies sometimes affecting meaning.
5-4	=	Satisfactory. Demonstrates limited grasp of essential structures;
3-1	=	Poor. Demonstrates little grasp of essential structures; numerous inaccuracies.
0	=	Very poor. Generally inaccurate.

(E) Write an advertisement for a newspaper seeking a roommate for an apartment (50 words) mention the following:

- Who you are looking for
- A description of the apartment

[10 marks]

This will be assessed on content [4 marks] and clarity of expression [6 marks].

Content

4	=	Very good organisation and coverage of topic presented in a coherent manner.
3	=	Good organisation and coverage of topic presented in a fairly coherent manner.
2	=	Satisfactory organisation and coverage of topic.
1	=	Poor organisation and coverage of topic. Incoherent.
0	=	Very poor. Ungradable.

Clarity of Expression

6	=	Very good. Uses te language appropriately and accurately; occasional minor errors.
5	=	Good. Uses the language appropriately and accurately; some minor errors not affecting meaning.
4	=	Adequate grasp of essential structures; marked inaccuracies sometimes affecting meaning.
3	=	Satisfactory. Demonstrates limited grasp of essential structures; inaccuracies that affect meaning.
2-1	=	Poor. Demonstrates little grasp of essential structures; numerous inaccuracies.
0	=	Very poor. Generally inaccurate

Total 25 marks

Part III - Grammar Exercises - (20 minutes)

(F) Fill in the blanks with the appropriate form of the word that is given in brackets.

En el Restaurante

El senor Machado _invita_ (1) a su esposa al restaurante. Deben salir de la casa a las siete de la tarde. Ellos _quieren_ (2) comer langostas y van a ir a la Langosta Roja. La señora se viste con una falda _amarillo_ (3) y una blusa _bordado_ (4) al estilo mexicano. El camarero les _da_ (5) el menú. La señora _pide_ (6) de entrada sopa de calabaza pero el esposo _prefiere_ (7) empezar con alcachofas. Luego, los dos _comen_ (8) todas las langostas que _pueden_ (9). Para beber _toman_ (10) vino blanco.

[10 marks]

(G) Make correct sentences using the appropriate form of "ser" or "estar".

11. El coche es rojo.
12. Las amigas de Juan son simpáticas.
13. La familia está muy contenta.
14. Su madre es archítecta
15. Luísa y Pedro están enfermos

[10 marks]

(H) Express in **SPANISH** the time as illustrated.

16. Es la una y veinte
17. Es medianoche
18. Son las seis menos quince/cuarto

[3 marks]

(I) State in **SPANISH** the dates as indicated in the following calendars.

19. Es el primero de julio
20. Es el diez de enero

[2 marks]
Total 25 marks

Part IV - Listening Comprehension

(J)

1.	What is being announced here?	The delay of a flight
2.	What is the destination?	San Juan
3.	How long is the delay?	2 hours

[3 marks]

(K)

4. Summer activities in craft, drama and sports. **[2 marks]**
5. In the month of August.
6. Call at 65-40-32.
7. $20.00.

[5 marks]

(L)

9. The most recent films.
10. At 4, 6 and 9 o' clock.

[2 marks]
Total 10 marks

EXAM TOTAL = 75 MARKS

GENERAL EDUCATION CORE COURSE

MODEL SYLLABUS

Name of Course: **F010 - Introduction to French**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **None**

Course Description

This course in intended for students with no prior knowledge of French. Therefore, it is aimed at developing basic communicative competence in the target language by equipping students with both the receptive skills (listen, read) and the productive skills (speak, write) to function in common real-life situations where the target language is used. It is also expected to serve as a foundation course for continued studies in the language.

Course Objectives

This course aims to develop in students the ability and desire to use French effectively for purposes of practical communication in basic everyday situations.

Specific Objectives

At the end of the course, students should be able to:

1. Listen to and understand simple spoke language in a variety of situations.
2. Read simple continuous texts in French.
3. Respond clearly and appropriately (orally and in writing) to stimuli in French.
4. Demonstrate knowledge of socio-cultural norms in French-speaking countries.

