Q1-

ANS:= The use of computers to present text, graphics, video, animation, and sound in an integrated way. Long touted as the future revolution in computing, multimedia applications were, until the mid-90s, uncommon due to the expensive hardware required. With increases in performance and decreases in price, however, multimedia is now commonplace. Nearly all PCs are capable of displaying video, though the resolution available depends on the power of the computer's video adapter and CPU.

Multimedia (Lat. Multum + Medium) is media that utilizes a combination of different content forms. The term can be used as a noun (a medium with multiple content forms) or as an adjective describing a medium as having multiple content forms. The term is used in contrast to media which only utilize traditional forms of printed or hand-produced text and still graphics. In general, multimedia includes a combination of text, audio, still images, animation, video, and interactivity content forms.

Multimedia is usually recorded and played, displayed or accessed by information content processing devices, such as computerized and electronic devices, but can also be part of a live performance. *Multimedia* (as an adjective) also describes electronic media devices used to store and experience multimedia content. Multimedia is similar to traditional mixed media in fine art, but with a broader scope. The term "rich media" is synonymous for interactive multimedia. Hypermedia can be considered one particular multimedia application.

Multimedia PC

The **Multimedia PC**, or **MPC**, was a recommended configuration for a PC with a CD-ROM drive. The standard was set and named by the "Multimedia PC Marketing Council", which was a working group of the Software Publishers Association (now the Software and Information Industry Association). The MPMC comprised companies including Microsoft, Creative Labs, Dell, Gateway, and Fujitsu. Any PC with the required standards could be called an "MPC" by licensing the use of the logo from the SPA.

CD-ROM drives were just coming to market in 1990, and it was difficult to concisely communicate to a consumer all the hardware requirements for using "multimedia software", which mostly meant "displaying video on a PC via a CD-ROM drive". The MPC standard was supposed to communicate this concisely, so a consumer buying hardware or software could simply look for the MPC logo and be assured of compatibility.

The MPC program was never a success and it is rare today to see software or hardware labeled with the term "MPC". As the standardized term failed to catch on, and as the Software Publishers Association turned away from consumer software in the late 1990s, interest in the MPC standard vanished. The problem of software labeling continues, especially in the field of computer games, where a plethora of 3D video cards has been manufactured with an extremely wide range of display capabilities, and no common industry labeling standard to let consumers know whether their card is powerful enough to let them play a particular game.

[edit] MPC Level 1

The first MPC minimum standard, set in 1990, was:

- 16 MHz 386SX CPU
- 2 MB RAM
- 30 MB hard disk
- 256-color, 640×480 VGA video card
- 1x (single speed) CD-ROM drive using no more than 40% of CPU to read, with < 1 second seek time
- Sound card outputting 22 kHz, 8-bit sound; and inputting 11 kHz, 8-bit sound
- Windows 3.0 with Multimedia Extensions.

[edit] MPC Level 2

In 1993, an MPC Level 2 minimum standard was announced:

- 25 MHz 486SX CPU
- 4 MB RAM
- 160 MB hard disk
- 16-bit color, 640×480 VGA video card
- 2x (double speed) CD-ROM drive using no more than 40% of CPU to read at 1x, with < 400 ms seek time
- Sound card outputting 44 kHz, 16-bit "CD quality" sound.
- Windows 3.0 with Multimedia Extensions, or Windows 3.1012

[edit] MPC Level 3

In 1996, MPC Level 3 was announced:

- 75 MHz Pentium CPU
- 8 MB RAM
- 540 MB hard disk
- Video system that can show 352×240 at 30 frames per second, 16-bit color
- MPEG-1 hardware or software video playback
- 4x CD-ROM drive using no more than 40% of CPU to read, with < 250 ms seek time
- Sound card outputting 44 kHz, 16-bit "CD quality" sound.
- Windows 3.11

2.1 Hardware requirements of the multimedia computers

Multimedia computers should support the capture, editing and viewing of video and audio data and provide facilities for the transfer of these data types between computers either through modems or through local and wide area networks. Various parts that should be present in the multimedia computers (PCs in particular) in order to support these functionalities and their specifications have been defined by the Multimedia PC (MPC) group and included in the MPC Level 3 standards. This standards body has first defined MPC standards and then MPC2 and finally parallel to the developments in the computer technology the MPC3 standards.

