

Developing A Model For Iso 9000:2000 Certification Of Course Material Development In Open And Distance Learning: An Indian Study

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ABSTRACT

Realising the importance of quality of products/services in every sector including education, a sincere effort has been made in this article by the author to develop a model for obtaining ISO 9000:2000 certification for course material development in an open and distance learning university in India. This is a tentative model hence cannot be generalised.

INTRODUCTION

Globalisation of market, heightened quality requirements, tough competition and customer pressures have led to quality thrusts nationally and internationally. These thrusts are Malcolm Baldrige National Quality Award, the Deming Application Prize and ISO Registration. All these certifications are applicable to almost every sector including education. Education has to be about excellence, let it be in the form of conventional or distance. If it is not about quality, then all our effort, all our expenditure would have been for nothing because we will not only have blighted the live of students, but damaged our ability to compete and survive in a world which does not owe us a living. We cannot have a world-class economy and a world – class education (Harman, 1994). To cope with such situation and to have an edge over the competition, hundreds and hundreds of educational institutions starting from primary schools to universities through out the globe are ISO 9000 certified, but in case of open and distance institutes, the ISO 9000 certification has been obtained by very few.

An open and distance learning system has various components starting from course material development and distribution, student support services to coordinate broadcast programmes. It works like a systems model, in which course material development and delivery system works as input, training, advising, counselling and coordinating the

entire system acts as process and the developed course materials and the completers of the courses are the final outputs. So, it is required to maintain quality at each and every stage to run the process. This can be measured and the credibility can be shown to the customers (students) by ISO certification. It is in this light an attempt has been made in the present article to develop a model for obtaining ISO 9000:2000 certification of course material development, which is the first and foremost step in the above mentioned systems model. This study is being carried out in the biggest open university of India.

PROFILE OF THE SAMPLE UNIVERSITY

The sample university in India established in 1985 is the second largest mega university in the world, and the only National Open University in the country. It now offers 88 programmes of study spread over 820 courses starting on with just 4381 students in 1987, it has now 11,87,100 students on the rolls.

The university is committed to quality in all its activities – teaching, research, training and extension. It also acts as a national resource centre for expertise and infrastructure in the Open and Distance Learning (ODL) system. As an apex body it is responsible for ensuring the sharing of professional capabilities and resources as well as for improving the standards of distance education in the country (IGNOU Profile, 2004).

MODELS OF COURSE MATERIAL DEVELOPMENT

Whether universities teach at a distance or adopt online teaching, the most crucial foundation and prerequisite to their operation is the learning packages. An equivalency to classroom teaching (the foremost role of the teacher) at the open universities is undoubtedly writing or development of teaching learning materials. From the institutions point of view the considerations of cost, time, constraints and quality output are crucial; and for the students, the quality and learning effectiveness of the materials are of utmost importance.

In the present sample university the instructional system comprises programme planning and design, development of multi-media materials, programme delivery, student support and evaluation system. A rigorous procedure is followed for both programme planning/design and programme development (Panda, Khan, and Garg,

1999). Figure 1 shows the step-by-step method followed for programme planning and development by the university.

Similarly, a wide range of course design and development models such as course team model, coordinator-writer-editor model, in-house faculty model, editor-coordinator model, collaborative workshop model, adaptation model, project model and self-study book model are being in use by the sample university. A brief discussion on each of the above mentioned models are made below.

COURSE TEAM (CT) MODEL

This is the most commonly used model at Open University (UK), Athabasca University (Canada) and Deakin University (Australia). This model comprises academics (subject experts), education technologists, editors, graphics designers, counsellors and the course chairperson. Because of the representation and active involvement of different categories of experts, the quality of materials thus produced is normally high. But, one of the serious criticisms of this model is that it takes two to three years to prepare a course and therefore the cost goes up.

