X TECHZINE

8
VOLUME

JULY 2022

A WAY TO ESCAPE THE REAL WORLD INTO SOMETHING MORE FASCINATING

ISLE OF VIRTUALITY

Department of Computer Science

Our Special Thanks To

Rev Fr Dr Arokya Swami SJ (Manager)

Rev Fr Dr A Rex Angelo SJ (Principal)

Rev Fr Dr Raymond Cherubin SJ (Vice Principle)

All Head and Staff Menbers

St. Xavier's College, Jaipur
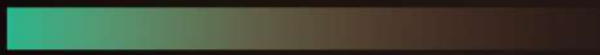
X TECHZINE

ISLE OF VIRTUALITY

Computer Science Magazine
Session 2021-22

DEPARTMENT OF COMPUTER SCIENCE
ST. XAVIER'S COLLEGE, JAIPUR

INDEX

Tech art is a soaring exercise of human imagination.

About College

Everyone has an idea, something which they can look forward to, of which they may dream, and for which they may strive Competence, Compassion, Character. These are the fundamental values of St. Xavier's College, Jaipur. Our college is a house of modernity and acceptance.

St. Xavier's College, Jaipur is distinguished by a singular, intensive core curriculum that provides all the benefits. Xavier's has always supported academic goals and has given its students a compatible and stimulating physical and social environment. It is a place that offers a community in which one can thrive and achieve great heights, appropriate for your preparation and aptitude. It provides the total and harmonious development of the individual.

St. Xavier's College, Jaipur is a place where students have close contact with prize-winning and path-breaking faculty, a comprehensive advising system, and a community where individuals can interact with their peers in a deep, meaningful way both inside and outside the classrooms. The academic programs are supported by well-experienced and dedicated faculty, which is committed to equipping the student with the knowledge and skills needed to succeed in today's rapidly changing world. Xavier's is a place where students are free to explore their potential.

Editor's Desk

Ms. Pushpanjali Saini
(Editor-Techzine'21)
Assistant Professor
Dept. of Computer Science
St. Xavier's College, Jaipur

The Department of Computer Science endeavours to provide best professional opportunities to the students for their bright future and imparts technical education to students to make them globally competent in this challenging world. We intend to impart education to our students which can be the basis of a life time of learning, to provide our students the platform to showcase their talents, creativity, technical and innovative skills.

With immense pleasure I take this opportunity to present the eighth edition of the magazine of the Department of Computer Science, X-TechZine Volume VIII. The X-TechZine depicts the overall growth of the Department of Computer Science in various segments to present the affluent reminiscences of the awards, achievements, activities of the department throughout the session. The magazine offers great inspiration to the students to express their thoughts, ideas, views, hopes, aspirations and talent creatively. It offers great inspiration to the students to express their thoughts, ideas, views, hopes, aspirations and talent creatively. It provides a platform for every student to develop their learning skills.

I am grateful to have hard working and dedicated Editorial Team who have invested their endless efforts to gracefully portray the development of the Department of Computer Science. The magazine has an expressive appearance of the growth and outstanding achievements that a department has to its credit. The magazine highlights the extra-curricular activities and the quality of education that the department undertakes for the overall development of the students.

I extend my heartfelt thanks to my Head of the Department for giving me the opportunity to lead the department Magazine, X-TechZine for the session 2021-22.
I would also like to extend my gratitude to each individual who contributed in this endeavour.

Editorial Team

Another year was welcomed, half a year ago with zeal to achieve new heights which are tagged alongside many resolutions that we all took on the night of the 31st. This time I gave it, my all and it turned out to be very different than what I imagined it to be. I loved my team and their support which pulled me back into the lead and to create what is original and what defines itself with a new definition. As one of the editors on the X-Techzine I can share with you all that indulgence in matters is the key to grasping the true understanding of a subject. As a part of the team, I have looked upon my gurus as my source of inspiration for this edition of 2022 X-Techzine and they all cherished me as a thought of art. I hope all the readers enjoy our work.

-Sameep Rungta, Editor in Chief

Its an immense pleasure for me to work with this creative and cooperative team on our annual magazine TECHZINE. This magazine is created under lot of pressure with minute editing of spacing and perfection guaranteed. X-TECHZINE capture all our department highlight with perfect background template. At last this magazine is just all about us and our hard work in IT!

-Daksh Tak, Designer

It brings me immense joy and satisfaction to present to you the eighth edition of our department's magazine. A good lot of effort and time was put into making this representative of the student's voice and vision. TechZine for the year 2020-21 includes articles, poems, and a host of other things. TechZine has come alive with the active support of the management, faculty, and students. Thanks are due to everyone for their unflinching support and guidance. We hope all the readers enjoy this issue as much as we enjoyed creating it. Happy Reading!!

Suhani Gupta, Co-Editor

X Techzine captures the momentous moments. Welcome to its eighth volume. It's a jam! packed with all the activities that have taken place in an academic year and also a platform to display creative thoughts, literary talent and all the guiding points by the alumni's. This magazine passes through the diverse terrains of knowledge and creativity. A magnificently pleasurable job for me to give you a brief of the phenomenal minds of my department.

Saniya Pareek, Co-Editor

TECH-X CLUB

The TECH-X club at St. Xavier's College, Jaipur was founded with the motive of assisting students in pursuing their interests and passions while bringing people together. The objective of the Tech-X Club is to provide students with various opportunities to acquire knowledge in the Information Technology sector and to develop a profound respect and understanding of technology. The Cell organizes valuable seminars, webinars, workshops, conferences, and other events throughout the year. The TECH-X Club members hope to raise public awareness about the use of technology while advancing their own education.

When a person is a part of a group, they are aware of their identity, interests, and goals. The Students can exhibit their adaptability, organisational skills, ability to work in teams, leadership abilities, and service-oriented thinking. Communication opportunities are being created among Club members, which is beneficial because it encourages the expansion of their activities.

Goals of TECH-X Club:

•Promoting information technology education and education based on information technology

• Simple and secure information sharing between students.

• Giving graduates the foundational skills they need to adapt to quickly evolving technologies.

•Implement the ERP of the Department of Accounts, Department of Examinations, and Departments for College Admissions and College.

We believe that the magazine will showcase some of the fantastic creative work done by students and will significantly advance the future aspects of the department.
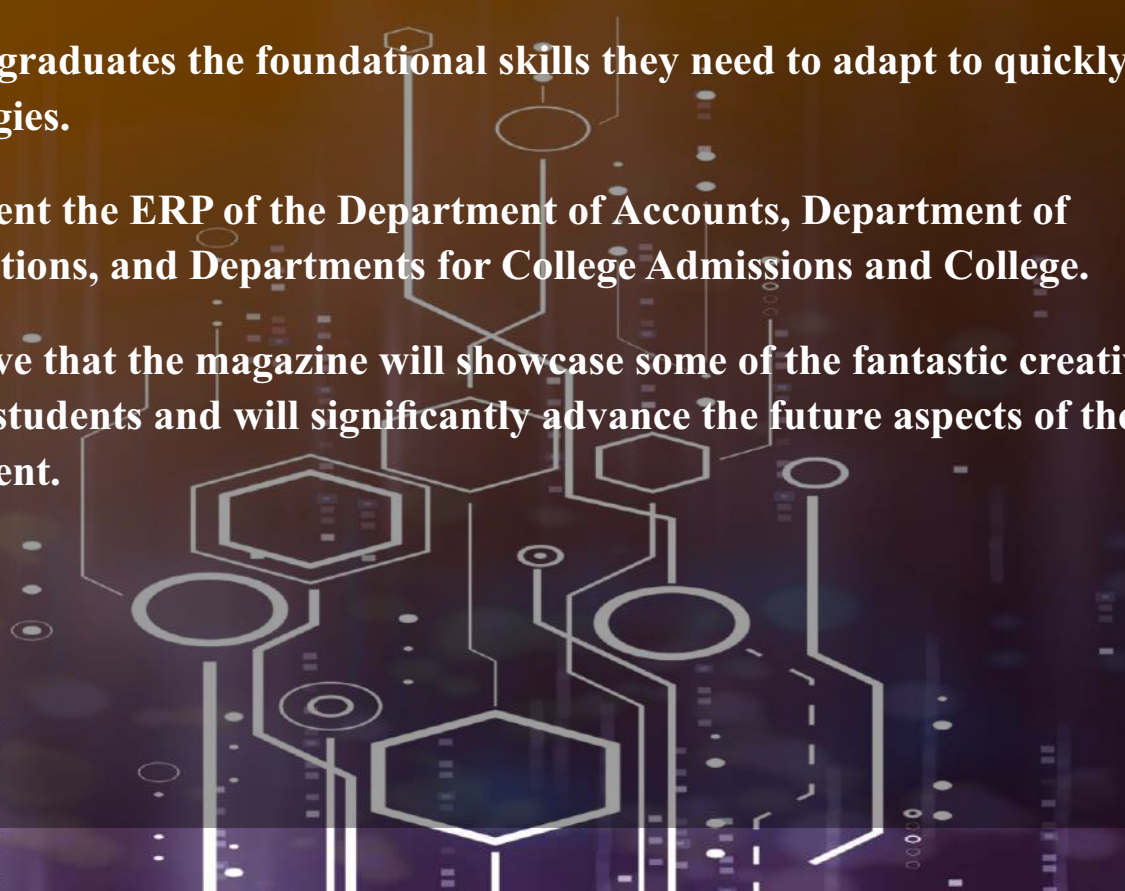
MESSAGE

"Education is one thing no one can take away from you."

—Elin Nordegren

It gives me great pleasure to learn that the Department of Computer Science at St. Xavier's College, Jaipur has published its X- Techzine journal this year, the result of the department's hard and astute work.

The department magazine serves as a repository for happy and fond memories, events, and, most importantly, student-written creative literature. It has the potential to become the most knowledgeable publication.

Faculty from the Department of Computer Science has created this fantastic opportunity to analyze recent research and advancement in these new emerging lifestyle patterns. We did our best and tried to keep up with the latest technology.

The term "X-Techzine" accurately describes what the publication does: it provides the most transparent information possible while also providing a glimpse into our students and faculty members' creative imaginations in the fields of technology and research.
I'd like to express my gratitude to the editing team for their tireless efforts and dedication to this achievement.

I wish you luck. I wish you a bright future.

Rev Fr Dr S Arokya Swamy SJ
Manager
St. Xavier's College, Jaipur

MESSAGE

"Put your heart, mind,and soul into even your smallest acts.
This is the secret of success."

- Swami Sivananda

In light of this, I'm glad to see that the Department of Computer Science at St. Xavier's College in Jaipur published "X-Techzine" in 2022. This is undeniably the result of their hard work and success. The departmental magazine at this college serves as a venue for creative writing, event documentation, and nostalgic reflection. I have no doubt that this journal will be informative and useful.

Our students and teachers have planned a fantastic opportunity for them to reflect on their work and evaluate their research and development accomplishments. We've done our best to keep up with the rapid advancement of technology. As the name implies, Techzine offers a glimpse into the breadth and depth of our student's and faculty members' imagination and inventiveness in the realm of technology, among other things.

In addition to wishing my beloved students luck in all of their future endeavours, I commend the editorial team for their hard work and dedication to achieving this goal.

Rev Fr Dr A Rex Angelo SJ
Principal
St. Xavier's College, Jaipur

MESSAGE

"When you have a dream, you've got to grab it and never let go."

With determination, one can cross raging seas and scale towering mountains. It's time to abandon our tried-and-true, moth-eaten ways and embrace a new definition of success. Break free from your mental rut, never feed your fear of failure, and eliminate the inertia that could undermine all of your efforts.

As time passed, the college painted its canvas with a never-ending struggle, and with each brushstroke, it got closer to creating its own masterpiece. Education at St. Xavier's College has been urgently reinventing itself in order to provide its students with the necessary skills and perspectives. Our understanding of education extends far beyond rote learning. We provide academic outreach support as well as a setting that encourages students to work for themselves. Our college is proud to serve as a creative foundation with a rich history.

"Xavierites," you have the power to turn your wounds into stars, so be strong. Being positive in our thoughts, words, and actions is thus our greatest strength. "Be proud of how far you've come, believe in how far you can go, and let your mistakes speak for your success." I'd like to draw your attention to the importance of success.

The fact that this issue of X-techzine is pulsing with youthful vitality and throbbing with the throb of thousands of hearts ensures that it will be remembered in any case.

Rev Fr Dr Raymond Cherubin SJ
Vice Principal & Administrator
St. Xavier's College, Jaipur

MESSAGE

" If you have a positive attitude and constantly strive to give your best effort, eventually you will overcome your immediate problems and find you are ready for greater challenges. "

-Pat Riley

Welcome to the eighth digital edition of the Department of Computer Science and Tech-X (IT Club) annual magazine, X-Techzine, 2022.

This eighth issue is unavoidably affected by the pandemic, but students of computer science strike a positive note with an emphasis on "New to New Normal - Xavier's 3.0" to promote social and economic recovery, an update on the plans for the IT industry, and a number of uplifting articles that demonstrate how our hybrid education system is looking to the new normal with hope and a revitalized feeling of teamwork. For students to be globally competent in today's complex and challenging environment, the Department of Computer Science teaches sophisticated technical expertise.

I feel honored to be a contributor to this magazine's eighth edition of X-TechZine. It will act as a lighthouse for the young computer science aspirants to better comprehend the IT industry. Every year, in addition to gathering original information from the student body, our staff of editors, designers, photographers, and correspondents works hard to cover events in and around the department and campus. The finished product represents and includes the diversity present in Xavier's academic and extracurricular settings. Seeing the potential of our BCA students develop every day in a variety of contexts and circumstances was truly inspiring.

I hope the informative and resourceful X-Techzine will enhance the creative talents of the students of St. Xavier's College, Jaipur.

Dr Vaishali Singh
Head, Department of Computer Science

MESSAGE

St. Xavier's College, Jaipur has gained the trust and goodwill of the students, parents, and public from all over the country for its excellence in teaching and emphasis on high standards of research and social work. The Department of Computer Science imparts technical education to students to make them globally competent in this digital and challenging world. The chief objectives of the Department of Computer Science are to train and inform students in the field of technology and furnish them with practical knowledge in order to face the challenges of the computing industry.

The magazine X-TechZine is a combined effort of the faculty members and the students of the Department of Computer Science of St. Xavier's College. The main aspect of this magazine is to give an overview of our department and our IT club named Tech-X. The magazine not only blends the ideas of different students, and faculty members but also gives a platform to provide awareness about technological innovations and provide a platform for the students to demonstrate their incomparable innovative, techno-based ideas and enhance their skills in the IT field.

I congratulate the Department of Computer Science for contributing their innovative and constructive ideas to the eighth edition of the department Magazine "X-TechZine".

Dr Dharmveer Yadav
Assistant Professor
Department of Computer Science

MESSAGE

"Never tell people how to do the things, tell them what to do and they will surprise you with their ingenuity"

~General George S. Patton, U S Army.

It gives me great pleasure to contribute a few words to the eighth volume of the annual magazine X TECHZINE. The sole purpose of X Techzine is to provide a wide range of information focusing on the application of various technologies, research, practical applicability, and developments in the latest trends and techniques. which has a huge potential for improving student skills as part of their personality development.

The diverse range of articles makes us proud that our students have an abundance of creative potential and original thinking. I am sure that the magazine will be very informative and will be useful for all.

