

## **TECHNOLOGY – Computer Science**

As we had discussed in the introduction, the concept of STEM courses actually originated from USA. Therefore, a lot of courses in India can come under more than one stream. That is the reason why we covered several of technology related courses under science and will cover the others when we take a look into Engineering. Here, we will go through the courses related to Computer Science and Technology.

### **Bachelor of Computer Application:**

B.C.A. or Bachelor of Computer Applications is an undergraduate Information Technology course. Computer Applications or Application software is computer software designed to help the user to perform singular or multiple related specific tasks. The duration of Bachelor of Computer Applications is three years, divided into a number of semesters which are generally six in number. The course provides sound practical skills addressing problems which arise from computer systems and applications. Owing to the wide popularity amongst the students various Computer Science Schools have come up offering Computer Science graduate programs at par with B.C.A.

**B.C.A. can also be pursued through Distance Learning Programs by various Institutions. B.C.A. students can specialize in:**

- Computer Graphics
- Programming Languages
- Database Management
- Systems Analysis
- Word Processing
- Internet Technologies
- Accounting Applications
- Animation
- Music and Video Processing
- Personal Information Management.

B.C.A. is more suitable for students who possess good interpersonal and communication skills, good browsing techniques and the like. Apart from

having good knowledge of computers and their operations, the students should also have good typing speed which is necessary both during the course and later in their career.

B.C.A. is a course which provides a sound academic base from which an advanced career in Computer Application can be developed. Apart from being one of the most suitable choices for aspiring programmers, BCA also paves way for a post-graduation in the relevant field which is always preferred.

Any student who has passed Class 12 with a minimum of 55% marks is eligible for the B.C.A. course. There is no compulsion of having Physics, Chemistry and Mathematics subject in Class 12. Students from the Arts and Commerce streams are also eligible to apply for this course. Most of the colleges need either Mathematics or Computers as one of the subjects in 12th, apart from English as a compulsory subject. Some colleges conduct their own entrance exam while others offer admission on the basis of merit.

#### **After BCA:**

After completing B.C.A., students can apply for companies such as IBM, Infosys, HCL, Wipro, CTS etc. These and such other companies recruit a large number of B.C.A. graduates because of a rising demand of software expert in these companies. Students also have the option to join banks as Probationary Officers. Apart from that, students can work as Software Publishers, Finance Managers, Computer Programmers, Teachers and Lecturers, Computer Scientists, Database Administrators, Computer Systems Analysts, Independent Consultants, Computer Support Service Specialists, Information Systems Managers, Systems Administrators, Computer Presentation Specialists, and Software Developers.

Pursuing a Master's is highly recommended for B.C.A. graduates as it will result in a substantial increase in their remunerations and designation. B.C.A. graduates can pursue Master degrees such as M.C.A., M.B.A., M.Sc. in IT or Computer Applications or M.S.

They can also pursue specialization courses in Computer Graphics, Programming Languages, Database Management, Systems Analysis, Word Processing, Internet Technologies, Accounting Applications, Animation, Music and Video Processing, and Personal Information Management.

**Some of the top colleges for this course in India include:**

- Department of Computer Applications, SRM University (Chennai)
- Institute of Management Studies (Noida)
- Madras Christian College (Chennai)
- Symbiosis Institute of Computer Studies & Research (Pune)
- Birla Institute of Technology (Jharkhand)
- Presidency College (Bengaluru)
- University College - Kurukshetra (Kurukshetra)
- Stella Maris College (Tamil Nadu)
- Xavier Institute of Computer Application (Ahmedabad)
- Christ (Deemed to be University) (Bangalore)

**Computer Animation**

Animation is one of the most popular and sought-after fields of multimedia. It has emerged as one of the most interesting and rapidly advancing careers not only in India but also on the global scale. Have you watched movies like Kung Fu Panda, Wall- E or Frozen? The making of these movies was possible only because of animation. Technically speaking, animation is the process of making the illusion of motion and change by means of the rapid display of a sequence of static images that differ from each other minimally.

A 3-year professional undergraduate degree, the Bachelor of Science in Animation (B. Sc. Animation) is an exciting option for those keen on pursuing a career in Animation, Film, Television, VFX, Advertising, and Gaming etc. The course is also offered as a Bachelor of Design (B. Des) in Animation at some of the most premier design institutes in the country and abroad. This would be a 4 year long course. Owing to the fact that B. Des is a 4 year course, the students are given more insight into the philosophy of Design. However, if we talk about comparing the two courses, one must understand that Animation is a highly skill-based area. If you are not skilled enough and are not passionately-driven towards it, then no course can do any wonders.

These courses teach you about the innovative uses of technology which initiates from Multimedia and Social Software to give a better innovation in interactive technology.

Several other programs are offered at the level of online programs, certificate-programs, diplomas etc. While admission into full time courses, i.e. diplomas, degrees, etc. is offered on the basis of entrance exam, admission into part time and short term courses is offered on first come first serve basis.

Students who wish to be animators should have a good hand over sketching or art. It is a field of software, computer application, and art combined. Therefore, it is necessary to have a proficiency in Computers. Animators should have creativity, a keen eye for detail, possess a free hand in drawings, and have an aptitude for design and business, and self-motivation.

