CHAPTER ONE
INTRODUCTION

1.1. Background of Study

University Programme Evaluation is a systematic and ongoing method of gathering, analyzing and using information from measured outcomes to evaluate the quality of academic programmes with a view to improving student learning. Programme evaluation should not be an assessment of the individual student, faculty or staff. Rather, the emphasis is on what and how an academic programme contributes to the learning, growth and development of students as a group. Such evaluation should therefore provide a programme with feedback on its performance with the intent of helping its overall improvement.

The three main aims of university programme evaluation are: To improve - (the evaluation process should provide feedback to determine how the program can be improved), To inform - (the evaluation process should inform faculty, strategic planners, and other decision-makers, of the contributions and impact of the programme. It should also inform external accountability activities such as accreditation), and, To prove - (the evaluation process should encapsulate and demonstrate to students, faculty, staff and outsiders what the programme is accomplishing (Martha and Kathryn, (2001)).

Universities and all institutions of higher learning are becoming increasingly aware of the need for constant programme evaluation (Don and Anthony, (2010). Both government and the general society are desirous to know how well the institution and its programmes are doing to improve service and students' learning. These are some of the motivators for conducting academic programme evaluation.

Academic Programme Evaluation is usually conducted by accrediting agencies set up by the Government through the Ministry of Education or by professional organizations. In Nigeria, this quality assurance function is conducted by the National Universities Commission (NUC) for Federal, State and Private Universities. This process, as carried out by the NUC is termed "accreditation" and it is the process by which the quality and standard of educational institutions and their academic programmes are assessed.

There are 117 Universities approved by the Federal Government of Nigeria through the National Universities Commission (Okojie, 2008). If these institutions are allowed to operate

without an accrediting agency, the standard of education would be compromised, the ultimate goal of producing high-level manpower would remain a mirage and the graduates of the system would not be able to compete favorably with their peers in other parts of the world. Hence, the justifications for a body like the NUC to oversee and regulate the activities of these universities. Other organizations exist, which conduct accreditation for academic programmes in Nigeria, and all require that institutions assess how well the programmes are meeting their objectives to inform improvement efforts. Therefore, for universities and their academic programmes to remain afloat, they must demonstrate the ability to remain accredited by the NUC, and this requires that an active assessment process be in place that continuously examines its educational support services. It is worthy of note that all accrediting bodies demand a focus on operational excellence and commitment to continuous quality improvement.

The primary purpose of programme assessment is the improvement of quality education by a constant improvement on student learning. Based on this, any undertaking that enhances and improves learning, knowledge and growth of our university students cannot be considered a waste of time. To get the best from classroom activities, we also encourage a diversification of learning styles especially at the university level in order to get the best from students. Basically, students can be categorized according to their preferred style of learning, which include the following: auditory (aural) learners, visual learners, and tactile learners (Elizabeth and Dobolyi, 2015).

As we stated earlier, for a programme assessment effort to be truly successful, it must be an ongoing and continuous process. Academic programme assessment in Universities should be continuously reviewed and improved, and each academic department should look at its programmes and its learning outcomes on a continual basis and determine if there are better ways to measure student learning and other programme outcomes.

There are two types of evaluation process: summative and formative. The purpose of summative programme evaluation is to judge the quality and worth of an academic programme. On the other hand, the purpose of formative programme evaluation is to provide feedback to help improve and modify a programme. University academic programme assessment is intended to include the formative evaluation aspect and not only the summative evaluation technique where the results of programme assessment are used only for the elimination or retention of academic programmes.

Existing literature reveals a success story in the implementation of good Academic Programme Evaluation Models (APEM) in universities across the globe. However, Martha and Kathryn (2001) reveals some weaknesses associated with existing models of Academic Programme Assessment, and states that "programme assessment should focus on assessing student learning and experience to determine whether students have acquired the skills, knowledge, and competencies associated with their programme of study". According to Martha and Kathryn (2001), effective academic programme assessment process should be based on the following criteria:

i. Systematic: Should be an orderly and open method of acquiring assessment information over time.
ii. Ongoing and cumulative: Over time, assessment efforts should build a body of evidence to improve programmes.
iii. Multi-faceted: Assessment information should be collected on multiple dimensions, using multiple methods and sources.
iv. Pragmatic: Assessment should improve the campus environment, not simply collected and filed away.

In the same vein, Basma and Paula (2008) suggested a strong emphasis on the learning, development and growth of students. It further gave various recommendations for an effective implementation of Academic Programme Assessment Models and to ensure operational excellence. His recommendations include:

(1) Assessment should be comprehensive, systematic and a continuous process, (2) Assessment should be a means for self-improvement, (3) Assessment measures should be meaningful, (4) Assessment should utilize multiple measures and multiple sources, (5) Assessment should be used as a management tool, (6) Assessment results should be valued and genuinely used to improve programmes and processes, (7) Assessment should be coordinated by one person and reviewed by a committee, (8) Assessment should involve the participation and input of all faculty and staff, and, (9) Assessment should include students.

The above suggestions and recommendations form the basis and major motivation for this study which focuses primarily on improved assessment of academic programme in Nigerian universities. Research has shown that Nigerian Universities have continued to produce graduates, who lack the requisite knowledge and skill for meaningful employment. Jiya (2012) proved by her research findings that the standard of university education has fallen

very low. Michael (2012) concludes that parents and students alike have lost faith in Nigerian universities; while President Goodluck Jonathan affirms the same fact during his inaugural speech in 2011 when he made a pronouncement that "Our University is underperforming in the delivery of quality education to her students".

Abdulkareem and Oyeniran (2011) were even more direct when they posited that "performance assessment of Nigerian universities through periodic accreditation exercise is proving inadequate to meet developmental challenges at national and global levels"

The above findings are clear indication that our university academic programmes are performing poorly in spite of the high ratings they score during NUC accreditation exercises. This also indicates that the existing framework of university programme assessment in Nigeria does not reflect the true performance of these programmes, and does not cover important aspects of learning pedagogy. It also explains why our universities continue to produce unemployable graduates in spite of huge government investment in infrastructure, physical facilities, library, and man-power development, which are the major areas of focus during NUC accreditation exercises. The current model of assessment has failed to meet the two main objectives of NUC's accreditation function which are to ensure that university academic programmes meet national needs and global competitiveness.

This study therefore takes a critical analysis of current assessment model with a view to ascertaining its level of ineffectiveness in measuring programme's overall impact on the student. We will also develop a university programme assessment model that will enhance the current evaluation framework for university academic programmes to improve accuracy of assessment and to make the evaluation more reflective of actual programme performance. Our proposed model will address the concerns raised by Martha and Kathryn (2001), and Basma and Paula (2008) who suggest a strong emphasis on the learning, development and growth of students, and insist that Academic Programme Assessment focuses on assessing student learning and experience to determine whether students have acquired the skills, knowledge, and competencies associated with their programme of study. The implementation of the model will be a novel web application that guarantees automated approach to data capture and trend analysis. It will guarantee assessment that gives true reflection of programme's performance thereby paving way for hardwork and continuous quality improvement.

1.2. Statement of the Problem

Empirical study carried out to determine the level of effectiveness of current assessment framework for university academic programmes in Nigeria reveals that the framework is inadequate and fails to meet the objectives of NUC's accreditation functions of ensuring that academic programmes meet national needs, and attain global competitiveness. Further analysis also reveals that in the existing model, the following inadequacies are being managed:

i. Day-to-day and continuous assessment of university academic programme performance is practically impossible.
ii. Assessment of academic programmes is done only once in three or five years depending on the accreditation status earned in the last visitation.
iii. Assessment of academic programmes using this framework is not a true reflection of the programmes' performance.
iv. Important aspects of university learning pedagogy are not considered in the scoring criteria.
v. Assessment is basically summative and has no feedback mechanism that generates necessary performance reports to suggest ways of improvement.

Furthermore, an empirical study on the performance of the National Universities Commission (NUC) in assessing the performance of academic programmes in universities using such instruments as the Minimum Academic Standards (MAS), and the Self Study Forms (SSF) prove that the instruments are weak and neither captures vital areas of teacher-performance in the classroom nor adequately monitors the general performance of university lecturers. These inadequacies fuel the current global downward trend in university education because our institutions have failed to restructure their assessment models in line with global best practices.

There is need to design a new model that minimizes fraudulent activities and forgery associated with current evaluation framework where departments and universities organize records of non-existing staff and teaching materials to attract maximum scores during accreditation/verification exercises. There is need to automate most of the data-gathering procedures, and ensure day-to-day assessment of academic programmes. It has become necessary to provide feedback mechanism to determine how the programme can be improved upon in line with international best practices.

It is also necessary to allow all stakeholder take part in the scoring exercise, letting the records of assessment emanate from the students (through their course representatives), the course lecturers themselves, the heads of departments, and the academic planning units of various universities. With these in place, the system will ginger lecturers to take their duties seriously, deliver their lecturers and impact the necessary skill to the students. It will encourage vice-chancellors and heads of units to do the right thing and provide the needed infrastructure if their programmes must receive accreditation, knowing that the automated system will provide counter evidence and expose any act of bribery or falsehood. If this is achieved, then the productivity of the staff as well as that of the organization will be improved.

Investigation has shown that the existing system is counterproductive since evidence from programme evaluation does not usually show the reality on ground. Most students are not satisfied with inputs of some teaching staff and this manifest in student loitering during class hours, lateness to classes, truancy, and poor semester results. Employers of labour are no more satisfied with the quality of our graduates and the only way to recruit them is to subject them to further training. It has therefore become necessary to enhance the current university programme evaluation model and to improve on the state of the observed weaknesses.

1.3 Aim and Objectives of the Study

The aim of this study is to develop a university programme assessment model that enhances current evaluation framework used for university programme assessment to improve its accuracy and effectiveness. The system shall actualize the following specific objectives:

a. Determine ineffectiveness level of existing programme evaluation framework for Nigerian universities,
b. Identify and categorize all variables, relations, and inadequacies in the existing model that hinder accurate evaluation,
c. Develop evaluation model that incorporates vital aspects of learning pedagogy into the scoring criteria, and the logistics of day-to-day assessment,
d. Guarrantee automated approach to data capture and allow unbiased rating by authorized administrators,
e. Deploy database query and reporting tools for high-level analysis of patterns or trends,
f. Design a dynamic web application that implements the model with joint participation and collaboration between the accrediting agency and the university.

1.4 Significance of the Study

The greatest need of Nigeria at this stage of her development is a revamp of her educational sector especially the institutions of higher learning, and the story is the same for most countries of the world. Analysis of current university performance reveals a yearly turn-out of low quality graduates and this has become a source of worry to most world leaders. Martha and Kathryn (2001), and Basma and Paula (2008), including several other researchers agree that this educational downturn is largely due to the continued adoption of programme assessment models that do not follow principles of good practice for academic programme assessment.

Therefore, this study is significant, being a pioneering effort that will stimulate further research interests towards developing alterative methodologies to enhance the system. Since assessment works best when it is ongoing, and not episodic, our model design promises to incorporate the logistics of day-to-day assessment and a feedback mechanism for programme improvement.

True assessment should include all aspects of university learning pedagogy, such as student satisfaction level, content delivery efforts, extent of credit-hour coverage, pass rate, and attrition rate.

The system will use collaborative methods for managing, sharing, and deploying curricula and for tracking student report to ascertain the impact of academic programmes on the students via a sophisticated management system. There are many benefits, including much greater collaboration among teachers and a more consistent measurement of students' progress.

Again, this dissertation seeks to raise students' interest in education, reduce lateness to classes, truancy, and poor semester results. It hopes to reduce the high level of student drop-outs including the poor student/teacher relationship currently experienced in our classroom learning environment.

Different stakeholders will benefit from this dissertation, including:

Employers of Labour: will be satisfied with the quality of university graduates. This will also reduce the huge resources spent by corporate organizations in training graduates to make them employable.

Students: when students are engaged, they take greater interest in study, and take responsibility for their own learning. A good assessment model will represent a change in the relationship between students and teachers in the learning process.

University management: The university management will be in control of activities within the university community and make better decisions concerning academic programmes.

The Institution: when the productivity of university lecturers and staff improve, there will be improvement towards the attainment of organizational goals.

Parents and Guardians: will be sure of the education of their ward and have faith in university education. Parents will have rest of mind that their wards will receive the requisite skills for self-employment after graduation.

1.5 Scope of the Study

This study covers the development of a university programme assessment model that improves current assessment framework used in evaluating and scoring academic programmes in universities. It is designed as a strategy to improve the effectiveness of universities in service delivery. The study reviews the present structure, and undertakes empirical studies to determine its level of effectiveness in achieving the set goal.

In order to validate the research gap identified, primary data were collected using the questionnaire as our primary instrument. This was done to investigate the level of effectiveness of present assessment framework. Data collection was limited to Nigerian universities only: federal universities, state universities, and private universities. The results of data analysis provided a justification for the development of the new model specified in the objectives of this study.

Again, the implementation of the model was specific to Nigerian universities only and was customized using the structure, nomenclature, and peculiarities of the Nigerian state. Hence, for it to be used elsewhere, few modifications may be expedient.

1.6 Limitations of the Study

Some problems exist which limited the exact realization of the objectives of this study. The sheer reluctance of some academic staff and some principal officers of our universities to furnish the researcher with the required information; the bureaucracy and the attendant length of time required by universities to release information needed for the study hindered the early completion of this project.

Some university staff did not eventually return their questionnaire, and there is always a tendency to resist change that will affect the persisting culture in any environment.

Other limitations existed, which include: Time Constraint, Inadequate Finance, Power Failure, and unavailable internet facilities in our universities. Notwithstanding these limitations, efforts were made to ensure a reliable and comprehensive work.

1.7 Definition of Terms

a. **Academic Programme:** Is a group and series of classes that are taken to earn a degree.

b. **Academic Programme Assessment**: Is an on-going process designed to monitor and improve student learning.

c. **Criteria:** The word criteria usually refer to the levels of performance used as markers of quality. For example, in evaluating a project, performance, or exhibition, evaluators set criteria for meeting a normative standard of excellence, not meeting that standard, or exceeding the standard.

d. **Standards:** Standards are broad benchmarks against which the criteria are compared, the desired or target performance. The word benchmark is often used to refer to a standard. In programme evaluation, the standards are the benchmarks for programme performance and differ from student performance standards that guide assessment of student performance. Performance indicators can be used in program evaluation to define target performance.

e. **Assessments:** Assessments are the methods used to collect evidence of performance that, through criteria that delineate levels of quality of performance, indicate to what degree standards are being met. A number of assessments over time provide evidence for inferring conclusions about a programme and making decisions for actions toward programme improvement.

d. Data: Factual information used as the basis for reasoning, discussion, or planning. They are sets of information collected from assessments of a variety of programme elements that constitute evidence of student learning and other criteria that are indicators of academic programme quality.

e. **Pedagogy:** Is the art and science of education (how learning is accomplished). It ranges from how the instructor develops conceptual knowledge to the method of transfer of such knowledge to learners. (www.merriam-webster.com/dictionaries).

f. **System:** A system is an entity which maintains its existence through the interaction of its parts.

g. **Academic:** An academic is person who teaches and or does research at a university or collage.

h. **Model:** A model is a simplified representation of a system at some particular point in time or space intended to promote understanding of the real system.

i. Curricula / syllabi: A curriculum is a complete course of study offered by a school; a syllabus is the outline of a single course. In Nigerian universities for instance, curricula and course syllabi are created and organized solely by the universities themselves and only accredited by the Nigerian Universities Commission (NUC).

j. Web-based Application

A web based application is a software package that can be accessed through the web browser and where the software and database reside on a central server rather than being installed on the desktop system and is accessed over a network. Web based applications are the ultimate way to take advantage of today's technology to enhance your organizations productivity & efficiency, giving you an opportunity to access your business information from anywhere in the world at anytime, and improve interactivity among customers and partners.

k. Collaborative learning

Is a situation in which two or more people learn or attempt to learn something together. Unlike individual learning, people that engaged in collaborative learning capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, and monitoring one another's work. More specifically, collaborative learning is based on the model that knowledge can be created within a population where members actively interact by sharing experiences and take on asymmetry roles.

l. **Information Technology:** Information Technology (IT) is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data. It can also be defined in terms of the study, design, development, application, implementation, support or management of computer-based information systems.

m. **Classroom :** A classroom or schoolroom is a room dedicated primarily to teaching or learning activities. Classrooms are found in educational institutions of all kinds, including public and private schools, home schools, corporations, and religious and humanitarian organizations, and attempts to provide a safe space where learning can take place uninterrupted and undistracted.

n. **School drop-out:** This means leaving a school for practical reasons, necessities, or disillusionment with the system from which the individual in question leaves. Most commonly, dropping out refers to a student quitting school before he or she graduates or avoiding entering a University. It cannot always be ascertained that a student has dropped out, as he or she may stop attending lectures without terminating enrollment.

o. **E-learning:** E-learning refers to the use of electronic media and Information and Communication Technologies (ICT) in education. It is broadly inclusive of all forms of educational technology in teaching and learning suh as multimedia learning, technology-enhanced learning (TEL), computer-based instruction (CBI), computer-based training (CBT), computer-assisted instruction or computer-aided instruction (CAI), internet-based training (IBT), web-based training (WBT), online education, and virtual education. E-learning can occur in or out of the classroom, and can be self-paced.

CHAPTER TWO
LITERATURE REVIEW

2.1. The Nigerian Educational Sector

This chapter deals with a review of related literature in the area under investigation and a theoretical evaluation of the performance assessment framework in universities. In a study of this magnitude, there is the need to look at the contributions of various authors and an analysis of other researches and scholarly views in the area. The chapter will therefore consist of:

a. A review of Theoretical Literature related to the chosen research topic.
b. A review of some related Empirical Literature.
c. A summary and conclusion, with a more specific statement of the knowledge gap being investigated.

According to Don and Williams (2010) in their article entitled "Innovating the 21st -Century University: Its Time", universities are losing their grip on higher learning as the Internet is, inexorably, becoming the dominant infrastructure for knowledge, both as a container and as a global platform for knowledge exchange between people. Many people have written, especially in EDUCAUSE Review and other publications regarding the need to restructure our university education, and many authors are of the view that the transformation of the university is not just a good idea, but imperative; and evidence is mounting that the consequences of further delay may be calamitous.

The greatest needs of Nigeria as a nation today are the rebuilding of human capital and a revamp of her educational sector, especially now that Nigeria's economic potential is well recognized as the biggest economy in the West African sub region (Cosmas, 2012). A working and efficient university educational system will therefore translate into great economic fortunes for the nation. Yet, the greatest challenge facing our leaders at this stage of the country's development is how to revive the educational sector.

The recent debate about the place of Nigerian universities in the ranking of world universities has drawn attention to the deplorable state of the country's ivory towers. Our universities are never in the reckoning for the world universities ranking. In January 2013, the world tertiary

education ranking organization, Webometrics, ranked the best Nigerian university 1,639th in the world. In Africa, only three of our universities made the list of the first 100 best universities. Besides, the products of our institutions of higher learning are not taken seriously anymore by most employers. And many of them have had to undergo a series of training to be able to fit in some organizations. Some of those who wish to have higher degrees abroad have had to do some exams before they are given admission. Yet, Nigeria, like other nations, needs universities to train the management workforce that would propel the nation's development engine.

In spite of the shocking revelations of the poor state of most Nigerian universities by various researchers, these universities continue to enjoy high performance ratings during NUC accreditation exercises. This therefore indicates that the existing framework for academic programme assessment in Nigerian universities does not guarantee a reflection of actual performance of these programmes, and does not cover important aspects of learning pedagogy. It also explains why our universities continue to produce poor-quality and unemployable graduates in spite of huge government investment in infrastructure

2.1.1 Overview of Nigeria's Higher Education

According to Fadipe, (2000), Higher Education in Nigeria dates back to the 19th century when, propelled by the ideals of liberal education as introduced by the early missionaries, Nigerians sought opportunities to acquire this new and exciting vision of life, which was then only available overseas. Responding to the pressures generated by this hunger for knowledge, the colonial government established the Yaba Higher College in 1932. The College was established to provide "well qualified assistants" in medical, engineering, and other vocations as well as teachers for secondary schools, then known as "higher middle schools". With passage of time, the college offered sub-degree courses in engineering, medicine, agriculture and teacher training to fill specific vacancies in the colonial administration. The restricted scope and vision of Yaba College generated greater pressures on the colonial administration to expand the opportunities for higher education. The British government responded by establishing the Elliot Commission in 1945. In its report, the Commission suggested that "the need for educated Africans in West Africa in general far outruns the supply". They proceeded to recommend the establishment of a University College in Nigeria. Thus in 1948, the University College of Ibadan was established as a residential and tutorial College under the tutelage of the University of London. In 1959, another Commission, the Ashby Commission

was established to ascertain Nigeria's post-independence educational needs. In 1960, the University of Nigeria Nsukka was established as the first indigenous University in Nigeria. The findings of the Ashby Commission regarding balance in the structure and geographical distribution of University education led to the establishment of Universities of Lagos and Ife in 1962, the same year the University College, Ibadan attained an autonomous status as a degree awarding institution. Propelled by the increased income from oil and the increased demand for higher education in the country, in 1975 the Federal Government decided to take over the regional Universities at Zaria, Ile-Ife, and Nsukka as well as establish new ones – the Universities of Benin, Calabar, Jos and Maiduguri, with University Colleges at Ilorin, Port-Harcourt and Kano, all of which became full fledged Universities in 1977. As the Federal Universities grew in number and population of students, State Universities started emerging in 1979 with the Rivers State University of Science and Technology taking the lead. In the same vein, the emergence of private providers of university education in Nigeria became a reality when the first three Private Universities were licensed to operate in 1999 after an earlier failed attempt. Currently, Nigeria has one hundred and seventeen (117) universities comprising of federal universities, state universities and private universities. The staff strength of Nigerian universities is 99, 464 comprising of 27, 394 academic staff and 72, 070 non-teaching staff, while the current total students enrolment in Nigerian universities stands at 1, 096,312 (Okojie, 2008).

2.1.2. Licensing of Universities

From the historical account of the Nigerian University System, it is obvious that there are three different proprietors of university education in Nigeria (Okojie, 2006). These are the Federal government, the State governments and the private or corporate bodies. Irrespective of proprietorship, government is responsible for the licensing of universities in Nigeria. However, the procedures for licensing are different.

Federal Universities

The old regional governments in Nigeria licensed the first set of universities in the different regions of the country. These universities were eventually taken over by the federal government. Subsequently, the federal government established universities in the country based on need and the necessity to have a balanced spread across the regions and States of the Federation. Whenever such needs are identified, the government through the National Universities Commission carries out the necessary assessments and resource verification that eventually lead to the establishment of such federal universities. The financial implication for

the smooth take-off of such universities are worked out following which the government release take-off grants to the university to begin its operations.

State Universities

In the Constitution of the Federal Republic of Nigeria, education is on the concurrent list. Consequently, State governments have the constitutional backing to establish their own universities. Once the State House of Assembly promulgates the Act for establishing the university and the Governor ascents to the bill, the law is passed for the establishment of the state university. Although the National Universities Commission does not have to approve the establishment of State Universities, it is responsible for ensuring that laid down standards are adhered to; thus ensuring the delivery of quality education in the universities.

Private Universities

As a result of growing increase in the number of prospective candidates for admission into universities and increasing inability of existing public universities to cope with the rate of increase in demand for university placement, as well as government's (both Federal and State) inability to adequately fund the Nigerian universities, the Federal government invited private individuals into the operation of universities following wide consultation with relevant university organs. Therefore, government promulgated Act No 9 of 1993. Act No.9 of 1993, repealed the private universities (abolition and prohibition) Act of 1984 and allowed individuals, organizations, corporate bodies as well as local governments to establish and run private universities upon meeting laid down guidelines and subsequently obtaining approval of government. The decree stipulated the various documents that should be submitted to NUC by proprietors of proposed universities as well as other conditions that should be met to enable the Commission assess the adequacy

or otherwise of the applications for government's approval. Thus, the NUC started issuing application forms to prospective proprietors of private universities, as far back as September 1993.

2.2. Nigerian Universities and Performance Evaluation

The demand for higher education, particularly university education is on the increase all over the world. Consequently, there must be a proactive orchestration of efforts to satisfy the yearnings of the people. A forward looking government, no matter what it costs, will ensure that its citizenry is educated; not just any kind of education but a focused and qualitative one. For nations with very high rates of illiteracy levels there could be advocacy for basic

education; at least they must start somewhere. Nevertheless, there is a level a nation cannot go beyond with basic education only, even though it is the foundation on which every other stratum of education rests. Higher education combined with high levels of commitment of the citizenry to national development is therefore the key to technological advancement of any nation. The developed countries of the world have proved it to be true as most of them have a long history of higher education (Okojie, 2008). Developing nations must take a cue from them.

The Nigerian university system sprang out of the need for the development of a high level workforce to take the challenge of nation building after independence (Fadipe, 2000). By definition, a university is an institution of higher education and research which grants academic degrees in a variety of subjects and provides education at both undergraduate and postgraduate levels. As we stated earlier, the history of Nigerian universities dates back to the establishment of the University College, Ibadan in 1948. Since then, rapid expansion has been one of the most remarkable features of higher education in Nigeria. This is particularly noticeable owing to the emergence of private and state universities in the country. Before independence, Nigeria had only one university (University of Ibadan). Between 1960 and 1999, the country had a total of 39 universities. According to NUC (2008), the nation's universities has risen to a total of 89 as at 2008, comprising of 27 federal, 30 state, and 32 private universities.

The minister of education, Prof. Ruqayyatu Ahmed Rufa'i has noted severally that for Nigeria to achieve its vision of becoming one of the leading twenty economies in the world by the year 2020, the nation must not toy with its education, especially, university education (since it is the training ground for the nation's highest level manpower). .
It would be pertinent to note that Universities are established for the generation of new knowledge, which is based on research, to support economic growth and global competitiveness. Following the current global trend, the sub-Saharan Africa cannot afford to continue to be spoon-fed by other nations who have made giant strides through deliberate investment in the education of her citizenry.

Universities all over the world are accepted as the citadel of learning and development of human resources. With this global recognition given to education all over the world, especially higher education, Nigeria as a country must give credence to higher education as the means for social and economic mobility, social transformation, and as a major platform for higher level workforce development, managerial and technological. According to Subair

(2008), the entire intellectual and professional life of a country depends on sound higher education that provides quality products (graduates) of international standard.

The performance of Nigerian universities in the recently released African ranking is still very poor and has become a source of worry to many Nigerians. (Cosmas Omegoh, Daily Sun August 13 2012). Records show that in the 2011-2012 ranking, University of Lagos (UNILAG) claimed the first position in the country after finishing 16th in Africa. The performance, analysts say, is a quantum leap, considering its 58th placement in the 2010-2011 year. Nigeria's best performer that year was University of Ilorin, which ranked 20th on the log. University of Jos was in the 42nd place while the University of Nigeria Nsukka (UNN) finished 54th on the table. In the 2012 edition, University of Ilorin emerged second in Nigeria and 39th in Africa, trailing University of Zambia and University of Zimbabwe. University of Ibadan, (UI), third in Nigeria, was 40th in Africa.

Obafemi Awolowo University (OAU) Ile-Ife, fourth in Nigeria finished in the 42nd position in Africa, while University of Benin, fifth in Nigeria, took the 45th place in Africa. In all, six Nigerian universities were ranked among the best 100 in Africa. However, they were led by universities in Uganda, Kenya, Tanzania, Botswana, Ghana, Morocco and Sudan. All the universities in the top six were from South Africa, with additional two making the best 10, alongside two universities in Egypt.

The organization doing the ranking – 4International Colleges & Universities (4icu.org), says it is "an international higher education search engine and directory reviewing accredited universities and colleges in the world." It maintains that "4icu.org includes 10,000 colleges and universities, ranked by web popularity, in 200 countries." Its aim, it explains, "is to provide an approximate popularity ranking of world universities and colleges based upon the popularity of their websites. This is intended to help international students and academic staff to understand how popular a specific university/college is in a foreign country."

In the light of this development, some prominent Nigerians have been speaking. They included Chief Olusegun Obasanjo, former president of Nigeria, Professor Ibidapo Obe, former Vice Chancellor University of Lagos, Dr Ademola Aremu, former Chairman Academic Staff Union of Universities (ASUU) UI Chapter, and Professor Ukachukwu Awuzie former national Chairman ASUU. Most of them blame the poor showing of universities in the country on "failure to do the right things". Others contended that the

ranking was not a true reflection of the realities existing in Nigerian universities and that 4icu.org depends on the visibility of the universities on the cyber space. Some argue that most of the university rankings we have today only consider the number of foreign students and professors in the institutions, publications of the teaching staff and student population as their criteria for ranking.

In all, Nigerian Universities need an improvement on their past performances. Poor funding can contribute to the problems of our universities since our government has continued to pay lip service to the funding of university education. The United Nations Education, Scientific and Cultural Organization (UNESCO) recommended that 26% of every country's budget should be ploughed into funding of education. Yet, in the case of Nigeria, less than 5% of our national budget had gone into funding of higher education. Consequently, we have been having progressive decline in standards.

Several well-meaning Nigerians have made contributions to Cosmas Omegoh's publication in the Daily Sun Newspaper of August 13 2012. Some of the contributors include: Ogene Mike (August 14, 2012), Uzoma Victor (August 18, 2012), and Samuel Emediog (August 19, 2012). All of them are of the view that the rot that has set in will become more manifest as time passes. Currently you have 'University graduates' that can neither spell their names nor possess the basic organizational or technological skills.

According to Michael Faborode (2012) in his article entitled "The Trouble with Nigerian Universities", it gives cause for serious concern that Nigerians reportedly spend an average of $500 million annually on European and American universities. This amount, according to the Committee of Vice-Chancellors of Nigeria, represents about 70 per cent of the total allocation to all federal universities in 2008. Two-thirds of English universities charge a full £9,000-a-year tuition fee while a degree at an Ivy League university in the United States costs as much as an equivalent of £20,000 a year. The situation further highlights the rot in Nigerian universities and the urgent need to restore sanity to our tertiary education system.

At present Nigeria has 15,000 students undertaking various courses in the United Kingdom alone, but a report says the figure may climb up to 30,000 by 2015, which will account for seven per cent of the total UK university student enrolments. As at October 2012, over 7, 000 Nigerian students were studying in about 733 institutions in the United States. There are another 1,500 Nigerians in Canadian universities.

Ordinarily, studying abroad has its advantages, which include an opportunity to attend a top-class university in a different cultural setting. It is argued that multinational companies will prefer globally-aware graduates. Indeed, there is a growing perception in some quarters that international students out-perform their stay-at-home cousins in some indicators ranging from planning and problem-solving to assertiveness and initiative. For Nigeria, there is a shocking loophole. What this means is that parents and students alike have lost faith in our universities. Hardly do students stay one full session without some form of disruption in the academic calendar. It's either that lecturers are on strike or students are on the rampage.

In most of the nation's public universities, there is a dearth of well-equipped libraries, lecture halls, computers, decent hostel accommodation, laboratories and Internet services. Similarly, the Needs Assessment Panel set up by the Federal Government to examine the problems and challenges confronting public universities in Nigeria reported recently that basic learning resources were either unavailable or in short supply in our universities. Media reports quoted the Prof. Mahmood Yakubu-led committee as saying that less than 10 per cent of the universities have video conferencing facility, less than 20 per cent use interactive boards while more than 50 per cent do not use public address systems in their lecture halls. The report added that library resources were manual and outdated and that less than 35 per cent were partially automated.

Unfortunately, much of the resources of the universities which should have been used to rectify these anomalies end up as recurrent expenditure. The University of Ibadan, for instance, reportedly spends about N800m monthly on salaries. And many of these institutions rely almost solely on government subventions to survive. Sadly, rather than seek ways to better the lot of their schools, some academic and non-academic staff of these institutions tend to elevate strikes above some other noble pursuits. These strikes could last for months as in the case of the state-owned universities in the South-East which lost the entire 2009/2010 academic session to strikes. In August 2012, the Academic Staff Union of Universities embarked on a solidarity strike with the local chapter of the union at the Rivers State University of Science and Technology. Immediately after the August 2012 ASUU strike, the Senior Staff Association of Nigerian Universities, the Non-Academic Staff Union of Educational and Associated Institutions and the National Association of Academic Technologists went on a seven-day strike over alleged non-implementation of a 2009 agreement the Federal Government purportedly entered into with the unions. Part of the

agreement is said to be an increase in the allowances of non-academic staff of universities. The latest of the ASUU strike was the six months old industrial action embarked upon by the union between July and December, 2013.

Consequently, our universities are never in the reckoning for the world universities ranking. In January, 2013, the world tertiary education ranking organization, Webometrics, ranked the best Nigerian university 1,639th in the world. In Africa, as we have earlier said, only three of our universities made the list of the first 100 best universities. Besides, the products of our institutions of higher learning are not taken seriously anymore by most employers. And many of them have had to undergo a series of training to be able to fit in some organizations. Some of those who wish to have higher degrees abroad have had to do some exams before they are given admission.

Niyi Akinnaso (2012) drew attention to the deplorable state of the country's ivory towers and the lowly place of higher education among national priorities. Whereas Webometrics Ranking of Universities, which measures web presence and content, does not mention a single Nigerian university until after 1,600 other mentions, the QS World University Ranking, which concentrates on programmes and instructional content, does not mention a Nigerian university at all either. Yet, Nigeria, like other nations, needs universities to train the management workforce that would propel the nation's development engine. Americans realized this need very early and invested heavily in university education. That's why, today, American universities dominate the world rankings of top universities. This has translated to the rapid development in the American society.

The most ridiculous indication of the rot in our universities was the recently reported dismissal of three graduates of a Nigerian University from the National Youth Service Corps scheme for falling below the standard expected of graduates. According to media reports, one of the affected graduates could not spell his name correctly. The other two, it was alleged, could not teach in a primary school. The affected university is said to have declared "an academic emergency" as a result (Punch Newspaper, Dec. 13 2012).

Nigerian university system has been imperiled by misconceived government policies and poor funding. South Korea has invested £1.2bn and Germany has plans to invest £2bn in higher education. For a society like ours, there is nothing more important than education. To help rejuvenate our higher institutions, government should increase funding of the education

sector. In the 2013 budget proposal, the Federal Government allocated N426.53bn to education. This is grossly inadequate for a sector that needs a lot of capital to improve.

Niyi Akinnaso (2012) in his article entitled "University Education in Nigeria: problems and solution" presented six major problems to be solved in order to achieve quality education in our universities. Three of the problems according to him, are primary in the sense that they are largely responsible for the other three. The primary problems are: funding shortages; the negative influence of a corruptive and valueless political system; and planning and implementation problems. These have led to the weakening of university administration; poor teaching and learning outcomes; diminishing research and consultancy traditions; and questionable service to the community. When viewed very closely, according to him, the last three problems point to diminishing returns in the basic missions of universities.

At single digit percentile of national budgets, as against the United Nations Educational and Scientific Organization's recommendation of 26 per cent, the funding figures for universities, especially in the last three decades, explain the poverty of Nigerian universities and the concomitant dip in standards. Mostly affected are infrastructure (buildings, roads, power, and water resources); knowledge facilities (library accessories, computing facilities, and teaching aids); research funding, recreational facilities, and welfare packages for lecturers, administrative staff, and students. They are either inadequate or nonexistent.

In the case of students, for example, investment in university housing was withdrawn, leading to sharp increases in squatting in the few hostel facilities available and off-campus housing for most students. As a result, many students, these days, "go through the university without the university going through them", as the saying goes.

Those who attended or taught at any premier university between 1965 and 1985 could easily appreciate the extent of depreciation of necessary physical structures and facilities. A comparison between the stunted growth of the universities established since the 1980s and the rapid growth of those that were established in the preceding two decades further demonstrates the gap in funding. Ironically, those earlier universities were built with little or no oil money.

Yet, in spite of poor funding and its negative consequences, university populations grew exponentially, leading to further strain on inadequate and dilapidated structures. As student

populations outstripped available lecture spaces and teaching resources, lecturers became overburdened with crowded classrooms and excessive grading responsibilities. Poor remuneration further dampened their morale.

Rather than respond to the quality issues resulting from overpopulation, federal and state governments resorted to the proliferation of universities. The Federal Government even curiously announced the establishment of five new universities recently at a time existing ones are on crutches, to put it mildly. Yet, no provisions were made for capacity building opportunities for existing lecturers and the training of new ones. As a result, some lecturers shuttle between universities while erstwhile retired professors became the bedrock of some new universities. To complicate matters, many lecturers sought and obtained employment abroad in order to nurture their professional potential. These developments have resulted in poor teaching and learning outcomes in our universities.

But it is not poor funding alone that contributed to the present state of underachievement. The anti-intellectual stance of corrupt and valueless federal and state governments since the days of military administration has also eroded ethical values and academic standards in the universities. The truncation of university autonomy was accompanied by government interference in university affairs. The government's erstwhile proprietary role became an executive one, with government officials dictating to University Governing Councils and Senates.

Vice-Chancellors soon learnt the political act of defending their budgets and lobbying for subventions the same way governors lobby for federal allocations and excess crude funds. The diseases of the political system diffused into the universities as professors began to migrate between government and university positions. In no time, the culture of scholarship gave way to the corruptive and materialist culture of the political system.

Recently, President Goodluck Jonathan's administration established nine new universities without regard to the problems facing existing universities and mass unemployment of existing graduates. The future of the new universities and their graduates was never seriously considered. In the absence of adequate funding and clear direction, universities are left to engage mainly in routine activities. There are master plans alright and periodic development plans are constructed, but neither is implemented. A number of federal and state universities have remained on their temporary sites for decades because the government has failed to back

up its initial promise with adequate funding. The government's failure to respect its agreements with the Academic Staff Union of Universities has frequently led to strikes and university closures, the latest of which was the ASUU strike which lasted for six months between July and December, 2013.

However, throwing money at the universities will not in itself solve the endemic problems within the university system. Inadequate funding, poor planning, and the erosion of values have produced a culture of underachievement that will take decades to change. Particularly affected by these factors are the universities' internal administration and the trio of teaching/learning; research/consultancies; and community service.

Finally, the research conducted by Jiya Janet (2012) of Caleb University, Imota, Lagos, and posted to the Vanguard Online Community on May 12, 2012, proved beyond all reasonable doubt that University education in Nigeria has fallen in service delivery, performance, and standard.

2.2.1. Performance Evaluation of University Academic Staff

Achieving effective performance of human resources should be a primary goal of every organization. According to Hassan Danial (2011), **"**performance management practice of human resource management provides the sound basis of evaluating and developing employee performance in order to get enhanced organizational success". A greater part of an institution's objectives can be achieved by better planning, implementing strategies, and a smart management of human resource. One of the important concerns however, is the measurement to show that people are doing their work at the right time and in the right manner. This should be the focus of any good performance management system.

What is performance management? It is, according to Aguinis (2007) "a continuous process of identifying, measuring and developing the performance of individuals" He further adds that this continuous capacity building needs clear objectives, observing and measuring performance and a regular feedback. Performance Management primarily focuses on its employees to develop their capabilities. It helps managers to detect uncertain changes early enough and respond more quickly to these changes. (Cokins, 2004). Hassan Danial (2011) posits that Performance Management is neither a technique nor a single process but can be considered as a set of processes, or a concept, a holistic philosophy that includes motivation of employees to perform well, employees knowledge about what their managers expect of them, development of employees, monitoring and measuring performance in order to know

what areas are to be improved. This is also supported by Wilson, 2005. Armstrong and Baron (2005) highlighted the same point by saying that "Performance Management is a strategy which relates to every activity of organization and its implementation, and depends on organizational context".

Similar to any organization, universities or higher educational institutions should evaluate their employees/teachers performance for effective human resource management. Although, both teaching and non-teaching (administrative) staff in universities play important roles in general institution's performance, yet teachers are considered to be imperative human resources for higher educational institutions. Performance evaluation of teachers in terms of their teaching and research outcome is the primary area of concern for any university, though the issue has been highly unaddressed in the case of universities in developing countries like Nigeria. Current researches have explored the performance evaluation mechanisms of public and private universities that form their teaching faculty. For example, Hassan Danial Aslam (2011) in his article entitled "Performance Evaluation of Teachers in Universities: Contemporary Issues and Challenges" investigated the performance gaps of public and private universities of Pakistan by focusing on teaching faculty performance. It elaborates their performance evaluation procedures and strategies and unearths the influential factors and challenges which are faced by these universities regarding performance evaluation systems.

A quality education-providing institute has always proved to be a model for modern civil society (Batool and Qureshi, 2007). Education is mostly responsible for successful development of an open and democratic civil society. A university where students are given deep insight into specific subject knowledge will achieve the goal of providing the social norms of communication and interaction. As we pointed out earlier, although universities are run by both the teaching faculty and the administration staff, yet the major responsibility of developing students as professionals comes in the hands of the teaching staff. To achieve world class standards therefore, effective performance management of university teachers will always be a major concern in any university. A sustainable and progressive performance evaluation mechanism for teaching faculty of the universities ultimately benefits major stakeholders who are students in terms of enhancement of employment opportunities, improvement of education and training of upcoming human capital. It will equally guarratntee a flourishing learning environment and enrichement of academic and intellectual knowledge management of university as a whole. Qualitative higher education in universities

cannot be achieved without continuous assessment and improvement of both the academic programmes themselves and the teachers' performance.

A teacher's primary task or generally known function is teaching. It involves getting the student to learn, creating context in which they learn, and providing feedback on their strengths and weaknesses in a positive and encouraging manner. In this modern age, the teacher is not only supposed to teach, but also get involved in many other tasks. In today's world of knowledge for instance, where explosion and information flood is everywhere, the university teacher has to be an active learner as well as an organizer of knowledge. He should be responsible for creating knowledge through research, getting it published in journals, making inter-relation between the academic and the professional world in order to share the ideas and advancement of knowledge, review and update curriculum and create its relevance with practical fields and applications. He is also expected to offer mentoring for his junior faculty members. His research skills should be as much polished which not only help him in his research but also his students and peers in undertaking required research initiatives. By achieving these tasks the university teachers can develop their students for active participation in administration and governance with considerable knowledge of relevant theory and context. This matrix of tasks for university teachers makes their job very demanding, changing, growing, and creative (Batool and Qureshi, 2007). Professional development of university teachers will therefore require an effective performance evaluation system throughout their professional career.

2.2.2. Evaluation of University Academic Programmes

It is not enough to license a higher educational institution to operate; there must be a constant evaluation to ensure that set standards and operational guidelines are not violated. A system that grows must be such that sets standards and disciplines itself to attain them. Accreditation of universities, whether institutional or programme-focused, is a way of examining the state of the institution or the academic programme in relation to where it ought to be. It is a quality assurance process. Prior to the licensing of a university, some quality indices are taken into consideration to ensure that they take off on the right footing (Okojie, 2008). Consequently, licensing, accreditation, and quality assurance, are related in a wider context.

2.3. The National Universities Commission and Performance Monitoring

The National Universities Commission (NUC) of Nigeria was established in 1962 as an advisory agency in the Cabinet Office. However in 1974, it became a statutory body with Professor Jubril Aminu as the first Executive Secretary (Okojie, 2008). Today, the NUC has become a full parastatal under the Federal Ministry of Education (FME).

In her over 47 years of existence, the commission has transformed from a small office in the cabinet office to an important arm of government in the area of development and management of university education in Nigeria, with the following functions:

a. Granting approval for all academic programmes run in Nigerian universities;
b. Granting approval for the establishment of all higher educational institutions offering degree programmes in Nigerian universities;
c. Ensuring quality assurance of all academic programmes offered in Nigerian universities; and
d. Channel for all external support to Nigerian universities.

The vision of the commission is to be a dynamic regulatory agency acting as a catalyst for positive change and innovation for the delivery of quality university education in Nigeria (www.nuc.edu.ng/). A visit to the NUC website reveals that the commission has twelve Departments: Department of Academic Standards, Department of Inspection and Monitoring, Department of Management Support Services, Department of Students Support Services, Department of Research and Innovations, Department of Information and Communications Technology, Department of Finance and Accounts, Department of Quality Assurance, Department of Physical Planning and Development, Department of Open and Distance Education, Liaison Office Department and the Executive Secretary's Office. Each of these departments is headed by a Director.
The commission has recorded a number of successes since her inception. These successes can be attributed to quality leadership, dedication and staff commitment, quality of its Board Members, cooperation received from Universities, and support from the Federal Government.

As a coordinating body, the commission ensures it discharges its responsibilities by recruiting adequate and relevant man power and appeals to the Universities for their sustained support and understanding. The Commission also relies on support from the Federal Government,

State Governments and other stakeholders in its bid to improve on the quality of tertiary education and on the graduates of the nation's university system.

The Department of Inspection and Monitoring (DIM) came into existence in 2007 following the restructuring exercise carried out by the National Universities Commission (NUC) in line with the directive of the Federal Government.
NUC as a quality assurance agency, among other things, sets standards for the Nigerian University System. It is the responsibility of the Department of Inspection and Monitorring (DIM) to inspect and Monitor compliance to these set standards and ensure continuous improvement on quality. It is charged with the responsibility of ensuring quality inputs, process and graduate output with the view to achieving national development and global competitiveness. As such, the role of this department is critical to ensuring the delivery of quality education at the university level.
The Department is specifically charged with the following mandate:

a. To monitor the level of compliance of Nigerian Universities with the provisions of the Benchmark Minimum Academic Standards (BMAS) and other quality assurance guidelines that may be laid down by Government, through the Commission from time to time;
b. To undertake regular inspection visits to universities in order to assess the level of compliance with Government policies on matters such as admission of qualified candidates through the Joint Admission and Matriculation Board (JAMB), science/arts ratio in admission, and adherence to carrying capacity in curriculum implementation;
c. To monitor and evaluate the development of universities in Nigeria with a focus on such areas as academic brief and master plan implementation, staff and their mix, infrastructural input and other issues pertinent to ensuring qualitative university education delivery in Nigeria;
d. To advise the Commission on the state of universities and inter-university centres on areas that require remedial measures;
e. To facilitate the emergence and development of centres of excellence in Nigerian universities through the promotion of best practices in university teachings, learning and research;

f. To monitor compliance with government policy on satellite campuses and other illegal degree-awarding institutions in Nigeria; and,
g. To prepare periodic report on the state of university education in Nigeria.

Other functions of the Department of Inspection and Monitoring include:

h. Monitoring and evaluating all universities with focus on such areas as institutional management and governance, student and staff numbers, staff quality and mix, teaching and research quality; infrastructural input and other issues pertinent to quality assurance (quarterly).
i. Inspects and advises the NUC and proprietors of universities on the state of the institutions, highlighting areas that require remediation (as the need arises).
j. Monitors and inspects, from time to time, the certificates awarded to approved programmes in order to maintain quality and standards (quarterly).
k. Collects and collates information from universities that may assist in the inspection and ascertainment of compliance with the standards prescribed by law (quarterly).
l. Co-ordinates, supervises and reports on the conducts of post-UTME Screening exercises in Nigerian universities (annually).
m. Works with other government law enforcement agencies to ensure closure and discourage the proliferation of satellite campuses and other illegal degree-awarding institutions in Nigeria (regularly).
n. Facilitates and promotes mentoring of newly established universities by older universities (regularly).
o. Develops a database of students, staff and facilities from the monitoring and inspection activities of Nigerian universities (bi-annually).
p. Advises the universities on how to achieve efficient quality assurance in their activities (quarterly).
q. Rank Nigerian universities based on acceptable world ranking indices imperatives for the Nigerian University System (biennially).
r. Inspects facilities in the universities to determine their currency, the use of up-to-date ICT facilities and the quality of the staff manning them (quarterly).
s. Advises on governance patterns and particularly the separation of responsibilities among the leadership of the universities (annually)

t. Advises universities on how to take advantage of linkages in the development of quality academic programmes, funding and research initiatives (bi-annually). (www.nuc.edu.ng/pages.asp?)

The Department of Inspection and Monitoring is to be the arrow head in the Commission's quest to enthrone and promote a culture of quality in teaching and learning in Nigerian universities for the purpose of producing globally competitive entrepreneurial graduates who are relevant to national development.

The department has the mission of ensuring that Nigerian universities comply with all the provisions of the Benchmark Minimum Academic Standards (BMAS) and other quality assurance guidelines that Government may lay down (through the Commission) from time to time. This can only be achieved through scrupulous inspection and regular monitoring.

2.3.1. Critical Evaluation of Academic Programmes by the NUC

Generally, Performance Appraisal (PA) is a systematic and periodic process that assesses an individual employee's job performance and productivity in relation to certain pre-established criteria and organizational objectives (Manasa, and Reddy, (2009)). It is a method by which the job performance of an employee is evaluated. Performance appraisals are a part of career development and consist of regular reviews of employee performance within organizations.

With regards to collection of PA data, there are three main methods: objective production, personnel, and judgmental evaluation. Judgmental evaluations are the most commonly used with a large variety of evaluation methods (Muchinsky P.M., (2012)). According to Cederblom, (1982), PA has been historically conducted annually (long-cycle appraisals), however many companies are moving towards shorter cycles (every six months, every quarter), and some have been moving into short-cycle (weekly, bi-weekly) PA. In Nigerian universities in particular, it is the National Universities Commission (NUC) that is vested with the mandate of appraising all universities and their academic programmes. NUC carry out this assignment basically through a regular accreditation exercise, and the exercise is done using experienced senior academic staff. According to (NUC, 2008), accreditation in the Nigerian University System has three stated objectives namely to:

a. Ensure that at least the provisions of the Minimum Academic Standards (MAS) documents are attained, maintained and enhanced;

b. Assure employers of labour and other members of the community that Nigerian graduates of all academic programmes have attained an acceptable level of competence in their areas of specialization; and

c. Certify to the International community that the programmes offered in Nigerian universities are of high standards and their graduates are adequate for employment and for further studies.

Programmes are evaluated and scored based on the criteria in the table 2.1 below:

Table 2.1 Programme score criteria (Source: NUC, 2008)

Staffing	32%
Academic Content	23%
Physical Facilities	25%
Library	12%
Funding	5%
Employers' Rating	3%
Total	**100%**

Each criterion has component indices with varying weightings as contained in the "Manual of Accreditation Procedures for Academic programmes in Nigerian Universities". The accreditation status for a programme is determined after a summary of scores awarded by each panel member is entered into the Accreditation Panel Report Form (NUC/APRF) which becomes the accreditation panel's recommendation. The criteria for award of various accreditation status to a programme are as follows:

i. Full Accreditation status: A total overall score of 70% and above in addition to scoring at least 70% in each of the core areas of Staffing, Academic Content, Physical Facilities and Library.

ii. Interim Accreditation status: An overall score of 60% or more but less than 70% OR an overall total score of 70% and above but with a score of less than 70% in any of the four core areas identified in (i) above.

iii. Denied Accreditation status: An overall score of less than 60%.

According to a report posted to www.nuc instrument.htm on April 22, 2013, the major instrument used in the NUC Accreditation Exercise is the Minimum Academic Standards (MAS) documents which also constitute the basis for assessment. According to NUC, 2008),

other instruments used may include:

1. Self Study Form (SSF)
2. Programme Evaluation Form (PEF)
3. Accreditation Panel Report Form (APRF)
4. Accreditation Re-visitation Form (ARVF)
5. Manual on Accreditation Procedure (MAP)

We now take a more in-depth look at each of these forms.

The Self Study Form (SSF)

This is divided into two parts: Section 'A' and Section 'B'

Section A – a general information section on the university as a whole,

Section B – deals specifically with the programme to be accredited by the panel. This section highlights the following:

Academic content: covering,

1. The philosophy and objectives of the programme,
2. The curriculum,
3. Compliance with the guidelines on quality of admissions,
4. Academic regulations,
5. Standard of test and examinations,
6. Interview with the students, interaction with staff – both teaching and non-teaching staff,
7. Practical/project work,
8. External Examination system,
9. Engineering drawing practice and adequacy of lecturers.

Staffing

1. Teaching, technical and administrative staff.
2. 1:15 (staff: students) ratio.
3. The documents further provide the proportion of each category of staff to ensure quality.
4. Staff development programme and staff contribution to community development.

The table 2.2 below shows the academic staff structure according to the standard:

Table 2.2 Academic Staff Structure (Source: NUC, 2008)

Rank	Percentage of total (%)
Professors/Associate professors	20
Senior Lecturer	35
Lecturer 1 and below	45

Physical facilities

1. Classrooms/lecture theaters,
2. Office accommodation,
3. Library facilities,
4. Funding, and
5. Feedback from employersof labour.

The space requirements as prescribed by the NUC are as shown in table 2.3 below:

Table 2.3 Space Requirements (Source: NUC, 2008)

Professor's office	18.50m^2
Head of Department's office	18.50m^2
Tutorial teaching Staff Space	13.50m^2
Other teaching Staff Space	7.00m^2
Technical Staff Space	7.00m^2
Secretarial Space	7.00m^2
Science Staff Research laboratory	16.50m^2
Engineering Staff Research laboratory	14.00m^2
Drawing office space per student	3.70m^2
Laboratory space	7.50m^2

Funding

1. Source of funding is usually provided,
2. The panelists assess the adequacy or otherwise of the allocation.

Feedback from employer

1. Employers' rating

The Programme Evaluation Form (PEF)

1. This form is usually completed by the relevant panel member.

2. The information contained in this form provides the basis for the scoring of the programme to be accredited.

3. It is used for the preparation of statement of fact about the programme.

Accreditation Panel Report Form (APRF)

This form is usually completed for each programme that is being accredited.

1. The accreditation status awarded to the programme and the summary of scores will be entered into the appropriate space in the form.

2. APRF is submitted to the university officials at the end-of-visit meeting with the Vice-Chancellor for his/her comment(s).

The table 2.4 below shows the summary of scores as contained in APRF:

Table 2.4 Summary of scores in APRF (Source: NUC, 2008)

S/N	KEY PERFORMANCE INDICATORS	SUMMARY SCORES	
		MAXIMUM SCORE	ACTUAL SCORE
1.0	**ACADEMIC CONTENT (curriculum)** 1.1 Philosophy and Objectives	2	
	1.2 Curriculum	3	
	1.3 Admissions	3	
	1.4 Academic Regulations	2	
	1.5 Tests and examinations	3	
	1.6 Evaluation of Students' work	3	
	1.7 Practical/Project work	3	
	1.8 Student Course Evaluation	2	
	1.9 External Examination System	2	
	Sub-total	**23**	
2.0	**STAFFING** 2.1 Teaching Staff		
	2.1.1 Staff/Student Ratio	10	
	2.1.2 Staff Mix by rank	6	
	2.1.3 Qualifications	3	
	2.1.4 Competence	3	
	2.2 Administration	5	

	2.3 Non-teaching staff	3	
	2.4 Staff Development	2	
	Sub-total	**32**	
3.0	**PHYSICAL PHACILITIES** 3.1 Laboratories, etc		
	3.1.1 Space	5	
	3.1.2 Equipment	5	
	3.2 Classrooms		
	3.2.1 Space	4	
	3.2.2 Equipment	3	
	3.3 Office Accommodation	5	
	3.4 Safety and Environment	3	
	Sub-total	**25**	
4.0	**LIBRARY**	**12**	
5.0	**FUNDING**	**5**	
6.0	**EMPLOYER'S RATING**	**3**	
	TOTAL SCORE	**100**	

The table 2.5 below shows the distribution of scores in the APRF

Table 2.5 Distribution of scores in APRF (Source: NUC, 2008)

Item	Percentage
Academic content	23%
Staffing	32%
Physical facilities	25%
Library	12%
Funding	5%
Employers' rating of graduates	3%
Total	100%

Accreditation Status

The accreditation status of any programme or discipline will be based on the degree to which the resources on ground meet the minimum academic standards.
At the end of an accreditation exercise, a programme can earn the appropriate accreditation status based on its performance.