I congratulate the editorial team for bringing out such a beautiful magazine.

Dr Arpita Banerjee
Assistant Professor
Department of Computer Science

MESSAGE
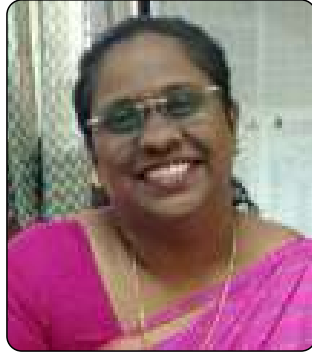
The department of Computer Science believes in consistent improvement in its academic and extracurricular performance it offers the most demanding course Bachelor of Computer Applications (BCA). The college management entrusts us with the responsibility of accepting the day-to-day challenges and overcoming them. From faculties to the college administration, and finally, the students come together to take the department further, forward with their creative ideas and ingenious planning, everything comes together like a majestic view.

I have witnessed the comradeship of faculty who stepped up in the line of duty far beyond their capabilities in order to make the department successful in every aspect. The department nurtures and molds the students to enter the rapidly fast-changing pragmatic world while maintaining their sensitivity in them. The teaching-learning methodology used by staff boosts the students thinking potential and lifts their critical analyzing skills I am truly blessed to find such encouragement from management. and the team of teachers who not only give support but also motivate us to keep at it with their guidance.

And, lastly, this is an appreciation note for my dear students who pitched in with their ideas and time to make the department successful in every respect.

Ms Keren Lois Daniel
Assistant Professor
Department of Computer Science

MESSAGE

" What you do makes a difference, and you have to decide what kind of difference you want to make."

- Jane Goodall

Nurturing imagination and motivating innovation are the prime gears of a valued instructional scheme. A college magazine is a perfect consolidation of both. The magazine is not only a way to showcase the productivity of the students, but it is a tool to instill imagination and inspiration among them, it is a tool to motivate and encourage our children to make learning fun and consistent.

I take this opportunity to commend the editorial board of Techzine Magazine, for bringing out the eighth version of this Magazine successfully. I would like to congratulate the synchronization and efforts of all the students who were involved in the editing and publication of it.

I wish them all success.

Dr Madhu Sharma
Assistant Professor
Department of Computer Science

MESSAGE

"Any sufficiently advanced technology is indistinguishable from magic"

-Arthur C. Clarke

The ability to learn is a skill but the willingness to learn is a choice. The Department of Computer Science imparts technical education to students to make them globally competent while building their character and compassion in this challenging world. This year was full of engaging activities and the challenges we faced were met with full force by our department. I congratulate the students of the editorial board for the hard work that they have put in for bringing out the magazine. This magazine provides a platform for students to come forth and show their creativity and build the bridge for all to comprehend the management and excellence of this great institute.

Rajeev Nokhwal
Lab Assistant
Department of Computer Science

PRIDE OF THE DEPARTMENT

"It never gets easier.
You just get better."

– Jordan Hoechlin

Just after schooling, a feeling of being clueless about what to do next and where to do graduation from are some of the crucial questions which need answers and actions. I had one point on my checklist that the college I choose should be Xaviers for sure because it's always a privilege to be a part of the Xavier's family. Xaviers is not just a name but a brand. Xavier's not only adds value but also gives the students an opportunity to introspect and let their hidden talent speak for themselves.

After I chose my Bachelor in Computer Applications in this prestigious college, again I was in a dilemma whether I would be able to do this or not. From the very first day of college to the last day it's always the teachers and friends that make your life more beautiful. The department of computer science would always keep me motivated and most importantly on my toes.
Being a part of the department activities including sports and extracurriculars have let known my potential in different fields and that's the speciality of Xaviers.

The department fest "Technoid", the magazine "X-Techzine" and the journal "Informatica" are a proof of appreciation of the students and teachers for their days of hardwork and dedication throughout the year.
I still remember being Sceptical before applying for the Pride of the Department but the way I was pushed and motivated by my teachers and friends was really a heartfelt moment for me which I'll always remember all my life, they believed in me more than I did.

Department of computer science has always made me feel like a firefly who could fly and spread light in the dark. I being a part of Xavier's experienced the deep roots of moral values which will always keep me grounded and will let me serve for god and country. I am and will always be grateful to the department and the college for making me much more confident as a person to deal with the struggles in future.

Thank You
Jovina Jacinta Castelino
BCA III

ABOUT THE DEPARTMENT

"Success is the sum of small efforts repeated day in and day out."

Department of Computer Science BCA Course curriculum aim at providing a preliminary yet inclusive view of established and emerging IT areas in diverse scientific fields with an application-oriented approach and problem-solving skills to create technically knowledgeable and ethically cognizant graduates in the field of Computer Science.

The Department of Computer Science organizes national conferences, seminars, add-on-courses (Coral and Photoshop), certificate courses (Linux and Android development), ICDL, research projects and short-term training programs for the students as well as the faculty members. This provides a wide range of opportunities for them to bring out their best potential and innovative skills in a variety of fields.

Various renowned Training Institutes like Cyber Crime Awareness Society (CCAS), GRRAS Solution Pvt. Ltd., Pratham Solution Pvt. Ltd. ,Red Hat course, Road Arena Multimedia etc. had imparted training and conducted workshops in our college premises.

The students are developed to be future leaders and for this, they actively participate in various activities. We have student committees at departmental level that take care of activities of departmental magazines, brochures, websites, student-exchange programs, guest-lectures, panel discussions, etc. . As a department, we are confident enough that our students will emerge as an asset not only to this institution and the organisation they belong, but also to the country at large.

This improves the IT literacy and basic understanding of information systems for streams of the domain. This walking knowledge of software technologies in this program enhanced by the academic and professional environment. This program will develop the skills to present ideas effectively and efficiently and will provide skills to organise information efficiently in the forms of outlines, charts, etc. by using appropriate software. Another important outcome is the designing and delivering part for an effective presentation and developing the various IT skills to electronic database presentation.

ELIGIBILITY

ELIGIBILITY FOR ADMISSION TO BCA COURSE:

• A candidate must have passed 10+2 examination (Arts/Science/Commerce) or equivalent with securing 48% or more (minimum pass mark for SC/ST/OBC/SBC candidates) in aggregate without any approximations.

• In regards to reservation of Seats for admission to BCA part 1, the reservation policy of Govt. of Rajasthan/University of Rajasthan will be followed.

• Admission Procedure: Admission to BCA part 1 course will be made on the basis of merit list (10+2 Level).

• Attendance: A candidate shall be required to put in a minimum of 75% attendance at the lectures and 75% attendance at the practical separately in each paper, as per university norms

SYLLABUS 2021-22

BCA-1		
	Code	Subject
Main	101	Elementary Physics
Main	102	Basic Mathematics
Main	103	General English
Main	104	Principles of Programming Language (Through C)
Main	105	Computer Organisation
Main	106	Office Management Tools
Main	107	Technical Writing and Communication Skills
Practical	108	C – Laboratory
Practical	109	Office Automation Laboratory
Practical	110	Typing Skills Lab (Hindi and English)

SYLLABUS 2021-22

BCA II		
	Code	**Subject**
Main	201	Business Accountancy
Main	202	Discrete Mathematics
Main	203	Operating System
Main	204	Database Management System
Main	205	Web design and Multimedia
Elective	206	Object Oriented Programming (C++)
Practical	207	Database Laboratory
Practical	208	Object Oriented Laboratory
Practical	209	Web Designing Laboratory
Practical	210	Multimedia Laboratory

BCA-III		
	Code	**Subject**
Main	201	Algorithm and Data Structures (Using C/C++)
Main	202	System Design Concepts
Main	203	Network Technologies
Main	204	Core Java Programming
Main	205	E-Commerce
Elective	206 (A)	PHP
Elective	207	Linux
Practical	208 (A)	Networking Laboratory
Practical	209	Java Laboratory
Practical	210	PHP Laboratory
Practical	309 (C)	LinuxLaboratory
Practical	310	Project

PROGRAM OUTCOME

INTRODUCTION is one of the most popular major international studies. Computer science is a dynamic and rapidly growing field of study that plays a vital role and makes a student become an integral part of the world in which they live today. A degree in this field would deepen their understanding of recent technologies. The study has a theoretical and mathematical focus and involves exploring processes such as algorithms, to solve problems. This would help them to face the complex problem that keeps changing and create a cutting-edge solution to face those challenges. Computer science can be applied in any multidisciplinary field of their interest to address a wide range of issues.

PROGRAM OUTCOMES

PO 1. The graduates are expected to develop an ability knowledge of mathematics, science, and programming in appropriate discipline.

PO 2. The graduates are expected to apply algorithmic principles and computer science theory in the modeling, design, and conducting of experiments as well as data interpretation and analysis along with the mathematical concepts.

PO 3. The graduates are expected to meet the desired needs with a realistic ap-proach to designing a system, or component, through constraints such as eco-nomic, environmental, social, political, ethical, health and safety, manufactura-bility, and sustainability.

PO 4. The graduates are expected to understand the global impact of computer science and try to develop an ability to identify, formulate and solve real-life problems.

PO 5. The graduates are expected to function effectively in multidisciplinary fields to accomplish a common goal.

PO 6. The graduates are expected to develop a skilled understanding of profes-sional ethics, legal issues, security, and social problems as their responsibility.

PO 7. The graduates should have good knowledge of contemporary issues and are expected to communicate effectively with a range of audiences.

PO 8. The graduates should be able to recognize the need for lifelong learning and are expected to apply the techniques, skills, and modern information tech-nology tools that are necessary for practice.

PO 9. Students have knowledge and expertise in at least one procedure-oriented and object-oriented programming language.

PO 10. A degree in computers can translate to roles in many different industries

PROGRAM SPECIFIC OUTCOME

BACHELOR OF COMPUTER APPLICATIONS

The program Specific Outcomes (PSOs) are attained by students of the BCA department who want to make their career in IT Information Technology) field the term 'program' refers to the entire scheme of study generally designed according to the requirement and demands of the IT industry. It generates a lot of scope for the IT developers. BCA degree provides the basic qualification to the students to compete with the Engineering students. BCA graduates have a good scope in jobs such as Video Making and After Effects. Web Developer, Web Designer, Network Administrator, System Manager, Computer Programmer, Software Developer, Software Tester, etc. depending on the skills they acquire during their graduate program. They can also pursue further study according to their interest or can provide freelancing services to society.

The programme specific outcomes relating to BCA degree programme may include the following:

PO 1.   Develop an understanding of computers.

PO 2.   Information of need and usage of operating system.

PO 3.   Knowledge of editing software's.

PO 4.   Knowledge of Basic math's.

PO 5.   Understanding the architecture of computer.

PO 6.   Knowledge of Programming Languages.

PO 7.   Information of features and importance of programming languages.

PO 8.   Develop an understanding of graphic designing.

PO 9.   Analyze the importance of key features in designing of websites.

PO 10.   Knowledge of Database services.

PO 11.   Working exposure on various operating system.

PO 12.   Develop awareness of security, privacy and IT lows and Acts.

PO 13.   Develop knowledge to create live projects.

PO 14.   Information on need for doing research.

COURSE OUTCOME

BCA Ist Year Course: Outcomes

*Course:* **Elementary Physics**   **Paper Code:101(Theory)**

CO 1. Know the characteristics of transistors.

CO 2. Design simple circuits and mini projects.

CO 3. Know the benefits of feedback in amplifier.

CO 4. Compare and classify oscillators.

CO 5. Describe and explain the operation of fundamental digital gates.

CO 6. Solve the complex equations through the Karnaugh map.

CO 7. Analyze the operation of medium complexity standard combinational circuits like the encoder, decoder, multiplexer, demultiplexer, and adder.

CO 8. Analyze the operation of a flip-flop and examine relevant timing diagrams.

CO 9. Analyze the operation of counters and shift registers.

CO 10. Design operates practical digital logic circuits.

CO 11. To understand and examine the structure of various number systems and their application in digital design.

CO 12. The ability to understand, analyze and design various combinational and sequential circuits.

CO 13. Ability to identify basic requirements for a design application and propose a cost-effective solution.

CO 14. The ability to identify and prevent various hazards and timing problems in a digital design.

COURSE OUTCOME

Course: Basic Mathematics   **Paper Code: 102 (Theory)**

CO 1. Students will acquire problem-solving skills in a broad range mathematics.

CO 2. Students will be able to produce and judge the validity of rigorous mathematical arguments.

CO 3. Students will be able to communicate mathematical ideas and arguments, both written and orally.

CO 4. Students will be prepared to use mathematics in their careers.

CO 5. Utilize technology to address mathematical ideas.

CO 6. Apply knowledge of computing, mathematics, science, and engineering appropriate to the modeling and design of the software.

CO 7. Implement the numerical methods using computer software and apply them in examples.
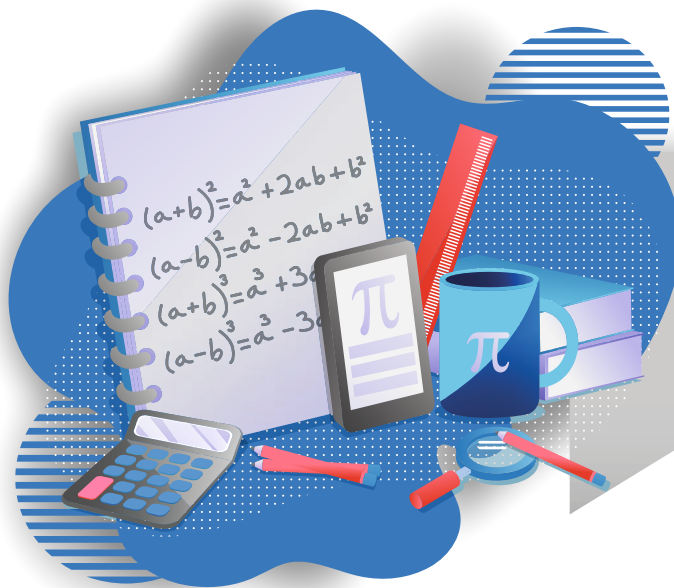
COURSE OUTCOME

Course: General English   **Paper Code: 103 (Theory)**

CO 1. To understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal,intrapersonal, small group, organizational, media, gender, family, interculturalcommunication, technologically mediated communication, etc. from multiple perspectives.

CO 2. Ability to find, use, and evaluate primary academic writing associated with the communication discipline.

CO 3. Develop knowledge, skills, and judgment around human communication that facilitate their ability to work collaboratively with others. Such skills could include communication competencies such as managing conflict, understanding small group processes, active listening, appropriate self disclosure, etc.

CO 4. Understand how to decide between the different types of interviews and develop the skills needed for approaching different types of interviews.

CO 5. Create a resume, a cover letter, and a profile on professional social media sites.

CO 6. Create various types of business reports.

CO 7. Create meaningful visual media.

CO 8. Discuss different processes and considerations involved in writing in business.

COURSE OUTCOME

Course: Principles of Programming Language through C   Paper Code: 104 (Theory)

CO 1. Able to understand Basic Knowledge of Programming Language, Programming Domains.

CO 2. Able to Understand Importance of C Language, History and Evolution of Programming Language.

CO 3. Understand the process of writing Algorithms, Pseudocode, and Flowchart.

CO 4. Illustrate the flowchart and design an algorithm for a given problem and develop C programs.

CO 5. Understanding a concept of functional hierarchical code organization.