COORDINATOR-WRITER-EDITOR (CWE) MODEL

This has been the mainstream model of course development followed at the sample university, although there have been variations to course development within this model, adopted by various schools of studies. In this case, the course coordinator handles the entire process and is solely responsible for its final outcome, the Editor (usually a senior academic in the concerned subject area from the conventional university) provides guidance and support and content-edits the course units after the format, language and copy editors from within the university have contributed to the effectiveness and quality of course units from the point of view of the end-users (i.e. students). There are few issues involved in this model like, time schedule, problem of

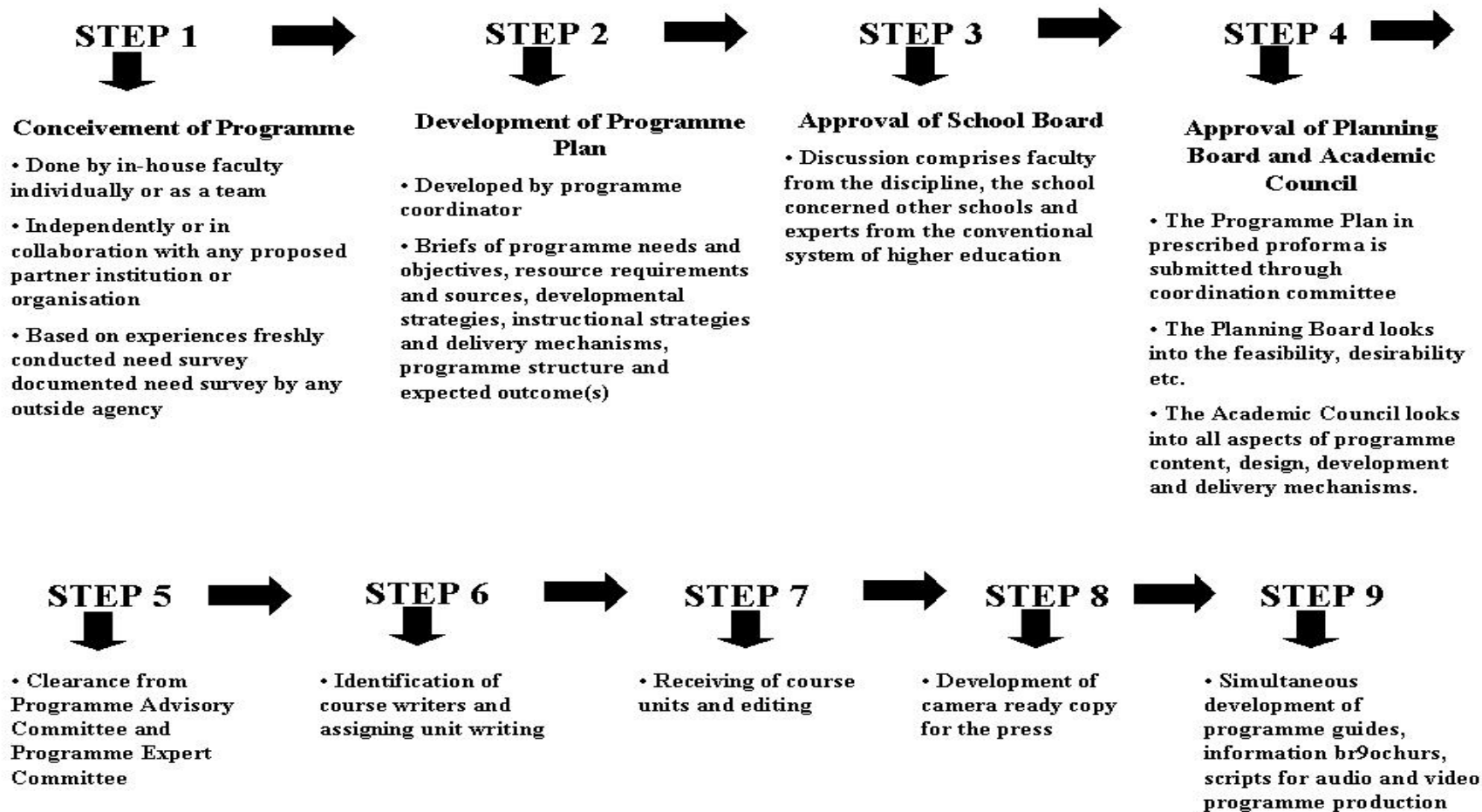


Figure 1: Programme Planning and Development Process

copyright of materials, policy for pre-testing, post-production testing, and payment to writers if (very) poor unit is delivered.

