Education

QUALITY ASSURANCE IN HIGHER EDUCATION: CREDITISATION, EXAMINATION, EVALUATION AND CERTIFICATION

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ABSTRACT

Development of a quality assurance document for any University containing the proper guidelines for various academic activities specially creditisation of programmes, teaching and learning, examination, evaluation and certification are very important. The authors have conducted many workshops on quality assurance aspects with the faculty members of Cavendish Group of Universities at Zambia (located at Lusaka) and Uganda (located at Kampala). The guidelines developed and being implemented in the Cavendish group of Universities are presented in this paper. It is expected that these guidelines may be adopted by any university for the betterment of the students as well as teachers.

Keywords: Assignments, Assurance, Certification, Creditisation, Credits Transfer, Evaluation, Examination, Higher Education

INTRODUCTION

The world has become a global village. Higher education has become a prime mover in bringing students and teachers at a common platform. This, in turn, has initiated a strong competition among higher education institutions and universities to provide quality education and research. The quality education has become a subject of concern in the diverse areas of university education like creditisation of programmes, teaching and learning, examination, evaluation and certification. The universities are making continuous efforts not only to maintain the set quality standards but to continuously improve upon them i.e. quality assurance. The efforts are directed to achieve the following:

- To set the quality standards for each component of higher education (quality control)
- To continuously improve upon them (quality assurance)
- To provide research input to quality control and quality assurance aspects

Gadiya and Chandra (2014) have extensively studied the teaching and learning skills in a university system. Each and every conventional university has its own method of teaching and evaluation. These activities are by and large teacher-centred. Open and distance educational universities, on the other hand, have the systems which are student-centred. Each one of these approaches has some advantages and disadvantages. Mewar University has adopted a unique approach of teaching and evaluation which is partially teacher-centred and partially student-centred (*Gadiya and Chandra*, 2014).

There are many advances in scientific knowledge and innovations in educational field that necessitates constant changes in course curricula. This is for the benefit of society. There are many innovations and trends in engineering education that have been undertaken globally which include self directed learning, problem based learning and integrated

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teaching (*Smith*, 2005). Integrated teaching has become the new paradigm for exposing the new entrants in academics to the manifold dimensions of contemporary reality. What is *integrated teaching*? The way of connecting skills and knowledge from multiple sources and experiences or applying skills and practices in various settings is integrated teaching. It simply means bridging connections between academic knowledge and practical (*Huber & Hutchings*, 2004). An integrated curriculum refers to a non compartmentalized approach to basic science learning.

Thus, alternative method of teaching based on lectures, seminar, and assignments is believed to be beneficial to the student community at the institution and ought to be the ideal approach. Large undergraduate courses in any university offer a challenge to those involved in both, their development and their delivery, to ensure that the best possible learning outcomes are achieved in the most efficient way possible. When these students represent a combination of internal and distance students, and domestic and international, the challenge to achieve these outcomes become even more complex. *Kehoe et.al.* (2004) have analyzed the challenge of flexible and non- traditional learning and teaching methods.

Online and technology-based modes of study have been identified as a useful addition to classroom-based, traditional teaching methods (*Light et al*, 2000). The delivery of online courses enhances student learning in some respects, researchers have also cautioned against using the technology without adequate regard for the learning outcomes being sought (*Buckley*, 2003; *Lawther & Walker*, 2001; *Willett*, 2002). In fact teaching should drive technology and not vice versa (*Petrides*, 2002).

It has been observed that not all students learn at the same pace (*Cano et al.*, 1991; Jacobs, 1990). Students are unique in their own ways, including the way they learn. Since not all students learn in the same style, it is essential that teachers recognize the differences of learning style among their students and teach in a manner in which all learning styles are considered. The characteristics of teachers are just as diverse as those of the students. *Garger and Guild* (1984) suggested that the learning style, teaching style, and personality style of teachers have implications for student learning.

Ronning et al (1984) have suggested that problem-solving strategy must consider at least three dimensions: knowledge domain, problem-solving methods, and characteristics of learners. They have observed that the first two dimensions (knowledge domain and problem-solving methods) were widely accepted as essential for problem-solving, but there were no theories of problem-solving which took into account systematic individual differences. They concluded that modification of problem-solving instructions in ways consistent with students' learning styles, seems an inevitable consequence.

The teachers teaching styles may or may not be consistent with their learning styles. The teachers teach the way they learned (*Dunn & Dunn's*,1979). However, *Koppleman* (1980) commented that there is a lack of research concerning the influence of a person's learning style on their teaching style. *Heimlich* (1990) in an attempt to describe an individual's teaching style, defined two domains, sensitivity and inclusion. The sensitivity domain is based on the ability of the teacher to sense the shared characteristics of the learners. The inclusion domain is based on the teacher's willingness and ability to utilize instructional strategies that take advantage of the group's characteristics.

Higher education quality assurance in Sub-Saharan Africa has been studied in detail by *Materu* (2007). It has been indicated that tertiary education is fast growing in the African continent. The number of tertiary students increased by 3.6 times between 1985 and 2002 (from 800 thousand to about 3 million), on an average by about 15 percent yearly. This trend was led by Rwanda (55 percent), Namibia (46 percent), Uganda (37 percent), Tanzania (32 percent), Kenya (27 percent), Chad (27 percent), Botswana (22 percent), and Cameroon (22 percent). Quality assurance can play a key catalytic role in initiating reforms to revitalize weak tertiary education systems. Despite variations in cultural and political preferences, differences in leadership styles within universities as well as varying stages of development, there is emerging consensus that traditional academic controls are inadequate for responding to today's challenges and that more explicit assurances about quality are needed.

