

programme prospectus



Create Innovate Achieve



Welcome onboard

for a transition from a student
to an industry-ready graduate.

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On the front cover :

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Inner cover :

Nakita Rayamajhi, Jiwan Thapa, Basant Banjara, Nishma Khanal, Shreeju Joshi
Anul Shrestha and Roshan Joshi



Directional Map

Block A

- Logistic
- Basketball Court
- Tennis
- Cafeteria
- Administration
- Student Hub
- Research Lab
- Library

Block D

- Examination Dept.
- Student Support Dept.
- Faculty Room

Block E

- Administration
- Android Application Lab
- Ethical Hacking and Cybersecurity Lab
- Student Hub
- Admission Office
- International Relation Office

Block B

- Gym
- Snooker Pool
- Rehearsal Space
- Lecture Class
- Computer Lab
- Student Hub

P Parking





A message from the Head of School , Coventry University A Warm Welcome

“On behalf of Coventry University, I’d like to welcome you to the courses here at Softwarica. Our mission is to provide our students studying overseas with Softwarica College of IT and e-Commerce with the best possible education coupled with an international educational experience and the employability skills they require to prepare them for the global workplace.



In these courses, you will learn how to navigate the rapidly changing technical landscape and acquire a valuable range of skills to help you succeed in the modern workplace. At Coventry, we have a strong ethos of learning the theoretical aspects of the subject via practical, hands on learning. This learning is based on real world, practical problems, of the type that face modern businesses. By doing this, we hope to equip you with the skills necessary to be a lifelong learner in your chosen field of study, ready for the world of work or further study when you graduate.”

Dr. Faye Mitchell

BSc (Hons), MSc, PhD, FBCS

Head of School , Coventry University



A message from our Chairman

There is an excellent scope in Nepal for students who want to pursue their career in Information Technology. The global demand for highly qualified IT professionals is increasing rapidly and Nepal cannot be left untouched. Over the past decade, Nepal has seen growing number of investments from national and multinational companies.

Business Process Outsourcing (BPO) has flourished which has increased employment opportunities for youths of Nepal who would like to make a rewarding career out of it. Access to the internet has been more affordable than ever before. As a result, various sectors are reaping advantage of this with the possibility of exponential growth in the near future.

Softwarica College of IT and E-Commerce commenced in the year 2010 with a vision to provide globally recognized education complementing with practical skills to Nepali students for them to be able to compete in the global landscape. Up until recently, we are exporting unskilled labour but I believe we should be able to export products and services powered by technology in the coming decade. For this, we need to invest in human capital to be able to produce tech skilled employees and this is where Softwarica plays a key role in the private sector. I am confident that this initiative will be supported and complemented by the government too.

I welcome all prospective students to join our college to learn the latest industry focused IT curriculum. We offer British Degree globally recognized by employers around the world which you will carry along throughout your life time.

Mr. Bigyan Shrestha

Chairman
Softwarica College of IT & Ecommerce



A message from our Campus Chief

I welcome all the prospective students on board aiming to make the world better with technology for three years of transformation from just a student to a market-sufficient graduate.

Global citizens have experienced an information revolution in the past few decades, the constant change demanding reach and mobility seems challenging, however, the advancement in information and communication technologies has eased the adaptability to the adjustment in the way we live and work. Specifically, with the pandemic, the prerequisite to get lifestyle virtually has been heaven in disguise for the IT industry. In the context of our country to cater to the ever-rising demand for the information revolution adding to that to cope with the changes that took place as a consequence of the pandemic, the country needs fine graduates to fill the gap in IT human resources.

The collaboration with Coventry University strengthens the quality of education, making it an absolute blend of practical and theoretical approaches to learning and grooming the graduates to fill the crisis in IT human resources. The partnership with the university is upfront to cater to the modern demand of IT, produce graduates with a vision thriving for the national and international outlook and exposure.

Softwarica College has always been driven by the concept of developing human resources for the IT industry since its inception, we are proud to present hundreds of market-qualified graduates working for top-notch local and global tech companies. Adding to this, our graduates have explored the world of entrepreneurship solving pressing problems correspondingly contributing to the revenue of the country. The effort to build IT professionals is being backed up with three major focuses including making the students capable to survive in the highly competitive environment, abreast with modern technologies and the realization to contribute to the betterment of the community.

The current situation which might or might not impact on the educational sector in the long run has not been easy for us. However, with our core belief to grow the students with innovative teaching methodologies combining studies with independent research and practical application is the key to preparing the students for the future IT world. Furthermore, the pool of teaching experts and well-equipped infrastructures are the great support system to deliver quality education.

Pramod Poudel

Campus Chief
Softwarica College of IT & Ecommerce

WE OBSERVE, INNOVATE, AND DELIVER.



Softed Group Alliance

Softed is a group of companies delivering services, emphasizing technology in particular. We started with the major goal of educating people about technology and ended up educating them through technology, we have come a long way since we started. Shaped by a diverse group of entrepreneurial people working together to create a diverse business, we have pushed our boundaries by not just limiting ourselves to education and technology, but also expanding through a sub domain “Softed Business” which is also entering into various business domains such as tourism, healthcare, and e-commerce. Working towards the overall development of society with a wide range of services available for each age group, we have taken an initiation called “Softed for everyone”, where everyone will profit or thrive as a result of its services and job possibilities.

Our organization will continue to expand in the future, contributing more bricks to the nation's development. We believe that each organization has the potential to make a significant difference in the world. As a result, we are dedicated to the betterment of the country by providing numerous chances for the country's youth and country's growth.



Softwarica
COLLEGE OF IT & E-COMMERCE

 **SUNWAY**
COLLEGE
KATHMANDU

Unicampus
GLOBAL


digimedical

 **digischool**

 **digi**
technology

 **PARAMARSHA**
PROPERTY

 **UK Colleges**

JOINT VENTURES

gyapu
MARKETPLACE

 **Jaamna.com**

THE CULTURE RESORT
LUXURY WITH TRADITION

About our University Partner

Coventry University is a global, modern university with a mission of **Creating Better Futures**. Founded by entrepreneurs and industrialists in 1843 as the **Coventry School of Design**, the university continues to have strong links with the public and private sector, providing job-ready graduates with the skills and creative thinking to improve their communities.

With a proud tradition of innovative teaching and learning, Coventry University has world-class campus facilities, the UK's first standalone 5G network and a digital community of learning. Its students are part of a global network that has 50,000 learners studying Coventry University degrees in more than 40 different countries and partnerships with 150 higher education providers worldwide. Coventry University has greatly increased its research capacity and ability with a focus on impactful research, delivered for and with partners, to address real-world challenges and support business and communities to develop and grow.