CO 6. Understand the process of writing, compiling, and executing programs in C.

CO 7. Design, implement, test, debug, and document programs in C.

CO 8. Understanding a defensive programming concept. Ability to handle possible errors.

CO 9. Difference Between Syntax and Semantics errors.

CO 10. Able to understand Data Types, Operators, Basic Structure and, Variables, Precedence of Operators, Managing Input Output Operations.

CO 11. Able to understand Decision Making Statements, Knowledge of Iteration, Types of Iteration.

CO 12. Develop conditional and iterative statements to write C programs.

COURSE OUTCOME

CO 13. Working on Arrays and Strings, One Dimensional and Multi-Dimensional Array.

CO 14. Able to understand String Functions, Reading and Writing String, Use of String Handling Functions with the help of various programs.

CO 15. Exercise user defined functions to solve the problems.

CO 16. Needs and Elements of User Defined Functions, Use of System Defined Functions, Return Types in Functions.

CO 17. Difference Between Call by Value and Call by Reference, Scope, Visibility, and Lifetime of Variables.

CO 18. Accessing the Address of Variables, Declaration and Initialization of Pointer Variable, Array Pointers, Function Pointers.

CO 19. Inscribe C programs that use Pointers to access arrays, strings, and functions.

CO 20. Inscribe C programs using pointers and to allocate memory using dynamic memory management functions.

CO 21. Exercise user-defined data types including structures and unions to solve problems.

CO 22. Defining and Declaring Structures, Enumerated Data Types, Unions Accessing Variables of Structures, Operations on Structures.

CO 23. Knowledge of File, Its Type. Various File Handling Pointers, Operations on File, Dynamic Allocation of Memory.

CO 24. Exercise files concept to show input and output of files in C.

COURSE OUTCOME

Course: Computer Organization   **Paper Code: 105 (Theory)**

CO 1. Understand the hardware, architecture, classification and features of the Computer System.

CO 2. Understand the internal and external bus architectures and various cards and ports of the Computer System.

CO 3. Know about Input, Output, Storage devices; and their access mechanisms.

CO 4. Understand Instruction and Execution cycles.

CO 5. Understand the operation of control registers and controlling of arithmetic operations.

CO 6. Understand Register transfer language.

CO 7. Understand CPU and ALU design and their internal architecture.

CO 8. Know about the design and implementation of a microsequencer and Pentium microprocessor.

CO 9. Understand various addressing techniques.

CO 10. Know about types of RAM and ROM.

CO 11. Know about Microprocessors and Microcontrollers.

COURSE OUTCOME

Course: Office Management Tools   **Paper code: 106(Theory)**

CO 1. Basic knowledge of Operating system, FAT and NT file system file and director} structures and naming rules of files. booting process. System files. Dos Commands (internal & external).

CO 2. Introduction about Windows 7/8. Windows concept. Feature, Desktop, Taskbar, Start menu. My computer Recycle bin, windows accessories (calculator. Notepad, Paint, Word Pad. Character Map. Windows Explorer.

CO 3. About Entertainment System Tools, Communication sharing information between programs. Smart device tools and applications.

CO 4. Introduction about Microsoft Access: Planning a database (tables, queries, forms, and reports), creating and editing database, customizing tables.

CO 5. About linking tables, designing and using form modifying database structure. Sorting and indexing a database, querying a database and generating reports.

CO 6. Brief about PowerPoint: Creating and viewing a presentation, managing Slide Shows, navigating through a presentation, using hyperlinks, advanced navigation with action settings, and action buttons. Organizing formats with Master Slides, applying and modifying designs, adding graphics~ multimedia, and special effects.

CO 7. Brief about MS Word, word processing, MS word features, creating, saving, and opening documents in word, Interface toolbar, rulers, menus, keyboard shortcut, editing, previewing, printing & formatting a document, advanced features of MS word find and replace using the thesaurus. mail merge, handling graphics, and tables, converting a Word document into various formats Like Text, rich text format, and Word perfect. etc.

COURSE OUTCOME

CO 8. Introduction about MS Excel: Worksheet basics, creating a worksheet, entering data into a worksheet, data, text, dates, alphanumeric 'values saving & quitting worksheet, opening and moving around in an existing worksheet Toolbars and menus Keyboard shortcuts, working with single and multiple workbooks, working with formula & cell referencing, Auto sum, copying formulas, absolute and relative addressing, formatting of a worksheet, previewing & printing worksheet, Graphs, and Charts, Database, macros, multiple worksheets—concepts.

COURSE OUTCOME

Course: C-Laboratory   Paper Code: 108 (Practical)

CO 1. Understand the process of writing, compiling, and executing programs in C.

CO 2. Read, understand and trace the execution of programs written in C language.

CO 3. Understanding a concept of functional hierarchical code organization.

CO 4. Write the C code for a given algorithm.

CO 5. Design, implement, test, debug, and document programs in C.

CO 6. Illustrate flowchart and algorithm of the given problem.

CO 7. Understand basic Structure of the C-Programming, declaration and usage of variables.

CO 8. Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.

CO 9. Ability to handle possible errors during program execution.

CO 10. Write programs that perform operations using derived data types.

CO 11. Understanding a functional hierarchical code organization.

CO 12. Ability to define and manage data structures based on problem subject domain.

CO 13. Ability to work with textual information, characters and strings.

COURSE OUTCOME

CO 14. Ability to work with arrays of complex objects.

CO 15. Understanding a defensive programming concept.

CO 16. Program with pointers and arrays, perform pointer arithmetic, and use the pre-processor.

CO 17. Understand how to write and use functions, how the stack is used to implement function calls, and parameter passing options.

CO 18. Understand and use the common data structures typically found in C programs — namely arrays, strings, lists, trees, and hash tables.

CO 19. Write C programs using operators.

CO 20. Exercise conditional and iterative statements to Write C programs.

CO 21. Write C programs using Pointers to access arrays, strings, and functions.

CO 22. Write C programs using pointers and allocate memory using dynamic memory management functions.

COURSE OUTCOME

Course: Office Automation Laboratory   **Paper Code: 109 (Practical)**

CO 1. Introduction operating system, types.

CO 2. Explaining various commands of DOS.

CO 3. Introduction to MS- Word.

CO 4. Analysis of the various menus of MS- Word.

CO 5. Knowledge converting word document into various formats.

CO 6. Explaining Mail Merge.

CO 7. Introduction to MS- Excel.

CO 8. Analysis the various menus of MS- Word.

CO 9. Working on formulas.

CO 10. Introduction to Cell Reference and different types.

CO 11. Working on charts, graphs, and macros.

CO 12. Creating and viewing power point presentation.

CO 13. Working on multimedia and special effects.

CO 14. Working on MS- Access.

CO 15. Creating and editing database.

CO 16. Creating forms, queries, reports, tablesCSO17) Sorting and indexing database.

COURSE OUTCOME

Course: Typing Skills Lab (Hindi and English Typing)   Paper Code: 110 (Practical)

CO 1. Making the Student Familiar About Hindi Characters.

CO 2. Understanding the functions of keys on keyboards.

CO 3. Making the Student Familiar About Hindi Characters.

CO 4. Hindi Keyboard, Using Keys in Combination with Caps and Shift.

CO 5. Framing Words, Sentences, and Paragraphs.

CO 6. Understand the importance of touch keyboarding.

CO 7. Learn correct keyboarding techniques.

CO 8. Correctly format business and academic documents.

CO 9. Learn to proofread documents and use proof reader's symbols.

CO 10. Obtain an introduction to word processing.

CO 11. Includes the development of speed and accuracy.

CO 12. To Cover the skills necessary to touch type Alphabets on the computer keyboard using correct techniques.

CO 13. Use of critical thinking skills to apply proper formatting to business and academic documents following professional and industry standard.
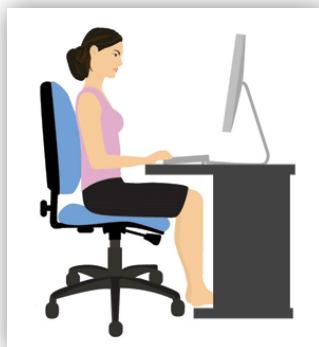
COURSE OUTCOME

BCA IInd Year Course: Outcomes

Course: Business Accountancy   **Paper code:201 (Theory)**

CO 1. To understand and apply the essential numerical skills required for book-keeping and accounting.

CO 2. To understand the relationship between the accounting equation and double-entry book-keeping.

CO 3. To demonstrate through a test a mastery of the principles of book-keeping.

CO 4. To analyze accounting information for internal and external decision-making.

CO 5. To understand the use of financial statements as a decision-making tool.

COURSE OUTCOME

Course: Discrete Mathematics   **Paper code: 202 (Theory)**

CO 1. Able to understand basic terminology, formal logic, Notation, and its application.

CO 2. Able to understand different types of number systems.

CO 3. Able to Convert values from decimal, binary, octal, hexadecimal, and binary-coded decimal number systems to each other and back to the other systems.

CO 4. Able to understand the binary number representation along with its operations like Addition, Subtraction, Multiplication, and Division of binary numbers.

CO 5. Able to understand basic terminology, formal logic, Notation, and its application.

CO 6. Understand the notion of mathematical thinking, and mathematical proofs and to apply them in problem solving.

CO 7. Ability to reason logically; Able to specify and manipulate basic mathematical.

CO 8. Ability to understand relations, Digraph, and lattice.

CO 9. Ability to understand the use of functions, graphs and their use in programming applications.

CO 10. Ability to understand Sets, relations and functions, their algebra, duality, power sets, and partitions. Principle of Strong Mathematical Induction, Product sets.

COURSE OUTCOME

CO 11. Ability to analyze various binary relations characteristic function and Recursive functions.

CO 12. Ability to understand logical operators, Implications, Tautologies, the validity of arguments, and quantifiers.

CO 13. Ability to understand Graphs, connectivity. Algorithms to find out the shortest path in graphs.

CO 14. Able to understand the basic concept graphs, trees, and related algorithms.

CO 15. Able to understand trees, Rooted trees, binary trees, tree traversal algorithms, and Minimum Spanning Trees.
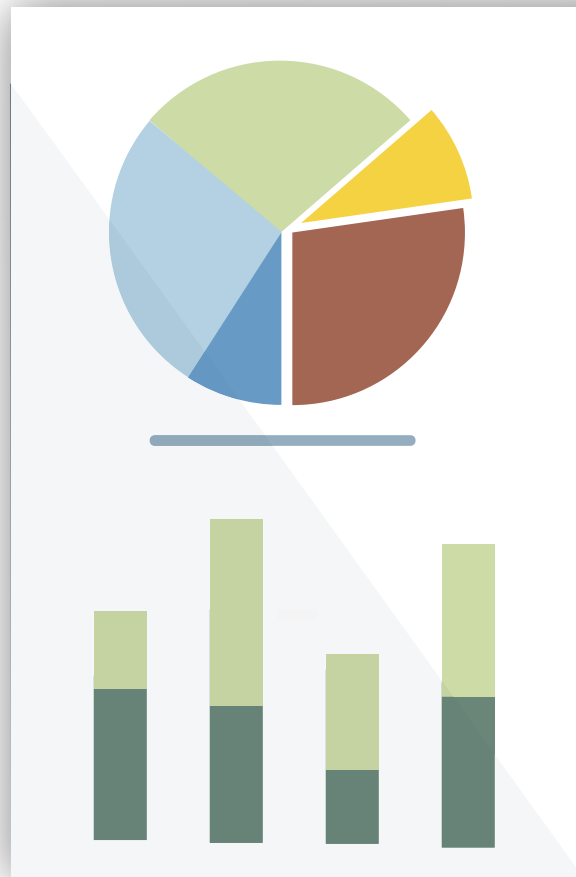
COURSE OUTCOME

Course: Operating System   **Paper code: 203 (Theory)**

CO 1. Explain the nature & scope of operating system.

CO 2. Factors In Operating System Design, Performance and Security Of Operating System.

CO 3. Characteristics of Devices Used in Computer, Management of Devices, Device Controller and Device Driver.

CO 4. Knowledge of Interrupts.

CO 5. Understanding of Process Control Block.

CO 6. Difference Between Process and Thread.

CO 7. Knowledge of various types of process.

CO 8. Understanding of Scheduling Algorithm.

CO 9. Understanding Semaphores, Synchronisation, Inter Process Communication.

CO 10. Knowledge about Deadlocks.

CO 11. Understanding Memory Management, Types, Semaphores, Demand Paging.

CO 12. Knowledge of various file types.

CO 13. Understanding various operating system types.

COURSE OUTCOME

Course: Database Management System   **Paper code: 204 (Theory)**

CO 1. Understand the fundamentals of a database systems Design and draw ER and EER diagram for the real-life problem.

CO 2. Able to differentiate between Database management system and file processing system. Study of different data models.

CO 3. Convert conceptual model to relational model and formulate relational algebra queries.

CO 4. Design and create queries in the database using SQL.

CO 5. Analyze and apply concepts of normalization to relational database design.

CO 6. Understand the concept of transaction, concurrency and recovery.

CO 7. Able to describe fundamental elements of relational data models and master the basics of SQL.

CO 8. Able to understand the concepts of integrity, security, and normalization approach.

CO 9. Able to develop skills for query processing and optimization.

CO 10. Able to identify the basic issues of transaction processing.

COURSE OUTCOME

Course: Web Designing and Multimedia   **Paper Code: 205(Theory)**

CO 1. Explain the nature & scope of operating system.

CO 2. Factors In Operating System Design, Performance and Security Of Operating System.

CO 3. Characteristics of Devices Used in Computer, Management of Devices, Device Controller and Device Driver.

CO 4. Knowledge of Interrupts.

CO 5. Understanding of Process Control Block.

CO 6. Difference Between Process and Thread.

CO 7. Knowledge of various types of process.

CO 8. Understanding of Scheduling Algorithm.

CO 9. Understanding Semaphores, Synchronisation, Inter Process Communication.

CO 10. Knowledge about Deadlocks.

CO 11. Understanding Memory Management, Types, Semaphores, Demand Paging.

CO 12. Knowledge of various file types.

CO 13. Understanding various operating system types.

COURSE OUTCOME

Course: Object Oriented Programming (Elective course)   **Paper Code: 206 (Theory)**

CO 1. Understand the features and needs of object-oriented programming concepts.

CO 2. Learn to discover errors in a C++ program and understand how to fix them.

CO 3. Understand the importance of classes and objects to propose computational solutions for real-life problems.

CO 4. Understand how to implement object-oriented concepts like encapsulation, inheritance and polymorphism in C++.

CO 5. Able to write C++ programs, and understand and fix the errors to execute them successfully.

CO 6. Able to use functions and pointers within C++ programs.

CO 7. knowledge to understand the concept of function overloading, operator overloading, virtual functions and polymorphism.

CO 8. Understand dynamic memory management techniques using pointers, constructors, and destructors, in programming structures.

CO 9. Understand how to perform input-output streaming, operator overloading, file and exception handling using C++.

CO10. Able to construct and develop C++ applications that would interact with hardware.

COURSE OUTCOME

Course: Database Laboratory   **Paper Code: 207 (Practical)**

CO 1. Understand, appreciate and effectively explain the underlying concepts of database technologies.

CO 2. Design and implement a database schema for a given problem-domain.

CO 3. How to Normalize a database.

CO 4. Populate and query a database using SQL DML/DDL commands.