The quest for quality has always been a priority in higher education in Africa. However, the tension between political pressure to expand access and the desire by academics in HEIs to maintain quality did not allow a healthy culture of quality to evolve. Changes in quality assurance mechanisms over the years were driven by factors such as rapid enrolment growth to meet increasing social demand, significantly decreased public funding of higher education amid rising enrolment. Arrival of private universities in the African continent has changed the scene dramatically. These universities are now allowing latest concepts of quality assurance in providing higher education so that the graduates are at par with their peer studying in international universities.

Quality assurance within institutions of higher learning takes place throughout the teaching and learning process. It includes the following:

- Admitting the students as per the eligibility criteria;
- Staff recruitment and promotion procedures;
- Curriculum development and reviews;
- Creditisation of the programmes and modules;
- Teaching and learning facilities;
- Quality of research;
- Quality of policy development and management mechanisms;
- Quality examination and evaluation of students;
- Coding mechanism of the answer scripts before evaluation;
- Provision of external examiners;
- Standarising question papers;
- Assignment evaluation with useful comments.

Though little information is available in the public domain on the effectiveness of these methods, implementation of some of these processes is weak due to financial constraints, failure to keep up with new approaches to teaching and learning (for example, ICTs), and increased workload resulting from large student numbers. An academic review provides an opportunity for a university to:

- Review an academic program against the set quality standards, if available;
- Evaluate the quality of the academic program, its faculty, staff, and students;
- Establish priorities to develop its curriculum and to improve quality;
- Determine the financial and material resources needed to support the university's

OBJECTIVES

- Make recommendations for action by the program, the administration, and others;
- Provide information that is essential to quality assessment, the development and the enhancement of the impact and reputation of the program and the university; and
- Encourage all concerned to be self-conscious about quality and its improvement.

Okebukola (2012) has analysed quality assurance in higher education and pointed out the achievements and outstanding needs. *Smout & Stephenson* (2001) on the other hand have studied quality assurance in South African higher education. *Ajayi & Akindutire* (2007) have studied the quality assurance issues in Nigerian universities. The literature survey shows that a number of studies are available for quality assurance initiatives (*Munzali* 2006, *Paschal* 2006, *Goolam* 2006, *Daniel* 2006, *Saffi* 2006, *Titanji* 2006, *Kingsley & Orivel* 2006, *Bloom et. al* 2006, *Hall* 2005, *Hanushek & Wossmann* 2007, *Liu & Chang* 2006, *Shabani* 2006). These studies, however, have not touched upon the basic issues of quality control and quality assurance in creditisation of programmes, teaching and learning, examination, evaluation and certification. This paper has addressed all these issues.

CREDITISATION OF THE PROGRAMMES AND MODULES

As a first step for launching a programme, the following things should be done:

- Objective of the programme should be defined;
- The minimum and maximum duration of the programme should be defined;and
- The eligibility criteria should be outlined.

One of the strong measures of quality assurance is to have all the programmes and courses creditised and coded. The present system neither has the creditisation in place nor does it have the coding of courses in a proper way. In absence of this, it becomes difficult for the University to compare its services with other best Universities. At present, coding is not

only confusing but some faculties have adopted different approach. Also, the credit transfer scheme has to be defined and implemented.

In a University system, all the programmes and modules (courses) offered should be along with their coding. This will define the following:

- Total number of teaching hours for a programme and its courses,
- Total Credits of a programme and its courses, and
- The distribution of teaching hours into lectures, tutorials and practical.

CREDITISATION OF THE PROGRAMMES AND COURSES

The process of creditisation is shown in *Fig. 1*. The following are the steps involved:

- A Programme is divided into number of Courses (2 in the example);
- Each course is divided into several units and sub- units;
- The total number of teaching hours are estimated which are 40 Hrs and 60 Hrs, respectively; and
- These hours should further be divided into Lecture (L), Tutorial (T), and Practical (P).

Fig.1 Structure of Programme
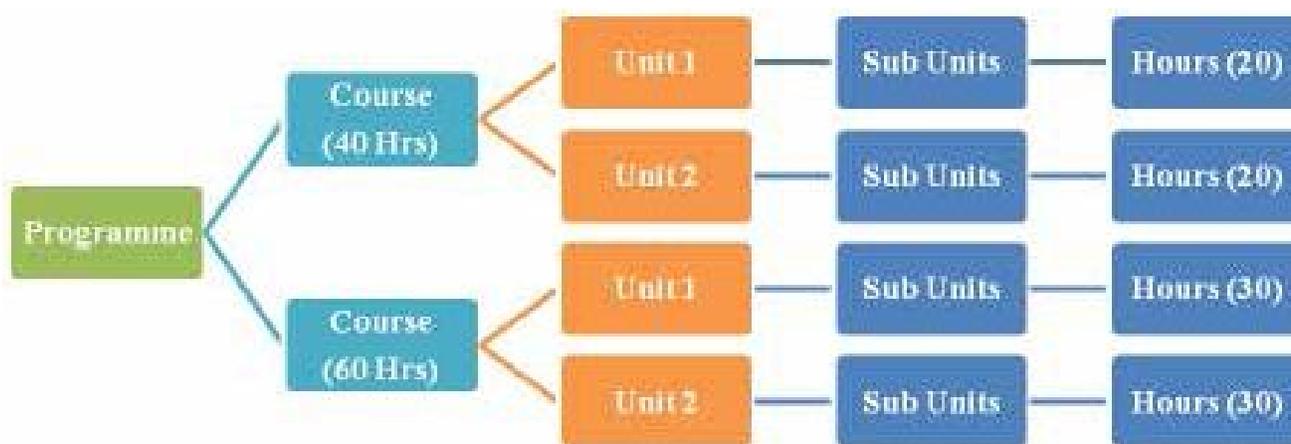
Let the modes of delivery are denoted as follows:

Lecture   : L

Tutorials   : T

Practical   : P

Take a Course of 40 Hrs of Teaching Load. We now assume the following:

Lecture   : L = 2 Hrs per week = (say) 2 Class

Tutorials: T = 1 Hr per week = (say) 1 Class

Practical : P = 2 Hrs per week = (say)1 Class

Then L + T + P = 2 + 1 + 2 = 5 hrs per week is the *teaching load* of the course under consideration. We can now determine the number of week required to complete the course in the class room.

The Credits of this course are defined as the sum of all class components. In other words

C = L + T + P/2 = 2 + 1 + 2/2 = 4

Since 1 Credit = 10 hrs of study, therefore total teaching hours are 40.

Let us make some of the points more clear:

We have taken P = 2 hrs per week which is equivalent to one class. In order to convert it to the same base as L, T, it has to be divided by 2. This can be summed up as

C = L + T + P/2

In case the same practical class is of 3 hrs/week, then C would be

C = L + T + P/3

In case the same practical class is of 1hr/week, then C would be

C = L + T + P

Thereafter module plan should be developed. Before we explain that, it is extremely important to give the range of credits for a given programme. This will act as a guideline.

CREDITS OF PROGRAMMES

The total credits of a programme depend upon how credit is defined and number of courses in a programme. We have taken 1 credit equal to 10 Hrs of study. Based upon this, the credits of a programme could be as given in *Table 1*.

Table 1 Credits of Programmes

S.No.	Programme	Duration	Credits Range	No. of Courses
1	Certificate	6 Months	16-20	4-5
2	Diploma	1 Year	32-40	8-10
3	Advance Diploma	2 Years	64-80	16-20
4	Undergraduate	3 Years	96-120	24-30
5	Master	2 Years	64-80	16-20
6	Master	18 Months	52-56	13-14
7	Master	12 Months	44-48	11-12
6	B. Tech	4 Years	128-160	32-40

An Example of Preparation of Module Plan

An example of the preparation of Module Plan is given below:

Course Name: Computer Hardware & Networking

Course Code – CUZ-110

L	T	P	C
2	1	2	4

COURSE OVERVIEW

World today has changed tremendously after the introduction of information technology which has influenced many spheres of activities. The common work environment presently is totally dependent on computers. It is, therefore, imperative that the students are well conversant with computer application for an effective functioning. As a matter of fact Information Technology in its different application forms has opened new vistas of career options. Hence, the aim of this course is to educate the students in such a manner that they can build their career in the field of computer hardware & networking with adequate potential of consistent professional growth in the current competitive corporate environment. The course primarily imparts practical knowledge of computer hardware and networking, which can assist in buildup of a new enterprise or alternatively help make career in this field. Besides the fundamental knowledge in this field, it also addresses the common running problems in computer hardware and remedial measures to improve its reliability. The practical is of one hour.

MAJOR CONTENTS

1. Introduction to Computers
2. Functions of Microprocessor
3. Motherboard Organization and Its Logic
4. Switch Mode Power Supply
5. Keyboard
6. Mouse
7. Monitor
8. Printer
9. Primary Memory Storage
10. Secondary Storage Devices
11. Hard Disk
12. Post- Assembly and Maintenance
13. Communication System
14. Transmission Media
15. Networking
16. Communication Techniques

The detailed course planner is given in *Table 2.*

Table 2: Illustration of a Course Planner

S.No.	Day	Subject	L	T	P	Total
1	*D Day*	**Introduction to Computer** • Introduction • Definition & Properties of Computer • Building blocks of Computer • Input and Output Devices • Central Processing Unit (CPU) • System Bus • Memory Unit • Logic Circuits • Micro-Operation	2	0	-	2
2	*D+1*	**Functions of Microprocessor** • Introduction to Microprocessor • Structure of CPU • System Bus • Instruction- Execution • Addressing Modes	2	0	-	2
3	*D+2*	**Motherboard Organization and Its Logic** • Introduction • Components of Motherboard • Layout of Motherboard • Types of Motherboard • Troubleshooting of Motherboard	2	0	2	3

4	D+3	**Switch Mode Power Supply** • Introduction • Linear and Switch mode power supply • Switch Mode Power Supply – Logic and Design • SMPS Installation and Distribution • Diagnosis of SMPS	2	0	2	3
5	D+4	**Keyboard** • Introduction • Types of Keyboards • Keyboard Special Functions • Keyboard Maintenance • Troubleshooting	2	0	-	2
6	D+5	**Mouse** • Introduction • Architecture • Parts of Mouse • Types of Mouse Technology • Operations • Mouse Maintenance • Troubleshooting	2	0	-	2
7	D+ 6	**Monitor** • Introduction • Difference between TV Screen and Computer Monitor • Interface logic between CPU and Monitor • Different Types of Display Interface • Different Types of Monitor • Maintenance • Troubleshooting	2	0	2	3
8	D+7	**Printer** • Introduction • Printing Technology • Classification of Printers • Plotters • Printing Speed • Printing Quality • Maintenance • Troubleshooting	1	0	2	2