Over two centuries, the university has flourished in Coventry and Coventry University Group now also delivers access to its range of high-quality services and partnerships through bases in London, Scarborough, Belgium, Poland, Egypt, Dubai, Singapore and Africa. In recent years, the university has won many awards and vastly improved its rankings in the league tables that matter to students but what matters to the university is delivering transformational change for our students, partners and communities around the world.

Coventry University's significant international success has seen the institution presented with the **Queen's Award for Enterprise - the UK's most prestigious business award**.

In 2019/2020, **13,445** international students were studying at Coventry University, making it the fifth largest higher education recruiter for international students in the UK.

Coventry University's global outlook has also seen it establish a network of international hubs, in **Brussels, Dubai, Singapore and Rwanda in addition to its branch campus in Wroclaw, Poland**.

Now in its **53rd year**, the Queen's Awards for Enterprise enables winning businesses and charities to use the esteemed Queen's Award Emblem for the next five years.



University Rank

Coventry University

**Shortlisted for
University of the Year**

The Times and Sunday Times
Good University Guide 2021

Coventry University

**No.3 in UK for
students overseas**

Based on in-person delivery of
Coventry TNE programmes with
an overseas institution,
HESA 2020/21

Coventry University

**Ranked 51st
in UK by the Times**

The Times and Sunday Times
Good University Guide 2022

Coventry University

**Among top 100 in world
for 'International Outlook'**

Times Higher Education
World University Rankings 2022

Coventry University

**Ranked 38th in
UK by the Guardian**

Guardian University Guide 2022

Coventry University

**5 QS Stars
Overall Rating**

QS Stars University Ratings

Coventry University

**275,000+ alumni across
the world**

2017/18 figures

Coventry University

**19,000+ students
studying Coventry
courses overseas**

2020/21 figures

About our College

The pioneer in introducing British education in Nepal, Softwarica College of IT and E-commerce offers BSc (Hons) in Computing and BSc (Hons) in Ethical hacking and Cybersecurity and MSc in Data Science and Computational Intelligence and soon introducing BSc (Hons) in Computer Science with AI in collaboration with Coventry University. The courses are approved by the government of Nepal and equivalency approved by Tribhuvan University.

Over the decades in the industry, our college has always intended to groom students with a modern and hands-on learning approach aiming to produce industry-ready graduates. The college focuses on providing IT education with an accurate blend of real-life skills for holistic development to show the pathway for a better career to the students for which classes on personality development and soft skills are equally prioritized.

Our college gives students exposure to the entrepreneurial world, the students are encouraged to innovate the products and showcase them on various platforms to reach mass audience. In addition to this, the guidance and support straight from the experts makes the project more reliable and realistic. On the other hand, the college opens the gate for the students to start their career as an employee in national and international standard companies. Our college has successfully developed 4500+ market-ready graduates spread across the world.

The college infrastructure has been built accordingly to deliver the ideal place where students get a real-time experience of the IT industry. Well-equipped computer labs, technical and networking labs, an extensive collection of books about IT & business, and expert teaching faculties make learning experience worthy.

The three years of commitment from the prospective student is all our college needs to guarantee an extraordinary academic journey for their holistic development. The academic journey here caters to the tech-savvy and enthusiast students with regular assignments, report writing, field visits, research, group discussions, and presentations are basic features of program delivery.

With a vision to provide real-time work experience, after completion of the course, students are provided with opportunities with renowned companies in Nepal and abroad in positions best suited to their skill level. Hence, the students that graduate from Softwarica, are the best IT professionals in the Nepali Tech Sector and have no problem scoring numerous IT opportunities.

Programmes Offered

**Approved by
Ministry of Education
Nepal.**

BSc (Hons) in Computing
3 years

BSc (Hons) in
Ethical Hacking & Cybersecurity
3 years

MSc in
Data Science &
Computational Intelligence
2 years

Intakes -

Autumn & Spring



OUR COURSES

BSc (Hons) in Computing

Specialization
in :

Full Stack
Web Development

Mobile Application
Development

Data Analytics

Artificial Intelligence

This course gives an understanding of computer technologies through techniques, theory, and application. The course focus on introducing the latest programming languages, designing tools, and designing language and database. Students are offered the opportunity to develop skills and knowledge at the international level through the participation in Collaborative Online International Learning (COIL) project activities with students from universities abroad.

The final year project is key highlights of the course, the students are required to do the project solving real time issues. The project enhances critical thinking and logical thinking skills alongside IT skills. Additionally, the students get the experience of working in real time.

With the aim of giving practical exposure to the students, the college organizes workshop such as Internet of Things (IoT) Expo, web designing, mobile application designing, design thinking under the guidance from the experts. The college also has tied up with top IT companies for Industrial visits, workshops, boot camps, guest lectures and job placement.

Intake

Autumn / Spring

Duration

3 years full-time

Credits

360 points

Entry Requirements :

A student must have obtained at least 50% or equivalent marks in the 10+2 level.

A student must complete A level with at least 3.5 credits with minimum 2 subjects in A2 level.

Must fulfill the English requirement as per the rule of the college.

Career Opportunities

Software engineer
Web Application Developer
Mobile Application Developer
Software Systems Developer
Database Administrator
Data Analyst
UX/UI Designer
IT Project Manager
Internet of Things Developer
Business Intelligence Developer





Student on picture : Anish Shahi

Year 1:

SEMESTER I

Programming and Algorithms – 15 credit

Introduction to programming, algorithms, data structures, testing, and version control. Tools used: Python, Git.

Software Design – 15 credit

Introduction to principles of good software design. Introduces various software project management approaches used in industry. Tools used : Agile Scrum, Lean, Kanban, XP, Design Principles, Design Patterns, MVC.

Mathematics for Computer Science – 15 credit

Propositional logic and induction, Sets, Functions, Relations, Number systems, Graphs, Networks, Sorting and Packing algorithms.

Computing ALL Project 1 - 15 credit

Develop a range of high-quality software with application of good programming practices, testing and version control. Learn team work using Agile methodology, time management, research, development, write, present ideas, and critical reflection skills. Tools used: Python, Git, GitHub, Trello.

SEMESTER II

Object Oriented Programming – 15 credit

Introduction to object-oriented programming techniques and designs. Data structures, abstract data types, debugging, profiling, testing and version control. Tools used: Java, Junit, Git, UML

Computer Architecture and Networks – 15 credit

Computer hardware, CPU architecture, memory devices, logic gates, CPU instruction sets, Parallel processing, Networking, OSI model, TCP/IP model, Protocols, Mobile computing. Tools used: intel x86 CPU, Cisco Packet Tracer, etc.

Database Systems – 15 credit

Relational databases, Normalisation, ER diagrams, Document-based approaches, SQL, NoSQL, Data visualisation using R or Python. Tools used: MySQL server, MSSQL Server, Python matplotlib, R, RStudio.