In-house Faculty Model

Course developed by the in-house faculty model have hardly any contribution from outside university experts. The Chief Editor from the faculty acts as overall coordinator of the programme assisted by in-house course coordinators; and almost all the functions at various stages are carried out exclusively in-house.

Editor-Coordinator Model

This process largely depends on the outside Coordinator-Editor and their perception and expertise contributes towards the programme quality. In this case the input from the university is in terms of orientation programmes for material development, format editing, language editing, copy editing, audio/video production, printing.

Workshop Model

This model is followed mainly for science course development, which involves practical/lab courses. It is developed within workshop situations by a workshop director involving experts of the area both from outside and inside the university. Course is developed in the lab within the workshop based on experiments conducted then and there.

Adaptation Model

This process starts with preparation of a document basing on available resources. It involves discussion with other schools/universities after careful scrutiny. Adaptation involves deciding about the quantum of inputs and manner of their offer different from the existing resource courses. The challenges involved in this process and rewriting and pitching. Successful adaptation requires attitudinal skill, academic skill and organisational skill.

Project Model

This model is usually followed for development of the engineering courses. In this case the university becomes partner with industries, who are responsible for sharing the duties. It involves the use of knowledge of experts who have relevant experiences and all the skills. Partnership involves project based course preparation delivery planning and progress monitoring.

Self-Study Book Model

In this case, an exhaustive survey on the existing course and text books are undertaken by the faculty and basing on that detailed course outline are developed. The advantages of such an approach includes development of course within the shortest time available, response to change is very fast and wider content coverage. The constraints involves proper selection of textbooks and design of course and also cost of delivery of books.

All the above discussed course development models are based on the core model of course development followed by the university with more or less variations in different schools/programmes. Figure 2 explains this core model. For the purpose of this study, this model has been adapted as a representative model of the existing models in the Sample University.