However, an in-depth research carried out on the reason for performance appraisal systems shows that a central objective for the utilization of performance appraisals (PAs) is performance improvement ("initially at the level of the individual employee, and ultimately at the level of the organization") (Pritchard, R. 2006). Other fundamental reasons include "as a basis for employment decisions (e.g. promotions, terminations, transfers), as criteria in research (e.g. test validation), to aid with communication (e.g. allowing employees to know how they are doing and organizational expectations), to establish personal objectives for training" programs, for transmission of objective feedback for personal development, "as a means of documentation to aid in keeping track of decisions and legal requirements" and in wage and salary administration (Muchinsky P.M., 2012) Additionally, PAs can aid in the formulation of job criteria and selection of individuals "who are best suited to perform the required organizational tasks" (Manasa, & Reddy, (2009). A PA can be part of guiding and monitoring employee career development (Spinks, Wells, and Meche, (1999)), and to aid in work motivation through the use of reward systems (Manasa, & Reddy, (2009)).
We can see from the foregoing that the appraisal instrument used by the NUC is not sufficient to serve as an appropriate appraisal system to accurately rate the performance of each member of the academic staff of universities and the overall placement of universities at large since the outcome neither motivates staff nor rewards them. In line with (Walsh, 2003), the purpose of every good performance appraisal system is to correctly evaluate and manage both the behavior of workers and the outcomes in the work place. An ineffective performance appraisal system is partly responsible for the poor service delivery in our institutions of higher learning.

The above revelations should be taken very seriously and this suggests the urgent need to review the level of effectiveness of current NUC university appraisal instrument used during accreditation panel visitations. Following the above inadequacies, we will introduce, in this dissertation, an alternative model that will bring about improvements in controlling the activities of individual academic staff in various universities and the cumulative (overall) performance of these universities in general. Consequently, the new model will positively affect the quality of graduates as output from Nigerian universities.

A standard and formal performance appraisal system has many potential advantages. There has been a general consensus in the belief that PAs lead to positive implications of organizations (Pettijohn, & Kent, 2001). Performance Appraisal Systems can benefit an organization's effectiveness, especially when individual workers are given feedback about

their job performances (Schraeder, Becton, & Portis, (2007)); from this may spawn several potential benefits such as the individual workers becoming more productive.

Other potential benefits include:

a. Facilitation of communication: communication in organizations is considered an essential function of worker motivation. Fundamentally, feedback and management-employee communication can serve as a guide in job performance.
b. Enhancement of employee focus through promoting trust: behaviors, thoughts, and/or issues may distract employees from their work, and trust issues may be among these distracting factors. Such factors that consume psychological energy can lower job performance and cause workers to lose sight of organizational goals. Properly constructed and utilized PAs have the ability to lower distracting factors and encourage trust within the organization (Mayer, & Gavin, 2005).
c. Goal setting and desired performance reinforcement: organizations find it efficient to match individual worker's goals and performance with organizational goals. PAs provide room for discussion in the collaboration of these individual and organizational goals (Kikoski, J. F. 1999). Collaboration can also be advantageous by resulting in employee acceptance and satisfaction of appraisal results.
d. Performance improvement: well constructed PAs can be valuable tools for communication with employees as pertaining to how their job performance stands with organizational expectations (Spinks, Wells, & Meche, 1999). "At the organizational level, numerous studies have reported positive relationships between human resource management (HRM) practices" (Schraeder, Becton, & Portis, 2007), and performance improvement at both the individual and organizational levels.
e. Determination of training needs: "Employee training and development are crucial components in helping an organization achieve strategic initiatives". Twomey, & Harris, (2000). PAs can especially be instrumental for identifying training needs of new employees.

2.4. Accreditation of Academic Programmes in Nigerian Universities

Overview of Accreditation:

In the years preceding 1989, accreditation of programmes in the Nigerian University System (NUS) was nonexistent despite the fact that the Federal Government of Nigeria had promulgated the necessary law towards the process. The Federal Government of Nigeria through Section 10 of Act No. 16 of 1985, incorporated as section 4(m) of the National Universities Commission (NUC) amended Act No. 49 of 1988 empowered the NUC to lay down Minimum Academic Standards (MAS) for universities in the Federation and to accredit their degrees and other academic awards.

In its bid to comply with the provisions of the Act, the National Universities Commission through the use of experts from the universities prepared the Minimum Academic Standards in respect of 13 disciplines taught in Nigerian Universities in 1989. The disciplines include: Administration, Agriculture, Arts, Education, Engineering and Technology, Environmental Sciences, Law, Medicine and Dentistry, Management Sciences, Pharmaceutical Sciences, Sciences, Social Sciences and Veterinary Medicine. Later on MAS were developed for additional programmes.

The development of the Minimum Academic Standards and their subsequent approval provided the basis for accreditation of all degree programmes taught in Nigerian universities. The MAS thus serve as reference documents for the accreditation of programmes in the Nigerian University System. In 2004, the Commission employing the services of distinguished professors in Nigerian universities embarked on the review of the MAS documents. The exercise culminated in the evolution of Benchmarks Minimum Academic Standards (BMAS) for various disciplines in the Nigerian University System.

These documents are ready for onward transmission to the Federal Executive Council for approval and subsequent use by Nigerian universities.

Following the development of MAS in 1989, the NUC also worked out the procedure for the accreditation exercise with the production of the following documents:

i. Manual for accreditation procedures for academic programmes in Nigerian universities;
ii. Self-Study form (NUC/SSF)
iii. Programme Evaluation Form (NUC/PEF)
iv. Accreditation Panel Report Form (NUC/APRF)
v. Accreditation Re-visitation Form (NUC/ARVF)

The process of measuring performances of academic programmes in Nigerian universities begins with a series of informal assessments in the various departments and the Academic Planning Unit of the university. But the only structured method and process of academic programme evaluation is that carried out by the National Universities Commission (NUC) during accreditation exercises (Oladosu, 2011).

As an accrediting agencies set up by the Government through the Ministry of Education, the NUC uses the tool of "Accreditation" to signify the official approval granted to the programme/department under an accredited institution at the end of a successful assessment exercise. Through this exercise also, the quality and standard of educational institutions are assessed (Hornby, 2001 p.8). The same function is carried out by the National Board for Technical Education for Polytechnics and Monotechnics (NABTE) and the National Commission for Colleges of Education (NCCE) for this category of educational institutions (Adesina, 2005).

However, the professional content of some programmes is also assessed by designated bodies and agencies: thus, the Nigerian Medical and Dental Council (NMDC) accredits the professional content of Medical Programmes; the Council of Legal Education (CLE) assesses the professional content of Law Programmes; the Council for Registration of Engineering in Nigeria (COREN) accredits the professional content of the Engineering Programmes; the Institute of Chattered Accountants of Nigeria assesses the professional content of Accounting Programmes; while the Computer Professionals Registration Council (CPN) assesses the professional content of Computer Science programmes.

Closely germane to "Accreditation" is the concept of "Quality Assurance". This has been described as the process of monitoring quality and ensuring that standards are not only continuously sustained but equally improved upon. The continuous monitoring exercises conducted internally by the Academic Planning Units of Universities, the Academic Offices, the Student Affairs and other Units within Universities in general, are practical examples of "Internal Quality Assurance" mechanisms. The process is known as "Internal Quality Assurance" when it borders on policies and mechanisms effected internally to ensure that a particular institution, programme, profession or discipline continues to achieve its spelt-out objectives and to maintain standards expected of a higher education.

The monitoring process is known as "External Quality Assurance" if it is conducted by an external agency from outside the educational institution to find out the extent of its compliance with the established standards (Martin and Stella, 2007). The assessment visits

conducted periodically, by the National Universities Commission, the Nigerian Medical and Dental Council, the Council of Legal Education, the Council for Registration of Engineering in Nigeria, the Institute of Chartered Accountants of Nigeria, and the Computer Professionals Registration Council of Nigeria outside the universities, are examples of "External Quality Assurance" procedures otherwise called Accreditation.

2.4.1. History of NUC Accreditation

Accreditation of degree and other academic programmes by the NUC is a system of evaluating academic programmes in Nigeria universities as having met the provisions of the Minimum Academic Standard documents. The objectives of accreditation of academic programmes in Nigerian universities are to:

- **a.** Ensure that at least the provisions of the MAS documents are attained, maintained and enhanced;
- **b.** Assure employers and other members of the community that Nigerian graduates of all academic programmes have attained an acceptable level of competency in their areas of specialization;
- **c.** Certify to the international community that the programmes offered in Nigerian Universities are of high standards and their graduates are adequate for employment and for further studies.

The first in the history of accreditation of programmes in Nigerian universities was conducted in 1990 shortly after the Minimum Academic Standards were developed for all programmes existing in Nigerian universities at that time. It is on record that the exercise was unparalleled in the African continent as it was the first of its kind in this part of the globe. It was organized and conducted through the platform provided by the NUC with 100% indigenous resource persons. The exercise gave the nation the opportunity to have data-backed information on the state of education delivery in Nigerian universities.

Ten years after (1999/2000), a second comprehensive accreditation exercise of academic programmes in Nigerian universities was conducted. This was followed in 2002 with the accreditation of those programmes that earned denied accreditation status in 1999/2000. Programmes of first generation private universities were accredited in 2004, while newly matured programmes were evaluated at the beginning of 2005.

In November, 2005, 1,343 academic programmes in 48 universities were evaluated for accreditation. The NUC took a step further in its quality assurance mandate by embarking on the accreditation of Open and Distance Learning (ODL) and MBA programmes in June 2006.

It was the first time ODL and MBA programmes would be accredited in the history of Nigerian Universities. The experiences garnered with the MBA accreditation, which was a pilot exercise will definitely come in handy in the eventual accreditation of postgraduate programmes in Nigerian universities. Having risen to the challenges of the statute governing its quality assurance mandate, the National Universities Commission, no doubt, is fully stabilized on its accreditation process. This is evident in the fact that the exercise now comes up every year as programmes are continuously maturing for accreditation because they have fulfilled the required validity period for their accreditation status or that they had to make a request for re-visitation because they earned denied accreditation status in a previous visit or that they are just maturing for accreditation.

2.4.2 Justification and Legal Basis for Programme Accreditation

As indicated earlier, there are 117 Universities approved by the Federal Government of Nigeria through the National Universities Commission. If these institutions are allowed to operate without an accrediting agency, the standard of education would be compromised, the ultimate goal of producing a high-level manpower would remain a mirage and the graduates of the system would not be able to compete favorably with their peers in other parts of the world. Hence, the justifications for a body like the NUC to oversee and regulate the activities of these universities. But even then, NUC, (2011, pp. 11-12) agrees that there are currently 44 universities operating illegally, in different states of the Federation, and this is apart from eight illegal ones with on-going investigations and court cases.

The legal basis for accreditation of academic programmes in Nigeria is derived from Section 10 of Act No. 16 of 1985. This was incorporated as section 4 (m) of the NUC amended Act No. 49 of 1988, which empowers the Commission to "lay down minimum standards for all universities in the Federation and to accredit their degrees and other academic awards" (Okojie, 2008). On the strength of the above Act, the NUC developed a set of Minimum Academic Standards (MAS) to guide Nigerian Universities in the development, implementation and evaluation of their curricula. The MAS was reviewed by the NUC in 2004 and resulted in the development of Benchmarks Minimum Academic Standards (BMAS) (Okojie, 2008), and institutional compliance with the stipulated standards is measured through specially designed accreditation instrument.

2.4.3 Accreditation Procedure in the Nigerian University System, (Source: NUC, 2008).

When a programme is due for accreditation, the NUC gives at least three months notice to the concerned university of an accreditation visit to the particular programme, discipline or sub-discipline. At the time of the notice a Self-Study form is sent to the university for completion. The university is expected to complete and return twelve copies of the form in respect of each programme, discipline or sub-discipline to be accredited.

On receipt of the completed form, the NUC constitutes an Ad-Hoc Accreditation Panel which consists of a Chairman and four other persons from the academics, professional associations and regulatory boards or councils. In addition, the panel is serviced by a staff of the NUC. Panel membership is limited to full professors in a discipline who have a track record of objectivity, integrity and uncompromising standards. Vice-chancellors make nominations to complement selection from the NUC database of experts. Professional bodies and registration councils also nominate their members to serve on the NUC accreditation panels. The leader of each panel is elected from among members. He/she is usually the most senior professor with accreditation experience.

With the panel in place, a coordination meeting is held to induct new members and refresh former ones, regarding the accreditation process mechanisms. Usually a full day event, this exercise begins with presentations on the philosophical and procedural framework for accreditation and continues with sessions where the assessment instruments are discussed. Step-by-step, accreditors are taken through each of the assessment instrument items. The meaning of each item, the minimum standard to be measured and the scoring procedure are explained in detail. Once panel members are well versed in using the instruments, simulation exercises are carried out. During such exercises, hypothetical case scenarios concerning what may be encountered during actual accreditation visits are presented for scoring. Panel members' scores are discussed and harmonized. The simulation exercise continues until the difference between the scores of all panel members on each item in the assessment instrument is reduced to zero. The impetus behind the entire exercise is designed to enhance reliability of the system. At the end of the coordination meeting, the panelists leave for their accreditation sites. Care is taken to ensure that no member serves within 300km of his or her university catchment area.

2.4.4. Programme Evaluation

At the accreditation site, the panel meets with the Vice-Chancellor, and then with the Dean of faculty, Head of Department and staff of programme to be evaluated. After the introductory meeting, the panel settles down to work for two days on assessing programme content, facilities, delivery and evaluation modes. Interviews are held with students and sample lectures and practicals are observed. Each member of the panel scores the performance of the programme during the two-day period.

At the end of the visit, the panel writes its report, which is discussed with the programme staff and the Vice-Chancellor. The report must be commented on and signed by the Vice-Chancellor, or his or her representative. Finally, the report, together with a quantitative assessment of the programme and recommendations regarding accreditation status achieved, are sent to the NUC.

2.4.5. Accreditation Status and their Implications

The accreditation status awarded to a programme may be Full, Interim or Denied, depending on the total score. Full accreditation is granted to any degree or other academic programme that has satisfied the provisions of the Minimum Academic Standards. It is granted for a period of six academic sessions with a mid-term appraisal after three years. For a programme to be granted Full accreditation status, it must attain a minimum of 70% aggregate score as well as 70% in each of the four core areas of academic content, staffing, physical facilities and library. Interim accreditation is granted to any degree or other academic programme that has minor deficiencies that must be rectified within a stipulated period. In other words the programme must attain an aggregate score of not less than 60%. Also, a programme with a total score above 70% but which scores less than 70% in any of the indicated 4 core areas is awarded an Interim status.

Interim accreditation status is granted for a period of not more than two academic sessions after which the programme is automatically due for re-visitation. Programmes with interim accreditation status are expected to rectify the identified deficiencies within the stipulated period of two academic sessions failure of which automatically coverts the programme’s accreditation status to denied. During the period of interim accreditation status, universities may continue to admit students into the affected programme.

Denied accreditation applies to any degree or other academic programme which has failed to satisfy the Minimum Academic Standards. It applies to programmes with less than 60% aggregate score. The re-visitation of the programme is at the request of the university concerned.

When an academic programme has denied accreditation status, the university ceases to admit students into such a programme with effect from the next admission exercise. The Commission informs the general public and such relevant bodies as the Joint Admissions and Matriculation Board, National Youth Service Corps, Civil Service Commission, Nigerian Employers Consultative Association (NECA), relevant professional regulatory body, Nigerian Students Loans Board (Education Bank), National Directorate of Employment and various Federal and State Scholarship Boards about the denied accreditation status of the programme.

2.4.6. Post Accreditation

The panel reports are processed at the NUC by its Management Committee and Board. Accreditation decisions on each programme are informally discussed with Vice-Chancellors, following which results are officially released to the universities and the general public after approval by the Board. The universities are notified of the strengths and weaknesses of each programme. The universities in turn use the information to remedy identified deficiencies. In cases where Vice-Chancellors contest the panel's decisions, an appellate system is in place to look into such queries. However, the original decision remains in force until overturned by an appeal. The NUC also takes steps to calculate the cost of remedying the deficiencies of those programmes denied accreditation. The information is conveyed to the proprietor and management of the university so that further necessary action may be taken.

2.5. Quality Assurance in Nigerian Universities

According to Okojie (2008), quality assurance in Nigerian Universities has both the external and internal component just as it is all over the world. External Quality Assurance: The Federal government, through the National Universities Commission plays a major role in the external quality assurance process of Nigerian universities. The professional bodies on the other hand, perform minor roles in university quality assurance in the sense that they focus only on the appropriate professional programmes in the universities to ensure that the respective professional standards are adhered to.

The external quality regulatory mechanism in Nigeria therefore includes processes leading to the establishment of universities and their programmes, accreditation of programmes,

admission of qualified candidates into Nigerian universities, institutional audit by the visitor to universities, monitoring and evaluation of the state of universities from time to time and collaboration with professional bodies for effective university education quality assurance.

In order to fully entrench the external quality assurance process, some innovative ideas were adopted to stimulate and promote quality in university education delivery. These include; strategic planning and management, Curriculum reform and review, Nigerian Universities System Annual Review Meetings (USARM), Linkages and collaboration with national and international development partners, development of physical structures and facilities, Nigerian Universities Research and Development Fair (NURESDEF), Linkage with Experts and Academics in the Diaspora (LEAD) to mention but a few.

2.5.1 Internal Quality Assurance

These are the processes of evaluation, maintenance and promotion of quality within the university by the university. Every process of the administration of a university should automatically lead to delivery of quality university education. The internal mechanisms start from the point of admission into the university. In all universities, the minimum admission requirements are often stated as a basis of admission, while the admissions committees are usually set up to take care of the process. Quality is assured through the various inputs from Departments and Faculties. This ensures that candidates which do not meet the minimum requirements are not admitted. Proposals for the establishment of programmes also follow strict internal guidelines, through which such proposals emanate from the Department, and scrutinized through faculty boards and senate. This way all relevant inputs and queries would have been made and addressed. Universities also carry out both regular monitoring, and periodic review of their programmes.

Monitoring considers how effectively a programme achieves its stated aims, and the success of students in attaining the intended learning outcomes. It is usually undertaken by the department providing the programme, and often involves a programme team appraising its own performance at the end of an academic year. The process may take into account reports from external examiners, staff and student feedback, reports from any professional body that accredits the programme, and feedback from former students and their employers. It may result in adjustments to the curriculum or to assessment, to ensure continued effectiveness.

2.6. Impact of NUC Accreditation

2.6.1 Impact on the Public

The National Universities Commission as part of its statutory obligation owes the public a duty to publicize results of accreditation exercises. Since the NUC began to publish the result of accreditation exercises and apply appropriate sanctions where necessary, the public has been responding positively to the information the Commission pushes to the public domain on accreditation.

It is now a common occurrence for parents and prospective university students, to come or write to the NUC seeking the status of programmes before they subscribe to them.

In a similar vein, government agencies, corporate bodies and international organizations from time to time write to the NUC to get information of particular programmes in the Nigerian University System either because they want to sponsor their employees to such programmes or that they want to verify the quality of the certificates presented to them by their employees on staff development to such programmes.

Licensing of universities, especially the private ones in the recent past, has to some extent put the system in the right path towards fully addressing the problem of access to university education in Nigeria.

2.6.2 Impact on the Universities

The direct impact of the NUC accreditation on Nigerian universities cannot be Over-emphasized. Informal comments from staff of the universities point to the fact that accreditation exercises often give the departments the opportunity of getting the university to buy them equipment and appropriate facilities for teaching and research. Some have wondered what the state of universities would be if accreditation were nonexistent. For the NUC, this is not the desirable. The vision of the NUC for Nigerian universities is that they continuously remain in the state of quality improvement rather than being quality compliant when external assessors are visiting. Nevertheless, the Commission believes that with time Nigerian universities will imbibe the culture of self-assessment for continuous quality improvement; thus making their internal quality assurance process complementary to the external process. Further on the impact of accreditation on Nigerian universities, there are instances where proprietors have injected unprecedented amounts of money into their universities in order to remedy the deficiencies identified during accreditation exercises. A notable example is seen with Kogi State University, Anyigba where more than three quarter of its programmes presented for accreditation earned denied accreditation status in one of the

accreditation exercises. When the result of the exercise was made public, the Governor of the state visited the NUC to consult on the way forward. The cost implication for remedying the university's deficiency was presented to the Governor and within a month he released the money to the university, changed the management of the university and most of the university's programmes today are at the full accreditation status level.

Another example is Ebonyi State University in which some of its Science programme had denied accreditation status in 2005. By implication the university was prevented from admitting students into the programme. The State government came to the rescue of the university by injecting funds to remedy the deficiency which gave the university the opportunity of erecting a laboratory complex with state-of-the-art equipment. It was therefore not surprising that the programmes had full accreditation status when the university invited the NUC for a re-accreditation. Apart from the fact the university had improved on its laboratory facilities, it recruited more staff and the two years it did not admit students into the programmes forced its staff-students ratio to comply with the MAS stipulations. Other examples of the impact of accreditation on universities could be seen in OAU (Law programme), ABU (accountancy programme), Ondo State University denied programmes to mention but a few.

Licensing of universities on the other hand has created the opportunity for healthy competition within the Nigerian University System. It is expected that issues relating to the quality of teaching, research and community service will be positively affected by the licensing of private universities in Nigeria.

2.6.3 Impact on NUC

As far as accreditation is concerned in Nigeria, the NUC is doing well and the

Commission's effort in this direction is not only nationally recognized but internationally acclaimed. The experience the NUC has garnered over the years in accreditation of programmes in Nigerian universities has ensured a continuous improvement in the process. Having made such progress with accreditation of undergraduate programmes, the NUC has been making preparations towards the accreditation of postgraduate programmes in the system. In addition plans are in top gear to introduce institutional accreditation in the system; thus making the accreditation system more robust.

2.7. Categories of Performance Appraisal Systems

According to DeNisi and Griffin (2001), the various methods of Performance Appraisal can be classified into five major categories. They categories depend largely on who is doing the appraisal:

a. Rating by superiors: In this system, supervisors appraise the performance of subordinates without involving them in any way. This method is most commonly used in government organizations. The method usually suffers from prejudice on the part of the raters, but the validity of the system can be improved upon if rating is strictly done based on actual performance.
b. Feedback on appraisal information: In this system, the appraisee receives information about his areas of strength and areas of weakness. He will be given an opportunity to defend himself in terms of constraints and weaknesses. This type of appraisal leads to greater satisfaction of better work performance because of the participative approach involved. Basically, the goal of every good appraisal system is to improve the future performance of the appraisee.
c. Field review technique: In this approach, the appraiser goes to the field and obtains information about the work performance of the employee by asking questions and getting answers from say, peer groups or superiors. The information received will thus help the appraiser in defining the work profile for that employee.
d. Rating by self and peer group: In this method, the employee appraisal is done independently at the following three levels: the employee, peer groups, and the superior. The human resources department will then analyze the appraised report and draws out a profile for the employee based on common grounds.
e. 360^0 performance appraisal: In this method, the feedback is collected from all around the employee, his superior, his subordinates, his peer groups, and his customers. The evaluation is very comprehensive in terms of the employee's skill, abilities, style, and job-related competencies. This type of appraisal has the following advantages: higher validity and reliability of the evaluation, self perception by the employees gets compared with the perception of others, and helps in maximizing employee potential in the face of challenges.

In view of the fact that the sustenance of every organization depends on the effectiveness of its work force, it is expedient that the performance evaluation of these workers be properly managed. This appraisal of workers should be an on-going process and not after a long period of three years or more (Binza, 2011).

2.7.1 Six Characteristics of good Performance Appraisal Systems

According to some well researched publications posted to (www.preservearticles.com/6-main-characteristics-of-performance-appraisal.html) on May 19 2012, a Performance Appraisal System must have the following characteristics:

1. It must be bias free; the evaluator must be objective and the methods of appraisal must be fair and equitable. The atmosphere must be that of confidence and trust.

2. It must be relevant and should only measure behaviours that are relevant to the successful job performance and not on any other personal traits.

3. It should be acceptable to all; the performance standards as well as the appraisal methods should be developed by joint participation and joint collaboration.

4. It should be reliable, dependable, stable and consistent. High reality is essential for correct decision making and valid action studies: It should be sufficiently scientific so that if an employee is evaluated by two different evaluators, then the result should be significantly the same.

5. It must be able to objectively differentiate between a good employee and an ineffective employee. Rating an employee "average" does not adequately show the degree of effectiveness. Hence the technique must be sufficiently sensitive to pick up the differences between an effective and an ineffective employee.

6. It must be practical, sound, clear and unambiguous, so that all parties concerned understand its implications.

2.8. Effective Teaching and Learning

More effective teaching and learning actually takes place when a variety of teaching strategies are provided in the classroom and when the emphasis is on gaining understanding rather than just the right answers. There are a number of reasons for the need of variety:

a. different methods are appropriate for different areas of knowledge
b. students have different learning preferences i.e. some are more visual learners, some like working in groups, while some prefer the written word.
c. a monotonous diet of the same teaching style will cause even the most keen student to lose interest.

Effective learning activities are those that require students to process information rather than transfer information or answer questions without understanding. Again, helping students to develop learning skills and learn how to access resources and use the learning resource centre/library are vital to life-long learning. Although the American Association for the Advancement of Science (1990) emphasizes what students should learn, it also recognizes that how science is taught is equally important. Equally important is both the quality of content as well as its delivery to students.

It is important therefore to explore the concept of effective teaching for which we are assessing performance. In the light of the above, what then is effective teaching? According to Seldin (1990) some faculty members go up against teacher evaluation because they agree that teaching cannot be evaluated when there are no effective teaching parameters. A numbers of research methods like observational analysis, correlation studies, factor analysis and the critical incident approach have been used to identify the characteristics of effective teaching (Seldin, 1990). Miller (2005) explored the six characteristics of effective teaching. They include: (1). Lesson planning for class, (2) Having a deep insight of subject, (3) Giving confidence to students to present their own ideas and suggestions, (4) student motivation, (5) fair and unbiased feedback on students performance and, (6) Having genuine interest in teaching subject. Reddy (2006) supports the above mentioned qualities of an effective teacher but also emphasized that a good teacher should deliver clear and understandable lectures, ready to interpret complex ideas and assumptions and be able to make good examples to relate the idea with real world setting. He further explains a research conducted on senior students (ten years out of university) and junior students who were in final year of university.

Both groups agreed that effective teaching includes “adequacy of preparation, stimulation of intellectual curiosity and a progressive attitude”. Irby (2005) summarizes teaching effectiveness in four key points consisting of (1) organization/ clarity, (2) enthusiasm/stimulation, (3) instructor knowledge, and (4) group interactional skill.

Eble (1996) has divided characteristics in two broad dimensions, one is personal characteristics in which teacher should be enthusiastic, energetic, approachable, broad minded, apprehensive and creative. Other dimension is about mastering a subject in which he should have clear ideas, be able to point out relationships with practical implications, can pose useful questions and be able to create positive learning environment.

Today, the university teacher should not only be an instructor, but he has to prove himself a role model for his students because he is not only working on students insight for subject but also making their personality and vision. A good teacher makes his teaching effective by motivating and personifying enthusiasm in his students. He makes his sessions interesting and full of academic excitement. He should always try to develop the interest of his students in different subject areas and create an environment where they feel free to explore problems and suggest their solutions. He maintains deep knowledge of his subject and shows his willingness to deliver this knowledge anywhere he may be (Miller, 2005).

2.8.1. Learning Styles

A common concept in learning pedagogy is that individuals differ in how they learn (Elizabeth M. and Dobolyi D. G., 2015). The idea of individualized learning styles has greatly influenced education in most nations around the world. To get the best from students, it is recommended that teachers assess the learning styles of their students and adapt their classroom methods to best fit each student's learning style (Alan P. (2014). Although there is ample evidence that individuals express preferences for how they prefer to receive information, very few university lecturers have found any validity in using learning styles in education. In this dissertation, we encourage a diversification of learning styles in the classroom learning environment and in university education at large. Basically, students can be categorized according to their preferred style of learning. We have the following categories:

a. Auditory (aural) learners
b. Visual learners, and
c. Tactile learners.
   (Elizabeth M. and Dobolyi D. G., 2015)

2.8.1.1. Auditory (aural) learning

Auditory Learning is a learning style in which a person learns through listening. An auditory learner depends on hearing and speaking as the major way of learning (Kostelnik, M.J., and Soderman, A.K., 2014). They must be able to hear what is being said in order to understand, and may have difficulty with instructions that are drawn but if the writing is in a logical order it can be easier to understand. Usually, auditory learners use their listening and repeating skills to sort through the information that is sent to them.

Auditory learners usually have the ability to ascertain the true meaning of someone's words by listening to audible signals like changes in tone. When memorizing a phone number for instance, an auditory learner will say it out loud and then remember how it sounded to recall it. Auditory learners are also good at writing responses to lectures they have heard. They learn faster by listening to information delivered orally, in lectures, speeches, and oral sessions. They are also good at oral exams.

When an auditory/verbal learner reads, it is almost impossible for the learner to comprehend anything without sound in the background. In these situations, listening to music or having different sounds in the background (TV, people talking, music, etc.) will therefore help such learners to work better.

Auditory learners are good at storytelling. They solve problems by talking them through. Speech patterns include phrases such as “I hear you; That clicks; It's ringing a bell”, and other sound or voice-oriented information. These learners will move their lips or talk to themselves to help them accomplish tasks (Kostelnik, M.J., and Soderman, A.K., 2014).

Auditory (aural) learners can be identified by the following Characteristics:

The person who:

a. Likes to read to self out loud.

b. Is not afraid to speak in class.
c. Likes oral reports.
d. Follows spoken directions well.
e. Cannot keep quiet for long periods.
f. Enjoys acting, being on stage.
g. Is able to memorize lines more easily.
h. Is good in study groups.

Additionally, auditory (aural) learners:

i. Tend to have incredible memories for past conversations (such as jokes).
ii. Enjoy getting involved in arguments
iii. Enjoy discussions, debates, and talking to others.
iv. Enjoy listening to music, and sing/hum/whistle to themselves.
v. Prefer to give oral presentations over written reports (although this also has a lot to do with self-confidence).
vi. May read slowly.
vii. May have difficulty interpreting complicated graphs, maps or diagrams.

Considering the above information, university lecturers can help auditory (aural) learners by adopting the following teaching strategies:

i. Re-phrase points, questions. Vary speed, volume, pitch, as appropriate, to help create interesting aural textures.
ii. Write down key points or key words to help avoid confusion due to pronunciation.
iii. During lessons, ensure auditory learners are in a position to hear well.
iv. Incorporate multimedia applications utilizing sounds, music, or speech (use tape recorders, computer sound cards/recording applications, musical instruments, etc.).

2.8.1.2. Visual Learning

Visual learning is a teaching and learning style in which ideas, concepts, data, and other information are associated with images. It is one of the three basic learning styles in wide use today (Leite, W. L. et al, 2015). To show the relationships between the parts, the symbols

may be linked with each other, even though sometimes, words can be used to further clarify the meaning. By representing information spatially and with images, students are able to focus on meaning, reorganize and group similar ideas easily, and make better use of their visual memory.

According to Grey Matter in Wikipedia (2013), using graphic organizers improves student performance in the following areas:

Retention

Students remember information better and can better recall it when it is represented and learned both visually and verbally.

Reading comprehension

The use of graphic organizers helps improving the reading comprehension of students.

Student achievement

Students with and without learning disabilities improve achievement across content areas and grade levels.

Thinking and learning skills; critical thinking

When students develop and use a graphic organizer their higher order thinking and critical thinking skills are enhanced.

2.8.1.3. Tactile (kinaesthetic) Learning

Tactile Learning is a learning style in which learning takes place by the students carrying out physical activities, rather than listening to a lecture or watching demonstrations. Students with a preference for kinesthetic learning are also commonly known as "do-ers" (Grey M. in Wikipedia, 2013).

Depending on memory systems, kinesthetic learners respond differently. The different kinds of learners mainly include whole body learners, hands-on learners, doodlers, and students learning through emotional experiences. Here, learning and memory is generally short term. To achieve a long term memory, different techniques can be used depending on the individual. Mind mapping, story mapping, webbing, drawing, etc can be used to enhance the learning of a doodler. For the hands-on learner, role play, clay, building and math manipulative can be used. The whole body learner can learn better through role-playing, body mapping, puzzles and use of computer technology which allows for certain movement while

learning. Students can be engaged in group activities and activities which involve bodily movement such as dance, drama, sports, etc in order increase their learning. The following strategies can be used to facilitate kinesthetic memory:

a. Dance: ideas, concepts and processes can be expressed through creative movements
b. Laboratory demonstrations
c. Sports
d. Gymnastics
e. Charades

For the kinesthetic learners who have memories associated with emotions, learning can be facilitated through dance, debate, drama, role-play, and charades. This kind of learning leads to long-term retention since it is associated with emotions such as excitement, curiosity, anger, disappointment and success. Evidently, activities such as playing, puppetry, drama, acting and designing, will ensures involvement of tactile learners. Thus, it is also important to manage the students during such activities.

According to Mike K. and Traci L. (2014), some effective strategies used to involve unmotivated students during activities are:

i. Motivate the students by giving attention and reward, avoid punishment.
ii. Students should be provided with option to choose activities for learning a particular concept.
iii. Grades can be allotted depending on the participation by using score rubrics
iv. Activities chosen should encourage all the students to succeed and feel that have accomplished learning through an activity.
v. Every student has to be given equal opportunity to participate.
vi. Cooperative activities can be organized and positive feedback can be given to encourage teamwork in a class.

On the other hand, some of the effective strategies used to manage hyper motivated students include:

a. Encourage the student to organize body movement during activities
b. Regular monitoring of the student.

c. Appropriate and accurate directions have to be given for any activity.
d. Before involving the students in the activity, the consequences of the task going out of control have to be clearly explained.

As we have stated earlier, there is need to encourage a diversification of learning styles in the classroom learning environment, especially in the university system.

2.9. Student Learning Outcomes (SLOs)

The importance of explicitly defining expectations and standards was emphasized by Basma and Paula (2008). He posits that every department should focus on developing and articulating student learning outcomes, which should also be an integral part of the assessment plan for academic programmes.

Student learning outcomes can be considered as special types of objectives. An objective is a measurable target with a time limit that must be met on the way to attaining a goal.

SLOs should be a key feature within an Assessment Plan. They are concise statements which indicate what students in a programme are expected to know and be able to do at some mid-point and/or at the conclusions of their studies.

Definitions

Student Learning Outcomes (SLOs) are specific statements that describe the required learning achievement that must be met on the way to attaining the degree and meeting the goals of the programme.

After the agreed-upon programme goals have been stated, learning outcomes can be defined. Programme outcomes are specific statements that describe the desired or intended learning outcomes of a single programme. The outcome statements should be derived from the goal statements, which in turn should be aligned with the university's mission. Goals are broad statements, while learning outcomes are precise, specific and clear statements about the intended outcomes of a programme. According to Harding, Dickerson, and Kehoe, (1999), Student learning outcomes describe specific behaviors that a student of your programme should demonstrate after having completed the programme. SLO statements should focus on the expected knowledge, abilities, values and attitudes of a student after the completion your programme. All programmes are expected to develop a Plan to assess priority programme outcomes that may determine the efficacy of student learning outcomes through current practice that also determine areas for programme improvement.

According to The University of Nevada, Reno (2009), each SLO also needs at least one measurable Performance Indicator, which identifies what students will do to demonstrate their competence, a behavior or student product. Performance Indicators are used to assess how well students achieved the expected outcome. Each Performance Indicator also needs a companion Assessment Method that outlines how faculty will go about the process of assessing the student behavior or product using the Performance Indicator.

2.9.1 Benefits of using SLOs in Programme Assessment

The following are the some of the advantages associated with developing and using student learning outcomes:

Program Improvement

One of the primary purposes of student learning outcomes assessment is to provide feedback to determine how the programme can be improved to enhance student learning.

Identification of Best Practices in Instruction

Learning outcomes can be used by faculty to help them evaluate and improve their teaching. Faculty can share teaching strategies that are more effective in helping students reach student learning outcomes.

Course Design and Revision

SLOs can help in the design of new courses in terms of rationalizing the need for that new course and its positioning in the curriculum. Additionally, learning outcomes can be used by the faculty in the classes that they teach to assist them in developing assignments that include the intended knowledge, abilities, values and attitudes of that programme.

Curricular Assessment and Change

The use of learning outcomes can help departments think about their curriculum. A department can determine in which of the programme courses each SLO is addressed to determine if each outcome is addressed adequately across the curriculum and where gaps exist. Plans can be made to introduce, reinforce and assess the important outcomes in the appropriate courses in the curriculum.

Communicate Instructional Intent

SLOs can provide a means of communicating expectations to students. Developing clearly defined learning outcomes available to students will aid in establishing criteria for grading assignments and tests.

Increased Awareness of Learning (for students)

SLOs can help students realize “what they know” and can help them to communicate this knowledge.

Common Language

SLOs can help departments develop a common language that can be shared with faculty, staff, students, the public, and other constituencies. A common language can facilitate communication among departments and disciplines.

Advising Tools

SLOs can assist the advising process because advisors can communicate to the students the expectations of the programme by referring to the expected learning outcomes.

Improving Promotional Materials

Student learning outcome statements can be presented in promotional materials to attract students and promote a programme. Additionally the language used can be significant when devising keywords to attract “hits” to a webpage.

Targets for Assessment and Accreditation

Defining statements for learning outcomes is an integral part of the assessment process and also necessary for the accreditation process.

(Gronlund, (2000) and Roth, Beyer, and Gillmore, (2002)).

According to UCF Continuous Quality Improvement website, 2003, Student learning outcomes should have the following features:

Specific:

Define learning outcomes that are specific to the academic programme, and includes, in clear and definite terms the expected abilities, knowledge, values and attitudes a student who graduates from the programme is expected to have.

There should be a focus on intended outcomes that are critical to the programme. When the data from the assessment process are known, these outcomes should create opportunity to make improvements in the programme that is being offered to students.

Measurable:
The intended outcome should be one for which it is feasible to collect accurate and reliable data. There should be a consideration of available resources (e.g., staff, technology, assessment support, and institutional level surveys) in determining whether the collection of data for each student learning outcome is a reasonable expectation.
It should also include more than one measurement method that can be used to demonstrate that the students in a particular programme have achieved the expected outcomes of that programme.

Aggressive but Attainable:
We should not allow the perfect divert us from what is possible. When defining the learning outcomes and setting targets, we should use targets that will move us in the direction of our vision, but we may not try to "become perfect" all at once.

Results-oriented and Time-bound:
When defining the outcomes, it is important to describe where you would like to be within a specified time period (e.g., 10% improvement in exam scores within one year, 90% satisfaction rating for next year, 10% improvement in student communication performance within two years). Also, determine what standards are expected from students in your programme. For some learning outcomes, you may want 100% of graduates to achieve them. This expectation may be unrealistic for other outcomes. You may want to determine what proportion of your students achieve a specific level (e.g., 80% of graduates pass the written portion of the standardized test on the first attempt). If you have previously measured an outcome, it is helpful to use this as the baseline for setting a target for next year (Guidelines for Program Assessment: Standards and Levels, 2002; and UCF Continuous Quality Improvement website, 2003).

In spite of the immense benefits of SLOs, it was discovered during the course of this research that most Nigerian universities are not even aware of its existence, its use, and its importance. In most universities visited, there are no general models for assessing student learning in academic programmes.

2.10. The Data Envelopment Analysis (DEA) as a Quantitative Model for Performance Evaluation and Benchmarking

Data Envelopment Analysis (DEA) is a quantitative and analytical tool for measuring and evaluating performance and for efficiency analysis in a dynamic environment. It is basically a non-parametric technique used for measuring efficiency of performance indicators in an organization. DEA has been successfully applied to a host of different entities engaged in a wide variety of activities in many contexts worldwide

Generally speaking, it is quite difficult to evaluate an organization's performance when there are multiple inputs and multiple outputs to the system. The difficulties are further enhanced when the relationships between the inputs and the outputs are complex and involve unknown tradeoffs. DEA models and approaches are used to deal with performance evaluation problems in a variety of contexts.

According to Lovell and Schmidt (1988), Data Envelopment Analysis (DEA) is defined as a nonparametric method in operations research and economics for the estimation of production or service frontiers. It is used to empirically measure productive efficiency of decision making units. Although DEA has a strong link to production theory in economics, the tool is also used for benchmarking in operations management where a set of measures is selected to benchmark the performance of manufacturing and service operations. Non-parametric approaches have the benefit of not assuming a particular functional form/shape for the frontier; however they do not provide a general relationship (equation) relating output and input.

There are also the parametric approaches which require that the shape of the frontier be guessed beforehand by specifying a particular function relating output to input (Lovell & Schmidt, 1988). DEA allows you to take account of all the important factors that affect a unit’s performance to provide a complete and comprehensive assessment of efficiency. This is done by converting the multiple inputs and outputs into a single measure of productive efficiency. By doing so it identifies those units which are operating relatively efficiently and those which are not. The efficient units, those making best use of resources, are rated as being 100% efficient whilst the inefficient ones obtain lower scores. One can also combine the relative strengths from each of these approaches in a hybrid method (Tofallis, 2001) where the frontier units are first identified by DEA and then a smooth surface is fitted to these. This allows a best-practice relationship between multiple outputs and multiple inputs to be estimated. It can be characterized as an extreme point method that assumes that if a firm can

produce a certain level of output utilizing specific input levels, another firm of equal scale should be capable of doing the same.

The framework has been adapted from multi-input, multi-output production functions and applied in many industries. DEA develops a function whose form is determined by the most efficient producers. This method differs from the Ordinary Least Squares (OLS) statistical technique that bases comparisons relative to an average producer. Like Stochastic Frontier Analysis (SFA), DEA identifies a "frontier" on which the relative performance of all utilities in the sample can be compared: DEA benchmarks firms only against the best producers.

Since university programme assessment is basically a quantitative measure, we will adopt the principles of parametric Data Envelopment Analysis (DEA) in the creation of our evaluation model to ensure improved quality assessment.

2.11. Findings from Literature Review

In this chapter, the contributions of various authors to the subject matter have been sampled. Previous researches and findings of several scholars have been carefully reviewed. From our review, it is clear that though our accrediting agency appear to have done well in ensuring that academic programmes in Nigerian universities are qualitative, the performance of these programmes still remain poor in terms of their impact on students (Jiya 2012). Our universities have continued to produce graduates who lack the requisite knowledge and skill to favourably compete with their international counterparts. This is despite government's efforts in infrastructural and manpower development in our universities. It is evident that the assessment framework currently being used in assessing academic programme quality by our accreditimg agencies is inadequate and an enhancement is necessary (Abdulkareem and Oyeniran, 2011), (Jiya 2012).

CHAPTER THREE
SYSTEM ANALYSIS AND METHODOLOGY

3.1. Sources of Data/Methods of Data Collection

In order to carry out a detailed analysis of the existing system, both primary and secondary data were collected from different sources. A questionnaire was designed as the measuring instrument to gather primary data from our respondents. This approach was adopted in order to investigate the ineffectiveness level of current evaluation framework for university academic programmes, and to ascertain the areas of weakness in the existing system. A copy of the questionnaire is presented in Appendix II. With this instrument, we conducted a survey among all levels of university academic staff in Nigeria spanning the six geo-political zones of the nation.

Secondary data was also gathered from a number of sources in order to carry out an insightful investigation into the existing system, its working procedures, and its mode of operation. Some of our sources of secondary data include: Manual of Accreditation Procedures for Academic Programmes in Nigerian Universities, Publications from the Office of the Executive Secretary, National Universities Commission, Academic programme Review Guidelines, Quality Assurance and Accreditation in Higher Education in Sub-saharan Africa, Several Journal Papers on University Programme Accreditation, Quality Assurance, Research and Development, and Briefing Documents on the Nigerian University System.

3.2. Methodology

Usually, software developers will depend on one or more of the internationally accepted methodologies of the System Development Life Cycle (SDLC) in order to ensure an effective completion of any software development project. Methodology is basically used in the analysis and design of such systems. SDLC is actually a series of steps and processes that system developers can follow in building quality systems faster, with less cost, and with less risks (Khurram, 2010). According to Wu and Wu (1994), some of the methodologies of SDLC include: Structured System Analysis and Design Methodology (SSADM), Object-Oriented Analysis and Design Methodology (OOADM), Prototyping, and Expert Systems methodology. In this work, we adopted the combined Structured System Analysis and Design Methodology (SSADM) and Object-Oriented Analysis and Design Methodology (OOADM).

SSADM was added because of its advantage over others in promoting program detail, clarity and simplicity.

When choosing a methodology, it is important to consider not only the features of the methodology, but also the cost of using it, the type of problems to which it is best suited, and its limitations.

Our focus was to capture all the user requirements for the system and to model the basic classes and collaboration between them. The following factors were put into consideration: sources of data, data analysis techniques, model specifications, and an identification of the strengths and weaknesses of the present system.

3.3 Analysis of the Existing System

We begin the analysis of the existing system by looking at the features of current university programme assessment framework as used by the NUC in assessing performance of academic programmes. Our aim is to identify all observable deficiencies in the present evaluation system used in the appraisal to determine programme performance. For a thorough analysis, we focused on the following:

a. A description of performance assessment process in Nigerian universities,
b. An empirical analysis of ineffectiveness level of existing programme assessment framework with a view to identifying the gaps between expected performance and actual performance,
c. Verify the reason for the identified gaps if any,
d. Offer an action-plan that improves on the state of the observed weaknesses to meet the needs of government, student, and the university.

An organizational chart of a University's Management Structure is shown in figure 3.1 below:

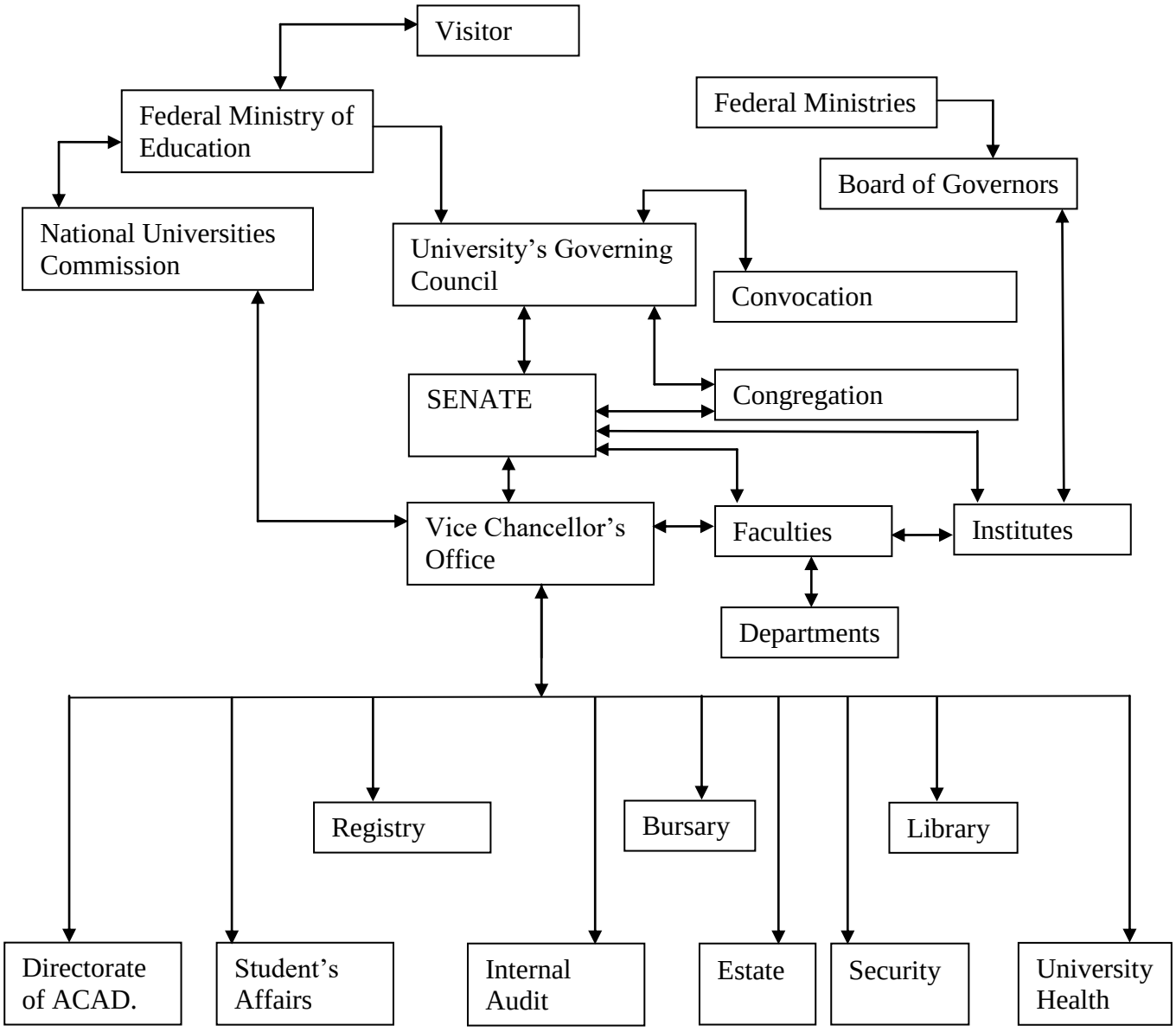


Figure 3.1: Organizational chart of a university's Management Structure

3.3.1. Performance Assessment of Academic Programmes in Nigerian Universities

Universities are tertiary institutions established to: generate and disseminate knowledge, skills and competencies at the highest educational level; provide high level manpower training; provide high quality career counseling; provide life-long learning programmes; award degrees; conduct demand-driven researches; promote scholarship; provide entrepreneurship programmes; provide community service; and promote national and international understanding and collaboration (Federal Republic of Nigeria, 2007, Draft National Policy on Education, p 36).

Measurement of public sector performance, especially in provision of services in organizations such as universities, is a complex issue (Abdulkareem and Oyeniran (2011)). It involves comparing public resources in terms of total amount of money expended, the personnel and other resources, with outputs such as students' academic performance, graduation rate and quality of research. Blanchard (2004) opined that good performance in higher education is expected to bring positive growth. In particular, since universities are established to produce skilled manpower required for national development, centers of excellence for technological and scientific advancement, skill development, production of quality entrepreneurial graduates, and strategic researches for development, performance assessment of academic programmes will not be that easy and straightforward.

Administratively, the university is structured in the form of hierarchy of organizational members beginning with the Vice Chancellor, Deputy Vice Chancellor (academic), Deputy Vice Chancellor (administration), Registrar, Bursar, Librarian, Deans of faculties, and Heads of departments. All organizational members directly involved in academics and the training of students are called lecturers. Lecturers comprise of academics with various ranks as Professors, Associate professors (Readers), Senior lecturers, lecturer I, lecturer II, Assistant lecturers, and Graduate Assistants, who are largely distinguished based on their educational qualifications, research and teaching experience, training, and skills.

Lecturers render their services of teaching the students in the classroom, exposing them to knowledge and new discoveries in their chosen field of study, and assess the students' level of knowledge at the end of the semester. They also engage themselves in research for new discoveries, community development, and nation building. Information is passed within and across university campuses through circulars, memos, reports, minutes, meetings, and by direct contacts with staff and students. Their services are therefore delivered to students (who are the major "customers" of the university), the immediate community where the campus is situated, and the nation at large.

The hierarchical structure of the university determines the flow of activities and information towards the accomplishment of her set goals. The activities and services rendered by the university staff produces a large amount of data that can be processed into meaningful information for specific decision-making purposes regarding the student, the academic programme, the departments and units, faculties and the university in general. Some of the information so generated can also be useful in both internal assessments of programme

performance and for external reviews. The information will equally be useful for assessment and specialized accreditation of programmes and departments by the National Universities Commission (NUC).

Basically, every academic programme should have a set of clearly-defined objectives, mission, and purpose. Stating the mission or purpose of the programme is a required element of assessment plans. According to Martha and Kathryn (2001), assessment works best when the programs it seeks to improve have clear, explicitly stated purposes. The programme mission is a broad statement of what the programme is, what it does, and for whom it does it. It provides a clear description of the purpose of the programme and the learning environment. For a given programme, the mission statement should, in specific terms, reflect how the programme contributes to the education and careers of students graduating from the programme. Mission statements for academic programmes reflect how the teaching and research efforts of the department are used to enhance student learning, and such missions are aligned with the Department, College, and University missions. Finally, the mission is always distinctive for the programme in question.

3.3.1.1. Programme Accreditation

The process of measuring performances of academic programmes in Nigerian universities begins with a series of informal assessments in the various departments and the Academic Planning Unit of the university. But the only structured method and process of academic programme evaluation is that carried out by the National Universities Commission (NUC) during accreditation exercises (Oladosu, 2011).

As an accrediting agency set up by the Government through the Ministry of Education, the NUC uses the tool of "Accreditation" to signify the official approval granted to the programme/department under an accredited institution at the end of a successful assessment exercise. Through this exercise also, the quality and standard of educational institutions are assessed (Hornby, 2001 p.8). The same function is carried out by the National Board for Technical Education for Polytechnics and Monotechnics (NABTE) and the National Commission for Colleges of Education (NCCE) for this category of educational institutions (Adesina, 2005). The professional content of some academic programmes is assessed by designated bodies and agencies: thus, the Nigerian Medical and Dental Council (NMDC) accredits the professional content of Medical Programmes; the Council of Legal Education

(CLE) assesses the professional content of Law Programmes; the Council for Registration of Engineering in Nigeria (COREN) accredits the professional content of engineering programmes; the Institute of Chattered Accountants of Nigeria assesses the professional content of accounting programmes; while the Computer Professionals Registration Council (CPN) assesses the professional content of Computer Science programmes.

Closely germane to "Accreditation" is the concept of "Quality Assurance". This has been described as the process of monitoring quality and ensuring that standards are not only continuously sustained but equally improved upon. The continuous monitoring exercises conducted internally by the Academic Planning Units of Universities, the Academic Offices, the Student Affairs and other Units within Universities in general, are practical examples of "Internal Quality Assurance" mechanisms. The process is known as "Internal Quality Assurance" when it borders on policies and mechanisms effected internally to ensure that a particular institution, programme, profession or discipline continues to achieve its spelt-out objectives and to maintain standards expected of a higher education.

The monitoring process is known as "External Quality Assurance" if it is conducted by an external agency from outside the educational institution to find out the extent of its compliance with the established standards (Martin and Stella, 2007). The assessment visits conducted periodically, by the National Universities Commission, the Nigerian Medical and Dental Council, the Council of Legal Education, the Council for Registration of Engineering in Nigeria, the Institute of Chartered Accountants of Nigeria, and the Computer Professionals Registration Council of Nigeria outside the universities, are examples of "External Quality Assurance" procedures otherwise called Accreditation.

3.3.1.2. Accreditation Instrument

The NUC develops a set of Minimum Academic Standards (MAS) to guide Nigerian Universities in the development, implementation and evaluation of their curricula. The MAS when reviewed results in the development of Benchmarks Minimum Academic Standards (BMAS). The National Universities Commission measures academic programmes'/institutional compliance with the Minimum Academic Standards using the following instruments:

(i) **Self-Study Form (SSF**): The self-study form is divided into two sections: section "A" and Section "B". The Section "A" solicits general information about the University

and requires the Vice-Chancellor or a designated officer of the University visited to provide the information. The Section "B" solicits information about the programmes to be accredited and requires the Head of Department of the programmes to be accredited to provide the information.

(ii) Manual of Accreditation Procedure for Academic Programmes

This document provides the detailed information on the objectives, processes and specimens of the other forms that have been completed by the universities and panel members for each of the programmes (NUC, 2008).

(iii) Programme Evaluation Form (PEF): - This form is to be completed by each panel member. The form provides scoring columns and columns for relevant comments (NUC, 2008).

(iv) Accreditation Panel Report Form (APRF): - The Chairman of the panel completes this form for each of the programmes being accredited. The summary of scores and accreditation status are entered into the space provided in the form (NUC, 2008).

(v) Minimum Academic Standards Document: - The Minimum Academic Standards Document contains the minimum course content in each degree programme, minimum physical facilities; minimum laboratory space; library and the staff/student ratio (NUC, 2008).