The basic eligibility criterion for pursuing B.Sc. Multimedia (Animation & Graphics) degree is qualifying Class 12 or equivalent examination with Physics, Chemistry and Mathematics as subjects. Some reputed colleges and institutes demand a minimum of 50% marks in Class 12 as qualifying criteria to secure admission in this degree course.

Some reputed colleges and institutes also conduct entrance examinations before granting admission to their B. Sc. Multimedia (Animation & Graphics) degree course. Selection to the degree course in these colleges is based on marks secured in the final merit i.e. total marks aggregated in the final exams of Class 12 and the entrance exam.

## **Career Options**

The field of animation is one of the biggest job areas where a person who has a passion towards multimedia and graphics can join. There is no one in this world who does not like animated figures. From the well liked cartoon characters such as Tom and Jerry and Mickey Mouse to the even more popular Hollywood cartoon character Stuart Little and Walt Disney's Little Mermaid, cartoon characters have enthralled us for years and are set to do just that for a long time.

India is a hub of animation with lots of opportunities in Animation Production Houses, Movie Industry, Television channels, Space, Defense, Medical Research, Advertising Houses, and Animation Studios.

As an animator, one can opt to have a career as a Visual Effect Designer, Multimedia Designer, Digital Cartoonist, Website Designer, Graphic Designer, 3D Product Modeler, Game Developer, and as an Animation Expert. Animators can also find openings in Electronic, Print and Web Media Advertising

Agencies, Films/Serials etc.

Work opportunities for quality animators and related professionals like Graphic Designer, Multimedia Developer and Game Developer, Character Designers, Key Frame Animators, 3D Modelers, Layout Artists, etc. exist in following sectors at large:

- Advertising
- Online and Print News Media
- Film and Television
- Cartoon Production
- Theater
- Video Gaming
- E-Learning

**Some of the Job roles could include: Graphic Designer:**

The visual products seen in print and digital in a number of fields, from newspapers to public relations are created by Graphic Designers. Designing books, flyers, magazines, or posters with the help of a myriad of tools, or manually sketching and illustrating their ideas would be the primary duty of a Graphic Designer. The illustration of complex ideas in an accessible way for the businesses and consumers is possible due to their skills in Visual Arts and Communication.

**Web or App Designer:**

Web designers are the ones who create the websites on which the graphic designer's work is displayed. This includes the organization of combines color, graphics and text in such a way that it is simple and intuitive for the users.

The growth of apps is an indication of the demand for those who can transform ideas and messages into accessible and understandable icons.

**Advertising:**

The logos and icons that usually appear in advertisements, magazines, newspapers, and other media, product packaging, and pop up ads on websites are created by designers. They think visually in order to come up with campaigns to brand a product.

### **Video Editor:**

Editing videos for a wide variety of platforms with the aim of creating material that is coherent and visually appealing is also an essential job role of a Visual Communications graduate. This is surely in addition to the work in static images. The work of such a graduate also includes adding music and sound effects to the videos in order to make them more enticing. Some examples could include advertisements and do-it-yourself tutorials.

### **Art or Design Director:**

Art and Design Directors are those who use their leadership skills to help create an array of visual communications projects. The need of such visual communications professionals is seen in a variety of organizations, from a publishing houses, to visual communication agencies, to even nonprofit organizations!

After graduation, students can also study further and pursue M. Sc. in Animation or M. Sc. in Multimedia and Animation.

### **The Top Colleges where students can pursue B. Sc. Animation are:**

- Manipal University
- Amity University
- Birla Institute of Technology-Noida
- Academy of Animation and Gaming
- TGC Animation and Multimedia
- Loyola Academy Degree & P G College
- Jain Animation School
- Chandigarh University
- National Institute of Learning and Academics
- Picasso Animation College

### **Colleges for B.Des (Animation)**

- National Institute of Design
- Chitkara University
- Lovely Professional University
- MIT Institute of Design

## **KEY TAKEAWAY**

- The concept of STEM courses actually originated from USA, therefore, many courses which are offered in India cannot be specified under any one of the Science, Technology, Engineering or Mathematics courses. They overlap and have been covered in the science and engineering modules.
- B.C.A. or Bachelor of Computer Applications and Animation are the major courses in the technology field.
- B.C.A. or Bachelor of Computer Applications is an undergraduate Information Technology course. Computer Applications or Application software is computer software designed to help the user to perform singular or multiple related specific tasks.
- After completing B.C.A., students can become Software Publishers, Computer Programmers, Data-base Administrators and Software Developers among many other options. They can also pursue post-graduation in related fields.
- Animation is the process of making the illusion of motion and change by means of the rapid display of a sequence of static images that differ from each other minimally.
- Bachelor of Science in Animation (B. Sc. Animation) is a 3 year course which teaches different aspects of Animation, Film, Television, VFX, Advertising, and Gaming.
- The course gives a gross idea on the innovative uses of technology which initiates from Multimedia and Social Software to give a better innovation in interactive technology.
- After completing studies, Animation students can work in On- line and Print News Media, Film and Television, Cartoon Pro- duction and Video Game Production among many other areas.