UNIT 8 ICT USE IN EDUCATIONAL MANAGEMENT

Structure

8.1 INTRODUCTION

In todays' scenario technologies (or ICTs) offers umpteen opportunities for meeting the changes in education related processes like communication, teaching and learning, assessment and management. We have already discussed about the application of technologies (or ICTs) in first seven Units (1 to 7) and suggested various tools/apps for communication, teaching-learning and assessment. ICT also has numerous applications in management of educational institutions. Generally educational institutions manually collect and store students data in registers. The educational institutions use various registers to enter student's data, employee's information, salary, fees, physical resources, etc. Similarly, library books are stored in almirahs and bookshelfs. But today ICTs can be employed to accomplish many of these tasks. ICTs are used to collect, record, organise and report various data related to an educational institution. Similarly, ICTs can also be used for management of financial data, organise conference, library documents and management of various information (or data) pertaining to overall functioning

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of an educational institution. You should be aware of the applications of ICT in educational management and various tools that are used for managing activities of educational institutions. Therefore, in this Unit we will discuss about various ICT tools that would help teachers and administrators improve and streamline their management system and its multifarious activities.

8.2 OBJECTIVES

After going through this Unit, you should be able to:

- explain concept of educational management;
- describe role of ICT in record maintenance and scheduling;
- use ICT for financial management;
- use ICT for communicating with parents and stakeholders;
- describe various ICT initiatives related to educational management; and
- explain use of enterprise resource planning (ERP) in education.

8.3 CONCEPT OF MANAGEMENT

Management is the act of managing resources, people and their work to achieve a common goal or objective. Management is a dynamic process consisting of various elements and actions. Management involves five basic functions: planning, organizing, coordinating, commanding, and controlling. It can be applied across a host of areas and disciplines. Planning is deciding for future and generating plans for action; organizing is ensuring human and non human resources; coordinating is placing or creating a framework or structure in such a way that organization's goals can be accomplished; commanding is assessing the amount and kind of work and getting people to do it; and controlling is checking progress in context of the plans made during planning stage. Therefore, management is to effectively and efficiently achieve organisational goals through planning, organizing, coordinating, commanding, and controlling.

You might have also heard the term administration. Administration is the systematic process of management of an organisation or institution. Therefore, the main functions of administration involve formulation of policies, plans, and procedures, framing objectives and goals, implementing rules and regulations, etc. So, in general administration formulate the policies and goals of an organisation while the management implements the policies and objectives set by the administration. You should understand that both management and administration are managerial functions but are not same. What are the key differences between management and administration? They are as follows:

i) Administration is a determinative function and management is an executive function.

ii) Administration focuses on 'thinking' while management on 'doing'.

iii) Administration focuses on policy formulation while management on policy implementation.

iv) Administration is a top level activity while management is a middle level activity.

Now let us discuss about educational management. Educational management is the field of study and practice concerned with operation of educational institutions. Educational institution are the places designated for providing learning experiences to learners in order to develop knowledge, skills, values, attitudes, etc., with the ultimate aim of making them productive members of society. Managing educational institutions, therefore, involves planning, organizing, directing, controlling and evaluating the activities of an institution. The optimum utilization of physical and human resources are the main goals of educational management. Educational management needs managers with multi-skill sets. Some of the managerial skills are as follows :

i) **Technical skills:** These skills refers to the ability of a person to carry out a specific activity. The knowledge of methods, procedures and processes is very important for managerial supervision.

ii) **Human skills:** These skills refers to the ability of a person to work well with other individuals in group; to lead; to motivate; create an environment conducive to accomplishment of assigned tasks.

iii) **Conceptual skills:** These skills refers to the ability of a person to conceptualize abstract situations to understand and coordinate the full range of institutional objectives and activities.

iv) **Administrative skills:** These skills refers to the ability of a person for planning, organizing, motivating, directing, controlling and coordinating activities.

So, mangers of educational institution requires various skills to effectively implement the policies and achieve the goals.

8.3.1 Importance of ICT in Educational Management

The teaching-learning, curriculum, delivery of instruction, knowledge generation, assessment and evaluation are changing due to ICT. The use of ICT is also revolutionizing the educational management. The educational management has become digital, and automated and this brings more efficiency and transparency. The changing technology scenario is making it mandatory for educational institutions at all levels to aptly respond to the use of ICT in educational management. The sources of information, processing and managing that information necessitates newer and more effective ways of using ICT in addressing newer challenges in the educational system. So, it is well understood that ICT plays a vital role in improving the functional effectiveness that is management of educational institutions.

Educational management involves lots of activities such as collecting and storing admission details, records keeping, resources management, etc. ICT plays a vital role in supporting all these activities in an efficient manner. ICT can be used in three major areas of educational management which are as follows:

i) **Learner-related:** This include admission, registration/enrolment, time table/ class schedule, attendance, report card, hostel, transport, activities in the institution, etc.

ii) **Teacher-related:** This includes teaching-learning activities, maintaining records, service rules, circulars/updates from regulatory bodies, etc.

iii) **Institution functioning-related:** This includes recruitment and work allotment, attendance and leave management, performance appraisal, communication with stakeholders, e-circular scheduling / allocation of halls for examination, processing and display of result, online fee payment, etc.

ICT use has made educational management an easier task and thereby enhances the efficiency and efficacy. For instance, the practice of manual entry of details of students has been replaced with electronic entry in spreadsheet application software, etc. Similarly, attendance of student's can be now captured in specially designed softwares. The students' learning documents such as projects, assignments, etc., can be collected and stored in e-Portfolio. Thus, there are various ways of managing institutional activities with the help of ICT. ICT use reduces manpower and enhances the efficiency and credibility of managing day to day activities of an educational institution. This underlines the importance of ICT in educational management.

Check Your Progress 1

Notes: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit

1) What do you mean by management? How management is different from administration?

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2) Briefly describe the various management skills.

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Activities for Practice

1) 'ICT has lots of applications in educational management'. Substantiate the statement by giving examples.

2) Discuss the advantages and disadvantages of ICT use in educational management.

8.4 ICT FOR EDUCATIONAL MANAGEMENT

ICTs can be used for planning and management of educational institutions, resources, datas, schedules, student's data, financial resources, physical resources, etc. Let us discuss the use of ICT in these areas and tools for accomplishing such tasks.