CO 5. Declare and enforce integrity constraints on a database.

CO 6. Concept of transaction and concurrency.

CO 7. Understand database concepts and structures.

CO 8. Understand the objectives of data and information management.

CO 9. Understand data modeling and database development process.

CO 10. Construct and normalize conceptual data models. Implement a relational database into a database management system.

CO 11. Become proficient in using database query language, i.e., SQL.

COURSE OUTCOME

Course: Object-Oriented Laboratory   **Paper Code: 208 (Practical)**

CO 1. **This lab work provides the object-oriented programming approach in connection with the C++language.**

CO 2. **Understand the difference between the top-down and bottom-up approach.**

CO 3. **Apply the concepts of object-oriented programming in practical application.**

CO 4. **Apply virtual and pure virtual function & complex programming situations.**

CO 5. **Writing programs using the concept of polymorphism.**

CO 6. **Applying the Programming assignments based on Encapsulation and dynamic binding.**

CO 7. **Use of exception handling should be used in real-time programming using C++.**

CO 8. **Illustrate the process of data file manipulations using C++.**
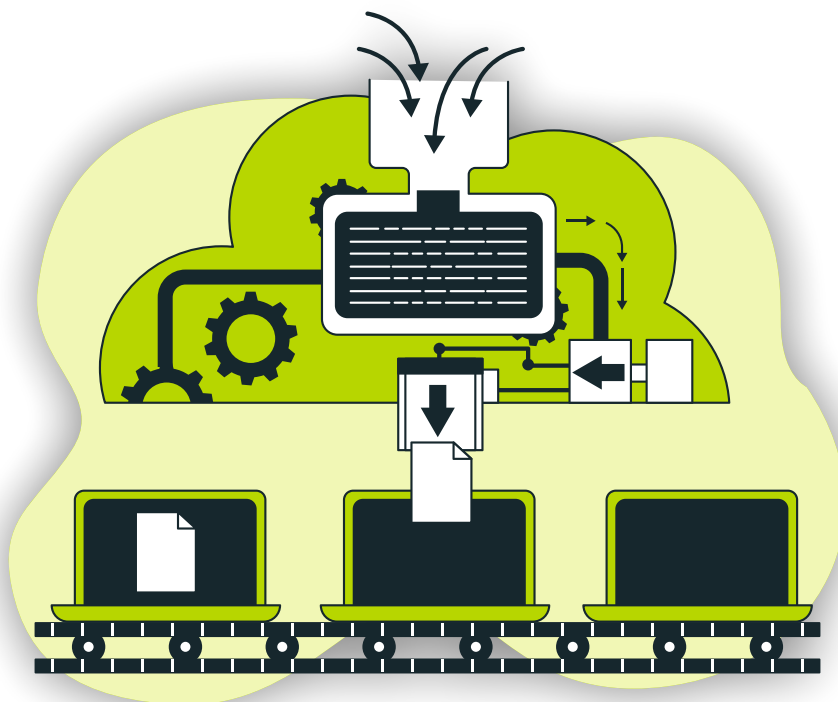
COURSE OUTCOME

Course: Web Designing Laboratory   **Paper Code: 209 (Practical)**

CO 1. Able to recognize the key elements of www.

CO 2. Able to recognize the components available for security and privacy of the systems and network.

CO 3. Able to create HTML web pages and execute them.

CO 4. Able to use different HTML tags.

CO 5.. Able to create web pages with frames.

CO 6. Able to implement different styling ways and related attributes on webpages.

CO 7. Able to implement filters, Iframe, and layers on webpages.

CO 8. Able to create web pages with JavaScript.

CO 9. Able to use jQuery on web pages. Able to create pages with AJAX.

CO 10. Able to create and publish websites.
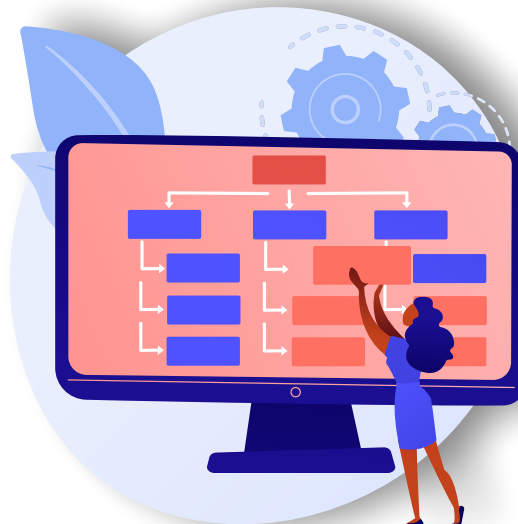
COURSE OUTCOME

Course: Multimedia   Paper Code: 210 (Practical)

CO 1. Introduction to graphics software.

CO 2 . Understanding the need and importance of graphics designing.

CO 3. Explaining the requirement and importance of good quality photographs.

CO 4. Information on various types of software.

**CO 5. Understand the use of different tools available in Corel Draw and Photoshop
Graphic Designing software.**

**CO 6. Able to design information brochures, visiting cards, flex, posters, web pages
etc. using graphic designing tools.**

CO 7. Information on misuse of digitally edited pictures.

COURSE OUTCOME

BCA IIIrd Year Course: Outcomes

Course: Algorithm and Data Structures using C++   **Paper Code: 301(Theory)**

CO 1. To Make Student Understand the Difference Between Flow Chart, Algorithm, and Pseudocode, Types of Complexity and Their Efficiency.

CO 2. Introduction to Linear and Non-Linear Data Structure Like Array, Stacks, Queues Etc.

CO 3. Understanding various operations on Stack, Queues with Array and Linked List.

CO 4. Understanding various types of Linked List.

CO 5. Understanding about Trees, Operation on Trees.

CO 6. knowledge of Tree Traversal Algorithm, MST.

CO 7. Detail explanation of Graph, types representation.

CO 8. Develop an understanding of various Graphs Traversal Algorithms and their representation.

CO 9. Describe different Types of Searching and Sorting.

CO 10. Explain the relevance of sorting and searching.

COURSE OUTCOME

Course: System Design Concepts   **Paper Code: 302 (Theory)**

CO 1. Identify various types of information systems concepts and terminologies.

CO 2. Explain the types of business needs that can be addressed using information technology-based solutions.

CO 3. Explain what systems are and how they are developed.

CO 4. Identify and describe the phases of the systems development life cycle.

CO 5. Follow the analysis portion of the Systems Development Life Cycle in a disciplined manner.

CO 6. Develop and evaluate system requirements.

CO 7. Work effectively in a team environment.

CO 8. Describe the role and responsibilities of the systems analyst in the development and management of systems.

CO 9. Explain the need for and value of a formalized step-by step approach to the analysis, design, and implementation of computer information systems.

CO 10. Use tools and techniques for process and data modelling.

CO 11. Describe the role and responsibilities of the participants in information systems development.

CO 12. Develop a feasibility analysis of a proposed system.

CO 13. Develop and deliver a Requirements Definition Proposal for a new system in a well-structured business proposal.

COURSE OUTCOME

CO 14. Explain the common ways projects fail and how to avoid these failures.

CO 15. Implement various project management tools

CO 16. A firm basis for understanding the life cycle of a systems development project.

CO 17. An understanding of the analysis and development techniques required as a team member of a medium-scale information systems development project.

CO 18. An understanding of the ways in which an analyst's interaction with system sponsors and users play a part in information systems development.

CO 19. Experience in developing information systems models.

CO 20. Experience in developing systems project documentation.

COURSE OUTCOME

Course: Network Technologies   Paper Code: 303 (Theory)

CO 1. Explore the basis of computer networks and the types of network.

CO 2. Enumerate the layers of the OSI model and TCP/IP, explain the
        function(s) of each layer.

CO 3. Understand the various routing protocols.

CO 4. Understand easily the concepts of network security, mobile, and ad hoc
        networks.

CO 5. Analyze different MAC mechanisms (Aloha, Slotted Aloha, TDMA, and
        FDMA) and understand their pros and cons.

CO 6. Understanding the switching techniques of circuit and packet.

CO 7. Brief idea of SS7 and X25 routing protocol.

CO 8. Understanding the functioning of Data Encoding: Full Duplex and Half
        Duplex.

CO 9. Understand how the data communication through satellites and optical
        fiber communication travels through the medium of cables.

CO 10. Predict ethical, legal, security, and social issues related to computer
        networks through data communication.

COURSE OUTCOME

Course: Core Java Programming   **Paper Code: 304 (Theory)**

CO 1. Able to understand the concept of Object-Oriented Programming & Java Programming Constructs. Introduction getting and installing the Java development kit, java features like security, portability, byte code, java virtual machine, object-oriented, robust, and multithreading.

CO 2. Architectural neutral, distributed and dynamic, java programming language structure and syntax, control statement (The if statement, Logical operators, the conditional operators, switch statement, variable scope, loops0.

CO 3. Java array, java string, operations on a string and string buffer objects, class, objects, methods, problem-solving classes, objects, relationship, Inheritance, types of inheritance, packages and interfaces, exception handling.

CO 4. Java utilities in java.lang, java. util, java.io, GUI in java using AWT and swings, event handling mechanism, AWT based effective GUI in java: detailed overview of AWT classes.

CO 5. Able to understand Graphics primitives and UI components, layout features, standalone GUI application, Layout managers, implementation event driven mechanism, delegation of event model, listeners and adapters, Inner classes.

CO 6. Introduction to applets coding, Applets life cycle, Graphics Facilities, color and font, passing parameters to applets, applets context, inter applet communication, Fundamental of threading java coding with thread classes, Thread management in java Implicit wait, using a runnable interface, Thread synchronization, inter thread communication.

CO 7. Introduction about URL Class and its usage through connections, Sockets based connectivity, TCP/IP sockets and server sockets, datagram sockets, collection in java array, list, stack, queue, hash table, collection class hierarchy, JDBC, and Jar files.

COURSE OUTCOME

Course: E-Commerce   **Paper Code: 305 (Theory)**

CO 1. Define and differentiate various types of Ecommerce.

CO 2. Describe Hardware and Software Technologies for Ecommerce.

CO 3. Explain payment systems for E - commerce.

CO 4. Describe the process of Selling and Marketing on the web.

CO 5. Define and Describe E-business and its Models.

CO 6. Discuss various E-Business Strategies.

COURSE OUTCOME

Course: PHP (Elective course)   **Paper Code: 306 B (Theory)**

CO 1. Introduction to PHP.

CO 2. Difference between server-side scripting and client- side scripting, their importance and relevance.

CO 3. Explaining the concept of the datatypes, syntax.

CO 4. Knowledge decision making statements, iterations.

CO 5. Understanding arrays and its types.

CO 6. Understanding the concept of strings.

CO 7. Various functions performed on strings.

CO 8. A detailed analysis of functions, its types, arguments.

CO 9. Introduction to form handling.

CO 10. Knowledge of encryption and security functions.

CO 11. Understanding the functions and workings of file handling, its types.

CO 12. Introduction to database handling.

CO 13. Creating and establishing database connections.

CO 14. Performing basic database operations.

CO 15. Information on setting query parameters.

COURSE OUTCOME

Course: Linux (Elective course)   **Paper Code:306 C (Theory)**

CO 1. Understand the architecture and basics of UNIX operating system.

CO 2. Know about Open Source Software Systems.

CO 3. Understand the architecture and basics of Linux Operating system.

CO 4. Understand the Linux working environment.

CO 5. Understand the usage of various commands related to file and data handling, arithmetic operations, redirection and piping.

CO 6. Know user and administration specific operations through inbuilt commands on command line interface.

CO 7. Understand key system processes like booting, login, shutdown and user management in Linux.

CO 8. Learn steps of installing Linux and handling dual operating systems in one computer.

CO 9. Understand Linux file system and file permissions as per the security requirements of files and directories.

CO 10. Know how to work in vi Editor.

CO 11. Learn the concepts and syntax of Shell Programming and how to create shell scripts.

COURSE OUTCOME

Course: Networking Laboratory   **Paper Code: 307 (Practical)**

CO 1. Understand fundamental underlying principles of computer networking.

CO 2. Understand details and functionality of layered network architecture.

CO 3. Apply mathematical foundations to solve computational problems in computer networking.

CO 4. Analyze performance of various communication protocols.

CO 5. Compare routing algorithms and it functions.

CO 6. Practice packet /file transmission between nodes through.

COURSE OUTCOME

Course: Java Laboratory   **Paper Code: 308 (Practical)**

CO 1. Installing Java and understanding Java Development Kit (JDK).

CO 2. Identify classes, objects, members of a class and relationships among them needed for a specific problem.

CO 3. Develop Java application programs using OOP principles and proper program structuring.

CO 4. Demonstrate the concepts of polymorphism and inheritance.

CO 5. Write Java programs to implement error handling techniques using exception handling.

CO 6. Implementation of AWT based effective GUI.

CO 7. Create Applets and Implement Multithreading.

CO 8. Practical Programs related to Applets and Thread Management in Java.

CO 9. Implementing URL class and its usage through connection.

CO10. Use and create packages and interfaces in a Java program.

COURSE OUTCOME

Course: PHP (Elective course)   **Pape Code: 309B (Practical)**

CO 1. Introduction to PHP.

CO 2. Programs on server-side scripting and client-side scripting.

CO 3. Practical understanding of the data types, syntax.

CO 4. Programs on decision making statements, iterations.

CO 5. Programs on arrays and its types.

CO 6. Programs on the concept of strings.

CO 7. Programs on various functions performed on strings.

CO 8. Programs on functions, its types, arguments.

CO 9. Programs on form handling.

CO 10. Programs on exception, try catch.

CO 11. Program on file handling operations.

CO 12. Programs on database handling.

CO 13. Programs on creating and establishing database connections.

CO 14. Programs on performing basic database operations.

CO 15. Programs on setting query parameters.
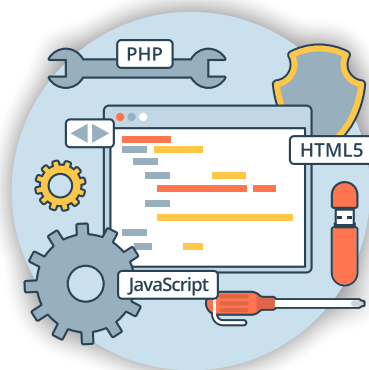
COURSE OUTCOME

Course: Linux (Elective course)   **Paper Code:309 C (Practical)**

CO 1. Able to recognize the booting and interface of Linux operating systems.

CO 2. Able to work in a Linux environment.

CO 3. Able to execute and test commands related to file and data handling, arithmetic operations, redirection and piping.

CO 4. Execute user and administration specific operations.

CO 5. Execute shutdown and user management specific commands.

CO 6. Able to install Linux and handle dual operating systems in one computer.

CO 7. Able to modify file permissions of files and directories

CO 8. Able to open and work in different modes of vi Editor.

CO 9. Able to use the commands of vi editor.