Computing All Project 2 - 15 credit

Develop a range of high-quality software with web capabilities, testing and version control. Learn team work using agile methodology, time management, research, development, write, present ideas, and critical reflection skills. Tools used: Java, JSP, Servlets, Git, GitHub, Trello, MySQL server, Apache Tomcat

Creative Thinking for Business - 20 credit

Identifying business opportunities, understanding of business models, creative problem solving, developing a creative culture.

Year 2:

SEMESTER I

Web Development – 20 credit

Full-stack web application development, Networking concepts including server, client, and web protocols, develop secure dynamic web server, Client-side scripting, Databases. Tools used: Python Django, Flask, Jinja 2 templates, MySQL server, JavaScript, HTML, CSS, Git, etc.

Programming for Developers – 20 credit

Advanced data structures like heap, graph, tree, hash tables. Advanced algorithms like greedy, heuristic, backtracking, divide and conquer. Advanced programming with multi-threading, lambda expression, functional programming, and design patterns. Critical analysis on space/time complexity and performance of various algorithms. Tools used: Java

Software Development – 20 credit

Software development models: Waterfall, Spiral, V-model, Agile scrum, Kanban, Lean, etc. Requirements engineering, Behaviour-driven development (BDD), Test-driven development (TDD), Software architectural patterns, design principles, design patterns, CI/CD pipeline. Tools used: Java, Spring, Hibernate, MySQL server, HTML, CSS, JavaScript, Git, GitHub, etc.

Year 3:

SEMESTER I

Computing Project Preparation – 10 credit

Academic research preparation, research methodologies, project planning, literature review, ethics approval process, individual project proposal.

Tools used: Scopus, Science Direct, Google Scholar, RefWorks, Locate, etc.

Web API Development – 20 credit

Design and develop public RESTful Web API, and interactive web client to consume the prepared web API. Web API security and authentication, Open SSL, client libraries, version control, automated testing, call-backs, functional programming. Tools used : React JS, Angular JS, Vue JS, JavaScript, NodeJS, Express JS, Mongo DB etc.

Mobile Application Development – 20 credit

Design and develop mobile applications (cross-platform), implementation of security policies, authentication, data security, privacy, use of cloud computing for the mobile applications. Material design, common design patterns, use of third-party packages. Tools used: Flutter, OpenSSL, SSL certificates, Automated testing, version control, Firebase etc.

Design Thinking and Innovation - 10 credit

Entrepreneurship and design thinking, application of design thinking to business scenarios. Innovate new business ventures and application of business model in practice.

SEMESTER II

People and Computing – 10 credit

User interface design, usability, computer law, copyrights, IP, data protection, professional ethics. Tools used: Paper prototyping, Figma, Wizard of Oz, etc.

Enterprise Project – 20 credit

Team work, System development using agile methodologies, application of professional and industry standard practices. Tools used: IoT sensors and actuators, automation, Arduino, Raspberry Pi, etc.

Data Science for Developers – 20 credit

Data mining, big data, Relational databases, NoSQL databases, Statistical analysis, Probabilities, Map/Reduce, Hadoop, Data visualisation and analytics. Tools used: Python, R, MySQL, MongoDB, Graph DB, Cassandra DB, NumPy, matplotlib, Weka, tidyverse.

Be Your Own Boss - 10 credit

Feasibility study of a new business, market research, competitor analysis, developing financial planning, developing entrepreneurial mind-set and skills, business model development.

SEMESTER II

UX Design – 20 credit

Design effective user interfaces, user centred design process, prototypes, development of product level GUI, evaluation of effectiveness of user experiences on the developed GUIs. Tools used: Paper prototyping, UCD, Figma, Wizard of Oz

Security – 20 credit

Defensive programming, Cryptography, Public-key infrastructure, Secure signature, certification, SSL, HTTPS, file encryption, hmac, session IDs, hashing, multi-factor authentication, Network security, VPNs, IPSEC, Wireless security, Block chain, Biometrics, Quantum cryptography.

Individual Project – 20 credit

Conduct in-depth investigation on a specialisation topic. Development of a tool / product / algorithm / software and its evaluation. Application of student' specialisation interest into a working product or solution and systematic evaluation of such product.



Students on picture (L to R) : Ambhika Adhikari, Sreeju Joshi

This course offers a full stack developer degree. It is designed to equip students with eight full-stack skills:

- Back-end development
- UI/UX design
- Front-end development
- QA and testing
- Mobile app development
- System administration / Security
- IoT and automation
- Innovation and Entrepreneurship

Four specialization courses for BSc (Hons) in Computing:

Full Stack Web Development	Mobile Application Development
<p>Web Development Year 2</p> <p>Full-stack web application development, Networking concepts including server, client, and web protocols, develop secure dynamic web server, Client-side scripting, Databases. Tools used: Python Django, Flask, Jinja 2 templates, MySQL server, JavaScript, HTML, CSS, Git, etc.</p> <p>Web API Development Year 3</p> <p>Design and develop public RESTful Web API, and interactive web client to consume the prepared web API. Web API security and authentication, OpenSSL, client libraries, version control, automated testing, call-backs, functional programming. Tools Used: ReactJS, Angular JS, Vue JS, JavaScript, NodeJS, Express JS, MongoDB, etc.</p>	<p>Introduction to Mobile Application Development Year 2</p> <p>Design and develop mobile applications, implementation of security policies, authentication, data security, privacy, use of cloud computing for the mobile applications. Tools used: Dart, Flutter, Firebase, version control, automated testing, etc.</p> <p>Mobile Application Development (Advanced) Year 3</p> <p>Design and develop mobile applications (cross-platform), implementation of security policies, authentication, data security, privacy, use of cloud computing for the mobile applications. Materialdesign, common design patterns, use of third-party packages, state management, clean architecture. Tools used: Dart, Flutter, OpenSSL, SSL certificates, automated testing, version control, RESTful API, etc.</p>
Data Analytics	Artificial Intelligence
<p>Data Science for Developers Year 2</p> <p>Data mining, big data, Relational databases, NoSQL databases, Statistical analysis, Probabilities, Map/Reduce, Hadoop, Data visualisation and analytics. Tools used: Python, R, MySQL, MongoDB, Graph DB, Cassandra DB, NumPy, matplotlib, Weka, etc.</p> <p>Data Analytics Year 3</p> <p>Data collection, Data cleansing, Data analysis, Visualisation, Decision-making, Problem-solving, Data ethics. Tools used: SQL, R/Python programming, Tableau, PowerBI, Spreadsheets, etc.</p>	<p>Data Science for Developers Year 2</p> <p>Data mining, big data, Relational databases, NoSQL databases, Statistical analysis, Probabilities, Map/Reduce, Hadoop, Data visualisation and analytics. Tools used: Python, R, MySQL, MongoDB, Graph DB, Cassandra DB, NumPy, matplotlib, Weka, etc.</p> <p>Artificial Intelligence Year 3</p> <p>Neural Networks, Deep Learning, Machine Learning, Knowledge representation and reasoning, fuzzy logic, expert systems, natural language processing, intelligent agents. Tools used: Python, Scikit-Learn, Weka, SWI Prolog, etc.</p>

OUR COURSES

BSc (Hons) in

Ethical Hacking & Cyber Security

This course is designed to teach students to identify and analyze the threats posed to modern information structures and develop the knowledge and skills to be able to advise a company on setting up secure systems.