8.4.1 Planning and Management of Educational Institution

Management of educational institutions means the management of various activities concerning an educational institution such as enquiry management, registration and admission, subject and course selection, class and teacher allotment, staff information and attendance record maintenance, communication with parents and stakeholders, examination and grading, transport, payroll management, visitor management, budget management, website management, management of academic and non-academic activities, inventory management, library management, etc. These activities were mostly accomplished manually by entering the details in various registers. But, today many software applications (or tools) are available both in 'proprietary' or 'paid' as well as free and open source categories that can be used to manage various activities of an educational institution.

Some of the softwares (tools) that can be used to plan and manage activities of school and higher education institutions are as follows:

- **feKara:** feKara is a free online school management software that can collect and record various data pertaining to an educational institution such as admission data, attendance, examination and result, budgeting, etc. feKara is not completely free but has both free and paid versions. (Website: http://fekara.com/).

- **TS School:** TS School is the short form of Time Software School. TS School is an administration and management software which suits for different types of schools. TS School has quite variety of modules for management. TS School has a basic version with limited features but full functionality and support are only available in paid version. (Website: http://www.ts-school.com/).

- **Fedena:** Fedena is a free and open source school management software to efficiently manage data pertaining to students, teachers, employees, courses and system and activities of an educational institution. Fedena is a fully web-based school ERP software developed by a team of developers at Foradian Technologies. The project was made open source by Foradian, and is now maintained by the open source community. (Website: https://fedena.com/)

- **School Tool:** School Tool is a free, open source, web-based student information system. School Tool has features such as customizable student and teacher demographics, contact management for teachers, students, and their guardians, teacher grade books, skill and outcomes based assessment, assessment data collection and report card generation, class attendance and daily participation grades, calendars for the school, groups, individuals, and resource booking, tracking and management of student interventions, etc. (Website: http://schooltool.org/)

- **Open Admin for Schools:** 'Open Admin for Schools' is one of the most comprehensive free and open-source school administration softwares and is licensed under the GNU general public license. Open Admin for Schools is a web-based tool. 'Open Admin for Schools' has features such as demographics, attendance, discipline related data, report card system, online grade book, parents/students viewing scripts, fees system, export/import modules and online daybook, etc.

- **Shala Darpan:** Shala Darpan is an Indian initiative to provide services based on school management systems to students, parents and communities. The school information services includes school and student profile management, employee information, student attendance, leave management, report card, curriculum tracking, SMS alerts for parents / administrators on student and teacher attendance, etc. The first phase of "Shaala Darpan Project" launched in June 2015, includes 1099 Kendriya Vidyalayas through the National Informatics Centre Services Inc. (NICSI).

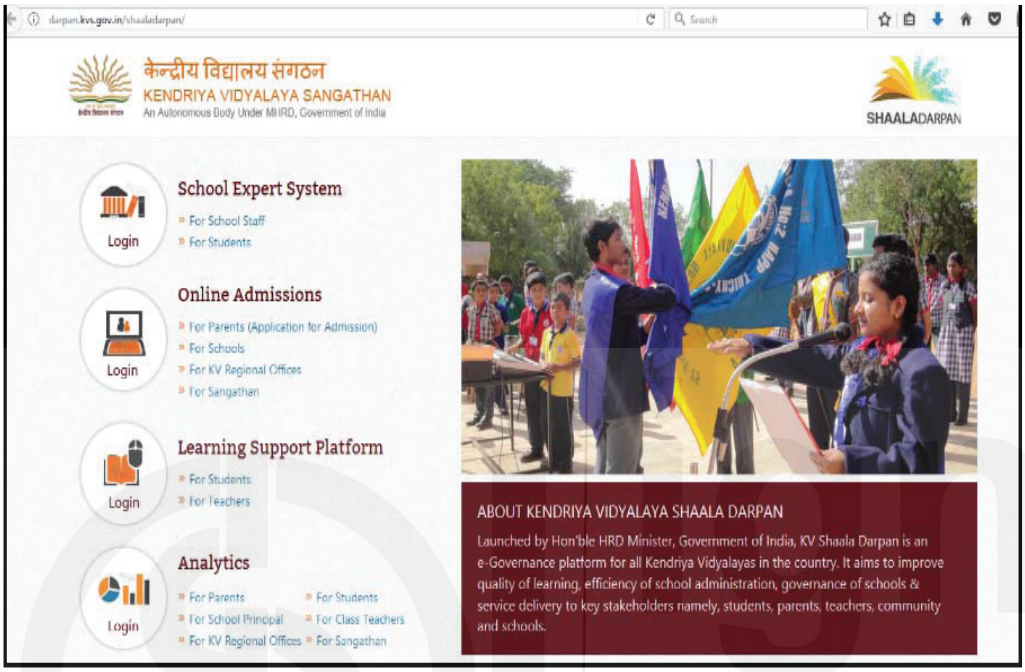

Fig.1: Shala Darpan of Kendriya Vidyalaya Sangathan (Source: http://darpan.kvs.gov.in/shaaladarpan/)

- **Samarth:** Samarth is a software developed as a project by MHRD and coordinated by IIC, University of Delhi, for management (ERP solutions) of higher education institutions. Samarth is an "open source, open standard enabled robust, secure, scalable and evolutionary process automation engine for Universities and higher education institutions". It contains modules for student services, academics, administration, establishment, HR, accounts and finance knowledge management, and governance. The student services involves student life cycle, grievance management, alumni portal and training and placement. The academics involves programme management, academic management, and evaluation and grading. The third module administration involves file management and tracking system, research project management system, affiliation management, content federation system (CFS), and endowment portal. Establishment includes estate management system, and inventory management system. HR covers recruitment system, employee management, leave management, and residence allocation management. Accounts and finance involves fee management, payroll management, budget and accounts, procurement of goods, and bill tracking system. Knowledge management involves research management, knowledge management, and ToT management, and Governance covers RTI management, legal case management system, central data unit, University web portal, third-party University ranking systems, and minutes archive and retrieval system. (Website http://samarth.edu.in/)