CO 10. Able to create and execute shell scripts.
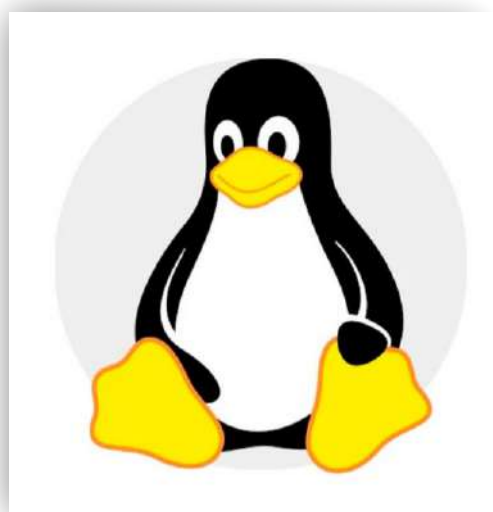
COURSE OUTCOME

Course: Project   **Paper Code:310 (Practical)**

CO 1. Introduction of Subject.

CO 2. Allocation of Topics for Project.

CO 3. Allocating Groups., Providing Guidelines, Platforms.

CO 4. Helping Them to Prepare Synopsis.

CO 5. Framing Outlines of Topic.

CO 6. Seeing Working Model and Identifying Errors If Any.

CO 7. Learn critical thinking skills and inquiring skills through application-oriented project development in CS & IT in a team-work environment.

CO 8. Learn literature survey skills. Refine communications skills and public speaking skills through written and oral presentations.

CO 9. Learn problem solving skills. Learn proposal development skills to initiate an application-oriented project in the areas of CS & IT.

Certificate Course and Add on Course

BRIDGE COURSE

" On Basic Computers" For the Non-IT students from different streams

The "Basics Computers" bridge course was designed and scheduled from 2-09-2021 - 30-09-2021 for the non-IT students from different streams like arts/science/commerceand were not having Informatics Practice (IP) as a subject in school education. This bridging course was considered as a department-preparation course with an academic curriculum/syllabus that was designed to mature these students for the Under Graduates level studies by providing instructions and significant practices in a knowledgeable computer skill. This course will provide a basic knowledge of Computer, Operating System, Number system, software and hardware to the students. From this course the students learnt how to computers operate itself and how they can be used to make work more efficient.

For the students it became easy to recognize the basic components of computers and terminology such as data, information and file management, computer networks, Internet, content search, and email management. The outcome of the courses was to understand and study the history of computer programming, study about the internet operations and basic protocols, study web designing basics, understand the basic working process of an operating system and examine the structure of various number systems and its application in digital design and analyse a web page and identify its elements and attributes.

BRIDGE COURSE

"On Basic Mathematics" For the Non-Mathematics based students

BCA is a professional course that welcomes the students from all the streams. Therefore, the Department of Computer Science had offered a bridge course of Basic Mathematics for the non-mathematics-based students for 15 hours duration in two batches from 6-10-2021 to 29 - 10-2021. So that they can be at par with the mathematics based-students.

The bridge course was conducted before the beginning of the regular classes. This helped the non-mathematics-based students to have a clear understanding of the basic concepts of mathematics. The bridge course has also helped the students in learning the IT based concepts which were basically mathematics oriented. This concept building was needed for the efficient learning of subjects like Discrete mathematics in BCA.

CERTIFICATE COURSE

Training cum Internship Program - Web App Development using Python Web Framework Django
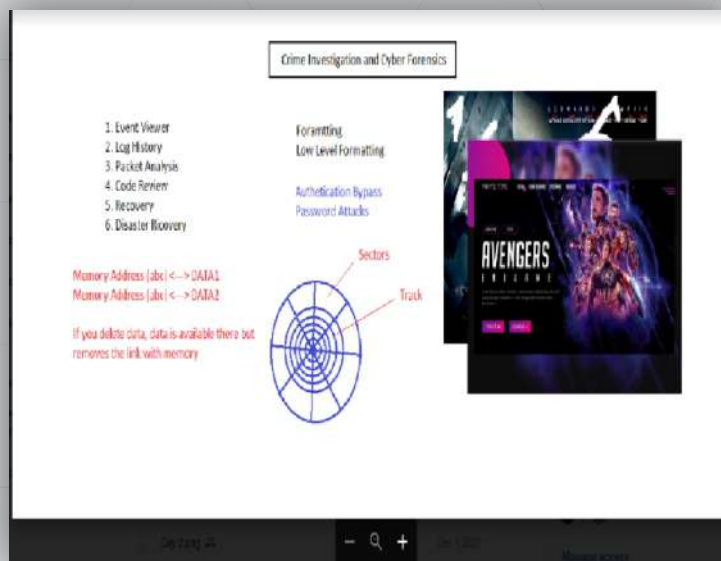
The Certificate Course of Django was conducted by Centre from FUTURO FOCUS, Chennai which was being held from 5th October 2021 to 22nd December 2021 using online platform. The total Number of Participants was 17 under the guidance of Prof. Saravana Kumar (Director of Futuro Focus) had completed our course with good result the main aim of this course was to know and how to develop a web page.

After the completion of the course there was a 15 day rigorous internship were the students were asked to developed a small mini project using python framework Django. Mr Saravana Kumar, had dedicatedly delivered his knowledge to us and has helped the students in their doubts session regarding their project. The sessions were lively. In the course outcome the students learnt about Python, HTML, CSS, and Django. Every student had actively participated in it.

CERTIFICATE COURSE

Ability Enhancement (Certificate Course)-An Ecosystem for Cyber Security in Cyber Space (Training and Certificate Program)

The Department of Computer Science offered An Ecosystem for Cyber Security in Cyber Space, Training and Certificate Program. The program was offered to all UG and PG Course students of our college. The Course commenced on 8 December 2021. Nine students from different classes got trained in dealing with Networked systems, standalone Operating systems, Virtualization, Web Applications, Solution through python Programming constructs, Footprinting, Google Hacking, Scanning, Password Breaking, System Hacking, how to deal with malware, Keyloggers, etc. Students also got exposure to handling cyber forensic and crime investigation cases through a variety of case studies.

Student Induction Program (SIP) for BCA I
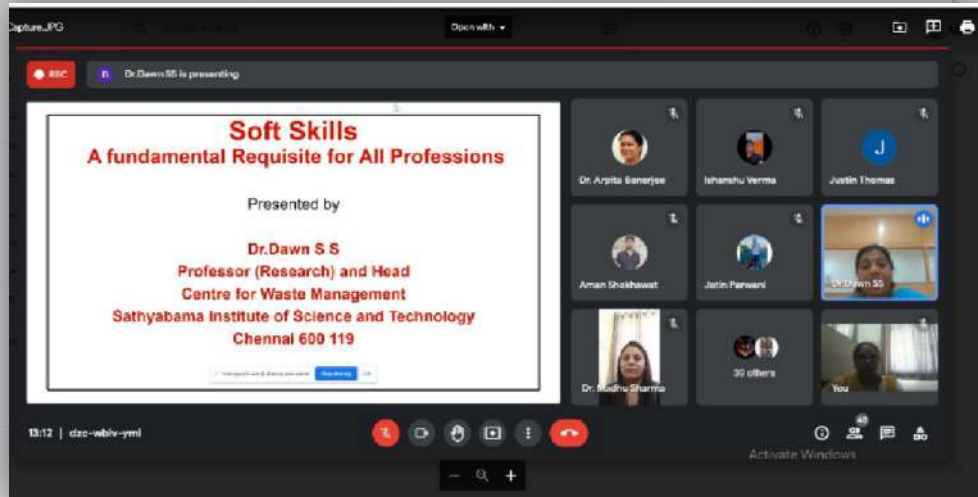
The Department of Computer Science has organized Student Induction Program (SIP) for BCA 1 Department Orientation for First year students from 25 September to 1 October 2021. The Department Orientation program commenced on 25th September 2021 at 10:00 am – 11:00 am with the objective of Familiarization with St. Xavier's College, Jaipur College and Department of Computer Science, Tech-X (IT Club) and Alumni). On 27th September 2021 9:00 AM – 11:00 AM the highlights of Outcome based curriculum framework for Computer Science Education (Nature and Extent of the BCA Programme, Types of Courses, Core Course discussion, Electives, Discipline Specific Elective, Generic Elective, Project, Ability Enhancement Courses, About Practical/Tutorial) were discussed with new students.

On the next day 28th September 2021 9:00 AM – 10:00 AM the focus was on the Evaluation and Assessment System (Examination Cell, Student Affairs Cell, Code of Conduct Committee, Appeals & Grievances Committee, Library & Xavier Knowledge Centre (XKC), Multi-disciplinary Conference). On 29th September 2021 9:00 AM – 10:00 AM the Inculcation of Human Values & Professional Ethics (Institutional Social Responsibility & Extension Activities Cell, Media & Advertising, Studio, MOOCs/SWAYAM, Red Ribbon Club) were discussed with the students. On 30th September 2021 9:00 AM – 10:00 AM the light was thrown on Social & Industry Connect (Training, Internship & Placement Cell (TIPC), Students' Council, Cultural Committee, Drama Club) of the college. On the last date 1st October 2021 9:00 AM – 10:00 AM the students were explained about the Eco-Friendly and Sustainable Development (Innovation & Incubation Cell (IIC), Intellectual Property Rights Committee, College Website Management, Photography Club). The program was well organized by the Head of the Department and Department faculties and second/third year students.

Student Induction Program (SIP) for BCA II and III

The Department of computer science had conducted a "One-week Student Induction Student Induction Program (SIP) for BCA II & III Department Orientation" for all the students of II and III year from 9th to 14th August 2021. The induction cum orientation program started with stating the vision and mission of the department. The basic aim of establishing the CS department is to build and motivate technology-based environments and to enhance technical, programmable, designing, skills among students.

Further the relevance of various committees and clubs framed in the college were also discussed with the students. How they can balance between curricular and extracurricular activities was being told to them. They were also guided about internship, placement, making more and more use of the library, etc

One day training program on "Soft Skills - A fundamental requisite for all professions"
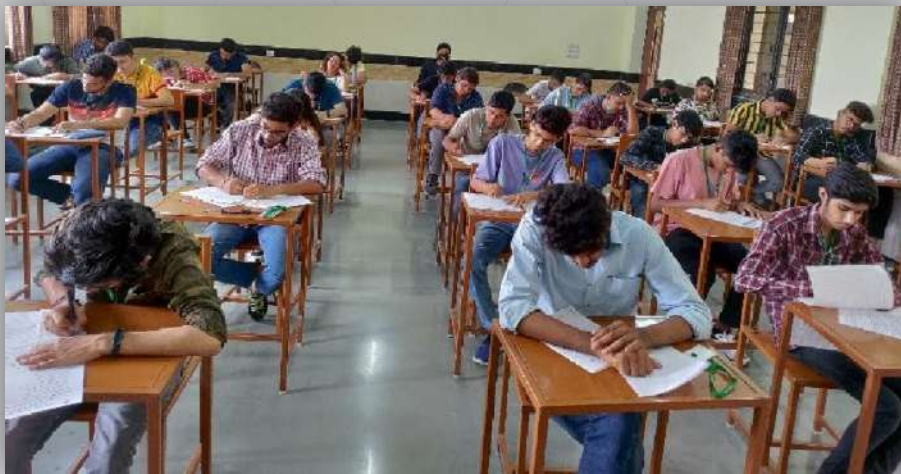
On Monday the 16th August 2021 the Department of Computer Science of St Xavier's College – Jaipur organised one day training program on "Soft Skills- A fundamental Requisite for All Professions" for the benefit of pre-final year students of the department. Prof Dr. Dawn S, Professor (Research) and Head Centre for Waste Management, Sathyabama Institute of Science and Technology, Chennai 600 119 was the resource person for this training program.

During the formal introduction session Ms. Keren Daniel, coordinator of the programme welcomed the gathering and also introduced resource persons to the audience. While addressing students, Prof. Dr. Dawn SS focussed on the efforts of capturing the attention of the student through a virtual game for providing state-of-the art facilities to the students to make them successful in their career. Adding to it, the speaker also emphasized on the ability to adapt to the change for the future and gain confidence in difficult situations. And ended on a note saying, "If you are a person who learns quickly, it is because you know how to adapt".The event came successfully to end after the Q&A session.

Research engagement-Project Papers

Along with the workshops and special guest lectures, the Department of Computer Science offers a Research Platform to the young technocrats through their engagements with innovative research-based projects and research papers. Students of the department are motivated to perform some concept-based surveys and then analyse the information to conclude facts to support the research objectives.

A few of the Student-Faculty Research Projects initiated by the department included: the E-Farming with IoT Project, E-Governance (ERP) Project, Cyber Security Education Project, etc. In addition, every individual faculty of the department guided and motivated students to write research articles related to the upcoming technologies, review papers, and papers on the basis of the survey-based study. Many of the students presented their papers on the day of the First National Symposium on "The Impact of Socioeconomic Policies on Global Development" organized by the Research Cell of the College on March 10-11, 2022.

Mentor-Mentee System

On the occasion of National Mentoring Day on October 27, 2021, the Department of Computer Science initiated the Mentoring Program for the students of all classes of BCA Course, to develop, maintain, and improve their overall performance.

The program was aimed to mentor students in a way, to create a high-performance cadre of leaders who will motivate and guide others to produce productive and sustainable outcomes in society. With this, all the students got assigned mentors for guiding them throughout the session in all dimensions of life and career both. The mentors throughout the session maintained high standards of honesty, integrity, trust, openness, and respect and inculcated the same level of values among all students.

Alumni Interaction Program 1- Networking opportunities and career advice during pandemic

A stepping stone to Build a Career: The Department of Computer Science of St Xavier's College, Jaipur organized an Online Career Development interaction on the theme "Building a Successful Career" on 12 November 2021 through Google Meet from 1:00pm -2:00PM. The speakers of the program were Mr. Bijoy K D, Final MCA student from CHRIST (Deemed to be University), Bangalore an alumnus (Batch 2017-2020) and Ms. Aakriti Gupta , Software Development Engineer, Pharmacy, Bangalore , an alumnus (Batch 2013-16).

Programme was ignited with the welcome address by Rev Fr Dr a Rex Angelo, Principal. which was followed by highly motivational talk by Bijoy KD who shared his experience of the struggle he went through to get into the masters and how the gap could be made over during their study at Xavier's and how to crack the placement during their studies. His interaction was designed to motivate the students to take up their career with full seriousness and in the right spirit.

The second talk headed by Aakriti Gupta discussed about 1. Career Guidance- Selection of Career Stream II. Preparing for the Corporate Challenges. 3. Personal SWOT analysis/GAP Analysis. 4. Skills sets required for the chosen stream. The both online and offline students attended the programme. Few of the questions from the audience were taken up by the speakers during the Q & A session. The variety and range of questions raised show that the participants took an active part in the programme. The programme was successfully coordinated and conducted by Ms. Keren L Daniel and Dr. Vaishali Singh. The interaction ended with a sweet memory with the alumnus.

Alumni Interaction Program 2 - Building lifelong learning and life-time memories

An interactive session with the alumni was organized by the department of computer science and IT club, Tech-X, on 13th December 2021 through an online platform. The first speaker on this occasion was Ashish Kashyap. He had graduated in Bachelor of Computer Science from the St. Xavier's College, Jaipur in 2016. He is currently working as an Marketing and Sales Head at Cyatt Techno Pvt Ltd. On the platform of Cyber Security techniques. He was always a cheerful student ready to help.

