SUAN SUNANDHA RAJABHAT UNIVERSITY

Week 7

ICT Infrastructure and its Maintenance

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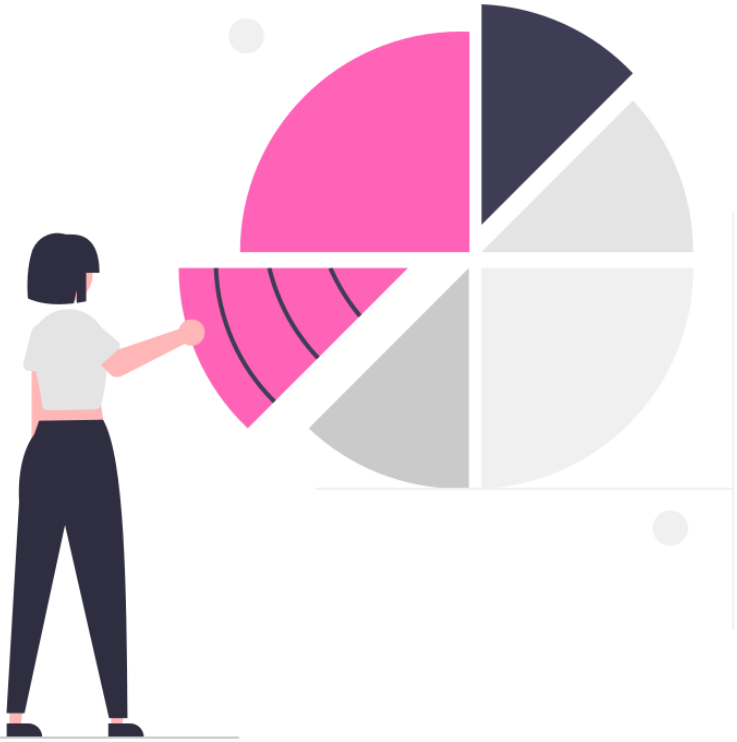
Concept of ICT Infrastructure

Our concept of the ICT infrastructure is not only a set of equipment or elements. The ICT infrastructure enables to share the ICT capabilities which provide services for other systems of the organization.

These capabilities require the complex combination of the technical infrastructure (cabling infrastructure, hardware platform, base software platform), ICT shared services (as communications services), ICT applications (as WEB services), the human operators and the managerial expertise to guarantee reliable services.



All these resources are designed, developed and managed over time. In the system ICT infrastructure does not include the specific computer applications, but the teachers or other users should experience and innovate using specific computer applications on the ICT infrastructure.

Hardware

The Schools will establish state of the art, appropriate, cost effective and adequate ICT and other enabling infrastructure in all secondary schools.

Based on the size of the school, needs of the ICT programme and time sharing possibilities, States will define an optimum ICT infrastructure in each school. Not more than two students will work at a computer access point at a given time. At least one printer, scanner, projector, digital camera, audio recorders and such other devices will be part of the infrastructure.

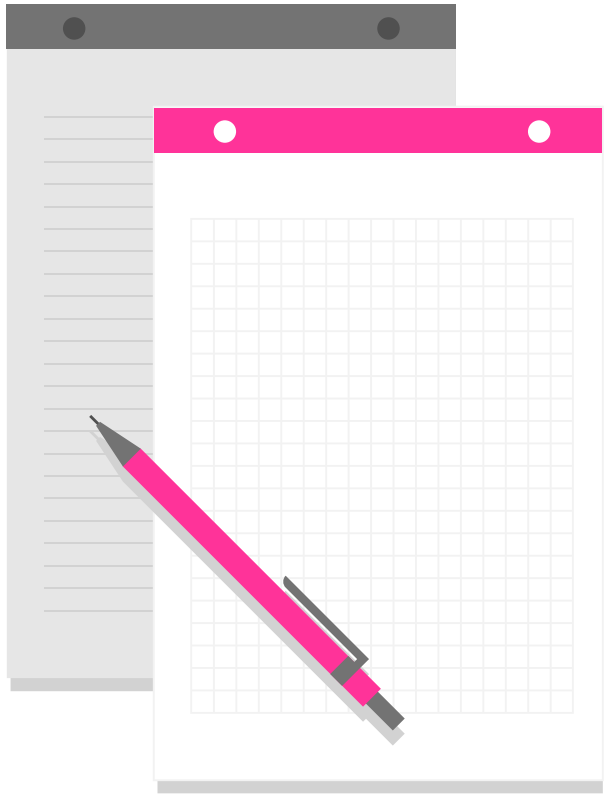
Each school will be equipped with at least one computer laboratory with at least 10 networked computer access points to begin with. Each laboratory will have a maximum of 20 access points, accommodating 40 students at a time. The ratio of total number of access points to the population of the school will be regulated to ensure optimal access to all students and teachers.