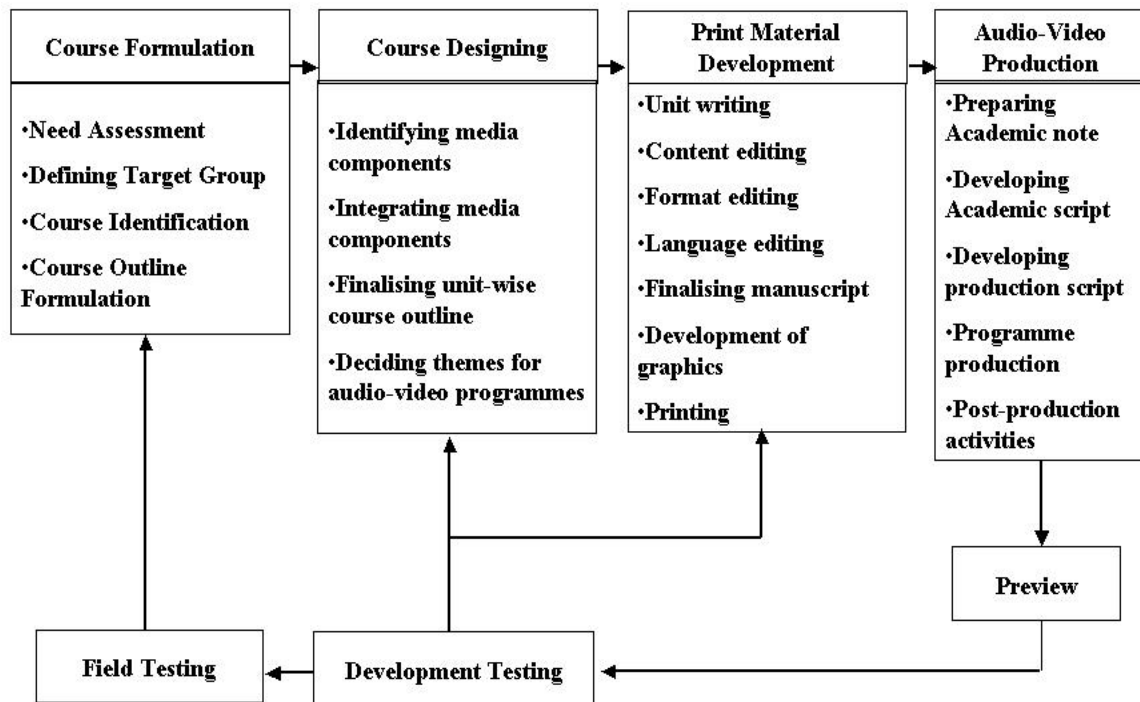


Figure 2: Core Model of Course Development

ISO AND DISTANCE LEARNING

ISO is the International Organisation for Standardisation. It is made up of national standard institutes from countries large and small, industrialised and developing, in all regions of the world. ISO develops voluntary technical

standards which add value to all types of business operations including educational institutes. They contribute to making the development, manufacturing and supply of products and services more efficient, safer and cleaner. The ISO 9000 family of international quality management standards and guidelines has earned a global reputation as the basis for establishing quality management systems.

For what ISO 9000: 2000 certifications is required in Distance Learning (DL)? A possible answer to this question may be defining factor of DL is that it crosses boundaries and borders instantly, which is very vibrant and competitive. Significantly, the prospective DL student is also able to select a much larger range of providers across the national and international boundaries. Equally, those providers could vary from large institutes and niche-subject specialists, but all existing with the objective of providing “quality education” to the student. There is already evidence of ISO being applied to education including DL. Indeed, in education, three American school boards have adopted ISO 9000 as a means of demonstrating and maintaining the quality they believe pupils and parents deserve. The largest such board (Jefferson County, Colorado) has 144 schools, 11,000 staff and 89,000 pupils within its scope (www.abs-ge.com/jeffco.htm). Similarly, example could readily be made of British University and University of Queensland offering an ISO 9000 level of service in their distance education courses.

Before going into applicability of ISO 9000: 2000 to DL system, table of contents ISO 9000: 2000 is presented in Appendix I. The clauses of the standard having potential DL system applicability are summarised in Table 1.

Table. 1. Applicability of ISO 9000: 2000 to DL System

Clause	ISO 9000: 2000 Clause Title	Potential DL Area
4.	Quality Management System	Implementation of formal QMS
5.	Management Responsibility	Institute management and policy
6.	Resource Management	Assignment of personnel and identification & providing training
7.	Product Realisation	Identification of student needs, curriculum and course design, development of course materials and deliverables, brought in services, tracking of all course phases /

		components, control of all educational and administrative processes.
8.	Measurement, Analysis and Improvement	Student questionnaire, course feedback, performing periodic internal audits, maintenance of status for all courses, tracking of deviations from quality system, action taken to resolve non-conformances, performance monitoring and analysis.

The standard is implemented through a worldwide network of approved certifying bodies who will also provide necessary staff appreciation and internal auditor training, one such body is Benjamin Franklin Institute of Global Education. The standard insures the way of functioning whatever that happens to be under and under what regime of approval / accreditation etc. of the candidate institute, contains those elements, which would allow the institute to be ISO certified.

MODEL FOR ISO 9000: 2000 CERTIFICATION OF COURSE MATERIAL DEVELOPMENTS IN THE SAMPLE UNIVERSITY

In higher education in general and in DL in particular, quality issues are becoming more prominent than before because of the stakeholders concern for accountability of educational institutions. The stakeholders may be students, parents, teachers, educational managers, funding agencies and the state. In the context of distance education, the 'organisation' is the university / institution, the 'customers' are the students primarily, but would include other stakeholders too. The 'products' are the courses or the graduates depending on the choice of our focus and the 'services' are the student support services. Standards and excellence are set by educational institutions over a period of time. New standards are set forth when the nature of demand for educational programmes changes in response to the change in the social climate (Ramanujam, 2000). Having recognised the above-mentioned requirement of standards and excellence, there is a serious and urgent need to appreciate the requirement of certification in terms of standards. Therefore an attempt is made in the forthcoming paragraphs to develop a model for obtaining ISO 9000: 2000 certificate for the process of course material development, which is the crux of the entire learning system provided by the university. For this purpose, first a set of ISO 9000 Quality Management Principles in general for the university have been developed and secondly, steps that are to be followed in implementing the

clauses of ISO 9000: 2000 in various stages of course material development are identified. Details of these are discussed below.