The programmes to be accredited are evaluated and scored based on the following criteria: staffing (32%), academic content (23%), physical facilities (25%), library (12%), funding (5%) and employers rating (3%) (NUC 1999). This means that the four core areas in the criteria are: academic content; staffing; physical facilities and the library. It is worthy of note that while concentration is given to academic content, staffing, physical facilities and the library, no mention is made concerning student learning outcomes and their measurements. Yet, international best practice suggests that student learning outcomes is an important means of assessing academic programme performance.

The above accreditation instrument applies to Programme Accreditation. As for Institutional Accreditation, assessment seeks to objectively measure the performance of a university holistically, guided by a clearly identified criteria, sub-criteria and relevant minimum standards. Our review of related literature revealed that the draft tool for conducting an Institutional Self Accreditation was labeled "INSTRUMENT FOR INSTITUTIONAL

ACCREDITATION" designed jointly by the National Universities Commission (NUC) and Association of African Universities (AAU).

Needles to say, the process allows for improvement upon the content of academic programmes, the quality of staff members, physical facilities, library holdings as well as funding. In all of the above processes, the Academic Planning Units play a fundamental role.

3.3.1.3. The Role of the Academic Planning Unit

Academic planning is the process of taking appropriate decisions for the actualization of university objectives through the effective use of available resources. Most of the Academic Units of Nigerian Universities were established in the early 1980s, for the purposes of coordinating the academic programmes in these universities, streamlining their growth and development and avoiding unnecessary duplication of programmes (Uvah, 2003).

Generally, the Academic Planning Unit ensures that quality and international standards permeate all the conceptions and activities of the University, starting with its vision, mission and strategic objectives, and cutting across its operations in the areas of teaching, learning, research, community service, student admission and registration, staff employment, curricula contents, and human and material resources.

Specifically the Unit:

a. ensures that the various activities of the University are in line with the vision, mission and strategic objectives of the institution, and are in compliance with international standards;
b. updates data for planning and preparation of the University budget and subsequent resource allocations;
c. provides data-based information to guide the operations of the university;
d. collates, analyses and interprets data from relevant University Units;
e. periodically analyses data for the internal evaluation of the performance status of the University in relation to all NUC-approved funding parameters;
f. establishes academic linkages and collaborative efforts with universities within and outside the country;
g. sources for fellowships and scholarships for students of the university;

h. collects, analyses and publishes data for student projections and determination of Full-Time Equivalent (FTE);

i. coordinates the disbursement of the Senate Research Grant (SRG) and the Direct Teaching and Laboratory Cost (DTLC);

j. stores and retrieves relevant institutional data for approved research, academic workload, projection, etc;

k. coordinates the production of the University's Annual Report;

l. organizes university-wide conferences, seminars, workshops, lectures and international events;

m. monitors staff employment, deployment, development and promotions;

n. coordinates the annual assessment of lecturers by students;

o. prepares the annual draft budget of the University;

p. coordinates the revision and restructuring of academic programmes and course contents;

q. prepares a comprehensive report to the University System Annual Review Meetings (USARM) at the NUC;

r. relates with the NUC, JAMB, WAEC, NECO, etc on matters bordering on the introduction of new academic programmes; and

s. interacts with the NUC on accreditation and resource verification matters (Uvah, 2003 pp. 2-5).

With particular reference to accreditation, the Academic Planners Unit, under the leadership of the Director of Academic Planning, facilitate each stage of the accreditation exercise.

3.3.2. Stages of Academic Programme Accreditation

The Director, Academic Planning Unit carries out the following functions before the actual exercise:

a. Sends the list of academic programmes that are due for accreditation, in a particular year, to the NUC.

b. Thenceforth, the unit interacts and meets with the Deans, Heads of Departments and staff of concerned departments over accreditation issues.

c. Write to concerned departments and faculties to set up departmental and faculty accreditation committees for self evaluation of their academic programmes in collaboration with the Academic Planning Unit.

d. Write to the HODs of concerned programmes to submit the list of their accreditation needs through the Faculty Office.

e. Forward the list of the accreditation needs of the various programmes to the University management for further processing.

f. Follow up the submitted list of accreditation needs to ensure the needs are adequately met before the arrival of the NUC Accreditation Team.

g. Complete section A of the Self Study Form which requests for information about the University.

h. Collect, from concerned departments, the section B of the Self Study form, which requests for information about the programme, discipline or sub-discipline to be accredited.

i. Vet the Self Study Form to ensure that all the pieces of information required are provided and that all the NUC guidelines and parameters are strictly complied with. These are in respect of: the number of academic and non-academic staff, staff/student ratio, adequacy of physical facilities e.g. office space, lecture rooms, lecture theatres, and laboratories, availability of: staff list, staff letters of appointment, student list by levels, student admission files, examination questions, answer scripts, marking schemes, score sheets/examination results, external examiners' reports, employers' reports, sample of students' completed projects, budget allocation for the concerned department, and malpractice records, if any.

Before the accreditation proper, Director, Academic Planning Unit visits the concerned departments to assess their level of preparedness, harvest their final accreditation needs and process these to the authorities of the university.

He finally conducts a mock accreditation of concerned programmes/departments and sends the result of the mock accreditation to the concerned departments for necessary remedial measures.

The Academic Planning Unit also vets and sends 12 copies of the completed Self-Study Forms for concerned programmes, discipline or sub-discipline ahead of the arrival of the NUC Accreditation Team.

On the day of the accreditation proper, the Director of Academic Planning leads the NUC accreditation team to a courtesy call on the Vice-Chancellor, and later leads the team to the concerned Faculty/Department for briefing with the Dean, HODs and staff.

The NUC accreditation team, led by its Chairman, then assesses the physical facilities: classrooms, laboratories, lecture theatres, and library. They also check the compliance of the following with the NUC's Minimum Academic Standard: the number of academic and non-academic staff, staff/student ratio, adequacy of physical facilities e.g. office space, lecture rooms, lecture theatres, and laboratories, availability of: staff list, staff letters of appointment, student list by levels, student admission files, examination questions, answer scripts, marking schemes, score sheets/examination results, external examiners' reports, employers' reports, sample of students' completed projects, budget allocation for the concerned department, and the examination malpractice records. At the end of the day, the accreditation team meets with the Vice-Chancellor, the Principal Officers of the University, and the Deans and HODs of concerned Faculties and Departments, at which meeting the members of the Accreditation Panel will make their observations known.

Following the completion of the accreditation exercise, the NUC accreditation panel prepares the final report and verdict of the NUC and a "status of accreditation" earned by the programme is finally determined.

Usually, a programme earns one of three possible status:

(i) Full Accreditation Status: A full accreditation status is achieved by a programme when it has a total overall score of 70% and above, in addition to scoring at least 70% in each of the core areas of staffing, academic content, physical facilities and library. A programme with full accreditation status is formally re-visited after 5 years.

(ii) Interim Accreditation Status: A programme is awarded interim accreditation status when it has a total overall score of less than 70% or 70%, but with a score of less than 70% in any of the four core areas stated above. An Interim accreditation status lasts for 2 years, after which a re-visitation/re-accreditation is conducted.

(iii) Denied Accreditation Status: A programme falls into denied accreditation status if its overall score is lower than 60%. A denied accreditation status implies no further student enrolment until the programme is re-visited and re-accredited (Okojie, 2008).

Where a programme earns a full Accreditation Status, it is the responsibility of the university to work hard, not only to sustain this status, but to improve significantly upon it. In case of an Interim Accreditation Status, academic planners liaise with the concerned Department and ensure that the deficiencies are remedied.

Consequently, the university writes to the NUC, within two years, of the preparedness of the department for a re-accreditation.

3.3.3. Programme Evaluation Criteria and Scoring Pattern using the APRF

In the process of collecting relevant information for this study, we conducted an investigation to ascertain the evaluation criteria and scoring pattern used by the NUC in determining academic programme performance in universities. We discovered that the major instrument used by the NUC in determining performance level of academic programmes, is the Accreditation Panel Report Form (APRF), where all performance criteria considered during the accreditation exercise are entered and where the scores are reported. The form also contains the scoring pattern used by the evaluators. A copy of the APRF form is presented in Appendix I.

The following are the basic evaluation criteria used in determining performance level of academic programmes:

i. Academic Content
ii. Staffing
iii. Physical Facilities
iv. Library
v. Funding, and
vi. Employers' rating

The distribution of evaluation scores based on the basic evaluation criteria is shown in table 3.1.

Table 3.1: Distribution of Scores (NUC, 2008)

Item	**Percentage**
Academic Content	23%
Staffing	32%
Physical Facilities	25%
Library	12%
Funding	5%
Employers' rating	3%
Total	**100**

From the information in table 3.1 above, "Staffing" and "Physical Facilities" carry the highest scores while "Employers' rating" and "Funding" carry the lowest scores in the distribution.

Under "Academic Content", the following sub-criteria are considered:

i. Philosophy and Objectives (of the programme)
ii. Curriculum
iii. Admissions,
iv. Academic Regulations
v. Tests and Examinations
vi. Practical/students' work, and
vii. External Examination system

For Philosophy and objectives, the evaluators usually ascertain the extent to which the objectives of the academic programme tallies with the university vision statement. However, there are no provisions or techniques to ascertain the level at which these objectives are achieved in the students (who are the main customers of the university). It is not very difficult to come up with an objective for an academic programme, but the main focus of the evaluation should be to determine the level of its implementation.

Curriculum is a good criterion that can measure academic programme performance to some extent, but the content alone cannot produce a good measure of the level of impact on the students. There should be a way of determining extent of content delivery and effective knowledge exchange among students. The system is not able to determine the level of student satisfaction, pass rates and attrition rates. Furthermore, the system cannot ascertain the level of teacher's coverage of his course contents before the start of "end-of-semester" examinations.

For Tests and Examinations criteria, a few sample results of students (usually the best students) are usually presented to the evaluators, who awards their score based on the information provided. The same is true of Student Practicals and Project works. There are no means of determining the actual level of teacher performance in terms of teaching and knowledge transfer to students.

Under "Staffing" as a performance criterion, the following sub-criteria are considered during the assessment of academic programmes:

i. Teaching staff/student ratio,
ii. Staff mix by ranks
iii. Qualifications
iv. Administration
v. Non-reaching staff, and
vi. Staff development.

The above sub-criteria are good. However, a teacher's level of qualification does not equal his teaching ability and competence in the classroom. The system does not provide means of receiving students' report on the teaching abilities and expertise of the lecturers. Again, a teacher can be well-qualified to teach but has formed the habit of coming late to classes. Some may not even come at all since the system will never discover it. During the semester examination, the teacher sets his questions and asks the students to "read-up" the textbooks. If our university education must work, there should be a technique to discover and forestall these anomalies in order to correct the attitudes of some academic staff. There should be a

way to capture information regarding a lecturer's "time-of-entry" to classes and "time-of-exit" from classes on a daily basis.

3.3.4. Empirical Study to Determine Ineffectiveness Level of Current Evaluation Framework for Academic Programmes Performance

It is necessary at this point to investigate the properties of the evaluation framework and how the pattern affects effective determination of academic programme performance. The APRF form immediately comes into mind as the basic instrument for the assessment. The APRF form contains all performance criteria considered during NUC's accreditation exercise, and scores awarded under each criterion. The investigation enables us to establish the extent to which the assessment framework is helping to ascertain the true performance level of academic programmes in Nigerian universities. The investigation also enables us to understand the level of performance of current assessment instrument so that we can begin the process of improving on it. This second reason is in line with Armstrong (2009) who suggests that the process of improving on performance can begin only after the level of current performance is known. This is the only basis for identifying development needs if there are pitfalls.

We therefore conducted a survey among all levels of university academic staff in Nigeria. In order to give credence to the investigation, a questionnaire was designed as the measuring instrument to gather primary data from our respondents. A copy of the questionnaire is presented in Appendix II.

3.3.4.1. Sample Size Determination

Generally speaking, the sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample. In practice, the sample size used in a study is determined based on the expense of data collection, and the need to have sufficient statistical power (Kenny, D. A., 2014). In complicated studies there may be several different sample sizes involved in the study: for example, in a stratified survey there would be different sample sizes for each stratum. In a census, data are collected on the entire population; hence the sample size is equal to the population size. In experimental design, where a study may be divided into different treatment groups, there may be different sample sizes for each group.

Sample sizes may be chosen in the following ways:

i. Experience – which may include those items readily available or convenient to collect? A choice of small sample sizes, though sometimes necessary, can result in wide confidence intervals or risks of errors in statistical hypothesis testing.
ii. Using a target variance for an estimate to be derived from the sample eventually obtained, and
iii. Using a target for the power of a statistical test to be applied once the sample is collected.

Larger sample sizes generally lead to increased precision when estimating unknown parameters (Scott S., 2013). In some situations, the increase in precision for larger sample sizes is minimal, or even non-existent. This can result from the presence of systematic errors or strong dependence on the data, or if the data follows a heavy-tailed distribution. Sample sizes are however judged based on the quality of the resulting estimates. To determine the sample size, we use the following simple equation:

Sample Size = $(\text{Z-score})^2 * \text{StdDev}*(1-\text{StdDev}) / (\text{margin of error})^2$

This means that the following parameters need to be determined about the target population and the sample you need:

Population Size, Margin of Error (Confidence Interval), Confidence Level, (The most common confidence intervals are 90% confident, 95% confident, and 99% confident), Standard of Deviation (How much variance do you expect in your responses? Since we haven't actually administered our survey yet, the safe decision is to use .5 – this is the most forgiving number and ensures that your sample will be large enough).

Your confidence level corresponds to a Z-score. This is a constant value needed for this equation. Here are the z-scores for the most common confidence levels:

i. 90% – Z Score = 1.645
ii. 95% – Z Score = 1.96
iii. 99% – Z Score = 2.576

With the above values defined, we can calculate the needed sample size for our study. In this project therefore, we plug in our Z-score, Standard of Deviation, and confidence interval into the equation as follows:

$((1.96)^2 \times .5(.5)) / (.05)^2$

$= (3.8416 \times .25) / .0025$

$= .9604 / .0025$

$= 384.16$

That is, approximately 385 respondents are needed for this study.

There are three (3) sections in our questionnaire (See Appendix II):

Section A: Personal Data of Respondents

Section B: Determining Effectiveness Level of Current Assessment Framework

Section C: Need for Possible Structural Adjustment in Assessment Framework

The section B contains six (6) sub-sections representing the key component sections of the NUC's programme evaluation instrument. The sub-sections are:

i. Course Content (Curriculum)
ii. Staffing
iii. Physical Facilities
iv. Library
v. Funding / Employer's rating

The sixth sub-section of section B is the actual determination of effectiveness level of current assessment framework for university academic programmes.

Section C, as we stated earlier is on need for Structural Adjustment in Framework.

Each of the sections in the questionnaire derives from the major aspects of the NUC's APRF (See Appendix I).

In consideration of the large population size of Nigerian University Lecturers with an estimated number greater than 50,000, we distributed Four Hundred (400) questionnaires to Federal Universities, State Universities, and Private Universities in Nigeria.

Out of the four hundred (400) questionnaires distributed, three hundred and eighty (380) were returned, duly completed by the respondents, making a response of about 95% on the distributed questionnaire.

The four hundred (400) questionnaires were administered on 45 out of about 120 Nigerian universities that span the six geo-political zones of Nigeria to obtain relevant data. Copies of the questionnaire were administered at meetings with academic staff. Data obtained were subjected to factor analysis by principal components using the Statistical Package for Social Scientists (SPSS). From this analysis, five factors were extracted with different sets of indices. The extracted factors are: Course Content, Staffing, Physical Facilities, Library, and Funding/Employer's rating. The percentage contribution of each factor to the effectiveness level of current assessment framework for university academic programmes was also estimated. Data was extracted from the returned 380 questionnaires and the result of the analysis is presented in the next section.

3.3.4.2. Results and Interpretation of Data

The extracted data from the existing system, collected from a sample of 380 lecturers from federal, state, and private universities are distributed as shown in table 3.2 below:

Table 3.2: Distribution of Study Sample

Variable	**Category**	**Frequency**	**Percent**
University	Federal university	105	27.6
	State university	210	55.3
	Private university	65	17.1
	Total	**380**	**100.0**
University location	South East	65	17.1
	South West	90	23.7
	South South	62	16.3
	North East	46	12.1
	North West	33	8.7
	North South	84	22.1

	Total	**380**	**100.0**
Lecturer gender	Male	230	60.5
	Female	150	39.5
	Total	**380**	**100.0**
Age	18 – 25	22	5.8
	26 – 33	70	18.4
	34 – 41	105	27.6
	42 – 49	95	25.0
	50 – 57	53	14.0
	58 & above	35	9.2
	Total	**380**	**100.0**
Highest academic qualification	HND/B.Sc/BA/Equiv.	15	3.9
	M.Sc/M.A/MED./Equiv.	215	56.6
	PhD & Equiv.	150	39.5
	Total	**380**	**100.0**
Lecturer designation	Assistant Lecturer	47	12.4
	Lecturer II	80	21.1
	Lecturer I	98	25.8
	Senior lecturer	72	18.9
	Reader	53	13.9
	Professor	30	7.9
	Total	**380**	**100.0**
Years of experience on the job	1 – 5 years	50	13.2
	6 – 10 years	88	23.2
	11 – 15 years	60	15.8
	16 – 20 years	62	16.3

	21 – 25 years	56	14.7
	26 – 30 years	52	13.6
	31 years & above	12	3.2
	Total	**380**	**100.0**

From table 3.2, out of the 380 sample lecturers considered, 105, representing 27.6% came from federal universities, 210 (55.3%) came from state universities, and 65 (17.1%) teach in the private universities.

Considering the location of universities where the sample lecturer teach, table 3.2 reveal that 65 representing 17.1% of the sample lecturers teach in universities located in the south east zone of the federation, 90 (23.7%) teach in universities located in the south west, 62 (16.3%) teach in universities located in the south south, 46 (12.1%) of the sample lecturers teach in universities located in the north east, 33 (8.7%) teach in universities located in the north west zone of the country, while 84 (21.1%) of the total sample lecturers teach in universities located in the north south.

In terms of gender, of all the 380 university lecturers, 230 (60.5%) were males, while 150 (39.5%) were females.

With regards to age, 22 representing 5.8% were from the age bracket of 18 – 25 years, 70 (18.4%) were from the age range between 26 and 33 years, 105 (27.6%) were between 34 – 41 years old, 95 (25%) were between age bracket 42 – 49, 53 (14.0%) were between ages 50 and 57, while 35 (9.2%) were from the age range 58 and above.

Categorizing the sample lecturers based on their highest academic qualification, table 3.2 shows that 15 lecturers, representing 3.9% of the lecturers were holders of first degree or its equivalent, 215 representing 56.6% were holders of masters degree or its equivalent, while a total number of 150 lecturers, representing 39.5% of the sample population, are holders of PhD or its equivalent professional qualifications.

For the lecturer designation grouping, the distribution shows that 47 (12.4%) were Assistant lecturers, 80 (21.1%) were in Lecturer II category, 98 (25.8%) were Lecturer I, 72 (18.9%)

were Senior lecturers, 53 (13.9%) were Readers, while 30 lecturers, representing 7.9% of the sample population were Professors.

Finally, when we considered the spread by years of experience on the job, table 3.2 reveal that 50 lecturers, representing 13.2% of the total sample population, have served between ages 1 – 5 years on the job, 88 (23.2%) have worked between 6 – 10 years, 60 (15.8%) between 11 – 15 years working experience, 62, representing 16.3% have 16 – 20 years working experience, 56 (14.7%) have 21 – 25 years working experience, 52 (13.6%) have 26 – 30 years working experience, while 12 lecturers, representing 3.2% of the considered sample population of lecturers have 31 and above working experience. In line with the recommendations of Kerlinger (1986), the sample is considered heterogeneous enough to enable an inferential study.

Next, the section B of the 380 questionnaires returned was analyzed. This section deals with the actual determination of effectiveness level of current assessment framework used in evaluating academic programme performance. Five components of the current assessment framework were identified, which include: Course Content (Curriculum), Staffing, Physical Facilities, Funding / Employer's rating, and Library.

Using the Pearson Correlation, we tested the correlation of the five factors affecting ineffectiveness level of current evaluation framework for academic programme evaluation in order to certify their individual effect on Y. The result of the correlation test is presented in table 3.3.

Table 3.3: Correlation test of the five evaluation criteria affecting effectiveness level

Factors	Y
X_1	0.020
X_2	0.073
X_3	0.069
X_4	0.110
X_5	-0.093

From the table 3.3, we observe that the order of correlation of the factors affecting effectiveness of current evaluation framework of academic programmes is ranked as follows:

Table 3.4: Order of importance of evaluation criteria to Effectiveness of framework

Evaluation criteria	Effectiveness of framework	Ranking
Course Content	0.020	4th
Staffing	0.073	2nd
Physical Facilities	0.069	3rd
Library	0.110	1st
Funding/Employer's rating	-0.093	5th

Implication:

Here, we observe that Library is the most important factor affecting effectiveness of academic programme evaluation framework in universities, followed by staffing, Physical facilities, course content (curriculum), and Funding/employer's rating.

Model Equation

The regression analysis carried out showed a relationship between the Independent variables (X_i) and the Dependent variable (Y) as follows:

$$Y = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + a_5x_5$$

The model summary and change statistics are shown in table 3.7 and 3.8 below:

Table 3.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.178[a]	.032	.019	3.16253

Table 3.6: Change Statistics

Model	R Square Change	F Change	df1	df2	Sig. F Change
1	.032	2.439	5	374	.034

From the table 3.5 and 3.6, $R^2 = 0.032$

Or 3.2%

This implies that all the factors $x_1 – x_5$ (Course content, Staffing, Physical facilities, Library, and Funding/employer's rating) only account for 3.2% effect on actual 100% effectiveness level of academic programme evaluation framework used in universities.

This strengthens our argument that the five factors are not enough, and the need to account for the remaining 96.8% becomes justified.

Again, an ANOVA test was carried out to determine the collective effect of the five variables or evaluation criteria affecting programme effectiveness.

From table 3.4, significant F-change = 0.034, and since it is less than 0.05 (our error of freedom), we reject the null hypothesis which states that the five factors have no significant effect on the effectiveness level of evaluation framework, and accept the alternative hypothesis which states that the five factors have significant effect on Y. However, this effects, as already argued, are not enough considering our earlier position on $R^2 = 3.2\%$.

Coefficients

Table 3.7 shows that Standardized Coefficients (Beta) of the model equation:

Table 3.7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	12.594	2.523		4.991	.000
	X_1	.012	.034	.018	.347	.728
	X_2	.013	.008	.078	1.516	.130
	X_3	.026	.024	.056	1.085	.279
	X_4	.047	.021	.115	2.213	.270
	X_5	-.055	.028	-.101	-1.955	.051

From the table 3.7,

$a_1 = 0.018$

$a_2 = 0.078$

$a_3 = 0.056$

$a_4 = 0.115$

$a_5 = -0.101$

Thus, the final model equation is as follows:

$$Y = 12.594 + 0.018x_1 + 0.078x_2 + 0.056x_3 + 0.115x_4 – 0.101x_5$$

The table 3.8 shows the significance or non-significance of the five variables.

Table 3.8: Decision Rule

Variables			
	T	Sig.	Significance or Non-significance

X_1	.347	.728	N
X_2	1.516	.130	N
X_3	1.085	.279	N
X_4	2.213	.270	S
X_5	-1.955	.051	S

Decision Rule: < 0.05

This means that x_4, when considered alone, has a significant effect on Y. The same is also true of x_5, which when considered alone has a significant effect on Y.

Thus, the study to determine Ineffectiveness level of current Programme Assessment Framework proved that that framework is 96.8% ineffective and grosely inadequate in measuring academic programme quality.

The responses of respondents in PART C of the questionnaire also prove the same point. Part C of the questionnaire asked questions to determine the NEED FOR POSSIBLE STRUCTURAL ADJUSTMENT IN EVALUATION FRAMEWORK. We can see from the responses in Appendix III that 86.8% of the respondents agree to the need for adjustment, while only 13.2% disagreed. This shows that majority of our university academics clamor for an improvement in evaluation framework.

3.3.5. Existing Evaluation Framework for Academic Programme Performance

In this section, we present the steps that model the entire process of academic programme assessment to produce a performance status for each programme.

We present a picture of what the process of this assessment looks like, the specific activities that make up each process, the order of completion of each activity, the relationship existing among the different processes, and a definition of who is responsible for each activity. We will also define the inputs and the output associated with each activity in the system.

The assessment process begins with the Academic Planning unit of the university collecting relevant data from the department involved in the academic programme. They Academic Planning unit uses these data to carry out internal evaluation of the programme based on NUC regulations. This process is known as “Internal Quality Assurance” because it borders on policies and mechanisms effected internally to ensure that the programme or discipline

continues to achieve its spelt-out objectives and to maintain standards expected of a higher education. According to Martin and Stella (2007), a monitoring process is known as "External Quality Assurance" if it is conducted by an external agency from outside the educational institution to find out the extent of its compliance with the established standards. Thus, the continuous monitoring exercises conducted internally by the Academic Planning Units of Universities, the Academic Offices, the Student Affairs and other Units within Universities in general, are practical examples of "Internal Quality Assurance" mechanisms. While the assessment visits conducted periodically, by the National Universities Commission, the Computer Professionals' Registration Council of Nigeria, the Nigerian Medical and Dental Council, the Council of Legal Education, the Council for Registration of Engineering in Nigeria, the Institute of Chartered Accountants of Nigeria, and other agencies from outside the universities, are examples of "External Quality Assurance" procedures otherwise called Accreditation.

The Director of Academic Planning unit also completes the section A of the Self Study Form which solicits general information about the University. He also collects the completed section B of the Self Study Form from concerned department, which requests for information about the programme, discipline or sub-discipline to be accredited. The vetted copies (12 copies) of the completed Self-Study Forms are sent to the NUC ahead of the arrival of the Accreditation Team.

The NUC panel, led by its Chairman, then assesses the physical facilities: classrooms Accreditation, laboratories, lecture theatres, and library. They also check the compliance of the following with the NUC's Minimum Academic Standard: the number of academic and non-academic staff, staff/student ratio, adequacy of physical facilities e.g. office space, lecture rooms, lecture theatres, and laboratories, availability of: staff list, staff letters of appointment, student list by levels, student admission files, examination questions, answer scripts, marking schemes, score sheets/examination results, external examiners' reports, employers' reports, sample of students' completed projects, budget allocation for the concerned department, and the examination malpractice records. Based on their observations, the panel members then give their individual scores of the academic programme's performance. The panel chairman calculates the aggregate and enters the overall assessment rating of the academic programme performance into the APRF form. The overall assessment

score and other recommendations in the APRF determine the Accreditation Status to be awarded to the programme.

The abridged flow of this process is shown in figure 3.2 below:

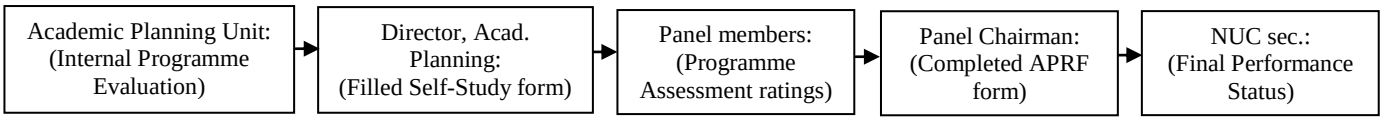


Figure 3.2: Major Activities in Academic Programme Evaluation process

The flow of data between process of filling the Self-Study forms and the eventual award of a performance status by the NUC based on the assessment ratings of panel members and the recommendations of the panel chairman as contained in the APRF form is presented in figure 3.3.

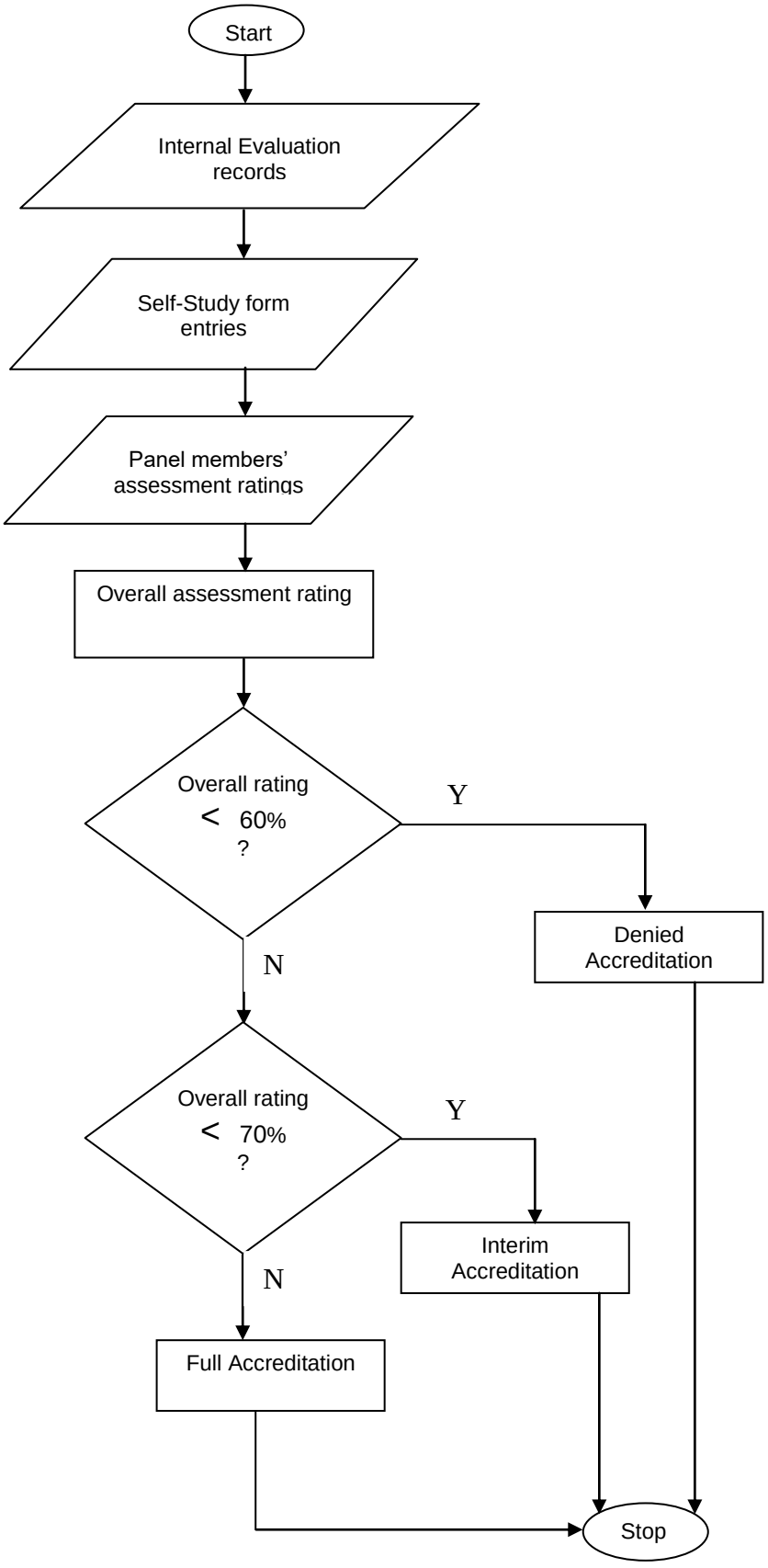


Figure 3.3: The Flow of Data in the Programme Evaluation Process

3.3.5.1. Objects and Relations in the Existing System

In the existing system, there are four major areas of activity or processes that make up the process of academic programme evaluation in Nigerian universities. Most of these processes are carried out by completing various forms to obtain specific data inputs for the system. This record structure will therefore represent the key objects of the system. They are:

Object 1: Academic Planners' Record

Object 2: Panel Members' Assessment Entries

Object 3: Chairman's Overall Assessment Rating

Object 4: Final Performance Document.

Object 1 is meant to be provided by the Director of Academic Planning Unit of the university. The content of his records includes his internal assessment of the academic programme and the completed Self-Study form prior to external review by the accreditation team.

Object 2 is provided by the NUC's accreditation panel members who submit a copy of their individual assessment of the programme after a thorough check of the completed self-study form to observe its compliance with the Benchmark Minimum Academic Standards (BMAS) and an observation of the facilities on ground. Based on their observations, each panel member then gives his/her individual assessment of the academic programme's performance.

Object 3 is provided by the chairman of the NUC's accreditation team. He calculates the aggregate and enters his overall assessment rating of the academic programme performance into the APRF form. Thus, object 3 contains the overall assessment rating by the chairman and his recommendations in the APRF form.

Object 4 is the document containing the final performance judgement and accreditation status awarded to the programme. This is issued by the National Universities Commission.

The scoring pattern in the above assessment process will be in line with NUC's summary of scores arrangement in the APRF form and under the following criteria as in table 3.9 below:

Table 3.9: Distribution Pattern of Assessment Scores

Item	Percentage
Academic Content	23%
Staffing	32%
Physical Facilities	25%
Library	12%
Funding	5%
Employers' rating	3%
Total	**100%**

The objects in the existing system can therefore constitute a structured framework in the academic programme evaluation process linking data inputs and output. Figure 3.4 shows the framework of the assessment pattern.

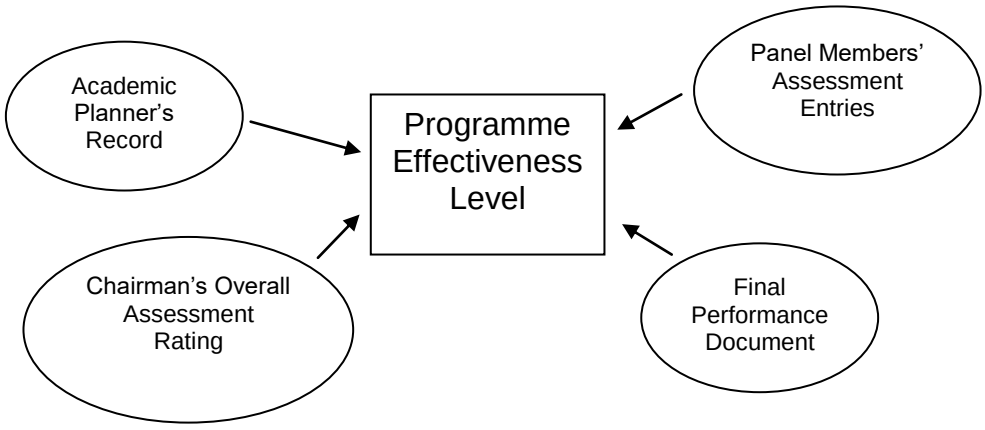


Figure 3.4: Programme Evaluation Framework in the Existing System

These record structures therefore, which serve as input data to the system will constitute the independent variables that contribute to the effectiveness level of academic programmes. Programme Effectiveness Level becomes the dependent variable in the evaluation process.

Thus, the framework of the assessment process linking the dependent variable with the independent variables is shown in figure 3.5.

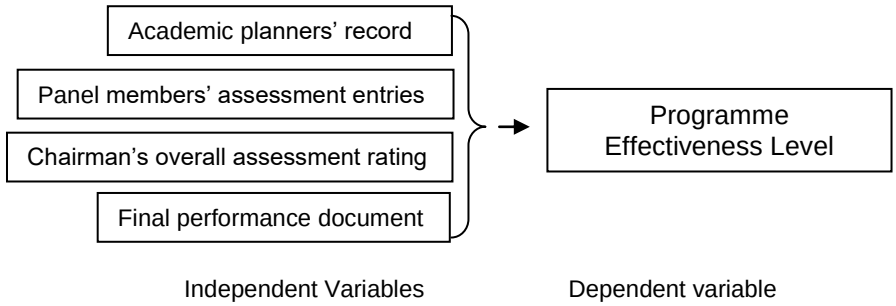


Figure 3.5: Programme Evaluation Framework showing dependent and independent variables

We can denote each variable in figure 3.5 with a symbol to enable us represent the relation mathematically. Let us make the following assignments:

A = Academic Planners' Record

B = Panel Members Assessment Entries

C = Chairman's Overall Assessment Rating

D = Final Performance Document

EL = Programme Effectiveness Level

With these symbols, we can proceed as follows:

Let A, B, C, and D denote the independent variables representing the inputs into the system.

Let EL denote the dependent variable representing the output from the system.

We can therefore represent the relationship between the inputs and the output using the mathematical function of equation 3.1 below:

$$EL = f(A, B, C, D) \qquad 3.1$$

This means that, given a set of input values, the EL function of equation 3.1 above represents the overall effectiveness level of a university's academic programme. The effectiveness level obtained for a programme will then determine the accreditation status to award.

In subsequent sections, we shall break down the input variables involved in equation 3.1 into their various components and sub-components in order to clearly show the relationships existing among them.

3.3.5.2. The Dependent Variable

The dependent variable represents the purpose of the programme assessment process. In this case, the purpose is performance assessment to determine the programme's effectiveness level. This is in line with Anderson (2008) who asserts that "the dependent variable in a performance evaluation process should represent the purpose of the evaluation which can include any of the following: organizational/employee goal attainment, performance assessment, development of employees in stated areas, rewarding top performers, and employee motivation". The purpose of the academic programme evaluation system is therefore in line with Anderson (2008).

Since the NUC's assessment ratings recorded during accreditation exercise is the major score-card of the programme's effectiveness (as far as the university and the general society is concerned), the assessment is expected to be accurate and reflective of the actual performance of these universities and their academic programmes. This is equally important since the accuracy of the computed EL affects the quality of decision of the NUC regarding the programme. Above all, programme effectiveness level should be a true reflection of the academic programme's impact on the students who are the major "customers" of the organization.

At the end of the assessment process, the final outcome is matched with any of the following Key Performance Indicators (KPI) as:

A = Good. An academic programme scoring 70% and above

B = Satisfactory. A programme scoring less than 70%

C = Fail. A programme scoring less than 60%

The chairman of the NUC accreditation panel, in completing the APRF form is expected to indicate the performance of the academic programme by ticking one of the boxes corresponding to A, B, or C as earlier described. The chairman's choice of overall performance is usually based on the ratings of the panel members' individual assessment based on the six major criteria as Course Content, Staffing, Physical Facilities, Library, Funding and Employer's rating. It is however clear that these six evaluation criteria alone that judge the performance of university academic programmes, do not reflect all aspects of university learning pedagogy. There is no indication of the level of student satisfaction, or actual knowledge transfer. There is no indication that the evaluation considers such indicators

of knowledge transfer rates as student pass rates, attrition rates, or entry scores to new class levels.

The following observations summarize the deficiencies in the system:

Observation 1:

The assessment does not focus on student learning and experience (neither does it ascertain whether students have acquired the skills, knowledge, and competencies associated with their programme of study).

Observation 2:

The assessment does not ensure a continuous and ongoing (day-to-day) evaluation of academic programmes and does not consider important aspects of learning pedagogy in the scoring criteria.

Observation 3:

The assessment is weak and neither captures vital areas of teacher-performance in the classroom nor adequately monitors the general performance of university lecturers.

Observation 4:

The assessment neither involves the participation and input of all academic staff involved in teaching the students nor inputs from all students.

Observation 5:

The assessment is basically summative and has no feedback mechanism that generates necessary performance reports to suggest ways of improvement.

3.3.5.3. The Independent Variables

The mathematical model presented in equation 3.1 reveals the independent variables for the system that evaluates performance of academic programmes in universities. From equation 3.1, the independent variables include: A, B, C, and D representing Academic Planners' Record, Panel Members Assessment Entries, Chairman's Overall Assessment Rating, and Final Performance Document respectively.

Most of the independent variables are made up of sub-variables that, when put together, contribute in the determination of academic programme performance. This means that the interactions and relationships existing among these variables will contribute to the

correctness or otherwise of the eventual outcome of the assessment process. It is important that the assessment involves all relevant input variables in the correct relationship with each other. It is equally important to involve the participation and input of all academic staff involved in the teaching of the students. We now describe the features of each independent variable and their sub-variables with a view to ascertaining the relationship existing among them.

3.3.5.3.1 Academic Planners' Record

As we stated earlier, the academic planning unit evaluates the Self Study Form part of which was completed by the head of the department where the academic programme is domiciled. The unit verifies the extent to which the completed form meets the minimum academic standard. The academic planner's record should be in line with the provisions in the Academic Programme Review Guidelines (2010) which stipulates that academic programme evaluations are intended to:

a. Assess the quality and effectiveness of academic programmes in departments and schools,
b. Stimulate programme planning and improvement,
c. Enable departments carry out self-assessment efficiently as required by all accrediting agencies.

We however observed that the measurements and scoring are basically subjective and includes many wordy indicators of the performance level.

As we stated earlier, the Self Study form includes two sub-sections: section A, which solicits general information about the university, and section B, which seeks information regarding the programme to be evaluated. Since the assessment is basically subjective, it only provides a guide and a stepping-stone for the coming accreditation panel members to carry out a more thorough assessment. This therefore suggests that there should be a well-documented departmental Data Report or a fact-book that gathers the various supporting data for a thorough assessment of academic programmes. Is also suggests that there should be a candid internal assessment describing various departmental activities and making recommendations for improvement. The academic planning unit has the responsibility to assess the quality and effectiveness of the academic programme demonstrated by student learning outcomes.

Based on the provisions in the Academic Programme Review Guidelines (2010), the academic planning unit will require the following list of data from the department being evaluated:

a. Overview of the department
    i. Degree granted
    ii. Faculty member counts by level and by tenure status
    iii. Demographic profile of faculty
b. Academic programme information
    i. Courses taught by rank of instructor
    ii. Current academic year
    iii. Course enrollment counts
    iv. Expected learning outcomes at each student level
    v. Surveys assessing student satisfaction or student experience due to the programme
    vi. Course evaluations
c. Teaching, advising, and mentoring activities
    i. Total student credit hours taught by faculty rank and status
    ii. Average class size
d. Teaching and learning
    i. Examination of mode of instruction such as lecture, laboratory activities, and seminars
    ii. Methods of evaluating student achievements such as GPA, and average pass rates.

3.3.5.3.2 Panel Members Assessment Entries

The next data entries that serve as input into the system of academic programme assessment are provided by the panel members serving in the NUC's accreditation team. Each panel member assesses the academic programme and submits entries of his or her performance assessment based on the following evaluation criteria: staffing, academic content, physical

facilities, library, funding, and employer's rating. Each criterion has component indices with varying weightings as contained in the "Manual of Accreditation Procedures for Academic programmes in Nigerian Universities" (NUC, 2008).

Thus, the sub-sections representing the constituent variables can be denoted with symbols to show the relation among them. Mathematically therefore, we make the following assignments:

B_1 = Academic-content

B_2 = Staffing

B_3 = Physical-facilities

B_4 = Library

B_5 = Funding

B_6 = Employers-rating

Consequently, since B_1, B_2 , B_3 , B_4 , B_5 , and B_6 represent the constituent input variables for B, we can represent the relationship connecting them as shown in equation 3.2 below:

$$B = f(B_1, B_2, B_3, B_4, B_5, B_6) \qquad 3.2$$

Furthermore, each of the input variables in equation 3.2 is made up of various sub-variables. For example, B_1 representing Academic-content, is made up of the following sub-variables: Philosophy and objectives, curriculum, admissions, academic regulations, tests and examinations, students work evaluation, practicals and project work, student course evaluation, and external examination system. Therefore we assign them to symbols as follows:

B_{11} = Philosophy-and-objectives

B_{12} = curriculum

B_{13} = admissions

B_{14} = academic-regulations

B_{15} = tests-and-examinations

B_{16} = student-work-evaluation

B_{17} = practicals-and-project-work

B_{18} = student-course-evaluation

B_{19} = external-examination-system

B_2 representing staffing is made up of the following sub-variables: staff/student ratio, staff mix by rank, qualifications, staff development, administration, and non teaching staff. We therefore assign them to symbols as follows:

B_{21} = staff-student-ratio

B_{22} = staff-mix-by-rank

B_{23} = qualifications

B_{24} = staff-development

B_{25} = administration

B_{26} = non-teaching-staff

B_3 representing physical facilities, is made up of the following sub-variables: Laboratory space, laboratory equipment, classroom space, classroom equipment, office accommodation, and safety/environment. We therefore assign them to symbols as follows:

B_{31} = laboratory-space

B_{32} = laboratory-equipment

B_{33} = classroom-space

B_{34} = classroom-equipment

B_{35} = office-accommodation

B_{36} = safety-and-environment

Finally, B_4 representing library, is made up of the following two sub-variables: Holdings, and currency. We therefore assign them to symbols as follows:

B_{41} = holdings

B_{42} = currency

Consequently, we have the relationship in equation 3.3 to represent the functionality of the components of B_1 as follows:

$$B_1 = f(B_{11}, B_{12}, B_{13}, B_{14}, B_{15}, B_{16}, B_{17}, B_{18}, B_{19}) \quad 3.3$$

We can also represent the relationship between the input variables and the output component of B_2 using equation 3.4 below:

$$B_2 = f(B_{21}, B_{22}, B_{23}, B_{24}, B_{25}, B_{26}) \quad 3.4$$

Again, we represent the relationship between the input variables and the output component of B_3 using equation 3.5 below:

$$B_3 = f(B_{31}, B_{32}, B_{33}, B_{34}, B_{35}, B_{36}) \quad 3.5$$

Finally, we have the relationship in equation 3.6 to represent the functionality of the components of B_4 as follows:

$$B_4 = f(B_{41}, B_{42}) \quad 3.6$$

It then implies that we can rewrite equation 3.2 by substituting equations 3.3, equation 3.4, equation 3.5, and equation 3.6 into it to obtain equation 3.7 as follows:

$$B = f(B_{11}, B_{12}, B_{13}, B_{14}, B_{15}, B_{16}, B_{17}, B_{18}, B_{19}(B_{21}, B_{22}, B_{23}, B_{24}, B_{25}, B_{26}(B_{31}, B_{32}, B_{33}, B_{34}, B_{35}, B_{36}(B_{41}, B_{42}))), B_5, B_6) \quad 3.7$$

For the purpose of clarity, we can diagrammatically represent the framework of B in figure 3.6 below:

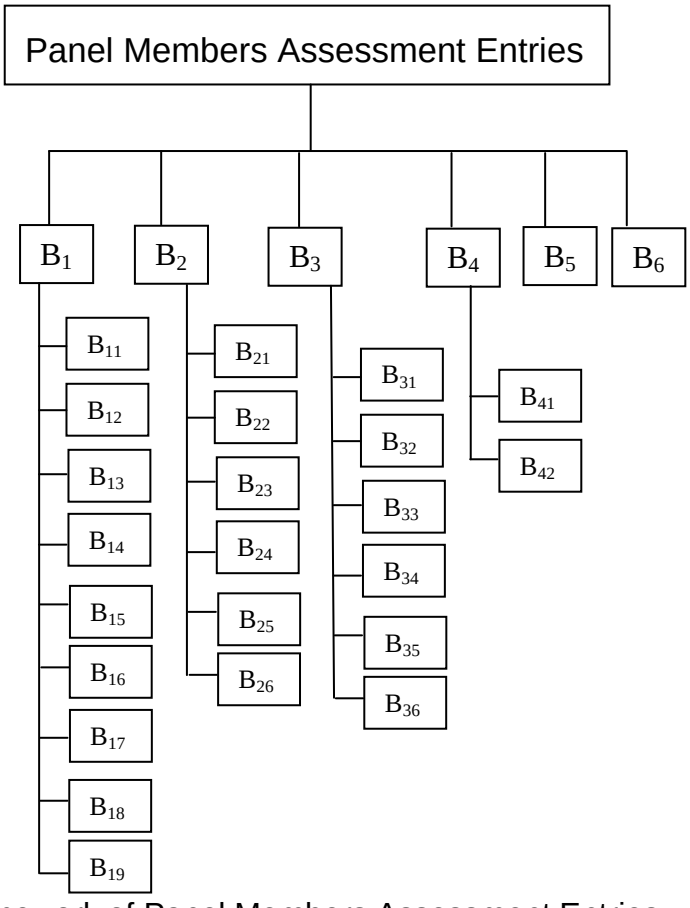


Figure 3.6: Framework of Panel Members Assessment Entries

3.3.5.3.3 Chairman's Overall Assessment Rating

This aspect of the record is to be completed by the Chairman of the NUC accreditation panel assessing the academic programme. The chairman takes the average of all assessment scores recorded by each of the panel members that evaluated the academic programme and this average score is then entered into the NUC/APRF form (NUC, 2008). The data entry serves as input to guide further actions in the programme assessment process.

Two members of the NUC accreditation team are usually allowed to assess each academic programme based on the criteria mentioned above. Therefore, using the Panel Members Assessment Entries by the two members of the NUC accreditation team as constituent input variables, we can represent the mathematical relation connecting them and the output component of C using the equation 3.8 below:

$$C = f((B_1, B_2, B_3, B_4, B_5, B_6) + (B_1, B_2, B_3, B_4, B_5, B_6)) / 2 \quad 3.8$$

Substituting the various sub-components of B_1, B_2, B_3, and B_4 into equation 3.8 we obtain a clearer picture of the relation in equation 3.9.

$$C = f((B_{11}, B_{12}, B_{13}, B_{14}, B_{15}, B_{16}, B_{17}, B_{18}, B_{19}(B_{21}, B_{22}, B_{23}, B_{24}, B_{25}, B_{26}(B_{31}, B_{32}, B_{33}, B_{34}, B_{35}, B_{36}(B_{41}, B_{42}))), B_5, B_6) + (B_{11}, B_{12}, B_{13}, B_{14}, B_{15}, B_{16}, B_{17}, B_{18}, B_{19}(B_{21}, B_{22}, B_{23}, B_{24}, B_{25}, B_{26}(B_{31}, B_{32}, B_{33}, B_{34}, B_{35}, B_{36}(B_{41}, B_{42}))), B_5, B_6)) / 2 \quad 3.9$$

The Chairman's Overall Assessment Rating and other recommendations recorded in the NUC/APRF form will assist the NUC in preparing the final performance document to determine programme effectiveness level otherwise known as Accreditation Status.

3.3.5.3.4 Final Performance Document

This document is released by the office of the secretary general, National Universities Commission (NUC) and contains the final verdict and accreditation status awarded to the academic progarmme. The final verdict and accreditation status awarded to the programme is based on the position of the chairman's overall assessment rating in the NUC/APRF from.

The entries in this final document will in one way or the other affect the dependent variable (the EL) since the NUC's position is the only yardstick to measure a programme's effectiveness level.

3.3.5.4. Key Performance Indicators (KPI) and Programme Accreditation Status

After obtaining the "Programme's Effectiveness Level" (EL) which represents the overall performance of the academic programme, the outcome is then matched and assigned to one of the following Key Performance Indicators (KPIs):

A = Good. An academic programme scoring 70% and above and scoring at least 70% in each of the core areas of staffing, academic content, physical facilities, and library. The programme is given a FULL ACCREDITATION STATUS for five years.

B = Satisfactory. A programme scoring less than 70%, and with a score less than 70% in any of the four core areas above. The programme is then awarded an INTERIM ACCREDITATION STATUS for two years.

C = Fail. A programme scoring less than 60%. Such a programme receives a DENIED ACCREDITATION STATUS for zero years, which also implies no further student enrolment until the programme is re-visited and re-accredited (Oladosu, 2011).

The Key Performance Indicators therefore represent the expected levels and standards of performance while the EL represents the actual level of performance of a university's academic programme.

3.3.6. Weaknesses Identified in the Existing System

Following a thorough analysis of the existing system of university academic programme performance assessment in Nigeria, including empirical study on the system's performance, the following weaknesses were identified:

a. NUC's assessment instruments and evaluation framework are weak and neither captures vital areas of teacher-performance in the classroom nor adequately monitors the general performance of university lecturers.

b. With the existing framework, assessment result does not reflect the true performance of university academic programmes.

c. Our universities have continued to produce graduates who lack the requisite skill and knowledge to compete favourably with their foreigh counterparts in spite of huge government investment in infrastructurere.

d. Current model of assessment does not fully ascertain a programme's level of effectiveness by measuring its overall impact on students.

Further analysis also reveals that in the existing model, the following inadequacies are being managed:

i. The existing system does not ensure a Day-to-day and continuous assessment of university academic programme's performance.
ii. Assessment of academic programmes by the NUC is done only once in three or five years depending on the accreditation status earned in the last visitation.
iii. Important aspects of university learning pedagogy are not considered in the scoring criteria.
iv. Assessment is basically summative and has no feedback mechanism that generates necessary performance reports to suggest ways of improvement.

Consequently, the existing system is inadequate, produces inaccurate results, and is therefore misleading. The framework is not in line with Martha and Kathryn (2001) and Basma and Paula (2008) who suggests a strong emphasis on the learning, development and growth of students, insisting that Academic Programme Assessment focuses on assessing student learning and experience to determine whether students have acquired the skills, knowledge, and competencies associated with their programme of study.

3.4 Analysis of the Proposed System

The new system promises to be an improved Academic Programme Evaluation Model (APEM) for universities that addresses the concerns raised by Martha and Kathryn (2001) and Basma and Paula (2008). The two international publications suggest a strong emphasis on the learning, development and growth of students, and insist that academic programme assessment focuses on assessing student learning and experience to determine whether they have acquired the skills, knowledge, and competencies associated with their programme of study. Thus, the new system will be a framework that establishes new performance criteria (based on Martha and Kathryn (2001) and Basma and Paula (2008) and integrates them into the existing system, unified for thorough and more comprehensive performance assessment.

3.4.1. Defining New Performance Criteria for Programme Evaluation

A performance criterion is a description of the characteristics, which will be in consideration when judging a performance task. Usually, criteria are mostly defined in a rubric or scoring guide. In our case therefore, performance criteria are the standards by which performance of university academic programmes are evaluated. In this section, we define the structure and scope of the components that will be referred to in the measurement of specific performance objectives. These performance criteria are designed to measure the attainment of institutional goals, with each criterion focusing on the level of attainment of a specific goal. In agreement with Martha and Kathryn (2001) and Basma and Paula (2008), we will ensure that our proposed APEM model adapts the following:

a. Systematic: An orderly and open method of acquiring assessment information over time.
b. Ongoing and cumulative: Over time, assessment efforts will build a body of evidence to improve programmes.
c. Multi-faceted: Assessment information will be collected on multiple dimensions, using multiple methods and sources.
d. Pragmatic: Assessment will improve the campus environment, not simply collected and filed away.
e. Student-focused: Emphasis on student learning outcomes, development and growth.
f. Effective and ensures operational excellence.
g. Comprehensive and continuous and include meaningful assessment measures.
h. A means for self-improvement
i. A management tool valued and genuinely used to improve academic programmes and processes.
j. Involve the participation and input of all faculty and staff, and, all students.
k. In line with international best practices.

Guided by these principles, we modify the structure of the existing Academic Programme Evaluation Model (APEM) with the following new performance criteria:

i. Content Delivery
ii. Learner Report, and
iii. Knowledge Exchange

For the Content Delivery performance criteria, the following measures are defined:

i. Content coverage

ii. Teacher attendance

iii. Credit-hour coverage

The aim is to ascertain the extent to which course contents are being delivered to students. It is not enough to prepare a good curriculum for academic programmes but there should be systems in place that evaluate and ascertain the level of delivery of approved curriculum to the students, and to check the much reported absenteeism on the part of staff.

For the Learner Report performance criteria, the following measures are defined:

i. Student satisfaction level

ii. Knowledge retention

iii. Subject mastery

The aim is to give the student the rare opportunity to rate his/her teacher's ability and practical transfer of knowledge, and to give his/her own opinion of the instructor's mastery of the subject matter. These measures will therefore be determined from ratings given by students during the period under evaluation. Students will be allowed to judge how much the teacher applies his/her professional knowledge in the classroom learning environment. All these will give an insight into the level of attainment of student learning outcomes during the period under review.

For the Knowledge Exchange performance criteria, the following performance measures are defined:

i. Pass rates

ii. Repetition rates

iii. Attrition rates

iv. Students' participation rate

The aim is to give the teacher the opportunity to produce a summary sheet of the students' performance and classroom/lecture participation during the period under review. This will give an insight into the effectiveness of his teaching methods and reception of information the students.