- In composite schools, exclusive laboratories with appropriate hardware and software will be provided for the secondary as well as higher secondary classes.

- In addition, at least one classroom will be equipped with appropriate audio–visual facilities to support an ICT enabled teaching–learning.

- Appropriate hardware for Satellite terminals will be provided to selected schools in a progressive manner.

- Computer access points with internet connectivity will be provided at the library, teachers' common room and the school head's office to realise the proposed objectives of automated school management and professional development activities.

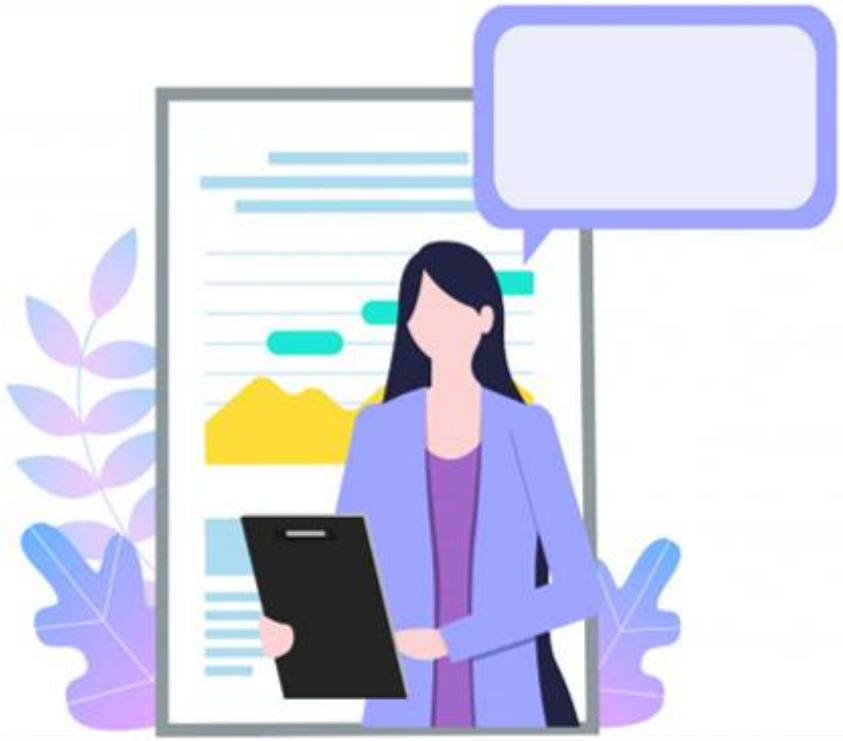


ICT enabled education can be significantly enhanced and the range of classroom practices expanded with the introduction of digital devices like still and video cameras, music and audio devices, digital microscopes and telescopes, digital probes for investigation of various physical parameters. These will also form a part of the infrastructure.

Network and Connectivity

All computers in the school will be part of a single local area network to enable optimum sharing of resources. In addition to the laboratory, internet connections will also be provided at the library, teachers' common room and the school head's office.

Each school will be serviced with broadband connectivity capable of receiving streaming audio and video, a range of digital learning resources and interactive programmes. The number of computers given internet connectivity will be governed by the available bandwidth, in order to ensure adequate speeds. A mechanism to have offline access to internet content will be set.



Teachers and students will be educated on issues related to the safe use of internet Firewalls and other security measures will be implemented to guard the school network against cyber attacks and misuse of the ICT facilities. Appropriate guidelines for network security will be developed.

An EDUSAT network will be planned at each state with interactive terminals (SIT) and receive only terminals (ROT)