Our college frequently organizes competitions such as Capture the Flag (CTF), Pen testing competition and bug bounty program to encourage students to practice real time issues. Additionally, we have CISCO, EC-COUNCIL and Pearson on board as an academic partner to give extra courses.

The standardized cyber security lab in the college gives students favorable environment to learn and explore opportunities. Our college also has tied up with top IT companies for Industrial visits, workshops, boot camps, guest lecturing and job placement.

Intake

Autumn / Spring

Duration

3 years full-time

Credits

360

Entry Requirements :

A student must have obtained at least 50% or equivalent marks in the 10+2 level.

A student must complete A level with at least 3.5 credits with minimum 2 subjects in A2 level.

Must fulfill the English requirement as per the rule of the college.

Career Opportunities

Cyber Security /Analyst
Security Penetration Testing/VAPT
Information Security
Offensive Security Engineer - Red Team
Security -Incident Response / Threat Hunting
Cyber Forensics Analyst / System Auditor
Cyber Security Malware & Forensic Analyst
Network Security (NOC)/System Admin
Security Operation Center (SOC)
Software Engineer / Programmer



Year 1 SEMESTER I

Programming and Algorithms 1 – 30 credit

Introduction to programming languages: C and Python to give basics of any programming languages: about operators, conditional statements, loops, functions, data structures, exception and file handling, familiarise them with IDEs (codeblocks, pycharms, vscode) , Version Control systems and make them capable to build systems like Brute Forcing tool, password generator/ manager, key loggers etc.

Legal and Ethical Foundations in Cyber Security – 10 credit

Introduce students to the legal and ethical landscape in cyber security and computer science. Through discussion and case-studies, students will have the opportunity to examine the impact of technology on society, the opportunities and danger of connected systems, data collection, and issues around international legislation.

Foundations of Cybersecurity – 20 credit

Information about current cybersecurity situation, Types of threats, Various roles in Cybersecurity, Cyber Security Goals, CIA triad, how to achieve CIA, difficulty in online security, Critical thinking, Various Linux Commands, Scheduling tasks for automation, processes for automating bash scripts, different wireless cracking scenarios, basic types of encryptions and its uses, digital signature and Open-Source Intelligence gathering techniques.

Tools used: Wireshark, Nmap, Macchanger, Open SSL, air-package, crontab, vim, virtual box, vmware, nikto, maltego, etc.

Skills Development 1

Understand fundamental knowledge of Linux, Linux Kernel, Linux Distribution, Virtualization and system, management, automation strategies for the system. Tools Used: Oracle Virtual Box, VMWARE Workstation, UBUNTU, Kali Linux, CentOS.

Year 2 SEMESTER III

Platforms and Operating Systems – 20 credit

Understand the concept of Operating System (OS), its type, function, structure and services provided by the OS like memory allocation method in OS, Virtual Memory, Paging and Demand Paging, Process synchronization, various scheduling algorithms, semaphore, mutual exclusion, etc. Learn the concept of deadlock and its recovery mechanism, bootloader and OS Kernel. Gain hands-on practical experience on concepts of OS(Linux).

Tools Used: system call, pointers, Linux OS, GCC C.

Skills Development 2

In-depth knowledge of JavaScript with data structure, function, Iteration and Document Object Model manipulation, advance concept of Object-Oriented Programming with practical knowledge transfer, foundation of JS, various frameworks (NODE.JS and more) with cloud deployment strategy using Docker environment.

Tools used: Cloud, Docker, JavaScript, Node, VS CODE, Virtual Machine

Practical Pen-Testing – 20 credit

Study theoretical and practical aspects of penetration testing and security audit, common tools and techniques will be explored, underlying theoretical concepts of systems exploitation. Standard tools, techniques and frameworks will be explored while building a good understanding of underlying concepts through ground-up development and exploration

Programming and Algorithms 2 - 20 credit

Advanced algorithms, algorithm efficiency, secure programming, multi-threading, inter-process communication, memory management,system services, UI/UX design, automated testing, version control.

Tools used: Python, C/C++, Assembly, Git, pytest, MySQL server, etc.

SEMESTER II

Digital and Forensics Fundamentals – 10 credit

Recover, analyze, and preserve computer and related materials to help the investigation agency to present them as evidence in a court of law, recover deleted files and deleted partitions from digital media. Tools used: IFTK imager, Volatility, Wireshark, Autopsy/the Sleuth Kit, Bulk Extractor etc

Introduction to Web Development and Database Systems – 10 credit

Understand web technologies, database systems, relational database, software architecture, web application, security architecture, secure web programming, cloud based data storage. Tools used: html, css, javascript, php or python, mysql server, git, unit testing, etc

Computer Systems and Networks – 20 credit

Learn the fundamentals of networking, standard protocols, typical hardware and architectures for computer networks, basic networking, IP addressing, Subnetting, and routing protocols like EIGRP, OSPF, STP, etc. Get hands-on experience relating to Network security and security devices like firewall including both (software and hardware), application layer protocols (http, https, SSH, telnet).

Tools used: Physical Hardware like router, switches, cabling, Cisco Packet Tracer

The Security Professional - 10 credit

Show evidence of understanding how management and leadership affect teams and organizations broadly and specifically with regard to cyber security, Describe and demonstrate the concepts of threat, vulnerability, and risk. Tools used: Nmap

Creative Thinking for Business - 10 credit

Identify business opportunities, understand business models, creative problem solving and develop creative culture.

SEMESTER IV

Cyber Security Careers – 10 credit

Understand recruitment, selection process and implications. Plan and manage personal development and career path. Development of problem-solving nature, information management and information retrieval skills. Enhance presentation and communication skills.

Applied Forensics – 10 credit

Understand mobile operating system, extracting & analyzing evidence from mobile devices, defeating anti-forensic techniques, reporting forensic investigation, e-mail forensic, windows and linux forensic.

Tools used: registry recon, adb, andriller, redline, tcp dump, snort etc.