Since true assessment should include all aspects of university learning pedagogy, data on all performance criteria, including all independent variables outlined under section 3.3.5.3 of this report, will be used as measures to determine how well an academic programme performs. This, evidently, will determine her level of impact on the student. Putting a system in place that make the data gathering process ongoing, and incorporating the logistics of day-to-day assessment, (and with feedback mechanism for programme improvement), there will be a rise in students' interest in education, reduced lateness to classes, truancy, and poor semester results. It will also reduce the high level of student drop-outs, including the poor student/teacher relationship currently experienced in the classroom learning environment.

In order to make data gathering and reporting effective, information pertaining to these performance criteria will be stored in tables located in databases in all departments and units, and linked together into a central data repository that enables information retrieval and management of the data warehouse. Such a system can then be used for daily and future trend analysis. The structure of the data mart is shown in figure 3.7 below:

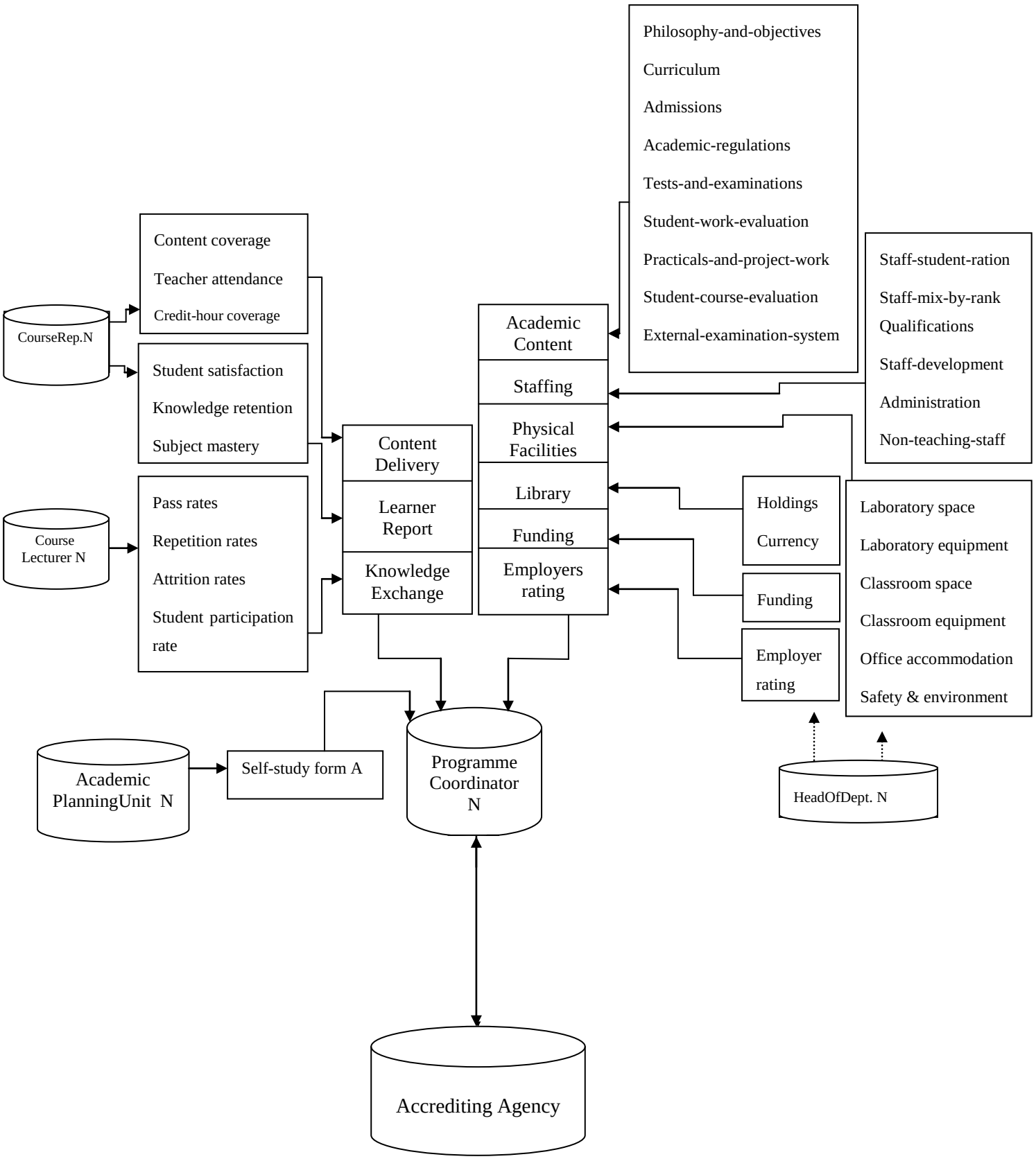


Figure 3.7: Data Mart Structure for the New System

In figure 3.7, a representation is made of computer systems and data repositories stationed at various locations in university and outside the campus from where relevant data can be captured for thorough assessment of academic programmes. Information collected from the various departments, course lecturers and student representatives are deposited with the programme coordinators who analyses the information and transfers to the university's Academic Planning unit via a data communication network. The central repository identifies the Accrediting Agency as the root node. Every other data repository is connected to the root node through the academic planning unit of the university. There may be as many units as possible from where information can be collected, and this is represented by N.

The above structure will enable an integration of the various data collection and data analysis centers of the Enhanced Academic Programme Evaluation framework into a central archive and managed by the Accrediting Agency in charge. With this structure in place, the agency can track information and monitor academic activities at various levels of assessment and at various universities on a semester-by-semester basis. Also with this structure in place, the agency will not lack the necessary information to rate the performance of university academic programmes. Data in the repositories can be independently verifiable, and made available to management. The structure can equally provide a good feedback mechanism across the entire university campus to feed management with improvement information from the agency's secretariat.

The operational activities of course representatives, course lecturers, heads of departments and the academic planning units are different and so categorized differently. Their performance monitoring and management are also different. Therefore, the interconnection of data repositories to the root node facilitates prompt and direct data access to performance data coming from the various data collection centers.

The high level structure representing the process flow of the new system is presented in figure 3.8 below:

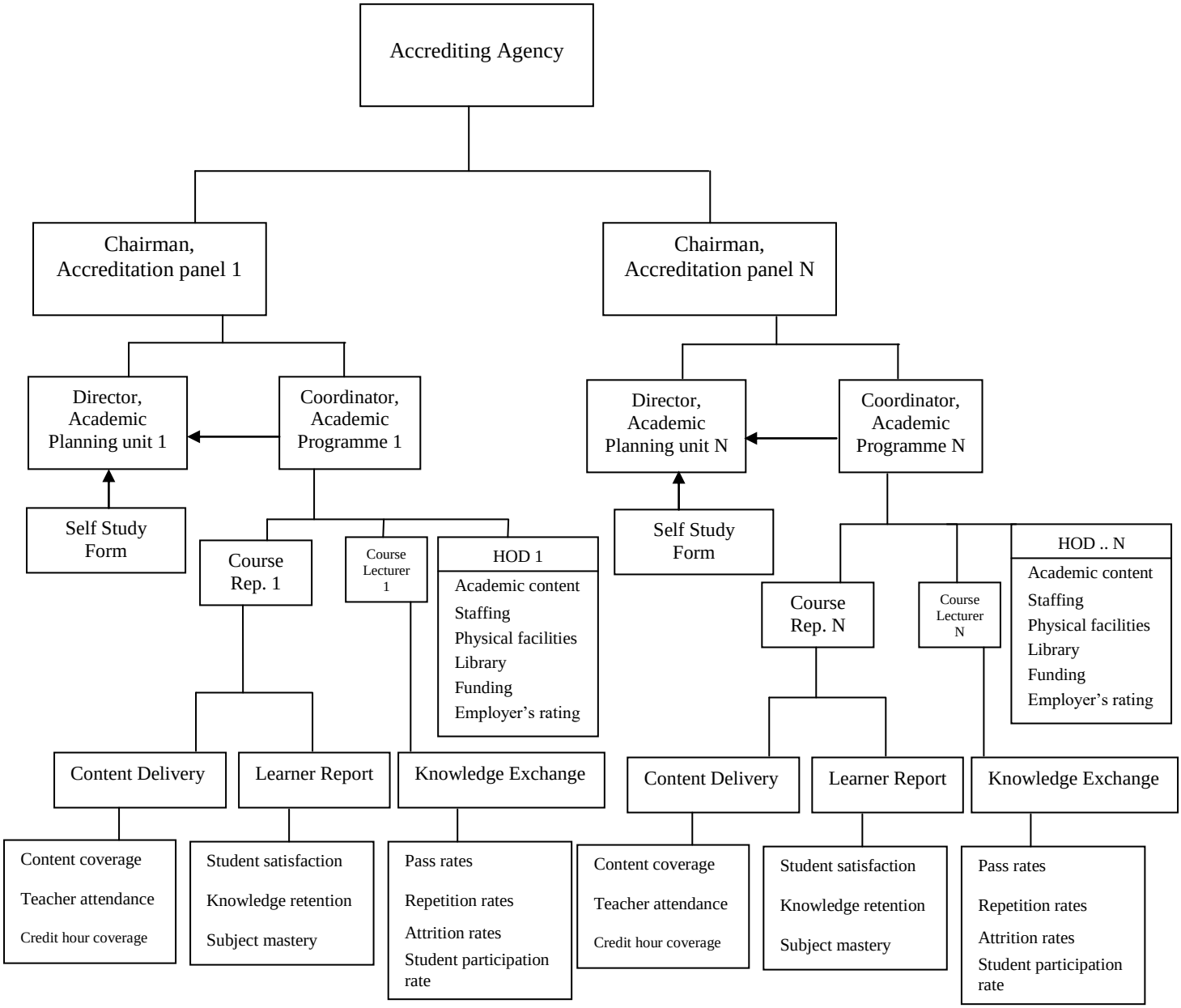


Figure 3.8: High Level Structure of the New System

3.4.2. Programme Performance Measures in the New System

According to a release on Performance Measure Guide posted on http://www.ofm.wa.gov/budget/instructions/other/2009performancemeasureguide.pdf by the office of Financial Management, State of Worshington, "A performance measure is a numeric description of an agency's work and the results of that work". Performance measures are

based on data and describes whether an agency or activity is achieving its objectives or if progress is being made towards the attainment of policy or organizational goal.

In technical terms, a performance measure is a quantifiable expression of the amount, cost, or result of activities that indicate how much, how well, and at what level, products or services are provided to customers during a given time period.
"Quantifiable" means the description can be counted more than once, or measured using numbers.
"Activities" mean the work, business processes and functions of the institution or government agencies.
"Results" are what the agency's work is intended to achieve or accomplish for its customers (or students).

This description is in line with Oak Ridge Associated Universities (2005) which posits that performance measures are composed of a number and a unit of measure. The number gives us a magnitude (how much) and the unit gives the number a meaning (what). Performance measures are always tied to a goal or an objective (the target). Performance measures can be represented by single dimensional units like hours, meters, nanoseconds, dollars, number of reports, number of errors, or number of NUC-accredited universities.

In our proposed APEM model, each identified performance criterion is a measureable quantity that contributes towards the assessment of academic programmes's performance. The performance criteria were listed under section 3.3.5.3 and section 2.4.1 of this report which will enable evaluators determine the level of effectiveness of university academic programmes. Based on section 3.3.5.3, the following are the performance criteria for measurement in the existing system: Course content, staffing, physical facilities, library, funding, and employer's rating. Based on section 3.4.1, additional aspects of performance measurement in the new system include: content delivery, learner report, and knowledge exchange. For each activity listed in the two sections, the level of academic programme performance is measurable and viewed as a metric contributing to the overall assessment.

Basically, a performance metric includes three components: the performance measure or metric definition, a weight, and a target.

A performance measure defines how the metric will be measured in terms of "what quantity is obtained out of the total quantity available (such as percentage of, number of, rates, etc.)"

A target is the desired level of attainment of a given performance result. It specifies the range of achievement on the measure. Therefore, the target can be seen as the actual result we are aiming at and is always expressed as a range.

A weight is the average performance of a specific evaluation component in relation to the overall target and performance goal. It is always expressed as a percentage.

3.4.2. 1. Metric Definition

Having established the measures for assessing academic programme performance, we now discuss each aspect and show the source of data capture for each individual component.

i. Content Delivery

The Boston Collage Academic Programme Review (2010) indicates that assessment of quality and effectiveness of academic programmes should be demonstrated by strong student learning outcomes.

It further posits that academic programme assessment process should enable departments carry out self-assessment efficiently as required by all accrediting agencies. This implies that departments should be able to capture all necessary information to carry out frequent academic programme evaluation all by herself.

Research has shown that most university academic staff are duly qualified to teach courses in their specific areas and programmes, but some are too lazy to attend lectures, while others come rather very late to class. Most lecturers hardly complete the stipulated credit hours allocated for the course, and only a small percentage of the approved course content is covered before the examination begins at the end of the semester. The new system is designed in such as way that performance data are captured on a daily basis and aggregates taken at the end of the semester.

As stated earlier the following performance measures are defined for Content delivery performance criteria:

a. Content coverage
b. Teacher attendance
c. Credit-hour coverage

Course content coverage

A teacher will either have covered the approved course content in a semester or he did not. Since detailed course content is made available to the students at the beginning of the semester, it is possible to measure the extent of coverage of total course content by the course lecturer.

There may be varied reasons why a lecturer may not fully cover his/her scheme. However, nothing should be as important as the main reason for the establishment of the academic institution, and the programme in particular. Therefore, reasons for non-coverage of academic content will be not incorporated into our equation.

Using the Data Envelopment Analysis (DEA) principle, we formulate the content coverage measure as follows:

$$\textbf{Content-coverage rate} = \frac{\text{No. of topics treated}}{\text{Total No. of topics available}} \times 100\% \qquad 3.10$$

Where No. of topics treated is the total number of topics a course lecturer actually covered before the commencement of the semester examinations, while total No. of topics available refers to the overall number of topics stipulated for coverage within a semester.

The principle applied here is fair enough to measure performance in all universities. For example, if conditions were possible for the best performing academic programme, then it will be possible for others in the same department or unit or university.

Teacher attendance

A teacher either attends his/her class or he is absent from the class. It is therefore possible to measure the number of times a course lecturer was present in the class.

However, there may be certain acceptable reasons for absenteeism such as public holidays, official duties outside the university campus, or industrial disputes, but we shall not incorporate these reasons into the meaning of teacher Attendance. Obtaining the full analysis of the rates of attendance and absenteeism however, will provide an insight into the causes.

We therefore formulate the Teacher Attendance measure as follows:

$$\textbf{Teacher-attendance rate} = \frac{\text{Lecture periods attended}}{\text{Total No. of lecture periods available}} \times 100\% \qquad 3.11$$

Where lecture periods attended is the total number of lecture periods that the course lecturer attended in the entire semester, while Total No. of periods available signifies the overall available number of lecture periods in the given semester.

Credit-hour coverage

Research has shown that even though some lecturers may attend classes but some are in the habit of attending rather too late or leaving the class before time. This kind of attitude can be checked by the credit-hour input component of the Content Delivery performance criteria. We can also determine the level of punctuality in class since wikipepia, 2013 defines punctuality as the characteristics of being able to complete a required task or fulfill an obligation before the designated time.

In a situation where there is division of labour, punctuality can be even more important because non-availability of a course lecturer due to lateness could keep operations on hold pending when he/she comes around.

Therefore credit-hour input can be measured using the formula below:

$$\textbf{Credit-hour-coverage rate} = \frac{\text{Total credit hour coverage}}{\text{Maximum credit hours available}} \text{ X } 100\% \qquad 3.12$$

Where total credit hour coverage is the total number of credit hours that the course lecturer put into the teaching of his course throughout the semester, while maximum credit hours available signifies the overall available credit hours stipulated for the course in the given semester.

We can now determine the efficiency rate for the Content Delivery by adding all input values from content coverage rate, teacher attendance rate, and credit hour coverage rate, dividing by the total class size. This relationship is shown in equation 3.13 below:

$$\textbf{Content delivery efficiency rate} = \frac{\text{content coverage + teacher attendance + credit hour coverage}}{\text{Class size}} \text{ X } 100 \qquad 3.13$$

ii. Learner Report

Another important aspect of academic programme performance assessment strategy is the Learner Report. It is important to ascertain the extent to which the programme is impacting the lives of the students. Only the student himself can give an acceptable report of how much

his academic needs are being satisfied, and how much he/she is being prepared to face the challenges of the labour market. There should be a rating of the level of knowledge retention by the student as a result of the mode of instruction being adopted. There should also be information from the learner's point of view to ascertain the instructor's command of the subject area. Students, by their interactions with the lecturers will be in the best position to know the lecturer's level of mastery of the subject matter and his/her ability to impart this knowledge to them. The teacher's academic qualification alone is not sufficient in determining his/her level of impact on the student. The professional knowledge of the teacher should be corroborated with his/her ability to transfer practical knowledge to the students to enable them solve practical problems. This will also give an insight into the level of attainment of student learning outcomes during the period under review.

The following measures therefore define the Learner report performance criterion:

a. Student satisfaction level
b. Knowledge retention
c. Subject mastery

Student satisfaction level

The measures under "learner Report" component are similer. Therefore, information on the three measures can be obtained by issuing a form to the student (in form of a questionnaire) that gives him the opportunity to rate his teacher's ability to transfer practical knowledge to him. The student can rate the effectiveness of the teacher's mode of instruction that translates to knowledge retention or lack of it. To what extent has the teacher a good mastery of core subject areas. Such reports will be requested from the students at the end of the semester and will be anonymous enough to protect the students. Therefore, the measures for student satisfaction, knowledge retention, and subject mastery will be determined from the ratings of students during the period under evaluation. Table 3.10, table 3.11, and table 3.12 are representations of the computer entry format used by the student for the end-of-semester evaluation of the teacher on the three performance aspects respectively.

The students will be expected to rate the teacher's performance by scoring him/her either "A", or "B", or "C", or "D" in the boxes provided, (A = Very good, B = Good, C = Fair, and D = Poor).

Table 3.10: Learner's rating on "Student satisfaction"

		A	B	C	D
1.	To what extent is your academic needs being satisfied and what is your level of preparedness to work in the industry?				
2.	How well does the instructor transfer practical knowledge to you personally?				
3.	To what extent does he/she encourage you to discover knowledge for yourself through critical thinking?				
4.	How much does the instructor apply his/her professional knowledge in the classroom?				

Table 3.11: Learner's rating on "Knowledge retention"

		A	B	C	D
1.	To what extent do you retain information due to the instructor's mode of teaching?				
2.	Does the instructor make use of e-learning technologies and ICT in knowledge transfer?				
3.	To what extent do you freely participate in class due to your understanding of the subject?				
4.	How far can you pass exams in your area of study or compete with other students from other universities around the world?				

Table 3.12: Learner's rating on "Subject mastery"

		A	B	C	D
1.	To what extent is the teacher in command of the subject matter?				
2.	The Teacher can be said to be appropriately skilled.				
3.	To what extent does he/she demonstrate ability to answer all your questions and guide you into the discovery of more knowledge?				
4.	To what extent do you gain knowledge through practicals and through the teacher's technical assistance?				

Each measure will be rated in terms of the descriptions in table 3.13 below:

Table 3.13: Scoring pattern for "Student satisfaction", "Knowledge retention", and "Subject mastery"

Measure	**Meaning**	**Point**
A	Very Good	4
B	Good	3
C	Fair	2
D	Poor	1

The student is therefore expected to rate the performance of his lecturers using the letter grades: A, B, C, or D and submit to the class representative. These points are then compiled and an average is taken to compute the Learner Report of the lecturers' performance involved in the academic programme. Therefore, for the Student satisfaction level, we can obtain the student's overall rating by taking the average score for the four questions posed.

Thus, for the i^{th} student, we obtain the following average points to represent the Student satisfaction level:

$$a_i = \sum_{i=1}^{4} K_i / 4 \qquad 3.14$$

Where a_i is the average score for student i based on the four (4) questions, and K_i is the point recorded for the i^{th} question.

For Knowledge retention component, we can also obtain the student's overall rating by taking the average score for the four questions.

Thus, for the i^{th} student, we obtain the following average points to represent Knowledge retention level:

$$a_i = \sum_{i=1}^{4} K_i / 4 \qquad 3.15$$

$i = 1$

Where a_i is the average score for student i based on the four (4) questions, and K_i is the point recorded for the i^{th} question.

And for Subject mastery component, we can also obtain the student's overall rating by taking the average score from the four questions posed.

For the i^{th} student, we obtain the following average points to represent Subject mastery level:

$$a_i = \sum_{i=1}^{4} K_i / 4 \qquad 3.16$$

Where a_i is the average score for student i based on the four (4) questions, and K_i is the point recorded for the i^{th} question.

Using the averages, we can now compute the grand average of the entire class of n students.

To obtain the students' grand average score from the total class of n students, we use the equation 3.17 below:

$$\text{Grand average score} = \sum_{i=1}^{n} a_i / n \qquad 3.17$$

Where n represents the total number of students in the class.

We can now determine the efficiency rate of Student satisfaction level as shown in equation 3.18 below:

$$\textbf{Student-satisfaction rate} = \frac{\text{Grand average score in student satisfaction}}{\text{Total number of students in class}} \times 100 \qquad 3.18$$

We can now determine the efficiency rate for Learner Report by adding all input values from student satisfaction level, knowledge retention level, and students' report on subject mastery, and dividing by the total class size.

This is shown in equation 3.19 below:

$$\textbf{Learner report efficiency rate} = \frac{\text{student satisfaction rate + knowledge retention rate + subject mastery}}{\text{Class size}} \times 100 \qquad 3.19$$

iii. Knowledge Exchange

Another important aspect of academic programme performance assessment strategy is the Knowledge Exchange. It is necessary to carry out a more consistent measurement of students' progress by ascertaining the level of the student's learning outcomes, which is partly determined by the level of passes recorded in semester examinations, failure rates in examinations, level of school drop-outs due to disillusionment from the system, and the level of student participation in class or lack of it.

Good understanding of the subject matter will raise the student's interest in his/her programme of study, and in the acquisition of more education. It will reduce his/her lateness to classes, and truancy. Ultimately, the student's semester result will improve; the level of student drop-outs will reduce, and the poor student/teacher relationship currently experienced in the classroom learning environment will improve.

For the Knowledge Exchange performance criteria therefore, the following performance measures are defined:

a. Pass rates
b. Repetition rates
c. Attrition rates
d. Student participation rate

Pass rates

A course lecturer can easily retrieve the students' pass rates from the usual semester results he submits to the department. Since the students' semester result is available with the course lecturer, it is possible to measure the rates of passes and failures from this information every semester.

Using the Data Envelopment Analysis (DEA) principle, we formulate the pass rate as follows:

$$\textbf{Pass rate} = \frac{\text{No. of passes}}{\text{Total No. of students}} \times 100\% \qquad 3.20$$

Where No. of passes is the total number of students who pass the course at the end of the semester examination. Total No. of students refers to the overall number of students who registered for the course and took the examination.

Repetition rates

A course lecturer can supply the information regarding the number of students that repeated the course due to failure in the previous examination or any other reason. Repetition rate can be determined using equation 3.21.

$$\textbf{Repetition rate} = \frac{\text{No. of repeating students}}{\text{Total No. of student enrollment}} \times 100\% \qquad 3.21$$

Where No. of repeating students is the total number of students who are re-taking the course, while Total No. of student enrollment refers to the overall number of students who registered for the course.

Attrition rates

A course lecturer can determine the drop-out rate or the rate at which students change their programme of study due to their inability to pass their courses. Attrition rate can be determined using equation 3.22 below:

$$\textbf{Attrition rate} = \frac{\text{No. of drop-outs}}{\text{Total No. of student enrollment}} \times 100\% \qquad 3.22$$

Where No. of drop-outs refers to the total number of students that dropped-out or who change their programme of study due to their inability to pass the course. Total No. of student enrollment refers to the overall number of students who originally registered for the course.

Student participation rate

Information on the level of student participation in class can be obtained from the course lecturer's point of view. He can give his candid opinion on the rate of student participation and understanding of his lectures by answering questions in table 3.14. To what extent do the students participate and enjoy the class or ask intelligent questions to show their understanding?

This report will be requested from the course lecturer at the end of the semester. Measures for student participation rate will therefore be determined from the ratings of the course lecturer during the period under evaluation. Table 3.14 is a representation of the computer entry format used by the lecturer for the end-of-semester evaluation of the students' level of participation in classes.

The teacher will be expected to rate his students' participation by scoring them either "A", or "B", or "C", or "D" in the boxes provided, (A = Very good, B = Good, C = Fair, and D = Poor).

Table 3.14: Teacher's rating on "Student Participation"

		A	B	C	D
1.	To what extent did your students participate in class this semester that shows their level of understanding of the subject matter?				
2.	To what extent do you think your students are being prepared to face the challenges of the labour market or further studies?				
3.	To what extent do the students discover knowledge for themselves through critical thinking?				
4.	How much do the students apply their theoretical knowledge in the classroom into practical demonstrations?				
5.	How far do you think your students can compete with their peers from				

	other universities around the world?				
6.	My students are truly being appropriately skilled.				

Each measure will be rated in terms of the descriptions in table 3.15 below:

Table 3.15: Scoring pattern for "Student participation"

Measure	**Meaning**	**Point**
A	Very Good	4
B	Good	3
C	Fair	2
D	Poor	1

The lecturer is therefore expected to rate the "student participation rate" performance of his students using the letter grades: A, B, C, or D and submit the result to the Programme Coordinator at the end of the semester. These points are then used to compute the "student participation rate" of the Knowledge Exchange rate performance criteria for the academic programme. We can process the lecturer's score of his students by taking his average rating in the six questions posed.

Thus, we obtain the following average points to represent the "Student participation level":

$$b = \sum_{i=1}^{6} K_i / 6 \qquad 3.23$$

Where b is the lecturer's average score based on the six (6) questions, and K_i is the point recorded for the i^{th} question.

Therefore,

$$\textbf{Students participation rate} = \frac{b}{n} X\ 100 \qquad 3.24$$

where b is the lecture's average score on students' level of participation in class during the semester under review, while n represents the class size.

We can now determine the efficiency rate for Knowledge Exchange by adding all inputs from pass rates, repetition rates, attrition rates, and student participation rates, and dividing by the class size.

This is shown in equation 3.25 below:

$$\textbf{Knowledge exchange rate} = \frac{\text{pass rates + student participation rate - attrition rates – repetition rates}}{\text{Class size}} \times 100 \qquad 3.25$$

3.4.3. Programme Performance Criteria and Weight Attachment

As we presented earlier under section 3.4.2, the "weight" is a major component of Performance Indicators. It is used to determine the relative contribution of a given performance criterion in the overall equation. In this section, we present the weights to be used in academic programme assessments in the new system.

The same weights will be associated with each component criterion in all academic programmes in all universities. However, different weight measures will be assigned to different performance components according to the level of importance attached to the various components for effective determination of programme efficiency. The relative importance of the various performance criteria will be obtained from the vision and mission of the NUC and the demands of the international community.

We begin by making a listing of all sub-components in the three new variable created in the new system for ease of reference.

For the Content Delivery performance criterion, we the following sub-components:

Course content coverage

Teacher attendance

Credit-hour coverage

For the Learner Report performance criterion, we have the following sub-components:

Student satisfaction level

Knowledge retention

Subject mastery

For the Knowledge Exchange performance criterion, we have the following sub-components:

Pass rates

Repetition rates

Attrition rates

Student participation rate

Since the three component aspects are equally important for effective academic programme performance assessment, we formulate the following percentage distribution table and assign commensurate weight constants to them as shown in table 3.16 below:

Table 3.16: Ratings category and weight assignments 1

Category	**Weight (constant marks)**
Ratings 60% & above	5
Ratings 40% - 59%	2
Ratings 20% - 39%	1
Ratings < 20%	0

This shows that the maximum allowable weight for each of the ten sub-components is 5, while the minimum weight is 0.

This means that the maximum allowable rating for the new performance criteria: Content Delivery, Learner Report, and Knowledge Exchange is equal to:

= 5 marks X 10 sub-components = 50 marks (Maximum),

And

= 0 marks X 10 sub-components = 0 marks (Minimum)

We can also formulate a percentage distribution table that associates commensurate weight constants to the twenty five sub-components that represent the twenty five input sub-variables in the old system. These input variables are used to score academic programme performance by the accreditation panel members (see section 3.3.5.3.2 of this report, equation 3.7 and figure 3.5).

The percentage distribution table for the input variables of the old system is shown in table 3.17 below:

Table 3.17: Ratings category and weight assignments 2

Category	**Weight (constant marks)**
Ratings 60% & above	2
Ratings 40% - 59%	1
Ratings 20% - 39%	½
Ratings < 20%	0

The above distribution and weight assignments apply to all twenty five (25) input variables that existed in the old system.

This shows that the maximum allowable weight for each of the twenty five items is 2, while the minimum weight is 0.

This means that the maximum allowable rating for the twenty five items representing the six performance criteria in the old system (Academic Content, Staffing, Physical Facilities, Library, Funding, and Employer's rating) is equal to:

= 2 marks X 25 sub-components = 50 marks (Maximum),

And

= 0 marks X 25 sub-components = 0 marks (Minimum)

3.4.4. Academic Programmes and Target Performance

The target, in this study, is the benchmark to compare levels of attainment in the academic programme assessment framework. Targets should be made attainable and unambiguous.

In formulating the targets for this study, we adopt Oladosu (2011) and NUC's Draft Instrument for Institutional Accreditation that determines the Accreditation Status of a University at the end of the Accreditation exercise. The table 3.18 below summarizes our benchmark targets academic programme performance in the new system:

Table 3.18: Benchmark targets for academic programme performance

Performance category	**Letter grade**	**Assessment remark**	**Accreditation status**	**Assessment lifespan**
80% and above	A+	Excellent	Full accreditation	3 years
Between 70% - 79%	A	Very good	Full accreditation	3 years
Between 65% - 69%	B+	Good	Full accreditation	3 years
Between 60% - 64%	B	Fairly good	Full accreditation	3 years
Between 55% - 59%	C+	Fair	Interim accreditation	2 years
Between 50% - 54%	C	Fair	Interim accreditation	2 years
Between 45% - 49%	D	Poor	Probation	1 years
Between 40% - 44%	E	Very poor	Probation	1 year
Below 40%	F	Fail	Denied accreditation	0 years (No further student enrollment until a re-visitation)

3.4.5. Formulating the new Academic Programme Evaluation Model (APEM)

The new Academic Programme Evaluation Model (APEM) is a mathematical model that describes the new system of university academic programme evaluation framework. It uses mathematical symbols to replace component variables in the real life situation. Generally, a mathematical model uses mathematical concepts to solve related real life problems.

To formulate this model, we begin by an identification of all objects and relations that will form part of the new system.

The new system will include all objects previously identified under section 3.3.5.1 during the analysis of the existing system. They are:

A = Object 1: Academic Planners' Record

B = Object 2: Panel Members' Assessment Entries

C = Object 3: Chairman's Overall Assessment Rating

D = Object 4: Final Performance Document.

EL = Object 5: Programme Effectiveness level

The relationship existing among these objects was represented using the equation 3.1.

The new system will also incorporate the additional objects identified under section 3.4.1 as new performance criteria, during the analysis of the new system.

The objects include:

Content Delivery

Learner Report, and

Knowledge Exchange

Next, the contents of Object B will be modified to accommodate the new objects identified under section 3.4.1 or the newly created performance criteria. The modification of object B will automatically affect the content of object C and D respectively. Eventually EL will equally be affected. Thus, equation 3.1 will change as follows:

$$EL' = f'(A, B', C', D') \quad 3.26$$

Let us assign the following symbols to our new objects identified under section 3.4.1 as follows:

α = Object 6: Content Delivery

β = Object 7: Learner Report, and

$\aleph$ = Object 8: Knowledge Exchange

This means that the sub-components of the above variables can now take the following symbols:

α = Object 6: Content Delivery

α_1 = Content coverage

α_2 =Teacher attendance

α_3 =Credit-hour coverage

β = Object 7: Learner Report

β_1 = Student satisfaction level

β_2 = Knowledge retention

β_3 = Subject mastery

$\aleph$ = Object 8: Knowledge Exchange

$\aleph_1$ = Pass rate

$\aleph_2$ = Repetition rate

$\aleph_3$ = Attrition rate

$\aleph_4$ = Student participation rate

With these additional variables, the Panel Member Assessment ratings that was represented using equation 3.2 now changes to:

$$B' = f' (B_1, B_2 , B_3 , B_4 , B_5 , B_6 ,+ \alpha_1, \alpha_2, \alpha_3, \beta_1 , \beta_2 , \beta_3 , \aleph_1 , \aleph_2 , \aleph_3, \aleph_4) \quad 3.27$$

And the average ratings of the two panel members represented in equation 3.8 now modifies to:

$$C' = f' ((B_1, B_2 , B_3 , B_4 , B_5 , B_6 + \alpha_1, \alpha_2, \alpha_3, \beta_1, \beta_2, \beta_3, \aleph_1, \aleph_2, \aleph_3, \aleph_4) + (B_1, B_2, B_3 , B_4 , B_5 , B_6 + \alpha_1, \alpha_2, \alpha_3, \beta_1, \beta_2, \beta_3, \aleph_1, \aleph_2, \aleph_3, \aleph_4)) / 2 \quad 3.28$$

Finally, substituting sub-components of B_1, B_2, B_3, and B_4 into equation 3.28, we obtain a clearer picture of the relation which also modifies equation 3.9 as follows:

$$C' = f'((B_{11}, B_{12}, B_{13}, B_{14}, B_{15}, B_{16}, B_{17}, B_{18}, B_{19}(B_{21}, B_{22}, B_{23}, B_{24}, B_{25}, B_{26}(B_{31}, B_{32}, B_{33}, B_{34}, B_{35}, B_{36}(B_{41}, B_{42}))), B_5, B_6 + \alpha_1, \alpha_2, \alpha_3, \beta_1, \beta_2, \beta_3, \gamma_1, \gamma_2, \gamma_3, \gamma_4) + (B_{11}, B_{12}, B_{13}, B_{14}, B_{15}, B_{16}, B_{17}, B_{18}, B_{19}(B_{21}, B_{22}, B_{23}, B_{24}, B_{25}, B_{26}(B_{31}, B_{32}, B_{33}, B_{34}, B_{35}, B_{36}(B_{41}, B_{42}))), B_5, B_6 + \alpha_1, \alpha_2, \alpha_3, \beta_1, \beta_2, \beta_3, \gamma_1, \gamma_2, \gamma_3, \gamma_4)) / 2 \quad 3.29$$

Where C' represents Chairman's Overall Assessment Rating in the new system.

The last step is to subject the computed C' to a value less than or equal to 100% in order to determine the academic programme's effectiveness level in the new APEM model. To obtain this value, we take the average ratings of all factors in the relation as shown in our final model equation of 3.30 below:

$$APEM = f'(A, [(B_1, B_2, B_3, B_4, B_5, B_6 + \alpha_1, \alpha_2, \alpha_3, \beta_1, \beta_2, \beta_3, \gamma_1, \gamma_2, \gamma_3, \gamma_4) + (B_1, B_2, B_3, B_4, B_5, B_6 + \alpha_1, \alpha_2, \alpha_3, \beta_1, \beta_2, \beta_3, \gamma_1, \gamma_2, \gamma_3, \gamma_4))/2*n] + D') \quad 3.30$$

Where n is the total number of variables or sub-variables that contributes to the overall assessment rating. In this study, n = 35.

The final APEM value computed using 3.30 will be a numerical value less than or equal to 100% and this value will correspond to any of the Performance Categories of table 3.18 that determines the programme's accreditation status.

In this chapter, we carried out an empirical study that investigated the level of ineffectiveness of current academic programme assessment framework used in assessing programme performance in universities. The study revealed that the framework is inadequate and neither gives enough consideration on the impact of academic programmes on students (who are the major "customer" of the organization) nor on Student Learning Outcomes (SLOs) in determining quality of academic programmes or their performance level.

We therefore provided a new model of assessment that improved the accuracy and effectiveness of the framework.

CHAPTER FOUR
SYSTEM DESIGN

4.1. Computerization of the APEM Models

In this chapter, a new system is designed that enhances current academic programme evaluation in universities. The design will automate the mathematical (APEM) models developed in the previous chapters. The system will inform external accountability activities such as accreditation and prove to students, faculty and outsiders what the programme is actually accomplishing. In order to minimize fraudulent activities and forgery associated with the existing system where departments and universities organize records of non-existing staff and teaching materials to attract maximum scores during accreditation/verification exercises, our new design will automate most of the data-gathering procedures, and ensure day-to-day assessment of academic programmes. It will provide feedback mechanism to determine how the programme can be improved upon in line with international best practices.

The design will be in two aspects: Design of the database aspect of the system, and a design of the actual APEM application software that provides user interface for data entry to enable assessment of programmes. Records of assessment are expected to emanate from the students (through their course representatives), the course lecturers themselves, the heads of departments, and the academic planning units of various universities. The database will be updated on a semester-by-semester basis and domiciled on the accrediting agency's web server through the programme coordinators and academic planning units of various universities.

Consequently, the new system is designed to ginger lecturers to take their duties seriously, deliver their lecturers and impact the necessary skill to the students. It will encourage vice-chancellors and heads of units to do the right thing and provide the needed infrastructure if their programmes must receive accreditation, knowing that the automated system will provide counter evidence and expose any act of bribery or falsehood. If this is achieved, then the productivity of staff as well as the entire organization will improve.

This chapter highlights the architectural design, input/output specifications, files and databases, data processing procedures, and system control in order to solve the inherent problems of the existing system. The section will also include program flow, file structure and user interface designs. It is expected that our design architecture highlights the

arrangement of all system components in order to satisfy all systems and user requirements stated earlier. It will build its focus around the needs of the accrediting agencies, the Nigerian students, Lecturers, parents, the university community, and the expectations of the international community.

This will achieve the much desired department-to-department linkage within and outside the university campus, lecturer-to-lecturer network within and across campuses, and lecturer-to-student interaction that engenders learning. Our goal will be achieved by collapsing all boundaries and bureaucratic hindrances which hinder the free flow of information among the stakeholders.

4.2. Objectives of the Design

The new system is designed to implement the Enhanced Academic Programme Evaluation Models developed in chapter three. The design objectives include:

a. **To provide a software platform that augments the existing system with the ten new performance criteria introduced in order to capture programme's overall impact on students.**

Incorporating ten new performance criteria into the existing framework will be an effective way of considering other vital aspects of university learning pedagogy and ensuring accuracy of assessment. To do this, we must be in a position to access certain information directly from all the students, all course lecturers, and all heads of units.

b. **To design a software platform that provides ongoing and cumulative assessment in line with international best practices.**

This will require that assessment information be received and a cumulative average taken on a semester-by semester basis.

c. **To ensure day-to-day assessment**

This will be achieved by gathering relevant assessment data on a daily basis after each lecture series and taking aggregate record at the end of the semester.

d. **To design a formative assessment system with feedback mechanism that generates performance reports to suggest ways of programme improvement.**

The program will have automated feedback mechanism that generates operational reports and performance alerts to the university management and departments.

e. **To design a software solution that gives privileged access to authorized officials and stakeholders for programme ratings without undue interferences.**

This will be achieved by authorizing the accrediting agency to assign Login IDs and passwords to various university officials involved in the daily assessment.

f. **To design a software solution that introduces new and automated approach to data gathering, involving the participation of all faculty, staff, and students.**

g. **To provide a plateform that ensures that assessment information is acquired using a systematic and open method.**

h. **To foster student/teacher relationship in the classroom learning environment and to raise students' interest in education.**

This will reduce lateness to classes, truancy, student drop-outs, and poor semester results due to a closer tie and improved interaction between the students and their lecturers.

4.3. Full System Design and Implementation of the APEM Model

The new system is conceptualized in two modeling phases as shown in figure 4.1.

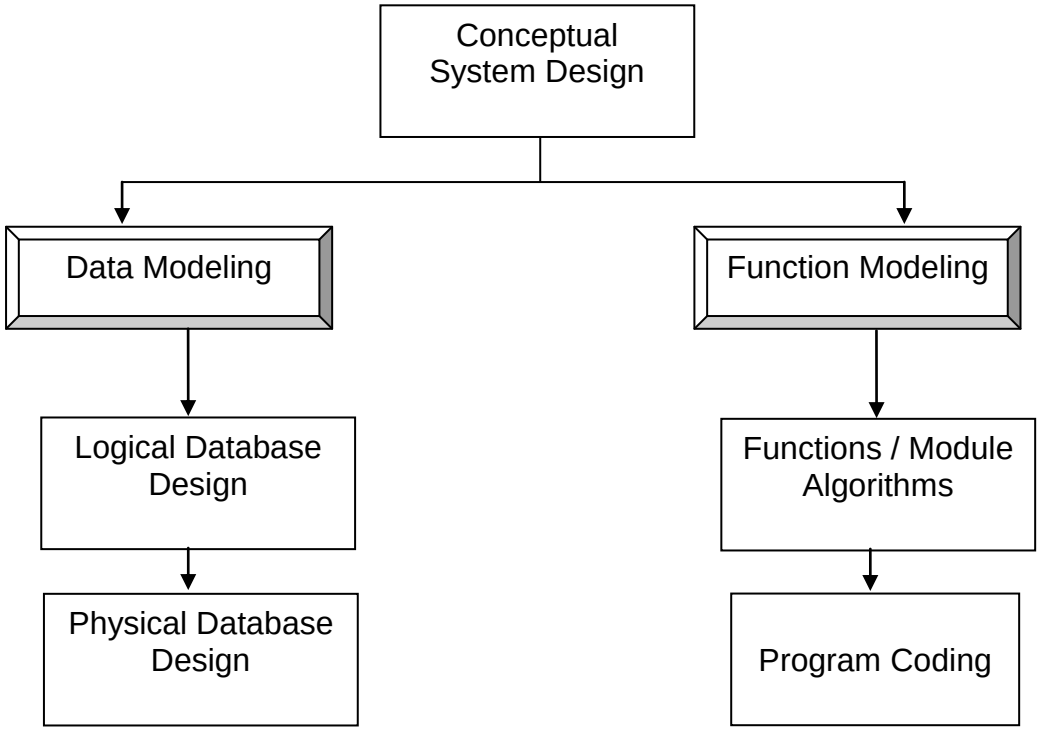


Figure 4.1. Conceptual System Design

The purpose of the system design is to effectively divide the entire system into small and more manageable segments that can be easily handled by separate program modules. The separate program modules will then be integrated together to form the entire system. This design methodology is called "Top –down –design" or "modular programming approach". We begin from the topmost modules and break the system into smaller sub-systems, taking each sub-system in turn and breaking them into smaller program modules. Program modules that control the main logic of the system must rely on lower level modules to perform subordinate tasks reliably. Data Modeling will detect the various entities of the system and analyze its attributes and the relationship existing amongst them, while Function Modeling will describe how the data entities are to be processed to achieve the desired software solution.

4.3.1. Main Menu (Control Center)

The control center contains the operational environment with buttons that prompt the user to select an option (which will provide a link to other sections of the system). There are seven buttons which include: Register Official, Register Academic Programme, Login as a Registered Official, Directory of Colleges, Rating and Evaluation, User Management, and Report Generation. These buttons represent the seven main modules of the system as seen in

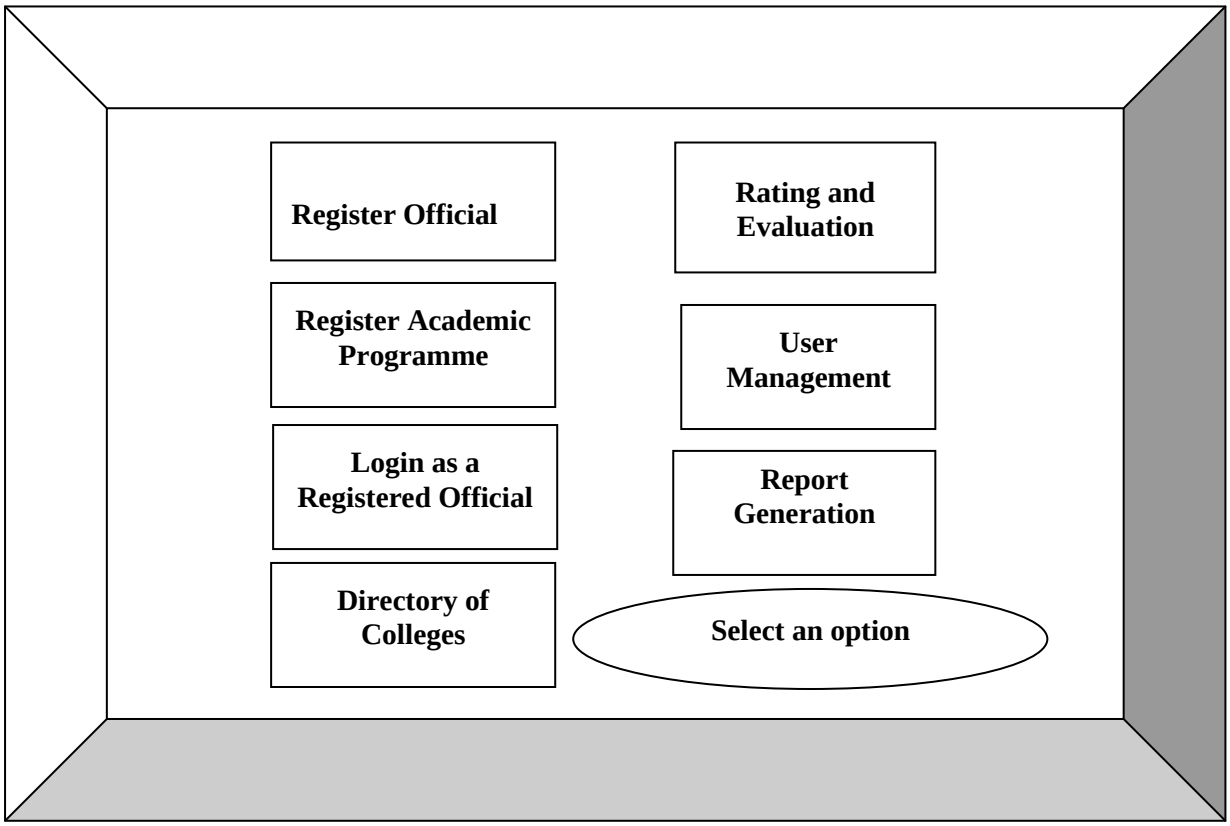


Figure 4.2. Main Menu Design

4.3.2. Logical Design and System Specifications

Logical design of an information system shows the major features of the system and its elements. It also shows the interaction among the system components. This produces the details of how the system requirements identified during the system analysis phase will be met. We will therefore specify the system's database structure, which will guarantee efficient storage and retrieval of data. Logical system design should also include the kind of inputs to be given to the system, and the nature of reports to be generated. The logical design therefore includes database specification, input design, and output design.

4.3.2.1 Database Input Specification

The web application that will achieve our desired objectives is of a three-tier program architecture (which means that the system will have a front-end, a middleware, and a back-end to serve as data storage and data serving entity). We now design the database systems that provide capabilities for data organization to facilitate queries and report generation. In this design, the database will be provided by the MS-SQL server 2008 to provide data storage based on SQL statements. The MS-SQL server will also interact with the web application through the help of the middleware and the web server. The MS-SQL server is an integral part of the VISUAL STUDIO IDE version 2010. Static contents of the Web portal such as documents, PDF files, images, audio/video and files will be stored in a document repository. Before we go on with input file specifications, we need re-present our Data Mart Structure for the new system which we previously presented in figure 3.7 of the previous chapter. The data mart is shown in the figure 4.3 below:

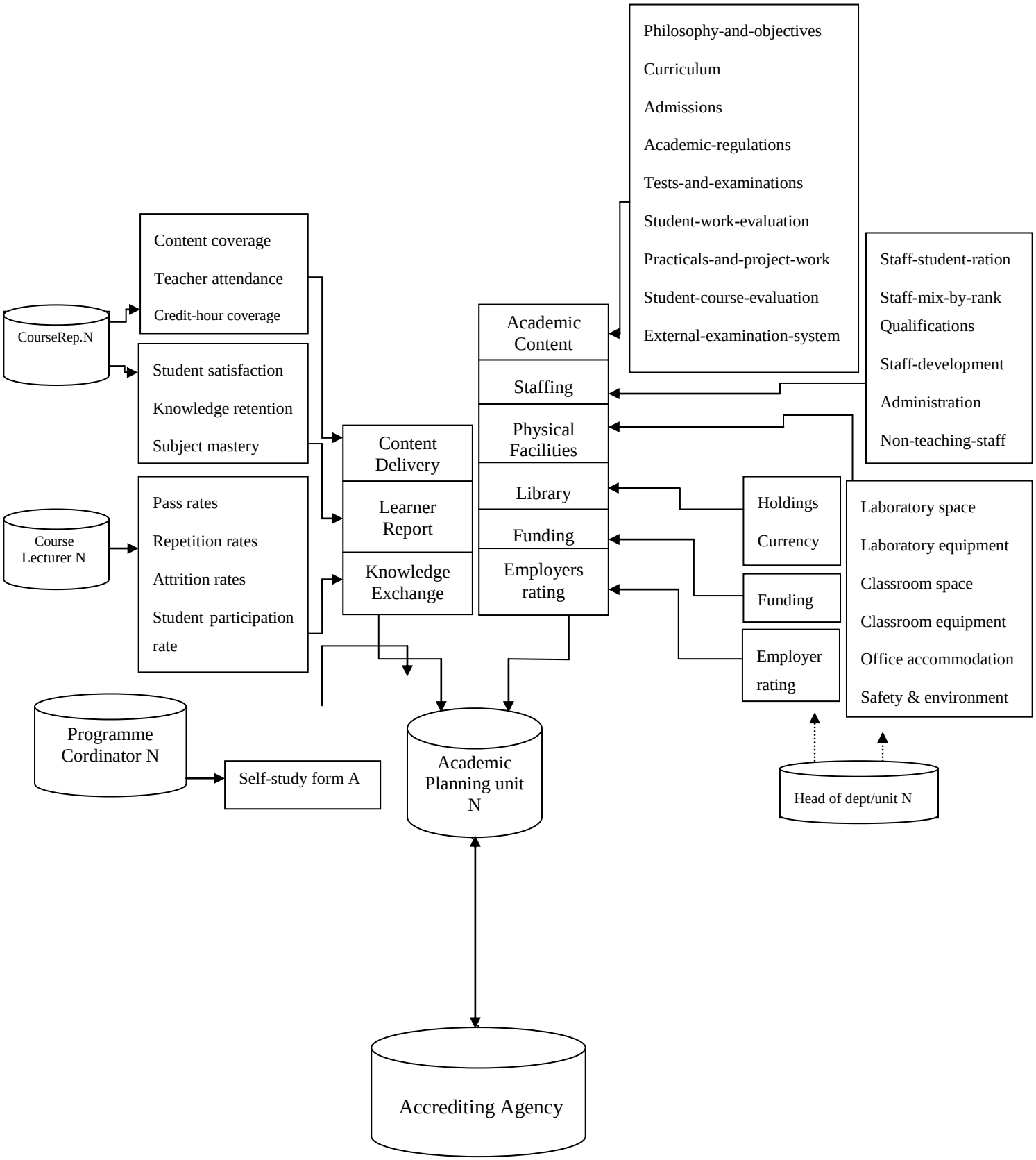


Figure 4.3: Data Mart Structure of APEM

Each sub-component in figure 4.3 above (also known as performance criteria) will represent a table structure in the database. We will categorize the database files into eight groups namely: File Input for User Registration (Five database files), File Input for User Login (Five database files), File Input for User Management (Three database files), File Input for Rating and Evaluation (Seven database files), File Input for Report Generation (Ten database files). In all, our new system will compose of thirty one (31) database files interacting and contributing data for processing in order to achieve the objectives of the design. We will therefore build the database structure for the thirty one tables to guarantee efficient capture of necessary input data, and an interaction among them. The tables below therefore represent our input files for the new system:

Table 4.1. File Input for User Registration

S/N	FILENAME	FILE DESCRIPTION
1.	registrationAsCourseLecturer	Input file for registration as Course Lecturer
2.	registerAsProgrammCordinator	Input file for registration as Programme Coordinator
3.	registrationAsHOD	Input file for registration as Head of Unit
4.	registrationAsCourseRepresentative	Input file for registration as Course Representative
5.	registrationOfUniversity	Input file for registration of universities
6.	aboutTheSite	Input file for about the site information

Table 4.2. File Input for User Login

S/N	FILENAME	FILE DESCRIPTION
7.	loginAsAdmin	Input file for login as NUC admin officer
8.	loginAsProgrammCordinator	Input file for login as programme Coordinator
9.	loginAsHOD	Input file for login as Head of Unit
10.	loginAsCourseLecturer	Input file for login as Course Lecturer
11.	loginAsCourseRepresentative	Input file for login as Course Representative

Table 4.3. File Input for User Management

S/N	FILENAME	FILE DESCRIPTION
12.	userMgtByAdmin	Input file for user information Management
13.	universityProfileMgtByProgrammCordinator	Input file for university profile management
14.	courseAccreditationMgtByAdmin	Input file for course accreditation management

Table 4.4. File Input for Rating and Evaluation

S/N	FILENAME	FILE DESCRIPTION
15.	ratingByHODforAcademicContent	Input file for Academic Content rating by HOD
16.	ratingByHODforStaffing	Input file for Staffing rating by HOD
17.	ratingByHODforPhysicalFacilities	Input file for Physical Facilities rating by HOD
18.	ratingByHODforLibraryAndFunding	Input file for Academic Library and Funding by HOD
19.	ratingByHODforEmployerRating	Input file for Employers rating by HOD
20.	ratingByCourseLecturer	Input file for programme rating by Course Lecturer
21.	ratingByCourseRepresentative	Input file for programme rating by Course Representative

Table 4.5. File Input for Report Generation

S/N	FILENAME	FILE DESCRIPTION
22.	reportForContentDelivery	Input file for report generation for content delivery performance criteria
23.	reportForLearnerReport	Input file for report generation for learner report performance criteria
24.	reportForKnowledgeExchange	Input file for report generation for knowledge exchange

		performance criteria
25.	reportForAcademicContent	Input file for report generation for academic content performance criteria
26.	reportForStaffing	Input file for report generation for staffing performance criteria
27.	reportForPhysicalFacilities	Input file for report generation for physical facilities performance criteria
28.	reportForLibrary	Input file for report generation for library performance criteria
29.	reportForFunding	Input file for report generation for funding performance criteria
30.	reportForEmployerReport	Input file for report generation for employer report performance criteria
31.	overralPerformanceReport	Input file for overall performance report

The database structure for each file will be defined in a data dictionary. A data dictionary will describe each database file in terms of records, field names, field types, field width, field description, and other information required for proper storage and retrieval of data in the database. In the next section therefore, we specify the data dictionary for the new system.

4.3.2.2 Database Structure

Table 4.6. Database structure for ”registerAsCourseLecturer” table

Field Names	Field Type	Field Width	Description
UniversityName	String	30	Course lecturer’s university
StaffName	String	20	Course lecturer’s name
Department	String	20	Course lecturer’s department
Designation	String	10	Course lecturer’s designation
Rank	String	10	Course lecturer’s position
Session	String	10	Session for registration
Semester	String	10	Semester under review
Date	DateTime	6	Date of registration

The table 4.6 above is the database structure for Registration as a Course Lecturer. Every course lecturer will need to register to become a qualified official for subsequent rating of academic programmes. He will supply some information to the system including his name, department, designation, semester of interest, and date in line with the field type and field width specified in the table.

Table 4.7. Database structure for ”registerAsHOD” table

Field Names	Field Type	Field Width	Description
UniversityName	String	30	HOD’s university
StaffName	String	20	HOD’s name
Department	String	20	Department
Designation	String	10	Designation (HOD)
Rank	String	10	HOD’s position or rank
Session	String	10	Session for registration
Semester	String	10	Semester under review
Date	DateTime	6	Date of registration

The table 4.7 above is the database structure for Registration as a Head of Department/Unit. Every head of Department or unit will need to register to enable the agency assign username and password to him for subsequent ratings of academic programmes. He/she will be required to supply some information to the system including his name, department, designation, semester of interest, and date in line with the field type and field width specified in the table.