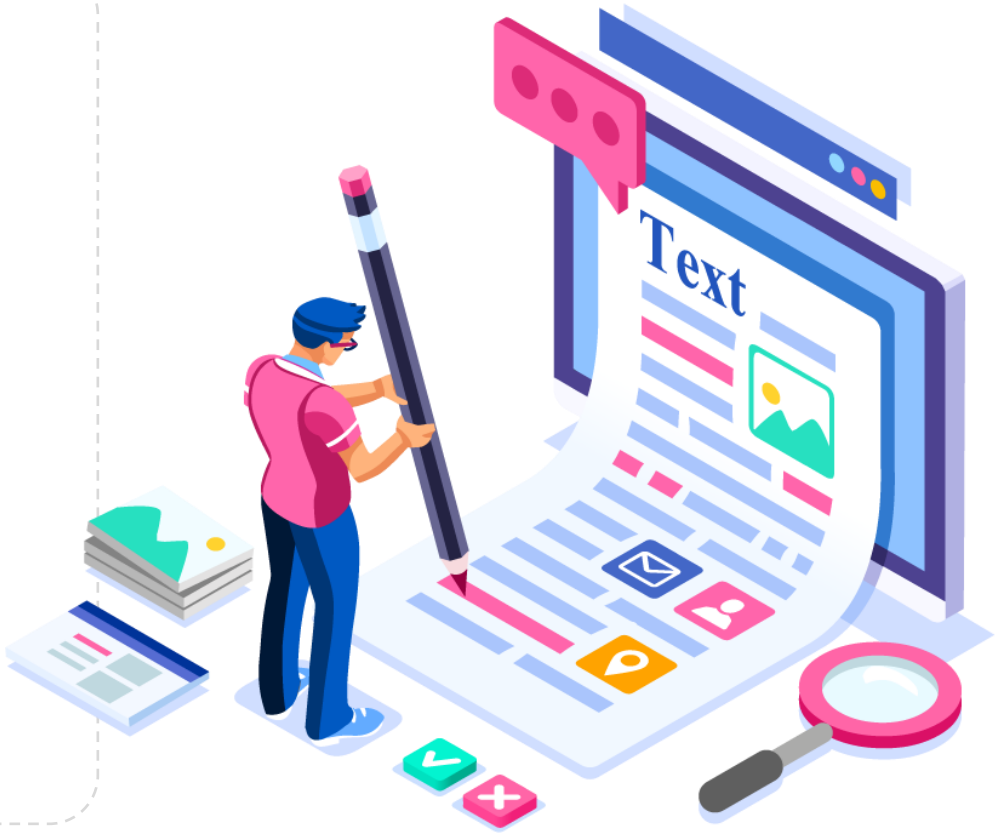
Software

A software environment favouring pedagogy of learning which promotes active learning, participatory and collaborative practices and sharing of knowledge is essential to nurture a creative society. Free and Open Source Software – operating system and software applications will be preferred in order to expand the range of learning, creation and sharing.

A wide variety of software applications and tools, going well beyond an office suite is required to meet the demands of a broad based ICT literacy and ICT enabled teaching learning programme.

Graphics and animation, desktop publishing, web designing, databases, and programming tools have the potential of increasing the range of skills and conceptual knowledge of the students and teachers. A judicious mix of software applications will be introduced in schools.

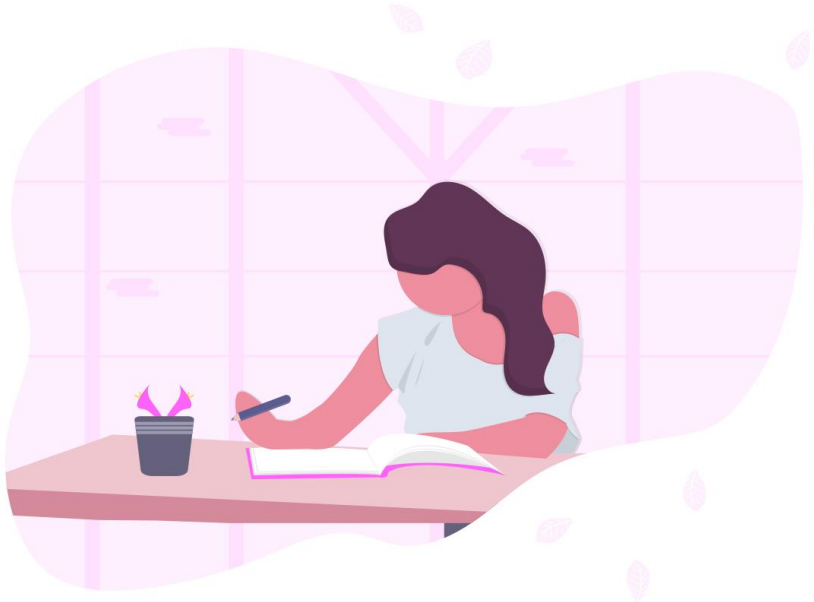
Creation and widespread dissemination of specialised software for different subjects, software compilations, including simulations, virtual laboratories, modelling and problem solving applications will be encouraged. These will be distinct from multimedia packages and digital learning resources.

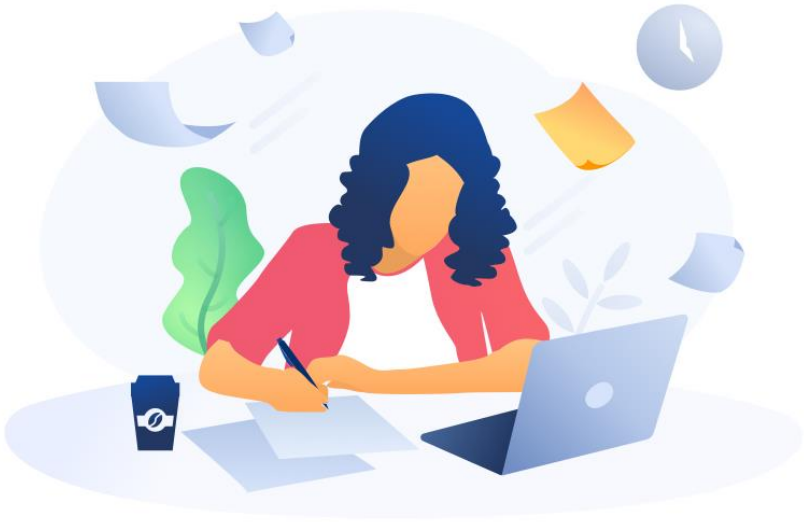


Enabling Infrastructure: its maintenance

The enabling infrastructure required to efficiently maintain the ICT facility will be defined, established and maintained.