Learning Objectives

On completion of the course students should be able to:

1. Listen to and extract specific information from oral stimuli such as instructions, requests,

announcements, short dialogues.

2. Read and extract relevant information from signs, advertisements, short texts such as brochures, letters and other samples of continuous writing.

3. Elicit and provide information both orally and in writing on self, family, home, hobbies, daily routine, etc., and respond spontaneously to a number of real-life situations.

4. Respond to simple text (short sentences and paragraphs) in the form of dialogues, letters, brochures, etc.

N.B. It is understood that the level of accuracy expected will be well within the context of the grammatical structures and elements outlined in the content of the syllabus. It is also expected that cultural components would be an integral part of the topics taught.

Content Outline

Introduction: the sounds, accent and stress, spelling.

	Topics:	**Functions**
1.	***Personal identification***	Meeting people (greetings) Socializing (forms of address) Talking about oneself (age, occupation ...) and family (descriptions) Saying where you are from (countries, nationalities) Counting (1-50)

Suggested structures and expressions
Masculine/Feminine; Singular/Plural; Nouns/Adjectives; Present tense of "être" (to be), "avoir" (to have), "s'appeler" (to be called); the Imperative.

2.	***Daily Activities***	Describing the working day Telling the time Counting (50-100; expressing telephone numbers)

Suggested structures and expressions
Present tense of regular verbs - ER, RE, IR (orthographic irregularities); reflexive verbs; Adverbs of time.

3.	***Expressing Likes and Dislikes***	Expressing opinions, wishes and wants

Talking about free time, hobbies, activities, sports.

Suggested structures and expressions
Present tense of "aimer" (to like) and "vouloir" (to want); Immediate future; negation.

4. ***Location*** Saying where you are
Asking and saying where places are
Identifying and describing places (e.g. home and environment)
Giving and asking for directions.

Suggested structures and expressions
Prepositions of place; Interrogatives; Present tense of "aller"; Comparisons; The Imperative.

5. ***The Weather*** Talking about weather conditions and seasons
Identifying and using the months of the year and the date in context
Using numbers 100 and up

Suggested structures and expressions
Expressions used with "avoir"; "il fait beau/froid", etc.

6. ***Food and Drink/Shopping*** Expressing thirst and hunger
Ordering food and drink
Selling/buying (market, store ...)
Asking about and stating cost, weight, quantity ...)

Suggested structures and expressions
"Il y a" (there is/are); "Combien?" (How much/many?); Demonstrative adjectives ce/celle/ces (this, these); More verbs ("acheter", "vendre", etc.)

Suggested Teaching/Learning Methods

Situational role play
Mini-Dialogues
Use of authentic material for listening and reading
Producing advertisements, notices, signs, etc.
Making diary entries
Laboratory exercises to enhance listening and pronunciation

Assessment and Evaluation Procedures

Students will be assessed throughout the course as well as at the end. The in-course evaluation will comprise four tests (2 oral/aural, 2 reading/writing). This continuous evaluation could consist of a variety of exercises testing the relevant skills. The final examination will be based on the material studied during the semester and will test the four skills outlined in the objectives.

!	**Continuous Assessment**:	Oral/aural	-	40%
		Reading/writing	-	20%
!	**Final Examination**:	Oral/aural	-	20%
		Reading/writing	-	20%

Required Texts

Berger, D. & Mérieux, R. (1994). *Cadences* I. Paris: Hatier/Didier (plus support book and a set of cassettes).

Dominique, P. et al. (1998). Le nouveau sans frontières I. Paris: CLE International (plus teacher's book and a set of cassettes).

Gomes, R. (1995). *Rendez-vous à l'annexe* I. Paris: Hatier/Didier (plus video cassette).

Supplementary Reading Materials/Resources

Periodicals, magazines, newspapers
Use of Internet
Language Laboratory

F010 Introduction to French

Sample Examination Paper

Duration: 2 hrs

Directions: This exam comprises four parts. You must answer all parts. Read carefully the rubrics and answer according the instructions given.