The MPC 3 standards defined the characteristics of the various parts of the computers shown in Figure 2.1 below.

USB : Universal Serial Bus

MIDI : Musical Instruments Digital Interface

NIC : Network Interface Card

We shall be dealing with these parts in more detail in the proceeding sections. Below we have summarized what we think a multimedia PC should have as minimum requirements bearing in mind the developments in the computer industry. You have to remember that even these definitions may change by the time you read them because of the rapid technological developments.

- Processor: Pentium II 350 MHz
- Memory: 64 Mbytes
- Disk : 4 Gbytes
- CD ROM : 24 speed
- Sound Card: 16 or 32 bits
- Graphics card: one with 4 Mbytes of memory

It is possible to expand this list and enhance the specifications, remember that these are the subjective minimum requirements.

We shall now start examining the parts shown in figure 2.1 in more detail. TOP

Processor:

Multimedia applications require powerful processors because of their demanding nature. Applications such as compression or decompression of MPEG (Motion Picture Expert Group) video for example requires that 25 to 30 frames of video should be processed and displayed per second depending on the use of PAL or NTSC standards respectively. The processing involved in the compression and decompression process is fairly complicated and time consuming as we shall see in the later chapters. In order to meet these requirements either the extended instructions have been used in processors or special multimedia processors have been devised.

Intel adopted the former approach and included the MMX technology in its processors. In these series there are extra 57 new instructions which have been developed with the multimedia applications in mind. One of the instructions for example can do a number of multiplications in parallel and sum their results. Digital signal processing requires such operations and MMX can perform operations on more than one data unit at the same time. This ability is referred to as Single Instruction Multiple Data (SIMD) operation. To be able to achieve this Intel uses a 64 bit register which can be used as units of 8 bits which means that it can hold 8 bits, 16 bits or 32 bits of data and perform operations on the parts independently.

Using special microprocessors for multimedia applications is another approach adopted by some manufacturers. Mpact/6000 which is a multimedia accelerator chip developed by Chromatic's is an example of such an approach.

Memory:

Considering the size of the multimedia applications memory capacity is important to reduce the number of disk accesses. Normally programs are transferred to the main memory from the disk and executed there. Those which do not fit into the memory - and most of the multimedia applications fit into this category - are transferred as pages. The bigger the memory the more pages shall be transferred hence the number of disk accesses will be reduced and the programs will be executed faster.

CD_ROM

CD_ROM is the abbreviation of the words Compact Disk Read Only Memory. The fastest and cheapest way to distribute multimedia applications is using CD-ROMs. We shall be summarizing the different type of CD ROM formats that support multimedia applications below.

CD-DA : Supports digital audio

CD-I : This a format developed for applications requiring interactivity. Supports graphics, audio and video. It is suitable for interactive games.

CD-XA: XA stands for extended architecture. This format improves the CD ROM's audio and video capability.

MSCDEX: A capability to allow the use of CD-ROMs in the DOS environment.

PhotoCD: It is used to save photos in the compressed form. The compression allows for 100 photos to be recorded in one CD.

Video CD: It is used to store video compressed in MPEG_I format. Videos up to 74 minutes in duration can be stored in one CD using this format.

DVD: Digital Video Disk technology improves the storage capacity to 4.7 to 17 Gbytes. It is mainly used to store video compressed in MPEG II standards in a CD ROM. It is being supported especially by the film industry because it supports interactivity and provides protection against illegal copying of the disks. Although it has been defined as part of the MPC Level 3 specifications it will be used in other areas as well due to the capacity it provides. TOP

Sound Card:

The audio system specified in MPC Level 3 includes

- 8 or 16 bits per sample sampling capability
- 8, 11, 16, 22, or 44 KHz sampling rate
- A linear Pulse Code Modulation (PCM) Codec to convert the sampled analog values to digital data.
- A playback and recording of 16-bit stereo that uses no more than 13 % of CPU time for 44.1 K samples/sec.
- CD ROM drive with CD-DA outputs and volume control.
- Speakers
- One MIDI port.

Figure 2.2

The block diagram of a sound card compliant with the MPC Level 3 specifications is shown in figure 2.2.