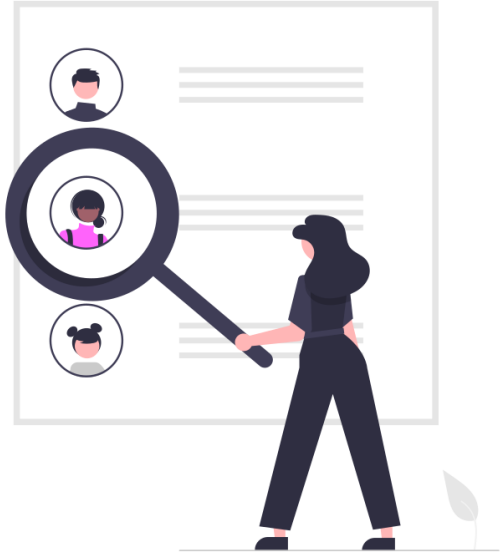
Regular and regulated supply of electricity, appropriate electrical fixtures, adequate power backup and support, including alternate sources of energy, where needed, will be ensured. Students and teachers will also be trained in the safe use of electrical outlets and fittings.





Physical facilities like an adequately large room, appropriate lighting and ventilation, durable and economic furniture suitable for optimisation of space and long hours of working will be established. Alternate layouts and arrangements facilitating interactions amongst students and with the teacher will be encouraged.

Adequate safety precautions and rules for use will be established. Each laboratory will be equipped with a portable fire extinguisher and students and teachers trained in its use. An appropriate fire drill will also be implemented.



All the equipment and resources will be secured from theft and damage. They will also be covered under an appropriate insurance policy against theft and damage.

Check Your Progess-1

Question

1 School records are important because they

Answers

Option 1 a) are useful historical sources

Option 2 b) provide information needed on ex-studentsces

Option 3 c) only b) is correct

Option 4 d) both a) and b) are correct

Feedback

Question

2. Attendance register is

Answers

Option 1	a) not an important document to be maintained in schools
Option 2	b) only the concern of a class teacher
Option 3	c) an important school record
Option 4	d) None of the above is correct

Tools and Technologies for Connecting with Parents

Tools and Technologies for Connecting with Parents

E-mail:

Schools can create and send out a classroom newsletter to keep parents up to date by e-mail. They can collect the e-mail addresses in the beginning of the school year or give parents the opportunity to sign in for the newsletter on the school website. Individual teachers can send e-mails when there are problems in the classroom or for giving parents good news about the learning process of their children.

E-mails can be sent individually or in group. It is very easy to make groups of addresses in the most common e-mail programs. Parents can read and respond to e-mails whenever they have time. E-mails are also available in the LMS and students contributions in terms of chats and forum postings get e-mailed automatically by the system.

Website or Blog:

On the school website all information of the school such as contact information, expectations, school rules, about the school and the teachers, how to use the internet at home, etc can be showed. The website can also have a calendar with useful information about school trips, parental evenings, and a map with pictures of activities with learners, etc.

A school or class can make its own website on hired web space or can use free hosting web sites. Many schools are using free blogging services from Google and wordpress to provide information to parents, students and public in general.

Online Survey:

Technology currently permits to get quick feedback from parents through online survey. Tools like Google form and survey monkey can be easily set up to get the information from parents and community members. These tools not only collect the information but perform the basic analysis and the outputs are provided automatically for quick decision making.

Virtual Learning Environments:

A virtual learning environment (VLE) is a software system designed to support teaching and learning in an educational setting. A VLE will normally work over the Internet and provide a collection of tools such as those for assessment (particularly of types that can be marked automatically, such as multiple choice) or self-evaluation, communication through discussion boards , uploading of content, return of students' work, peer assessment, administration of student groups, collecting and organizing student grades, questionnaires, tracking tools, etc.

New features in these systems include wikis, blogs, RSS and 3D virtual learning spaces. It can be seen that the VLE or the Learner Management Systems (LMS) have its own inbuilt communication modules to interact with the learners which in turn can be monitored by parents at home. MOODLE is one of the popular open source LMS. You can review the features of MOODLE from its website at www.moodle.org

Media Sharing:

currently it is possible to share various kinds of media online. Most popular one is sharing of videos through online video sharing sites like YouTube. Schools can use this to communicate with parents by sharing school program related videos, videos for training parents on child rearing practices, helping students manage stress, time etc.