9		**Primary Storage Devices**	2	0	-	2
	D+8	• Introduction • Concept of Primary Memory • Types of Primary Memory • Primary Memory Functioning and Management • Maintenance • Troubleshooting				
10		**Secondary Storage Devices**	1	0	2	2
	D+9	• Introduction • Secondary Storage Devices • Characteristics of Secondary Storage Devices • Types of Secondary Storage Devices • Floppy Disk • Pen Drive • Compact Disk • Trouble shooting				
11		**Hard Disk**	2	0	2	3
	D+10	• Introduction • History of Hard Disk • Types of Hard Disk • Importance of Hard Disk • Functions of Hard Disk • Installation of Hard Disk • Troubleshooting				
12		**Post- Assembly and Maintenance**	2	0	2	3
	D+11	• Introduction • Assembling the System • Computer Assembly and Start Up • Operating System Installation • Hard Drive Installation • IOS Setup • Partitioning and Formatting • Upgrading Memory • New Expansion Card Installation				

13	D+12	**Communication System** • Introduction • Data Communication • Elements of a Communication System • Communication Protocols • Communication Devices • Transmission • Data Communication Mode • Transmission Channel	2	0	-	2
14	D+13	**Transmission System** • Introduction • Classification • Types of Medium • Open Wire Cables • Twisted Pair Cables • Coaxial Cables • Optical Fiber • VHF • Microwaves • Satellite Link	2	1	-	3
15	D+14	**Networking** • Introduction • Concept of Networking • Networking Filtering • Types of Networks (LAM, MAN, WAN) • Network Topology • LAN Components	2	0	2	3
16	D+15	**Communication Techniques** • Introduction • Communication Hardware • Repeater • Routers • Bridges • Gateway • Communication Adapter • Network Protocols • Modems	2	0	2	3

REVISION OF COURSES

The old course contents should be reviewed and updated preferably once after every three years. All the courses which are older than three years will be updated on priority. This is because information is changing at a very fast rate. The teachers should be doing continuous research to insert up-to-date information and need based contents in the courses.

STRUCTURE OF THE PROGRAMMES

The university should have the programme structure based on core courses and elective courses. The need based components as per industry requirements and Government priority areas should be included. As quality assurance initiative, the new as well as existing programmes should have two components:

(a) **Core Courses**

(b) **Electives Courses**

The students will be asked to complete about 60-70% of the credits from Core Courses and remaining credits from the electives of their choice. Each faculty will offer electives. The students will be free to pick up electives from their faculty or from other faculty. This flexibility to the students will give a lot of advantages to them. The elective courses will contain courses related to emerging technologies.

CODING OF COURSES

As stated above, all the programmes will have core courses and elective courses. The core courses will have the codes resembling the programme name. Some of the programmes will also have inter-programming courses. The elective and inter-programming courses should have about 30-40% weightage.

The coding of a module will follow the standard procedure. Let the module be BBAxyz. Here x = year (1,2,3,…), y = Semester of that year (1 or 2) and z = module number (1,2,3,4,…). Thus BBA111 indicates that this module is being offered in the year 1 and semester 1 and the module number is 1.

CREDIT TRANSFER GUIDELINES

Since the world is becoming a global village, the students will move from one university to another. This requires a credit transfer scheme.

(a) **Credit Transfer when programme is not completed**

- A student who is not able to complete any programme within the maximum stipulated time period will have to take re-admission into the programme and will be allotted a new ID number;

- The credits earned by the students in the old ID will be fully transferred to the new ID number;

- The student will have to apply for credit transfer by paying the requisite fee per course and filling up the form for fresh admission;

- Once a student takes fresh admission into the programme, it will be valid for another term. The student will be required to complete all the remaining courses during this time period.

(b) **Credit Transfer for External Students**

The University has to cater to the needs of those students who wish to join the University after completing some of the courses in other university. The number of courses to be accepted for credit transfer:

(1) Certificate Programmes: 2

(2) Diploma Programmes: 4

(3) Advanced/Post Graduate Diploma: 4

(4) Bachelor Programme: 8

(5) Master Programmes: 6

GUIDELINES FOR EXAMINATION

The examinations are the human face of the University. The university should have proper guidelines for the following:

- *Semester End Examination* (SEE)
- *On Demand Examination* (ODE)
- *Practical Examination* (PE)
- *Setting Questions Papers*
- *Conduct of Examination*
- *Preparation and issue of assignments, their evaluation and return to the students with proper comments.*

After an extensive survey of several universities, we have come to conclusion that university can adopt following scheme:

- 2CA (40%)+ SEE (60%), once each in June and December every year.

This will tantamount to creating two Class Assignments (CAs) having 40% weightage and Semester End Exam to be conducted only in June and December having 60% weightage. This is shown in *Fig.1*. This will also require that all issues related to CAs should to be dealt within the set guidelines. The operation of assignment related activities has been outlined in *Table 3*.