Video Graphics Interface Card

A graphics display card is used to display an digital data on an analog monitor. Each pixel is represented with 8 to 32 bits and these are converted to RGB signals through a palette. These values are then converted to analog signals for display on the monitor.

MPC Level 3 standards require that a graphics adapter should be capable of displaying a 352x240 video at 30 frames per second without dropping any frames. An additional card is usually required to playback videos compressed using MPEG-I. MPEG corresponds to Motion Picture Experts Group. Using this card MPEG videos can be

displayed on the monitor.

We need an additional board in order to be able to capture analog video and store it in our computer. These cards accept video from VCRs or video cameras and their performance depends on the speed of the codecs used in them. It has to be remembered that one minute of a video recording will occupy 10 to 20 Mbytes of disk space depending on the compression used. TOP

Universal Serial Bus

With the introduction of multimedia applications the number of devices connected to the computers have increased considerably and this has created problems in management and maintenance of the systems. To avoid the increased number of connectors being used the USB has been developed. Using the USB

- The current peripheral devices
- Telephony equipment
- Joysticks and other tools for playing games
- Video equipment such as cameras

can be connected to the computers from a single port. The total speed of this connection can be 1.5 Mbits/s or 12 Mbits/s and the configuration is shown in figure 2.3

Figure 2.3

The peripheral devices could be connected through hubs or one of the equipment such as the keyboard could serve as a hub. This way a total of 127 devices can be connected to the bus. The maximum cable length in any one connection cannot be longer than 5 m.

As stated before the USB has a limited bandwidth. This prevents many devices to be connected simultaneously and even if they can be connected they cannot be serviced simultaneously. To solve this problem High Performance Serial Bus defined by IEEE 1394 standards has been developed. This bus can support bit rates of 100, 200, and

400 Mbits/sec. The Apple version of HPSB is called *firewire*.

Video Conferencing

There are three standards defined for video conferencing and they are defined in the table below:

	Standard	Video Codec	Audio Codec	Data
ISDN	H320	H261	G711,722,728	T120
POTS	H324	H263,261	G723	T120
LAN	H323	H263	G723	T120

A typical video conferencing setup is shown in figure 2.4 below. As you can see the above standards are based on the communication media being used.

Figure 2.4

Network Interface card - NIC

NICs are used to connect the computers using local area networks. These cards can support Ethernet, Token Ring or Token Bus structures. The bit rates depend on the type of network being used and can be 4, 10, 16 or 100 Mbits/sec. There also exist network cards which support cable TV connections

Q2-

ANS:- **Animation**

Moving images have an overpowering effect on the human peripheral vision. Followings are few points for its popularity.

Showing continuity in transitions:

Animation is a set of static state, related to each other with transition. When something has two or more states, then changes between states will be much easier for users to understand if the transitions are animated instead of being instantaneous. An animated transition allows the user to track the mapping between different subparts through the perceptual system instead of having to involve the cognitive system to deduce the **mappings.**

Indicating dimensionality in transitions:

Sometimes opposite animated transitions can be used to indicate movement back and forth along some navigational dimension. One example used in several user interfaces is the use of zooming to indicate that a new object is "grown" from a previous one (e.g., a detailed view or property list opened by clicking on an icon) or that an object is closed or minimized to a smaller representation. Zooming out from the small object to the enlargement is a navigational dimension and zooming in again as the enlargement is closed down is the opposite direction along that dimension.

Illustrating change over time

Since animation is a time-varying display, it provides a one-to-one mapping to phenomena that change over time. For example, deforestation of the rain forest can be illustrated by showing a map with an animation of the covered area changing over time.

Multiplexing the display

Animation can be used to show multiple information objects in the same space. A typical example is client-side imagemaps with explanations that pop up as the user moves the cursor over the various hypertext anchors.

Enriching graphical representations

Some types of information are easier to visualize with movement than with still pictures. Consider, for example, how to visualize the tool used to remove pixels in a graphics application.

Visualizing three-dimensional structures

As you know the computer screen is two-dimensional. Hence users can never get a full understanding of a three-dimensional structure by a single illustration, no matter how well designed. Animation can be used to emphasize the three-dimensional nature of objects and make it easier for users to visualize their spatial structure. The animation need not necessarily spin the object in a full circle - just slowly turning it back and forth a little will often be sufficient. The movement should be slow to allow the user to focus on the structure of the object.