School related audio program could be podcasted using online podcasting sites. Presentations by teachers and others could be shared with parents through slide sharing sites. Images can be shared using flickr.

Social Networks.

It is possible to use social networks like Facebook, Twitter or MSN to communicate with parents. It is possible to make groups in Facebook and share information with the parents. Parents can communicate with each other of the class of their children.

They can share pictures, important information, etc. Facebook is not so difficult to work with and a lot of parents already have a Facebook account. An interesting website to teach parents to use Facebook is http://facebookforparents.org/

Online Groups and Forums:

Communicating with parents are made easy using forum and e-mail groups like Google groups and Yahoo groups. The school can create specific group of parents using Google or Yahoo services to communicate each other and among parents. It is also possible to share files among the group members.

SMS and Instant Messaging:

School can send SMS to the parents when the child is not at school. So the parents will immediately know if their child is playing truant. When the school has to send an urgent message for parents, school can send a collective SMS, warn parents or an individual SMS to contact a specific parent.

Now days instant messaging service like whatsup is very popular among teachers, students, and parents. The simplicity of this tool makes it easy for sending information to parents. Specific Whatsup group could also be formed for taking up discussion on a specific issue.

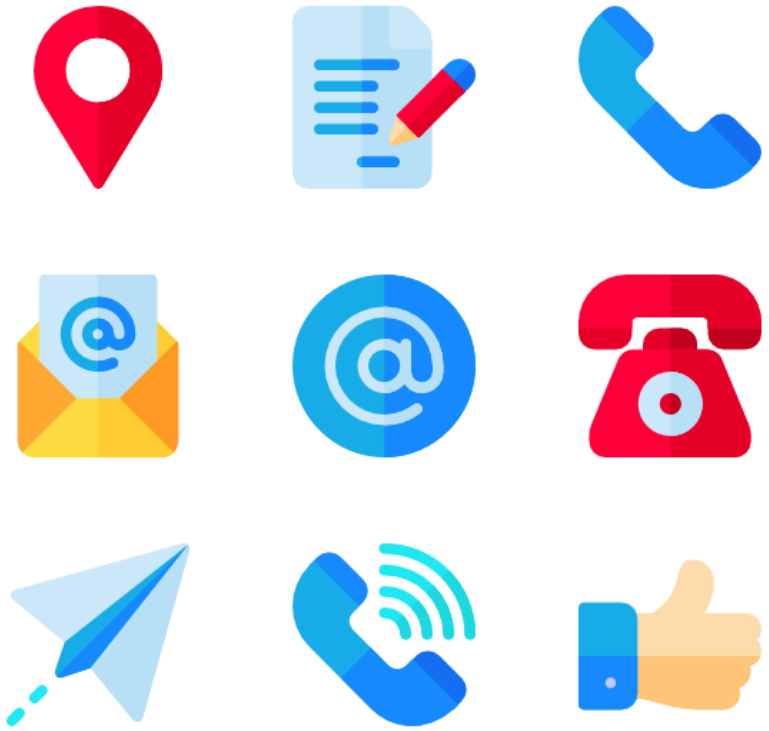
Google chrome extensions and apps:

Many teachers deploying Chrome and Chrome Devices for Education want to force install or recommend Chrome web apps on their students' devices. However, given the thousands of Chrome web apps available, it's not always apparent which ones are the best for your class. Google has created Chrome App Packs, which are groups of popular applications from the Chrome Web Store that are tailored to meet students' needs.

These curated apps save teachers time, offer discounts for bulk app purchases, and help teachers find the best apps by category and grade level. Many of these apps integrate with Google Drive to provide an easy way to turn in homework, and many of these apps offer lesson plans for teachers.

App Packs are only available for Google Apps for Education customers. These App Packs are of three types. Some of them are free, some are freemium (These apps are provided free of charge, but a premium is charged for advanced features) and many are paid.

Most children today are familiar with the mobile apps even from their pre-school days. Now a day's many schools are developing their own mobile apps, depending on their needs. It may be giving learning modules or may be connecting school with community.



Mobile apps offer meaningful ways to engage teachers, students and parents. An app can provide ready in hand news and event updates concerning schools. It can further inform guardians regarding courses, timings, class schedules, school policies, etc.

Apps can also provide a platform to get results and also individual student information. Parent can always remain updated on your ward's education. Active School Apps is one example for school app whose trail version is available in the following link

http://www.activeschoolapps.com.au/

3.4 School Management Tools

Interactions sharing ideas and communications with teachers, parents, alumni and community members become the major part of school management. School management includes admission of students to various courses, assigning subjects and classes to teachers, maintaining records, communicating with parents, preparing various certificates, analyzing various data etc. It should help all the stake holders in participating actively in decision-making process.