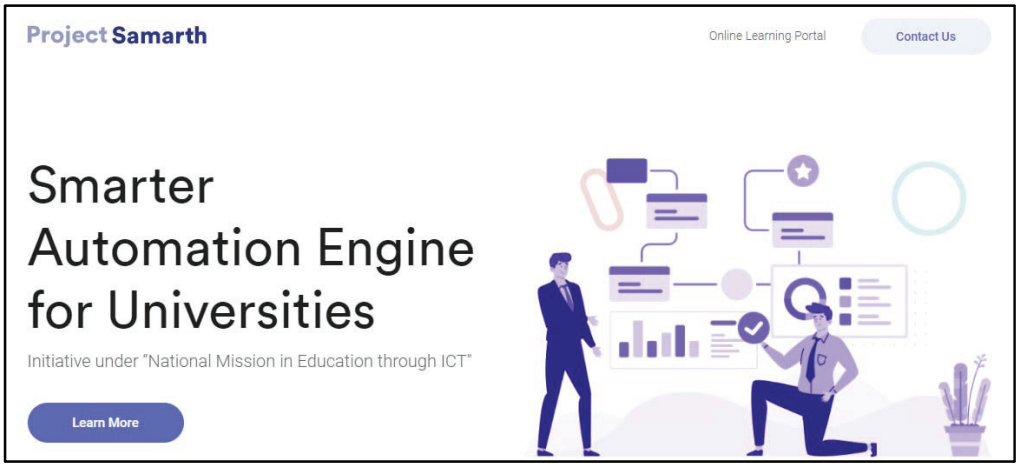

Fig. 2. Homepage of Samarth (Source: http://samarth.edu.in/)

Check Your Progress 2

Notes: a) Write your answer in the space given below.
b) Compare your answers with those given at the end of the unit

1) State whether true or false:

i) Shala Darpan is a social networking site.

ii) Open Admin for Schools is a learning management system (LMS).

iii) Fedana and School Tool are school management softwares.

2) List some of the software's (tools) used for management of educational institutions.

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Activity for Practice

1) Visit an educational institution and explore the software used by that institution for educational management? Briefly discuss the advantages and disadvantages of that particular software.

8.4.2 Sharing Educational Resource

The textbooks, reference books, audio-visual aids, lab equipment's, physical resources like bench, desk, blackboard, etc., are the commonly used resources in an educational institution. But in this Section,we will discuss about management of educational resources that are mostly used for teaching and learning such as text books, reference books, audio-visual learning aids, etc. You know that, text books are mostly available in hard copy. But with advent of technology, along with hard copy, soft copy is also available. Similarly, audio visual aids, for example physical model of an 'eye' or 'heart' can now be created virtually. Such digital teaching-learning resources can also be stored and shared for the use of teachers, students, and public at large. So, ICT can be used to prepare, store and share

educational resources. And the management of such digital teaching-learning resources is also accomplished with the help of ICT.

There are many Indian ICT initiatives for planning, storing, sharing and making educational resources accessible to anyone at anyplace and any time. Some of them are as follows:

- **National Repository of Open Educational Resources (NROER):** NROER is a collaborative platform to store digital educational resources of various formats such as documents, audio-video programmes, e-texts, etc. The educational resources available at NROER are open educational resources. NROER platform is initiated by the Department of School Education and Literacy, MHRD, Government of India and managed by the Central Institute of Educational Technology (CIET), National Council of Educational Research and Training. (Website: https://nroer.gov.in/).

- **e-Pathshala:** e-Pathshala was developed by NCERT. It showcases and disseminates educational e-resources such as textbooks, audio-video programmes, periodicals and a variety of other digital materials. The NCERT publications have been digitized and uploaded on e-Pathshala. Currently, the e-contents are available in Hindi, English and Urdu. (Website: http://epathshala.nic.in/).

- **e-PG Pathshala:** This is an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT) being executed by the UGC. This is similar to e-Pathshala but for the PG level. In e-PG Pathshala, e-contents for PG courses related to disciplines such as social sciences, arts, fine arts and humanities, natural & mathematical sciences, etc., are available. (Website: https://epgp.inflibnet.ac.in/).

- **Swayam:** Swayam is India's MOOCs platform launched in 2017 and offering online courses related to disciplines such as Engineering, Law, Management, Humanities & Social Sciences and also Professional Courses. SWAYAM is an indigenously developed cloud-based IT platform that facilitates hosting of all the courses, taught in classrooms from 9th standard till postgraduation to be accessed by anyone, anytime, anywhere free of cost. The courses are prepared by reputed teachers and they are accessible through computers and mobile phones, etc. (Website: https://swayam.gov.in/).

- **Swayam Prabha**: Swayam Prabha is a group of 32 DTH (Direct to Home) channels that telecasts high quality educational video programmes related to higher education, school education, lifelong learning and competitive examinations for 11th and 12th standard students on 24X7 basis. The video programmes are developed by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal of Swayam Prabha. (Website: https://www.swayamprabha.gov.in/).

- **National Digital Library of India (NDL India):** National Digital Library of India (NDL India) is a project initiated by MHRD under the aegis of NMEICT to provide a framework of virtual repository of learning resources with a single-window search facility. NDL is developed by Indian Institute of Technology, Kharagpur. At present NDL stores digital content of various forms for stakeholders of school, higher education, and researchers, differently-abled and life-long learners, (Website: https://ndl.iitkgp.ac.in/).

- **Virtual Labs:** Virtual Labs is a project initiated by MHRD under the aegis of NMEICT. This is a consortium activity of twelve participating institutes and IIT Delhi is the coordinating institute. The simulation-based experiments available at virtual labs can be accessed by anyone through internet.Virtual labs covers more than 100 Virtual Labs consisting of approximately 700+ web-enabled experiments. (Website: http://www.vlab.co.in/).

- **e-Gyankosh:** The e-Gyankosh is a national digital repository developed by Indira Gandhi National Open University (IGNOU) to store, index, preserve, distribute and share the digital learning resources developed by the open and distance learning institutions. Anyone can access the soft copy of the self-learning materials and other digital resources through the link 'e-Gyankosh' available at IGNOU website. (Website: http://egyankosh.ac.in/).

- **Shodhganga:** Shodhganga is a digital repository for hosting and preserving theses submitted to various Universities in the country. It is maintained by INFLIBNET Centre which is an autonomous Inter-University Centre of the University Grants Commission (UGC). As of April 2020, 511 Universities have signed MOU with INFLIBNET and 438 Universities are contributing theses. At present 7600 synopsis and 269822 theses are available in Shodhganga platform. The INFLIBNET Centre is also maintaining another repository 'Shodhgangotri' which is a repository to store synopses and research proposals of the PhD programmes.

8.4.3 Data Storage through Record Keeping

As you know, educational institutions maintain the data related to student's enrollment, marks, teachers', salary, physical resources, etc. It is clear that data (or information) regarding academic (scholastic and co-scholastic), non-academic, administrative and other aspects of an institution is stored in records. Records are official authentic documents of an action, event occurring in an educational institution, which the administration and management considers to be important for posterity. Records of any institution are important documents which provide insight into its developmental process over a period of time. In fact, records are the official transcripts which are considered important by the administration and management. Records are meticulously maintained by educational institutions as they are evidences of the growth of students and institution over a period of time. Therefore, it is imperative that every educational institution must systematically maintain records for validation of activities organised for the growth and development of the institution.

