



# E-Governance: Single Portal for Integrated Examination System

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## ABSTRACT

*Information and Communication Technology (ICT) has become a valuable, decisive and critical resource for individuals, enterprises, societies and organisations. ICT has reached at every door step, but its use is not fully utilized. University examination system is facing many problems for declaring timely and accurate result. Information and Communication Technology (ICT) is a very helpful tool for providing good governance or E-Governance to the community which is bringing a sea-change in the working of organisations and institutions. Students spent their valuable time and money for getting accurate information, but students are not getting desired information. He has to waste his time and money for getting the information by visiting the university, and sometimes he has to give bribe for the same due to several reasons. One of the main reasons is that in most of the Indian Universities, examination system is managed manually. In this paper we propose a framework (with the usage of ICT) for integrated automated examination system to bring speed, reliability, accuracy and transparency in the system. This paper attempts to introduce the concept of ICT for the integration of examination system at the university level to bring reliable, efficient, scalable, transparent and robust e-governance solutions. E-governance can act as a facilitator for equal access of information at different level.*

**Keywords:** Information and Communication Technology (ICT), E-governance, Integrated Examination System.

## 1. Introduction

India is known for providing quality education to the world during the ancient times. The University of Nalanda was established in the 5<sup>th</sup> century AD by one of the Gupta emperors. The Chinese traveller Hieun Tsang had studied and wrote about the education system prevailing at that time in the university. In the ancient time the education system started from Gurukul learning and with the urbanization it has changed a lot and society adopted its own norms. During the British period the country had adopted norms, regulations, guidelines and had a regulatory system. The British Government made education a transferred subject in the constitutional Reforms in 1919. From then onwards education including university education became the responsibility of the States. The British Government transferred education to the State Government out of political, expediency, especially, with a view to raising money for education from the public. At the time of Independence in 1947, there were only 20 Universities. Now there are over 300

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Universities and 45,000 Colleges of various types in the country. The number of enrollment in the universities has also increased from one lakh in 1950 to more than 112 lakhs in 2007. Most of these educational institutions are recognized by the competent bodies/regulatory authorities that are supported by the Government of India, State Governments or by the Societies. Though lakhs of students are receiving education every year yet in most of the universities, the management of examination system is still manual.

## **2. Information and Communication Technology**

Information technology applications in the information and communication technology (ICT) sector are now widely held as examples of positive effects ICT can have on development. These efforts pushed India six notches up to hold the 39th position in the Networked Readiness Index (NRI) of the Global Information Technology Report (GITR), 2004-05, brought out by INSEAD and the World Economic Forum. The Networked Readiness Index (NRI) is defined as a nation's or a community's degree of preparation to participate in and benefit from information and communication technology developments. ICT not only forms the basis of rapid and effective communication at all levels — individual, business and government — but also serves as the infrastructure for commercial transactions. ICT is also playing an increasing role as an enabling mechanism for the delivery of efficient and effective government services.

India has made great strides in recent time on national ICT policy. India is continually reforming to try to maintain the growth and success India has already achieved. India has taken major steps since 1988 when a World Market Policy was developed. India has continually focused on software development for export, telecommunications policy reform and the privatization of the phone companies. While many of their policies are enlightened and fostering environments that would allow for more ICT investment, India still has many other problems with ICT readiness. India carries a great disparity between users of ICT. There is a social divide between many of the classes. Their old methods have not been completely washed away. These problems lead to a more closed off climate where ICT can not flourish as greatly.

Many Universities are now embracing the use of Information and Communication Technologies (ICTs) in search for more efficient and competitive processes both in delivery of lectures as well as in administrative processes. The onset of Information and Communication Technologies (ICTs) is changing the way universities work. Customers (Students, parents, teachers, colleges) are demanding for more accurate information and faster services. Students, for example, would like to check for fee balances, enrolment and print their result on-line away from campus. The demand to automate university process is becoming important in line with university quality assurance.

Recognizing the important fact that ICT (Information and Communication Technology) is a major vehicle for process change and an effective tool to transfer the entire governance, the policy makers are stressing hard for adoption of new technology. It is a known fact that computer is a very sophisticated communication device. It can bring both authentic and logic to bear upon problems and can bring the same arithmetic and logic to the matter of communication. In such an event, communication become more efficient. ICT is growing all over the world and this technology has reached the common people by breaking all the geographical barriers. Thus it is vital for the people to have access to information at their door step with a minimum cost. The interactive nature of ICT and its ability can help the citizen without wasting much time and money. With the introduction of Information Technology Act, 2000, transactions on the internet have got legal validity in India.