Table 3: Operation Schedule for CAs

Exam Session	Issue of CA1	Issue of CA2	Marks to Exam Office of CA1 and CA2	Issue of CA3 in case students have not cleared CAs	Marks to Exam Office of CA3
June	September 15	October 15	October 30	November 10	November 20
December	March 15	April 15	April 30	May 10	May 20

EXAMINATION SCHEDULE AND GUIDELINES

Semester End Examination (SEE)

The semester end examination time table will be prepared well in advance and made available to all concerned. It should also be placed on the University Website. The following guidelines should be followed:

(1) Those students who have cleared all dues will be permitted.

(2) The students without ID card will not be permitted to write the examination. University should issue ID cards to all students.

(3) If the students have lost/misplaced their ID cards, they can make a request to the University to get a duplicate ID card.

(4) The students have to inform the University that they are appearing in the examination for given num-ber of courses. This has to be given in writing through an undertaking. The following procedure may be adopted:

- *Step 1*: The University will announce the Time Table for June/December Examination and put it on the University Website/Faculty Notice Boards.

- *Step 2:* The Students will fill up the Examination Form indicating the Modules etc. and after getting it cleared from the Account section will submit it to the Academic Office, latest by particular date. Students who failed to submit the Examination Forms by due date can do so even after the last date but with the penalty of late fine. The Examination Forms will also be uploaded on the University Website and can be collected from the offices of Deans and the Programme Leaders.

- *Step 3*: The University will issue the Dockets (Hall Tickets) well before the start of examination.

This entire operation for SEE is summarized in the *Table 4* for universities operating on semester basis and two intakes in January and July.

Table 4: Operation for SEE

Exam Session	University to Announce Time Table	Students to Fill Up Exam Form and Submit to Academic Office	Students to Fill Up Exam Form and Submit to Academic Office with late fine	Dockets to be issued by the University latest by
June	April 15	May 15	May 30	May 25
December	October 15	November 15	November 30	November 25

ON DEMAND EXAMINATION (ODE)

On demand examination may be introduced by the University for face to face programmes, distance learning programmes, credit transfer schemes of the University. The steps include:

- On Demand Examination will be conducted on the 25th of January/July in the respective semesters. The students will apply for appearing in ODE;

- The students who could not clear a module in SEE will be eligible for ODE;

- The students who could not write SEE for specific reasons may be allowed to write ODE if accepted by the University;

- The students willing to get credit transfer will have to appear in ODE.

PRACTICAL EXAMINATION (PE)

(1) The Practical Examination schedule for the concerned courses should be prepared well in advance and made available to all concerned like semester end examination schedule.

(2) The students who have attended 75% of the practical classes will be allowed to appear in the PE.

(3) Those students who have not completed 75% attendance will be asked to repeat the practical classes.

GUIDELINES FOR SETTING QUESTIONS PAPERS

The setting of question papers should be standardized. Each question paper will have two sections; Section A and Section B.

Section A will be compulsory and will have two questions as described below:

Q.1: A case study and one question (containing only 4 sub- questions) to be answered. The weightage should be 20%.

Q.2: A multiple choice question containing 10 sub- questions each of 2 marks. Each sub-question will have 4 choices with only one choice as correct answer. The weightage should be 20%. This question will fulfill the requirement of Bloom's Taxonomy.

Section B will have 5 questions (containing only 2 sub-questions each) and 3 questions are to be answered. This section has 60% weightage. The questions in Section B will be numbered as Q.3, Q.4, Q.5, Q.6, and Q.7.

PROCEDURE FOR SETTING OF THE QUESTION PAPERS

All the Deans should prepare a list of the courses for which semester examination is due with the support of University Examination Office (EO). Teachers will prepare 2 sets of question paper and submit to the EO. The format of the question papers will be as follows:

Code of the Module	Name of the Module	Date of Exam	Time of Exam	Set

You are advised to read the following before answering the examination question.

1. Read each of the questions carefully before you answer.

2. Number the answers to the questions clearly before answering.

3. Answer all parts of a question at one place in continuous manner.

4. Please write as clearly as possible. Illegible handwriting cannot be marked.

This paper contains two parts; Section A and Section B. Section A is compulsory and comprises two questions; Q.1 having four sub-questions of five marks each is based on a case study and Q.2 having ten sub-questions of two marks each is based on multiple choice questions. Section B contains five questions having two sub-questions of ten marks each. Answer any three questions from section B.

Section A
Answer both questions

Read the following carefully and then answer Q.1.

Q. 1

(a)

(b)

(c)

(d)

Q. 2 Answer all questions. Out of the four alternatives given for each question, only one option is correct.

(i)

(a)

(b)

(c)

(d)

Similarly remaining questions from (ii) to (x) will be set.

Section B
Answer any three questions

Q.3

(a)

(b)

Q.4

(a)

(b)

Q. 5

(a)

(b)

Q. 6

(a)

(b)

Q. 7

(a)

(b)

UNDERTAKING FOR QUESTION PAPER SETTERS

Since paper setting is a confidential activity, all paper setters should give an undertaking in the following format:

Name of the Paper Setter: ....Sex: ....

Name of the Faculty:…………………………………………………………

Name of the Programme:……………………………………………………….

Name of the Course:………………………………………………………..

Code of the Programme:………………………Code of the Course:……………

I, the undersigned hereby certify that I have read the relevant guidelines and do understand them and will not go against the rules and regulations of the University procedures for paper setters as stipulated in the guidelines. I also state that I have not kept anything related to question paper set by me in any form, photo copy, scan copy etc.

Signature...

Date...................................