Why record keeping is important? Record is as important to an institution as is history important to mankind. Records tell the history of the institution and are useful historical sources for future generations. Thus, it provides continuity when the administration changes over a period of time. Records even help in organising guidance and counselling services as it details the data of growth and development of students. Thus, academic as well as personal, career-wise counselling can be effectively given. Records provides information to parents and guardians enabling them to be partners in all round development of their students. The continuum of learning environment in the institution and home is very important for balanced development of the student. Records also provides information about the 'pass out' students which is sought by employers for placements. The records helps the management to plan activities for the optimum development of the students

and institution. The records also helps education departments and ministries in policy making and decision making. It also helps supervisors and inspectors to make objective assessment of the functioning of institutions.

Some of the important records maintained by an educational institution includes admission register, attendance register, log book, visitors' book, staff and students' personal file, cumulative record card, students' progress card, stock register, library register, staff movement register, cash book, and property register. Generally, these records are kept in the form of documents, files, books, etc. But today records are digitalized and can be stored in CD-ROM, hard disk and even cloud. This means that, ICTs are used for record keeping. Records can be effectively and efficiently maintained using ICTs such as computers, digital repositories, e-mail accounts, and so on.

As you know, record keeping is nothing but database management. The most popular ICT tool used for management of database is MS excel which is a proprietary software. MS Access, MySQL, Fox Pro, etc., can also be used to maintain database in institutions as it reduces data redundancy, inconsistency and ensures data security and sharing. Record keeping (data storage) can also be done through office suite applications such MS office, Open office, LibreOffice, etc. Some other tools used for record keeping (data storage) includes Google Sheets, NeoOffice, ThinkFree, Abiltiy Office, SoftMaker Office, Glide, FluSuite, and Ability Office,Google Docs, MS Publisher, Wordle, Zoho Docs, Writer, AbiWord, Dark Copy, Desktop Author, Scribus, Visme, Writer, etc.

Check Your Progress 3

Notes: a) Write your answer in the space given below.
b) Compare your answers with those given at the end of the unit

1) Why records are important for an educational institution?

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2) List any two database softwares. How it can be used for record keeping in educational institutions.

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Activities for Practice

1) What are the different digital records maintained by your institution? Discuss its advantages.

2) Explore and prepare list of the ICTs tools that can be used for record keeping in schools and higher education institutions.

8.4.4 Scheduling Activity

Scheduling means the plan for performing work where in which it mentions time allocated for each activity. Can you guess some examples for scheduling? Some of the common examples includes time table, monthly plan, year plan, annual day celebration plan, sports day plan, seminar schedule, etc. The ICTs can also be employed for scheduling activities of an educational institution thereby paper use can be minimized. ICT helps in creating schedules that helps to maximize instructional time, provide time to meet the needs of the students and teachers, plan and organize various curricular and co-curricular activities, etc. The use of scheduling tools ensures that the institutional resources are optimally utilized and function efficiently.

Educational institutions allocate duties to the academic and non-academic staffs on periodic basis. The scheduling and allocation of duties to teachers and staffs needs to be done annual and semester-wise basis. In schools it is called as school calendar. This may be further specific as 'teaching timetable' and 'examination timetable'. The co-curricular or extra-curricular activities and PTA meetings may all be allocated time. The higher educational intuitions also prepare academic calendars. Nowdays software (tools) are available which helps in preparing schedule and allocation of work among staffs without overlapping. Let us discuss two commonly used tools that is Google Calendar and FET time table software.

- **Google Calendar:** Google Calendar is a web-based time management and scheduling application developed by the Google company. Google calendar allows users to create, edit, set time and day, set reminders, and add location of events, etc. After creating event, guests (participants) can be invited through e-mail. The users can also create event that needs to repeated. For example, event (meeting) on every Saturday or any other day, weekend, etc. The users can also schedule event that requires video call facility. This is done through creating 'google meet link' in the google calendar. In the teaching-learning process, teachers can use google calendar to schedule online teaching sessions, subject club meetings, reminder for date of submission of assignments/projects, etc.
- **FET:** FET is a free software for automatically scheduling the timetable of an educational institution. The term FET is the abbreviation of 'Free Evolutionary Timetabling'. It is a free open source software licensed under GNU/AGPL. It is based on C++. Liviu Lalescu of Romania had developed this timetable generator in 2003. There is continuous upgrade in the software, the latest being done in August 2020.

Few other tools useful for preparing schedules and time table are: Microsoft To Do, Microsoft OneNote, Microsoft Outlook, Todoist, Trello, My Calendar, Power Planner, Any.do, Mine Time, Lightning Calendar, and timetable Tile.

8.4.5 Collection, Presentation and Reporting of Students Performance

The examination process has seen quite a revolution with the advent of ICT making it more effective and efficient. ICT in assessment and evaluation means the use of digital technologies to assist in the development, storage, delivery, reporting of assessment tasks, responses, grades or feedback, etc. How ICT can be used for assessment and evaluation? For example, scheduling applications (tools) can be used to create examination timetable, word processor for developing question paper, CCTV camera in the examination hall, etc. The examination is

conducted either offline or online. The online examination is not possible without technologies like internet, computer, etc. So, ICT is used in various ways for assessment and evaluation. In Unit 7 we have extensively discussed about various tools and technologies (or apps) used for assessment and evaluation.

After assessment (or evaluation), students and the stakeholders (parents, administrators, etc.) must be informed about their performance. Here comes the relevance of communication tools (or apps) in educational management. With the advent of ICT, the scenario has changed a lot. ICT plays a vital role in communicating and collaborating among schools, parents and the community. There is a continuous interaction between the parents and teachers over various means of ICT. This has improved parental interest and involvement in schools' activities. Mobile, computer, internet, etc., helps for better communication amongst each other. The rise of social media, mobile apps, etc., have made communication instantaneous. You are aware about some of the tools which students, teachers, and parents frequently use to communicate and collaborate. These tools includes SMS and Instant Messaging, Website, Blog, E-mail, Learning Management System (LMS) and Virtual Learning Environment (VLE), Social Network, Media Sharing (YouTube, Podcast, SlideShare,Wikimedia, Flickr), Online Group and Forum, etc. We have discussed about such communication tools in Unit 1.

Check Your Progress 4

Notes: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit

1) Why Google calendar is used?