## **3. Role of Examination in Education System**

Examination occupies a very significant place in our educational system. The whole edifice of formal education system is based on the tripod of teaching, research and examination. The aim and objectives of all these three, however, are different. The first two may be an end in itself but the last one is a means, a

method, a device or an instrument of testing the performance and achievements of the first two. The examination makes the learner hardworking, it gives our education system a direction, a motivation, a purpose, a goal. Examination is always an effective instrument to evaluate the quality and quantity of knowledge or say learning in a specific field. Thus it is such an integral part of educational system that it cannot be dispensed with.

University examination has stimulating effect on both -the students and the teachers. To the students, the examination gives a goal towards which he is directed and stimulus which impels him to attain that goal within the prescribed period of time. In other words, examination may be used as a whip to make the pupil to do his work. The test is given to check up how carefully he has done it. For the teachers too, the examination gives a stimulus and a goal orientation to his work. Examination results may be used to guide the student in a specific field and may therefore be useful in a practical way. The examination is essentially an instrument which has no substitute.

The performance of student can be judged on the declaration of the result. The whole career of a student is based on the timely processing of results and which also reflects how fast and accurately the university/institute declare the result.

Examinations have been referred to as 'the central nervous system of education'. This is because examination has a determining effect on careers and hence causes a lot of emotional tension in the students and their parents. The flaws of our examination have become proverbial. It is generally maintained that the examination, is an instrument for measuring the quality and quantity of learning in specific field. According to Brereton (1944): "Examination came into being a century ago as a counter to arbitrary selection and private patronage and they have remained a bulwark fare competition eve since. They have gradually developed as an integral part of an education system... and have come to fulfil an important role in linking school with each other and with the world outside".

In any education institution, Education System is a vital component and has many Units including Enrollment, Registration, Migration, Evaluation, Examination etc. The most important component in the life of a student is examination and the process related with it. Management of examinations of lakhs of students every year is very tedious and complex job with varied nature. For organizing different type of examination at various levels, universities are applying innovative ideas, application of modern management techniques and system of monitoring at different levels.

#### **4. The Prevailing Examination System in the universities**

During the last 3-4 decades particularly, since independence the higher education has reflected a phenomenal growth. The First Five Year Plans saw founding of new universities and colleges almost in every state of India. Psychological change among the general mass has encouraged the enrolment of students with such a fat rate that almost every university and college has been over crowded. At present, the number of students are in lacs in post-graduate students and in case of under-graduate students it is in millions.

Organisation of examination is a peculiar type of jobs in which so many factors of varied nature play a vital role. Its complexity increases with the increasing number of examinations during the session. The apart, the increasing number of examiners and examinees, the number of centres involved available manpower for carrying out various preparation, different type material required, co-ordination with various external agencies, financial constraints and time limitation etc are some of the other major factors which have to be taken into consideration while finalising a plan for organisation of examinations. Right from the initial stage of students' enrolment to the final stage of the declaration of result, various jobs are required to be

under-taken with proper care and sophistication.

In any university, there are mainly three categories of students viz. Regular candidates (candidates who are on the rolls of a college affiliated to or maintained by university), Private candidates (candidates who have not taken admission in any of the college affiliated to or maintained by the university), Correspondent candidates (candidates who have taken admission through distance mode). The examination management of these students may be divided into two phases : a. Pre-Conduct examination and b. Post-conduct examination activities. To manage pre-conduct and post-conduct activities, there are different branches and some supporting cells for various activities related to examination process, these mainly are: Registration and Migration branch, Conduct Branch, Examination Branch, Re-evaluation Branch, Evaluation Branch, Secrecy Branch.