You can also move three-dimensional objects, but often it is better if you determine in advance how best to animate a movement that provides optimal understanding of the object. This pre-determined animation can then be activated by simply placing the cursor over the object. On the other hand, user-controlled movements requires the user to understand how to manipulate the object (which is inherently difficult with a two-dimensional control device like the mouse used with most computers - to be honest, 3D is never going to make it big time in user interfaces until we get a true 3D control device).

Attracting attention

Finally, there are a few cases where the ability of animation to dominate the user's visual awareness can be turned to an advantage in the interface. If the goal is to draw the user's attention to a single element out of several or to alert the user to updated information then an animated headline will do the trick. Animated text should be drawn by a one-time animation (e.g., text sliding in from the right, growing from the first character, or smoothly becoming larger) and never by a continuous animation since moving text is more difficult to read than static text. The user should be drawn to the new text by the initial animation and then left in peace to read the text without further distraction.

One of the excellent software available to create animation is Animator Pro. This provides tools to create impressive animation for multimedia development.

Q3-

ANS:-

Developing Instructional Multimedia

Multimedia is interesting!

Multimedia is interesting! Compelling! People like using it! Students learn from it! It works! Anyone can develop a package; just point and click!

The truth is that many things are simpler, cheaper, quicker, and -- gasp -- more effective. Multimedia really can draw a student's interest, but like any movie or class, it can also be boring. Once the novelty wears off, the merit of multimedia will be based on its content, presentation, and effectiveness.

There are some excellent multimedia instructional packages on the market. If a ready-made piece does what you need, use it. At some time, you may want to develop your own materials. This article offers some insights into what instructional multimedia is and into the instructional multimedia development process. The choices and process are adaptable, as developers customize their procedures to suit the needs of individual projects.

What is Multimedia?

The term "multimedia" has taken on many meanings. For this article, I am using the term multimedia to mean computer-aided instruction (CAI) or instructional presentation that combines text, graphics, video, and audio, and may include interactivity options. (Interactivity is the ability of the user to determine the sequence of content flow.) As an instructional tool, it is important to see multimedia as one option in the vast array of instructional technology.

Computer technology can assist the instructional environment in one of three basic categories: electronic communication, presentation support, or student materials.

Electronic communication -- email, bulletin boards, and the like. These give teachers and students more opportunities to talk to each other by leaving messages. This can have the effect of extending mutually-convenient office hours. Students can leave notes for the teacher, and the teacher can post assignments, answer questions, and engage in discussions. In some cases, leaving notes is the perfect solution.

Presentation support -- using the computer to enhance a lecture. This is the digital version of slides or overheads. The advantage of a multimedia

presentation is that you can set your slides to show a movie clip or pictures. You can play them sequentially or pick slides at random as you speak.

Student materials -- programs used by students either alone or in class. For example, you can automate your presentation so that students can see your "lecture" on their own. However, you may need to include additional information or instructions on how to operate your presentation. You can design the module to address many different instructional goals such as giving information, providing simulated experiences, or giving drill-and-practice opportunities.

Effectiveness is all about making the solution match the problem. Your solution may combine various elements from all three categories of computer technology, or your solution may use just one category combined with non-computer-based presentation formats such as a lecture, video, laser disk, overheads, and blackboard portions. It is important to understand the features of technology when making your choices.

How to Get Started

Multimedia projects can involve a great deal of work. It is obvious to most of us that large projects can cover large amounts of content, many types of media, and large amounts of interactivity, and can result in intricate packages. What is not so obvious is that the more time your students spend using the project on their own, the more demanding your planning and field testing has to be to make sure that the project is working for your students. Projects that are self-paced student materials are bigger by virtue of the extended field-testing requirements.

I recommend that first time developers have fun and pick smaller projects that will be easier to develop and more manageable regarding time and resources. But even small projects require thought and planning. A well-designed plan will make your project more rewarding because your development and implementation will be smoother and the project will have a greater chance of success.

Fun and "safe" first projects are small presentations with limited media elements that you can use during lectures. Lecture presentation allows you to watch your students and see how your project is working out. To get ideas, you can visit the InfoTech Arcade and try out their presentation software packages. Including pictures and graphic elements in your presentations is not very difficult. Video does start adding more work and complications. Remember, each graphic element has its own aesthetic requirements. It is helpful to consider the following instructional design process for small projects as well as larger projects because it is always important to consider the major instructional design issue: What do you want your students to

know and to do?