Web Security – 10 credit

Learn to secure websites/web applications , detect vulnerabilities. Hand-on labs to find bugs/vulnerabilities like Cross-site scripting (XSS), SQLi, RCE, XXE, CORS etc to break web applications. Tools used: BurpSuite, SQLmap, ffuf, amass etc.

Networking - 20 credit

Understand networks and security issues for present internetworking technologies. Protocol like Static, RIP,EIGRP,OSPF, BGP,STP,NAT,ACL ,LAN ,WAN MAN.

Tools used – Cisco Packet Tracer ,GNS3 ,EVE-NG,Hands-on Real CISCO Devices Router ,Switch ,Firewall, Server ,Access Server

Be Your Own Boss - 10 credit

Feasibility study of a new business, market research, competitor analysis, developing financial planning, developing entrepreneurial mind-set and skills, business model development.



Student on picture : Manisha Basukala

Year 3 SEMESTER V

Exploit Development – 20 credit

Study software operation within computer and interaction with it's different components. Learn to break into system applications and write exploits and shell codes to accomplish it.

Tools used: gdb, Ghidra, IDA, strace, ltrace.

Security Audit and Monitoring – 10 credit

Identify security problems and gaps of a system, assure system built complies with internal and external security policies, plan and perform system and penetration testing to effectively identify evidence of vulnerabilities and their mitigation process.

Tools used: OpenVAS, Nessus, SIEM Solutions.

Security Management – 10 credit

Understand the security concepts, methods and principles, understand key IT Governance and information security.

Tools used: IDS, IPS (snort) , Packet Sniffers, SolarWinds.

SEMESTER VI

Cyber Security Project – 30 credit

Undertake substantial project to exercise in-depth technical, problem-solving, creative and other skills required of a professional practitioner. Ensure completed work meets the appropriate codes of practice and ethical requirements (Individual research project).

Reverse Engineering – 20 credit

Identify the breach and what steps were taken to breach the system. De-obfuscation of obfuscated code. Analysis of viruses, worms, trojan horses to isolate their signatures and create means of protection (anti-virus software).

Skills Development 3 - 10 credit

Demonstrate the core practical skills required to progress to the next level of study. Simulate a CTF style exercise commonly used by security organizations as part of the recruitment process. Demonstrate the core practical skills in Cyber Security. A skills test, examined formally in a separate module, will be administered that requires students to demonstrate their abilities.'

Managing Red Teams and Pen-Tests - 10 credit

Learn how red team assessment differs from traditional pen testing, social engineering attacks, objective of red teaming, Red team techniques, Red teaming frameworks /guidelines, Red team tools and usages/use cases, Red team report writing.

Practical Cryptography - 10 credit

Understand the method to encrypt confidential messages, risk management techniques, application of risk management in the SDLC, Symmetric Key encryption, Public Key encryption, Digital Certificates, IPsec ,RSA.

Tools-Firewall, Different types of VPN, IPS/IDS.

Design Thinking and Innovation – 10 credit

Enhance individual and teamwork to focus on solving complex problems and find the most appropriate solution for the end user. Entrepreneurship and design thinking, business applications of design thinking, creativity and innovation, business feasibility and personal entrepreneurial assessment

OUR COURSES

MSc in

Data Science & Computational Intelligence

This master's course aims to respond to the demand for data scientists with the skills to develop innovative computational intelligence applications, capable of analyzing large amounts of complex data to inform business decisions and market strategies.

This course provides advanced theoretical and practical subjects across a range of specialist areas in data science and computational intelligence which are greatly demanded in a wide range of research and industrial application.

The course preliminary focuses on enhancing the awareness with regards to professional, legal, ethical, and social issues along with commercial risk and management in the role of a data science professional and enables students to adapt to future changes in technology about data science and computational intelligence areas.

Career Skills

Data analysis and analytics
Statistical analysis
Machine learning algorithms
Artificial neural networks
Deep learning
Big data management systems
Research skills for advanced data science and computational intelligence

Machine Learning – 15 credit

Applications of machine learning, Supervised / Unsupervised learning, Linear regression, Logistic regression, Regularisation, Support vector machine, Decision trees, Reinforcement learning, etc.

Data Management Systems – 15 credit

Database modelling, Relational models, Big-data, NoSQL databases, Database programming, Distributed databases, Transaction management, etc.

Intelligent Information Retrieval – 15 credit

Search engines, Web crawlers, Query processors, Boolean model, Text classification, Document clustering, Link analysis, Multimedia information retrieval, etc.

Introduction to Statistical Methods for Data Science – 15 credit

Use of range of statistical distributions like binomial, Poisson, uniform, normal, exponential, gamma, etc. Multivariate distributions, Central limit theorem, Hypothesis testing, Bayesian inference, Regression models, etc.

Big Data Management and Data Visualisation – 15 credit

Analytical review of database system and big data, Traditional database concepts for structured data, Big data methodologies for structured and unstructured data sets, Big data analysis using examples from real life case studies and datasets, Big data processing and predictive frameworks and Data visualisation tools to support decision-making.

Artificial Neural Networks – 15 credit

Supervised and unsupervised neural networks, Static and temporal neural networks, Deep neural networks, Hybrid and modular neural networks, Various neural networks and their applications.

Advanced Machine Learning – 15 credit

Gaussian processes, Dirichlet processes, Graphical models, Fuzzy sets, Adaptive and hybrid fuzzy systems, Evolutionary algorithms.

Individual Research Project Preparation – 15 credit

Research skills, Research methodology, Reporting, Legal, Ethical and Social context

Computing Individual Research Project – 15 credit

Prepare a project to solve a practical industry problem. Investigate and research core activities, leading to analysis, final summations and insightful recommendations. Culminate a comprehensive, thorough and professional report, documenting the approach, conduct and outcomes of the project, critical review of the project conduct and management.

Teaching Methodology

Learning Approach

Activity led learning:

The lessons are designed to actively engage our students, suitable activities including case studies, group discussions, surveys are integrated in each session. Students are not expected just to be a passive consumer of knowledge, but are encouraged to actively take part in the learning process in collaboration with the teaching faculty.

Student Centric Learning:

The teaching/learning materials and activities are designed to put students in-charge of the overall learning process. We extensively use student centric learning spaces like interactive labs, tutorials, and design studios in addition to the traditional lecture rooms.

Blended teaching/learning:

High quality engaging learning materials are pre-shared to students via our learning management platform - Schookworkspro. Students have access to the provided teaching/learning materials in various forms like videos, reading content, presentation content, and relevant activities.