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2) Explain the impact of ICT in communication process in teaching-learning?

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Activities for Practice

1) Explore any two open source assessment tools and compare the features of those tools.

2) Select any free software for preparing time table. Create a timetable using the selected software.

8.4.6 ICT for Financial Management

Financial management is crucial for well-being of an educational institution. Finance lies at the pivot of any activity that an educational institution undertakes.

Any error in financial management has ripple effect on activities of an educational institution. This has implication on the teaching-learning activities as well. To smoothly run an as well as for planning the growth and development of an educational institution, adequate funds are required. How fund is generated in educational institutions? Some of the sources that helps educational institutions generate fund includes: students fee, govt allocations as budget, donations, alumni contributions, etc. Therefore, fund generated needs to be effectively managed so as to avoid the financial irregularities. The responsibility of monitoring and controlling fund as per the sanctioned plan and budget lies with the head of the institution.

Let us now see how ICT can be helpful in managing the financial resources of the educational institutions.

8.4.6.1 Management of Students' Fee

Fee management is one of the most important aspects of financial management. The unit responsible for fee collection is one of the most significant units of an institution. Most of the institutions used to collect fees manually. Manual collection of fees involves handling of huge money, issuing receipts, record entry, etc. It was time consuming both for management, students and parents. But ICT has influenced the way fees are collected and managed. 'Fee management system' is helpful in this regard. The fee management system allows for fast data entry and receipt printing. It also allows flexible fee structures so that multiple types of fee heads and schedules as per the need of the students and the system can be created. The fee management system can also generate various invoices like monthly fee invoices, student wise fee invoices, class wise fee invoices, penalty invoices, paid/non-paid status reports, and generate auto invoice/reports, print invoices/vouchers in PDF, Excel format, etc. The fee management system also have the provision of online payment and thus facilitating students, parents and management.

There are various fee management system softwares. 'Open Admin for Schools' is one of the popular fee management softwares. 'Open Admin for Schools' has fee management wherein fees can be collected as per context or a predefined slab or category. 'Open Admin for Schools' is user friendly and does not require high technical skills. An user can create fee structures, enter fee dues and receive payments. All the fee transactions are automatically updated in the system.

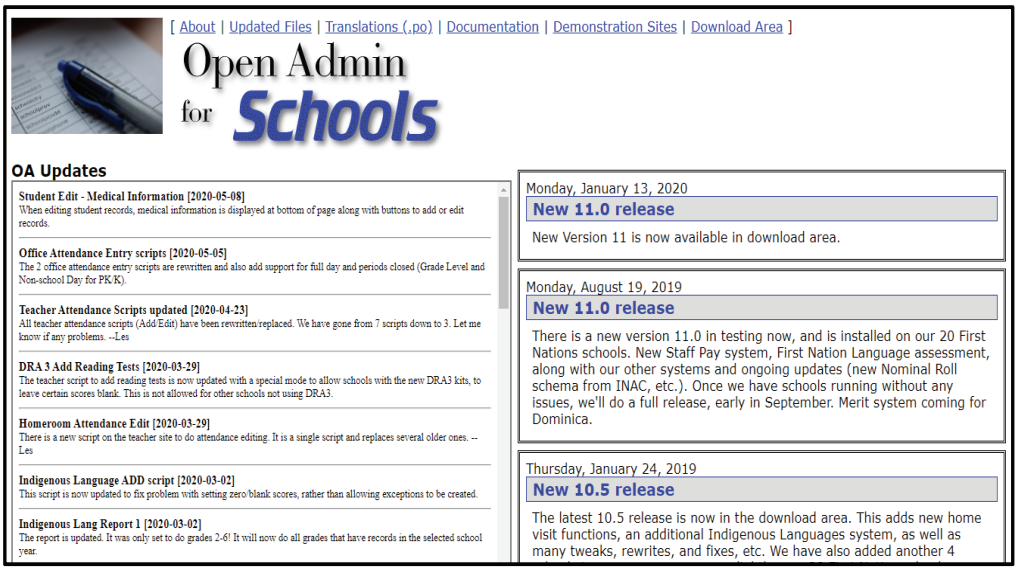

Fig.3: Home page of Open Admin for Schools

8.4.6.2 Management of Budget

One of the main activities of financial management is the preparation of budget. Budget is defined as the financial plan for a defined period. It is the process of creating a plan for spending the money. Preparation of budget is an important activity of an educational institution. For an educational institution, preparation of institutional budget is an invaluable tool for both planning and evaluation of activities of an institution. Budget links institution goals with instructional plans. For example, an activity based instructional plan will require budget provisions for the resources and infrastructures for conduction of the same activity in the classroom. The link between instructional goals and financial planning is critical to effective budgeting.

Some of software's used for preparation and management of budget are discussed below:

- **HCSS Budgeting:** HCSS Budgeting is designed by finance specialists dealing with education and helps educational institutions plan how to utilize their funds. It can be used to forecast budgets up to five years in advance and allows institutions to plan for changing circumstances, such as cuts in funding or enhancement in staffing cost, etc. HCSS Budgeting also links seamlessly with their accounting package i.e. HCSS Accounting, to allow finance teams to track real-time spending against planned expenditure.
- **School Budget Programme:** It is a stand-alone solution that is designed to assist schools with the task of tracking department budget allocations that are dispersed among various teachers. It is tailor made for schools, and provides facility to track and manage departmental budgets.

Few other budget softwares are: dsBudget, Buddi, MoneyManagerEX, BudgetPulse, MyBudgetView, Divvy, Budgeter.

8.4.6.3 ICT Tools for Accounting

Account management is an important financial activity. Accounting helps to orderly record financial transactions and track them accurately. ICT as in other fields, has many applications in accounting. Accounting software helps to accomplish activities related to accounting and provides an efficient solution for management of accounts. An accounting software stores and manages data regarding the bank transactions as well as student fees, employee expenses, school expenses and all other financial related activities. It keeps track of every single financial transaction. The details of vouchers, impress money, total income, expense, etc., can be precisely managed using accounting software.

Some of the accounting softwares are as follows:

- **GnuCash:** GnuCash is a powerful, flexible and easy to use accounting software, freely licensed under the GNU GPL and available for GNU/Linux. GnuCash allows to track bank accounts, stocks, income and expenses, etc. It has features such as QIF/OFX/HBCI import, transaction matching, reports, graphs, scheduled transactions, financial calculations, double-entry accounting, invoices, etc. Weblink: https://www.gnucash.org/.
- **SQL-Ledger® ERP:** Is a free and open source software which is a double entry accounting/ERP system. The accounting data is stored in a SQL database server, for the display, any text or GUI browser can be used. The entire system is linked through a chart of accounts. Each item in inventory

is linked to income, expense, inventory and tax accounts. Web link: https://www.sql-ledger.com/

There are many proprietary accounting softwares such as Blackbaud, School Accounting, Zoho books, MySchool Accounting and SlickPie.