Developing Instructional Multimedia

Some projects can take one person a few hours, others can take a few years and require a staff of many. Developing multimedia is an interdisciplinary task. Multimedia developers study communication design, video, photography, graphics, layout, and design, as well as computer technology. Developers specializing in instruction also study instructional design and learning theory. The complexity of your project determines the time and expertise requirements.

The process of instructional design is defining where you want to go instructionally, and developing a "map" of information and experiences to guide your students to the same destination or goal. If along the way you see some interesting sights to share, by all means point them out. This can be inspirational and fun. But it is very important not to cause confusion by including extraneous information in your course map. If you want someone to meet you at a given destination, you have to tell them what the destination is. On a bright sunny day, you would not look at the car and think, "Gee, how can I use these great windshield wipers to meet friends at the mall?"

What follows is a simplified outline that groups the tasks involved in the instructional media development process into twelve major steps. It is not meant to be a complete "how-to" of instructional design, but it does show the major concerns of a professional instructional designer.

1) Determine your overall goal.

What problems are you trying to solve? Perhaps you really want to provide more opportunities to talk with your students and answer their questions. Do you want to prepare a presentation tool? Are you trying to provide your students with additional review or practice opportunities? An instructional designer can be of assistance at this point.

2) Define your instructional goal and develop your learning objectives.

If you are designing instruction or developing a presentation, list each component of what you want the student to know, what you want the student to do, and what information and experience is needed to learn or communicate each step. If you need video, list it here. If you do not need video to teach a point, do not list it. You may need to do content research to fully analyze the content and tasks you are teaching. Content experts can help assemble this information.

An instructional designer can be of assistance at this point to help break the information into individual learning objectives, determine their sequence, and select media elements such as graphics, text, video, audio, and interactivity for each learning experience. This is not a selection of the final media platform. Identifying a need for video at this point is not identifying whether the video will be shown as a stand-alone video or as part of a computer-based multimedia module.

3) Analyze your students or audience.

This is especially relevant when developing materials to be used by others. If your students are not experienced or comfortable using computers, you may need to add steps to teach them how to use the package you develop. Surprising as it may seem, not everyone loves computers or even likes using them. Keep your design simple. Unless you are teaching computer usage, try to reduce the number of steps people need to learn in order to use your module. You may need to add steps to your instructional goals and learning objectives from Step 2 to get your end-users up and running. Once again, an instructional designer can be of assistance at this point.

4) Determine what expertise is needed for your project.

If you are developing a presentation that relies on a great deal of new video, you will need to know how to script and produce video for instructional purposes. It's simple to point a camera and press a button, but knowing how to set the stage, light the scene, and script appropriate visuals for your communication or educational goals requires a more thorough understanding. The same holds true for graphics. You may want to consult with, or even hire, graphic artists, instructional designers, and media developers for guidance.

5) Determine your computer hardware and software requirements.

This is really an extension of Step 4, but because many things are involved, we look at technology and its implications as a separate step.

A network, for example, means being able to reach a large number of people at various locations. It also means security and uneven-timing issues. So if you are working on a project that you want to test and load and test and load, you may want to consider a small-systems solution that allows immediate access instead of a wider networked solution.

Check with the Computer Center to discuss the pros and cons of various campus-wide network and small-systems networking solutions. Keep in mind that the technical configuration can have a strong influence on the student's learning environment. You can discuss these implications with an

instructional designer.

What development software should you use? Examine the software available in your department, and see what your colleagues are using. The InfoTech Arcade in the Library is a great place to start, not only to see demos of the software, but to hear what the staff recommend. They will be able to tell you about other projects by other faculty with similar interests.

Journals and other discipline-related publications provide an additional source of information. Many specialized developers produce packages to assist discipline-specific educators. For example, chemistry software developers have produced a package to develop chemistry-related animations.

6) Draw your conclusions.