Assessment Approach

Authentic Assessments:

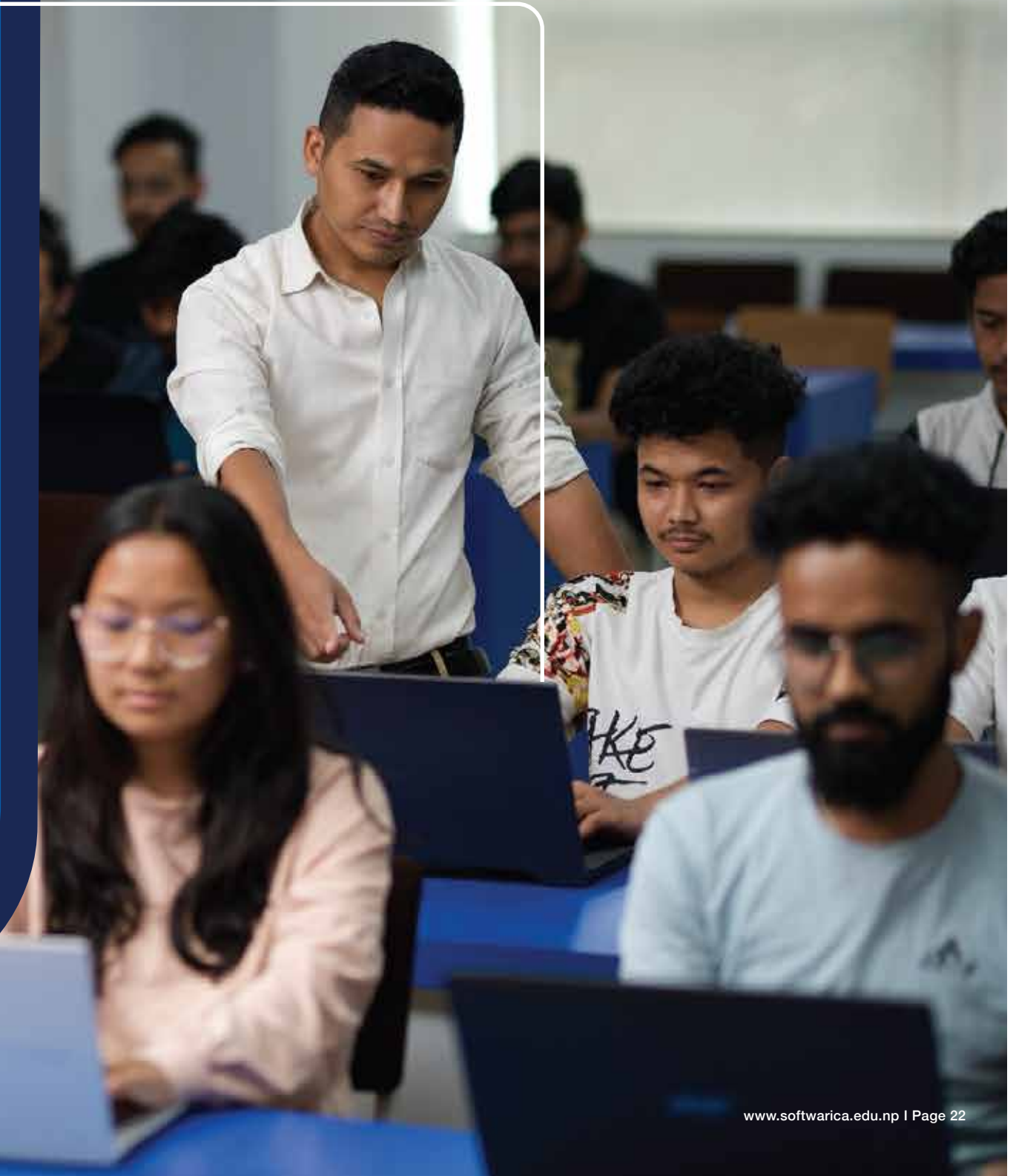
The assessments are designed to closely match with typical industrial work context for relevant modules. We take exceptional care in terms of work relevancy of the assessment scenarios that we provide to students. Students are expected to engage early on the assessment process in progressive fashion. We tend not to rely only on traditional assessment methods like written exams, and essays, but we extensively use case study scenarios, industry relevant projects, online tests, research reports, etc.

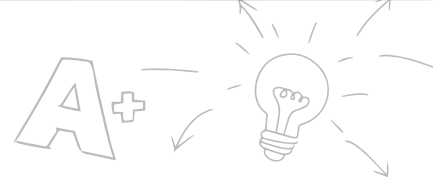
Inclusive Assessments:

Students are not limited to only one form of assessment method. We provide multiple alternative ways to submit their assessment artefacts. For example: Video screencasts, Audio recordings, Portfolio submissions, etc. In this way students with different abilities can equally participate on the assessment process. We have dedicated in-house built learning management system Schoolworkspro.

Constructive Feedback:

We value providing constructive feedback to students on their work. With progressive assessments, students will get the opportunity to improve on their assessments by having the workable and constructive feed-forward.





Scholarship Opportunities Programmes

1. Merit Based Scholarship

Our college strongly believes in the opinion that the academics of the students highly contribute to their research skills and equally grooms to become analytical and logical people, building a powerful base for their career in the future. This scholarship is provided to the students after their first semester, typically to encourage them to concentrate on their studies and maintain a healthy competitive environment. In this scholarship, the tuition fees will be waived off based on academic performance of the previous semester.

- Scholarships will only be provided on semester tuition fees based on previous semester academic performance.
- 100% worth of scholarship will be allocated equivalent to 7% of the total student number in a cohort/batch of a course.
- 1 student will be eligible for 100% scholarship.
- 2 students will be eligible for 50% scholarship.
- 25% of the scholarship will be allocated to the students equivalent to the remaining 100% worth of scholarship.





Student on picture : Ambhika Adhikari



2. Coventry University Student Ambassador Scholarship Award

This scholarship is awarded to the newly recruited students based on their performance in 3 stages. This scholarship gives a platform to the students to share their knowledge to the masses through their video in social media profile. In addition, this award boosts the confidence level for public speaking, explores their creative side, creates healthy competitive environment, and enhances presentation skills.

As a student ambassador, the students get an opportunity to work as a lead in "Tech and Trendy," a project to build youth tech community and represent our college in different platforms.

Stage 1 -

Letter of Intent and 30 secs introduction video



Stage 2 -

1 min creative video based on the topic related to IT



Stage 3 -

Presentation and Interview round





Coventry University Student Ambassador Scholarship Award Recipient - Batch 31.



Mr. Parth Dhungana

BSc (Hons) Ethical Hacking
and Cyber Security

As I reflect on my time as an ambassador, I am grateful for all the opportunities provided to me by Softwarica College and Coventry University. I grabbed the opportunity to attend and participate in programs like CAN infotech which gave me a glimpse of the status of the technology being used in Nepal. I worked as a lead for Tech and Trendy, where I was able to meet young tech enthusiasts in the process.