Check Your Progress 5

Notes: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit

1) What is fee management system? How fee management system helps in managing the students fee?

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2) List one software used for management of school budget and briefly explain its features.

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Activities for Practice

1) Select any free software used for the completing the given activities and prepare a report of its features and advantages.

a) Fee management

b) Budget

8.5 ICT FOR LIBRARY MANAGEMENT

Library is a curated collection of sources of information such as books, periodicals, magazines, etc. It can also be said that library is a room or building where books, newspapers, periodicals, reference materials, etc., are kept for people to use, read or borrow for a fixed time duration. In most of the libraries, the hard copy form of books and reading materials are stored. But today libraries also have a digital unit which stores digital books (or e-books), e-new papers, and other reading materials in electronic format. The libraries also keep computers for accessing e-materials. Even the e-materials available in the libraries can also be accessed from home.

What about the management of library? As you know library stores hard copy form of books and other reading materials. As discussed, today e-materials are also common in libraries. So, the details of these books and e-materials must be recorded systematically. Therefore, the library has registers to keep the record of the materials available in the library. Similarly, library also needs to keep record of the books and reading materials issued, books collected back and so on. These details are manually recorded in specific registers. The library records, stock register, issue register are maintained separately by the Librarian, such as etc. But, today many of the routine activities of library are done using library management software. Library management software can collect and record the details of books purchased, available, issued etc., and manage the day to day

activities taking place in a library. Some of the library management softwares are given in table 1.

• DEL-PLUS • E-Granthalaya • FireFly • Koha • Evergreen • LIMS	• Library World • Libraray soft • Soutron • Small Library Organizer Pro • SOUL 2.0	• OPALS • Open Biblio • BiblioteQ • Invenio • PMB • Library Manager	• New Gen Lib • CodeAchi • Librarian • Sanjay • WEBLIS • BiblioQ

Table 1: Library Management Softwares

8.6 ICT FOR CONFERENCE MANAGEMENT

The educational institutions regularly organise conferences, seminars, workshops, symposia, panel discussions, etc., to discuss matters of common concern. In simple terms conference or seminar is a formal meeting of several peoples for discussing matters of common interest. Conferences held at educational institutions are academic conferences. And depending upon on the nature of the participants, there are local/regional, national and international conferences. Generally, conferences are held in educational institutions where people from other institutions come and participate. But today many conferences are held in the virtual space and such conferences are called e-conference (or webinar or online conference). Online conferences are organised using ICT tools. There are various conference management tools which helps you for planning, organizing, and conducting online conference. These tools can also be used for virtually connecting with your students for instructional delivery.

Some of the popular conference management softwares (tools) are given below:

- **Google Meet-** The google meet is a free video conferencing tool. It can be used for all the conference management functions from planning to execution. Some of the major features of google meet includes: scheduling meeting, access through various digital devices like PC, mobile, etc., meet recording, layout options, screen sharing, chat, etc. With the free version, anyone with a Google account can conduct an online meeting for 60 minutes with 100 participants. The advanced features are available through Google Suite account.

Some other popular softwares (apps) used for conducting online conference are given in table 2.

Free Tools/ Apps	**Hosted in Internet**	Blab, Drum, Google Meet
	To be Downloaded	AnyDesk,BigBlueButton,
Proprietary Tools/Apps	**Hosted in Internet**	Adobe Connect,AnyMeeting, Appear.in, BigMarker, Blackboard Collaborat,BlueJeans, BrainCert, Cisco WebEx, ClickMeeting, Conference Calling, Demio, eBVLD, Flipgrid (online), Fuze Meeting, GatherPlace, GoToMeeting, JoinMe, LearnCube, ManageMeet, MegaMeeting, MeetingBurner, MightyMeeting, OmniJoin, PresenterNet, ReadyTalk, ScreenConnect, TeamViewer, Uberconference, VoxWire, Vyew, Yugma, Zoom
	To be Downloaded	Amazon Chime,Anyplace,

Table 2: Conference Management Softwares

As conference is also considered as an event, the event management software is also used for managing conferences. Softwares like Social Planner (https://howardgivner.com/super-planner-app/); Asana (www.asana.com) are available and can be used for event management.

Check Your Progress 6

Notes: a) Write your answer in the space given below.
b) Compare your answers with those given at the end of the unit

1) How ICTs are helpful in managing the following:

a) Library

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b) Conference

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Activities for Practice

1) Visit the library of any nearby institution (school/college/University, etc.) and prepare a report of the software used by those institution for managing library activities.
2) Organize a conference using any free software. Prepare a report of the processes followed for organising the conference.

8.7 MANAGEMENT INFORMATION SYSTEM (MIS)

What are the aims and objectives of educational institutions? Schools and higher education institutions are supposed to provide quality education thereby making education accessible to students that helps them develop their knowledge and skills. Are the educational institutions meeting the aims and objectives? Are the educational institutions working effectively and efficiently? So as to answer such questions, information (or data) regarding various activities that happens in educational institution needs to be collected and analysed. This also helps the educational institutions to reflect on their activities and performance. If there are any drawbacks and deficiencies, management and administration can take appropriate decisions for the betterment of the institution. Keeping this in mind, the educational institutions collect, record, store and compile data in registers (that is data is in hardcopy form) which are then subjected to analysis. But with the technology revolution, digital devices and application softwares are used for collection of data and analysis. When information technology is used to manage information (or data), we call it management information system or simply MIS.

MIS is the use of information technology consisting of hardware and software that control, coordinate, record, store, analyse and process data of an institution to produce information for the purpose of decision making. Or else MIS, is a planned system of collecting, storing, and disseminating data in the form of information needed to carry out the functions of management. Ajayi & Omirin (2007) defines, MIS is basically concerned with the process of collecting, processing, storing and transmitting relevant information to support the management operations in any organization. The MIS comprises of three terms that is management, information and system. In the context of education, management involves planning, organizing, coordinating, commanding, and controlling the activities of an educational institution to achieve the institutional goals. Information is nothing but data concerning the students, teachers, teaching-learning activities, resources, etc. System is a set of interrelated things working together to achieve common objectives. Thus, MIS is a system that collects data relating to educational institutions, store, process and retrieve whenever required. MIS helps management to take appropriate decisions at appropriate time to perform the job effectively and efficiently.