SCHEDULE OF SUBMISSION OF QUESTION PAPERS TO EXAMINATION OFFICE

The format for schedule of submitting the question papers to EO is given in *Table 5.*

Table 5: Schedule of Examination Activities

Exam Session	Two sets of question papers as per the standard format to Exam Office	Papers to be Moderated by the date	Papers to be printed in the desired numbers and packed as per the Exam Schedule
June	May 15	May 20	May 25
December	November 15	November 20	November 25

TYPES OF QUESTIONS

The question paper setters should take adequate precaution in setting up the questions. The purpose should be to test the learning outcome rather than testing the memorising capacity of the students.

This can be done by framing the following types of questions:

(a) Questions based on Case Studies

(b) Long Answer Questions

(c) Short Answer Questions

(d) Multiple Choice Questions

The suggested guidelines are given below:

Questions based on Case Studies: The case study should be interesting one and may be related to daily life scene. The questions should be based upon a situation to judge the capability of the student to extract the answer from the case study.

Long Answer Questions: The long answer questions should be framed to judge the capability of the student to answer in innovative way rather than giving the answer after memorising.

Short Answer Questions: The short answer questions should be framed from the entire course curriculum.

Multiple Choice Questions: This is the most important component and the questions will test the students' knowledge in the right perspectives. Bloom's Taxonomy can be used to frame the multiple choice questions. Here are some guidelines.

Bloom & Krathwohl (1956) has excellently described the link between strategies and learning objectives to assist the teachers in developing and directing students in logical steps of learning. This is given in *Table 6.*

Knowledge, comprehension and application are passive modes where activities are more or less teacher-centred. Knowledge and comprehension focus on a recall of facts that students can attain by reading the course material and attending lectures. The evaluation strategies are through true/false and multiple choice questions for knowledge and short essays for comprehension. In the application category, students use previously learned information in new and concrete situations to solve problems that have single or best answers.

The analysis, synthesis and evaluation are the basic characteristics of teaching and learning that engage the students and faculty most. These categories deal with the issues that inspire the students to learn and reveal the creative. The students assume responsibility for acquiring the knowledge necessary to respond creatively and evaluate outcomes. This is the basis for non-traditional teaching and learning strategies where less emphasis is placed on information transmission and greater emphasis placed on developing skills, attitudes and values. This will lead students to engage in higher order of thinking such as analysis, synthesis, and evaluation.

Table 6: Strategies and Learning Objectives

Cognitive Domain	Feature	Outcomes	Learning Outcome
Knowledge	Passive	Recall of specific facts	know common terms specific facts, methods, procedures, basic concepts and principles
Comprehension	Passive	Grasping or understanding meaning of informational study materials	understand facts and principles; interpret verbal material, charts and graphs; translate verbal material to mathematical formulae; estimate the future consequences implied in data; justify methods and procedures
Application	Passive	Make use of the knowledge	apply concepts and principles to new situations, laws and theories to practical situations; solve mathematical problems; construct graphs and charts; and demonstrate the correct usage of a method or procedure
Analysis	Active	Taking apart the known & identifying relationships among them	recognize unstated assumptions and logical fallacies in reasoning; distinguish between facts and inferences; evaluate the relevancy of data; analyse the organizational structure of a work (art, music, and writing)
Synthesis	Active	Putting things together in a creative manner	write a well organized theme, give a well organized speech, writes a creative short story, propose a plan for an experiment, integrate learning from different areas into a plan for solving a problem, formulates a new scheme for classifying objects (or events, or ideas)
Evaluation	Active	Makes judgments about the value of materials or methods	judge the logical consistency of written material, adequacy with which conclusions are supported by data, the value of a work (art, music, writing) by the use of internal criteria, and the value of a work (art, music, writing) by use of external standards of excellence

EVALUATION AND CERTIFICATION

Another important aspect of quality assurance is a proper scheme of marking the answer scripts.

Guidelines for Marking Answer Scripts

- The answer scripts should be coded before handing over to the Dean/Programme Leaders/Teacher Evaluators;

- Once the scripts are evaluated, they will be decoded and the awards list will be sent to Examination Office for updating;

- There shall be centralized evaluation;

- Evaluators have to give an undertaking saying that they will do their job as per the University Guidelines;

- A sample monitoring should be done by a senior academician;
- No overwriting will be permitted. If the marks are to be revised, then original marks are to be crossed, new marks written and initialed.

COMPILATION OF MARKS AND SUBMISSION TO EXAMINATION OFFICE

The evaluator after evaluating the answer scripts of a course will enter the marks in the award list supplied by the Examination Office. The marks should be entered with high precaution and concentration so that no harm is done to the students. No external recording of the marks should be done by the evaluator. All Deans should ensure the return of the award list and answer scripts to the Examination Office.

CERTIFICATION GUIDELINES

The certification from the University shall be as per the standard procedures across the world. This should be based on Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA).

Semester Grade Point Average (SGPA) is defined as

$$SGPA = \frac{\sum_{i=1}^{n} C_i P_i}{\sum_{i=1}^{n} C_i}$$

where

C_i = Number of Credits earned in the ith course of Semester.

P_i = Grade point earned in i^{th} course.

i=1 …..n represent the number of courses in which a student is registered in the concerned semester.

Cumulative Grade Point Average (CGPA) is defined as

$$CGPA = \frac{\sum_{j=1}^{m} C_j P_j}{\sum_{j=1}^{m} C_j}$$

where

C_j = Number of Credits earned in the jth course of semester.