Decide which media platform you will use to execute each learning objective from Step 2. You might use a stand-alone video and lecture for some portions of your project and develop a multimedia program for other portions. You might develop portions of the project as multimedia modules pressed on CDs to be loaded onto individual hard drives, or even develop the entire project as a multimedia module loaded on a small or campus-wide network. There are legitimate reasons for choosing each of these media technologies. If you need help, consult an instructional designer or other educational specialists. You may find that you need to repeat some or all of the previous steps any number of times until you are able to draw satisfactory conclusions.

At this point you should know your goals, problems, and all the requirements for developing your materials. You may decide that your goals are more effectively and efficiently achieved by using a commercial video for a one-time show than by spending hours developing something that will only be used once.

Remember, keep your instructional requirements in focus. If the software or technology can not do what you know needs to be done, then supplement your technology with additional materials such as handouts or lectures. You may have to develop your project using two or three different methods at different stages. You may have to scrap the idea of using computers for a particular goal and use traditional technologies. Choose whatever tool works best for each goal.

7) Write your design specifications.

You might have specialized portions done by others, such as video developers, graphic artists, or programmers, or you may do everything

completely on your own. A written plan is still a valuable development tool.

If you are bringing in others, written design documents are required. Talk to them to determine what design documentation they need. You can fashion your own multimedia storyboard as long as it lists all the components. For example, list and number each screen in the leftmost column. Then, going across for each screen, list the information displayed, the branching points, the interactive response features, and the video, animation, audio, and graphic elements. If the flow of your program is complex, you may also need to develop a flow chart to outline the behind-the-scenes logic. You may also need to write an expanded video script for the video portions. Remember, talk with your development team.

8) Develop an implementation plan.

If you are installing a dozen computers on the campus-wide network and want a month-long testing phase, people will need to coordinate with you and develop their schedules. Make sure to meet with all the people involved and develop a schedule of events and requirements.

9) Develop a field test plan.

How can you test to see if your project really meets your goals? A field test or evaluation tells you how well your design is delivering your instruction. The field test can be conducted during project development (formative) or when you think you are done (summative). For large-scale projects that cover an entire semester or that have a wide distribution, formative and summative evaluations are essential. Anytime students use materials on their own, a field test is necessary, even for small projects. In addition to using your software, you might also include a questionnaire with your field test to better understand the subjective reactions of your test subjects.

Remember, unlike a class presentation where you can ask questions and see how things are working on the spot, you will not be there to see the confused looks and frustrated grimaces of students using self-paced materials. Self-paced materials require thorough field testing to make sure that they achieve your goals. In this step, design your test plan. Determine what you need to test for, whether you need formative and/or summative tests, and how to test and evaluate your project.

10) Develop your project.

This is the fun part. If you are using new development tools, allow yourself plenty of time to learn the packages. If you are combining video, graphics, and audio elements you may have problems with file compatibilities. TIFF, PIC, PICT, and QuickTime quickly go from labels to very demanding,

detail-specific requirements that can prevent your module from working. See support people in the Computer Center, the InfoTech Arcade, and other programmers and developers.

11) Conduct your field test and revise as needed.

If you will not be with your students to explain the "how-to's" when they use the module, fight the temptation to interfere and explain during the trial run. Be an observer. Go through the questionnaires that you developed in Step 9 with your test subjects after they have used your module and related materials. This important source of information can point out facets that you had not considered.

Make revisions, changes, and supplements until a new group of test subjects achieves your objectives. You may find yourself back at the drawing board or even returning to Steps 1 or 2. If it is necessary, do not get discouraged, as this happens to even experienced developers. It is why we conduct field tests.

12) Implement your module, use it, and monitor its results.

You may need to revise your module. As you test your students for their knowledge, keep in mind that you are also evaluating the success of the materials used to teach them.

These twelve steps point out things to consider and a sequence of steps in which to think. Your project may require a different approach, although many of the steps described here are still likely to be useful.

Instructional design is an iterative process. Most likely you will find that you are going through a set of steps repeatedly. There are usually loops in the analysis and design steps and then again between the field test and design steps until you come up with a project that works for you. All projects have elements of analysis, developing learning objectives, design, development, implementation, and monitoring. These phases can be very small or very large depending on your project.

The field of computer-aided instruction and multimedia is new. Using it effectively requires deliberate thought and attention to detail. In its new life, we are just beginning to learn what effective use is for this technology. We think it has the potential of addressing many educational issues. By using it to its best potential, we hope to find solutions to some of today's instructional challenges.