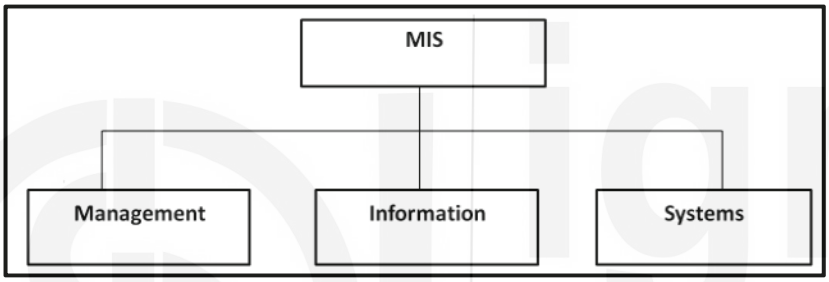

Fig. 4 : Management Information System

What is the major purpose of MIS? MIS collects data relating to the activities and functioning of an educational institution. This would help the management and administration to analyse status and performance of students learning and to check whether the institution is fulfilling the mandate and objectives of education in general and the institution in particular. Thus, MIS would act as a database helping to formulate decisions for better functioning of the institution. The next question is, how is MIS achieved? The management can use the technologies to collect, store and analyse the data that is institutions may use ICTs for management of data which we call e-governance. This will automate many management processes and thus there is need to develop capacities for its implementation. The MIS of educational institutions should be comprehensive, integrated and sustainable. The MIS will have details of all resources so that their use and sharing is possible both within the institution and with other institutions. The institution local area network (LAN) can help in automating the institutional processes. The institution local area network will help in automation of many office processes, like maintenance of records, student related process, resource mapping, planning, sharing and using of existing resources, etc. This will save cost, time and effort. Collecting the information would also help to devise effective measures to strengthen the teaching-learning processes and functions of institution.

The MIS can be employed in all educational institutions and can also be interlinked with MIS of other institutions. For instance, the school-based MIS can be integrated with the 'state-wide web' based School Education Management Information System. This in turn will be linked to a nationwide network of all schools wherein teachers, students, school managers, and the community would

participate for collaborating and sharing digital repositories of tools, content and resources, professional development and continuing education platforms, guidance, counseling and other student support services. Thus, integrated School Management Information Systems (School MIS) will emerge as a single window portal where all resources and other information related to the school system will reside for all to access and benefit from. The same may be done for higher education MIS where linking it at state and national level will give a comprehensive picture of higher education scenario in the state and country. Such a MIS shall help for research and analysis activities as well as planning and policy related issues. Thus, MIS facilitates universal access to information, content and resources.

Let us now discuss about some of the MIS initiatives. The Central Board of Secondary Education (CBSE) developed a support system called 'Saransh' with a vision to improve children's education by enhancing interaction among schools and parents. This support system assists them in taking best decisions for children's future. This platform allows schools to identify areas of improvement in students, teachers and curriculum and take necessary measures. The mobile app for Saransh was also launched in 2015 which will enable the parents and students to look at and compare their results vis-a-vis school, state and national level.

The 'I-share for India' which is an initiative for creation of educational resources pool for School and Teacher Education, includes mobile enabled Apps / Web based ICT supplementary resources of school education and teacher education in any Indian language.

The MIS in higher education can be seen in the form of a new plan scheme 'Higher Education Statistics and Public Information System (HESPIS)'. The MHRD (now Ministry of Education) had launched All India Survey on Higher Education (AISHE) as an effort to build data-base of Higher Education, where in data is collected from all institutions of higher learning through electronic mode. To get reliable data annually, a scheme 'Higher Education Statistics & Public Information System (HESPIS)' was proposed in XII five-year plan which is an umbrella scheme catering to the needs of various kinds of statistics related to higher education. All India Survey on Higher Education (AISHE) is the major component of the scheme (http://aishe.nic.in/aishe/home). Centralized Student Portal will also be developed on the basis of data collected under AISHE. The surveys will also be undertaken from time to time for getting inputs for micro level higher education planning at the Central, State and Institutional level. For more details about the scheme visit the weblink https://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/HESPIS.pdf.

8.7.1 Use of Enterprise Resource Planning (ERP)

We have discussed that MIS is the management of information using technologies. In educational institutions data (or information) that pertains to students, teachers, fees, etc., are available. The educational institutions can also be considered as an enterprise with lots of resources such as human resources, teaching-learning resources and so on. These resources in turn generate various information and data. These resources (data) must be efficiently managed to meet the goals set by the institution. So, database management is one of the important components of educational management as it helps for decision making and has influence on policy making. It is true that, generally schools and higher education institutions collect, accumulate and store data as records. And so much of human effort is spent

to accomplish management of data in records. But with technology, softwares are being used. There are specific apps for fee management, student's management, teaching-learning process, professional development, attendance,etc. Such apps are designed for specific tasks. But there are technologies (or apps) that can manage the complete data of an educational institution. Such specialised management softwares used for managing the data pertaining to an institution is called as 'Enterprise Resource Planning' (ERP). ERP refers to software and systems that organizations use to manage day-to-day activities and data relating to students, staffs, academics, fees, etc. ERP is an enterprise-wide information system designed to coordinate various resources, information, and activities needed to complete organizational processes. Therefore, ERP softwares or ERP solutions can collect, store, share and manage data related to students, teachers, staffs, fees, admissions, timetable, assessment, hostel management, budget, recruitment, payroll, leave, etc. using a single software. It integrates various units or departments of an organisation and all the departments can access the available data.

Some of the free open source ERP softwares are: Adempiere, ERP5, ERPNext, LedgerSMB, Odoo, Tryton. There are many commercial companies providing ERP solutions to educational institutions.

In fact, ERP is used in all types of organizations, be it educational or business; big or small. The ERP specific to educational institutions are called educational ERP, and they are designed to manage the data generated in educational institutions. As ERP brings efficiency in managing any system, it is very useful for educational institutions. Educational institutions have various divisions and human resources such as students, teachers, non-teaching staff, etc., managing and tracking the roles, responsibilities and the performance of all is a tremendous task, which can be efficiently tackled by educational ERP. It helps in realization of maximum potential.