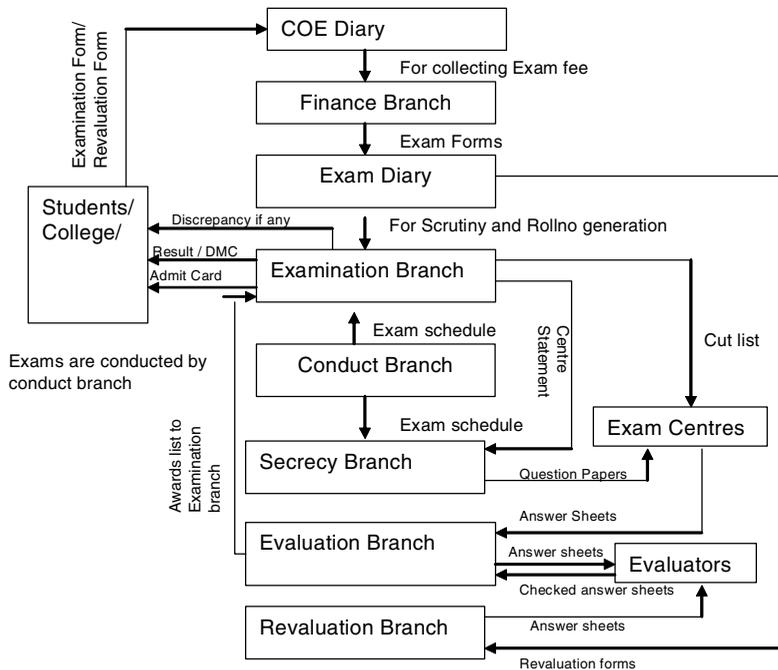


Figure 1: Flow Diagram of Manual Examination System

**Registration & Migration Branch:** Every student joining the University as regular student or through Correspondence Courses or as a research scholar of joining as a student of a college or institute affiliated to the University or seeking admission to an examination of the University as a private candidate is required to get himself registered with the University which is unique for every student.

**Conduct Branch:** Conduct branch of University deals with the notification of Examination dates, creation and cancellation of examination centres and supply of answer books. **Examination Branch:** Examination Branch is a vital component in any examination system of university. The examination of university are conducted according to annual, semester system of Under Graduate, Post graduate, Diploma, Certificate and Professional courses. All the activities starting from filling in the examination form till the declaration of result are performed by this examination wing.

**Evaluation Branch:** The scripts (answer books) from various examination centres are received in the

evaluation branch and these are sent for evaluation at different Evaluation Centres which are set up to evaluate the scripts.

**Re-evaluation Branch:** This branch deals with re-evaluation of awards. If a candidate feels that his scripts have not been fairly evaluated, he may apply to the Controller of Examinations for re-evaluation.

## **5. Drawbacks in the Existing Examination System**

Examination and problems associated with it is the main centre of focus in the field of education in our country today. In the competitive world, there is hardly any month where there is no examination anywhere in the country. The examination continues for months causing both physical and mental strains over the examinees. Publication of results also takes a very long time owing to which students remain idle for months together. Moreover, as the dates of the examination and those of the publication of results vary among the Universities of the state, students are generally not able to get admitted into professional courses like medicine, engineering etc. or to sit at competitive examination conducted at state, national or international level. Some of the drawbacks in the existing examination system are as follows:

- Students from different areas have to visit university for every query regarding filling up of application forms, examination date, results and syllabus etc are collected by the student personally, thus wasting his/her precious time and money.
- Students have to wait for in long queues to take examination forms, deposit examination fee and to get know the status of their results. Even sometimes, they cannot take admission in higher studies outside the state.
- The manual examination system leads to errors, more time consumption, inefficient and wastage of valuable resources.
- There is repetition of work in the existing system, the same data is written again and again by different branches. In the manual system universities have to spent lacs of rupees for preparing results.
- In existing system, managing of students record is very tedious. Searching of students' records in manual registers, maintaining of records and reconciliation etc. are very time consuming.
- In manual examination system, there is no check on the secrecy and tempering of students records. Sometime fake degrees are prepared thus degrading the image of university.
- In existing system whole data of students are stored in papers, registers, as record is increasing yearly, the registers are piling up and sometimes we may see the staff sitting on these registers.

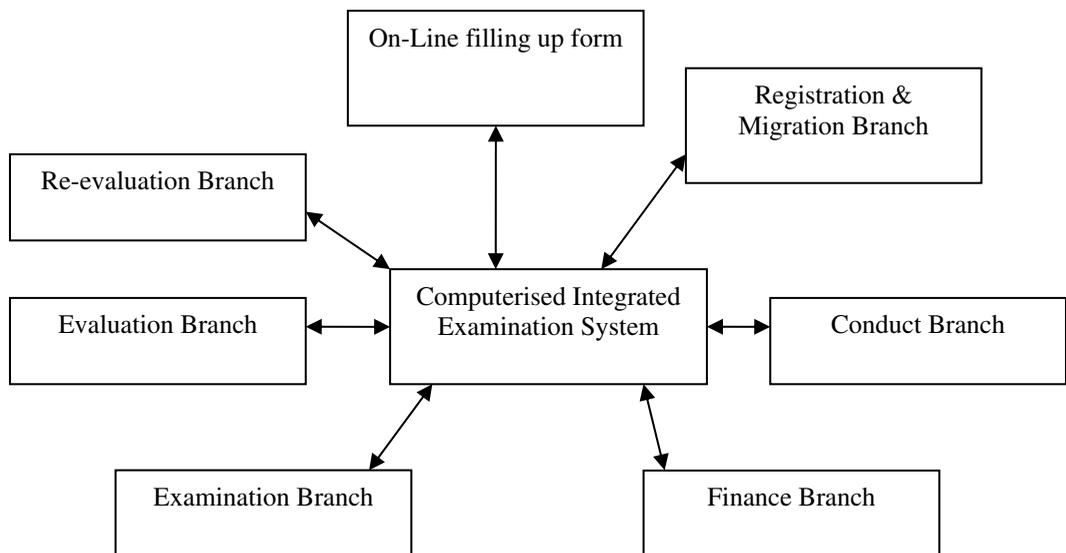
## **6. A different alternative: Automated Computerization Examination System**