The next speaker was Lalit Kumar Saini. He had done his BCA from the college in 2016. He is a skilled software engineer in Emids Technology. The alumni interactive session went down the memory lane to share experiences laced with nostalgia on how every BCA student at Xavier's College are groomed in academics and inculcated values that help them to cement their successful careers in technologies that are in demand. Both underscored the importance of classroom experience and teachers in life. They expressed their sincere gratitude to the staff members under whose tutelage they learned to lead a wholesome life. The event coordinators Ms. Keren L Daniel and Dr. Vaishali Singh had invited two notable alumni to share their experiences and motivate the students. The alumni interaction session culminated with a question-answer session conducted by the BCA I students.

RESEARCH PAPER

A Survey on Data Protection Bill:-2019

Ankit Garg
St. Xavier's College, Jaipur
Aniket Bhatiya
St. Xavier's College, Jaipur
Jovina Jacinta Castelino
St. Xavier's College, Jaipur

Abstract

Data protection ensures that data is not hampered, but is accessible for ratified purposes only, and is in accordance with applicable legitimate or permissible requirements. It is quite evident that the horizon of "Data Protection" goes afar the notion of data attainability and usability to ponder upon areas such as steadiness, protection, and expunction. Therefore protected data should be sanctioned when required and utilized for its deliberate motives. Protection of personal, social or public data is the right of every person and it should be guarded by some laws and standards. Government, academicians , researchers are working together toto frame some rules and regulation for data protection. Further in this regard an initiative was taken by Joint Parliamentary Committee on 16th December 2021. The most awaited report on Personal Data Bill 2019 was proposed. This bill deal with the processing of personal data by government, Indian based companies incorporated and foreign companies dealing with personal data of Indian citizens. This research paper analysis some of the major findings and flaws of the Data Protection Bill: 2019. It also proposes measures which can be incorporated to enhance data Protection.

Keywords: Data, Security , Protection, Data Protection Bill:2019, Government

Deep learning in Wireless Networking

Bhanu Pratap Singh
St. Xavier's College, Jaipur
Bharat Ratan Soni
St. Xavier's College, Jaipur

Abstract

At present, the wireless network seems to be complex but, in the future, it is going to be very thorny due to the rapid increase in the use of networking devices and miscommunication between too many radio waves. This problem will introduce the concept of edge computing which mainly focused on lower response time between two or more devices. In today's world, since the Internet-connected population is pervasive towards individuals' regime and entertainment, Deep Learning has led to the evolution of a new era that initially negotiates with the network dynamics like hotspots, building marble tracks, traffic tie-up, etc. DL is working efficiently in the field of IoT in which it acts as a helping hand in solving real-world problems. The complex uncooked statistics or rough patterns of raw data and their apposite sampling is adding aptness and senses to wireless networks using deep learning on a massive scale. But in Wireless Networking the uses of DL are not as they can be, which might be a problem for the emerging silicon industry. In this paper, we mainly research the new initiative taken by the stemming technologies in the field of Wireless networking using Deep Learning. We highlight the top technologies which are working on signal encryptions, end-to-end connection establishments, channel exposure, the efficiency of the signal using DL, response latency, and mainly on enhanced security.

Keywords: (Edge Computing, IoT, Response Latency, Channel Exposer, Traffic tie-up)

Importance of Security Standards to maintain Data Privacy

Harsh Gupta
St. Xavier's College Jaipur

Abstract

The privacy of private information is a very important area of focus in today's electronic world, where information can so easily be captured, stored, and shared. In recent years it's regularly featured as a subject in journalism and has become the target of legislation round the world. Multidisciplinary privacy research has been conducted for many years, yet privacy remains a posh subject that also provides fertile ground for further investigation. Data are today an asset more critical than ever for all organizations we would imagine of. Recent advances and trends, like IOT, cloud computing, and data analytics, etc, are making possible to pervasively, efficiently, and effectively collect data. although data security and privacy are widely investigated over the past a few years, today we face new difficult data security and privacy challenges. variety of these challenges arise from increasing privacy concerns with relevancy the use of data and from the necessity of reconciling privacy with the employment of data for security in applications like counterterrorism, health, food and water security. Other challenges arise because the deployments of recent data collection and processing devices, like those utilized in IOT systems, increase the data attack surface. this text provides a narrative overview of the character of data privacy, describing the complexities and challenges that customers and organizations face when making decisions about it, so as to demonstrate its importance to both groups. supported this work, we present a transdisciplinary view of knowledge privacy research linking the buyer and organization. It illustrates areas of concern for consumers and organizations along with the factors that influence the choices they create about information privacy. here we also discuss about relevant concepts and approaches for data security and privacy, and identify research challenges that should be addressed by comprehensive solutions to data security and privacy.

Challenges of Health Care Sector due to use of Internet of Things

Harshita Rathore
St. Xavier's College, Jaipur
Chetaniya Maheshwari
St. Xavier's College, Jaipur
Ronit Managl
St. Xavier's College, Jaipur

Abstract

The scope and use of Internet of Things (IoT) has been included in almost all aspects of living and nonliving world. Health care is one such sector where tremendous use of IoT based devices are being used. IoT is going to be an integral part of the patient's diagnosis, treatment, recovery, and monitoring process in the near future. It is evident that a large number of medical equipments will be connected to the IoT framework. All these devices will generate unstructured data, which has to be processed in a real time-critical manner. Otherwise, it will be difficult to do real-time monitoring. Decision-making, which requires immense infrastructure, computation, networking, storage capacity, etc. will also be difficult. For monitoring purposes, synchronization of real time data and diagnose with the patients and his relatives like treating physician's panel, analytics platforms, healthcare providers, and insurance companies etc becomes important. Although the IoT paradigm offers various benefits, there are also inherent security and privacy challenges in relation to patient data but then also determination of related security and privacy issues are always a challenge. This paper aims to investigate various challenges related to Internet of Things (IoT) implementation into the healthcare sector specially like data resource management, security, software applications, service architectures, patient records, diverse sensory devices, etc. Since most of the similar studies are limited to providing solutions regarding a specific aspect of security and privacy without considering the entire process, we have carried out additional research for a holistic approach to solve the bigger problem that healthcare sector is facing.

Keywords: - Healthcare Sector, Diseases, IoT, Sensory Devices, Security

Personal Data Protection Bill, 2019

Justin Thomas
St. Xavier's College, Jaipur
Mohammed Ashfaq Qureshi
St. Xavier's College, Jaipur

Abstract

In order to ensure that India has a robust legal system governing and regulating data privacy, the Personal Data Protection Bill, 2019 (PDP) was introduced in the Lok Sabha on December 11, 2019. The Bill aims to create a Data Protection Authority to ensure security and privacy of a person's data available online. There are certain platforms which are targeted and focused on young adults aged 14-18 such as casual gaming, education, or even specific video platforms. Seeking parental consent in each of these cases would not only be difficult but also impractical. Similarly, audio and video streaming platforms may not be able to offer suggestions based on individual preferences. This paper explores the history of data protection laws in India and further goes on to provide changes that can be made to the Bill or addition to subsequent rules, to make complete data protection a reality in India, in doing so it not only takes assistance from the Contract for the web but also the current data protection laws in different jurisdictions.

Revisiting Data Mining Techniques: Strength and Weakness

Kshitij Roop Rai
St. Xavier's College, Jaipur

Abstract

Data is collection of facts used to calculate, interpret and analyse statistical information. In easy words, collection of important information is Data whereas Mining means to 'dig in' which in technical terms means to exploit a skill or a particular source of information and analysing it to generate new information. Data Mining is the process of finding inconsistencies, patterns and irregularities in large data sets to interpret and form a meaningful conclusion out of it. The paper aims to focus on the in-depth study on the concept of data mining. The paper will also highlight the strength and weakness on the basis on parameterized study of the existing Data Mining Techniques.

An Exploratory Study of Machine Learning & its Scope in India

Vishvajeet Singh Mahecha
St. Xavier's College, Jaipur

Abstract

Machine learning and artificial intelligence both sound like fantasy terms from sci-fi movies. However, their concept is much simpler than what is being exaggerated. Machine learning means making the machine learn to use the algorithm in such a manner so that the proper user experience can be given. The biggest difference between a machine and a human brain is that they cannot do rational thinking, so in order to fill this gap, the technological moves were first driven towards artificial intelligence and now, towards machine learning for a closer approach. With the growth of the technological world, machine learning and its various algorithms have gripped numerous areas of automation. Its multifold, multi-dimensional approaches range from complex, high-end scientific applications to simple systems, from client-end to server-end, from e-commerce to medical world, and with all its yet to be explored facets. In the proposed paper, the concept of Machine Learning, its architecture, and an investigative study of its application areas, more particularly, in India has been presented, to identify further, the areas of its expansion and scope.

Keywords: Artificial Intelligence, Machine Learning, Algorithms, Automation, Architecture.

Revisiting the DDoS attacks: Problems and Prospects

Divyanshu Pareek
St. Xavier's College, Jaipur
Sorabh Joshi
St. Xavier's College, Jaipur

Abstract

Distributed Denial of Service is one sort of the most featured and most significant assaults of the present cyberworld. With basic however very strong assault components, it acquaints a colossal danger with current Internet people group. In this article, we present a complete review of appropriated disavowal of-administration assault, anticipation, and relief strategies. We give an orderly investigation of this kind of assaults including inspirations and advancement, examination of various goes after up to this point, security strategies and alleviation methods, and potential limits and difficulties of existing exploration. At last, some significant examination bearings are illustrated which require more considerations in not-so-distant future to guarantee fruitful protection against conveyed disavowal of-administration assaults. Keywords: Refusal of-administration, conveyed forswearing of-administration, Internet of Things, Internet of Things botnet, disseminated disavowal of-administration assault safeguard, circulated disavowal of-administration avoidance, appropriated refusal of-administration relief

Open Source Software

Thomsan punnose
St. Xavier's College, Jaipur

Abstract

The term open-source refers to something where the user can modify the development and share the design and also the application is accessible publically. Such type of source code is open to access, inspect, modify and enhance. The Open-Source Initiative (OSI) was found in February 1998 by Eric Raymond and Bruce Perens. Open-source enables technology, flexibility and agility, typically offering multiple way to solve a program. It enables speed and attract better talent for the future. This paper aims to review the evolution and understand concept of the open-source software. The paper will highlight and compare the various types of open-source software based on different parameters. The paper will also focus on the career perspectives in IT SECTOR through OSS and could be used as a valuable information for students.

Keywords: Open-Source Initiative, Open-Source Software, Agility, Applications, Software

SPORTS ACHIEVEMENTS

A. Y	Name of Students	Event Details	Event Level
2021-22	Sachin Prakash	Inter-College Volleyball	State
2021-22	Divyesh Parashar	Inter-College Volleyball	State
2021-22	Vishwas Poonia	All India University	National
2021-22	Saket Kesi	Inter-College Volleyball	State
2021-22	Kavish Kumar Gaur	Inter-College Table Tennis	State
2021-22	Deepansh Jangid	University Team Table Tennis	State
2021-22	Saniya Pareek	Inter-Departmental Athletics	College
2021-22	Adnan Hussain	Inter-Departmental Cricket	College
2021-22	Mohammad Kaif	Inter-Departmental Cricket	College
2021-22	Divyanshu Pareek	Inter-Departmental Football	College
2021-22	Thomson Punnose	Inter-Departmental Football	College

INFRASTRUCTURE DETAILS

CLASS ROOM

LIBRARY

IT LABS

AUDITORIUM

CONFERENCE ROOM

CANTEEN

TECH-X HIGHLIGHTS

Skill Enhancement Training in Studio (Multi Media Lab) and CS Blog (Information Platform)

The studio committee has been the most pivotal place for students to enhance their skills and exhalate their calibre in multimedia. The college management has immensely created a platform for students to enhance their skills in a structured way with the fast-growing technology and changing scenario. And the entire college is taken aback by the power of multimedia setup with the most powerful systems like MAC processor, IOS systems and dual window operating systems with the proper guidance of Fr Periyanayagam SJ Multimedia Specialist. He trained the students and staff on how to handle the live streaming session through YouTube and Various other platforms. Studio has become a crucial part of college. The studio has been the cutting edge of information technology, as Its importance has been realized in almost felt in all events of the college, may it be Live streaming a webinar, creating cinematography, creating posters for events, handling YouTube studio, graphics, audio, animation, and video.

The Department of Computer Science feels proud to see the students of different department joining hands to showcase their talents in this place. https://sxcjcomputerscience.blogspot.com/ The coordinator of CS Blog were Dr Vaishali Singh and Ms Pushpanjali Saini. The Coordinator of Studio was Ms Keren L Daniel.

Department Highlights outcome Publication (X-Techzine)

In today's dynamic ecosphere, technology plays a vital role in every area of life and society of its ascendant movement. The Department of Computer Science has taken up the responsibility of accelerating this movement through its Annual Magazine X-Techzine. The key objective of the department magazine is to make students understand the presentation of the creativity, experiences, and the ongoing elevations of the technical world.

 The magazine offers a platform for the students to express their writing and presentation skills. It also hones the technical illustrative abilities of the students by providing the opportunity to design it fully and bring it into an exhibiting asset. https://stxaviersjaipur.org/x-techzine.aspx
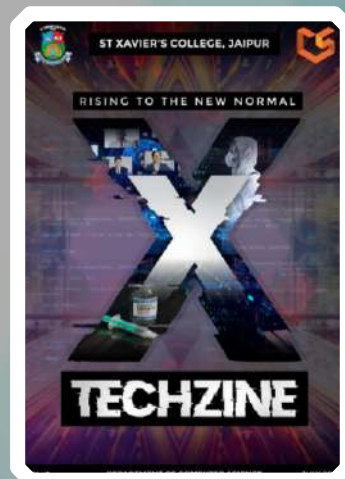
Department research outcome Publication (Informatica's)

Research is to see what everybody else has seen and to think what nobody else has thought." - Albert Szent-Gyorgyi

Research is a common activity which is required in all disciplines and pursuits to match pace with the ever-changing world. It has the power of finding solutions to the real life's problems in a systematized and formalized manner, which further sets the model for the rest of the world. The Department of Computer Science always aims to provide opportunities to the students to explore their potential in research and development along with their academic pursuits. To fulfil the objective of imparting practical knowledge and utilizing it in the field of research and invention, the Department of Computer Science has introduced the annual department Journal,

Social Engagement-
The ISREAC/UBA Programme of the College offers a unique opportunity to students to engage themselves acrossseveral communities in around the college vicinity. student engagements are considered important at Xavier's not only because of their relationship with student learning system but also represen t a disposition towards society that are marginalised and ain a life-long learning experience in sharing and caring as humans. The students of our department are extremely enthusiastic in working for the underprivileged. They helped in training students in the slums of the most backward part of Jaipur near Shastri Nagar which is situated in heart of the city. With their digital literacy they help in collecting the survey details through digital techniques. They have a deep sense of belonginess towards the deprived.

Webinar (Guest Lecture)- IT & Research Aptitude Development Among new generations for Development of New Technologies in Covid'19 pandemic

The Department of Computer Science of St. Xavier's College Jaipur has organized a guest Lecture on "IT & Research Aptitude Development Among new generations for Development of New Technologies in Covid'19 pandemic" for our BCA students on the Topic: IT & Research Aptitude Development Among new generations for Development of New Technologies ("IT Industry Scenario and Career Guidance). The Expert Name was Mr. Pankaj Sharma, Delivery Manager & Practice Head - Salesforce & EAM, Senior Consultant at, Pratham Software (PSI). The program coordinator of the panel discussion were Dr Dharmveer Yadav and Dr. Vaishali Singh.