ISO 9000 Quality Management Principles.

There are eight quality management principles on which the Quality Management System (QMS) standards of the ISO 9000: 2000 series are based. These principles can be used by the higher authorities of the university as a framework to guide the institute towards improved performance. The principles are:

Principle 1: Customer Focus

- Organisations depend on their customers and therefore should understand current and future trends, should meet customer requirements and strive to exceed customer expectations.
- Key benefits: increased effectiveness of the organisation and improved customer loyalty.

Principle 2: Leadership

- Leaders establish unity of purpose and direction of the organisation. They should create and maintain the internal environment in which people can become fully involved in achieving the organisation's objectives.

Principle 3: Involvement of People

- People at all levels are the essence of an organisation and their full involvement enables their abilities to be used for organisation's benefit.
- Key benefits: Committed, involved, innovative, creative and participative people.

Principle 4: Process approach

- A desired result is achieved more efficiently when activities and related resources are managed as a process.
- Key benefits: improved, consistent and predictable results, focussed improvement opportunities, lower costs and shorter cycle.

Principle 5: System approach to management

- Identifying, understanding and managing interrelated processes as a system contributes to the organisation's effectiveness and efficiency in achieving its objectives.
- Key benefits: ability to focus effort on the key process and providing confidence.

Principle 6: Continual Improvement

- Continual improvement of the organisation's performance should be a paramount objective of the organisation.
- Key benefits: performance advantage through improved organisational capabilities and alignment of improvement activities at all levels.

Principle 7: Factual approach to decision making

- Effective decisions are based on the analysis of data and information.
- Key benefits: informed decisions, increased ability to service, challenge and change opinions and decisions.

Principle 8: Mutually beneficial supplier relationship

- An organisation and its suppliers are interdependent and mutually beneficial relationship enhances the ability of both to create value.
- Key benefits: Optimisation of costs and resources.

IMPLEMENTATION OF ISO 9000: 2000

Implementation of ISO 9000: 2000 for course material development in the sample university having 820 courses is a very tough job. Still then an effort can be made to obtain this for which there is a requirement of a roadmap. An effort has been made to develop such a roadmap, which is shown in figure 3.

Similarly, there is a requirement to follow a step-by-step method for ISO 9000: 2000 certification in course material development in particular. For this purpose, the course development model (Figure 2) has been chosen as the basis on which the relevant sections of the ISO 9000: 2000 shall be applied. A comprehensive discussion on this has been made below.

ISO 9000: 2000 has 8 sections (Appendix 1) out of which the first 6 sections are general in nature and the rest two can be directly applied to the adapted course material process.