Table 4.8 Database structure for ”registerAsCourseRepresentative” table

Field Names	Field Type	Field Width	Description
CourseRepMatNo	Int	12	Course Representative’s Matriculation number
CourseRepName	String	20	Course Representative’s name
Department	String	20	Department
Session	String	10	Session for registration
Semester	String	10	Semester under review
Date	DateTime	6	Date of registration

The table 4.8 above is the database structure for Registration as a Course Representative. Course representatives are required to register with the accrediting agency to in order to obtain access to the system for onward ratings of academic programmes. He/she will be required to supply some information to the system including his name, matriculation number, department, semester of interest, and date in line with the field type and field width specified in the table.

Table 4.9. Database structure for ”registerUniversity” table

Field Names	Field Type	Field Width	Description
UniversityID	String	8	University Code e.g. FUTO
UniversityName	String	30	University name
City	String	20	City
State	String	10	State
AccreditationStatus	String	10	Current accreditation status
Date	DateTime	6	Date of registration

The table 4.9 above is the database structure for Registration of Universities. This entry will be carried out by the university director of academic planning. He/she will be required to supply the following information to the system in line with the field type and field width specified in the table: Name of university, City of location, state, accreditation status earned in the last visitation, and date of entry.

Table 4.10. Database structure for ”aboutTheSite” table

Field Names	Field Type	Field Width	Description
NameOfAuthor	String	20	Name of Project Author
Abstract	String	50	Brief summary or abstract
ProjectSupervisor	String	20	Name of project Supervisor
NumberOfWebpages	Int	30	Total number of web pages
ContributionToKnowledge	String	50	Major contribution to knowledge
Date	DateTime	6	Date of deployment

The table 4.10 above is the database structure for About the Site information. This entry will be carried out by the system developer who is also the student carrying out this research work. This information will be helpful for future maintenance of the system as specified.

Table 4.11. Database structure for ”loginAsAdmin” table

Field Names	Field Type	Field Width	Description
loginAs	String	10	Admin or ProgCordinator or Lecturer or HOD or CourseRep
Username	String	10	User login Name
Password	String	4	User login password

The table 4.11 above is the database structure for Login as System Administrator representing the accrediting agency. He will gain access to the system only when he supplies the correct user name and password. All entries will be in line with the field type and field width specified in the table.

Table 4.12. Database structure for ”loginAsProgrammCordinator” table

Field Names	Field Type	Field Width	Description
loginAs	String	10	Admin or ProgCordinator or Lecturer or HOD or CourseRep
Username	String	10	User login Name
Password	String	4	User login password

The table 4.12 above is the database structure for Login as Programme Coordinator representing the academic programme. He will be required to supply the correct user name and password to gain access to the system. All entries will be in line with the field type and field width specified in the table.

Table 4.13. Database structure for ”loginAsHOD” table

Field Names	Field Type	Field Width	Description
loginAs	String	10	Admin or ProgCordinator or Lecturer or HOD or CourseRep
Username	String	10	User login Name
Password	String	4	User login password

The table 4.13 above is the database structure for Login as Head of Department/Unit where the academic programme is domiciled. He will be required to supply the correct user name and password to gain access to the system. All entries will be in line with the field type and field width specified in the table.

Table 4.14. Database structure for ”loginAsCourseLecturer” table

Field Names	Field Type	Field Width	Description
loginAs	String	10	Admin or ProgCordinator or Lecturer or HOD or CourseRep
Username	String	10	User login Name
Password	String	4	User login password

The table 4.14 above is the database structure for Login as Course Lecturer. He will be required to supply the correct user name and password to gain access to the system. All entries will be in line with the field type and field width specified in the table.

Table 4.15. Database structure for ”loginAsCourseRepresentative” table

Field Names	Field Type	Field Width	Description
loginAs	String	10	Admin or ProgCordinator or Lecturer or HOD or CourseRep
Username	String	10	User login Name
Password	String	4	User login password

The table 4.15 above is the database structure for Login as Course Representative. He/she will be required to supply the correct user name and password to gain access to the system. All entries will be in line with the field type and field width specified in the table.

Table 4.16. Database structure for ”userMgtByAdmin” table

Field Names	Field Type	Field Width	Description
Sn	Int	10	Serial Number
Staffed	String	10	Staff Identification number
loginID	String	10	Staff login identification number assigned by the NUC admin only
Password	String	4	User login password assigned by the NUC admin only
accessLevel	String	10	Privileged access level assigned by the NUC admin only
staffName	String	20	Name of university staff
University	String	10	Staff’s University
Department	String	10	Staff’s department
Designation	String	10	Staff’s designation
Position	String	10	Staff’s position held
Session	String	10	Academic session under review
Semester	String	3	Semester under review
Date	DateTime	6	Date of activation

The table 4.16 above is the database structure for User Management by the System Administrator. He/she represents the accrediting agency who carries out activities such as updates, deletions and assignment of user names and passwords. He will be required to supply all information under the fieldname column of table 4.16. All entries will be in line with the field type and field width as specified in the table.

Table 4.17 Database structure for ”universityProfileMgtByProgrammCordinator” table

Field Names	Field Type	Field Width	Description
Sn	Int	10	Serial Number
schoolD	String	10	University Identification number
universityName	String	10	Name of university
City	String	10	City where the university is situated
State	String	10	State where the university is situated
Accreditation	String	15	Current accreditation status of university
Date	DateTime	6	Date of last profile update

The table 4.17 above is the database structure for University profile management by the Programme Coordinator. He/she is expected to supply input data regarding the programme to be accredited. All entries will be supplied as contained under field name column and in line with the field type and field width specified in the table.

Table 4.18 Database structure for ”courseAccreditationMgtByAdmin” table

Field Names	Field Type	Field Width	Description
Sn	Int	10	Serial Number
schoolD	String	10	University Identification number
universityName	String	10	Name of university
Department	String	10	Department of domiciliation
Programme	String	20	Programme under review
programmAccreditationStatus	String	15	Current accreditation status of academic programme
Date	DateTime	6	Date of last update

The table 4.18 above is the database structure for Course Accreditation management by the System Administrator. He/she is expected to disclose reports concerning programme for accreditation. All entries will be supplied as

contained under field name column and in line with the field type and field width specified in the table.

Table 4.19. Database structure for ”ratingByCourseRepresentative” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
courseCode	String	6	Course code
courseTittle	String	15	Course title
Session	String	10	Session under review
Semester	String	10	Semester under review
Date	String	10	Date of rating and evaluation
contentCoverage	Int	1	Weight assignment for Content Coverage rate
teacherAttendace	Int	1	Weight assignment for Teacher Attendance rate
creditHourCovrage	Int	1	Weight assignment for Credit Hour Coverage rate
studentSatisfaction	Int	1	Weight assignment for Student Satisfaction rare
knowledgeRetention	Int	1	Weight assignment for Knowledge Retention rare
subjectMastery	Int	1	Weight assignment for Subject Mastery assessment

The table 4.19 above is the database structure for Rating by the Course Representative. While carrying out his/her rating, each course representative is expected to supply all input scores as contained under field name column and in line with the field type and field width specified in the table.

Table 4.20. Database structure for ”ratingByCourseLecturer” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
courseCode	String	6	Course code
courseTittle	String	15	Course title
Session	String	10	Session under review
Semester	String	10	Semester under review
Date	Date/time	10	Date of rating and evaluation
passRate	Int	1	Weight assignment for pass rate
nonRepetition	Int	1	Weight assignment for non-repetition rate
nonAttrition	Int	1	Weight assignment for non-attrition rate
studentParticipation	Int	1	Weight assignment for Student Participation rate

The table 4.20 above is the database structure for Rating by the Course Lecturer. While carrying out his/her rating, each course lecturer is expected to supply all input scores as contained under field name column and in line with the field type and field width specified in the table.

Table 4.21 Database structure for ”ratingByHODforAcademicContent” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
courseCode	String	6	Course code
courseTittle	String	15	Course title
Session	String	10	Session under review
Semester	String	10	Semester under review
Date	String	10	Date of rating and evaluation
philosophyAndObjective	Float	2	Weight assignment for Philosophy and Programme objective
Curriculum	Float	2	Weight assignment for Curriculum
Admissions	Float	2	Weight assignment for Admissions
academicRegulation	Float	2	Weight assignment for Academic Regulation
testsAndExaminations	Float	2	Weight assignment for Tests and Examinations
studentWorkEvaluation	Float	2	Weight assignment for Student Work Evaluation
practicalsAndProjectWork	Float	2	Weight assignment for Practicals and Project Work
studentsCourseEvaluation	Float	2	Weight assignment for Student Course Evaluation
externalExaminationSystem	Float	2	Weight assignment for External Examination System

The table 4.21 above is the database structure for rating by the Head of Department/Unit under Academic Content performance criteria. While carrying out his/her rating, each head of unit is expected to supply all input scores as contained under field name column and in line with the field type and field width specified in the table.

Table 4.22. Database structure for ”ratingByHODforStaffing” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
courseCode	String	6	Course code
courseTittle	String	15	Course title
Session	String	10	Session under review
Semester	String	10	Semester under review
Date	String	10	Date of rating and evaluation
staffStudentRatio	Float	2	Weight assignment for Staff-student ratio
staffMixByRank	Float	2	Weight assignment for Staff-mix-by-rank
staffQualifications	Float	2	Weight assignment for Staff Qualifications
staffDevelopment	Float	2	Weight assignment for Staff Development
Administration	Float	2	Weight assignment for Administration
performanceOfNonTeachingStaff	Float	2	Weight assignment for Performance of non-teaching staff

The table 4.22 above is the database structure for rating by the Head of Department/Unit under Staffing performance criteria. While carrying out his/her rating, each head of unit is expected to supply all input scores as contained under field name column and in line with the field type and field width specified in the table.

Table 4.23 Database structure for ”ratingByHODforPhysicalFacilities” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
courseCode	String	6	Course code
courseTittle	String	15	Course title
Session	String	10	Session under review
Semester	String	10	Semester under review
Date	String	10	Date of rating and evaluation
labSpace	Float	2	Weight assignment for Laboratory Space
labEquiptment	Float	2	Weight assignment for Laboratory Equipment

classSpace	Float	2	Weight assignment for Classroom Space
classEquiptment	Float	2	Weight assignment for Classroom Equipment
officeAccommodation	Float	2	Weight assignment for Office Accommodation
safetyAndEnvironment	Float	2	Weight assignment for Safety and Environment

The table 4.23 above is the database structure for rating by the Head of Department/Unit under physical facilities performance criteria. While carrying out his/her rating, each head of unit is expected to supply all input scores as contained under field name column and in line with the field type and field width specified in the table.

Table 4.24 Database structure for ”ratingByHODforLibraryAndFunding” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
courseCode	String	6	Course code
courseTittle	String	15	Course title
Session	String	10	Session under review
Semester	String	10	Semester under review
Date	String	10	Date of rating and evaluation
libraryHoldings	Float	2	Weight assignment for Library Holdings (Book Currency)
libraryBooks	Float	2	Weight assignment for Library Books
Funding	Float	2	Weight assignment for funding

The table 4.24 above is the database structure for rating by the Head of Department/Unit under Library and Funding performance criteria. While carrying out his/her rating, each head of unit is expected to supply all input scores as contained under field name column and in line with the field type and field width specified in the table.

Table 4.25 Database structure for ”ratingByHODforEmployersRating” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
courseCode	String	6	Course code
courseTittle	String	15	Course title
Session	String	10	Session under review
Semester	String	10	Semester under review
Date	String	10	Date of rating and evaluation
employersRating	Float	2	Weight assignment for Employers rating of graduates

The table 4.25 above is the database structure for rating by the Head of Department/Unit under Employer’s rating performance criteria. While carrying out his/her rating, each head of unit is expected to supply all input scores as contained under field name column and in line with the field type and field width specified in the table.

Table 4.26. Database structure for ”reportForContentDelivery” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
contentCoverage rate	Float	4	Rate of content coverage
teacherAttendance rate	Float	4	Rate of teacher attendance
creditHourCoverage rate	Float	4	Rate of credit hour coverage
totalScore	Float	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Flaot	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	float	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.26 above is the database structure for report generation for Content Delivery performance criteria. The system is expected to generate the

information using the format contained under the field name column and in line with the field type and field width specified in the table.

Table 4.27. Database structure for ”reportForLearnerReport” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
studentSatisfaction rate	Float	4	Rate of student satisfaction
knowledgeRetention rate	Float	4	Rate of knowledge retention
subjectMastery rate	Flaot	4	Rate of subject mastery
totalScore	Flaot	4	Total score for 1st and 2nd semesters
averageScore	Flaot	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Flaot	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Flaot	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.27 above is the database structure for report generation under Learner Report performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.28. Database structure for ”reportForKnowledgeExchange” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
passRate	Flaot	4	Pass Rate by students
repetitionRate	Flaot	4	Repetition rate
attritionRate	Flaot	4	Drop-out rate
studentParticipationRate	Flaot	4	Rate of active participation in class
totalScore	Flaot	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Flaot	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Flaot	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.28 above is the database structure for report generation under Knowledge Exchange performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.29. Database structure for ”reportForAcademicContent” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
philosophyAndObjective	Float	4	Score for Programme Philosophy and objective
Curriculum	Float	4	Score for Curriculum
Admissions	Float	4	Score for Admissions
academicRegulation	Float	4	Score for Academic regulation
testsAndExaminations	Float	4	Score for Tests and examinations
studentWorkEvaluation	Float	4	Score for Student work evaluation
practicalsAndProjectWork	Float	4	Score for Practicals and project work
studentsCourseEvaluation	Float	4	Score for Student course evaluation
externalExaminationSystem	Float	4	Score for External examination system
totalScore	Float	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Float	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Float	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.29 above is the database structure for report generation under Academic Content performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.30. Database structure for ”reportForStaffing” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
staffStudentRatio	Float	4	Score in percentage for staff-student ratio
staffMixByRank	Float	4	Score in percentage for staff mix by rank
staffQualifications	Float	4	Score for staff qualification
staffDevelopment	Float	4	Score for staff development
Administration	Float	4	Score for administrative competence
performanceOfNonTeachingStaff	Float	4	Score for performance of non-teaching staff
totalScore	Float	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Float	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Float	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.30 above is the database structure for report generation under Staffing performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.31. Database structure for ”reportForPhysicalFacilities” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
labSpace	Float	4	Score in percentage for laboratory space
labEquiptment	Float	4	Score in percentage for laboratory equipment
classSpace	Float	4	Score for classroom space
classEquiptment	Float	4	Score for classroom equipment
officeAccommodation	Float	4	Score for office

			accommodation
safetyAndEnvironment	Float	4	Score for safety and environment
totalScore	Float	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Float	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Float	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.31 above is the database structure for report generation under physical facilities performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.32. Database structure for ”reportForLibrary” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
libraryHoldings	Float	4	Score in percentage for library holdings
libraryBooks	Float	4	Score in percentage for library book currency
totalScore	Float	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Float	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Float	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.32 above is the database structure for report generation under Library performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.33. Database structure for ”reportForFunding” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
Funding	Float	4	Score in percentage for funding of academic programme
totalScore	Float	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Float	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Float	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.33 above is the database structure for report generation under Funding performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.34. Database structure for ”reportForEmployersRating” table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Session	String	10	Session under review
Date	DateTime	6	Date of reporting
employersRating	Float	4	Score in percentage for employers’ rating of graduates
totalScore	Float	4	Total score for 1st and 2nd semesters
averageScore	Float	4	Cumulative average for 1st and 2nd semesters
generalSatisfactoryRate	Float	4	Satisfactory rate in percentage
aggregateSatisfactoryRate	Float	4	Cumulative satisfactory rate for all academic sessions from last accreditation visitation

The table 4.34 above is the database structure for report generation under Employer's rating performance criteria. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

Table 4.35. Database structure for "overralPerformanceReport" table

Field Names	Field Type	Field Width	Description
University	String	10	Name of University
Department	String	20	Name of Department
Programme	String	20	Name of academic programme
Date	DateTime	6	Date of reporting
performanceCategory	String	20	Performance Category example: 80% and above, between 70% and 79% based on ratings
letterGrade	String	2	Letter grade assigned
accreditationStatus	String	25	Accreditation statud earned
assessmentRemark	String	15	Assessment remark
assessmentLifespan	String	10	Lifespan of accreditation status

The table 4.35 above is the database structure for Overall report on performance of academic programme. The system is expected to generate all information as contained under field name column and in line with the field type and field width specified in the table.

4.3.3. Overall Data Flow Diagram

The Data Flow Diagram of the new system is displayed in the figure 4.4. It is the primary tool for representing a system's component processes and the flow of data among them. The Data Flow Diagram (DFD) offers a logical graphic model of information flow, partitioning the system into modules that show manageable levels of details and specifies the processes or transformations that occur within each module (including all interfaces that exist among them). Components of our DFD shown in figure 4.4 include the following: External Entities, which shows the originator or receiver of information located outside the boundaries of the system (represented by square boxes), Processes, which portray the transformation of data (represented by rounded boxes), Data Stores, which are either manual or automated repositories of data (represented by open rectangles), and the arrows, which represent data flows within the system.

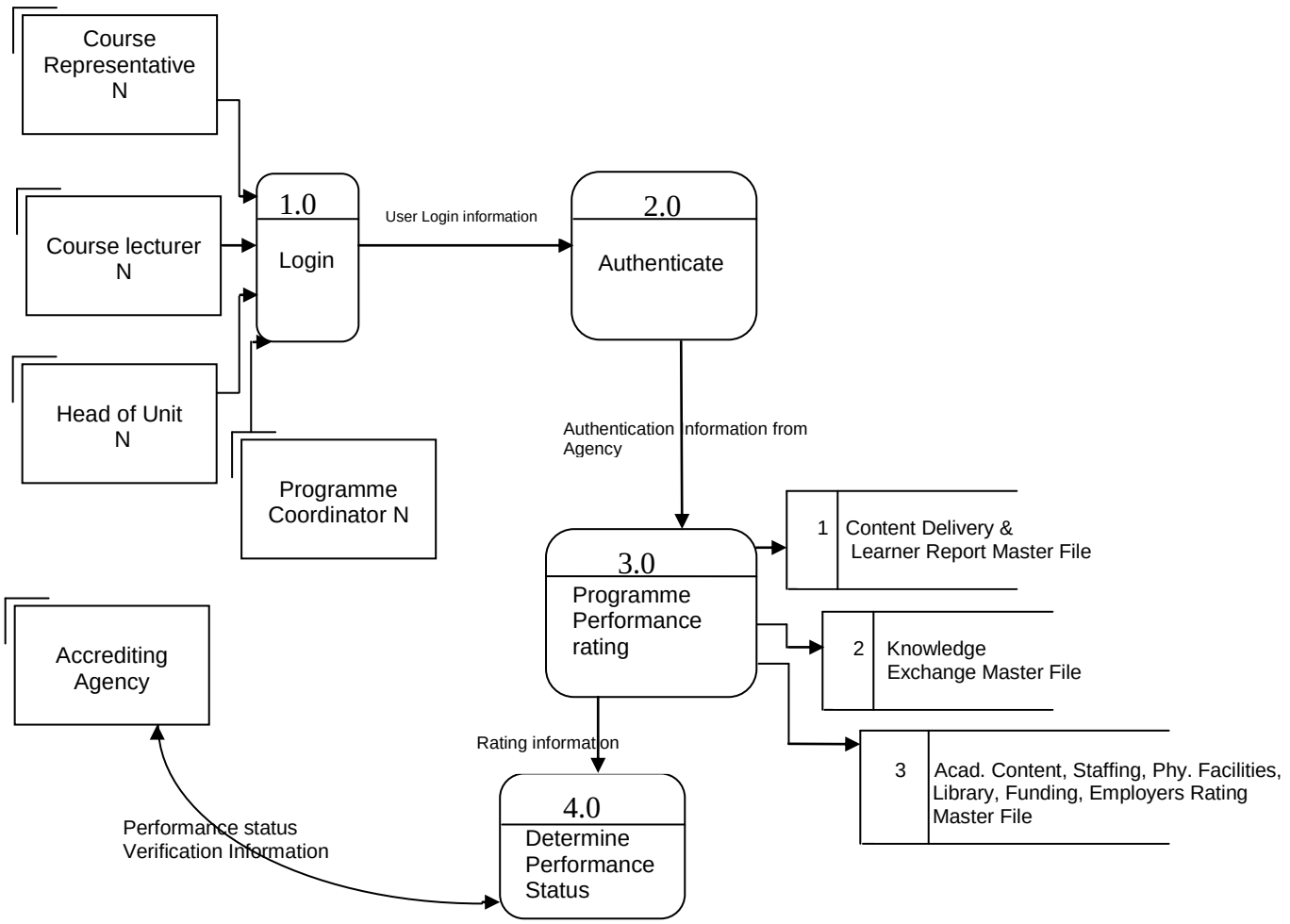


Figure 4.4 Data Flow Diagram for the new APEM System

4.3.4. Use Case Diagram

We now clarify the roles of the various actors earlier presented in the Data Flow Diagram by an illustration of the Use Case Diagram. With the Use Case Diagrams, we can depict the actions executed by each actor in the system under design. The scope and nature of activities for each user depends on the privileged access rights with which the actor logs into the system. The Use Case Diagram for our new system is shown in figure 4.5.

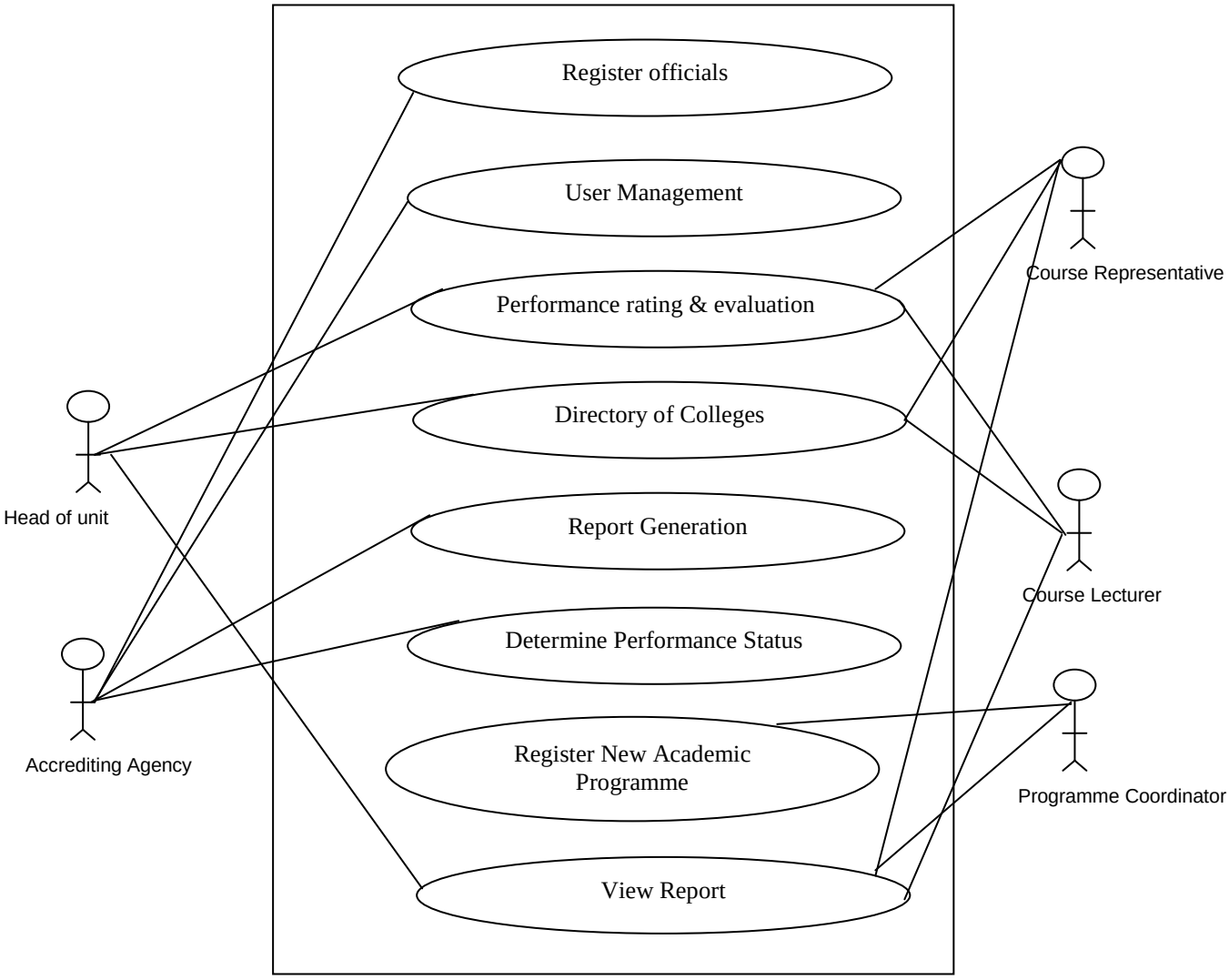


Figure 4.5 Use Case Diagram of the New System

4.3.5. Input Specifications

In this section, we provide the format for data entry by the various users of the system. The entries will be stored in the database and used in determining the performance status of academic programmes. Users of the system will make their entries using the keyboard. Thus, the input specification is as shown in table 4.36 below:

Table 4.36 Input Specifications

Module	Input Data
Course representative Entries	Name of University, Name of department, Name of academic programme , Course Code, Course Title, Academic session, semester, Date, Weight assignment for Content coverage, Weight assignment for Teacher Attendance, Weight assignment for credit hour coverage, weight assignment for Student Satisfaction rate, Weight assignment for Knowledge Retention level, Weight assignment for Subject mastery.
Course Lecturer Entries	Name of University, Name of department, Name of academic programme , Course Code, Course Title, Academic session, semester, Date, Weight assignment for pass rate, Weight assignment for repetition rate, Weight assignment for attrition rate, Weight assignment for Student participation rate.
Head of unit Entries	Name of University, Name of department, Name of academic programme , Course Code, Course Title, Academic session, semester, Date, Weight assignment for Philosophy and Objectives, Weight assignment for Curriculum, Weight assignment for Admissions, Weight assignment for Academic Regulations, Weight assignment for Tests and Examinations, Weight assignment for Student work evaluation, Weight assignment for Practicals and project work, Weight assignment for

	Student course evaluation, Weight assignment for External examination system, Weight assignment for staff-student ratio, Weight assignment for staff-mix by rank, Weight assignment for qualifications, weight assignment for staff development, weight assignment for admissions, weight assignment for non-teaching staff, weight assignment for Laboratory space, weight assignment for laboratory equipment, weight assignment for classroom space, weight assignment for classroom equipment, weight assignment for office accommodation, weight assignment for safety and environment, weight assignment for Library holdings, weight assignment for Library currency, weight assignment for Funding, weight assignment for Employers rating.
Accrediting Agency	Login and authentication information for each rating official: Login IDs, and Login passwords.

The table 4.36 above represents the input file specifications for all categories of data entries by various officials of universities and the accrediting agency.

4.3.6. Output Specifications

Specifically, the output to be presented by the new system will be in the form of reports. The reports will show clearly the trend of activities and the academic programme's performance across semesters and sessions. This type of information can guide the university in general and the departments in particular, in their decision-making process and to know the best approach to performance improvement.

Table 4.37 Output Specifications

Module	Output Information
Agency Report on Content Delivery	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Rate of coverage of academic content, Rate of Teacher attendance to classes, credit hour coverage rate, total score for the first and second semesters, Cumulative average for the first and second semesters, Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Learner Report	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Rate of student-satisfaction, Knowledge retention rate, rate of subject mastery, total score for the first and second semesters, Cumulative average for the first and second semesters, Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Knowledge Exchange	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, students pass rates, Repetition rates, Attrition rates, rate of students active participation in class, total score for the first and second semesters, Cumulative average for the first and second semesters, Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Academic Content	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Scores for Philosophy and Objectives, Curriculum, Admissions, Academic Regulations, Tests and Examinations, Student work evaluation, Practicals and project work, Student course evaluation, External examination system, total score for the first and second semesters, Cumulative average for the first and second semesters,

	Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Staffing	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Scores for staff-student ratio, scores for staff-mix by rank, staff qualifications, staff development, administrative competence, scores for performance of non-teaching staff, total score for the first and second semesters, Cumulative average for the first and second semesters, Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Physical Facilities	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Scores for Laboratory space, Laboratory equipment, classroom space, classroom equipment, office accommodation, safety and environment, total score for the first and second semesters, Cumulative average for the first and second semesters, Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Library	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Scores for Library holdings, Library currency, total score for the first and second semesters, Cumulative average for the first and second semesters, Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Funding	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Score in percentage for “funding of academic programme”, total score for the first and second semesters, Cumulative average for the first and second semesters,

	Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Report on Employers rating	Name of university, Name of department, Name of academic programme, Academic programme under review, Date of reporting, Scores in percentage for “employers rating of graduates, total score for the first and second semesters, Cumulative average for the first and second semesters, Satisfactory rate compared to Agency expectation or standard, overall satisfactory rate since the last accreditation visitation.
Agency Overall Performance Report	Name of university, Name of department, Name of academic programme, Academic session under review, Date of reporting, General Performance Category, Letter grade, Assessment remark, Accreditation status, and assessment lifespan.

The table 4.37 above represents the output file specifications for all categories of reports to be generated based on assessment ratings of academic programmes.

These reports will be regularly posted to the University’s website to provide up-to-date information on the state of the university and the performance of their academic programmes alongside other remarks and instructions to guide implementation of programme improvement strategies.

4.3.7. Program Flowchart

The Program Flowchart shows the sequence of activities in the new system. We begin by drawing a flowchart that represents the system at a high level of abstraction. This is presented in figure 4.6. The rest of the flowcharts are presented in figure 4.7, figure 4.8, and figure 4.9 respectively.

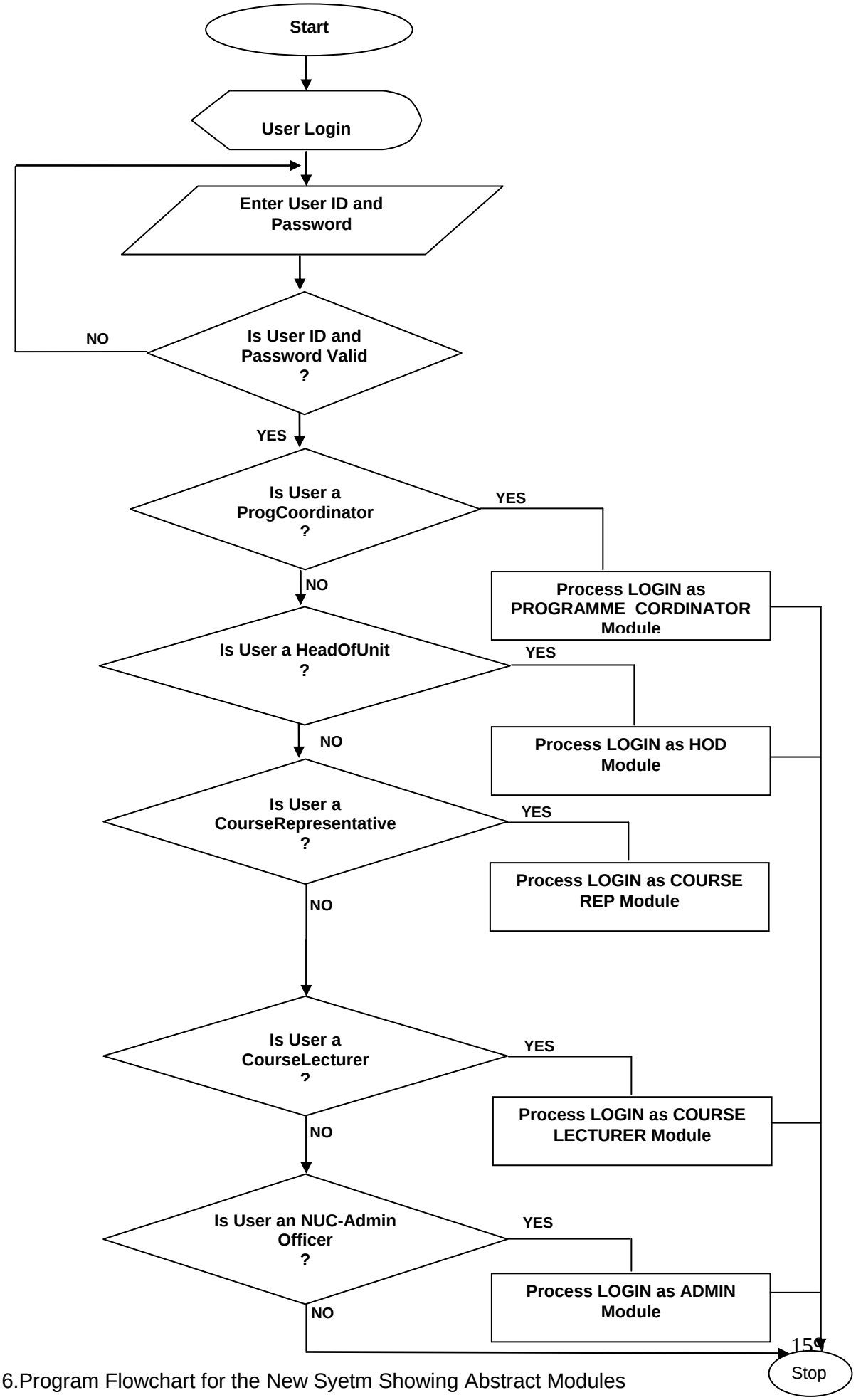


Figure 4.6.Program Flowchart for the New Syetm Showing Abstract Modules

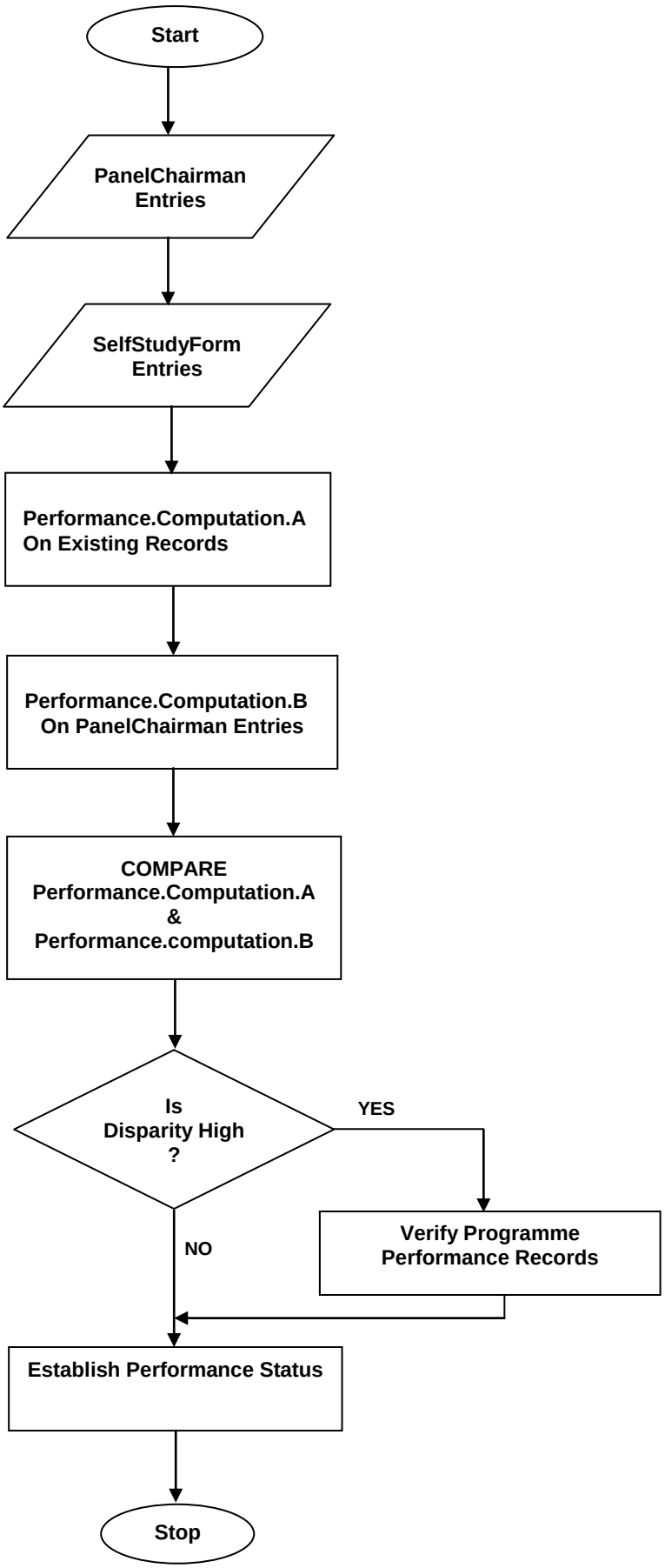


Figure 4.7 Program Flowchart for Performance Verification by Accrediting Agency

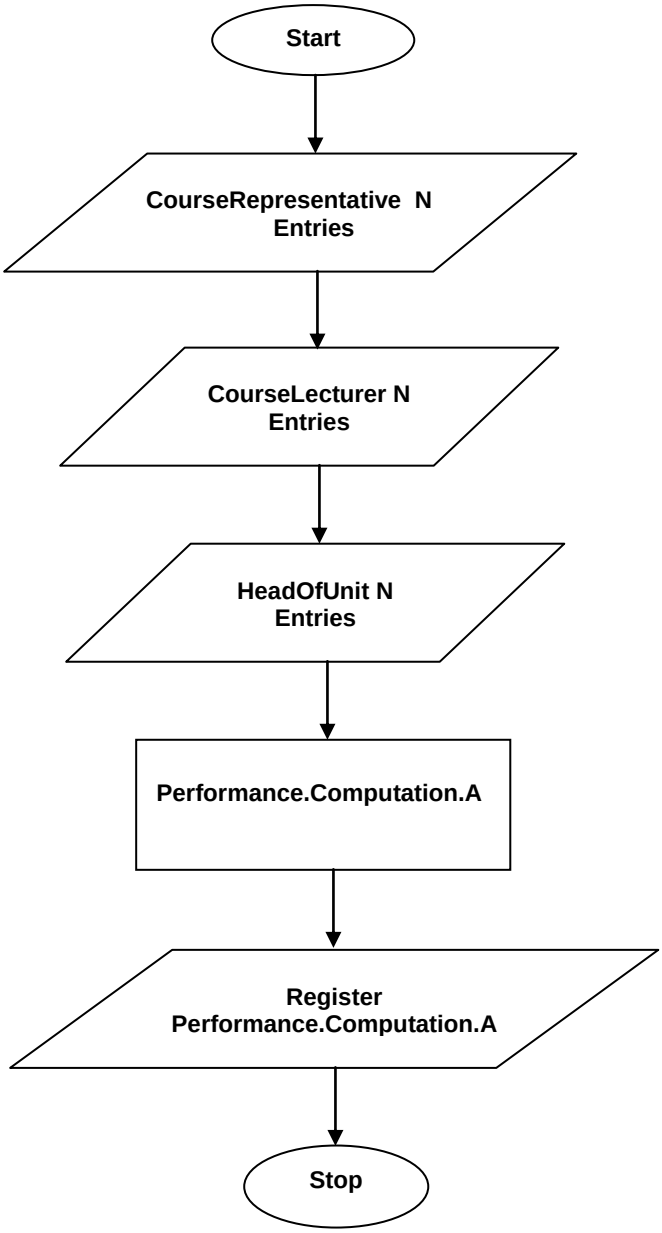


Figure 4.8 Program Flowchart for Programme Performance Assessment “A”

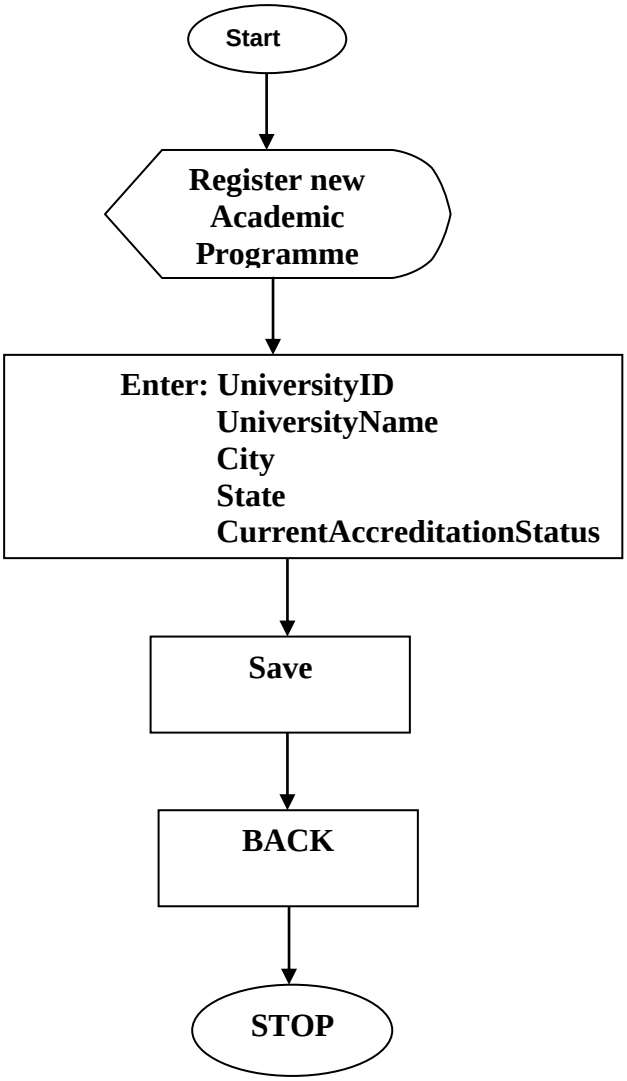


Figure 4.9 Program Flowchart for Registration of New Academic Programme

4.4. Choice and Justification of Programming Language Platform

The entire web application was developed using the VISUAL STUDIO IDE version 2010 which provided the following development machines: ASP.NET, VB.NET technology, Visual Web Developer's Tool, Development Web Server and Application Server (used to test web applications at development stage), .NET framework 4.0, and MS-SQL Server 2008. With these Programming Language Platforms, we were able to implement our models to a dynamic web-application of the three-tier architecture having a front-end, a middleware, and a back-end. The middleware application logic was defined using VB.NET and ASP.NET web

application server based on .NET framework 4.0. Microsoft SQL server 2008 was used to design the back-end technology. ADO.NET was used to enable dynamic database interactivity with the web application, while Microsoft IIS express version 7.5 was adopted as the Web server to enable application's response to user request based on http request.

Why VB.NET technology was adopted:

VB.NET technology was used for the design of this application softwate because of the following reasons:

a. It is compatible with most servers in use today (IIS express and the Apache) and efficient to run on the server side.

b. It contains various APIs that serve as counterparts to dynamic web content technologies such as PHP and the ASP.NET.

c. It uses less systems resources and runs fast. It loads and executes quickly and works well with other applications.

d. It is fairly stable.

e. It has rich library which enables one to develop programs easily.

f. It is flexible, allowing the users to customize and make adjustments.

g. It is a language for multi-user application.

h. It facilitates fast programming development, and

i. With VB.NET modification can be made in the program classes without affecting the entire program.

Generally, VB.NET technology introduces new features and enhancements aimed at providing an optimized consumer end-user experience, and include tools useful for testing application programs.

Why ASP.NET technology was adopted:

ASP.NET technology was adopted because of the following reasons:

a. It easily creates dynamically generated web pages based on HTML, XML or other document types.

b. ASP.NET is similar to PHP in operation, but has higher security measures.

c. It is compatible with java servlet technology and other java programming languages.

d. ASP.NET incorporates java codes, and allows certain pre-defined actions to be interleaved with static web markup content, with the resulting page being compiled and executed on the server to deliver a document.

e. Since it uses java bytecode, it executes within a Java Virtual Machine (JVM) and integrates with the server's operating system to provide an abstract platform-neutral environment, and

f. They can deliver any type of data to the web.

Database Management System (DBMS) used

MS-SQL server 2008, which is included in the VISUAL STUDIO IDE version 2010 was adopted as the DBMS of choice to develop the back-end. It is a database computer language designed for managing data in a relational database approach. It also supports standard ANSI/ISO SQL statements. MS-SQL Server 2008 allows such functions as data insertion, query generation, update and delete operations, schema creation and modification, and data access control. Once a connection is made between the MS-SQL server and the middleware application, you can begin to work with the database to create tables, populate them with data, run SQL statements, and generate query reports. The DBMS was therefore adopted because of its robustness, rich features and its support for ODBC – Open Database Connectivity. Open Database Connectivity (ODBC) is a technology that programs use to access a wide range of databases (or data sources). For example, ODBC can be used to import data from a database into a Microsoft Excel spreadsheet. This is achieved once your computer has been installed with the correct ODBC driver and data source. For custom programs, software developers use the ODBC Applications Programming Interface (API) to access data sources. The ODBC APIs support both the two tier and three tier processing model for databases. As a user command is delivered to the data source, the result of the statements is automatically sent to the user. The data source may be located on another machine to which the user is connected via a network. In all, we decided to adopt MS-SQL server in this design because it is a fully transactional and secure database server that also supports the SQL technology.

CHAPTER FIVE
SYSTEM DOCUMENTATION AND IMPLEMENTATION

5.1. Introduction

In this section we present a documentation of the logical design for the new system to enable future maintenance and ease of operation. This will include a vivid description of its operational procedures and processes. We will also describe the implementation requirements of the system. This will include all software requirements, hardware needs, and operating systems required for a complete installation of the web-based software application. Detailed implementation arrangements such as electrical installations, communication interfaces and change-over procedures will also be highlighted.

5.2. System Documentation

System documentation could be likened to the product manual that produces details of the processes, operations, and problem solution mechanism of the system to users. This is usually printed out and distributed to system users to enable different categories of users or operators understand the correct way to use the system.

As earlier stated, the APEM software was developed using VB.NET programming language, ASP.NET, and MS-SQL server. The program source codes are contained in Appendix IV of this report.

5.2.1 Site Preparation & Installation Procedure

Users of this system should be given access to a computer desktop or laptop installed with the necessary software and connected to the internet. The users should include all university Heads of Units, Academic Programme Coordinators, Course Lecturers, Course Representatives, and all other officers appointed by the university to represent her at various levels. Air-Conditioners should be installed in the different offices before bringing in the computer systems (for optimum performance). The heads of units and all categories of staff and students listed above are expected to be computer literate, though not necessarily a computer specialist, and should be able to surf the web without much technical assistance.

5.2.1.1 Hosting/Deployment

Once the web application is successfully created and tested using the development environment already described, it becomes ready for deployment into the hosting server. For this project, we used the IIS express version 7.5

On this environment, we also need all the programming tools that was used at development stage. These include the IIS express 7.5, MS_SQL server 2008, .NET framework 4.0, compatible internet browser, and windows 7 O/S or later versions.

The process of Hosting is a pre-compilation of the web application in the development environment and then transferring the files to the folder that is meant for web applications on the hosting server.

5.2.2 Running the new APEM Application (Operational Procedure)

On the public internet, system users can do the following:

1. OPEN your web browser.
2. In the address bar, Type in the name of the web application appended to http. Example, Type the following Uniform Resource Locator (URL): http://localhost/nuc_web/
3. This launches the web application beginning with the default homepage
4. Users can navigate through various web pages using the user-friendly graphical user interface (GUI). They can view other pages by clicking with the mouse on navigation buttons and hyperlinks.

5.2.3 Exiting the Application

The user may quit the application at any point by exiting the web browser or clicking on the close(X) button on the right corner of the title bar.

5.3 Program Implementation

This has to do with the orderly scheduling of events and a list of requirements necessary to put the new system to use. Implementation entails the actual installation of the new system after design, and to make it operational. It also involves the smooth transition from the old system to the new system. The purpose is to ensure that the new system achieves the desired objectives. A strict implementation process for the new system is important for the following reasons.

1. To provide management with a comprehensive test plan and the user with the description of the steps necessary to effectively use the new system in addition to all user information requirement.

2. To define all hardware and software requirements for the new system.

3. To provide the methodology for testing the new system.

To deploy our new system, a pilot implementation can be adopted first at the Nnamdi Azikiwe University Awka Computer Science Department. If the performance of the system is deemed satisfactory by all stakeholders, then it can be fully commissioned and implemented in all Nigerian universities after three (3) weeks of the initial test run.

At the implementation stage of this project, the following are taken into consideration:

a. Staff Training
b. Change over procedures available
c. Recommended change over method

5.3.1. Staff Training

Before any staff can use this application, he/she has to be trained for optimum efficiency. He will in turn train others on how best to operating the application.

5.3.1.1. Staff Training Support

A well packaged software training programme will be organized in order to equip the training staff. This is necessary so as to avoid data loss and to avoid invalid data entry. However, documented manuals are made available for better understanding of the entire system processes and procedures.

5.3.2. Change-over Procedures

Various change-over procedures in system implementation abound today. The four most widely used ones are:

a. Direct change over procedure
b. Pilot change over procedure
c. Parallel change over, and
d. Phased change over

Direct changer over

Direct change over is a system implementation appraoch where the organization automatically changes from current system to the new system. This is not always considered

as the best option because the new system may not fully meet up with expectations, and may fail at some point (thereby putting the organization at risk). It may be discovered that some modifications are expedient before an error-free system can be guaranteed.

Parallel change over

This involves running the new system and the old one concurrently to certify that the new system is better, and to avoid inconsistency in managing the system (for a given period of time). This might however entail greater cost on the organization.

Pilot change over

Pilot change over involves the deployment of both the new and the old system concurrently. However, the new system is implemented in parts for some period of time to check the performance before the entire system is finally deployed.

Phased change over

This change over procedure adopts a gradual (phased) implementation of the system in one department at a time. That is, conversion to the new system is carried out in phases.

5.3.3. Recommended Change-Over Procedure

Having considered all the change over procedures available, we recommend the adoption of the phased change over for this system to check its performance in one department/university before final deployment in other universities. Alongside the manual system in use today, a phased implementation can be adopted first in the department of Computer Science, Nnamdi Azikiwe University Awka. If the performance is deemed satisfactory by the NUC, university management and staff, it can be fully commissioned and deployed in all other departments and universities across Nigeria after three (3) weeks of the initial test run.

The effectiveness of the new system is first ascertained in line with the normal operational mode of the institution, and given room for modifications should the need arise.

5.4 System Requirements

Specifying the basic requirements is necessary for the complete installation and effective usage of the software. This will include both software and hardware requirements.

5.4.1 Hardware Requirements

The new APEM system is designed to be implemented on any personal computer, with at least 256 MB RAM, and 20 GB Hard disk. The following minimum hardware requirements are therefore recommended:

i. Pentium iv / 1.5GHz Processor
ii. 256 MB RAM
iii. Free Hard disk space of at least 5GB
iv. Standard Mouse for desktop PC's
v. Super Video Graphics Adapter
vi. UPS
vii. Printer
viii. Local Area Network (LAN) facilities
ix. Internet facility

5.4.2 Software Requirements

The minimum software requirements are stated below:

i. Operating System Window 7 or later versions
ii. Web browser such as Netscape, and Mozilla firefox 3.x
iii. VISUAL STUDIO version 2010
iv. VB.NET code compiler
v. .NET Framework 4.0
vi. MS-SQL server 2008

5.5 System Maintenance

Proper maintenance of the system is very essential for the smooth running of the application. The following practices are considered necessary for the new system.

1. Regular backup of the database
2. Regular scanning of hard disk and other storage devices for virus.
3. Regular upgrade and updating of the system software.
4. Servicing of the computer Hardware and Network as at when due.
5. Proper use of the system. This involves booting and shutting down the system in the right manner to prevent hard disk crash and "data corruption".

5.5.1 Continuous Improvement/Maintenance

The system should be continuously improved upon to achieve new objectives and user requirements. It basically deals with the necessary changes in a system. Enhancement is needed so that the system can meet both medium and long term improvement needs and to define new processes or changes in the processes. The following highlights the need to periodically maintain the entire information processing system.

i. To ensure smooth running of the system.
ii. To efficiently trace user logins (which is not a free-for-all access)
iii. To enhance the security mechanism in order to protect hackers from gaining access to information
iv. To check the efficiency and efficacy of the help menu

Maintenance should be a continuous activity in order to ensure that the system is working properly. Updates could be undertaken and new program modules could be added based on current state of the art technology.

5.6 Commissioning

Commissioning is carried out on the entire information processing system in order to highlight the advantages of the system to the entire university community and to the Nigerian state in terms of effective and academic programme evaluation.

CHAPTER SIX
PROGRAM TESTING AND EVALUATION

6.1. Introduction

The purpose of this section is to exercise, test and evaluate the performance of the newly developed APEM application. Tests are run to ensure that all sub-systems and program classes operate effectively in their expected user environments. This will include a test plan, test data, actual versus expected test results, and a performance evaluation.

6.2 Evaluation Criteria

The application will be deemed to be operating effectively if:

a. Successful user registration is carried out at all levels and by all categories of users, and the Accrediting Agency responding by assigning unique userID and password to each of them. Users should include only the following: NUC Admin officers, Academic programme coordinators, heads of departments, course lecturers, and course representatives.

b. Privileged access to different sections of the web application is granted to various categories of users after proper authentication test is passed.

c. Successful academic programme ratings are carried out by various Course Representatives, Course Lecturers, and Heads of units on a semester by semester basis and sent successfully to the Accrediting Agency's database for processing, and seen to be viewable on the database.

d. Accrediting Agency can carry out proper user management of record update, record deletion, granting of access, record editing, and others.

e. Rating Reports are successfully delivered by the accrediting agency with regards to academic programme performance per academic session.

f. Accrediting Agency can successfully verify performance status of all academic programmes.

g. Performance reports are viewable by all stakeholders

h. The application displays information successfully about Directory of Colleges, and their current accreditation status.

i. The application displays “About the Site” information successfully.

6.3 Performance Evaluation of program modules

The APEM application was activated following the procedures listed in section 5.2.2 of this thesis report. The program opened up with the Home Page of the application, and the following options presented to the user: Registration, rating and evaluation, directory of colleges, and About the site information.

This result is displayed in figure 6.1 below:

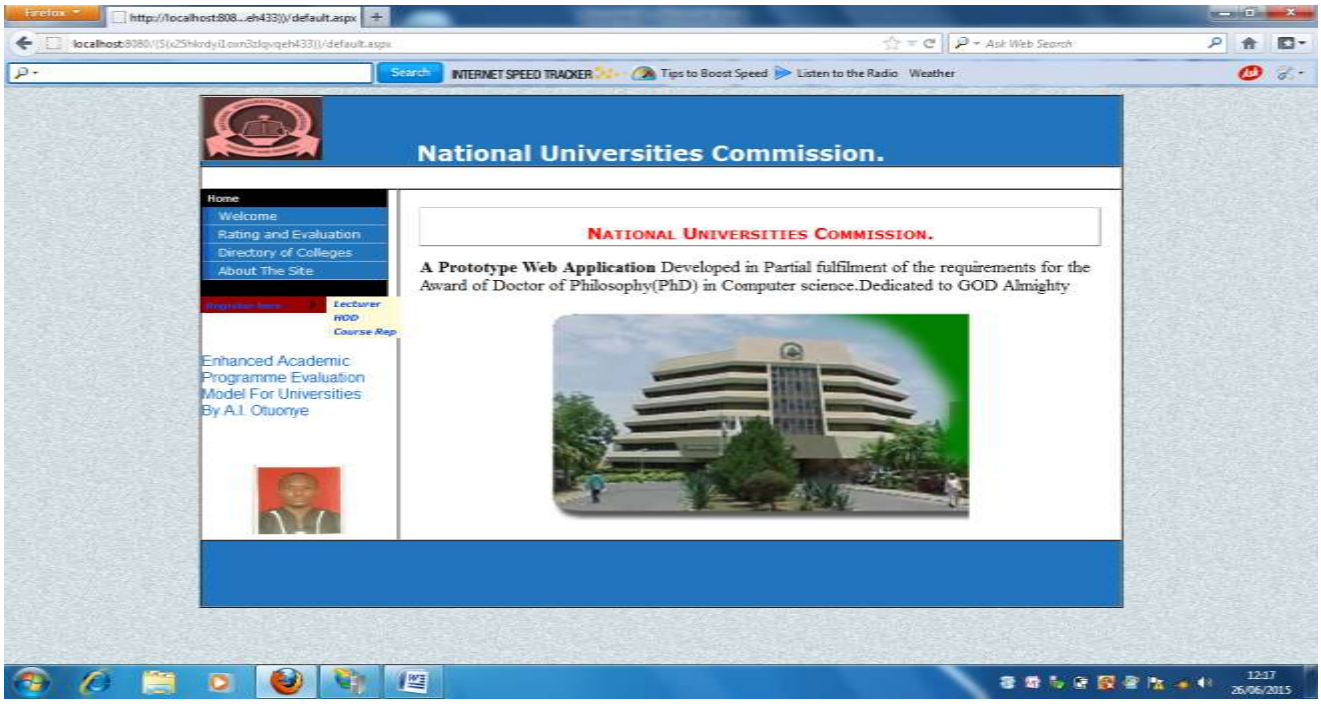


Fig. 6.1 Home Page screen test.