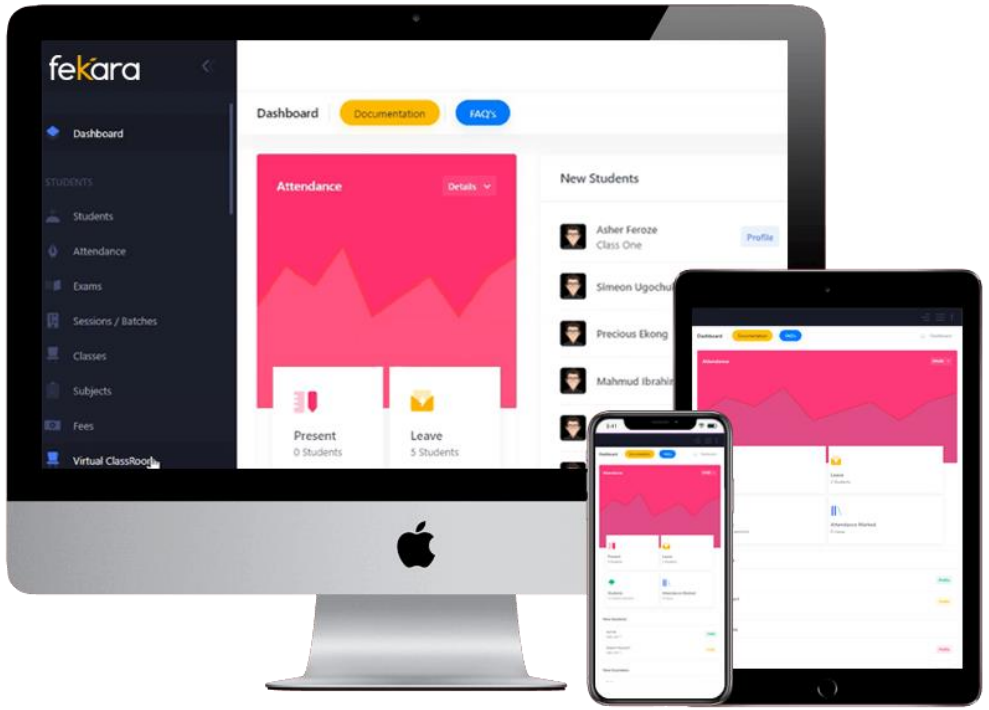
The functions of a school manager are to manage the school and formulate policies that best suit the needs of the school as well as the overall interests of the students. A manager is responsible for school planning with a view to creating learning environment for their students and nurturing talents. Hence, aside from the time and energy spent in school management, a school manager should have a good understanding of the school itself as well as the trend of education development.

Going without school administration software could be costing your time and effort. Earlier times school administration was run without software. But present day we are living in a digital world and needs are changed. Luckily, there are lot of school administration software available free of charge. Some of them are listed below with special reference to Open Admin for Schools.

FeKara:

FeKara, is an all-round school admin software which cannot be treated as a free software completely. It covers modern school administration and management software option. It can be used to conduct exams, assignments, budgeting and internal messaging.

Major drawback for FeKara is that it is meant for small schools only. Additional data storage and other features are available on payment basis. Website : http://fekara.com/



SchoolTime:

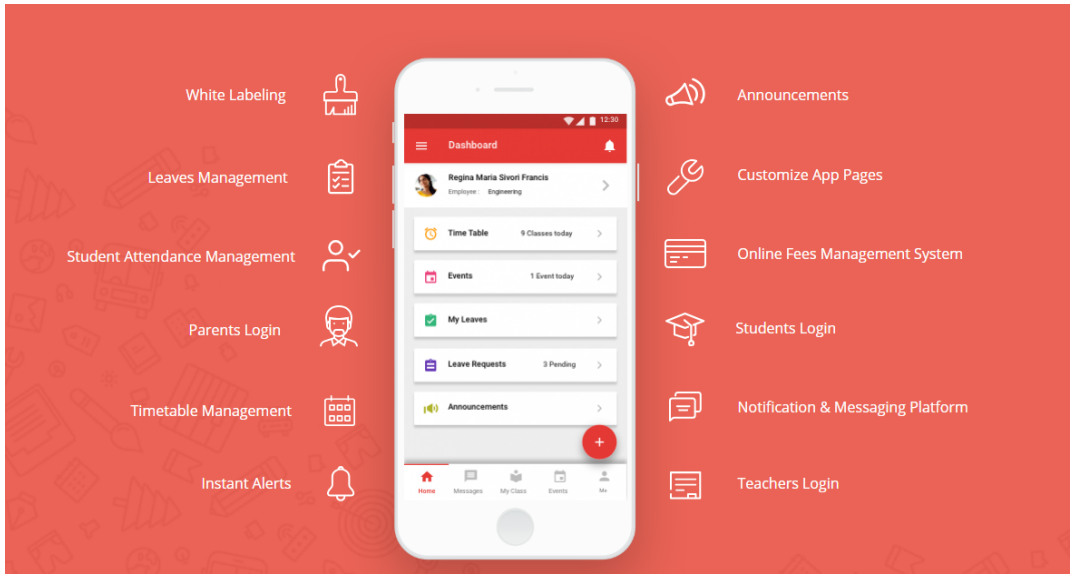
SchoolTime is also a similar type of school administration software .It is also can be upgraded to non-free software to get more benefits. website : https://school-time.co/