Webinar on theme (India: Key features of The Personal Data Protection Bill, 2019- A vision for future security)

The Xavier's Cyber Security Cell (XCSC) in association with Department of Computer Science and Tech-X Club has organized a Webinar on the theme (India: Key features of The Personal Data Protection Bill, 2019- A vision for future security) on 27-28 January 2022 to celebrate the Data Privacy Day. The resource persons were Dr. Shafiq Ul Rehman, Assistant Professor (III) at Amity University Rajasthan (AUR), Jaipur, India and Dr. Ajeet Singh Poonia, Current Designation: Associate (Professor due from 2013), Additional Assignment: Dean, Industry Institute Relations, Dean, MCA & Nodal Officer (Centre for Cyber Security).

The program coordinator of the panel discussion were Dr Arpita Banerjee and Dr. Vaishali Singh. The event was held online through the Google meet platform and the students actively participated in the event.
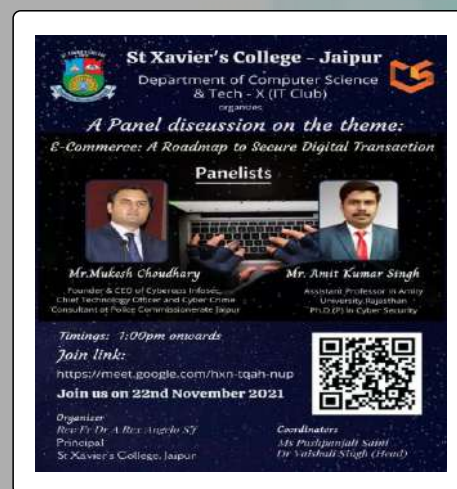
Panel Discussion on theme-"E Commerce Privacy Roadmap for Secure Digital Transactions"

The Department of Computer Science in collaboration with Tech-X Club have organized the Panel Discussion on the theme "E Commerce Privacy Roadmap for Secure Digital Transactions" on 22nd November 2021 at 1:00 PM. The webinar focused on the road map for new decade creating a secure future for Digital payments. The Panellists were Mr Amit Kumar Singh, Assistant Professor Amity University, Rajasthan and Mr Mukesh Choudhary, founder and CEO of Cyberops Infosec Chief Technology Officer and Cyber Crime Consultant at Police Commissionerate, Jaipur. The Panellists include a range of subject matter experts who answered questions about the importance of protecting our digital payments and highlighted the steps we can take to secure the same.

The program coordinator of the panel discussion were Ms. Pushpanjali Saini and Dr. Vaishali Singh and the emcees were Chaitanya Maheshwari and Harshita Rathore of BCA II. The event was held online through the Google meet platform and the students actively participated in the event and ask the questions to secure the digital payments in future.

Webinar (Guest Lecture)- IT & Research Aptitude Development Among new generations for Development of New Technologies in Covid'19 pandemic

The Department of Computer Science of St.Xavier's College Jaipur has organized a guest Lecture on "IT & Research Aptitude Development Among new generations for Development of New Technologies in Covid'19 pandemic" for our BCA students on the Topic: IT & Research Aptitude Development Among new generations for Development of New Technologies ("IT Industry Scenario and Career Guidance). The Expert Name was Mr. Pankaj Sharma, Delivery Manager & Practice Head - Salesforce & EAM, Senior Consultant at, Pratham Software (PSI). The program coordinator of the panel discussion were Dr Dharmveer Yadav and Dr. Vaishali Singh.

Guest Lecture on Specific and Focused Career Study with a Professionals Certificate
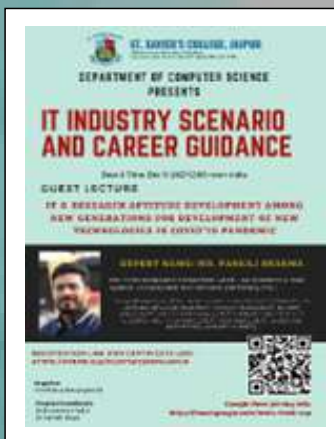
The Department of Computer Science in association with UpGrad (India's largest online higher education company) has offered a "Data Science Certificate Programme". To provide detailed information about the course an Introductory Session (Guest Lecture) on Specific and Focused Career Study with a Professional Certificate on Data Science Certificate Programme was organized on 15 November 2021 at 12 noon. Recourse Person for Introductory Session (Webinar) Topic: Data Science Learnathon - From Classroom to Halls of Ivy Expert Name: Snehanshu Sekhar Sahu "Applied Scientist in E-Commerce, Previously AIResearcher at American Express, Data Science & Machine Learning Educator at UpGrad" Zoom.

Computer Science Department Library

Computer Science students of batch 2021-22 along with dept. members under the initiative taken by Dr Dharmveer Yadav took a decision to establish a departmental library. The computer science needs to have latest resource (books, journal and volumes) for making it available for the department students. BCA student took initiative to provide support to the library by donating their books to the library. The computer science dept. has now its own library and books are available for the students without any charges.
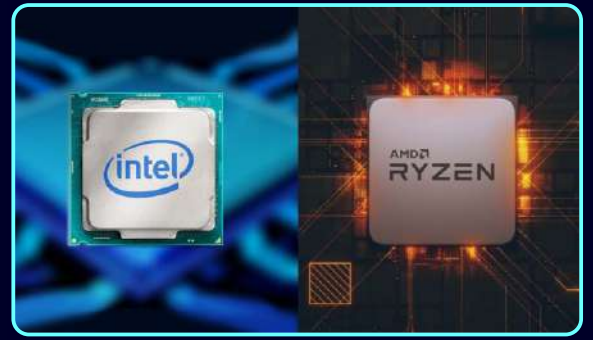
AMD VS INTEL CPU

By Sameep Rungta

The AMD vs Intel CPU conversation has changed entirely, though, In the past, AMD CPUs were the best option in only budget and entry-level portions of the market. but that changed with AMD Ryzen 3000 and AMD Ryzen 5000. While AMD has traditionally been the best bang for buck option, this time things are different, and Intel tends to offer the best value. But that doesn't mean Intel is losing to AMD. In fact. its Core 19-12th Gen is generally regarded as the overall fastest CPU you can buy.

Intel and AMD have excellent processors for gaming and productivity tasks like video editing and transcoding. Neither Intel or AMD have a single CPU that is the best at both things, however. Intel's Core 19-12th Gen is great for productivity and gaming, beating the Ryzen 9 5950X in both categories, but AMD's gaming-focused Ryzen 7 5800X3D is much faster in games.

Which is best for you?
For everyday web browsing, watching Netflix, and answering emails, Intel and AMD CPUs will give you excellent performance right out of the box. There are certain tasks, though, where one company's options perform better than the others. If you're looking to work with your processor performing intensive multithreaded tasks like video editing or transcoding. or heavy multitasking activities with tens of browser tabs open. Intel is the best option, especially for laptops. On the desktop. AMD isn't far behind.

If you're buying a laptop, both Intel and AMD are good options until you get to high-power and high- performance laptops, The good news is that there really isn't a bad choice in a CPU market - AMD and Intel are both operating at full tilt. so the AMD vs. Intel comparison won't stop anytime soon. Your best choice is to pick the processor that's cheaper, available, and works with the components you already have.
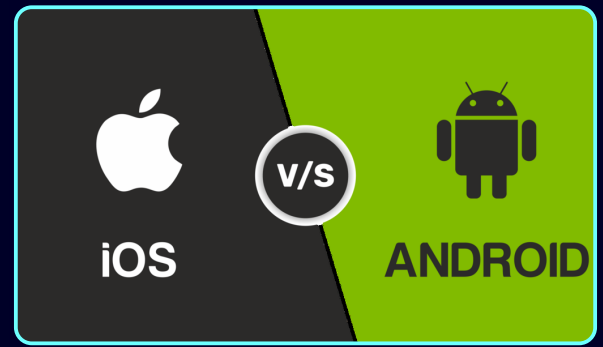
ANDROID VS IOS

By Daksh Tak

Android vs IOS battle will be never-ending so here I brought you some comparisons on the basis of which you can make your view for the OS; Money - Most of the budget phones are on the Android market because IOS is just expensive, Security - Android other than Play Store allows downloading third-party apps which leads to more risk of malware & security threats, IOS provides a much better Security as it allows download only from the app store. Ul - In Android, you get a bunch of UI's Like Samsung one UI, 1+ Oxygen OS, Poco/Redmi MIUI. ele which even allow you to get IOS Them to your device whereas IOS is stuck to its UI with no customization Lack of Apps - IOS App Store is just Limited to Apps in which most are paid whereas Android is just full of Top Notch Apps Competition and if it's paid then you can download a MOD, Customization:- Android also has a highly customizable user experience.

You can customize the home screen any way you want, with not just the app icons but also a wide selection of widgets that allow you to remain informed and connected. The interface on the IOS platform is locked down. You are only allowed limited customization options for the home screens and there are no third-party apps preinstalled on the device, Also, app installation can only be done from the App Store.

Updates - A major advantage of IOS is that Apple offers software upgrades for all devices automatically. This ensures that the devices remain current, a factor that boosts performance. Whereas Android Do provides UPDATES but for the current and Upcoming Phones Leaving behind OLD phones with Old android.

CYBER - PHYSICAL SYSTEM

By Saniya Pareek

A cyber-physical system (CPS) or intelligent system is a computer system in which a mechanism is controlled or monitored by computer-based algorithms. In this system, physical and software components are deeply intertwined, able to operate on different spatial and temporal scales, exhibiting multiple and distinct behavioral modalities, and interact with each other in ways that change with context. CPS involves Transdisciplinary approaches, merging the theory of cybernetics, mechatronics, design, and process science. The process control is often referred to as embedded systems. In embedded systems, the emphasis tends to be more on the computational elements, and less on an intense link between the computational and physical elements. CPS is also similar to the Internet of Things (IoT), sharing the same basic architecture; nevertheless, CPS presents a higher combination and coordination between physical and computational elements.

The US National Science Foundation (NSF) has identified cyber-physical systems as a key area of research. Starting in late 2006, the NSF and other United States federal agencies sponsored several workshops on cyber-physical systems. Cyber-physical systems result from the integrations of computation and physical processes. Rapid advances in Internet-based systems and applications have opened the possibility for industries to utilize the cyber workspace to conduct efficient and effective daily collaborations from any location worldwide to provide a fully distributed manufacturing environment.

3 Real world examples of cyber-physical products in action:

1. General Electric- General Electric deployed a series of cyber-physical products around its operations in the area of aviation, transportation, manufacturing, healthcare, and energy production. The devices are all connected to the main software system in order to analyze data and produce meaningful insights for the team.

2. FedEx-FedEx is another large company that has seen success through implementing cyber-physical products. The company ships a large number of pharmaceutical products, which are incredibly temperature sensitive. To combat this, FedEx deployed small cyber-physical temperature sensors on the important packages.

3. Shell- Shell has also seen great success from cyber-physical products. The company installed a variety of cyber-physical sensors for remote pipeline surveillance and wellhead monitoring. The initiative was aimed to eliminate the need for manual data collection, thus having a significant impact on the required travel time to these remote locations.

CLOUD COMPUTING AND CRM

By Suhani Gupta

Since the dawn of technology, effectively managing data has been the most difficult task to complete However, Salesforce, an easy-to-use and affordable CRM software that can also be delivered as an online ervice, has made it possible. Salesforce is a cloud-based customer relationship managemt. Founded in 1999 by former Oracle executive Marc Benioff, Dave Moellenhoff, Frank Dominguez, and Parker Harris, Salesforce is one of the first global companies to successfully employ cloud-based CRM software.

Salesforce has been able to leverage cloud technology and build a variety of applications for businesses to better connect to their customers and help give them key insights into their services through analytics and apps. Salesforce's technology appears to comprise two main keywords (i.e) cloud computing and CRM. Cloud computing is quickly replacing the traditional model of having software applications installed on on-premise hardware, from desktop computers to rooms full of servers, depending on the size of the business. With cloud computing, businesses access applications via the internet. It's called Software as a Service (or Saas). Businesses are freed up from having to maintain or upgrade software and hardware. Just log on and get to work, from anywhere and, in many cases, any device. Salesforce is the leader in cloud computing, offering applications for all aspects of your business, including CRM, sales, ERP. customer service, marketing automation, business analytics, mobile application building, and much more. And it all works on the same, connected platform, drawing from the same customer data. So as opposed to working in silos, your entire company can work as one team. And because it's all in the cloud as opposed to being installed on-premise, even the largest, enterprise-wide deployments can happen in a fraction of the time of traditional deployments, which can take over a year. Furthermore, The acronym CRM stands for Customer Relationship Management. It is a way to manage leads (people interested in your business and your existing customers in the most efficient way possible to extract the most money). Specifically, it refers to the system a company uses to analyze customer interactions and measure data throughout the customer lifecycle.

The goal of CRM is to improve business relationships with customers through retention and acquisition. As previously stated, why should you consider learning Salesforce or using Salesforce as a CRM for your business? Salesforce expertise is in high demand due to technological advancements and increased demand for IT professionals. Globally, the financial services and manufacturing industries are expected to have the highest job growth within the Salesforce ecosystem. Salesforce is also expected to be popular in the retail, communications, and media industries. Businesses are undergoing a significant digital transformation, and the cloud is critical to their success. Upgrading skills in cloud technologies such as Salesforce will thus serve as a springboard for success.

CRYPTO CURRENCIES & NFT's

By Divyanshu Pareek

Based on blockchain technology and encrypted using cryptography, cryptocurrency is decentralized digital money. Three terms-blockchain, decentralization, and cryptography-need to be understood before one can grasp cryptocurrencies. A digital ledger whose access is shared among authorized users is referred to as a blockchain in the context of cryptocurrencies. This ledger keeps track of financial ransactions involving several types of assets, including cash, real estate, and even intangible property. Users of the service can share access, and any information exchangeds immediate, transparent, and immutable." The term "immutable" refers to the fact that anything recorded on a blockchain is permanent and cannot be changed, not even by the administrator. Because cryptocurrencies are decentralized, no similar organization can be held accountable for monitoring the growth and decline of a specific cryptocurrency. Data is protected from illegal access using encryption techniques using cryptography. Cryptography enables the majority of blockchain's claims, includingimmutability and anonymity. The founding ideas of Bitcoin, the first and most popular cryptocurrency on the market today, were developed in 2008 by a group of individuals who are now known only by the alias Satoshi Nakamoto. Bitcoin was introduced to the globe in 2009. But it would take years before it was legally accepted as a payment method by well-known retailers, with WordPress being the first to do so in 2012. Types of Crypto currencies are Bitcoin, Altcoin, Crypto tokens.

What Is an NFT?
A digital asset known as an NFT is a representation of a real-world item, such as artwork, music, in-game items, or films. They are regularly purchased and traded online in exchange for cryptocurrencies, and they are typically encoded using the same software as many other cryptos. NFTs have been around since 2014, but they are just now becoming well-known since they are a more and more common NFTs exist on a blockchain, which is a distributed public ledger that records transactions. An NFT is created, or "minted" from digital objects that represent both tangible and intangible itemspay to acquire and trade digital art. Since November 2017, a startling $ 174 million has been spent on NFIs.