Next, a test of user login is carried out. An authentication form was displayed and to test the authentication module, the Administrator entered the following user name and password:

User name: nuc-admin

Password: pass

This result is displayed in the figure 6.1 below:

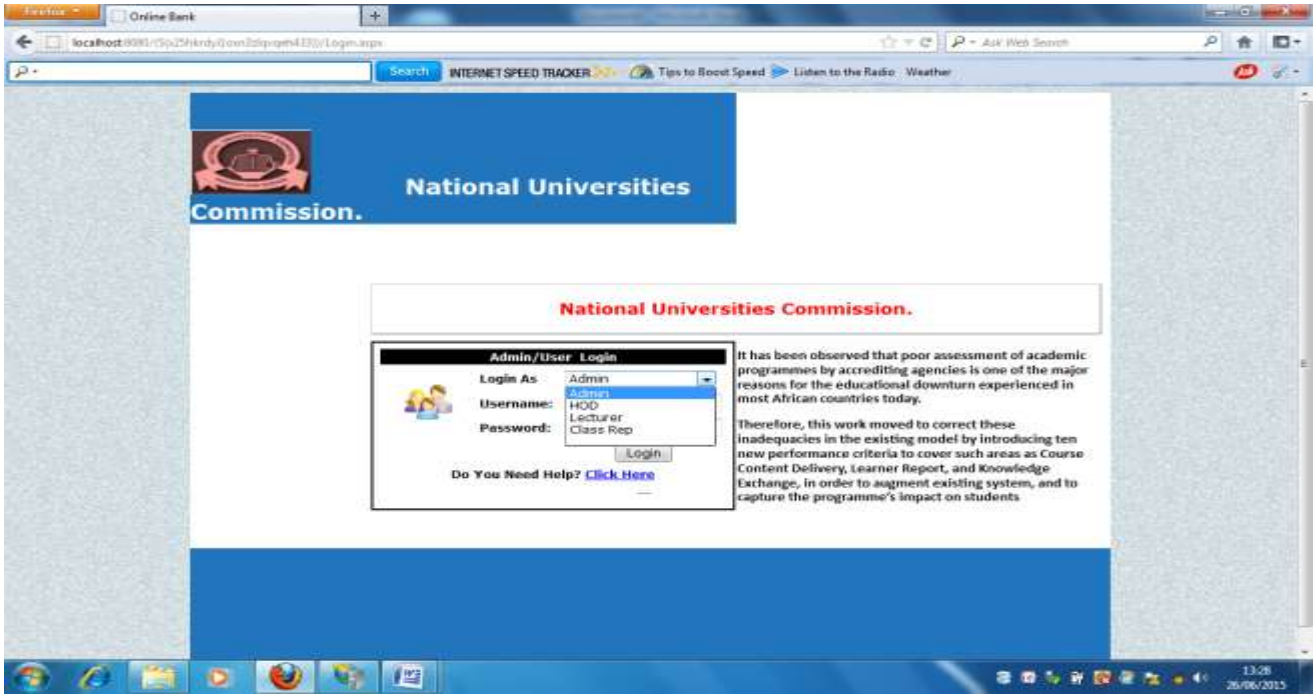


Fig. 6.2 Authentication screen test.

Access was granted him as this was the supposed user name and password for the NUC Admin officer. Again the user deliberately entered a wrong password and access was denied him. Other system users were also allowed to login in like manner. They include HOD of Information Management Technology department, Federal University of Technology, Owerri, a course lecturer in the department of Information Management Technology, FUTO, and a course representative, in the same department. Access was granted to each of these users when correct username and password was supplied. Thus, this test was completed successfully.

Next the User Management module was tested when the NUC-Admin was logged on. He carried out a successful update of some university staff such as editing and deleting of various records. The changes in the users' profile were successfully submitted to the database. Thus, the connection link was ascertained and the workability of the database verified. Also, from this page, unique login IDs and passwords were successfully assigned to various categories of users to enable their access to the system. The result is displayed in figure 6.3 below:

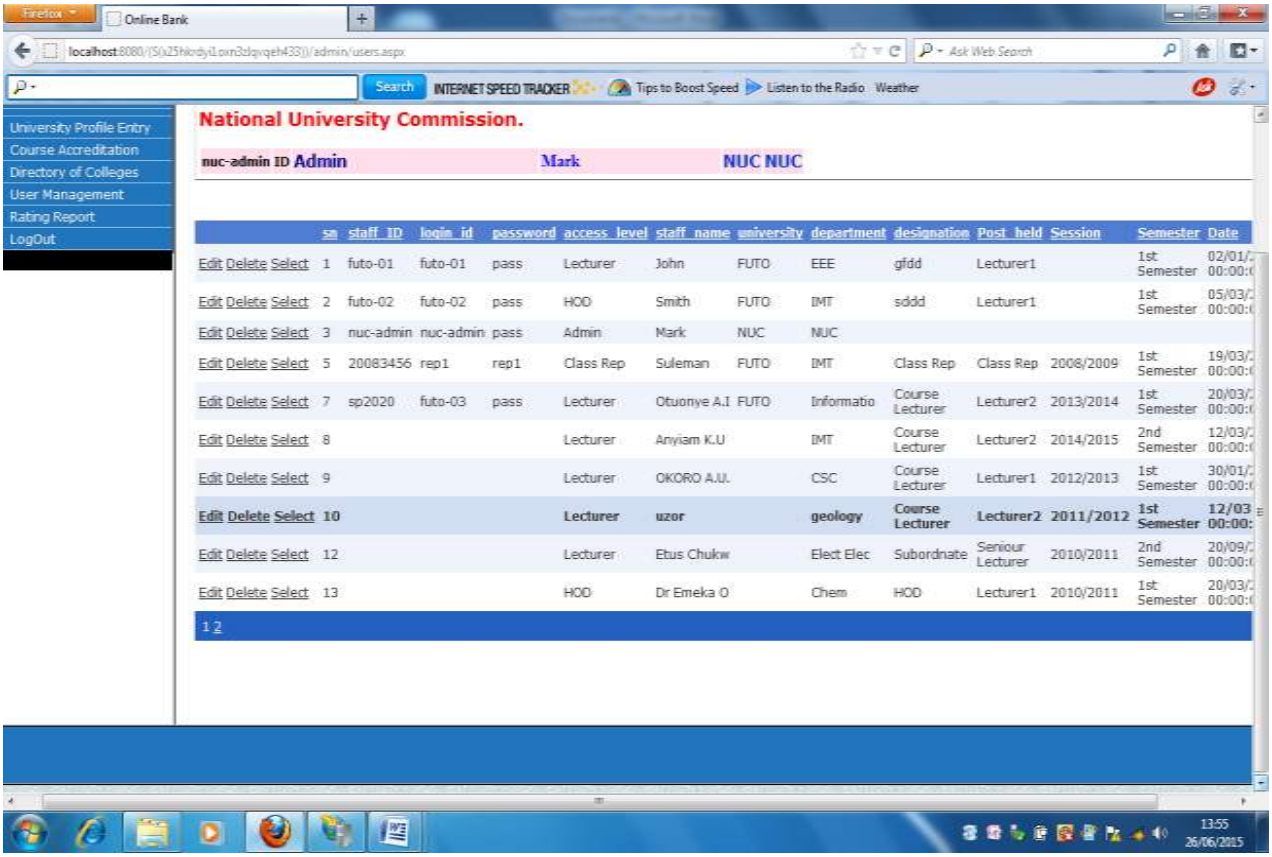


Fig. 6.3 User Management screen test.

Other modules of the program were equally tested to verify their workability. Example, rating and Evaluation module was tested using carefully prepared test data. A HOD at the Federal University of Technology Owerri was allowed to carry out her rating. The result was successfully sent to the database for processing and final verification. Some of the information is displayed in figure 6.4 below:

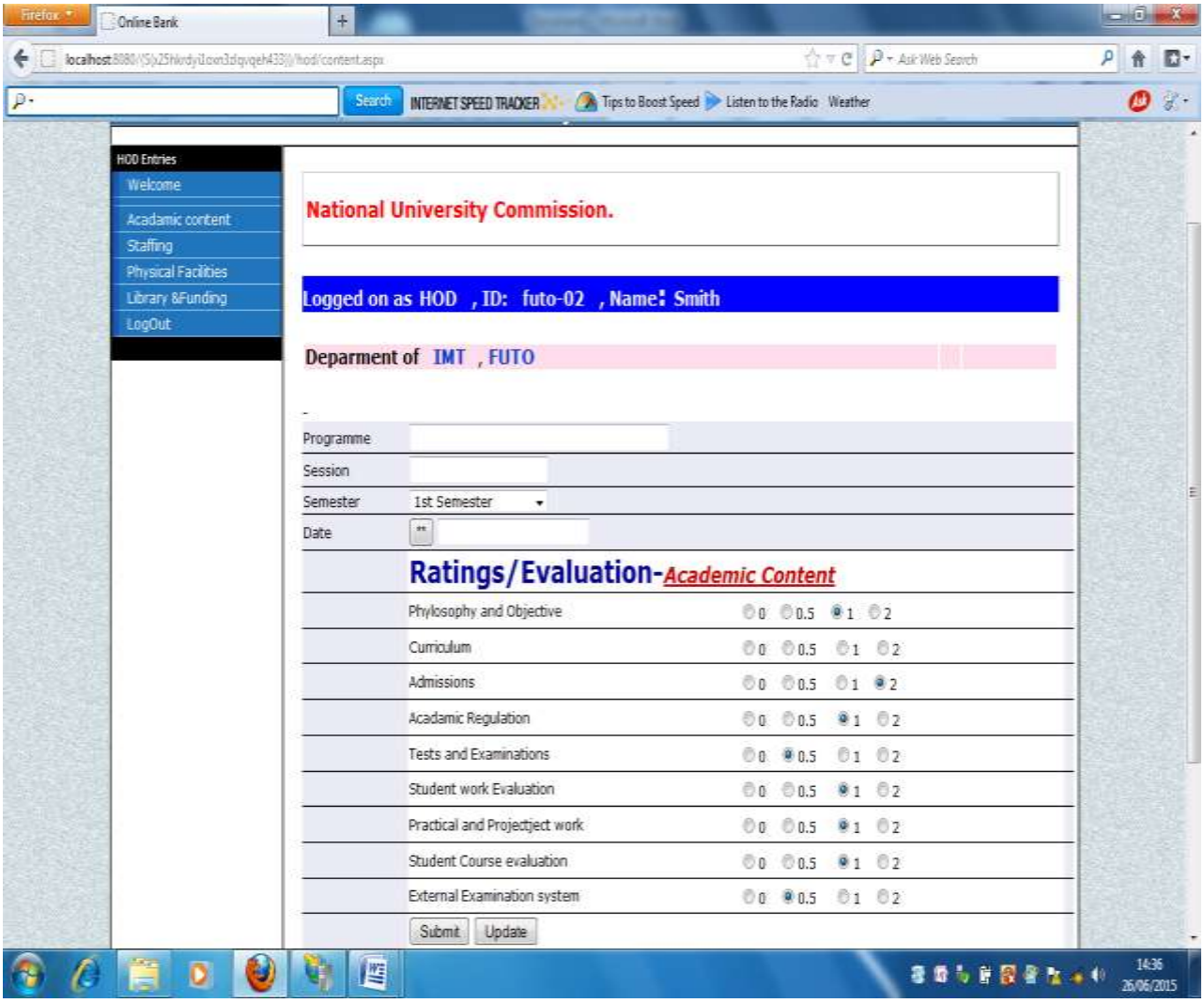
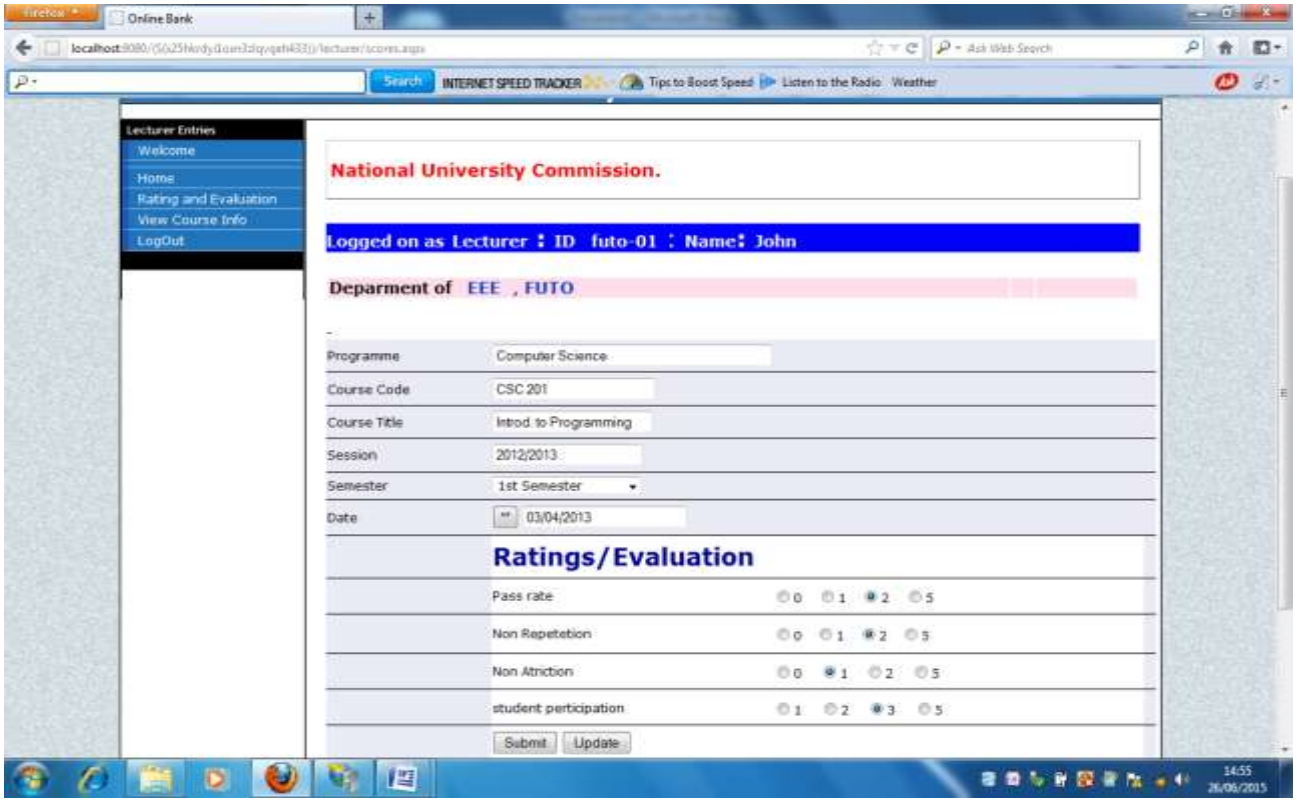


Fig. 6.4 Rating and Evaluation by HOD screen test.

Other users equally carried out their ratings successfully and results were submitted to the central database. The following figure also show some of these activities:



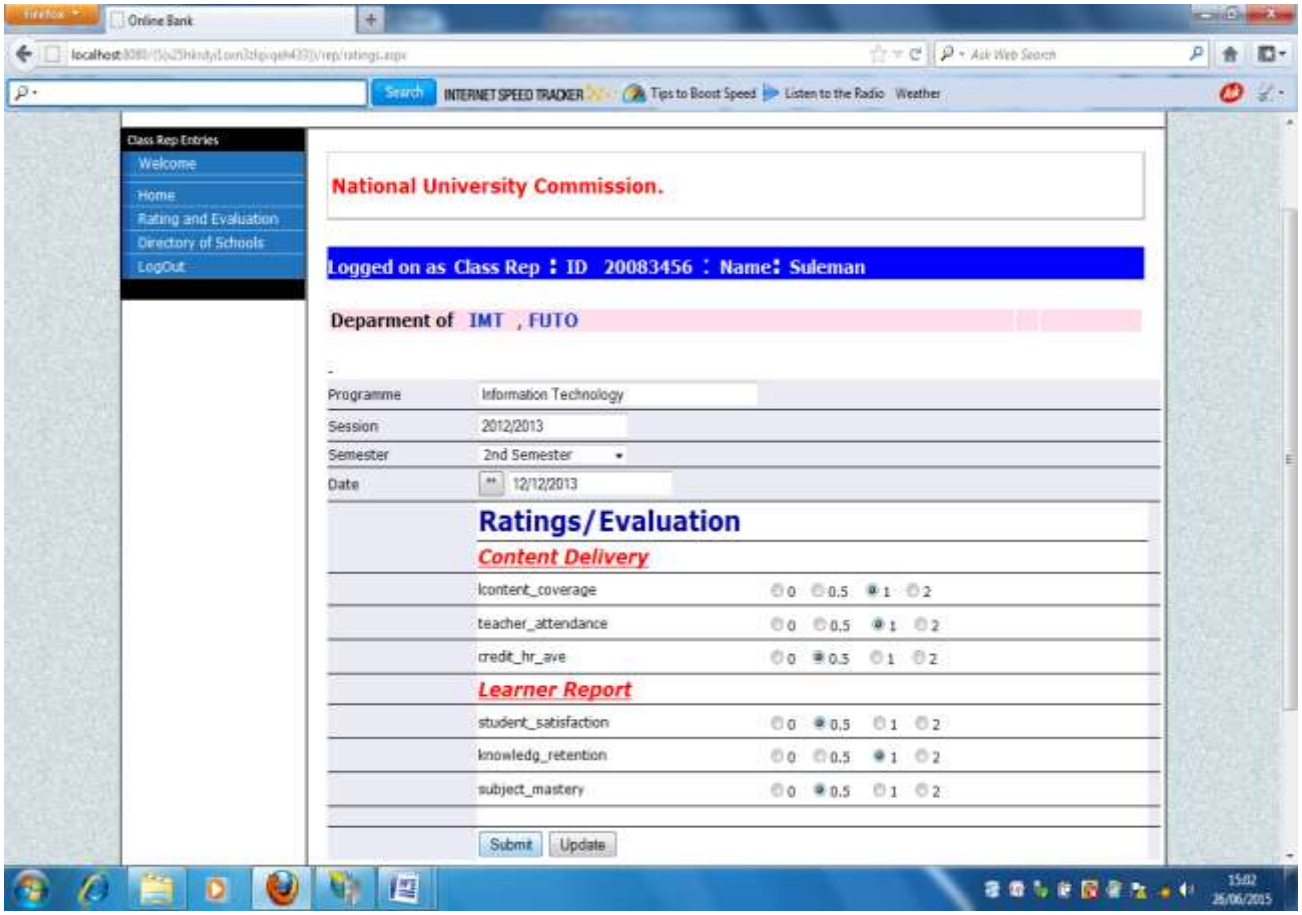


Fig. 6.5 Rating and Evaluation by Course Lecturer and Course Representative screen test

Based on the ratings so far gathered and based on the data entries carried out, a test of the Report Generation module was carried our to verify its workability and efficiency. A comprehensive report was successfully generated by the system. The result of this test is displayed in figure 6.6:

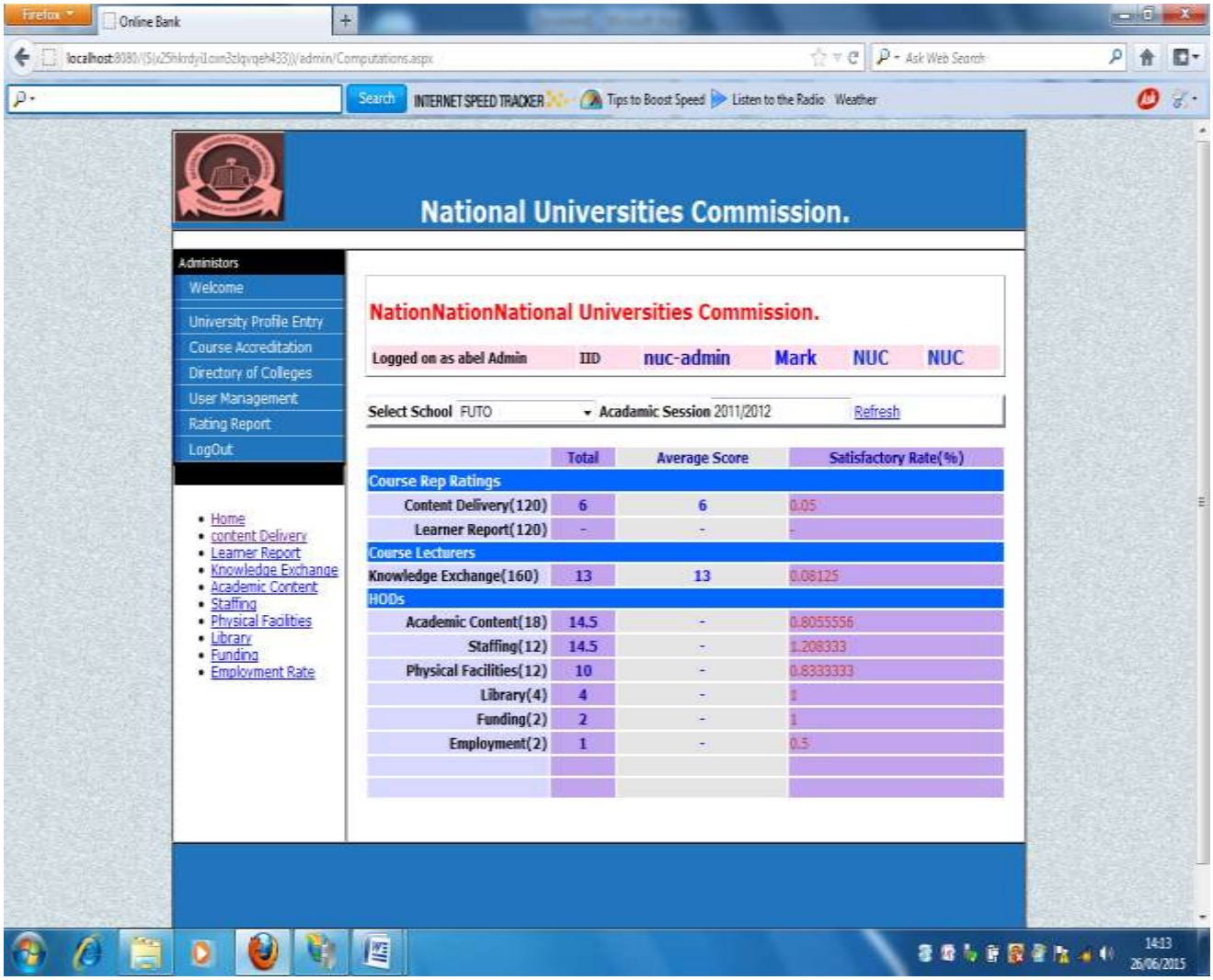


Fig. 6.6 Report Generation screen test

Other tests were carried out to confirm the efficiency of the entire system. Most of the results are displayed in Appendix V of this thesis report.

6.4. Actual versus Expected Test Results

The actual result of the system test matched the expected result. For example, it was expected that no user should be able to login or given any of the provilaged access except with the correct USER NAME and PASSWORD. This was the case when the system was tested.

Successful academic programme ratings were carried out by privileged officials and their verification carried out according to expected result.

Other forms of data entry and verification were tested and the actual result obtained from the system was in accordance with expected results.

6.5. Evaluation of the New APEM System

The system met the key objectives outlined under “Objectives of the Study” in our chapter one. A functional Academic Programme Evaluation Model (APEM) has been built for Nigerian Universities, capable of providing needed and remote information to Accrediting Agencies on a regular basis for proper programme evaluation. Nigerian citizens can now expect improvement in university education.

6.6. Comparison between Current and Proposed System

At the deployment of our new APEM system, a second survey was conducted using the questionnaire approach to verify its level of effectiveness when compared with the old system of programme evaluation. The responses gathered were subjected to statistical analysis, which also identified all factors affecting effectiveness level in the new system. It was clear from the result of the survey that the new system improves significantly on the old by well over 90%. There is noticeable improvement with regards to effective university administration and staff control.

CHAPTER SEVEN
SUMMARY, CONCLUSION, AND RECOMMENDATIONS

7.1 Summary

In this work, a design of the new Academic Programme Evaluation Model (APEM) was carried out in order to enhance the existing framework for university programme performance management. This design was preceded by a careful empirical study that investigated the level of ineffectiveness of existing academic programme assessment framework used in assessing programme performance in Nigerian universities. The study revealed that the framework is inadequate and does not give enough consideration on the impact of academic programme on the students (who are the major "customers" of the organization) in determining quality of academic programmes or their performance level. The study also revealed that current evaluation framework could not give an accurate assessment of programme performance.

We further sampled the contributions of various authors and carefully reviewed previous researches and findings on the subject matter. From our review, was clear that though various accrediting agencies have done well in ensuring that the quality of our university academic programmes are improved upon, the performance of these programmes still remain poor in terms of their impact on students. Our universities have continued to produce graduates who lack the requisite knowledge and skill to favourably compete with their international counterparts in spite of government's efforts in infrastructural and staff development. It became evidently clear that the evaluation framework is grossly inadequate and an enhancement is necessary.

Our new APEM system also addressed the concerns raised by Martha and Kathryn (2001), and Basma and Paula (2008), which suggested a strong emphasis on the learning, development and growth of students, and insist that academic programme assessment focuses on the evaluation of student learning and experience to determine whether they have acquired the skills, knowledge, and competencies associated with their programme of study. In the design therefore, we established new performance criteria based on international best practices and integrated them into the existing system, unified for thorough and more

comprehensive performance assessment. Various tools were used in the design, including programming languages, database management systems and web languages.

7.2 Conclusion

The Enhanced Academic Programme Evaluation Model developed in this study aimed at addressing the inadequacies of the existing framework used in our universities. Data extracted from the survey conducted were used in drawing useful research conclusions. The literature review carried out on the work of other researchers also threw more light in this area. The research provoked a great need for enhancement to the existing framework which we undertook in order to improve the standard of education in Nigeria.

7.3. Contributions to Knowledge

We made the following contributions to knowledge:

1. An empirical report showing that majority of our academics clamour for improvement in evaluation framework.
2. Development of an enhanced programme evaluation model that augments existing framework with ten new performance criteria that captured programme's overall impact on students.
3. Development of new mathematical models that provided ongoing and cumulative programme assessment in line with international best practices.
4. Introduction of new and automated approach to data capture involving the participation of all faculty, staff, and students, and acquiring assessment information using a systematic and open method.
5. A novel web application that ensures periodic programme performance trend analysis.

7.4 Recommendations

This study, being a pioneering effort to improve evaluation of university academic programmes will stimulate further research interests towards developing alternative methodologies to enhance the system.

Having introduced new mathematical models in this study, more researchers can make further improvement in their implementation.

It is equally recommended that other Software Engineers be encouraged to evaluate the architectural design of this work for the purpose of improving it and adding new modules which may have been omitted for constraints of finance and time, and to initiate its pragmatic implementation.

7.5 Areas of Further Work

There is always the tendency to resist change for at turn-around to the persisting culture in any environment. Some corrupt officials and indolent staff may want to continue unditected while some good ones will need encouragement through a good reward system. Based on this, it is our candid view that future researchers take up the following areas for further research:

d. Academic programme evaluation and implementation strategies
e. University staff appraisal and reward systems
f. Implementation framework for academic programme evaluation
g. ICT application to university administration and staff control

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APPENDIX I

Summary of Scores in NUC/APRF form

	Maximum	Actual
1.0 ACADEMIC CONTENT		
1.1 Philosophy and objectives	2	
1.2 Curriculum	3	
1.3 Admissions	3	
1.4 Academic Regulations	2	
1.5 Tests and examination	3	
1.6 Evaluation of students' work	3	
1.7 Practical/project work	3	
1.8 Student course evaluation	2	
1.9 External examination system	2	
	23	
2.0 STAFFING		
2.1 Teaching Staff		
2.1.1 Staff/student ratio	10	
2.1.2 Staff mix by rank	6	
2.1.3 Qualifications	3	
2.1.4 Competence	3	
2.2 Administration	5	
2.3 Non-Teaching Staff	3	
2.4 Staff development	2	
	32	
3.0 PHYSICAL FACILITIES		
3.1 Laboratories etc		
3.1.1 Space	5	
3.1.2 Equipment	5	
3.2 Classrooms		
3.2.1 Space	4	
3.2.2 Equipment	3	
3.3 Office Accommodation	5	
3.4 Safety and Environment	3	
	25	
4.0 FUNDING	5	
5.0 LIBRARY		
5.1 Holdings	8	
5.2 Currency	4	
6.0 EMPLOYER'S RATING	3	
TOTAL SCORE	100	

APPENDIX II

QUESTIONNAIRE EVALUATING QUALITY OF ACADEMIC PROGRAMME EVALUATION FRAMEWORK IN NIGERIAN UNIVERSITIES

Dear Respondent,

I am a post-graduate student in the department of Computer Science, Nnamdi Azikiwe University, Awka, and I am carrying out a survey to enable me complete my research work.

The attached questionnaire has been prepared for the purpose of evaluating the quality of Academic Programme Evaluation Framework currently used in determining programme performance. Please, carefully complete the questionnaire using your own university as a reference point. We assure you that your responses and the findings from this study will be used strictly for academic purpose.

Thanks for your anticipated cooperation.

Yours sincerely,

Otuonye, Anthony I.

Questionnaire

(To be completed by UNIVERSITY LECTURERS only)

SECTION A: Personal Data of Respondent

INSTRUCTION: Please fill the blank spaces provided and tick (✓) in the appropriate boxes provided to indicate your answer.

1. Which category does your university belong to?

Federal ☐ State ☐ Private ☐

2. Which part of Nigeria is your university located?

South East ☐ South west ☐ South south ☐

North East ☐ North west ☐ North South ☐

3. Your gender Male ☐ Female ☐

4. Your age bracket

18 to 25 years ☐ 26 to 33 years ☐

34 to 41 years ☐ 42 to 49 years ☐

50 to 57 years ☐ 58 years and above ☐

5. Your Highest academic qualification: HND/B.Sc/BA/BED/ & equivalent ☐

M.Sc/MA/MED/ & equivalent ☐

PhD & equivalent ☐

6. Staff Designation Assistant Lecturer ☐ Lecturer II ☐

Lecturer I ☐ Senior lecturer ☐

Reader ☐ Professor ☐

7. Years of experience on the job: 1 – 5 yrs ☐ 6 – 10 yrs ☐ 11 – 15 yrs ☐

16 – 20 yrs ☐ 21 – 25 yrs ☐ 26 – 30yrs ☐

31 yrs & above ☐

SECTION B: Determining Quality of Programme Evaluation Framework

INSTRUCTION: Tick (✓) in the appropriate column provided to indicate your degree of agreement, where: 5 = Strongly agree, 4 = Agree, 3 = Undecided, 2 = Disagree, 1 = Strongly disagree.

i. COURSE CONTENT (curriculum)

S/N	STATEMENT	RESPONSES				
		5	4	3	2	1
1.	Universities have their monopolies in the creation of content and can change contents whenever they deem necessary.					
2.	Current assessment framework places more emphasis on course content rather than its delivery and actual transfer of knowledge.					
3.	There is no official platform for the sharing of teaching materials among lecturers from various universities, and there is poor collaboration among lecturers.					
4.	Emerging global knowledge economy encourages mass participation and democratization of production.					
5.	The academic content for programmes in my department does not cover the programme's philosophy and objectives.					
6.	The curriculum we use is not rich and does not truly promote qualitative university training for the production of high quality and skilled graduates.					
7.	With our academic content, our graduates cannot effectively compete with graduates from other well-recognized universities abroad.					
8.	Experienced academic staff are not always invited from other universities to vet question papers, marking scheme, and final year student projects.					
9.	The items in the NUC evaluation forms are not enough for a thorough evaluation of university performance in terms of knowledge transfer.					
10.	The scores given by the NUC and other professional bodies are not true reflections of the quality of our academic programme, and is not a true record of our performance and goal attainment.					

ii. STAFFING

S/N	STATEMENT	RESPONSES				
		5	4	3	2	1
1.	In my unit, we do not have enough qualified teaching, technical, and administrative staff.					
2.	The ratio of teaching staff to students is far below the minimum academic standard, which is 1:15 (Staff: Students).					
3.	Staff mix by rank does not meet the minimum NUC requirement and all teaching staff in my unit are not appropriately skilled.					
4.	The number of Professors/Associate Professors in my unit is not up to twenty.					
5.	The number of Senior Lecturers in my unit not is up to thirty five.					
6.	The number of Lecturers from the category of Lecturer 1 and below is not up to forty five.					
7.	There are not enough programmes in place for staff development in my institution and our teaching staff are not frequently given access to training opportunities, especially, abroad.					
8.	Programme assessment framework does not give much attention to teacher performance in the classroom.					
9.	Teaching staff in my department are not always given courses to teach based on their areas of specialization.					
10.	Our lecturers do not undergo training and re-training through orientations, seminars, on-line workshops, and conferences.					

iii. PHYSICAL FACILITIES

S/N	STATEMENT	RESPONSES				
		5	4	3	2	1
1.	We do not have enough classrooms and lecturer theaters for all our lecturers.					
2.	All our staff are not well-accommodated in well-equipped and spacious offices.					
3.	Our Professors' offices are not always up to 18.50m^2 in space.					
4.	The office of my head of Department is not up to 18.50m^2 in space.					
5.	Tutorials and teaching classrooms are not up to 13.50m^2 in space.					
6.	All other teaching staff are not always accommodated in offices that is up to 7.00m^2 in space.					
7.	We do not have a good Science Staff Research Laboratory that is equal to 16.50m^2.					
8.	We do not have a well-equipped laboratory space of that is equal to 7.50m^2 for students' practical lessons.					
9.	Our secretaries are not all accommodated in office spaces that is up to 7.00m^2 in space.					
10.	Our technical staff are not well accommodations in offices equal to 7.00m^2 in space.					

iv. LIBRARY

S/N	STATEMENT	RESPONSES				
		5	4	3	2	1
1.	There are no quality library facilities enough for all our students.					
2.	Our departmental library is not well-stocked with books, journals and periodicals.					
3.	All our students and lecturers do not always have unhindered access to library resources.					
4.	There are no good library management systems in place that guarantees efficient resource allocation and management.					
5.	Only a small percentage of university fund allocation is spent on books and periodicals.					
6.	Generally, students seldom make use of the library.					
7.	There are new ways of imparting knowledge to students occasioned by a rise in new digital delivery channels.					
8.	Our library is not equipped with internet facilities.					
9.	We do not have an e-library section.					
10.	Library assessment did not receive up to 12% during the last NUC assessment exercise of our programme.					

V. FUNDING/EMPLOYERS' RATING

S/N	STATEMENT	RESPONSES				
		5	4	3	2	1
1.	The internally-generated revenue for my university is very low.					
2.	Government fund allocation to my university is also very low.					
3.	Most businesses and private entrepreneurs are not interested in the funding of our university.					
4.	We do not receive good research grant from the government and NGOs.					
5.	We receive frequent update and feedbacks from the employers of our graduates.					
6.	Employers' ratings of our graduates prove that the employers are not happy with the performance of our products.					
7.	A good number of our graduates are not employed.					
8.	A good number of our graduates need additional training to become employable.					
9.	Employers spend much money training and re-training our graduates in order to employ them.					
10.	Most of our graduates are involved in petty trading business and most of them roam the streets from year to year.					

VI. INEFFECTIVENESS LEVEL OF CURRENT PROGRAMME ASSESSMENT FRAMEWORK

S/N	STATEMENT	RESPONSES				
		5	4	3	2	1
1.	Current academic programme assessment framework is effective and adequate, and gives accurate measure of programme quality.					
2.	The framework is learner-centered and considers Teacher Performance in the classroom learning environment.					
3.	The evaluation criteria for assessment are enough and there is no need for additional input variables in the system.					
4.	Our graduates are highly rated in their places of work and the high ratings scored by our academic programmes during Programme Accreditation exercises are justified.					
5.	Our graduates will not need any extra education and re-training before they can compete with their peers from other universities.					
6.	There is no need to include such performance criteria such as Content Delivery, Learner Report, and Knowledge Exchange in the assessment.					
7.	Ineffective assessment of academic programmes by the NUC does not in any way contribute to poor quality education in Nigeria.					
8.	NUC's rating of academic programmes is a true reflection of the university's performance.					
9.	The present system of assessment is working effectively and does not need any form of re-structuring.					
10.	Current assessment framework has a good feedback mechanism to constantly inform departments of their performance level and offer ways of improvement.					

SECTION C: Need for Possible Structural Adjustment in Evaluation Framework

IF I WERE ASKED TO ADJUST THE CURRENT UNIVERSITY PROGRAMME EVALUATION FRAMEWORK, I WILL:

1. Add more items to the NUC's Accreditation Panel Report Form (NUC/APRF) for more accurate evaluation of university academic programmes.

   Yes ☐ No ☐

2. Consider the inclusion of "Content delivery", "Learner Report", and "knowledge Exchange" as important performance indicators in evaluating academic programmes.

   Yes ☐ No ☐

3. Make Performance Appraisal data readily available to the university management and the NUC on a regular basis.

Yes ☐ No ☐

4. Design a system that measures the overall impact of programme quality on the students' education. Yes ☐ No ☐

5. Introduce a system that insists on the creation of Student Learning Outcomes and measures the extent of their accomplishment. Yes ☐ No ☐

6. Focus on a system that encourages students to discover knowledge for themselves and engage in critical thinking instead of memorizing the professor's store of information.

Yes ☐ No ☐

7. Insist on an assessment system that checks whether students are actually learning and rates the level of their assimilation of approved course contents.

Yes ☐ No ☐

8. Insist on an assessment system that rates quality of learning and encourages teaching and learning through the use of e-learning technology. Yes ☐ No ☐

9. Create a systematic assessment model that makes information gathering and assessment a daily and ongoing process.

Yes ☐ No ☐

10. Insist on an assessment framework that emphasizes on the impact of the academic programme on the growth and development of students.

Yes ☐ No ☐

APPENDIX III

COLLATED DATA FROM QUESTIONNAIRE DISTRIBUTION

PART A: PERSONAL DATA

VARIABLE	CATEGORY	FREQUENCY
University	Federal University	105
	State University	210
	Private University	65
	Total	**380**
Location Of University	South East	65
	South West	90
	South South	62
	North East	46
	North West	33
	North South	84
	Total	**380**
Respondent's gender	Male	230
	Female	150
	Total	**380**
Age	18 – 25	22
	26 – 33	70
	34 – 41	105
	42 – 49	95
	50 –57	53
	58 & above	35
	Total	**380**
Highest Academic Qualification	HND/B.Sc/BA/Equiv.	15
	M.Sc/M.A/MED/Equiv.	215
	PhD & Equiv.	150
	Total	**380**
Designation of Staff	Assistant Lecturer	47
	Lecturer II	80
	Lecturer I	98
	Senior Lecturer	72
	Reader	53
	Professor	30
	Total	**380**
Years of Experience on the job	1 -5 years	50
	6 – 10 years	88
	11 – 15 years	60
	16 – 20 years	62
	21 – 25 years	56
	26 – 30 years	52
	31 years & above	12
	Total	**380**

PART B: DETERMINING INEFFECTIVENESS LEVEL OF CURRENT PROGRAMME EVALUATION FRAMEWORK

Respondent	X1 (Course Content)	X2 (Staffing)	X3 (Physical facilities)	X4 (Funding/employer's rating)	X5 (Library)	Y (Effectiveness Level)
1.	43	45	47	40	48	12
2.	38	42	43	45	39	15
3.	40	47	42	45	42	20
4.	50	47	48	29	45	15
5.	47	49	45	46	30	12
6.	48	47	42	37	40	15
7.	48	47	44	44	46	15
8.	46	43	38	47	40	10
9.	49	45	43	36	45	20
10.	46	45	35	42	46	18
11.	38	39	37	33	31	18
12.	47	46	45	32	35	12
13.	49	44	41	38	34	20
14.	46	40	48	32	31	16
15.	44	38	40	40	25	10
16.	46	35	42	38	20	11
17.	40	40	41	37	26	14
18.	49	46	40	33	35	20
19.	44	44	45	39	37	22
20.	48	42	37	37	34	13
21.	42	23	39	30	31	18
22.	48	40	40	40	30	15
23.	49	40	32	48	27	15
24.	50	40	34	45	20	16
25.	44	42	36	42	25	13
26.	40	41	33	42	28	14
27.	50	42	35	44	34	15
28.	40	46	40	41	28	11
29.	48	44	40	40	25	10
30.	50	40	45	30	50	18
31.	46	40	41	45	50	12
32.	48	42	42	46	45	15
33.	43	43	30	42	44	10
34.	46	41	38	41	39	18
35.	45	41	40	33	38	12
36.	48	43	44	24	40	13
37.	49	30	45	42	45	12
38.	40	32	48	36	48	12
39.	49	34	40	34	50	12
40.	45	35	46	35	20	19
41.	46	33	40	30	34	20
42.	45	36	33	30	44	21
43.	45	38	38	37	46	12
44.	40	50	45	36	40	13

45.	47	48	47	46	38	14
46.	43	39	48	49	50	22
47.	42	42	48	46	50	12
48.	48	45	46	38	34	15
49.	45	30	49	47	45	10
50.	42	40	46	49	46	10
51.	44	46	38	46	48	15
52.	38	40	47	44	49	18
53.	43	45	49	46	32	18
54.	35	46	46	40	20	18
55.	37	31	44	49	45	20
56.	45	35	46	44	48	12
57.	41	34	40	48	45	10
58.	48	31	49	42	47	12
59.	40	25	44	48	50	14
60.	42	20	48	49	28	15
61.	41	26	42	50	26	15
62.	40	35	48	44	45	16
63.	45	37	49	40	44	16
64.	37	34	50	50	40	12
65.	39	31	44	40	41	10
66.	40	30	40	48	46	21
67.	32	27	50	50	47	11
68.	34	20	40	46	44	13
69.	36	25	48	48	45	15
70.	33	28	50	43	40	18
71.	35	34	46	46	50	18
72.	40	28	48	45	40	10
73.	40	25	43	48	50	12
74.	45	50	46	49	41	18
75.	41	50	45	40	42	13
76.	42	45	48	49	45	12
77.	30	44	49	45	40	14
78.	38	39	40	46	45	10
79.	40	38	49	45	41	14
80.	44	40	45	45	40	15
81.	45	45	46	40	44	15
82.	48	48	45	47	43	18
83.	40	50	45	43	45	18
84.	46	20	40	42	48	18
85.	40	34	39	48	42	18
86.	33	44	40	45	36	12
87.	38	46	42	40	38	12
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90.	50	36	49	34	35	18
91.	49	40	50	20	36	18
92.	48	40	38	45	40	20

93.	50	42	50	40	39	12
94.	40	49	34	40	31	10
95.	50	23	45	40	34	10
96.	46	25	46	34	38	12
97.	45	38	50	36	44	14
98.	49	35	50	34	34	15
99.	45	36	30	38	34	15
100.	46	37	30	49	35	10
101.	44	39	45	34	50	10
102.	40	30	48	38	50	13
103.	48	31	49	44	34	15
104.	45	34	44	50	45	18
105.	30	35	44	50	46	11
106.	36	36	45	43	32	12
107.	39	37	46	45	49	14
108.	50	38	41	48	23	15
109.	40	39	42	45	25	15
110.	50	30	45	46	38	12
111.	40	30	45	41	35	12
112.	45	30	48	42	36	10
113.	47	23	49	43	37	12
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116.	45	40	40	50	31	12
117.	44	41	40	40	34	14
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119.	48	46	43	43	36	17
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121.	50	41	45	46	40	18
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123.	50	40	35	46	41	12
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125.	45	44	39	37	34	18
126.	46	49	45	45	35	12
127.	48	50	30	43	38	10
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137.	45	46	50	32	40	10
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139.	45	44	34	36	50	18
140.	49	41	45	33	34	18

141.	46	40	46	34	35	12
142.	48	47	32	45	42	20
143.	50	40	45	40	47	16
144.	36	50	46	45	43	10
145.	50	34	48	45	42	11
146.	45	35	59	40	48	15
147.	49	45	38	40	45	20
148.	47	46	40	45	42	22
149.	44	47	45	40	44	13
150.	40	45	47	45	38	18
151.	45	44	45	40	43	15
152.	46	40	34	34	35	15
153.	47	40	45	38	37	16
154.	48	43	46	35	45	13
155.	43	45	45	49	41	14
156.	34	44	45	49	48	15
167.	36	45	45	33	40	11
158.	37	46	49	45	42	10
159.	35	400	46	46	41	18
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161	34	45	50	47	45	15
162.	45	45	36	45	37	10
163.	39	45	50	44	39	18
164.	50	45	45	40	40	12
165.	32	45	49	40	32	13
166.	34	46	47	40	34	12
167.	35	40	44	46	36	12
168.	45	40	40	48	33	12
169.	45	43	45	45	35	19
170.	46	33	46	47	40	20
171.	45	35	47	34	40	21
172.	50	36	48	30	45	12
173.	23	50	34	45	41	13
174.	25	34	33	34	42	14
175.	45	33	45	36	30	22
176.	46	45	45	45	38	12
177.	48	45	50	45	40	15
178.	49	50	40	47	44	10
179.	50	40	34	49	45	10
180.	33	34	35	45	48	15
181.	34	35	45	50	40	18
182.	44	45	46	50	46	18
183.	45	46	47	40	40	18
184.	48	47	44	45	33	20
185.	43	44	40	47	38	12
186.	33	40	50	45	45	10
187.	30	50	32	40	30	12
188.	45	32	40	40	30	14

189.	40	34	40	34	34	15
190.	50	35	45	30	27	15
191.	35	45	46	33	50	16
192.	50	47	40	48	31	16
193.	50	43	34	40	25	12
194.	49	42	35	42	20	10
195.	48	48	45	41	26	21
196.	49	45	46	40	35	11
197.	50	42	47	45	37	13
198.	50	44	44	37	34	15
199.	50	38	40	39	31	18
200.	48	43	50	40	30	18
201.	49	35	32	32	27	10
202.	45	37	40	34	20	12
203.	48	45	40	36	25	18
204.	49	41	45	33	28	13
205.	50	48	46	35	34	12
206.	50	40	48	40	28	14
207.	49	42	40	40	25	10
208.	48	41	46	45	50	14
209.	44	40	40	41	50	15
210.	45	45	33	42	45	15
211.	47	37	38	30	44	18
212.	48	39	45	38	39	18
213.	50	40	30	40	38	18
214.	45	32	30	44	40	18
215.	40	34	34	45	45	12
216.	50	36	27	48	48	12
217.	50	33	50	40	50	16
218.	50	35	40	46	20	16
219.	47	40	34	40	34	18
220.	49	40	35	33	44	18
221.	45	45	45	38	46	20
222.	48	41	46	45	40	12
223.	50	42	47	50	30	10
224.	45	30	44	50	36	10
225.	48	38	40	49	40	12
226.	45	40	50	48	40	14
227.	46	44	32	50	42	15
228.	30	45	34	40	49	15
229.	45	48	35	50	23	10
230.	45	40	45	46	25	10
231.	46	46	47	45	38	13
232.	46	40	43	49	35	15
233.	48	33	30	45	36	18
234.	50	38	32	46	37	11
235.	40	45	23	44	39	12
236.	50	30	24	48	33	14

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240.	50	50	33	44	30	12
241.	40	40	40	40	30	10
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245.	45	41	33	42	28	12
246.	47	42	35	44	34	14
247.	49	46	40	41	28	15
248.	45	44	40	40	25	17
249.	43	40	45	30	50	18
250.	45	40	41	45	50	18
251.	46	42	42	46	45	10
252.	48	43	30	42	44	12
253.	44	41	38	41	39	15
254.	45	41	40	33	38	18
255.	46	43	44	24	40	12
256.	48	30	45	42	45	10
257.	49	32	48	36	48	15
258.	50	34	40	34	50	12
259.	50	35	46	35	20	16
260.	50	33	40	30	34	12
261.	43	36	33	30	44	10
262.	44	38	38	37	46	21
263.	45	50	45	36	40	11
264.	50	48	47	46	38	13
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267.	38	45	46	38	34	18
268.	34	30	49	47	45	10
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272.	50	45	49	46	32	12
273.	45	46	46	40	20	14
274.	50	31	44	49	45	10
275.	45	35	46	44	48	14
276.	48	34	40	48	45	15
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278.	48	25	44	48	50	18
279.	45	32	30	44	40	18
280.	46	34	34	45	45	18
281.	47	36	27	48	48	18
282.	48	33	50	40	50	12
283.	48	35	40	46	20	12
284.	50	40	34	40	34	16

285.	50	40	35	33	44	16
286.	45	45	45	38	46	18
287.	46	41	46	45	40	18
288.	50	42	47	50	30	20
289.	48	30	44	50	36	12
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291.	47	35	33	40	35	10
292.	49	45	38	45	37	12
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294.	50	47	50	39	31	15
295.	50	44	50	40	30	15
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297.	49	50	48	34	20	10
298.	44	32	50	36	25	13
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300.	46	35	50	35	34	18
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309.	45	45	40	44	40	12
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317.	49	35	44	45	40	18
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325.	50	38	40	46	25	12
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330.	49	40	45	44	39	12
331.	45	46	47	40	30	10
332.	48	40	43	48	31	20

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335.	45	45	23	36	36	15
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337.	49	30	35	45	45	10
338.	50	34	45	40	23	14
339.	50	48	27	47	34	10
340.	50	45	20	48	30	12
341.	48	42	25	34	45	10
342.	45	42	28	33	34	10
343.	46	44	34	45	36	12
344.	40	41	28	45	45	14
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346.	45	30	50	40	47	17
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349.	45	42	44	45	50	10
350.	46	41	39	46	50	12
351.	40	33	38	47	40	15
352.	50	24	40	44	45	18
353.	50	42	45	40	47	12
354.	44	36	48	50	45	10
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356.	45	35	20	40	40	12
357.	46	30	34	40	34	16
358.	48	30	44	45	30	12
359.	45	37	46	46	33	10
360.	44	36	40	40	48	21
361.	43	46	38	34	40	11
362.	42	49	50	35	42	13
363.	50	46	50	45	41	15
364.	50	38	34	46	40	18
365.	45	47	45	47	45	18
366.	46	49	46	44	37	10
367.	47	46	48	40	39	12
368.	45	44	49	50	40	18
369.	45	46	32	32	32	13
370.	45	40	20	40	34	12
371.	40	30	45	40	36	14
372.	50	40	40	45	33	10
373.	50	34	32	46	35	12
374.	50	35	34	48	40	15
375.	43	45	33	40	40	15
376.	32	43	34	46	45	12
377.	34	45	32	40	41	14
378.	45	30	25	33	42	18
379.	46	32	34	38	30	10
380.	40	20	20	45	38	10

PART C: NEED FOR POSSIBLE STRUCTURAL ADJUSTMENT IN EVALUATION FRAMEWORK

QUESTION	YES	NO	TOTAL
Add more items to the NUC's Accreditation Panel Report Form (NUC/APRF) for more accurate evaluation of university academic programmes.	310	70	380
Consider the inclusion of "Content delivery", "Learner Report", and "knowledge Exchange" as important performance indicators in evaluating academic programmes.	342	38	380
Make Performance Appraisal data readily available to the university management and the NUC on a regular basis.	355	25	380
Design a system that measures the overall impact of programme quality on the students' education.	307	73	380
Introduce a system that insists on the creation of Student Learning Outcomes and measures the extent of their accomplishment.	311	69	380
Focus on a system that encourages students to discover knowledge for themselves and engage in critical thinking instead of memorizing the professor's store of information.	337	43	380
Insist on an assessment system that checks whether students are actually learning and rates the level of their assimilation of approved course contents.	321	59	380
Insist on an assessment system that rates quality of learning and encourages teaching and learning through the use of e-learning technology.	309	71	380
Create a systematic assessment model that makes information gathering and assessment a daily and ongoing process.	328	52	380
Insist on an assessment framework that emphasizes on the impact of the academic programme on the growth and development of students.	378	2	380