P_j = Grade points earned in j^{th} course; a grade lower than D (i.e. grade point less than 4) in a course shall not be taken into account

j=1… represents the number of courses in which a student was registered and obtained a grade not lower than D up to the semester for which CGPA is to be calculated.

GUIDELINES FOR CLEARING A COURSE

- A student has to obtain minimum 40% marks in assignment;
- A student has to obtain minimum 40% marks in practical, if any;
- A student has to obtain minimum 40% marks in mid semester/semester end examination;
- A student has to obtain overall 50% marks for clearing the course.

If students has obtained 30% marks in the assignment and overall say 70% marks, even then he has not cleared the course. He needs to clear the assignment after resubmission of the new assignments. In that case, the student has to obtain new assignments.

ASSIGNMENTS AND DISSERTATIONS

The role of assignments is very important for the continuous assessments of the students.   In any education system, whether conventional or face to face, assignments play a very important role. They act as very powerful tool of learning

process. Assignment is an important device through which two ways communication takes place. This is a learning task. This enables the students to ensure that they have learnt what they are expected to learn from the course materials.

There have to be proper guidelines for setting the questions in the assignments, writing assignments by the students and evaluating the assignments with proper tutor comments.

PURPOSE OF ASSIGNMENTS

A teacher will use assignments as one of method on teaching and learning process. It becomes one of steps or processes to students to learn more about a given topic, deepen it and finally expand their knowledge automatically. Their responses give teacher an opportunity to help them by commenting on their performance.

OBJECTIVES OF THE ASSIGNMENTS

The following objectives can be derived from the assignments.

- It provides good training for information seeking and retrieval behavior;
- It inculcates the self learning attitude among the students;
- It provides information analysis and research attitude to the learners;
- It develops the learning experiences from various sources.

TYPES OF ASSIGNMENTS

Usually, there are several types of assignments that are given by a teacher.

- The first type is practice assignment. The students can improve newly acquired skills; they can learn a new method of solving a problem.
- The second is the preparation assignment. They help students to get ready for future classroom activities.
- The third is extension assignment. Here, the students can enjoy long-term homework that supplements class work.

WRITING COMMENTS ON THE ASSIGNMENT

The students need continuous feedback to sustain and/or increase his/her motivation. Feedback in terms of fruitful comments increases the motivation of students. Through fruitful comments on assignment response, the teacher can remove the learner's feeling of isolation, and can also bring him/her closer to the peer group by making him/her see clearly his/her achievement, drawbacks etc. in relation to those of the peers.

Through written comments the teacher can provide guidance, counselling and suggestions to improve the study habits of the learners and also clarify the ambiguities, if any, or difficult portions of a course unit.

TYPES OF TUTOR COMMENTS

Tutor comments may be categorised as follows:

(i) Comments: must be written: These types of comments are treated as positive and constructive comments. Some examples are given as follow:

a)   The comments like "Your explanation with regard to xyz is very good. I appreciate your diagram number one." This is a **Positive** Comment.

b)   The comments like "You could have discussed the factors of environmental pollution with examples and illustrations". This is **Constructive** Comment.

(ii) **Comments: may be written with caution:** There are some types of comments written by some teachers which cannot function as successful teaching comments. Only with suitable additions and modifications these can be made effective comments.

(iii) **Comments: must be avoided:** Sometimes, teachers write some comments which do not suggest anything meaningful to the learner, but on the other hand misguide the learner. Such comments disturb and even hurt the learner. Such comments should be avoided.

GUIDELINES FOR DISSERTATION PROJECTS

1)   **Objective**

The objective of the project is to help the student develop ability to apply multi- disciplinary concepts, tools and techniques to solve organizational problems. This should be clearly stated.

2) **Type of Project**

The project may be from any one of the following types and preferably from one's area of specialization:

- A detailed case study (covering single organization/multi-functional area problem, formulation, analysis and recommendations);

- Inter-organizational study aimed at inter-organizational comparison/validation of theory/survey of management practices;

- Field study (empirical study).

3) **Proposal Formulation**

Synopsis of the project should be prepared in consultation with the supervisor and be sent to the Coordinator (Projects). Programme Leader will act as Coordinator (Projects). The synopsis should clearly state the objectives and research methodology of the proposed project to be undertaken. It should have full detail of the rationale, sampling, instruments to be used, limitations if any, and future directions for further research etc.

4) **Eligible Project Supervisor**

Faculty members having adequate teaching experience should be asked to supervise the project work.

5) **Project Proposal Submission and Approval**

After selection of the supervisor and finalizing the topic, student should send the Project Proposal Proforma along with one Copy of the synopsis and bio-data of the supervisor to the Coordinator (Projects), for approval. Proposals incomplete in any respect ought to be rejected. Proposals not accompanying a complete and signed bio-data of supervisor should not be considered for approval.

The synopsis of the project proposal should include the following:

- Rationale for the study;

- Objectives of the study;

- Research Methodology to be used for carrying out the study (detailing nature of data, data sources, collection methods, tools and techniques of analysis, sampling etc.);

- The expected contribution from the study;

- Limitations, if any, and the direction of future research.

6) **Communication of Approval**

A written communication regarding the approval/non-approval of the project will be sent to the student within eight weeks of the receipt of the proposal.