Part I - Reading Comprehension - (40 minutes)

(A) Study carefully the following form and answer in **FRENCH** the questions that follow.

INFORMATIONS PERSONNELLES

Surname: Cardinal

Name: Marie-Claude

Address:20, rue de la Sorbonne, Paris 75061, France

Sex:masc. 9**fem.** :

Date of Birth:01–09-1951

Nationality: French

Martial Status: Single

Occupation: Doctor

Hobbies: Reading, skating, swimming

Future Plans: Travel

1. Sur quelle rue habite Marie-Claude?
2. Quelle est sa citoyenneté?
3. Quel est son état civil?
4. Quelle est son occupation?

5. Nommez un de sess passe-temps?
6. Quels sont ses projects d'avenir?

[6 marks]

(B) Read the following selection and answer in **ENGLISH** the questions that follow.

> Aujourd'hui il fait beau avec une température de 26°C.
> Cependant, le temps va changer pendant le week-end; pluie et vent.

7. What is the weather like today?
8. How will it be during the week-end?

[2 marks]

(C) Read the following selection and answer in **ENGLISH** the questions that fellow.

> Nous vous invitons à venir célébrer notre 7ème anniversaire de mariage, dimanche, le vingt-trois février, à L'Hôtel Laforêt à partir de 20 heures.

9. What occasion is being celebrated?
10. When will it take place?

[2 marks]

(D) Read the following selection and answer in **ENGLISH** the questions that fellow.

> Les élèves d'histoire du Collège St. Joseph organisent une sortie pour visiter le Musée Historique. Cette visite a pour but d'obtenir les informations nécessaires en vue d'un concours interscolaire.
> Le prix pour le meilleur projet de classe est un voyage en Martinque.
> L' Association des Historiens appuie ce projet.

11. What have the history students organised?
12. What is the purpose of it?
13. Who will go to Martinique?

[5 marks]
Total 15 marks

Part II - Writing - (45 minutes)

(E) Write a short paragraph in **FRENCH** (80-100 words) about your plans for your Christmas holiday/summer holidays.

[15 marks]

(F) Write an advertisement for a newspaper seeking a roommate for an apartment (50 words). Mention the following.

- Who you are looking for
- A description of the apartment

[10 marks]
Total 25 marks

Part III - Grammar Exercises - (20 minutes)

(G) Fill in the blanks with the appropriate form of the verb in brackets.

1. Mes amis et moi _____(aller) souvent au cinéma.
2. Les enfants, _____ (se laver) les mains et _____(venir) manger!
3. Je _____ (s'appeler) Mireille Dumas
4. Tu _____ (aimer) les gateau au chocolat?
5. Ils _____Vouloir du vin rouge ou du vin blanc?
6. Jeanne est en retard. Nous l'_____ (attendre).
7. Les gens de la ville polluent leur environment. Ils _____(jetter) des déchets dans la rue.
8. Je ne _____ (vouloir) pas aller en ville aujourd'hui.
9. Vous _____ (devoir) faire des courses.

[10 marks]

(H) Fill in the blanks with the appropriate form of "être" or "avoir".

10. Mon frère _____ 20 ans.
11. Je _____ étudiant au Collège de Trinité.
12. Le soleil brille. Il fait chaud. Nous _____ soif.
13. Tu _____ de la Guadeloupe, n'est-ce pas?
14. Jacqueline travaille à l'école des langues. Elle _____ professeur d'espagnol.

[5 mark]

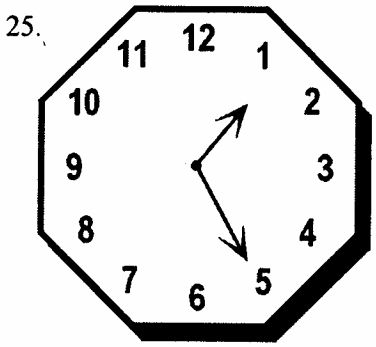
(I) Fill in blank with the appropriate preposition of place (à, à la, au, en, aux).