APPENDIX IV

PROGRAM SOURCE CODE

Home Page

```
<%@ Page Language="VB" AutoEventWireup="false" CodeFile="Default.aspx.vb"
Inherits="page1" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title></title>
    <style type="text/css">

    th {
      font-family: Verdana, Geneva, Arial, Helvetica, sans-serif;
      font-size: 12px;
}

td {
      font-family: Verdana, Geneva, Arial, Helvetica, sans-serif;
      font-size: 12px;
}

#ddblueblockmenu ul{
      margin: 0;
      padding: 0;
      list-style-type: none;
      font: normal 90% 'Trebuchet MS', 'Lucida Grande', Arial, sans-serif;
}

ul {
      font-family: Verdana, Geneva, Arial, Helvetica, sans-serif;
      font-size: 12px;
      list-style-type: disc;
      list-style-position: outside;
}

li {
      font-family: Verdana, Geneva, Arial, Helvetica, sans-serif;
      font-size: 12px;
}

#ddblueblockmenu li a{
      display: block;
```

```
      padding: 3px 0;
      padding-left: 9px;
      width: 164px; /*185px minus all left/right paddings and margins*/
      text-decoration: none;
      color: white;
      background-color: #2175bc;
      border-bottom: 1px solid #90bade;
      border-left: 7px solid #1958b7;
}



.box1 {
      padding: 3px;
      border-width: thin;
      border-style: solid;
      border-color: #CCCCCC #666666 #666666 #CCCCCC;
}


</style>
</head>
<body>
    <form id="form1" runat="server">



<table width="900" border="1" align="center" cellpadding="0"
cellspacing="0" style="font-weight:normal; background-color:#FFFFFF">

    <th colspan="2" scope="col" style="background-color:#2175bc; text-
align: left;"
        class="style8" valign="bottom">
        <asp:Image ID="Image1" runat="server" Height="75px"
            ImageUrl="~/nuc/NUC logo JPEG file.jpg" Width="118px" />

            &n
bsp;       
        <asp:Label ID="Label1" runat="server" Font-Bold="True" Font-
Size="X-Large"
            ForeColor="White" Text="National Universities
Commission."></asp:Label>
        </th>
  </tr>
  <tr>
    <td colspan="2" class="style5"></td>
  </tr>
  <tr>
<td align="left" valign="top" class="style10" >
<div id="ddblueblockmenu">
  <div class="style4">Home</div>
  <ul>
    <li><a href="main.aspx">Welcome</li>
        </a>
```

```
    <li><a href="Login.aspx"> Rating  and Evaluation </a></li>
    <li><a href="admin/school_list.aspx">Directory of Colleges </a></li>
      <li><a href="abouts.aspx">About The Site</a></li>

  </ul>
  <div class="style4"> </div>
</div>

    <font color="#FF0000"><a href="main.aspx"><asp:Menu
            ID="Menu1" runat="server" StaticSubMenuIndent="10px" Font-
Bold="True"
        Font-Italic="True" RenderingMode="Table" BackColor="#FFFBD6"
        DynamicHorizontalOffset="2" Font-Names="Verdana" Font-Size="0.8em"
        ForeColor="#990000" Height="16px" Width="122px">
            <DynamicHoverStyle BackColor="#990000" ForeColor="White" />
            <DynamicMenuItemStyle HorizontalPadding="5px"
VerticalPadding="2px" />
            <DynamicMenuStyle BackColor="#FFFBD6" />
            <DynamicSelectedStyle BackColor="#FFCC66" />
            <Items>
                <asp:MenuItem Text="Register here" Value="Register here">
                    <asp:MenuItem Text="Lecturer" Value="Lecturer"

NavigateUrl="~/lecturer/staff_profile.aspx"></asp:MenuItem>
                    <asp:MenuItem Text="HOD" Value="HOD"
NavigateUrl="~/hod/staff_profile.aspx"></asp:MenuItem>
                    <asp:MenuItem Text="Course Rep" Value="Course Rep"

NavigateUrl="~/rep/rep_profile.aspx"></asp:MenuItem>
                </asp:MenuItem>
            </Items>
            <StaticHoverStyle BorderStyle="Dotted" BackColor="#990000"
ForeColor="White" />
            <StaticMenuItemStyle HorizontalPadding="5px"
VerticalPadding="2px" />
            <StaticSelectedStyle BackColor="#FFCC66" />
        </asp:Menu>
        </a></font>

            <marquee direction="up" onmouseout="this.start()"
        onmouseover="this.stop()" scrollamount="2"

scrolldelay="20"



        style="font-size: 12px; width: 191px; color: #ffffff; font-family:
Vardana, Arial;
                                                                height:
175px; text-align: left; background-color: white;">
      <SPAN
      style="FONT-SIZE: 12pt; COLOR: #0066cc">Enhanced Academic Programme
Evaluation Model For Universities</SPAN><BR />
```

```
      <SPAN style="FONT-SIZE: 12pt; COLOR: #0066cc">By A.I.
Otuonye</SPAN><BR /></marquee>
      <div align = "center" style="width: 191px; height: 84px">
    <asp:Image ID="Image4" runat="server" Height="80px"
        ImageUrl="~/nuc/passport.jpg" Width="93px" />
        </div>
      </td>
    <td style="padding:20px; text-align: center;" align="left"
          valign="top">
      <div class="box1">

      <h2><font color="#FF0000">National Universities
Commission.</font></h2>

      </div>
       
    <div align="left" class="style9"><strong>A Prototype Web
Application</strong> Developed in Partial fulfilment of the requirements
        for the Award of Doctor of Philosophy(PhD) in Computer
science.Dedicated to GOD Almighty</div>

        <br />
        <asp:Image ID="Image3" runat="server" ImageUrl="~/nuc/NUC
building.jpg" />
      </td>
  </tr>
  <tr>
    <td colspan="2" style="background-color:#2175bc;" class="style7"></td>
  </tr>
</table>
    <meta content="text/html; charset=iso-8859-1" http-equiv="Content-
Type" />
    <title>Online Bankitle>Online Bank</title>
    <link href="css/menu.css" rel="stylesheet" type="text/css" />
    <link href="css/main.css" rel="stylesheet" type="text/css" />
    <style type="text/css">


body{
    background-image: url(images/img.gif);
}

html{
    background-image: url(images/img.gif);
}

.style
{

font-size: medium;

font-family: "Times New Roman", Times, serif;

}
```

```
.style4
        {
            color: white;
            font-style: normal;
            font-variant: normal;
            font-weight: bold;
            font-size: 90%;
            line-height: normal;
            font-family: "Trebuchet MS", "Lucida Grande", Arial, sans-
serif;
            border-bottom: 1px solid black;
            padding-left: 5px;
            padding-right: 0;
            padding-top: 1px;
            padding-bottom: 1px;
            background-color: black;
        }

a:link
{
    color: #034af3;
}

h2
{
    font-size: 1.5em;
    color: #666666;
    font-variant: small-caps;
    text-transform: none;
    font-weight: 200;
    margin-bottom: 0px;
}

    h2
{
    font-size: 1.5em;
    font-weight: 600;
}

        .style5
        {
            height: 26px;
        }
        .style7
        {
            height: 77px;
        }
        .style8
        {
            height: 69px;
        }

.style9
```

```
        {
            font-size: large;
            font-family: "Times New Roman", Times, serif;
        }

.style10
        {
            width: 68px;
        }

</style>
    </form>

</body>
</html>
```

Login Page

```
<%@ Page Language="VB" AutoEventWireup="false" CodeFile="Login.aspx.vb"
Inherits="Login" EnableSessionState="True" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<title>Online Bank</title>
<link href="css/menu.css" rel="stylesheet" type="text/css" />
<link href="css/main.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
html,body{
    background-image: url(images/img.gif);
}
    .style1
    {
        height: 28px;
    }
    .style3
    {
        height: 271px;
    }
    .style4
    {
        height: 2px;
    }
    .style5
    {
        height: 43px;
    }
    .style6
    {
        height: 11px;
    }
</style>
```

```
<script type="text/JavaScript">
<!--
    function MM_findObj(n, d) { //v4.01
        var p, i, x; if (!d) d = document; if ((p = n.indexOf("?")) > 0 &&
parent.frames.length) {
            d = parent.frames[n.substring(p + 1)].document; n = n.substring(0, p);
        }
        if (!(x = d[n]) && d.all) x = d.all[n]; for (i = 0; !x && i < d.forms.length;
i++) x = d.forms[i][n];
        for (i = 0; !x && d.layers && i < d.layers.length; i++) x = MM_findObj(n,
d.layers[i].document);
        if (!x && d.getElementById) x = d.getElementById(n); return x;
    }

    function MM_validateForm() { //v4.0
        var i, p, q, nm, test, num, min, max, errors = '', args =
MM_validateForm.arguments;
        for (i = 0; i < (args.length - 2); i += 3) {
            test = args[i + 2]; val = MM_findObj(args[i]);
            if (val) {
                nm = val.name; if ((val = val.value) != "") {
                    if (test.indexOf('isEmail') != -1) {
                        p = val.indexOf('@');
                        if (p < 1 || p == (val.length - 1)) errors += '- ' + nm + '
must contain an e-mail address.\n';
                    } else if (test != 'R') {
                        num = parseFloat(val);
                        if (isNaN(val)) errors += '- ' + nm + ' must contain a
number.\n';
                        if (test.indexOf('inRange') != -1) {
                            p = test.indexOf(':');
                            min = test.substring(8, p); max = test.substring(p + 1);
                            if (num < min || max < num) errors += '- ' + nm + ' must
contain a number between ' + min + ' and ' + max + '.\n';
                        }
                    }
                } else if (test.charAt(0) == 'R') errors += '- ' + nm + ' is
required.\n';
            }
        } if (errors) alert('The following error(s) occurred:\n' + errors);
        document.MM_returnValue = (errors == '');
    }
//-->
</script>
</head>

<body>
<table width="900" border="0" align="center" cellpadding="0" cellspacing="0"
        style="font-weight:normal; background-color:#FFFFFF; height: 669px;">
  <tr>
    <th colspan="2" scope="col" style="background-color:#2175bc; text-align: left;"
        class="style6" valign="bottom">
        <asp:Image ID="Image1" runat="server" Height="75px"
            ImageUrl="~/nuc/NUC logo JPEG file.jpg" Width="118px" />

              &n
bsp;      
        <asp:Label ID="Label12" runat="server" Font-Bold="True" Font-Size="X-Large"
            ForeColor="White" Text="National Universities Commission."></asp:Label>
        </th>
  </tr>
  <tr>
```

```
    <td colspan="3" class="style4"></td>
  </tr>
  <tr>
<td width="60" class="style3" >

<p> </p>
<p> </p>
<p> </p>
<p> </p> </td>

    <td colspan="2" class="style3"><table width="98%" border="0" align="center"
cellpadding="1" cellspacing="0">
      <tr>
        <th colspan="2" scope="col" class="style5"><div class="box1">

            <h2><font color="#FF0000">National Universities Commission.</font></h2>
        </div></th>
        </tr>
      <tr>
        <th width="50%" scope="col">
            <form id="form1" runat="server">
          <table width="100%" border="0" align="center" cellpadding="2"
cellspacing="2" style="border:#000000 solid 2px; padding:5px;">
            <tr>
              <th colspan="3" bgcolor="#000000" scope="col"><font
color="#FFFFFF">Admin/User  Login</font></th>
              </tr>
            <tr>
              <td width="28%" rowspan="3"><div align="center"><img
src="images/icon_module.png" width="48" height="48" /></div></td>
              <td align="left" class="style1">Login As </td>
              <td >
                  <asp:DropDownList ID="DropDownList1" runat="server">
                      <asp:ListItem>Admin</asp:ListItem>
                      <asp:ListItem>HOD</asp:ListItem>
                      <asp:ListItem>Lecturer</asp:ListItem>
                      <asp:ListItem>Class Rep</asp:ListItem>
                      <asp:ListItem></asp:ListItem>
                  </asp:DropDownList>
                   

                </td>
            </tr>
            <tr>
              <td width="24%" align="left">Username:</td>
              <td width="48%"><label>
                 <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
              </label></td>
            </tr>
            <tr>
              <td align="left">Password:</td>
              <td><label> <asp:TextBox ID="TextBox2" runat="server"
TextMode="Password"></asp:TextBox>
              </label></td>
            </tr>
            <tr>
              <td> </td>
              <td><label>

                    <div align="center">
                       </div>
                </label></td>
```

```
              <td>
                  <asp:Button ID="Button1" runat="server" Text="Login" />
                </td>
              </tr>
             <tr>
              <td colspan="3"> Do You Need Help? <a href="register.jsp">Click Here</a>
</td>
              </tr>
             <tr>
              <td> </td>
              <td> </td>
              <td>
                  <asp:Label ID="Label1" runat="server" Font-Bold="True" Font-
Size="Larger"
                      ForeColor="#FF3300" Text="--"></asp:Label>
                </td>
              </tr>
           </table>
                </form>
           </th>
         <th width="50%" scope="col"><p align="left" style="font-size: small">
              <span style="font-size:11.0pt;line-height:115%;
font-family:&quot;Calibri&quot;,&quot;sans-serif&quot;;mso-ascii-theme-font:minor-
latin;mso-fareast-font-family:
Calibri;mso-fareast-theme-font:minor-latin;mso-hansi-theme-font:minor-latin;
mso-bidi-font-family:&quot;Times New Roman&quot;;mso-bidi-theme-font:minor-bidi;
mso-ansi-language:EN-US;mso-fareast-language:EN-US;mso-bidi-language:AR-SA">It has
been
              observed that poor assessment of academic programmes by accrediting
agencies is
              one of the major reasons for the educational downturn experienced in most
              African countries today. </span> </p>
            <p align="left">
              <span style="font-size:11.0pt;line-height:115%;
font-family:&quot;Calibri&quot;,&quot;sans-serif&quot;;mso-ascii-theme-font:minor-
latin;mso-fareast-font-family:
Calibri;mso-fareast-theme-font:minor-latin;mso-hansi-theme-font:minor-latin;
mso-bidi-font-family:&quot;Times New Roman&quot;;mso-bidi-theme-font:minor-bidi;
mso-ansi-language:EN-US;mso-fareast-language:EN-US;mso-bidi-language:AR-SA">Therefore,
this
              work moved to correct these inadequacies in the existing model by
introducing
              ten new performance criteria to cover such areas as Course Content
Delivery,
              Learner Report, and Knowledge Exchange, in order to augment existing
system, and
              to capture the programme&#8217;s impact on students</span></p>
           </th>
       </tr>
       <tr>
         <td> </td>
         <td> </td>
       </tr>
     </table></td>
  </tr>
  <tr style="height:30px;">
    <td colspan="3" style="background-color:#2175bc;">
        <br />
        <br />
        <br />
        <br />
        <br />
```

```
        <br />
        <br />
      </td>
  </tr>
</table>
</body>

</html>
```

Code Behind The Page

```
Imports System.Data
Imports System.Data.SqlClient
Imports System.Data.OleDb
Partial Class Login
    Inherits System.Web.UI.Page
    Dim t As Integer
    Dim cox As String = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\nucSQL.mdf;Integrated
Security=True;User Instance=True"
    Dim coxx As String = "Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=|DataDirectory|\nuc.mdb;Persist Security Info=True"
    Protected b As Integer = 0
    Dim t2, t3, t4, t5, t6, t7, t8, t9, t10, t11, t12, ta, tb, sb, lv, i, j, k, r, y,
g, drp1, drp2 As String
    Dim str1, str2, str3, str4, str5, str6, str7, str8, str9, str10, str11, str12 As
String
    Dim t1, rec_opr As Integer
    Dim tc, td, te As Char
    Public Function verify_login() As Integer
        Dim k As String
        Dim i, j As String
        Dim q, r As Integer

        catches()
        Dim cnn As New SqlConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New SqlCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = "select * from login_profile where(f1 = @id AND f2 = @f2
AND f3=@f3)"
        'cmd1.CommandText = "select * from quiz where qn = @qn"
        cmd1.Connection = cnn

        cmd1.Parameters.Add("@id", SqlDbType.VarChar, 20).Value = t2
        cmd1.Parameters.Add("@f2", SqlDbType.VarChar, 20).Value = t3
        cmd1.Parameters.Add("@f3", SqlDbType.VarChar, 20).Value = drp1
        'cmd1.Parameters.Add("@pass", SqlDbType.VarChar, 10).Value = t4

        Dim adp1 As New SqlDataAdapter(cmd1)
        Dim ds As New DataSet
        adp1.Fill(ds, "login_profile")

        Try

            cnn.Open()

            Dim recRow() As Data.DataRow = ds.Tables("login_profile").Select()
            q = recRow.Length


            If q > 0 Then
                Dim sdr As DataTable = ds.Tables.Item(0)
```

```
                Dim fr As DataRow


                fr = sdr.Rows(0)

                j = fr.Item(1).ToString
                i = fr.Item(2).ToString
                k = fr.Item(3).ToString

                Label1.Text = "Welcome," & k & " Click NEXT"
                If k = "Admin" Then
                    Response.Redirect("Default2.aspx")
                ElseIf k = "HOD" Then
                    Response.Redirect("HOD_main.aspx")
                ElseIf k = "Lecturer" Then
                    Response.Redirect("Lecturer_main.aspx")
                ElseIf k = "Rep" Then
                    Response.Redirect("rep_main.aspx")
                End If
            Else
                Label1.Text = "Invalid login"
                Label1.Visible = True
            End If
        Catch ex As Exception

            Throw ex
            MsgBox("No matching records")
        Finally

            cnn.Close()

            cnn.Dispose()

        End Try
        If q > 0 Then Return 1 Else Return 0


    End Function
    Public Function make_login() As Integer
        Dim k As String
        Dim i, j As String
        Dim q, r As Integer

        catches()
        Dim cnn As New SqlConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New SqlCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = "select * from staff_profile where(login_id = @id AND
password = @f2 AND access_level=@f3)"
        'cmd1.CommandText = "select * from quiz where qn = @qn"
        cmd1.Connection = cnn

        cmd1.Parameters.Add("@id", SqlDbType.VarChar, 20).Value = t2
        cmd1.Parameters.Add("@f2", SqlDbType.VarChar, 20).Value = t3
        cmd1.Parameters.Add("@f3", SqlDbType.VarChar, 20).Value = drp1
        'cmd1.Parameters.Add("@pass", SqlDbType.VarChar, 10).Value = t4

        Dim adp1 As New SqlDataAdapter(cmd1)
        Dim ds As New DataSet
```

```
        adp1.Fill(ds, "staff_profile")

        Try

            cnn.Open()

            Dim recRow() As Data.DataRow = ds.Tables("staff_profile").Select()
            q = recRow.Length


            If q > 0 Then
                Dim sdr As DataTable = ds.Tables.Item(0)


                Dim fr As DataRow


                fr = sdr.Rows(0)

                j = fr.Item(1).ToString
                i = fr.Item(2).ToString
                k = fr.Item(4).ToString

                Dim firstName As String = "John"
                Dim lastName As String = "Smith"
                Dim city As String = "Seattle"
                Session("staff_id") = fr.Item("staff_ID").ToString
                Session("staff_name") = fr.Item("staff_name").ToString
                Session("university") = fr.Item("university").ToString
                Session("department") = fr.Item("department").ToString
                Session("rank") = fr.Item(4).ToString
                Label1.Text = "Welcome," & k & " Click NEXT"
                If fr.Item(4).ToString = "Admin" Then
                    Response.Redirect("admin/Default2.aspx")
                ElseIf k = "HOD" Then
                    Response.Redirect("hod/HOD_main.aspx")
                ElseIf k = "Lecturer" Then
                    Response.Redirect("lecturer/Lecturer_main.aspx")
                ElseIf k = "Class Rep" Then
                    Response.Redirect("rep/rep_main.aspx")
                End If
            Else
                Label1.Text = "Invalid login"
                Label1.Visible = True
            End If
        Catch ex As Exception

            Throw ex
            MsgBox("No matching records")
        Finally

            cnn.Close()

            cnn.Dispose()

        End Try
        If q > 0 Then Return 1 Else Return 0


    End Function
    Sub idns()
        Dim cnn As New SqlConnection()
```

```
        cnn.ConnectionString = cox
        Dim cmd1 As New SqlCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = "select * from login_profile"
        'cmd1.CommandText = "select * from quiz where qn = @qn"
        cmd1.Connection = cnn
        'cmd1.Parameters.Add("@qn", SqlDbType.Int, 10).Value = k
        Dim adp1 As New SqlDataAdapter(cmd1)
        Dim ds As New DataSet
        adp1.Fill(ds, "login_profile")

        '  Try

        cnn.Open()

        Dim recRow() As Data.DataRow = ds.Tables("login_profile").Select()
        t1 = recRow.Length + 1
        cnn.Close()
    End Sub
    Sub catches()

        t2 = TextBox1.Text
        t3 = TextBox2.Text 'id
        drp1 = DropDownList1.SelectedValue 'uni

    End Sub

    Protected Sub Button1_Click(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Button1.Click
        make_login()
    End Sub


End Class
Partial Class acreditation
    Inherits System.Web.UI.Page
    Dim t As Integer
    Dim cox As String = "Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\nucSQL.mdf;Integrated
Security=True;User Instance=True"
"
    Protected b As Integer = 0
    Dim t2, t3, t4, t5, t6, t7, t8, t9, ta, tb, sb, lv, i, j, k, r, y, g, q, h As
String
    Dim t12, t1 As Integer
    Dim tc, td, te As Char


    Protected Sub DropDownList2_SelectedIndexChanged(ByVal sender As Object, ByVal e
As System.EventArgs) Handles DropDownList2.SelectedIndexChanged
        Label1.Text = DropDownList2.SelectedValue
    End Sub

    Protected Sub Calendar1_SelectionChanged(ByVal sender As Object, ByVal e As
System.EventArgs) Handles Calendar1.SelectionChanged
        TextBox7.Text = Calendar1.SelectedDate
        Calendar1.Visible = False
        ' Calendar1.ViewStateMode = UI.ViewStateMode.Enabled
    End Sub

    Protected Sub Button2_Click(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Button2.Click
```

```
        Calendar1.Visible = True
    End Sub

    Protected Sub TextBox1_TextChanged(ByVal sender As Object, ByVal e As
System.EventArgs) Handles TextBox1.TextChanged

    End Sub

    Sub clearRec()
        idns()

        TextBox1.Text = t1
        TextBox2.Text = ""
        TextBox3.Text = ""
        TextBox4.Text = ""
        TextBox5.Text = ""
        TextBox7.Text = ""
        'TextBox6.Text = ""
        'TextBox7.Text = ""

    End Sub

    Sub idns()
        Dim cnn As New SqlConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New SqlCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = "select * from acreditation"
        'cmd1.CommandText = "select * from quiz where qn = @qn"
        cmd1.Connection = cnn
        'cmd1.Parameters.Add("@qn", SqlDbType.Int, 10).Value = k
        Dim adp1 As New SqlDataAdapter(cmd1)
        Dim ds As New DataSet
        adp1.Fill(ds, "university_reg")

        '  Try

        cnn.Open()

        Dim recRow() As Data.DataRow = ds.Tables("university_reg").Select()
        t1 = recRow.Length + 1
        cnn.Close()
    End Sub
    Sub catches()

        't1 = TextBox1.Text
        t2 = TextBox2.Text

        t3 = TextBox3.Text

        t4 = TextBox4.Text
        t5 = TextBox5.Text
        t6 = DropDownList1.SelectedValue

        t7 = DropDownList3.SelectedValue
        t8 = DropDownList4.SelectedValue
        t9 = TextBox7.Text
        'ta = DropDownList2.SelectedValue
        'tb = TextBox7.Text

    End Sub
```

```
    Sub add_rec()
        idns()
        catches()
        Dim cnn As New SqlConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New SqlCommand
        cmd1.CommandType = CommandType.Text
        ' cmd1.CommandText = ("INSERT INTO acreditation( sn, University, Course_ID,
Course_name, Department, Acreditation_year, Acreditation_type, Course_duration,
Certification, Date_acredited) VALUES ( @sn, @University, @Course_ID, @Course_name,
@Department, @Acreditation_year, @Acreditation_type, @Course_duration, @Certification,
@Date_acredited)"
        cmd1.CommandText = ("INSERT INTO acreditation( sn, University, Course_ID,
Course_name, Department, Acreditation_year, Acreditation_type, Course_duration,
Certification, Date_acredited) VALUES ( @sn, @University, @Course_ID, @Course_name,
@Department, @Acreditation_year, @Acreditation_type, @Course_duration, @Certification,
@Date_acredited)")
        cmd1.Connection = cnn


        cmd1.Parameters.Add("@sn", SqlDbType.Int).Value = t1

        ' cmd1.Parameters.Add("@lev", SqlDbType.VarChar, 10).Value = lv
        cmd1.Parameters.Add("@University", SqlDbType.VarChar).Value =
DropDownList2.SelectedValue
        cmd1.Parameters.Add("@Course_ID", SqlDbType.VarChar, 10).Value = t2
        cmd1.Parameters.Add("@Course_name", SqlDbType.VarChar, 10).Value = t3

        cmd1.Parameters.Add("@Department", SqlDbType.VarChar).Value = t4

        cmd1.Parameters.Add("@Acreditation_year", SqlDbType.VarChar).Value = t5
        cmd1.Parameters.Add("@Acreditation_type", SqlDbType.VarChar).Value = t6

        cmd1.Parameters.Add("@Course_duration", SqlDbType.VarChar).Value = t7
        cmd1.Parameters.Add("@Certification", SqlDbType.VarChar).Value = t8
        cmd1.Parameters.Add("@Date_acredited", SqlDbType.Date).Value = t9
        'cmd1.Parameters.Add("@ans", SqlDbType.Char, 1).Value = ta


        'Try

        cnn.Open()
        cmd1.ExecuteNonQuery()

        clearRec()
        'Catch ex As Exception

        'Throw ex

        'Finally

        cnn.Close()

        cnn.Dispose()

        'End Try


    End Sub

    Sub update_rec()
        t1 = TextBox1.Text
```

```
        catches()
        Dim cnn As SqlConnection = New SqlConnection(cox)
        Dim cmd1 As SqlCommand = New SqlCommand("UPDATE staff_profile SET  sn=@sn,
University = @University, Course_ID=@Course_ID, Course_name = @Course_name,
Department=@Department, Acreditation_year = @Acreditation_year, Acreditation_type =
@Acreditation_type, Course_duration = @Course_duration, Certification=@Certification,
Date_acredited=@Date_acredited WHERE sn = @sn", cnn)

        cmd1.Parameters.Add("@sn", SqlDbType.Int).Value = t1

        ' cmd1.Parameters.Add("@lev", SqlDbType.VarChar, 10).Value = lv
        cmd1.Parameters.Add("@University", SqlDbType.VarChar).Value = t2
        cmd1.Parameters.Add("@Course_ID", SqlDbType.VarChar, 10).Value = t3
        cmd1.Parameters.Add("@Course_name", SqlDbType.VarChar, 10).Value = t4

        cmd1.Parameters.Add("@Department", SqlDbType.VarChar).Value = t5

        cmd1.Parameters.Add("@Acreditation_year", SqlDbType.VarChar).Value = t6
        cmd1.Parameters.Add("@Acreditation_type", SqlDbType.VarChar).Value = t7

        cmd1.Parameters.Add("@Course_duration", SqlDbType.VarChar).Value = t8
        cmd1.Parameters.Add("@Certification", SqlDbType.VarChar).Value = t9
        cmd1.Parameters.Add("@Date_acredited", SqlDbType.Date).Value = t9
        'cmd.Parameters.Add("@id", SqlDbType.VarChar, 10).Value = t3
        'cmd.Parameters.Add("@exm", SqlDbType.VarChar, 10).Value = t5
        'cmd.Parameters.Add("@subject", SqlDbType.VarChar, 30).Value = sb
        'cmd.Parameters.Add("@level", SqlDbType.VarChar, 10).Value = lv


        Try

            cnn.Open()
            cmd1.ExecuteNonQuery()


        Catch ex As Exception

            'Throw ex

        Finally

            cnn.Close()

            cnn.Dispose()

        End Try

        'MsgBox("Sucessful Editting", MsgBoxStyle.Information)
    End Sub
    Public Function verify_reg() As Integer
        Dim k As String
        Dim i, j As String
        Dim q, r As Integer

        catches()
        Dim cnn As New SqlConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New SqlCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = "select * from reg where stud_id = @id"
        'cmd1.CommandText = "select * from quiz where qn = @qn"
        cmd1.Connection = cnn
```

```
        cmd1.Parameters.Add("@id", SqlDbType.VarChar, 20).Value = t3
        'cmd1.Parameters.Add("@pass", SqlDbType.VarChar, 10).Value = t4

        Dim adp1 As New SqlDataAdapter(cmd1)
        Dim ds As New DataSet
        adp1.Fill(ds, "reg")

        Try

            cnn.Open()

            Dim recRow() As Data.DataRow = ds.Tables("reg").Select()
            q = recRow.Length


            If q > 0 Then
                Dim sdr As DataTable = ds.Tables.Item(0)


                Dim fr As DataRow


                fr = sdr.Rows(0)

                j = fr.Item(0).ToString
                i = fr.Item(1).ToString
                k = fr.Item(2).ToString

                Label6.Text = "Welcome," & k & " Click NEXT"

            Else
                Label6.Text = "Invalid login"
                Label6.Visible = True
            End If
        Catch ex As Exception

            Throw ex
            'MsgBox("No matching records")
        Finally

            cnn.Close()

            cnn.Dispose()

        End Try
        If q > 0 Then Return 1 Else Return 0


    End Function

    Public Function search_rec() As Integer
        'Dim i, j, k, r As String

        Dim q As Integer

        'catches()
        Dim cnn As New SqlConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New SqlCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = "select * from acreditation where sn = @sn"
```

```
    'cmd1.CommandText = "select * from quiz where qn = @qn"
    cmd1.Connection = cnn

    cmd1.Parameters.Add("@sn", SqlDbType.Int).Value = t1

    Dim adp1 As New SqlDataAdapter(cmd1)
    Dim ds As New DataSet
    adp1.Fill(ds, "acreditation")

    Try

        cnn.Open()

        Dim recRow() As Data.DataRow = ds.Tables("acreditation").Select()
        q = recRow.Length


        If q > 0 Then
            Dim sdr As DataTable = ds.Tables.Item(0)


            Dim fr As DataRow


            fr = sdr.Rows(0)



            i = fr.Item(1).ToString
            j = fr.Item(2).ToString
            k = fr.Item(3).ToString
            r = fr.Item(4).ToString
            y = fr.Item(5).ToString
            g = fr.Item(6).ToString
            q = fr.Item(7).ToString
            h = fr.Item(8).ToString

            TextBox1.Text = i
            TextBox2.Text = j
            TextBox3.Text = k
            TextBox4.Text = r
            TextBox5.Text = y
            TextBox7.Text = g

        End If
    Catch ex As Exception

        Throw ex
        'MsgBox("No matching records")
    Finally

        cnn.Close()

        cnn.Dispose()

    End Try
    If q > 0 Then Return 1 Else Return 0


End Function
```

```
    Protected Sub Button1_Click(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Button1.Click
        add_rec()
    End Sub

    Sub sessioning()
        Dim s_id As String = CType(Session.Item("staff_ID"), String)
        Dim s_name As String = CType(Session.Item("staff_name"), String)
        Dim univ As String = CType(Session.Item("university"), String)
        Dim dept As String = CType(Session.Item("department"), String)
        Dim rank As String = CType(Session.Item("rank"), String)
        Label6.Text = s_id
        Label2.Text = s_name
        Label3.Text = univ
        Label4.Text = dept
        Label5.Text = rank
    End Sub

    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Me.Load
        sessioning()
    End Sub
End Class
```

Profile entry page

```
<%@ Page Language="VB" AutoEventWireup="false" CodeFile="Lecturer_profile.aspx.vb"
Inherits="Lecturer_profile" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html><head><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"
/><title>Online Bank</title><link href="css/menu.css" rel="stylesheet" type="text/css"
/><link href="css/main.css" rel="stylesheet" type="text/css" /><style type="text/css">

html,body{
    background-image: url(images/img.gif);
}
    .style1
    {
        height: 126px;
    }
    .style2
    {
        height: 54px;
    }

.style3

{

width: 262px;

text-align: left;

}

.style4

{
```

```
font-size: large;
}
.style5
{
width: 262px;
height: 24px;
}
.style6
{
height: 24px;
}
.style7
{
height: 24px;
width: 11px;
}
.style8
{
width: 11px;
}
.style
{
font-size: medium;
font-family: "Times New Roman", Times, serif;
}
.style10
{
color: #FF0000;
}
.style11
{
```

```
color: #FF5050;

}

.style12

{

width: 262px;

height: 22px;

}

.style13

{

height: 22px;

}

.style14

{

width: 11px;

height: 22px;

}

</style></head><body>
    <form id="form1" runat="server">
    <table width="900" border="1" align="center" cellpadding="0" cellspacing="0"
style="font-weight:normal; background-color:#FFFFFF">
  <tr>
    <th colspan="3" scope="col" style="background-color:#2175bc;" class="style2"
          align="left" valign="bottom">
        <asp:Image ID="Image1" runat="server" Height="75px"
            ImageUrl="~/nuc/NUC logo JPEG file.jpg" Width="118px" />

             &n
bsp;            
        <asp:Label ID="Label7" runat="server" Font-Bold="True" Font-Size="X-Large"
            ForeColor="White" Text="National Universities
Commission."></asp:Label></th>
  </tr>
  <tr>
    <td colspan="3"> </td>
  </tr>
  <tr>
<td width="160" valign="top" >
<div id="ddblueblockmenu">
  <div class="menutitle">Lecturer Entries</div>
  <ul>
    <li><a href="main.aspx">Welcome</li>
    <li><a href="../Default.aspx">Home</a></li>
    <li><a href="scores.aspx"> Rating  and Evaluation </a></li>
       <li><a href="view-reports.jsp">View Course Info </a></li>
       <li><a href="../Login.aspx">LogOut</a></li>
```

```
  </ul>
  <div class="menutitle"> </div>
</div>

<p> </p>
<p> </p>
<p> </p>
<p> </p> </td>
    <td colspan="2" style="padding:20px;" valign="top">
       <div class="box1">

       <h2><font color="#FF0000">National Universities Commission.</font></h2>

       </div>
<p class="style4"><strong>University Staff profile
Entry        </strong>
    <span class="style9"><span class="style10">Select Scho</span><span
        class="style11">ol </span> </span><strong><asp:DropDownList
        ID="DropDownList2" runat="server" AutoPostBack="True"
        DataSourceID="SqlDataSource2" DataTextField="sch_id" DataValueField="sch_id">
    </asp:DropDownList>
    <asp:Label ID="Label1" runat="server" Text="-"></asp:Label>
    <asp:SqlDataSource ID="SqlDataSource2" runat="server"
        ConnectionString="<%$ ConnectionStrings:nucConnectionString %>"
        SelectCommand="SELECT [sch_id] FROM [sch_info]"></asp:SqlDataSource>
    </strong></p>
       <p> 

        <table bgcolor="#EBEBF5" cellpadding="1" frame="void" rules="rows"
            style="width:100%;">
            <tr>
                <td class="style5">
                    Serial Number</td>
                <td class="style6">
                    <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
                </td>
                <td class="style7">
                </td>
            </tr>
            <tr>
                <td class="style3">
                    Lecturer ID</td>
                <td>
                    <asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                    Lecturer Name</td>
                <td>
                    <asp:TextBox ID="TextBox3" runat="server"
Width="387px"></asp:TextBox>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                    Deparment</td>
                <td>
```

```
                    <asp:TextBox ID="TextBox4" runat="server"
Width="271px"></asp:TextBox>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                    Programme</td>
                <td>
                    <asp:TextBox ID="TextBox5" runat="server"
Width="272px"></asp:TextBox>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                    Course Code</td>
                <td>
                    <asp:TextBox ID="TextBox6" runat="server"
Width="156px"></asp:TextBox>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                    Course Title</td>
                <td>
                    <asp:TextBox ID="TextBox7" runat="server"
Width="153px"></asp:TextBox>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                    Session</td>
                <td>
                    <asp:TextBox ID="TextBox8" runat="server"></asp:TextBox>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                    Semester</td>
                <td>
                    <asp:DropDownList ID="DropDownList3" runat="server"
AutoPostBack="True">
                        <asp:ListItem>1st Semester</asp:ListItem>
                        <asp:ListItem>2nd Semester</asp:ListItem>
                    </asp:DropDownList>
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style12">
                    Date</td>
                <td class="style13">
```

```
                    <asp:Button ID="Button3" runat="server" Text="**" Width="26px" />
                    <asp:TextBox ID="TextBox9" runat="server"
Width="157px"></asp:TextBox>
                </td>
                <td class="style14">
                    </td>
            </tr>
            <tr>
                <td class="style3">
                    <asp:Calendar ID="Calendar1" runat="server" Height="16px"
                        SelectedDate="2014-09-01" Visible="False" VisibleDate="2014-
09-30"
                        Width="147px"></asp:Calendar>
                </td>
                <td>
                    <asp:Button ID="Button1" runat="server" Text="Submit" />
                    <asp:Button ID="Button2" runat="server" Text="Update" />
                </td>
                <td class="style8">
                     </td>
            </tr>
            <tr>
                <td class="style3">
                     </td>
                <td>
                     </td>
                <td class="style8">
                     </td>
            </tr>
        </table>
        </p>

       <p>The JDBC API and drivers  for most database systems provide a standard way
of using SQL to execute  database queries. However, the interface is complicated by
the <em>&quot;impedance  mismatch&quot;</em>between the domain object model of
the application  and the relational model of the database</p>
    <p>. The object model is based on software  engineering principles and models the
objects in the .</p>
       <p align="left" style="line-height:18px; padding:10px; font-weight:normal">
        <asp:SqlDataSource ID="SqlDataSource1" runat="server"
            ConnectionString="<%$ ConnectionStrings:nucConnectionString %>"
            SelectCommand="SELECT * FROM [sch_info]"
            InsertCommand="INSERT INTO sch_info(sn, sch_id, sch_name, city, state,
acreditation) VALUES (,,,,,)">
            <InsertParameters>
                <asp:Parameter Name="newparameter" />
            </InsertParameters>
        </asp:SqlDataSource>
        <asp:SqlDataSource ID="SqlDataSource3" runat="server"
            ConnectionString="<%$ ConnectionStrings:ConnectionString %>"
            ProviderName="<%$ ConnectionStrings:ConnectionString.ProviderName %>"
            SelectCommand="SELECT [sn], [staff_ID], [staff_name], [department],
[designation], [Post_held], [Session], [Semester], [Date] FROM
[staff_profile]"></asp:SqlDataSource>
        <asp:SqlDataSource ID="SqlDataSource4" runat="server"
            ConflictDetection="CompareAllValues"
            ConnectionString="<%$ ConnectionStrings:ConnectionString %>"
            DeleteCommand="DELETE FROM [Course_Lecturer] WHERE (([sn] = ?) OR ([sn] IS
NULL AND ? IS NULL)) AND (([Lecturer_ID] = ?) OR ([Lecturer_ID] IS NULL AND ? IS
NULL)) AND (([University] = ?) OR ([University] IS NULL AND ? IS NULL)) AND
(([Department] = ?) OR ([Department] IS NULL AND ? IS NULL)) AND (([Program] = ?) OR
([Program] IS NULL AND ? IS NULL)) AND (([Course_code] = ?) OR ([Course_code] IS NULL
```

```
AND ? IS NULL)) AND (([Course_title] = ?) OR ([Course_title] IS NULL AND ? IS NULL))
AND (([Session] = ?) OR ([Session] IS NULL AND ? IS NULL)) AND (([Date_] = ?) OR
([Date_] IS NULL AND ? IS NULL)) AND (([Semester] = ?) OR ([Semester] IS NULL AND ? IS
NULL))"
            InsertCommand="INSERT INTO [Course_Lecturer] ([sn], [Lecturer_ID],
[University], [Department], [Program], [Course_code], [Course_title], [Session],
[Date_], [Semester]) VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?, ?)"
            OldValuesParameterFormatString="original_{0}"
            ProviderName="<%$ ConnectionStrings:ConnectionString.ProviderName %>"
            SelectCommand="SELECT [sn], [Lecturer_ID], [University], [Department],
[Program], [Course_code], [Course_title], [Session], [Date_], [Semester] FROM
[Course_Lecturer]"
            UpdateCommand="UPDATE [Course_Lecturer] SET [Lecturer_ID] = ?,
[University] = ?, [Department] = ?, [Program] = ?, [Course_code] = ?, [Course_title] =
?, [Session] = ?, [Date_] = ?, [Semester] = ? WHERE (([sn] = ?) OR ([sn] IS NULL AND ?
IS NULL)) AND (([Lecturer_ID] = ?) OR ([Lecturer_ID] IS NULL AND ? IS NULL)) AND
(([University] = ?) OR ([University] IS NULL AND ? IS NULL)) AND (([Department] = ?)
OR ([Department] IS NULL AND ? IS NULL)) AND (([Program] = ?) OR ([Program] IS NULL
AND ? IS NULL)) AND (([Course_code] = ?) OR ([Course_code] IS NULL AND ? IS NULL)) AND
(([Course_title] = ?) OR ([Course_title] IS NULL AND ? IS NULL)) AND (([Session] = ?)
OR ([Session] IS NULL AND ? IS NULL)) AND (([Date_] = ?) OR ([Date_] IS NULL AND ? IS
NULL)) AND (([Semester] = ?) OR ([Semester] IS NULL AND ? IS NULL))">
            <DeleteParameters>
                <asp:Parameter Name="original_sn" Type="Int32" />
                <asp:Parameter Name="original_Lecturer_ID" Type="String" />
                <asp:Parameter Name="original_Lecturer_ID" Type="String" />
                <asp:Parameter Name="original_University" Type="String" />
                <asp:Parameter Name="original_University" Type="String" />
                <asp:Parameter Name="original_Department" Type="String" />
                <asp:Parameter Name="original_Department" Type="String" />
                <asp:Parameter Name="original_Program" Type="String" />
                <asp:Parameter Name="original_Program" Type="String" />
                <asp:Parameter Name="original_Course_code" Type="String" />
                <asp:Parameter Name="original_Course_code" Type="String" />
                <asp:Parameter Name="original_Course_title" Type="String" />
                <asp:Parameter Name="original_Course_title" Type="String" />
                <asp:Parameter Name="original_Session" Type="String" />
                <asp:Parameter Name="original_Session" Type="String" />
                <asp:Parameter Name="original_Date_" Type="DateTime" />
                <asp:Parameter Name="original_Date_" Type="DateTime" />
                <asp:Parameter Name="original_Semester" Type="String" />
                <asp:Parameter Name="original_Semester" Type="String" />
            </DeleteParameters>
            <InsertParameters>
                <asp:Parameter Name="sn" Type="Int32" />
                <asp:Parameter Name="Lecturer_ID" Type="String" />
                <asp:Parameter Name="University" Type="String" />
                <asp:Parameter Name="Department" Type="String" />
                <asp:Parameter Name="Program" Type="String" />
                <asp:Parameter Name="Course_code" Type="String" />
                <asp:Parameter Name="Course_title" Type="String" />
                <asp:Parameter Name="Session" Type="String" />
                <asp:Parameter Name="Date_" Type="DateTime" />
                <asp:Parameter Name="Semester" Type="String" />
            </InsertParameters>
            <UpdateParameters>
                <asp:Parameter Name="Lecturer_ID" Type="String" />
                <asp:Parameter Name="University" Type="String" />
                <asp:Parameter Name="Department" Type="String" />
                <asp:Parameter Name="Program" Type="String" />
                <asp:Parameter Name="Course_code" Type="String" />
                <asp:Parameter Name="Course_title" Type="String" />
```

```
                <asp:Parameter Name="Session" Type="String" />
                <asp:Parameter Name="Date_" Type="DateTime" />
                <asp:Parameter Name="Semester" Type="String" />
                <asp:Parameter Name="original_sn" Type="Int32" />
                <asp:Parameter Name="original_Lecturer_ID" Type="String" />
                <asp:Parameter Name="original_Lecturer_ID" Type="String" />
                <asp:Parameter Name="original_University" Type="String" />
                <asp:Parameter Name="original_University" Type="String" />
                <asp:Parameter Name="original_Department" Type="String" />
                <asp:Parameter Name="original_Department" Type="String" />
                <asp:Parameter Name="original_Program" Type="String" />
                <asp:Parameter Name="original_Program" Type="String" />
                <asp:Parameter Name="original_Course_code" Type="String" />
                <asp:Parameter Name="original_Course_code" Type="String" />
                <asp:Parameter Name="original_Course_title" Type="String" />
                <asp:Parameter Name="original_Course_title" Type="String" />
                <asp:Parameter Name="original_Session" Type="String" />
                <asp:Parameter Name="original_Session" Type="String" />
                <asp:Parameter Name="original_Date_" Type="DateTime" />
                <asp:Parameter Name="original_Date_" Type="DateTime" />
                <asp:Parameter Name="original_Semester" Type="String" />
                <asp:Parameter Name="original_Semester" Type="String" />
            </UpdateParameters>
        </asp:SqlDataSource>
        </p>
       </td>
  </tr>
  <tr>
    <td colspan="3" style="background-color:#2175bc;" class="style1"></td>
  </tr>
</table>

    </form>

</body>

</html>
```

Code Behind

```
Imports System.Data
Imports System.Data.SqlClient
Imports System.Data.OleDb
Partial Class Lecturer_profile
    Inherits System.Web.UI.Page
    Dim t As Integer
    Dim coxz As String = "Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=C:\Users\server\quiz.mdb;Jet OLEDB:Database Password=tibantec;Persist Security
Info=True"
    Dim cox As String = "Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=|DataDirectory|\nuc.mdb;Persist Security Info=True"
    Protected b As Integer = 0
    Dim t2, t3, t4, t5, t6, t7, t8, t9, ta, tb, sb, lv, i, j, k, r, y, g, drp1, drp2
As String
    Dim t1 As Integer
    Dim tc, td, te As Char

    Sub clearRec()
        idns()

        TextBox1.Text = t1
```

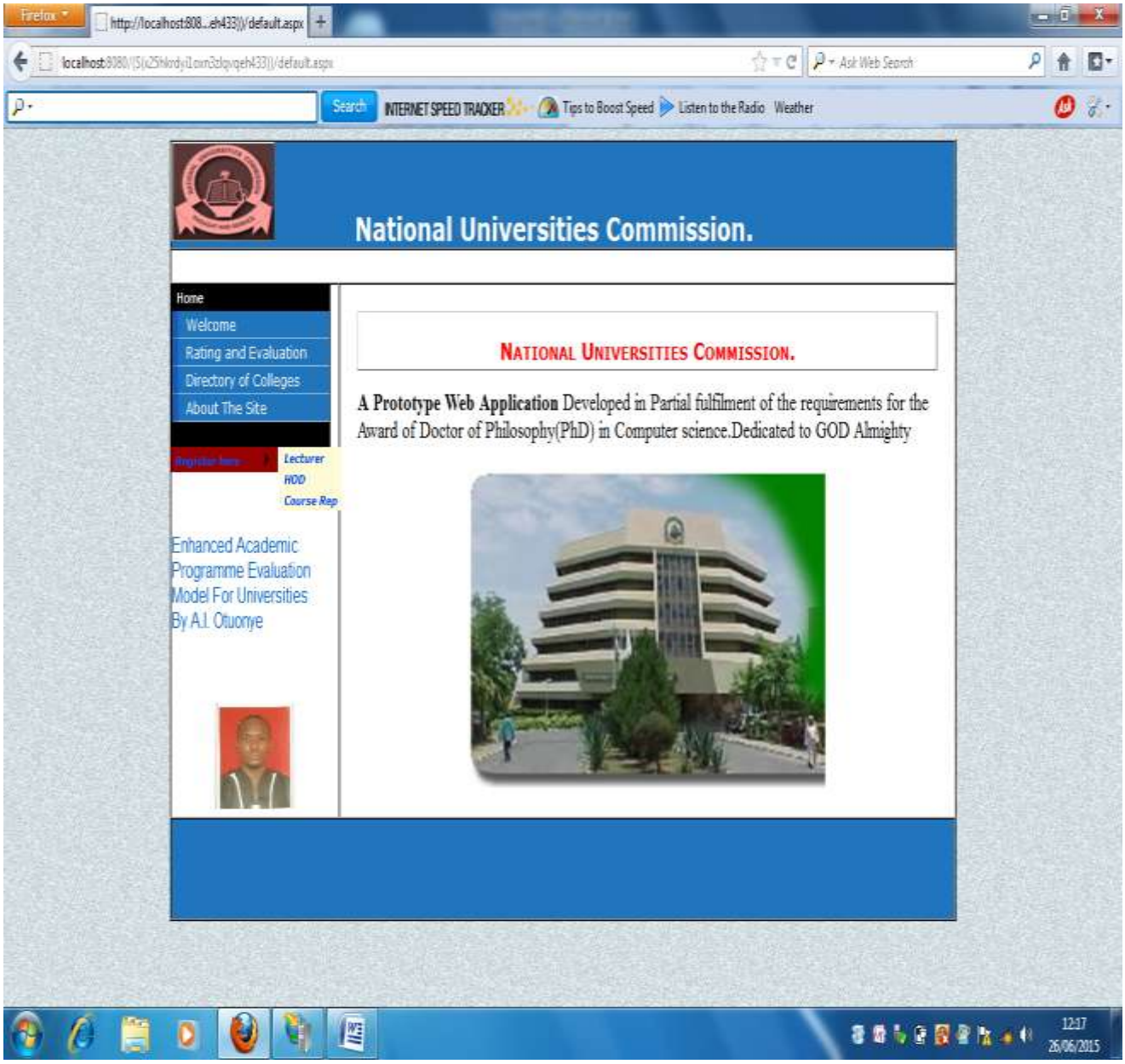
```
        TextBox2.Text = ""
        TextBox3.Text = ""
        TextBox4.Text = ""
        TextBox5.Text = ""
        TextBox6.Text = ""
        'TextBox6.Text = ""
        'TextBox7.Text = ""


    End Sub

    Sub idns()
        Dim cnn As New OleDbConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New OleDbCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = "select * from Course_Lecturer"
        'cmd1.CommandText = "select * from quiz where qn = @qn"
        cmd1.Connection = cnn
        'cmd1.Parameters.Add("@qn", SqlDbType.Int, 10).Value = k
        Dim adp1 As New OleDbDataAdapter(cmd1)
        Dim ds As New DataSet
        adp1.Fill(ds, "Course_Lecturer")

        '  Try

        cnn.Open()

        Dim recRow() As Data.DataRow = ds.Tables("Course_Lecturer").Select()
        t1 = recRow.Length + 1
        cnn.Close()
    End Sub
    Sub catches()

        't1 = TextBox1.Text
        t2 = TextBox2.Text 'id
        drp1 = DropDownList3.SelectedValue 'uni
        t3 = TextBox3.Text 'lect name

        t4 = TextBox4.Text 'dept
        t5 = TextBox5.Text 'prgm
        t6 = TextBox6.Text 'c_code
        t7 = TextBox7.Text 'c_title

        t8 = TextBox8.Text 'sessn
        drp2 = DropDownList2.SelectedValue 'sem
        t9 = TextBox9.Text 'datez


        'tb = TextBox7.Text

    End Sub
    Sub add_rec()
        idns()
        catches()
        Dim cnn As New OleDbConnection()
        cnn.ConnectionString = cox
        Dim cmd1 As New OleDbCommand
        cmd1.CommandType = CommandType.Text
        cmd1.CommandText = ("INSERT INTO Course_Lecturer(sn, Lecturer_ID,
Lecturer_name, University, Department, Program, Course_code, Course_title,
acad_Session, Semester, Date_x) VALUES (@sn, @Lecturer_ID, @Lecturer_name,
```

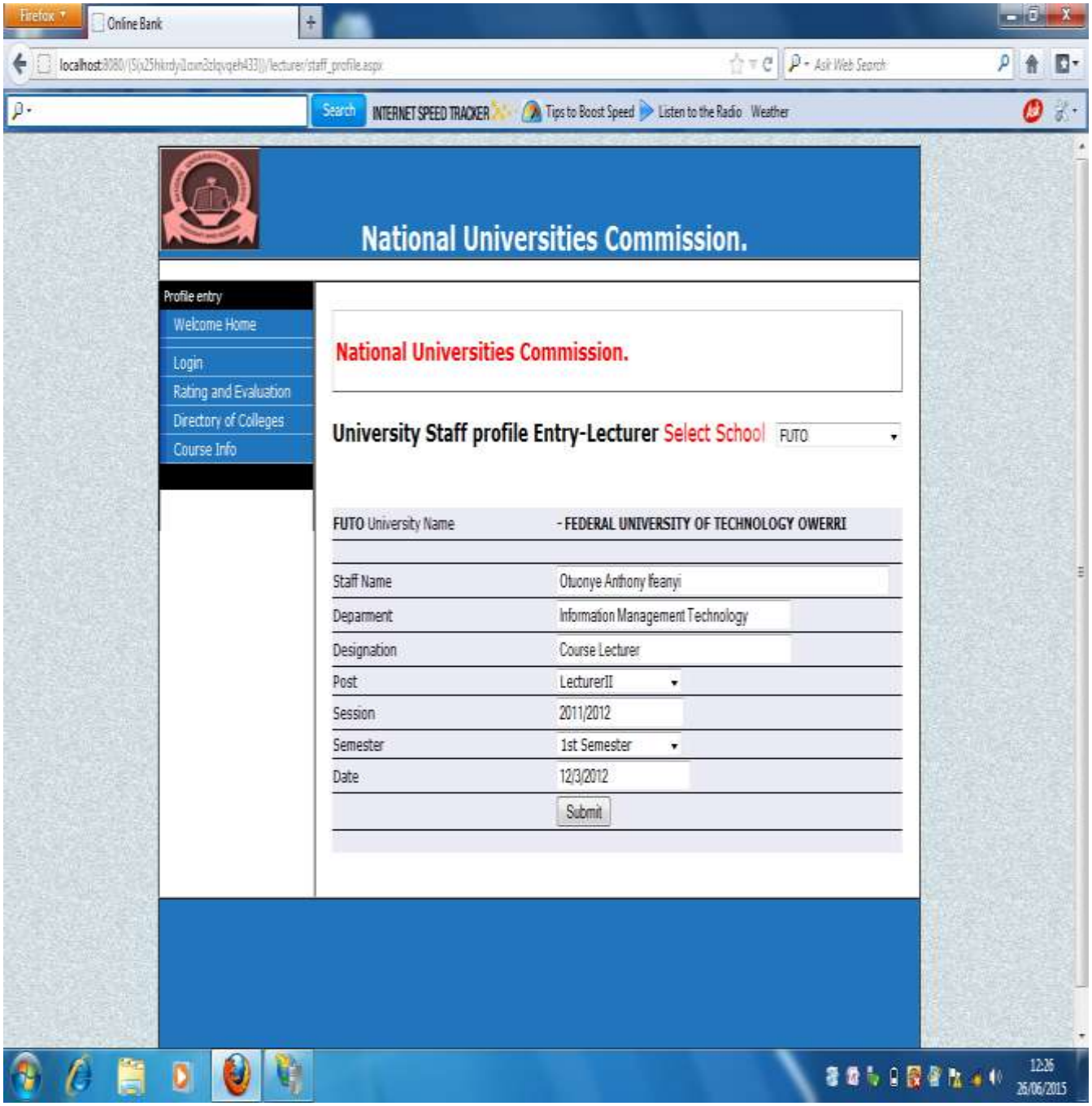
```
@University, @Department, @Program, @Course_code, @Course_title, @Session, @Semester,
@Date_x)")
        'cmd1.CommandText = ("INSERT INTO Course_Lecturer( sn, Lecturer_ID,
Lecturer_name, University, Department, Program, Course_code, Course_title) VALUES(@sn,
@Lecturer_ID, @Lecturer_name, @University, @Department, @Program, @Course_code,
@Course_title)")
        cmd1.Connection = cnn


        cmd1.Parameters.Add("@sn", OleDbType.Integer).Value = t1

        ' cmd1.Parameters.Add("@lev", OleDbType.VarChar, 10).Value = lv
        cmd1.Parameters.Add("@Lecturer_ID", OleDbType.LongVarChar).Value = t2
        cmd1.Parameters.Add("@Lecturer_name", OleDbType.VarChar, 10).Value = t3
        cmd1.Parameters.Add("@University", OleDbType.VarChar, 10).Value = drp1

        cmd1.Parameters.Add("@Department", OleDbType.LongVarChar).Value = t4

        cmd1.Parameters.Add("@Program", OleDbType.LongVarChar).Value = t5
        cmd1.Parameters.Add("@Course_code", OleDbType.LongVarChar).Value = t6
        cmd1.Parameters.Add("@Course_title", OleDbType.LongVarChar).Value = t7
        cmd1.Parameters.Add("@Session", OleDbType.LongVarChar).Value = t8

        cmd1.Parameters.Add("@Semester", OleDbType.LongVarChar).Value = drp2
        cmd1.Parameters.Add("@Date_x", OleDbType.Date).Value = t9
        ' cmd1.Parameters.Add("@opt5", OleDbType.LongVarChar).Value = t9
        'cmd1.Parameters.Add("@ans", OleDbType.Char, 1).Value = ta


        'Try

        cnn.Open()
cmd1.ExecuteNonQuery()

        clearRec()
        'Catch ex As Exception

        'Throw ex

        'Finally

        cnn.Close()

        cnn.Dispose()

        'End Try


    End Sub

    Sub update_rec()
        t1 = TextBox1.Text
        catches()
        Dim cnn As OleDbConnection = New OleDbConnection(cox)
        Dim cmd1 As OleDbCommand = New OleDbCommand("UPDATE Course_Lecturer SET
Lecturer_ID = @Lecturer_ID, Lecturer_name = @Lecturer_name, University = @University,
Department = @Department,Program = @Program, Course_code = @Course_code, Course_title
= @Course_title, Session = @Session, Semester = @Semester, Date_x = @Date_x WHERE sn =
@sn", cnn)

       cmd1.Parameters.Add("@sn", OleDbType.Integer).Value = t1
```

```
        ' cmd1.Parameters.Add("@lev", OleDbType.VarChar, 10).Value = lv
        cmd1.Parameters.Add("@Lecturer_ID", OleDbType.LongVarChar).Value = t2
        cmd1.Parameters.Add("@Lecturer_name", OleDbType.VarChar, 10).Value = t3
        cmd1.Parameters.Add("@University", OleDbType.VarChar, 10).Value = t4

        cmd1.Parameters.Add("@Department", OleDbType.LongVarChar).Value = t5

        cmd1.Parameters.Add("@Program", OleDbType.LongVarChar).Value = t6
        cmd1.Parameters.Add("@Course_code", OleDbType.LongVarChar).Value = t6
        cmd1.Parameters.Add("@Course_title", OleDbType.LongVarChar).Value = t6
        cmd1.Parameters.Add("@Session", OleDbType.LongVarChar).Value = t7

        cmd1.Parameters.Add("@Semester", OleDbType.LongVarChar).Value = t8
        cmd1.Parameters.Add("@Date_x", OleDbType.Date).Value = t9
        'cmd.Parameters.Add("@exm", OleDbType.VarChar, 10).Value = t5
        'cmd.Parameters.Add("@subject", OleDbType.VarChar, 30).Value = sb
        'cmd.Parameters.Add("@level", OleDbType.VarChar, 10).Value = lv


        Try

            cnn.Open()
            cmd1.ExecuteNonQuery()

        Catch ex As Exception

            'Throw ex3m

        Finally

            cnn.Close()

            cnn.Dispose()

        End Try
        'MsgBox("Sucessful Editting", MsgBoxStyle.Information)
    End Sub

    Protected Sub Button2_Click(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Button2.Click
        update_rec()
    End Sub

    Protected Sub Button1_Click(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Button1.Click
        add_rec()
    End Sub

    Protected Sub Button3_Click(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Button3.Click
        Calendar1.Visible = True
    End Sub

    Protected Sub Calendar1_SelectionChanged(ByVal sender As Object, ByVal e As
System.EventArgs) Handles Calendar1.SelectionChanged
        TextBox9.Text = Calendar1.SelectedDate
        Calendar1.Visible = False
    End Sub
End Class
```

