

PROPOSED GRESTA UNIVERSITY

Proposed Curriculum

for the

Bachelor of Science in Computer Science Degree Programme

Submitted to

**THE COMMISSION FOR HIGHER EDUCATION
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By

The University Organizing Committee
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1.0 BACHELOR OF SCIENCE IN COMPUTER SCIENCE

1.1 Preamble

Computer science has grown exponentially since its beginning in the early sixties. Techniques and concepts have been introduced, yielding a myriad of widely diverse applications. Barely thirty years old, computer science has reached a level of theoretical maturity is evidenced by the introduction of methods from mathematical statistics, discrete mathematics, logic, etc. to various fields of the science. In addition, the theory of processes is unique to computer science and the techniques of software engineering. Researchers worldwide are producing better algorithms, better software tools, improved methods of software development and faster processor. In the industry demand for computer science skills is unlikely to be met for decades to come.

1.2 Program Objectives

The main aim of this program is to produce a graduate Computer Scientist, whose qualifications will be recognized worldwide. The graduate will be equipped with strong scientific and analytical background that is sufficient enough in providing solutions computing tasks. We also emphasize the research component in our program, which is very important for any development of this field in this Country. The student will also cover a range of social science course. This approach is emphasized by the way the program is structured: our first year is geared towards providing the scientific background necessary for most computer science units at the later years, hence apart from the Computer Science courses we also consider the development of the background required in the later years, by offering both mathematical and physical aspects required by the program. In the second year of study, courses in that form the core of computer science are to offered to equip the student with a good grip of most of specialty including: data structures, database systems, networks, systems analysis, operating systems, programming languages and object orientation. The third year introduces other courses that are not covered in the second year like: Internet applications, Multimedia systems, Artificial Intelligence and more analytical skills in programming languages and methods for software development. To bring about the research component within the student fraternity, the student is given a chance to participate in research findings in seminars. In the fourth year, advanced courses will consolidate and prepare the student for the next stage both in academic and business application world. To emphasize the practicability of the program, the student is to complete a Computer Science project. Still all Computer Science courses are given in a week two hours of practicals, this is to give the course the practical component it requires, since its application area is the business world which is practical. To crown it all, the student is given the opportunity while undertaking this program to experience what happens in the real business world, so that as the student trains she/he is also aware of what is happening outside the classroom.

In summary, therefore upon completion of the prescribed program for the Bachelor of Science degree in Computer Science the graduate will have acquired knowledge to be able to demonstrate the following (these are but a few) abilities:

- Ability in the use of a general computer desktop and networks products to support personal and group work.
- Demonstrate an understanding of process and data analysis techniques and their place in the development of Software applications.
- Ability to implement reliable software solutions and produce technical documentation.
- Ability to select and apply software engineering paradigms in appropriate situations.
- Demonstrate an understanding of how to design and implement a programming language.
- Ability in use of various programming languages for the application to problems related in both business and scientific areas.
- The ability to design and implement non-trivial network solutions.
- Abilities in selected specialist areas of computing e.g. Artificial Intelligence, Human Computer Interaction, Distributed and Parallel Systems, Database Systems, Networks, Software Engineering.

1.3 Teaching Methods and Aids

Most courses in the Computer Science department will be taught as follows unless otherwise stated.

Teaching Methodologies: Teaching is by lecture method consisting of two lecture hours and one hour of tutorials/two laboratory hours = 1 lecturer hour weekly for sixteen weeks. Continuous Assessment Tests will be given during lecture hours.

Instructional Materials/Equipment: Board, Bulletin board, overhead projectors and computer software. Most computer science courses will do their practicals using Personal Computers (PCs) provided in the University Laboratory. In the First Year of study we expect to have 20 PCs serving the expected 40 students, second year of study we expect to have 40 PCs for the 80 students, third year of study we expect 60 PCs to serve the 120 students and in the fourth year of study we increase the number of PCs from 60 to 80 PCs to serve the 160 expected students. This Personal Computers will also be used with the other students expected to register in the Bachelor of Business Administration. A justification of how many computers is given in the Appendix.