15. _____ Canada
16. _____ Saint Vincent
17. _____ Martinique
18. _____ Paris
19. _____ Allemagne
20. _____ Londres
21. _____ France
22. _____ Bridgetown
23. _____ Etats-Unis
24. _____ Cuba

[5 marks]

(J) Express in **FRENCH** the time as illustrated.

25.



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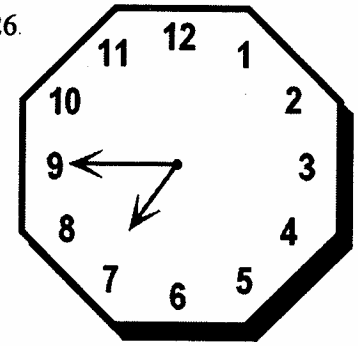

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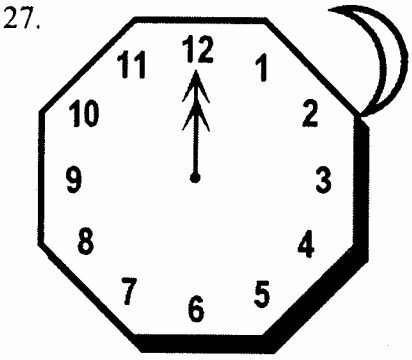

(K) State in **FRENCH** the dates as indicated in the following calendars.

28.

March 2000

S M T W T F S

.....

.....

.....**25 26 27**

28 29 30 *31*

29.

August 2000

S M T W T F S

.....

..... **13 14**

15 .....

[2 marks]
Total 25 marks

Part IV - Listening Comprehension - (15 minutes)

Listen to the following selections and answer in **ENGLISH** the questions which follow. Each selection will be read/heard twice.

(L) Attention! Attention! Tous les passagers pour La Cité Universitaire doivent descendre à la Gare Centrale. Nous repartons à 2 heures moins dix pour notre prochaine destination.

1. What should the passengers for Cité Universitaire do?
2. At what time is the train due to leave again?

[2 marks]

(M) Grande soirée à la Place de la Victoire. Venez vous amuser et danser au son de la musique d'un groupe bien connu de la Dominique. Nous annonçons une réduction sur let prix des billets pour les gens qui arrivent avant 20 heures. Les autres doivent payer plein prix.

3. What is being announced here?
4. What is the attraction? (2 marks)
5. Why is it good to go before 8 o'clock? (2 marks)

[5 marks]

(N) Un grave accident retarde la circulation au centre-ville. Si vous devez aller en ville, il es préférable d'attendre quelques heures. Ceci est un message du Department des Transports.

6. What problem is referred to here?
7. What are the people advised to do?

8. Who is sending out this message? **[3 marks]**

Total 10 marks

EXAM TOTAL = 75 MARKS

F010 Introduction to French

KEY

Part I - Reading Comprehension

(A)

1.	Sur la rue de la Sorbonne	**[1]**
2.	Française	**[1]**
3.	Célibataire	**[1]**
4.	Médecin	**[1]**
5.	La lecture/le patin (patiner)/ la natation (nager)	**[1]**
6.	Voyager	**[1]**

[6 marks]

(B)

7.	The weather is fine	**[1]**
8.	It will be rainy and windy	**[1]**

[2 marks]

(C)

9.	The seventh wedding anniversay	**[1]**
10.	Sunday 23rd February	**[1]**

[2 marks]

(D)

11.	A visit to the museum.	**[1]**
12.	To obtain information for an interschool competition	**[1]**
13.	The winner of the best project	**[2]**

[5 marks]

Part II - Writing - (45 minutes)

(E) Write a short paragraph in **FRENCH** (80-100 words) about your plans for your Christmas holidays/summer holidays.

[15 marks]

This part will be assessed on content [5 marks] and clarity of expression [10 marks].