ERP are complete management and governance solution for educational institutions. ERP facilitates information flow between various departments, units and divisions and manages links with stakeholders outside the institution. ERP is a part of management system and facilitates error-free transaction and production, thereby enhancing and ensuring efficiency of any institution. ERP mainly uses a database and information repository besides networking. SAMARTH as we discussed in Section 8.4 is an ERP solution initiated by MHRD (now Ministry of Education). It contains all the modules needed for any educational institution to manage its governance and administration. It automates and thus streamlines the educational processes in educational institutions which optimizes the allocation and use of the educational resources. Thus, there is no duplication and every processes integrate seamlessly.

How does ERP systems work? An ERP system, also called an ERP suite, is made up of different enterprise resource planning applications that link to each other and share a database. An ERP system is based on a common database and a modular software design. The common database allows every department of an organization to store and retrieve information in real-time. The modular software design means that the organization may select the modules as per their needs without overloading the system with unnecessary modules. The modules includes: student module, finance module, HR module, assessment module, resource module, etc.

As discussed above there are specific softwares for fee management, student management, hostel management, transport management, scheduling, resource management, etc. But ERP embeds all such specific softwares and act as a single software with multiple functions. The one thing which overshadows the advantages of ERP is its cost which is prohibitive for small educational institutions. It may prove cost effective in the long run, but the planning and customization is not cost effective for small institutions. Another shortcoming is the technical aspect which may appear complex and hard for new users. Thus, most ERPs, in practice are not easy to learn and use. This necessitates continuous user training to ensure optimum benefit from ERP. In nut shell we can say that its overall advantage overrules the issues of cost and skill development.

Check Your Progress 7

Notes: a) Write your answer in the space given below.

b) Compare your answers with those given at the end of the unit

1) What do you mean by management information system (MIS)?

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2) Why is enterprise resource planning (ERP) used?

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Activities for Practice

1) Visit any nearby institution (school/college/University, etc.) and prepare a report of the ERP software used by that institution. The report should include the following points:

   a) Name of the software

   b) Facilities available

   c) Drawbacks

2) Prepare a list of free and proprietary ERP softwares.

8.8 LET US SUM UP

ICT plays a vital role in improving the functional effectiveness of an educational system i.e. management. Broadly, ICT can be used for three major areas of educational management that is learner related, teacher related and institution related. The activities in an educational institution such as planning curricular and co-curricular activities, budgeting, accounting, preparation of timetable, collection of student fees, staff management, resource management, communication with parents and community, etc., can be effectively managed using ICT. There

are specific software applications to accomplish these activities and we have discussed about them in this Unit. ICT can also be used to manage library and conference. Some of the softwares used for library management and conference management and their major features are also discussed in this Unit. We know that there are software applications that are designed to perform specific tasks such as management of students and staff details, accounting, budgeting, resources sharing, communication, management of library and conference and so on. But the ERP softwares or solutions can bring all the specifics tasks to a single software and can function as an integrated system and thereby making data available to stakeholders of an educational institution. The Unit ends with discussion on such ERP softwares.

8.9 UNIT END ACTIVITIES

1) Make a list of softwares used by your institution for managing various activities. Analyze the strengths and drawbacks of each software?

2) Conduct a survey to explore ICT initiatives of MHRD (now Ministry of Education) related to school and higher education? Prepare a report.

3) Prepare a list of both free and proprietary software applications used for communication in the educational process.

4) Do you agree that ERP solutions or softwares will help in better management of educational institutions? Justify your answer.

5) How learning management system (LMS) helps in management of teaching-learning activities? Discuss.

8.10 REFRENCES AND SUGGESTED READINGS

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8.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) Management is the act of managing resources, people and their work to achieve a common goal or objective of an organisation.Management involves five basic functions: planning, organizing, coordinating, commanding, and controlling.

The major differences are as follows;

i) Administration is a determinative function and management is an executive function.

ii) Administration focuses on 'thinking' while management focuses on 'doing'.

iii) Administration focuses policy formulation while management on policy implementation.

iv) Administration is a top level activity while management is a middle level activity.

2) The various managerial skills are: technical skills, human skills, conceptual skills, and administrative skills.

Check Your Progress 2

1) i) False.

i) False

ii) True

2) Some of the software's used for management of schools are feKaraSchoolTool, Open Admin for Schools, Fedena and TS School

Check Your Progress 3

1) Records provide information about the educational institutions developmental process over a period of time and the activities performed.

2) MS Excel and MS Access. They are proprietary softwares which are part of MS office suite. With database management software users can create tables, forms and reports, connect and access data from any source.

Check Your Progress 4

1) Google Calendar is web-based time and task-management online application that allows users to create and edit events. In an educational institution, google calendar can be used to schedule events and can be shared among stakeholders like staff, parents, teachers, and students.

2) ICT plays a vital role in communicating and collaborating among management, teachers, parents, students and the community. ICT tools like SMS, instant messaging, website, blog, e-mail, LMS, VLEs, social media, etc., can be used for instructional delivery and communicating with students and other stakeholders involved in teaching-learning process.

Check Your Progress 5

1) Fee management system software are used for the management of student's fee. The fee management system allows for fast data entry and voucher printing. It also allows flexible fee structures so that multiple types of fee heads can be managed efficiently. The fee management system can generate all types of invoices needed like monthly fee invoices, student wise fee invoices, class wise fee invoices, penalty invoices, paid/non-paid status reports, and generate auto invoice/reports, print invoices/vouchers in PDF, Excel format, discount on fees/fine.

2) HCSS Budgeting. It can be used to forecast budgets up to five years in advance and allows schools to plan for changing circumstances, such as cuts in funding or increases in staffing cost. Educational institutions can use the software for day-to-day management of budget. HCSS Budgeting also links seamlessly with their accounting package i.e. HCSS Accounting

Check Your Progress 6

1) ICTs are very helpful in the following ways:

   a) Library: Today many of the routine activities of Library are done using library management software. Library management software can digitally store the details of books, books issued, books returned, etc.

   b) Conference: To organise conference, both free and proprietary conference management softwares and tools are available. Using conference management tools, the organisers of the conference can collect participants details, invites research papers, conduct conference, take attendance, distribute certificate, etc. Most of the activities in a conventional conference can be managed using conference management software.

Check Your Progress 7

1) MIS is the use of information technology consisting of hardware and software that control, coordinate, record, store, analyse and process data of an organisation to produce information for the purpose of decision making. Or else MIS is a planned system of collecting, storing, and disseminating data in the form of information needed to carry out the functions of management.

2) ERP systems or software are used to collect, store and manage the data pertaining to various teaching-learning activities and other functions of an educational institution.