The volume of examination work has necessitated, these days, the use of computer services also. Various jobs such as checking up of examination application forms, allotment of roll numbers, preparation of roll lists, tabulation of marks and formulation of marks sheets are preferred to be got done by computer. Looking into the ever growing complex nature of examination process and also to cope with the situation, it is deemed fit to apply modern management techniques and adopt a system approach.

In the era of Information Technology, there is hardly any department which is not adopting this technology. To bring, efficiency, transparency and reliability, universities should also adopt this new technology for managing the examination system. Some of the benefits of integrated automated examination system are defined as under.

- Total Computerisation of system will facilitate in integration of all sections/units/departments of the Examination Wing under single umbrella.

- It will improve the efficiency of the workforce who inturn carries out many operations manually.
- The new system will streamline the procedure for collation of exam fees, issuing receipts to large number of students and keeping a track of cash flow.
- With the adoption of new system, there will centralised, secure and robust database of the candidates appearing in the examination without duplication of records.
- In a networked environment system different units of the examination wing are connected so that all these are able to share up-to-date information without redundancy of database at various stages.
- It will bring improvement in quality of services being provided to the students/concerned departments/sections by introducing computerised window system and online availability of information to the concerned departments/sections of the University.
- There will be less human intervention (as much as possible) in result processing by automating all the concerned activities.
- The complete Computerisation of Examination System will lead to effective monitoring of Examination Process by the concerned authorities (the possibility of fraudulence will be minimised).
- The Computerised Statistical Analysis of Data will facilitate the management to see trends in result at various levels. Management Information System (MIS) reports will facilitates the Top Level Management to make strategic decision in favour of University and students.
- The use of Relational Database Management System for storage of students' data will help in minimizing the redundancy in database in addition to maintains consistency, integrity and security of data.
- Once the students' data is in database form lots of academic benefits can be drawn in terms of the statistical analysis of the results belonging to different faculties, courses, social groups, colleges (private/government) and different area of the state and the country. Such data can be made available to the research students within the university and outside the university for further research and recommendations.
- The processed data can be made available on web site of the University for out-station students to minimize the number of quarries at counters.



**Figure 2:** Single portal for integrated examination system

## **7. Benefits of the Automated Integrated Examination System**

The existing examination system in the universities is under tremendous stress & strain resulting in inaccuracy and redundancy of data. The prevailing system has many inadequacies and these are sometimes pointed out by candidates and parents through print media. The number of universities are increasing and the number of records are also increasing every year, the management of such a large amount of data is very complex and tedious job. In the prevailing system, huge amount of paper work is involved and there is a duplication of students' record by entering the same information at different level, managing these records is also very cumbersome. The whole process is monotonous in its present form. With the introduction of Information and Communication Technology (ICT), a high degree of efficiency could be added to the existing structure by automating the activities, which are presently carried out manually. With the introduction of e-governance, there will be centralised, secure and robust database. The whole data will be at a centralised database, thus reducing redundancy of data. With the successful implementation of the automated examination system, there will be considerable improvement in the speed, reliability, efficiency and accuracy in the entire process of the examination process. The end user will be benefited the most as he can get accurate information of the current status under the click of his finger. University employees will also be benefited as the process will be more efficient and data handling will be easy.

The new system will help in timely deceleration of results and the employees who are engaged in the tedious manual system will be burdened off. Now the students can access their result at their own places thus reducing stress and anxiety. The new system will be more transparent, reliable. As the competition is increasing between different universities, with the adoption of new system, image of the university will also brighten.

## **8. Limitation of the Automated Integrated Examination System**

One of the great challenges in managing integrated system is the proper planning and successful implementation. Authorities at higher at higher level should be dedicated for the successful implementation of the automated integrated examination system. Authorities at higher level should not be frequently transferred because the new incumbent will take his time to understand the new method. All the different units of examination are interlinked with each other so there should be proper co-ordination between different branches. The integrated application should be developed in such a way that a change requirement in a single application should not trigger changes in other applications. The design and development should be such that application automatically integrates with each other.

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