Content

5	=	Very good organisation and coverage of topic presented in a coherent manner.
4-3	=	Good organisation and coverage of topic presented in a fairly coherent manner.
2	=	Satisfactory organisation and coverage of topic.
1	=	Poor organisation and coverage of topic. Incoherent.
0	=	Very poor. Ungradable.

Clarity of Expression

10	=	Very good. Uses the language appropriately and accurately; occasional minor errors.
9-8	=	Good. Uses the language appropriately and accurately; some minor errors not affecting meaning.
7-6	=	Adequate grasp of essential structures; marked inaccuracies sometimes affecting meaning.
5-4	=	Satisfactory. Demonstrates limited grasp of essential structures;
3-1	=	Poor. Demonstrates little grasp of essential structures; numerous inaccuracies.
0	=	Very poor. Generally inaccurate.

(F) Write an advertisement for a newspaper seeking a roommate for an apartment (50 words) mention the following:

- Who you are looking for
- description of the apartment

[10 marks]

This part will be assessed on content [4 marks] and clarity of expression [6 marks].

Content

4	=	Very good organisation and coverage of topic presented in a coherent manner.
3	=	Good organisation and coverage of topic presented in a fairly coherent manner.
2	=	Satisfactory organisation and coverage of topic.
1	=	Poor organisation and coverage of topic. Incoherent.
0	=	Very poor. Ungradable.

Clarity of Expression

6	=	Very good. Uses te language appropriately and accurately; occasional minor errors.
5	=	Good. Uses the language appropriately and accurately; some minor errors not affecting meaning.
4	=	Adequate grasp of essential structures; marked inaccuracies sometimes affecting meaning.
3	=	Satisfactory. Demonstrates limited grasp of essential structures; inaccuracies that affect meaning.
2-1	=	Poor. Demonstrates little grasp of essential structures; numerous inaccuracies.
0	=	Very poor. Generally inaccurate

Total 25 marks

Part III - Grammar Exercises - (20 minutes)

(G)

1. allons
2. (a) lavez-vous (b) venez
3. m'appelle
4. aimes
5. veulent

6. attendons
7. jettent
8. veux
9. devez **[10 marks]**

(H)

10. a
11. suis
12. avons
13. es
14. est **[5 marks]**

(I)

15. au
16. à
17. à la/en
18. à
19. en
20. à
21. en
22. à
23. aux
24. à **[5 marks]**

(J)

25. il est une heure ving-cinq
26. il est sept heure moins quart
27. il est minuit **[3 marks]**

(K)

28. le 31 mars
29. le 15 août **[2 marks]**

Total 25 marks

Part IV - Listening Comprehension - (15 minutes)

(L)

1. They have to disembark. **[1]**
2. At 10 to 2 **[1]**

[2 marks]

(M)

3. A ball/ a dance **[1]**
4. Music by a well-known group **[1]**
5. There will be reduction on the price of tickets **[1]**

[5 marks]

(N)

6. An accident/a traffic jam **[1]**
7. They should wait before leaving home **[1]**
8. The Department of Transport **[1]**

[3 marks]
Total 10 marks

EXAM TOTAL = 75 MARKS

GENERAL EDUCATION COURSE

MODEL SYLLABUS

Name of Course: **Caribbean Studies**

Duration of Course: **45 hours**

Number of Credits: **3**

Prerequisites: **None**

Course Description

The Caribbean Studies course should include the following:

1. Map work

2. Development issues, for example, Sustainable Development, The Environment and Regional Integration

3. Skills, for example, Writing, Research and Critical Analysis

4. Increased regional awareness and understanding;

   within the context of the:

   (i) Historical
   (ii) Geo-Political
   (iii) Economic, and
   (iv) Socio-Political

   realities of the contemporary Caribbean.

Rationale

The continued development of the Caribbean region and the ability of its people to participate in the initiating and establishing of policies and practices which support their interests, goals and aspirations will depend largely on whether citizens can work together to arrive at effective solutions to the challenges facing the region. Any such solutions will need to draw on the skills, talent and creative energies of the different groups, which comprise the Caribbean people. This process necessitates respect for, and tolerance of, the diverse cultures of the peoples of the region, each of which must be drawn into the development process.