TS School:

TS School short form of Time Software School is a classic powerful tool that offers the basics for schools of all sizes. TS School is good for managing your workforce. TS School offers a student management system and an exam module. Again like the SchoolTime and FeKara TS School also has a paid version which gives more features. website : http://www.ts-school.com/

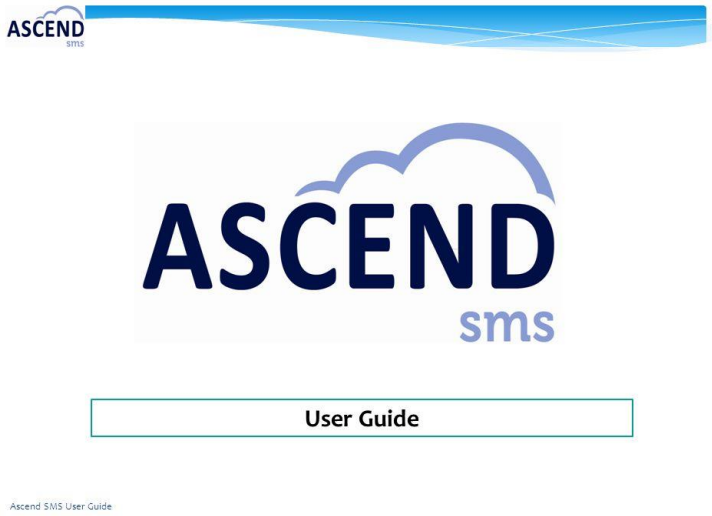
Fedena:

Fedena or project Fedena is an open-source school administration software that largely focuses on handling records. It is based on Ruby on Rails. It was initially 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 : http://www.projectfedena.org/



Ascend SMS:

Ascend SMS is an entirely free full-program school administration software made for Catholic and Independent schools. Ascend SMS offers a complete package. From offering a health management system for the school nurse to a mobile app for parents to a simple discipline reporting system. Even though Ascend SMS is free for many schools, to avail that facility school has to be listed in their system. Website : http://www.ascendsms.com/



SchoolTool:

SchoolTool is a cloud-based open-source school administration software made for schools in the developing world. It provides educators gradebooks, skill assessment documents, class attendance sheets, and daily participation journals along with organization features including applications like Google Calendar , and a great report card generator.

School Tool was made with Python, and is run on Linux Ubuntu. School Tool comes with its own web server and database. To make sure all the necessary components are installed correctly, it is distributed , through Ubuntu Linux. But there is a draw back for SchoolTool. It is far more a tool for teachers than it is for administrators. Website : http://schooltool.org/ (Can be downloaded from Ubuntu software center).

Open Admin for Schools:

Open Admin for Schools is once again open source. It is a freely available, open source software package and is licensed under the GNU General Public License. Open Admin for Schools offers software features like attendance, reports, management system;

Open Admin for Schools is one of the most comprehensive free and open-source school administration software options available. The owners of the site offer free support for schools in developing countries. Website : http://richtech.ca/openadmin/index.html .

Open Admin for Schools is entirely web based tool. Currently several schools use this approach. It is designed to be lightweight both in server resource requirements and in communication bandwidth. It currently has the following features:

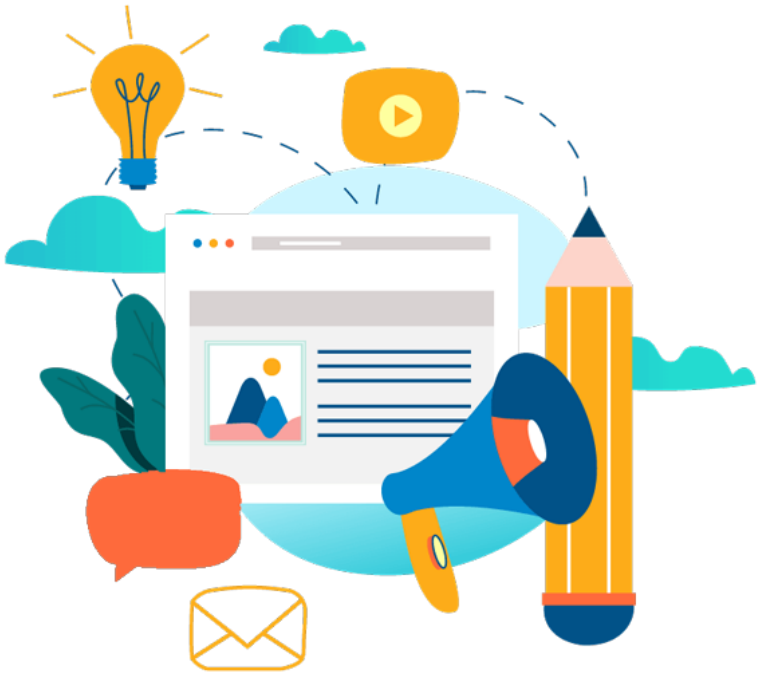
Demographics – It stores student and family information that can be viewed and printed in a variety of ways.