How Is an NFT Different from Cryptocurrency?
NET is an acronym for non-fungible token. The similarities between it and cryptocurrencies like Bitcoin or Ethercum end there, even though it is typically developed using the same type of programming. Both conventional currency and cryptocurrencies are "fungible," which means they may be traded or converted into one another. In terms of value, they are also equivalent: one dollar is always worth another, and one bitcoin is always worth one bitcom. The fungibility of cryptocurrencies gives them a reliable method for carrying out blockchain transactions. NF Is are distinct. Due to the digital signatures on each, NF Is cannot be traded for or held to be equivalent to one another (hence, non-fungible).

# ETHICAL HACKING AND CYBER SECURITY

By Kratika Soni

Ethical hacking involves an authorized attempt to gain unauthorized access to a computer system, application, or data. Carrying out an ethical hack involves duplicating strategies and actions of malicious attackers. Cybersecurity is the protection of internet-connected systems such as hardware, software and data from cyberthreats. The practice is used by individuals and enterprises to protect against unauthorized access to data centers and other computerized systems.

The cyber security is divided into different categories and they're the following:- Application Security, Network Security, Information Security, Identity Management, Data Security, Endpoint Security, Mobile Security, Cloud Security, Difference between the two terms is Cyber security involves the resolving of security issues in order to protect the data . It also includes security analyst and SOC engineer. Hence, it is a defensive job. All the cyber security experts are not ethical hackers as it includes various techniques of security.

Talking about Ethical hacking it involves finding weakness in the system that malicious may use and reporting them to the owner and fixing it. It involves jobs such as penetration tester and security manager too. Hence, is an offensive job and here all the ethical hackers are the cyber security experts. One difference also arise in context to how cyber security professionals different from ethical hackers. Ethical hackers , they hack inside the system and provide a report about how it got hacked and track the main sources. They perform various works as:- test the security system, use appropriate techniques of hacking, etc. While cyber security work on securing information system by monitoring , deeching, analyzing and responsibility to security experts.

Here is the key work that cyber security does; It improves the security system, analyze the security system and provide sujjestions, etc. Well, due to increasing threats of misuse of data, the carrer in cyber security ethical hacking is biggter, broad and successful .the cyber security market is predicted to around $200 in near future. There is immense scope in this field if you've relevant skills. The average ethical hacker annual incomes is from INR 4lakh-INR-15lakh.
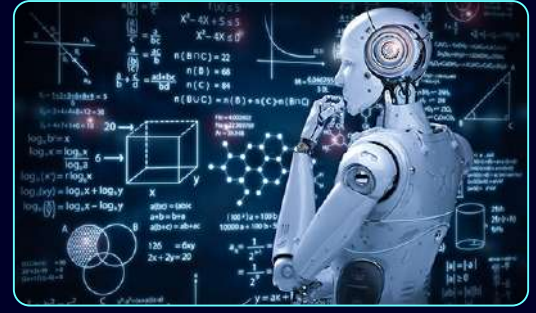
ARTIFICIAL INTELLIGENCE

By Vishwajeet Mahecha

As the name suggest artificial intelligence refers to intelligence which is artificial in nature its like a fuel which thrives any machine to react and act. We know that a machine cannot work on its own it need instructions in order to perform and that's what differs machines from humans , in order to bridge this gap we require to feed intelligence into the machine so that it can think can make intuition like a human being , that kind of induced intelligence refers to the artificial intelligence which make the machine smarter and human-like. In order to study artificial intelligence one require to work with machine learning and deep learning concepts which helps in making the machine to learn.

 If we want to modernize the world we have to go deeper in the world of technology and hence will have to automate machines. Tech automation is the key to modern lifestyle, in similar words tech automation refers to captial intensive machinery. Artificial intelligence, Machine learning, deep learning may sound like very fancy terms , but they were used in small context even in prior times.

As now traffic ticket (challan) now comes directly to your house ever wondered how? ... what happens is that the camera on traffic light captures the number plate of the vehicle and every information related attached with R.C of the vehicle get attached with the ticket. This technique is called linear regression (M.L.) which is implemented via artificial intelligence. This was just a minute application of artificial intelligence, it will be extensively used in robots , smart applications , home appliances and much more the list goes on and one there's nothing that we can't achieve via artificial intelligence hence it is the future.

THE RISE OF METAVERSE

By Aishwarya Biju

"The Metaverse is best understood as the shift of competing and interaction from a device in your pocket intoa Virtual simulation. " -Matthew Ball

The term metaverse (yes, d'ssingular, not plural , has ancient Greek origins Meta means "with"or "after." but in modern English the word has come to mean 'going beyond.' while verse means "universe.' The melavers', therefore, is a technological concept that goes beyond oar current universe of neatly delineated physical and virtual works, and it is widely believed that its development will be an economic boon worth trillions of dollars.

In July 2021 the founder and CEO of Fucchook, Mark Zuckerberg, said in an interview that his controversial social media giant will undergo a major transformation over the next few years. Facebook, Zuckerbery said, "will effectively transition from people seeing us as primarily being a social media company to being a metaverse company."

The conceptual scope of the merverse appears to be limitless, It will mange from your home, street, office, wind down or city, through to the solar system itself, and everything in between. It will also be a place of fantasy worlds as well as social, economic, and cultural experimentation, Those of us of a cenain age might be skeptical about spending our waking hours in the metaverse where everything will be gamified, but it is the digital ralives among us who occupy today's metaverse of Forlife. Roblox, and Minecraft who will Likely adapt the quickest and thrive.

The Web 1.0 of the 1990s was passive, in that users merely reid and consumed the information they found on web pages, and the Web 2.0 of the carly 2000s was interactive thanks to social media. Web 3.0 will be immersive, tactile, and decentralised due to the emergence and confluence of several technological trends such as virtual and augmented reality, 3G networks, blockchain, cryptocurrencies, and eventually, human gmenation such as digital wearables and even brain-computer interfaces.All of these technologies are hastening the dissolution of the boundary between the physical and virtual workis. It is this ongoing breakdown that is key- the metaverse is not merely virtual worlds, it is where the physical is rendered virtual through digital twins and mamworlds, and the virtual is rendered physical through the overlaying of data on to physical locations and objects thanks to augmented reality and haptics, and through 3D printing.

Today, the metaverse is a shared virtual space where pa are represented by digital avatars [think Ready Player Que). The viral world constantly grows and evolves based on the decisions sed actions of the society within it, Eventually, people will be able to cover the mesaverse, completely virtually (1.e. with virtual reality) or interact with parts of it in their physics space with the Kelp of augmented and mixed reality.
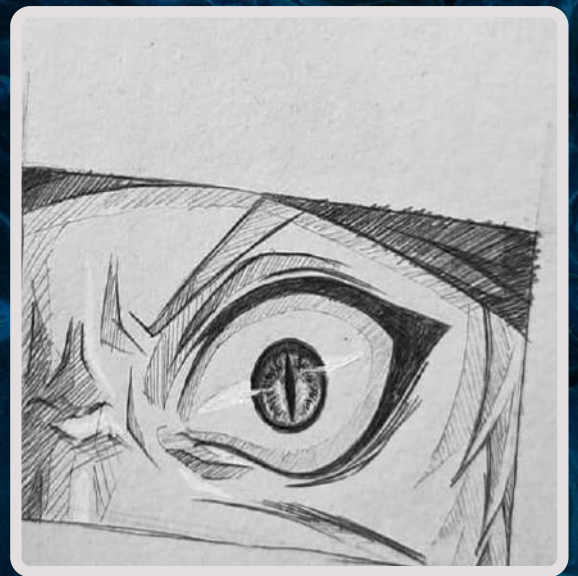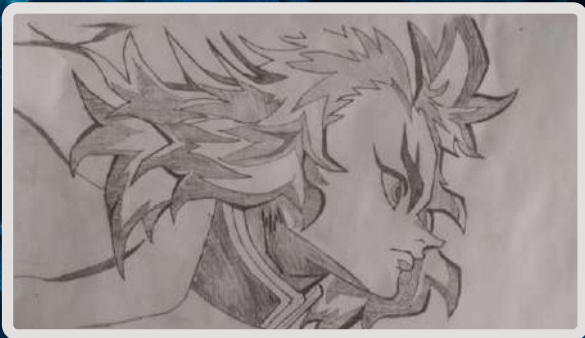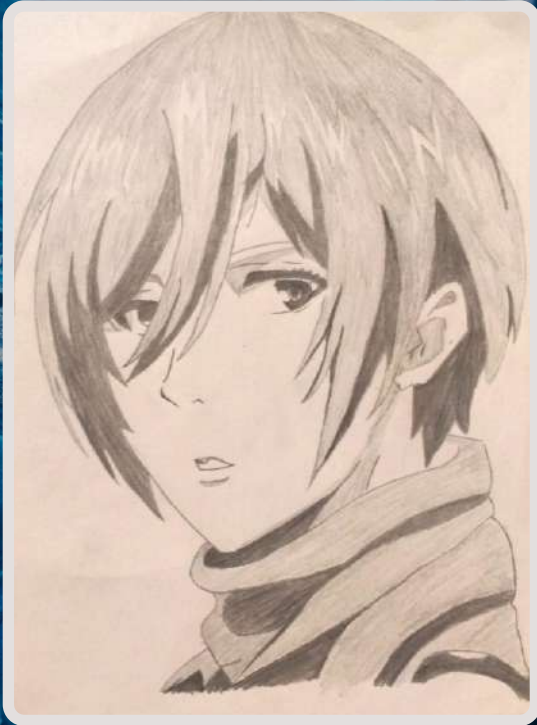
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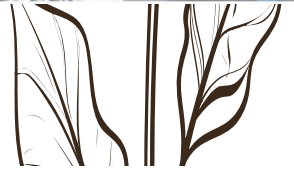
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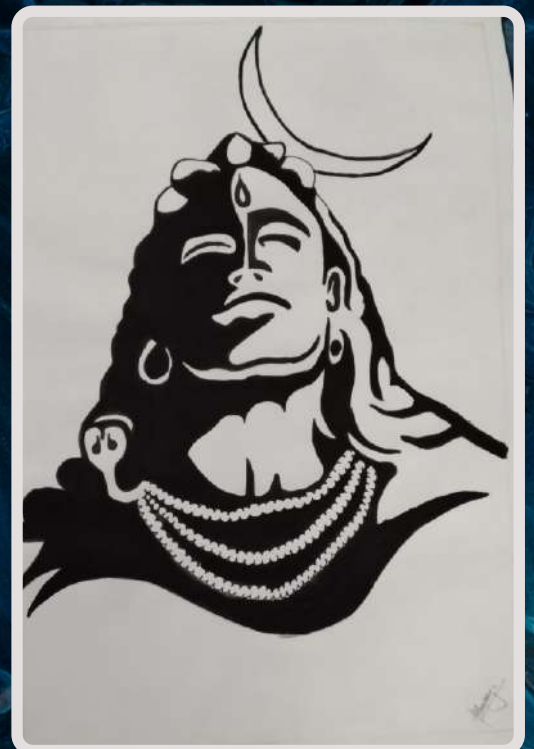
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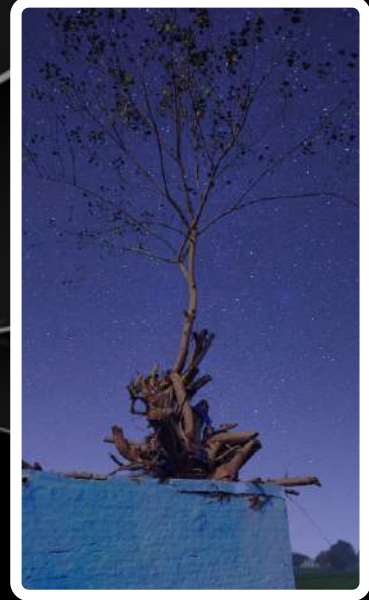
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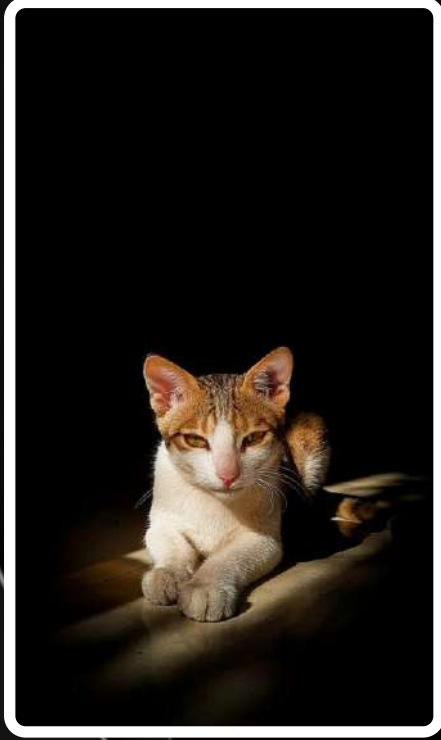
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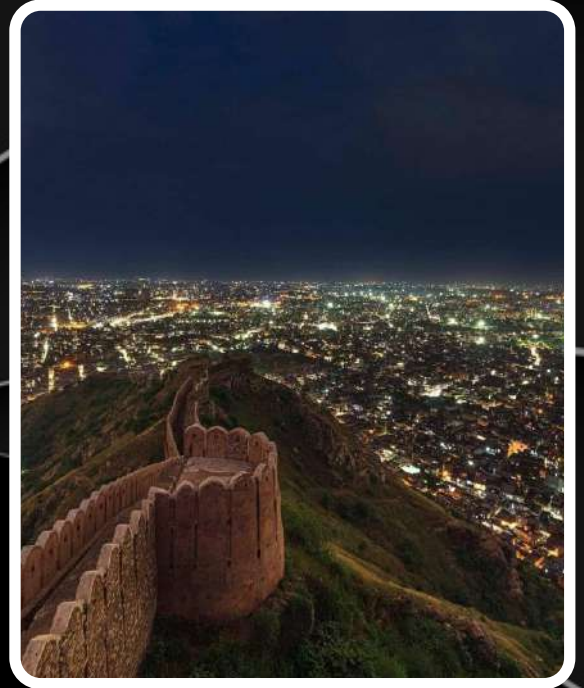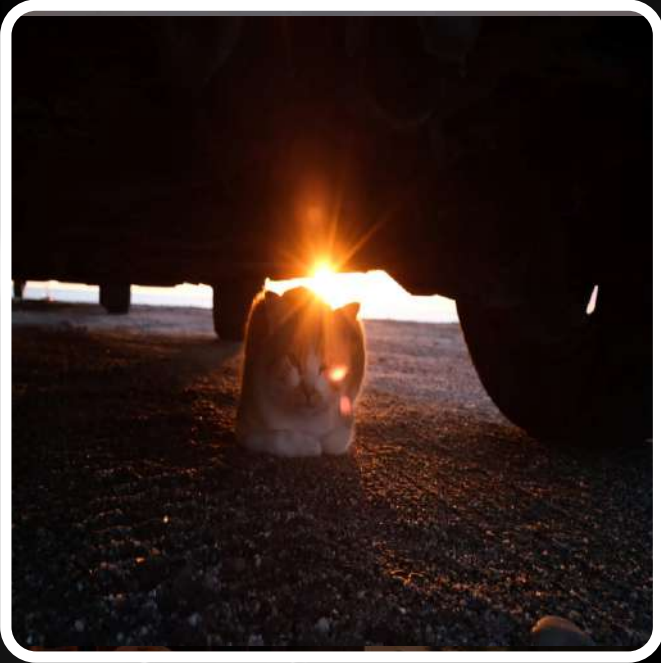
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