7) **Resubmission of Project Proposal**

In case of non-approval of the proposal the comments/suggestions for reformulating the project will be communicated to the student. In such case the revised project synopsis should be submitted with revised project proposal proforma and a copy of the rejected synopsis and project proposal proforma bearing the comments of the evaluator.

8) **Formulation of Project Report**

- The length of the report may be double-spaced typed pages not exceeding approximately about 50 to 60 pages;

- About 15,000 words (excluding appendices and exhibits). However 10% variation on either side is permissible;

- Each project report must adequately explain the research methodology adopted and the directions for future research.

a) The Project work should be submitted in original.

b) Before binding the Project report the student should ensure that it contains the following:

    i)   Approved project proposal proforma (original)

    ii) Original approved synopsis, and

    iii) An originality certificate duly signed by the student and supervisor.

c) If any project report is received in the absence of the above, the same will be returned to the students for compliance.

d) Students should mention on the top of the envelop "PROJECT REPORT-MBA/BBA/BCA/MCA". This will facilitate sorting out Project Reports received in the University under various programmes.

9) Submission of Project Report

One typed copy of the project report should be submitted to the Registrar/respective Dean/Examination Office, as the case may be.

10) Viva-Voce

A student may be asked to appear for a viva-voce, if the evaluator so recommends. In that case, student should be duly intimated about it.

PROJECT LAYOUT

The format of project layout is given below:

TITLE PAGE

1. INTRODUCTION

1.1 Background to the study

1.2 Problem statement

1.3 Purpose of the study

1.4 Objectives of study

1.5 Research hypothesis

2.0 LITERATURE REVIEW

2.1 Theoretical framework

2.2 Research variables arising from theoretical framework

3.0 METHODOLGY AND DESIGN

3.1 Research Approach

3.2 Research strategy

3.3 Operationalisation of research variables

3.5 Sampling frame

3.7 Sampling techniques

3.8 Data collection techniques

4.0 DATA ANALYSIS

4.1 Qualitative data analysis or Quantitative data analysis

5.0 DISCUSSION OF FINDINGS

5.1 Discussions (relate the discussions to the objectives of study, research questions, and literature review)

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.2 Conclusions and Implication

6.3 Recommendation in bullet and action oriented

REFERENCES

DISSERTATION PROJECT EVALUATION GUIDELINES

The dissertation project evaluation guidelines should be as follows:

<div align="center">DISSERTATION ASSESSMENT FORM</div>

Name of the Student:......................................Student ID: ....

Programme:...

COMPONENT OF THE REPORT	Maximum marks to be awarded	Marks awarded
• Topic and its relevance to study specialization • Abstract Composition and its explicit • Organization of contents, list of tables, list of figures in relation to text	5	
INTRODUCTION • Background to the study • Problem statement • Objectives of study • Research hypothesis or Research question • Significance and justification of the study	10	
LITERATURE REVIEW • Theoretical framework • Research gaps • Research variables arising from literature survey	15	
RESEARCH METHODOLOGY • Research strategy & approach • Operationalization of research variables • Sample size and techniques • Data collection techniques • Reliability & Validity • Ethical considerations • Limitation of study	15	
DATA ANALYSIS • Qualitative data analysis • Quantitative data analysis	15	
CONCLUSIONS AND RECOMMENDATIONS • Main conclusion • Main recommendations	10	
ORAL PRESENTATION	30	
TOTAL MARKS	100	

Signature of the Evaluator:...

Name of the Evaluator:..

GUIDELINES FOR COMPUTER PROJECTS

The main objective of the BCA/MCA project work is to give the students an opportunity to develop quality software solution. The student should involve in all the stages of software development life cycle (SDLC) like requirements analysis, system design, software development/coding, testing and documentation, with an overall emphasis on the development of the reliable software systems. The primary emphasis of the project work is to understand and gain the knowledge of the principles of software engineering practices and develop good understanding of SDLC. The topics selected should be complex and large enough to justify as a BCA/MCA project. The project should be genuine and original in nature and should not be copied from anywhere else.

EVALUATION OF COMPUTER PROJECTS

Projects should be evaluated and commented on various aspects such as analysis, design, testing, coding and security. A brief discussion of these items is given below:

Analysis: A specification regarding the concerned system on which the project is based is to be given here. It is basically a requirement gathering process, specifying on the software to understand the nature of the programme to be built.

Design: The programme structure of the project is to be given and explained through flowcharts and pseudo codes / algorithms.

Coding: It performs the task of translating design into a machine readable form.

Security: It covers the aspects of risk, exposure and costs and specifies measures such as passwords and encryption to safeguard the software.

Testing: The test method and the test levels are introduced here along with the future scope of modifiability, portability and   the reusability.

Report organization: It relates to the overall systematization and presentation of the project.

Evaluators should give their comments on all these aspects.

The evaluation guidelines are as follows:

Dissertation Assessment Form

Name of the Student:....................................Student ID: ....

Programme:..

Components of the Report	Maximum marks to be awarded	Marks awarded
Analysis	5	
Design	10	
Coding	15	
Security	15	
Testing	15	
Report Organization	10	
Oral Presentation	30	
Total Marks	100	

Signature of the Evaluator:...

Name of the Evaluator:...

CONCLUSIONS

In this paper, we have set the quality control parameters and quality assurance initiatives for various components of higher education being given by the universities. It is assumed that these guidelines if implemented by the universities will give desired benefits to the students and to the universities. The guidelines are already being implemented in the Cavendish Group of Universities in Zambia and Uganda.

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