Attendance – Attendance can be entered either by secretaries in the school office or by teachers in the classroom.

Report Card System – a flexible reporting system with per subject objectives (up to 20), integrated attendance reporting, etc. All report cards are printed as PDF reports and may include a school logo.

Online Gradebook to allow teachers to enter marks and assessments online from school or home.

Parent/Student Viewing scripts to allow parents to view attendance and report cards



A Fees System (along with Lunch program) to allow charging of student fees, printing of invoices, payments, invoices and export summary transactions to external accounting programs.

Technology Plan for the School

In pursuit of excellence, the school mission is to educate, guide, and challenge all students to develop lifelong learning skills necessary to successfully contribute and compete in a rapidly changing global community.

Principals and program leaders have sufficient technology available to support curriculum, instruction, and assessment.

Building Schools of the Future

The following conditions are recognized as critical elements of future schools:

- Schools of the future must be open and flexible, focusing on learning
- New communication should promote new collaborations and a higher level of cooperation and creative problem-solving

- Educators must be supported in their use of new technologies for learning and also in their use of technology for professional development and collaboration

- Learners (students, educators, parents, etc.) must be able to use technology to achieve new levels of learning and to acquire new information age skills and abilities

- Educational managers need to use technology as a tool for managing schools and learner communities
- Free from one geographic location: anywhere, anytime, anyplace
- Supportive of all learning styles

- Educators must be researchers and mentors
- New skills required in info-society: abilities to quickly adapt to new situations and new technologies and to be able to process vast amounts of information
- All staff members must receive adequate training and support to effectively use the technology

- Principals, superintendents and school boards need to understand how the current structure of a educator's and learner's day impact on their effective use of the technology. In effect, managers must provide the vision of change that includes empowering teachers and learners in new ways and then must learn how to effectively manage these empowered educators and learners.

- New on-line communities

1. Communicate Globally

Students will use appropriate resources to communicate with others (e-mail, chat, video conference, text-messaging, etc.)

2. Locate Information

Students will use appropriate resources (library, Internet, CD-ROM, laser disc, simulations, videos, etc.) to locate information.

3. Gather Research Data

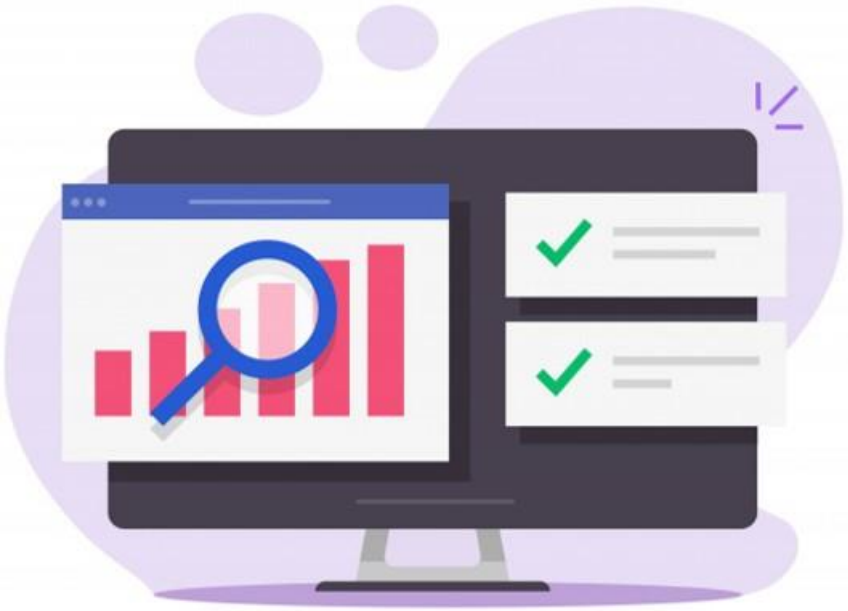
Students will use research skills to investigate specific topics using various technological media.

4. Organize Information

Students will organize knowledge by using keyboarding, word processing, database, spreadsheet, etc.

5. Utilize Decision Making

Students will make decisions to effectively present the information they have researched and the knowledge they have organized.



6. Produce Presentations and Projects

Students will organize research into a multimedia format to communicate information.

7. Evaluate Presentations or Projects

Students will critically review, assess, and revise presentations and projects.

Q&A