Q4:-

ANS:- Multimedia authoring software for creating business presentations, games, CDs and

DVDs on the Windows platform. These products allow you to design interactive product demonstrations, tutorials, brochures, movies, cartoons, walk-through demonstrations, advertisements, and more

Multimedia Services

Multimedia Services promotes community awareness and understanding of municipal and public school system issues, values, and activities through the production and distribution of multimedia programming.

TUNE INTO THE VBTV EXPANDED PROGRAM SCHEDULE

In an effort to better meet the community's needs, VBTV provides expanded programming, designed to offer the information that you want, when you want. Programs like *Bill Nye the Science Guy*, *Assignment the World*, and *Annenberg Teacher Development* have joined VBTV standards like *Access Virginia Beach*, *How in the World* and *The School Picture* to provide easily accessible block programming in our weekly schedule.

Our schedule format features program blocks, designed fit a general theme. Those blocks feature programming: For Educators, For Kids, Personal Development, Local Original Programming, News, and a Special block. For example, programming in the "kids" block will be educationally-oriented and will target school-aged children. There are education blocks for teachers, news blocks of timely and topical information, and special programming; programming which educates or informs viewers about events or activities affecting the Virginia Beach community. Blocks are three hours in length and are repeated at different times throughout each day and week for your convenience. Those block schedules are available on VBTV channels.

Communications and Information Technology Department

Departmental Mission:
The mission of the Department of Communications and Information Technology is to provide and support communications, information, and technology solutions to enable City businesses, inform the community, improve and promote quality of life and public safety

New mobile network technology enables delivering of broadband services to mobile users emerging interactive multimedia communications. Mobile information and communication technologies (ICT) are important enablers of new social structure for population that use small mobile portable devices as mobile phones or laptops with multimedia applications and mobile connections to Internet. This paper will describe possible usage of distributed mobile multimedia education systems for distance learning in rural areas of the Republic of Croatia. There are several types of learning methods that can be applied in those cases like e-learning which represents self-learning or guided learning method and which requires high motivation of the pupil; m-learning which potential still needs to be investigated, and interactive videoconferencing which enables better teacher-pupil engagement. All those approaches require certain technologies for its implementation and have different social and educational impacts.

Archive photos to CD or DVD

Smart Pix Manager allows you to archive your photos directly to a CD or DVD disk, maintaining a thumbnail index of the files so you can perform description and keyword searches of archived photos. You will even be prompted which disk to insert if you wish to view the original file.

Batch convert and edit of photos

Smart Pix Manager supports batch processing of photos, allowing you to automatically rotate, resize, rename, compress and convert a set of photos,Cartoon animation can make your site appear more exclusive, tremendous and interactive. It is very efficient in the conveyance of the message crossways. Funny animations and Cartoon characters can be exercised for presentations, education or as search helpers.

The design and use of a cartoon character has for all the time been an accepted way to endorse a product or even a whole company.

Benefits ---
• Cartoon characters can be identified instantly.
• Cartoon characters give a boost to brand awareness.
• The design of a cartoon character can be easily besieged, as of a particular age group.
• By doing the merchandise planning, there is a production of secondary income.
• It gives the vast potential for comedy and farce fun.

Although scores of people are not going to mull over the writing for cartoon animation, in its own way it is unquestionably a form. For a cartoon to work you require loads of things-- expression, storyline, climax, and a beginning and an ending. Each picture signifies something about a story and every word is characterized by its figure and action.

Not each animated cartoon has to be comprehended in detail. It's all in relation to simplicity and holding the viewer's attention. In order to make your animated cartoon work, many strategies can be brought into a play. Many people find familiar faces and figures interesting, they can relate to. In this place, an animal figure works the best.

People wish for the enthusiasm and conflict. They yearn for clash ingredient and look for the scenes mixed with the disagreement. Violence where the characters don't get wounded makes the story going. Use of bright colors, high action, amazing feats and human qualities are to be required when applying for the cartoon animation.

In cartoon animation, a series of figures, each showing a slightly different stage in motion has to be represented and photographed separately, frame by frame. It is than projected on a screen fast enough to create the false impression of incessant movement. Hence your story is articulated by your figure's actions and you will finally have your animated cartoon