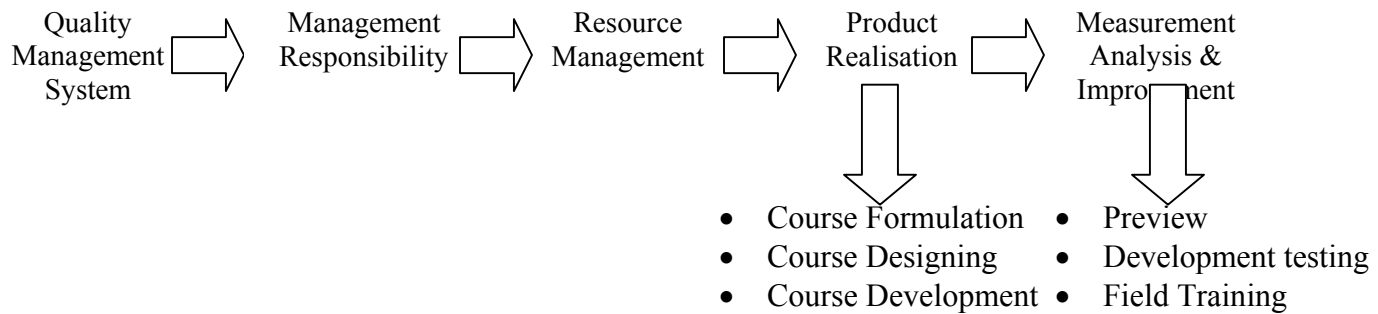


Figure. 4. Application of ISO 9000: 2000 to Course Material Development

	Steps	Guidance
1.	Identify the goals to be achieved	<p>Typical goals may be:</p> <ul style="list-style-type: none"> • Be more efficient and profitable • Produce products and services that constantly meet customer requirements • Achieve customer satisfaction • Improve communication and morale in the organisation • Reduce costs and liabilities.
2.	Identify what others expect from you	<p>Expectations of:</p> <ul style="list-style-type: none"> • Customers and end users • Employees • Suppliers • Society
3.	Obtain information about ISO 9000 family	<p>Information on:</p> <ul style="list-style-type: none"> • ISO 9000: 2000, ISO 9001: 2000 and ISO 9004: 2000 • Produce products and services that constantly meet customer requirements • Implementation of case studies
4.	Apply ISO 9000 family of standards in management system	<p>Seek Certification</p> <ul style="list-style-type: none"> • In conformation with ISO 9000: 2000 • In conjunction with national quality award
5.	Obtain guidance on specific topics within the QMS	<p>Specific standards on:</p> <ul style="list-style-type: none"> • Quality documentation • Measurement systems • Training • Auditing
6.	Establish current status, determine gaps between requirement of ISO 9000: 2000	<p>Specific standards on:</p> <ul style="list-style-type: none"> • Quality documentation • Measurement systems • Training • Auditing
7.	Determine the process that are needed to supply products / services to customers	<p>Review the basis of ISO 9000: 2000 on:</p> <ul style="list-style-type: none"> • Customer related process • Design and / or development • Production and service operation
8.	Develop a plan to close the gaps identified in step 6 and develop the processes determined in step 7	<p>In accordance with ISO 9000: 2000:</p> <ul style="list-style-type: none"> • Identify action needed to close the gaps • Allocate resources to perform these actions • Assign responsibilities • Establish a schedule to complete the needed action
9.	Carry out your plan	<p>Proceed to implement the identified and track progress as per schedule</p>
10.	Undergo periodic internal assessment	<p>Use ISO 9000: 2000 for guidance in auditing, auditor qualification and managing audit programmes</p>
11.	Undergo independent audit	<p>Engage an accredited registration / certification body to perform an audit and certify that: QMS complies with requirements of ISO 9000: 2000</p>

Figure 3. Roadmap for Implementation of ISO 9000: 2000

Steps that are required to follow in the above-mentioned sections are discussed below:

ISO 9000: 2000 (4) Quality Management System

1. Develop a quality system and a manual that describes it.
2. Develop and implant quality system procedures
3. Develop quality plans for products, processes and projects and customer contracts.

ISO 9000: 2000 (5) MANAGEMENT RESPONSIBILITY

1. Appointment of committed senior personnel to manage quality systems and give necessary authority.
2. Develop a quality policy which describe organisation's attitude toward quality.
3. Develop customer focussed quality objectives.
4. Define quality system responsibilities, give quality system personnel the authority to carry out these responsibilities
5. Define a procedure that senior personnel can use to review the effectiveness of the quality system.
6. Develop a Quality record keeping system and develop procedures

ISO 9000: 2000 (6) Resource Management

1. Define a clear cut record on the provision of resources
2. Develop a system for assignment of personnel to those jobs, which suits their skill sets.
3. Develop training procedures for all personnel in the organisation.