I worked on building networks within the IT industry and work with many new people to grow together, and observe their view on technology and their thoughts and ideas to create positive impact on society. I would like to thank every person involved for making my journey fruitful and wish luck to the future student ambassadors.



Ms. Sakshi Nepal

BSc (Hons) Computing

I was and still am beyond grateful to work as a student ambassador for Softwarica College and Coventry University. The title helped me to grow better as an individual, I am more confident than I was before with all the exposure to interact and build network that came along with the title. Working as a lead for Tech and Trendy gave hands full of experience to work in real time organisation in the future.

I am a proud student ambassador and I encourage all my juniors to apply for the title and make the most of the title to grow as a person and professional.

Coventry University Student Ambassador Scholarship Award Recipient - Batch 32.



Mr. Divash Bhattarai

BSc (Hons) Computing



Ms. Anisha Malla

BSc (Hons) Ethical Hacking
and Cyber Security



Mr. Bibek Kumar Kushwaha

BSc (Hons) Computing

“ They say hard work pays off,
it did for me as I am one of
the scholars of merit-based
scholarship.

I was always fascinated with the term “Ethical hacking” ever since I heard about it thus, decided to join the course at Softwarica College after spending many hours researching about the colleges that offer similar courses. The course structure here includes topics of my interest and I decided to enroll here, I am working hard to learn as many things as I could with the help of our faculties and friends.

Gagan Tamang

Batch 31
BSc (Hons) Ethical hacking
and Cyber Security



“ I feel extremely lucky to be selected as one of the students for Coventry University immersion and London tour Programme.

I got an opportunity to experience UK standard education through lecture classes, workshops, and group discussions. Adding to that, I visited the London Eye, London tower bridge and many more places with my friends which I will cherish for life time. Goodluck to the students visiting UK with the same purpose in the future.

Bibekanand Kushwaha

Batch 27
BSc (Hons) Computing



**“ I am excited to contribute my skills
and knowledge to the IT industry.**

I joined Softwarica College because Women in IT caught my attention, I am focused in learning and researching the scope of IT with the course currently I am enrolled in. I am very motivated to see my senior doing so well in the global IT industry.

Bibhusha Sapokta

Batch 29
BSc (Hons) Computing



“ I am extremely grateful to my college for providing platforms to keep my sports spirit alive.

I have been active in sports since my childhood. I feel incredibly happy to continue my sports activity in my college too. I look forward to participate in any kind of sports activity my college organizes.

Sandesh Thapa

Batch 27

BSc (Hons) Computing



“ I am extremely excited to start my journey to transform from a student to industry ready graduate.

For my higher education, I was looking for the kind of college that would provide me with a quality education and exposure to IT career eventually. This is when I found out about Softwarica College. My requirements certainly met with the course Softwarica offered and I decided to join without a second thought.

Brinda Bhattra

Batch 32

BSc (Hons) Computing



“ I am building my confidence to fulfil my dream to work in the best of best organization in the future.

I like the fact that our college gives equal priority to theoretical and practical based learning. Events such as IoT (Internet of Things) expo and web application, and graphic designing competition have taught us to be competitive which will for sure help us to work in real time organizations.

Shivendra Jha

Batch 31
BSc (Hons) Computing



**“ I can reluctantly say that I have made
the best decision to enroll in the
course which I always wanted to.**

I really wanted to pursue ethical hacking and cybersecurity; however, I was skeptical because of the fact that the industry was very new in our country. The regular course work and practical classes in our standard lab has been an immense help to develop my hard-core tech skills. I am in my last semester and I can reluctantly say that I have made the best decision to enroll in the course which I always wanted to.

Rosesh Bhandari

Batch 27
BSc (Hons)
Ethical hacking and
Cyber Security



“ I can proudly call Softwarica my home away from home.

One of the best decisions I have ever made was to join Softwarica College. The facilities here are excellent and bring out the best in each of us. The homely environment, co-operative seniors and dedicating teachers makes students feel that they have chosen the best college for their undergraduate degree.

Ambika Adhikari

Batch 27
BSc (hons) Computing



From the Alumni



I can still remember the day when I was wondering about what will I become when I grow up.

I had a huge interest in computer science, but the career path was not clear. Studying at Softwarica helped me gain knowledge and understanding I started working as software developer while I was still studying at Softwarica. Currently Im working as a software developer in Instagram.

Sujan Shrestha

Software Engineer, Instagram

It gives me great pleasure with pride to say that I am part of Softwarica college.

After years from my graduation, I am still in touch with my teachers back there who always helped me make crucial decisions of my life. Because of my strong base while at Softwarica, I built a website called Hamrokhelkud.com. It wouldn't have been possible without all the knowledge and time at Softwarica.

Dipendra Pokharel

Co-founder, Hamrokhelkud.com



My journey in college was filled with adventures.

I explored distinct aspects and avenues of IT and chose to move forward with Artificial Intelligence for my career. This field is full of opportunities and I encourage all my juniors to pursue their career. I am very thankful to my college for giving me the exposure to work in a highly demanded industry.

Kabita Lama

AI Engineer, Dogma Group



Joining Softwarica was a turning point of my Life.

I was always interested on both art and technology from my early age. During my days at Softwarica, I found them both at once, and I was given the best opportunity to embrace my skills and take my time to sharpen them. I got to learn how to use technology to transform art and apply them in Business.

Sujesh Harsha Bajracharya

Creative Head, Harsha Designs

I joined Softwarica at a time when I was unsure about what I wanted to pursue in my career.

However, as I was very fond of technology and computers , I believe it led me to Softwarica for my bachelors. At Softwarica, I was able to learn and progress academically, meet great friends, make amazing memories, & develop valuable skills & assets which I still find myself implementing in the real world.

Ruven Shilpakar

Sr. Marketing Manager, Sagar Group



I have been working for a Multinational Company Dish Home, since past 5+ years.

I was very fortunate to have received an offer of employment by this company while I was still in my final year of my undergraduate degree at Softwarica College. Softwarica College has played a key role in securing this rewarding and career focused employment.

Hikmat Saud

Database Administrator & Software Engineer,
Dish Home

Collaboration Companies

Our college has collaborated with many IT and Non- IT International and National companies for the better exposure of our students during or after their time at college. This collaboration is for mutual benefit where we provide our qualified tech skilled students to the companies as per their requirement.





International Exposure

Coventry University Immersion and London Programme Tour

The senior batch competes for the opportunity to grab hands-on practical experience of the UK education method through lecture classes, workshops, and group discussions. Along with this experience, the students will observe the major tourists attraction places of UK. The college sponsors the immersion and London tour programme every year to provide exposure to the students aiming to educate the scope of IT in the Global Arena

The students who represent the college in various programs, and have at least 90 percent attendance in each module will be selected through different rounds.