APPENDIX V

SAMPLE OUTPUT

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Login
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FUTO
FUTO University Name
- FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI
Staff Name
Otuonye Anthony Ifeanyi
Deparment
Information Management Technology
Designation
Course Lecturer
Post
LecturerII
Session
2011/2012
Semester
1st Semester
Date
12/3/2012
Submit


Firefox
Online Bank
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University Staff profile Entry-HOD
Select School
-
Serial Number
Staff ID
Staff Name
Dr. M.O. Onyesolu
Deparment
Computer Science
Designation
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Semester
2nd Semester
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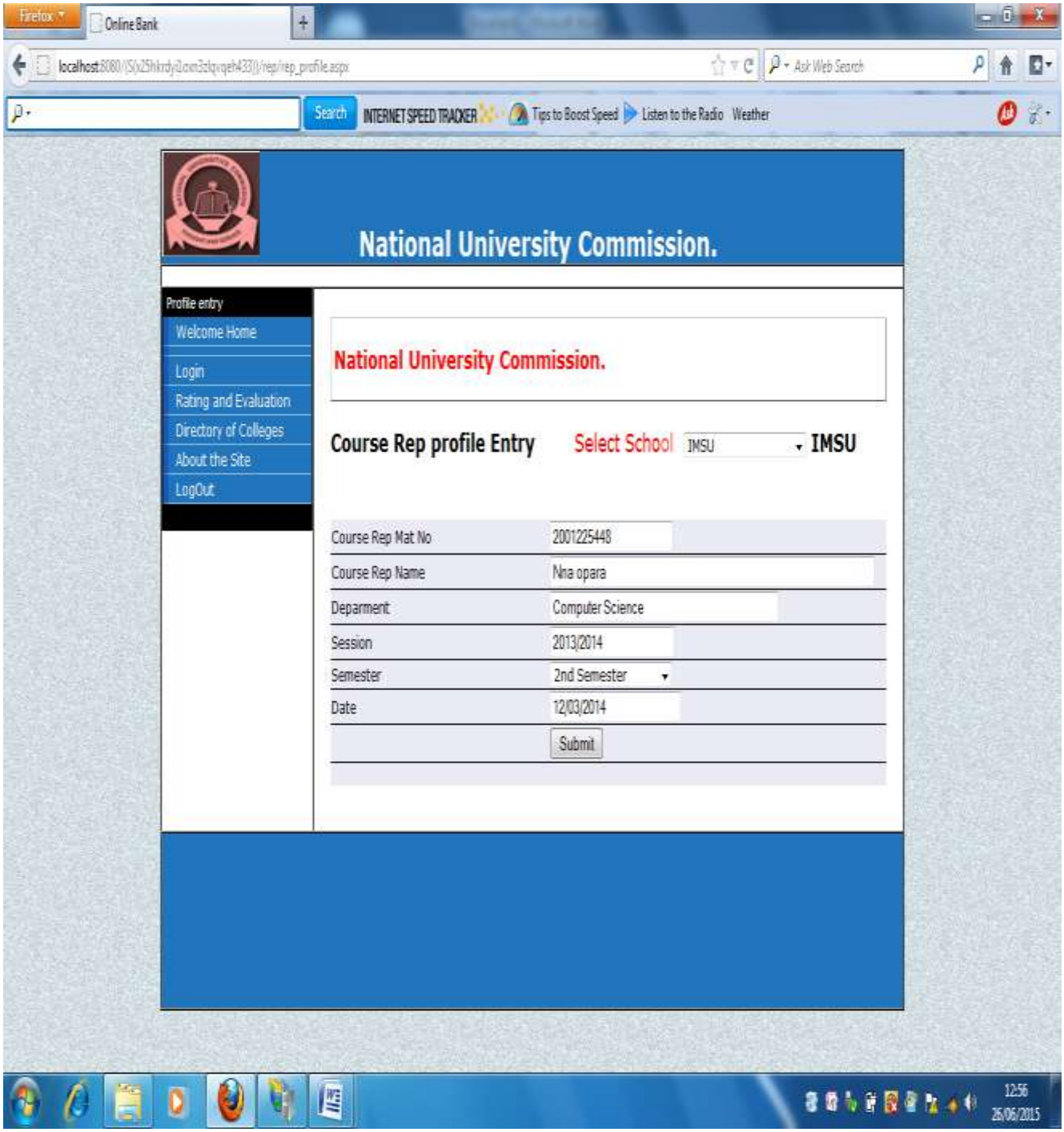
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IMSU
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Semester
2nd Semester
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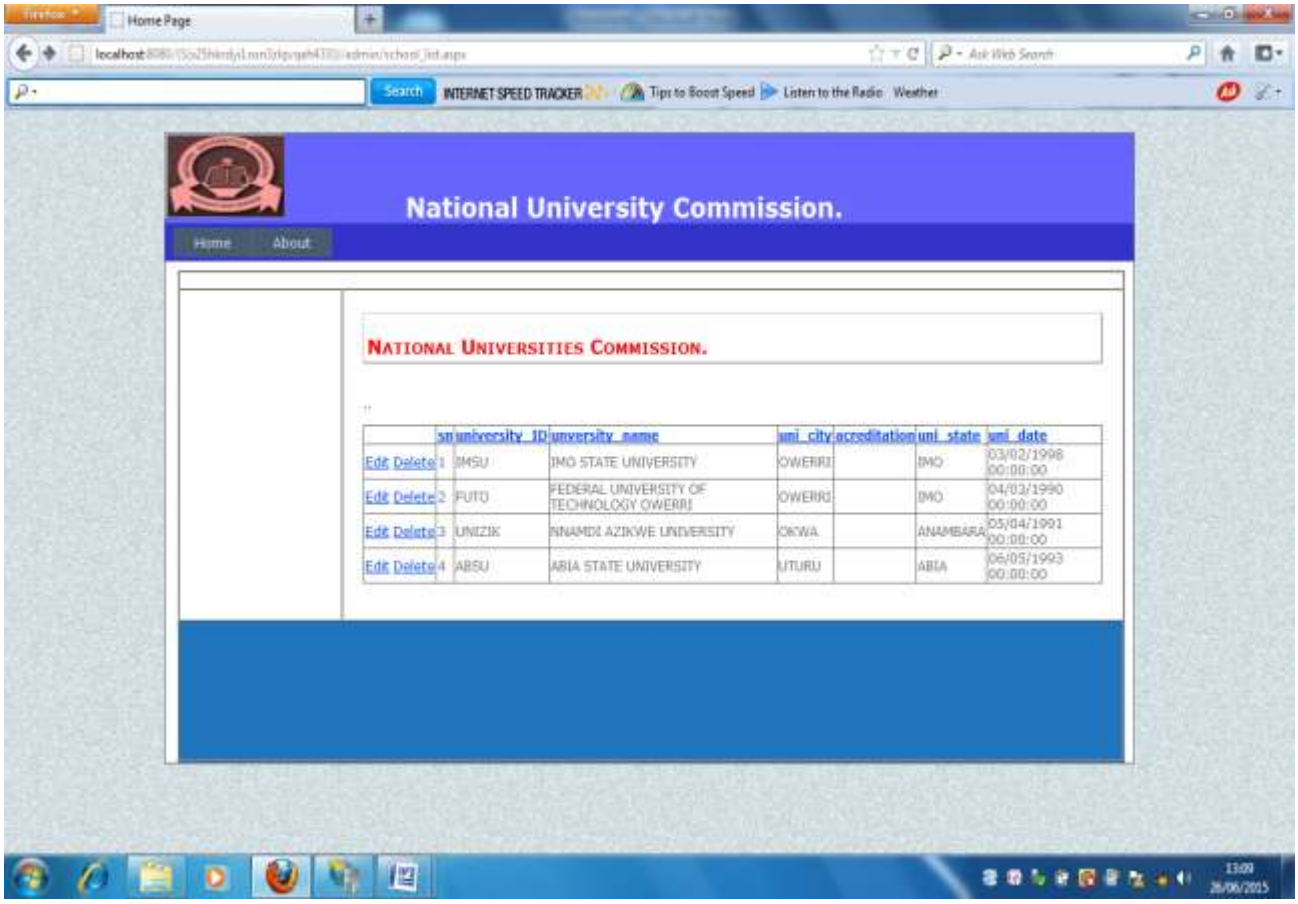
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About
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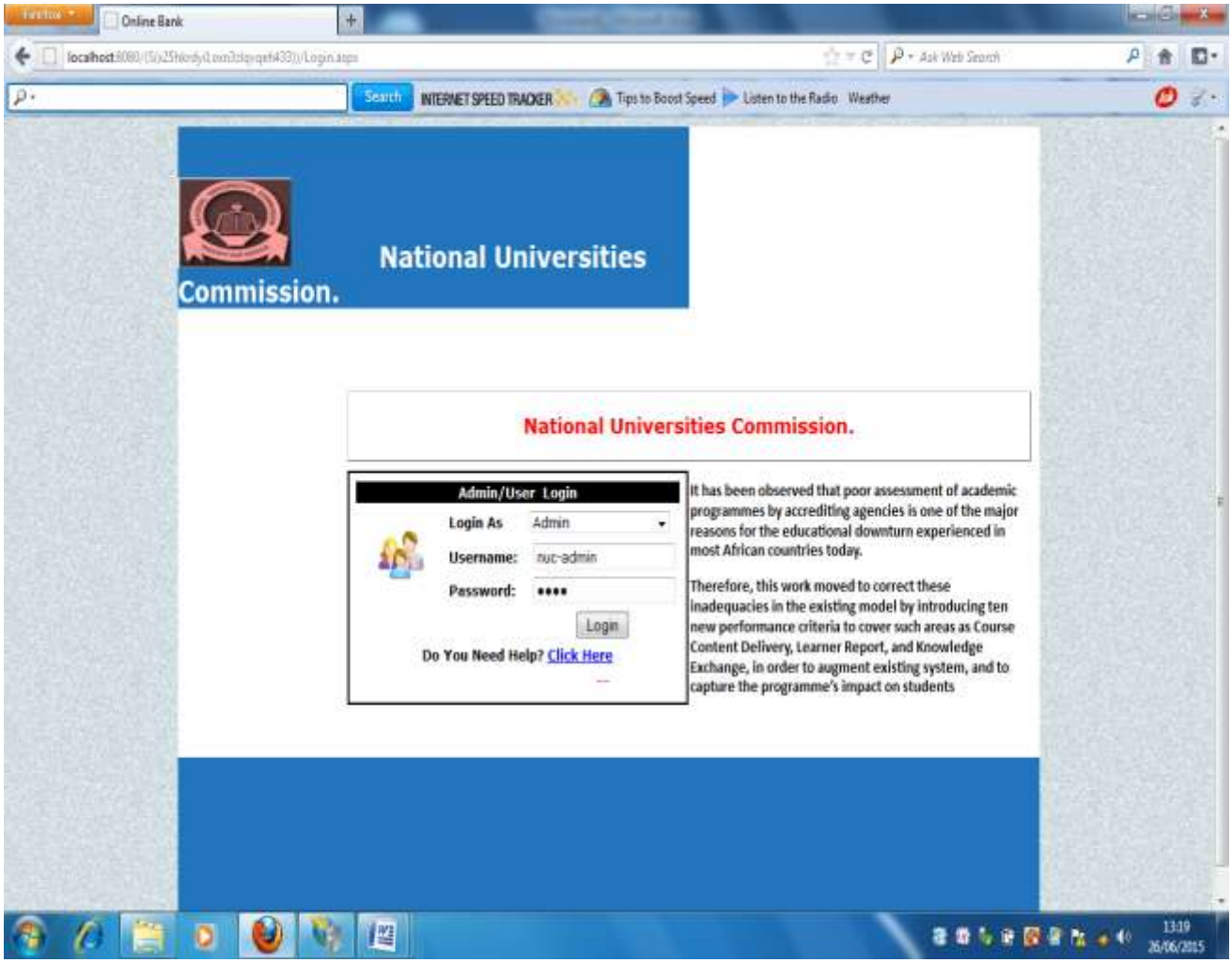
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Admin
Username:
nuc-admin
Password:
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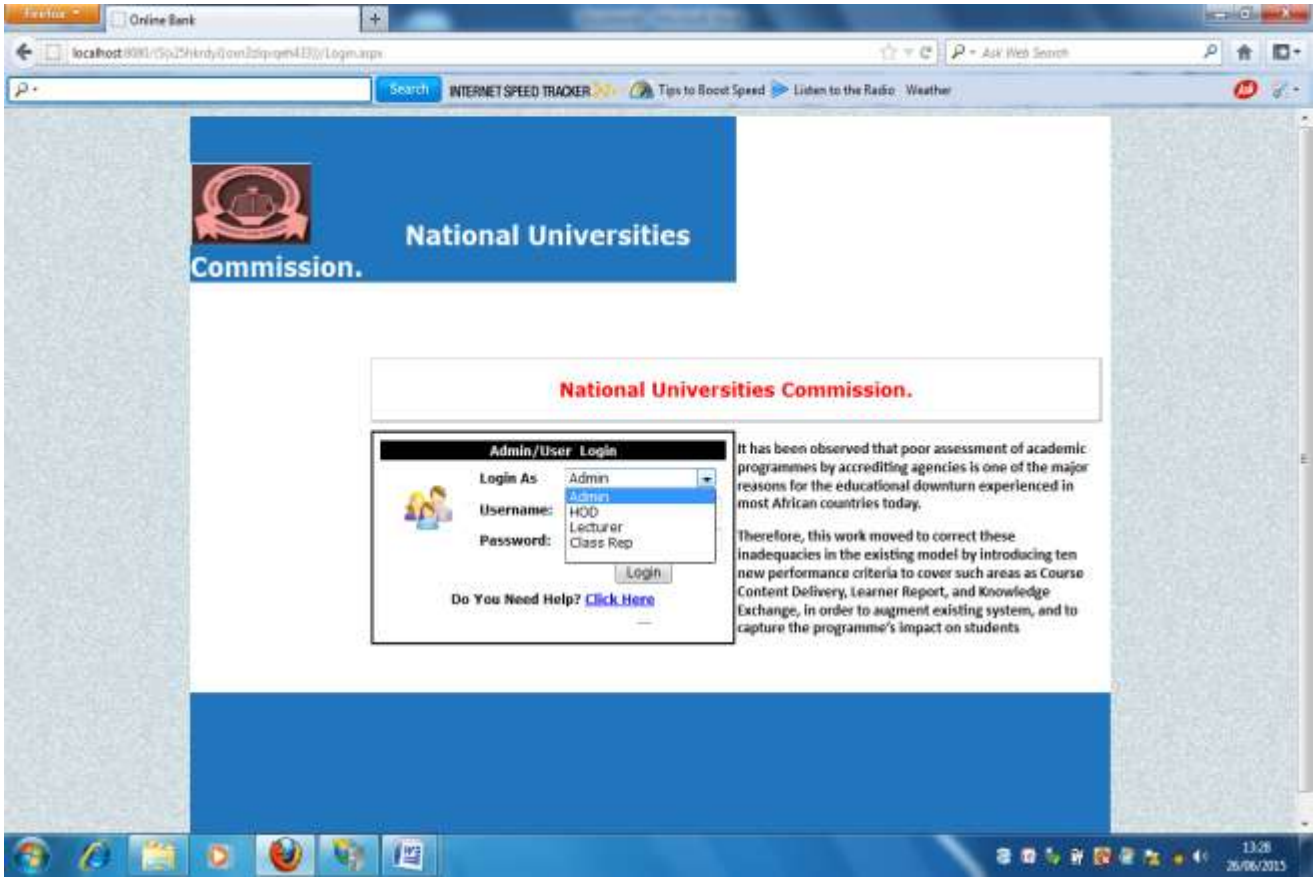
It has been observed that poor assessment of academic programmes by accrediting agencies is one of the major reasons for the educational downturn experienced in most African countries today.
Therefore, this work moved to correct these inadequacies in the existing model by introducing ten new performance criteria to cover such areas as Course Content Delivery, Learner Report, and Knowledge Exchange, in order to augment existing system, and to capture the programme's impact on students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Admin
HOD
Lecturer
Class Rep
Username:
Password:
Login
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University
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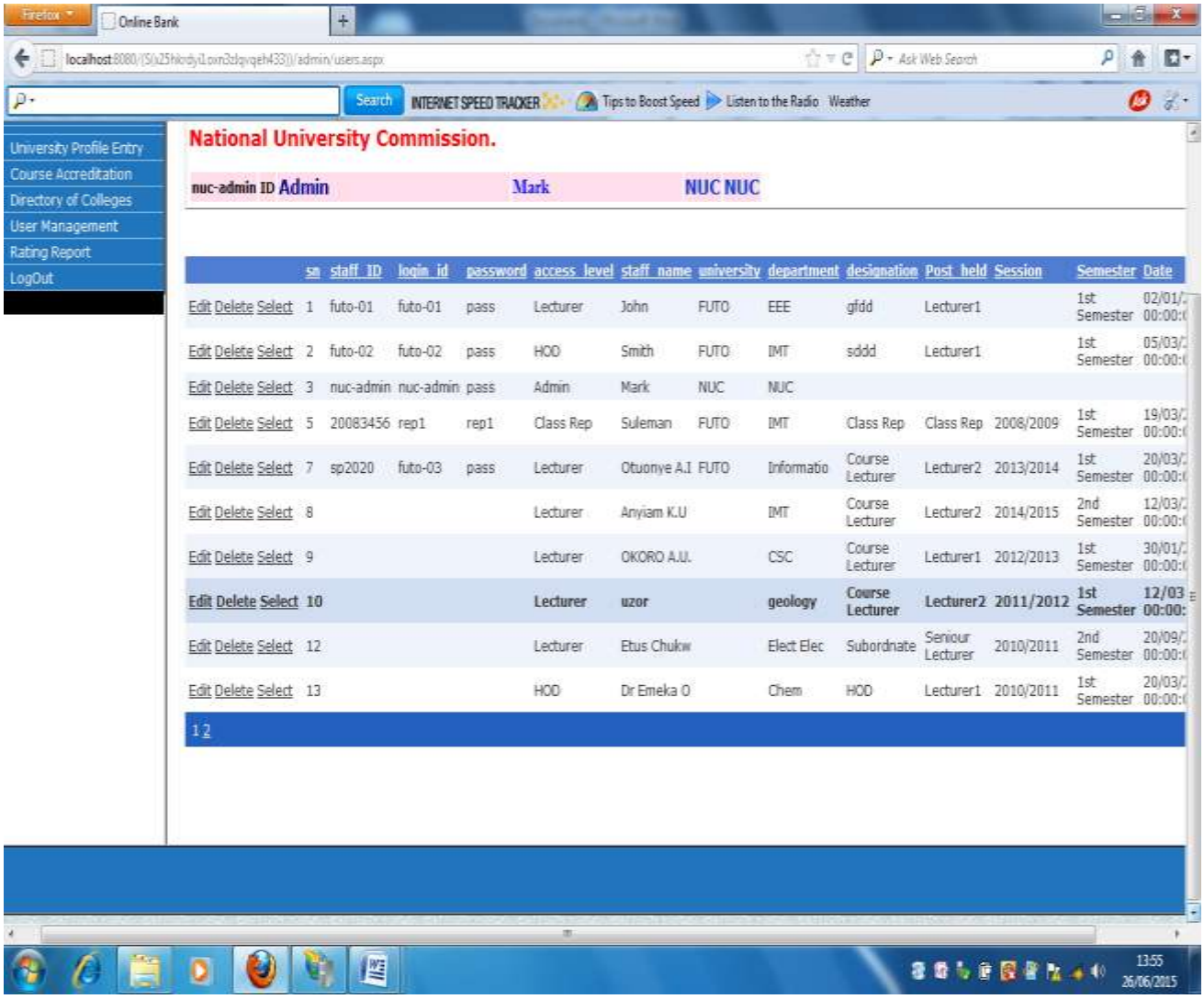
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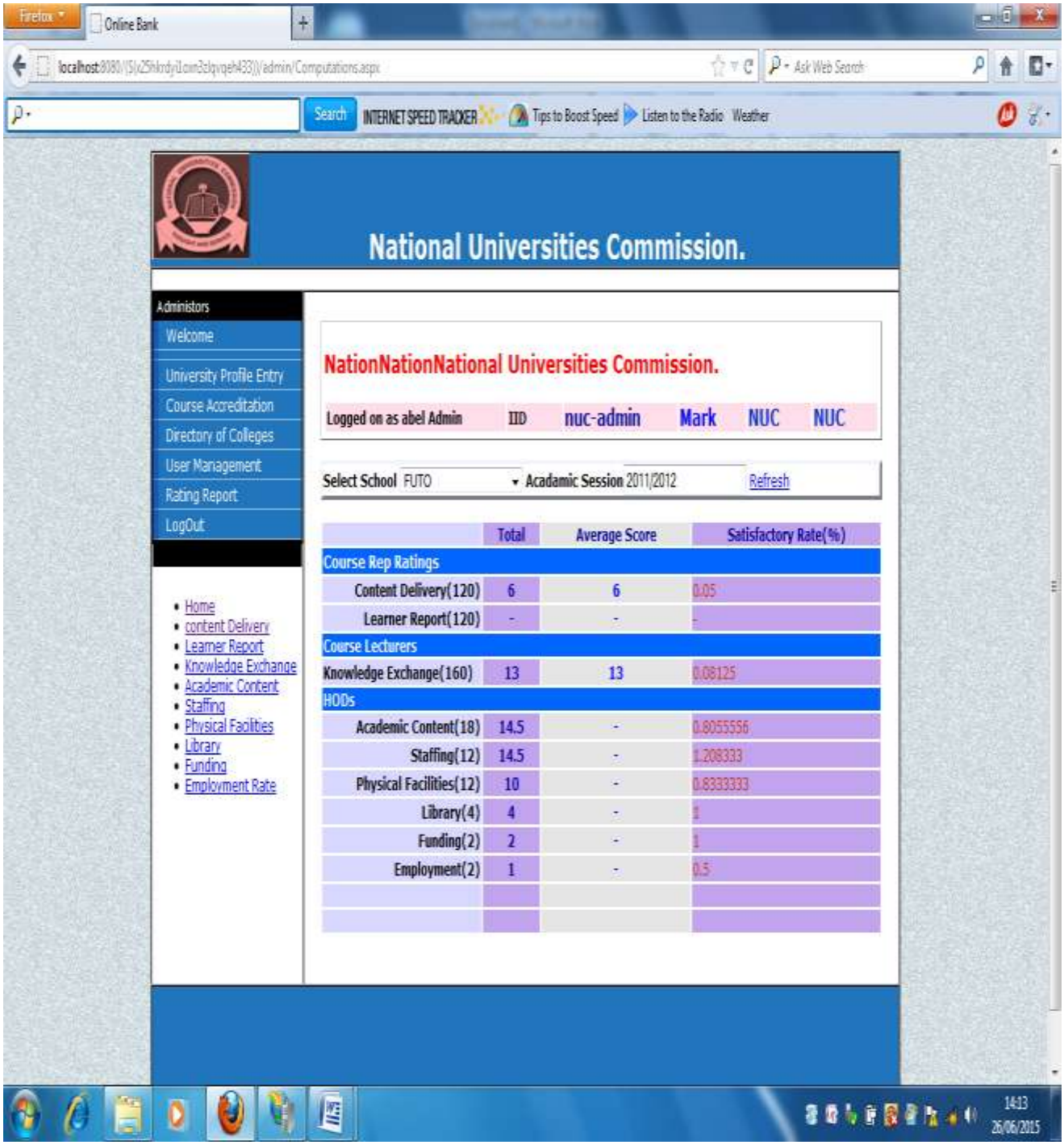
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Total
Average Score
Satisfactory Rate(%)
Course Rep Ratings
Content Delivery(120) 6 6 0.05
Learner Report(120) - - -
Course Lecturers
Knowledge Exchange(160) 13 13 0.08125
HODs
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Staffing(12) 14.5 - 1.208333
Physical Facilities(12) 10 - 0.8333333
Library(4) 4 - 1
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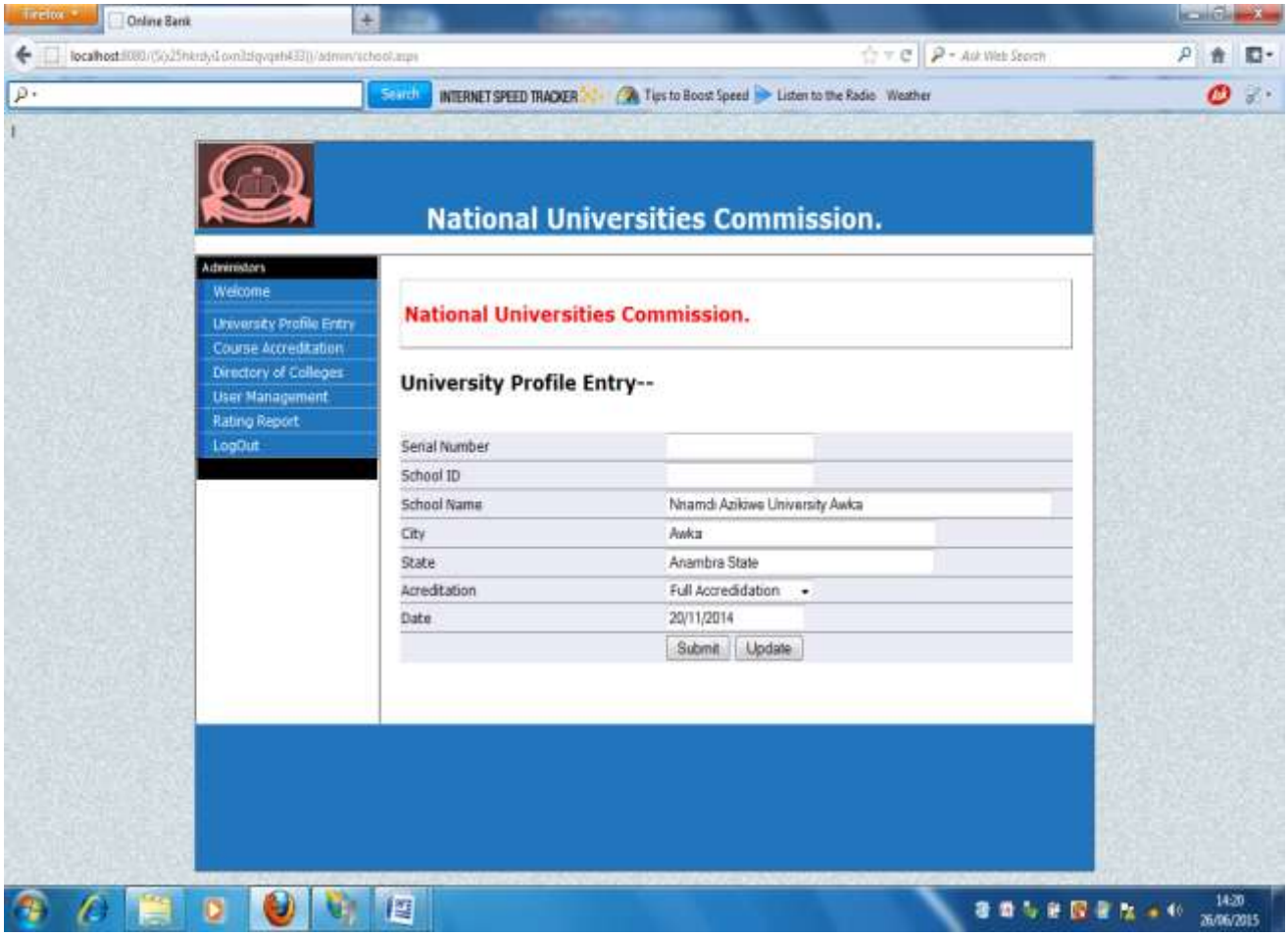
Learner Report
Knowledge Exchange
Academic Content
Staffing
Physical Facilities
Library
Funding
Employment Rate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Serial Number
School ID
School Name
Nnamdi Azikiwe University Awka
City
Awka
State
Anambra State
Acreditation
Full Accredidation
Date
20/11/2014
Submit
Update


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Staffing
Facilities
Library & Funding
National University Commission.
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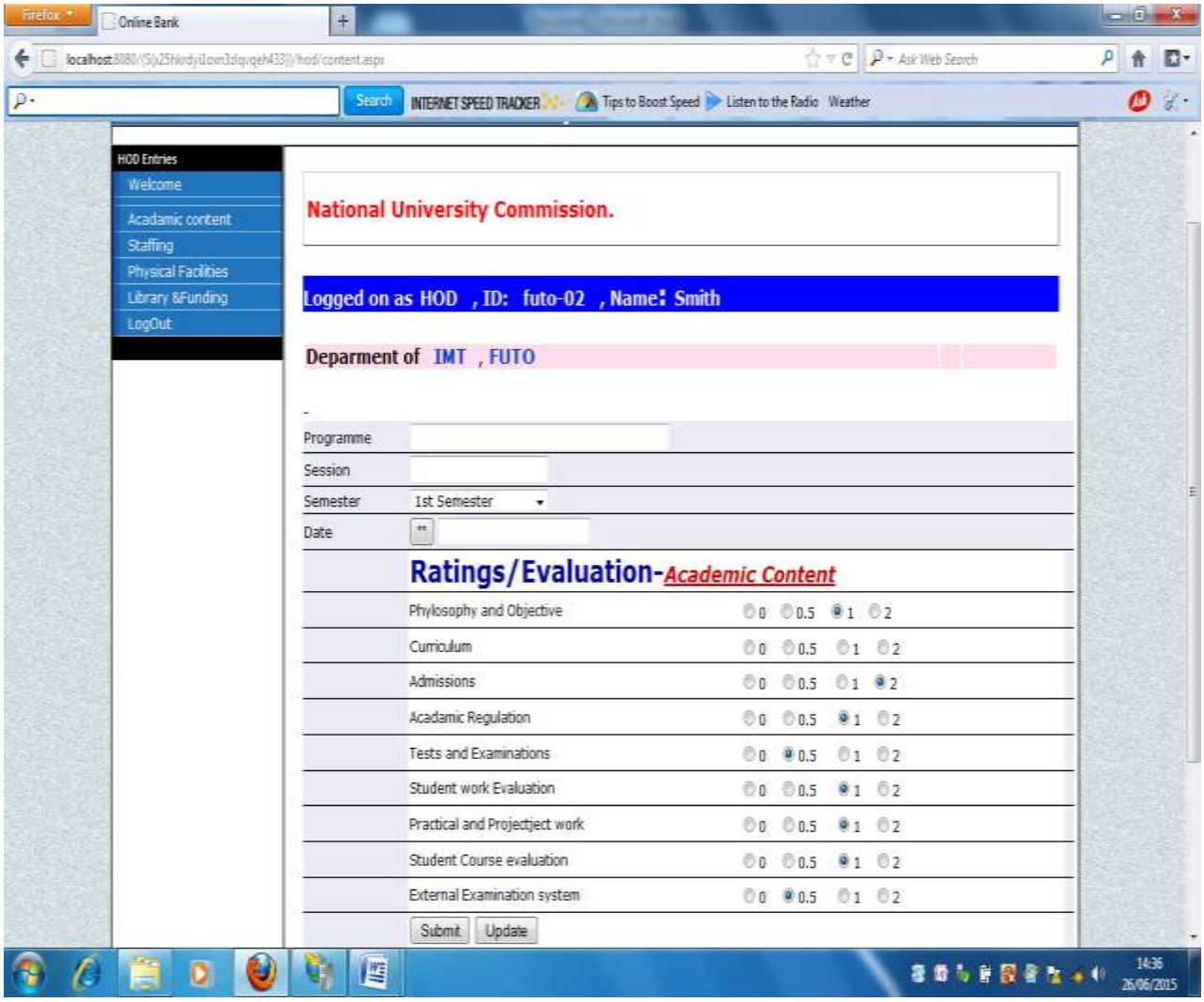
Smith
University
FUTO
Deparment
IMT
. The object model is based on software engineering principles and models the objects in the .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Deparment of IMT , FUTO
Programme
Session
Semester
1st Semester
Date
Ratings/Evaluation-Academic Content
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Curriculum
Admissions
Acadamic Regulation
Tests and Examinations
Student work Evaluation
Practical and Projectject work
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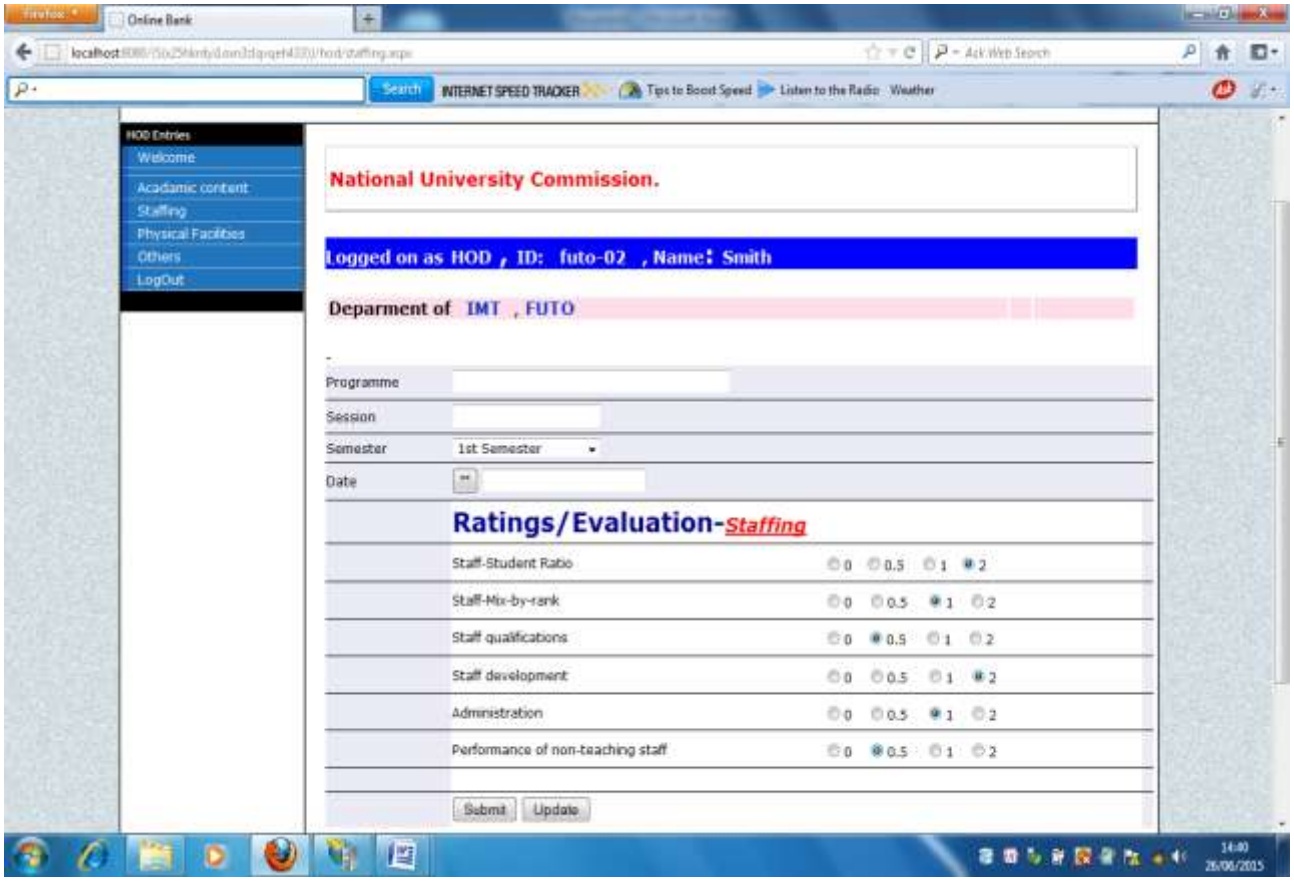
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Semester
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Date
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Staff-Student Ratio
Staff-Mix-by-rank
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Staff development
Administration
Performance of non-teaching staff
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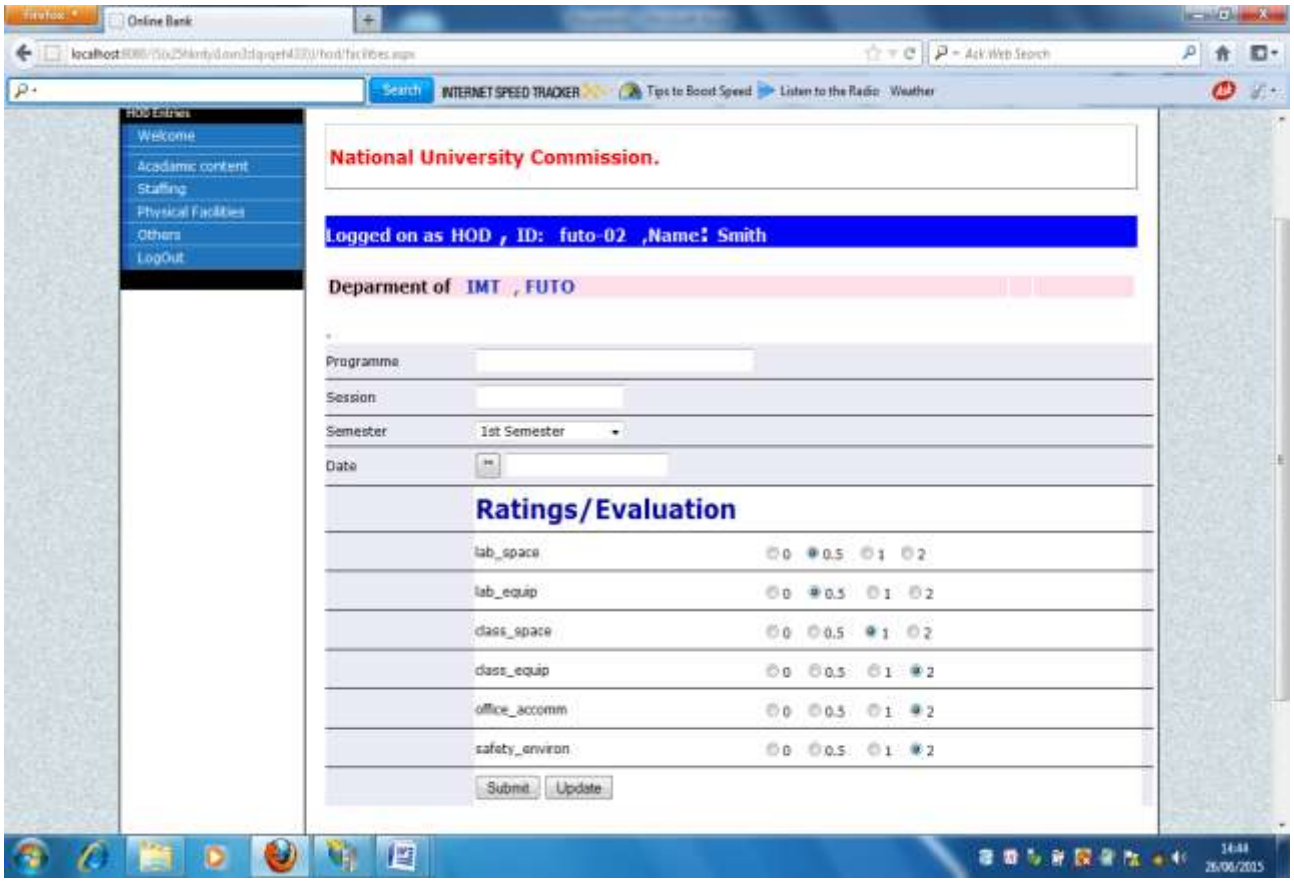
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Semester
1st Semester
Date
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lab_space
lab_equip
class_space
class_equip
office_accomm
safety_environ
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Update


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Ratings/Evaluation
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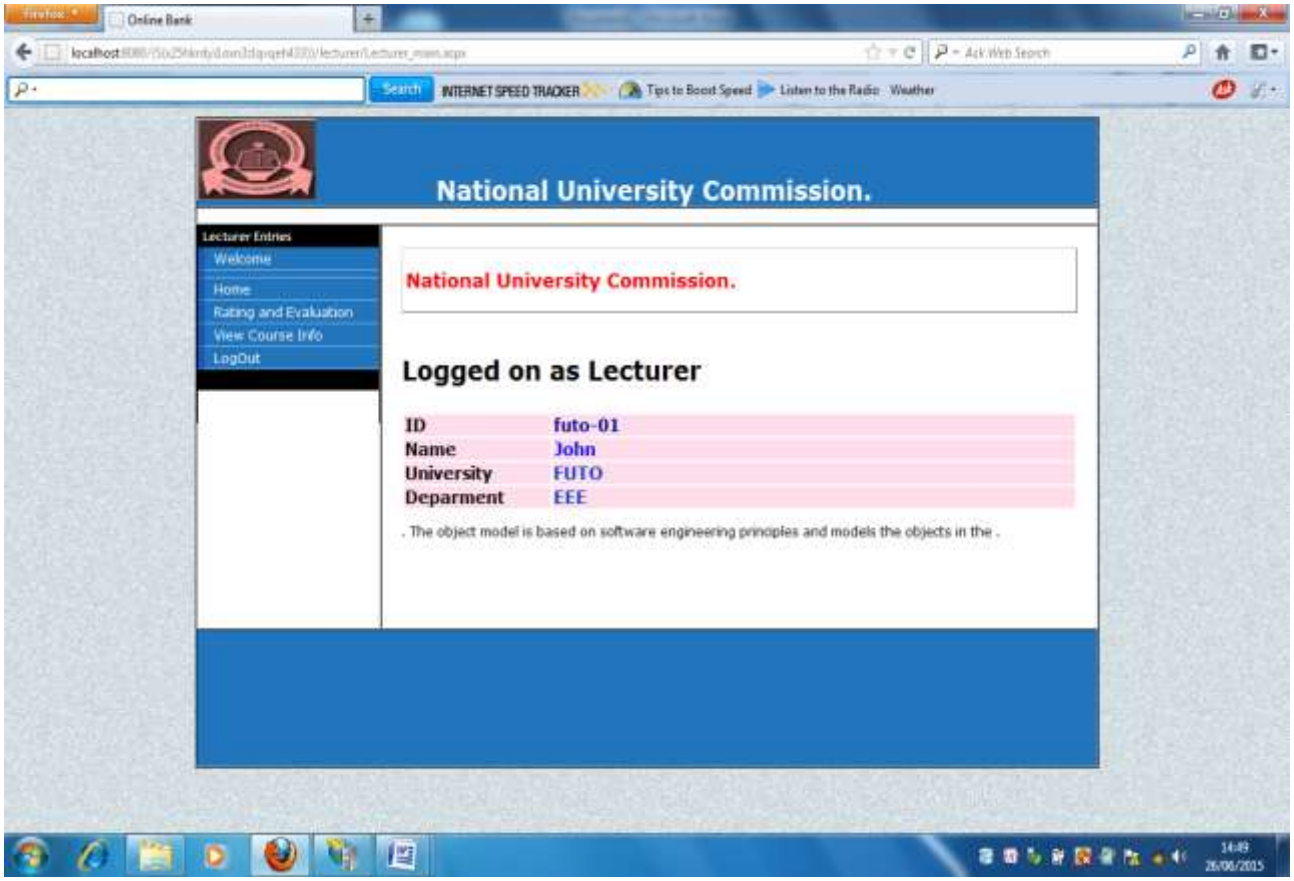
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FUTO
Deparment
EEE
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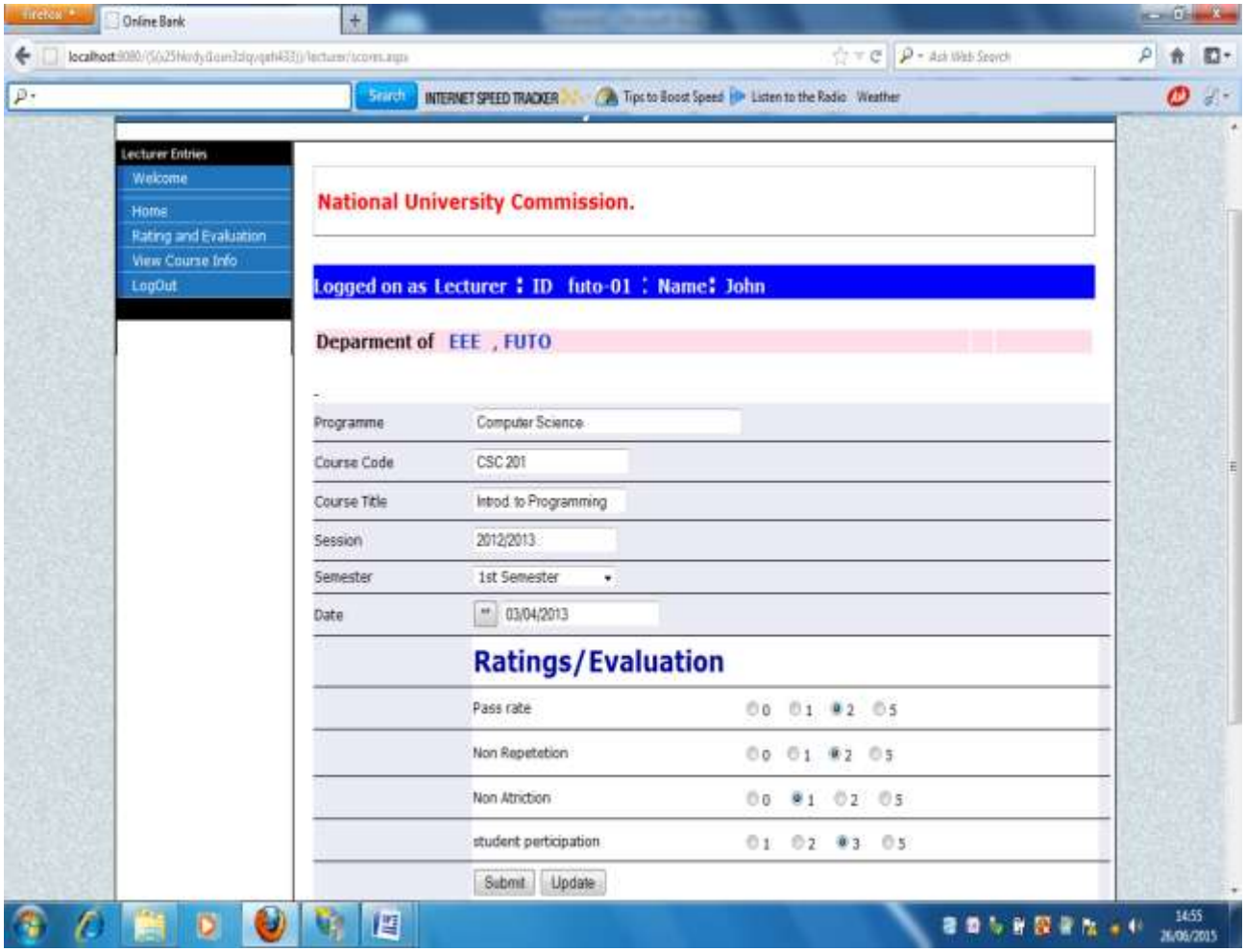
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Deparment of EEE , FUTO
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Computer Science
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CSC 201
Course Title
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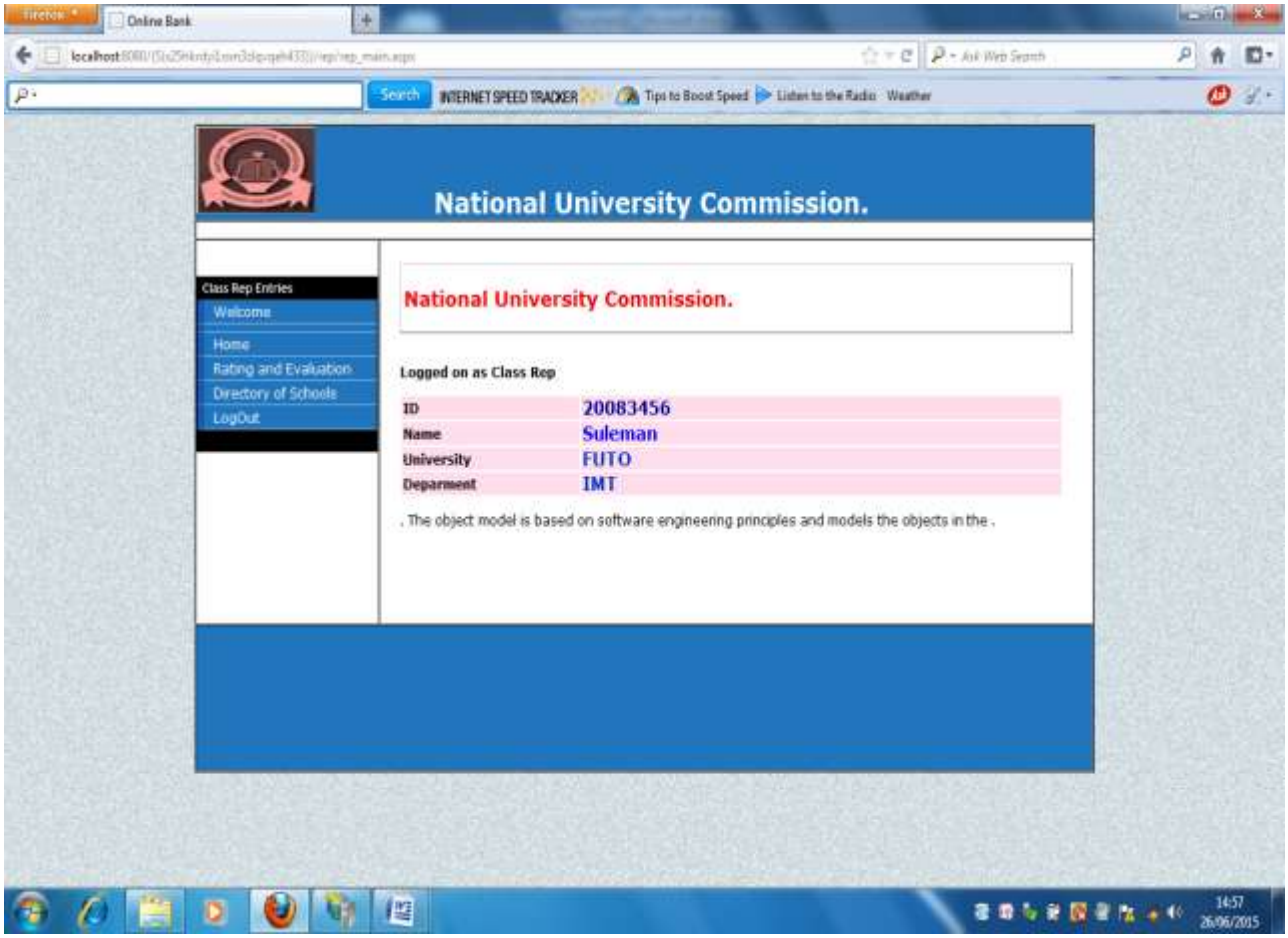
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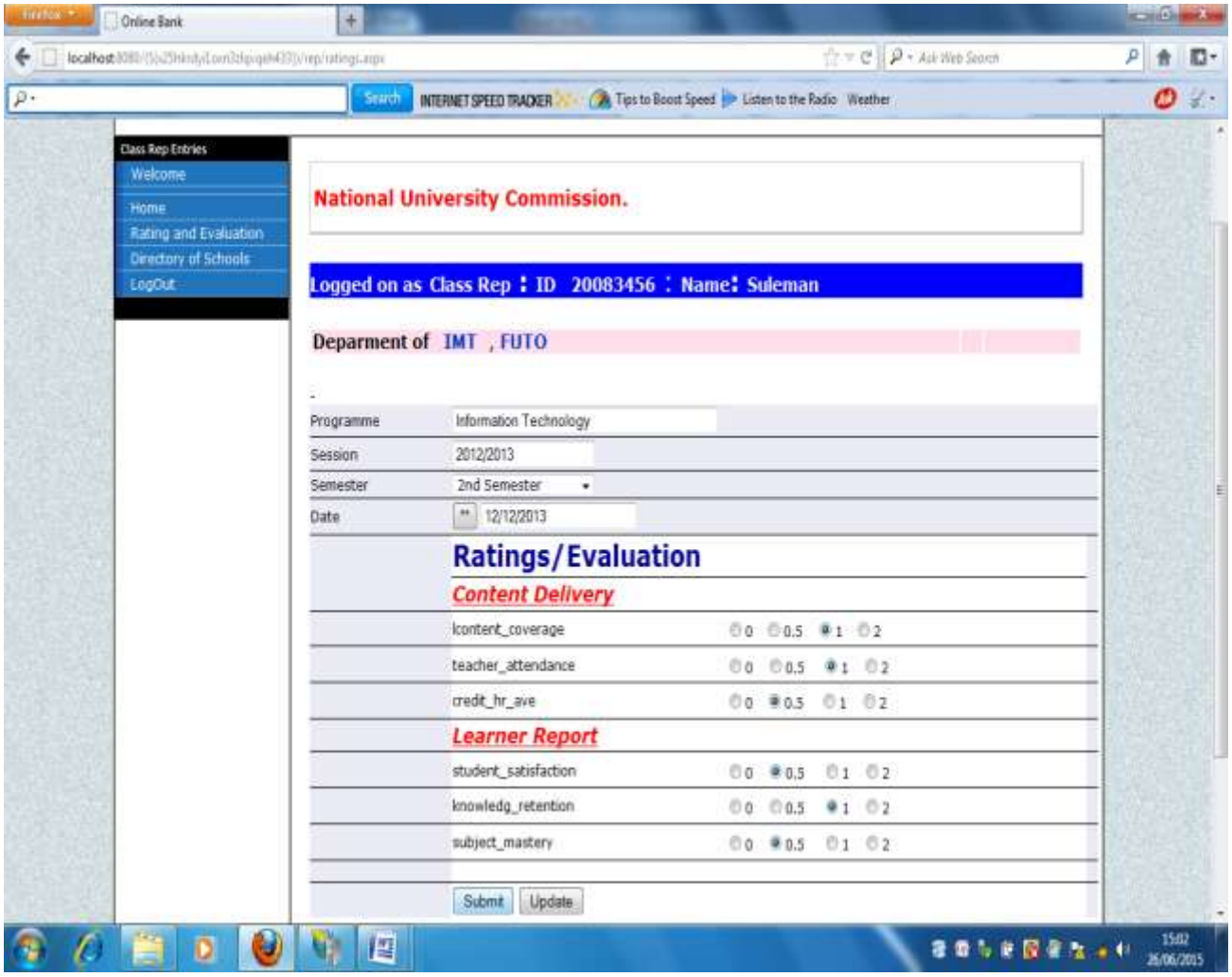
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2nd Semester
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subject_mastery
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