Caribbean Studies is a necessary part of the general education of students who are of Caribbean origin, or who plan to live and work in the Caribbean. The course will give students a grasp of issues of critical importance to the development of the Caribbean region. Its aim is to help students develop as critical thinkers, with the knowledge and ability to rationally analyse and evaluate policies and projects developed for Caribbean countries, and to solve problems which they have identified as important to their communities of origin or to the region as a whole. Finally, it is intended to enhance students' sense of their potential and responsibilities as citizens of the Caribbean community.

General Objectives

1. To deepen students' understanding of the historical, geographical, economic, social, political and cultural contexts within which Caribbean Society has evolved.

2. To enhance students' awareness of how current global issues affect the development of the Caribbean region.

3. To critically analyse issues central to the development of the region using insights from a range of disciplines.

4. To understand the relationships which exist between the Caribbean and the global society.

5. Appraise the contributions of major ideological movements to the development of the Caribbean region.

6. Identify major constraints to and opportunities for, the development of Caribbean societies and economies.

Content Outline

1. **Map Work**

    1.1 Identify all Territorial Units in the Region.

    1.2 Locate Units with respect to:

        (a) The rest of the region
        (b) The USA
        (c) Canada
        (d) Latin America
        (e) Africa
        (f) Europe
        (g) Asia
        (h) The Middle East.

    1.3 Identify Dutch, French, English and Spanish-speaking countries.

    1.4 Examine the main geographical features of all the Units.

2. **Shaping Caribbean Identity**

    2.1 The Indigenous Peoples.

    2.2 The Colonial Experience.

        2.2.1 The Europeans
        2.2.2 Slavery and Resistance
        2.2.3 Immigration and Indentureship
        2.2.4 Constitutional Development - Note different constitutional paths followed by the territories of the region
        2.2.5 The Integration Movement
        2.2.6 Independence

3. **Caribbean Cultural Expressions/Identity**

    3.1 Music

    3.2 Dance

    3.3 Drama

3.4 Oral Traditions

3.5 Festivals

3.6 Arts and Architecture

3.7 Caribbean Voices - Selected Recordings of Caribbean Writers

3.8 Sport

4. **Religion and Language in Caribbean Identity**

4.1 Influences Shaping Religious Expression in the Caribbean

4.2 Language and Identity

5. **Caribbean Economies**

5.1 The Caribbean within the Global Economy

5.2 Economic Integration

5.3 Special Issues Confronting Small Island States

5.4 Mainland Economies

6. **Caribbean Development**

6.1 Issues and Problems in Caribbean Development

6.1.1 Economic

- The Environment
- Tourism
- Agriculture
- Human Resources including Immigration

6.1.2 Social

- Gender Issues
- Culture and Development

6.1.3 Political

- Integration and Development

6.2 Synopsis on the present state of Caribbean Development

6.3 The Way Forward - Solutions

Suggested Teaching/Learning Methods

Variation in delivery modes encouraged.

Assessment and Evaluation Procedures

Coursework: 60%

- Two Research Papers @ 30% each

  (a) Individual - Own Country
  (b) Group - Other country(ies) of the region.

Examination: 40%

- Two (2) Essays

Required Texts

Supplementary Reading Materials/Resources

LIST OF COURSE WRITERS

SUBJECT / NAME	INSTITUTION
COMMUNICATIONS	
Ms Veronica Simon	Sir Arthur Lewis Community College (St. Lucia)
INFORMATION TECHNOLOGY	
Dr. Thomas Alexander	Department of Education and Culture (British Virgin Islands)
MATHEMATICS and STATISTICS	
Mrs. Yvonne Greaves	Barbados Community College
SPANISH	
Ms Meuris Raymond	Sir Arthur Lewis Community College (St. Lucia)
FRENCH	
Mrs. Paule Turmel-John	Sir Arthur Lewis Community College (St. Lucia)
CARIBBEAN STUDIES	