ISO 9000: 2000 (7) Product Realisation

1. Develop document procedure to identify customer requirements, review the existing products and medium of communication with customer.
2. Develop document procedures to control design and / or development planning, inputs, outputs, review, verification, validation and changes.
3. Develop document procedures to identify and track products / services from start to finish.
4. Develop packing, packaging and marking methods and procedures to protect and control quality of products / services and packaging materials.
5. Develop methods and procedures to protect and preserve product / service quality prior to delivery and while the product is still under control.
6. Develop procedures to protect products / services after final testing and during product delivery.

ISO 9000: 2000 (8) MEASUREMENT, ANALYSIS AND IMPROVEMENT

1. Develop methods and procedures to obtain optimal customer satisfaction.
2. Develop internal quality audit procedures which determine whether quality activities and results comply with written quality plans, procedures and programmes. Also to evaluate the performance of quality system and to verify effectiveness of corrective actions.
3. Select statistical technique to measure and monitor product conformity and develop process to control non-conformity.

CONCLUSION

To conclude, the open and distance institutes of developing countries should first ensure the quality of their study programmes. Sustainance without any reference to quality or standards is impossible. For this reason there is a requirement of sound quality policy, proper training, strict monitoring and evaluation. Success of any distance programme is heavily dependent upon its quality of course materials. Hence, standardization of the course materials is highly necessary. For this sake a tentative model for obtaining ISO 9000: 2000 certification has been developed for the sample university. A 12-step roadmap has been prepared for standardization of the university system in general and a model for the course material development in general. Although it is a difficult task, effective leadership and commitment can always reach the destination.

Appendix – 1: ISO 9000: 2000 Content

Table of Contents for ISO 9000 (2000 Version)	
Section Headlines	Sub-section headlines
1. SCOPE	
1.1 General	
1.2. Permissible Exclusions	
2. NORMATIVE REFERENCE	
3. TERMS AND DEFINITIONS	
4. QUALITY MANAGEMENT SYSTEM	
4.1 General Requirements	
4.2 General Documentation Standards	
5. MANAGEMENT RESPONSIBILITY	
5.1 Management Commitment	
5.2 Customer Focus	
5.3 Quality Policy	
5.4 Planning	5.4.1 Quality Objectives 5.4.2 Quality Planning
5.5 Administration	5.5.1 General 5.5.2 Responsibility and Authority 5.5.3 Management Representative 5.5.4 Internal Communication 5.5.5 Quality Manual 5.5.6 Control of Documents 5.5.7 Control of Quality Records
5.6 Management Review	5.6.1 General 5.6.2 Review Input 5.6.3 Review Output

6. RESOURCE MANAGEMENT	
6.1 Provision of Resources	
6.2 Human Resources	6.2.1 Assignment of Personnel 6.2.2 Training, Awareness and Competency
6.3 Facilities	
6.4 Work Environment	
7. PRODUCT REALISATION	
7.1 Planning of Realisation Process	
7.2 Customer-related Processes	7.2.1 Identification of Customer Requirements 7.2.2 Review of Product Requirements 7.2.3 Customer Communication
7.3 Design and / or Development	7.3.1 Design and / or Development Planning 7.3.2 Design and / or Development Inputs 7.3.4 Design and / or Development Outputs 7.3.5 Design and / or Development Verification 7.3.6 Design and / or Development Validation 7.3.7 Control of Design and / or Development Changes
7.4 Purchasing	7.4.1 Purchasing Control 7.4.2 Purchasing Information 7.4.3 Verification of Purchased Product
7.5 Product and Service Operations	7.5.1 Operations Control 7.5.2 Identification and Traceability 7.5.3 Customer Property 7.5.4 Preservation of Product 7.5.5 Validation Processes
7.6 Control of Measuring and Monitoring Devices	
8. MEASUREMENT, ANALYSIS AND IMPROVEMENT	
8.1 Planning	
8.2 Measurement and Monitoring	8.2.1 Customer Satisfaction 8.2.2 Internal Audit 8.2.3 Measurement and Monitoring Process
8.3 Control of Non-conformity	
8.4 Analysis of Data	
8.5 Improvement	8.5.1 Planning for Continual Improvement 8.5.2 Corrective Action 8.5.3 Preventive Action

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