From the left : Manoj Kumar Shrestha - Finance Director , Ursula Shrestha, Priyanka Shah, Suman Bashyal, Sachin Chaulagai, Tshering Dolkar Sherpa, Pramod Poudel - Campus Chief, Amantika Karki

Bibekanand Kushwaha, Achyut Timsina - Head of Operation, Arya Pokharel, Pratik Shrestha and Drishti Silwal





Student on picture : Nakita Rayamajhi (above), Nischal Prasai (below)

Student Club

Student clubs at Softwarica College have been formed to organize various extracurricular activities for students. Because we can only do so much, we have given you a major part of responsibility- the Student Clubs. From the book club to the cultural society, you can decide what kind of clubs you want to open up inside the campus and make your time at the campus more fun.

Our students, from different clubs, organize programs for the rest of the students. This brings new reason to come to college everyday.



Youth Club

- Focus on current social issues, and their resolutions.
- Organize various events for the benefit of students and college.
- Help improve student-college relations.
- Enhance leadership development among students.
- Empower other clubs directly or indirectly.



IT & Editorial Club

- Build IT community within the college.
- Host workshop and bootcamp to enhance IT Skills of the students.
- Provide exposure to the students in International and National competition.
- Prepare Article, Press release blog for communication.
- Build a network with national and international media.



Events & Sports Club

- Initiate to host extra curriculum activities.
- Identify the opportunity to represent Softwarica in National and International Level Competition.
- Conduct training and workshops for the physical and mental wellbeing of the students.
- Encourage students' participation in sports and other events.





Value Adding Activites

Design Thinking

Tackling a problem requires a set of skills and a keen eye to look for solutions. Everyday from problems that concern the wider population to mundane issues in our daily lives. we need to think outside of the box to bring out solutions. We help students learn about the technicalities of Design Thinking and understand the process of Empathizing, Defining, Ideating, Prototyping & Testing to bring & out what the world needs right now. Students don't just learn the traits of the trade but also how to bring forth their ideas and make a dent in the world.

Bootcamps

Our students participate in annual Bootcamps to help their ideas a get a platform to be a massive success. You can have a million ideas but without the proper support and technical knowledge they will end up in one of your notes.

We help our students get a direct pass to different Accelerators and Investors to bring their ideas to life. They not only get a platform to share their ideas but also to make it better and above all, make them their own.

Academy Partners







Workshops & Trainings

Regular workshops and trainings on various technical and soft-skills are organized for the benefit of students. How many times have you seen a brilliant mind with no presentation skills or no sense of what they are saying?

This is a very common problem which our students, never have to deal with. With workshops and training on various technical as well as vocational skills, our students will graduate as all-rounders.

And they are the ones who inspire others to be like them.





Graphics Design

Our design classes are engineered in such a way that no student- beginner or professional is left out. There's something for everyone.



Robotics & Automation

Students will explore and enhance their skills and creativity in the field of robotics, electronics, art and technology.



Presentation Skills

We provide our students with knowledge on how to present their ideas in front of a board or a mass. Either way, we teach them to succeed.



Digital Marketing

Digital Marketing is the next big thing and our students learn how to use this to their advantage. From promoting businesses to getting their desired audience's attention, they know it all.



Web Technologies

Students learn about the basics of web development, server knowledge and they are also actively involved in open source projects.



Agile Mindset

We teach our students the value of working in a team, respect, collaboration, improvement and learning cycles, pride in ownership, focus on delivering value, and the ability to adapt to change.



Business Branding

Technology directly influences the world of branding, marketing and advertising these days. Students learn how to be a part of it.



SEO

Students learn the practice of manipulating the traffic or conversion in any website over search engines like Google or Bing.



Creative Writing

Our students learn about creative writing and their implications on their personal and professional life like Business Proposals. Content Writing, etc.



Photography

Whether your passion lies in Photography or Videography, we make sure our students learn it all as a welcome addition to the course.



Game Development

Training on cross-platform game engine- Unity will be conducted for game enthusiasts and lovers of digital games.



Cyber Security / Penetration Testing

Our students learn the ins and outs of the softwares, their vulnerabilities and how to secure them to present a full product.



Artificial Intelligence

We teach the principles and practices around artificial intelligence (AI), automation and cognitive system to prepare our students for the future.



Augmented Reality & Virtual Reality

Students learn the latest and greatest in VR and their applications in the modern world from medicine to engineering.



Software Engineering Practices

Students learn the concepts, principles, methods, and tools used by software engineers and managers to plan and develop any software.



Data Analytics

With the knowledge of how to make sense of large datasets and finding patterns in them, our students are also equipped with the programming language R.



Mobile Application Development

We provide the knowledge on development of mobile apps for different platforms like Android and iOS.



Life at Softwarica





Fresher's Outing



Gym



Deusi bhailo



Changa Chait



Fresher's Party



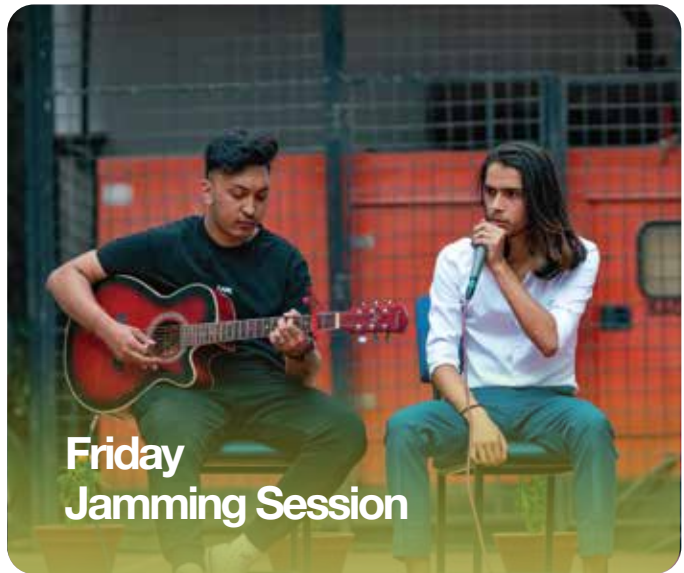
Pool



festival celebration



Holi



**Friday
Jamming Session**



**AR / VR
workshop**



Christmas Celebration



**Valentine's
Day**



Softwarican's Day



Graduation Day







Creating & Empowering Global Tech Industry Leaders.

Experience world class education
right here in Nepal.

Students on picture
(L to R) :
Roshesh Bhandari,
Richa Pokhrel

Scan to reach



Website



Facebook



Instagram



programme prospectus

Softwarica College of IT & Ecommerce

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