



CHRIST
DEEMED TO BE UNIVERSITY
BANGALORE • INDIA



**FACULTY OF ENGINEERING
SCHOOL OF ARCHITECTURE**



Celebrating 50 years of
Excellence and Service

CHRIST (Deemed to be University) is a nurturing ground for an individual's holistic development to make effective contribution to the society in a dynamic environment.

CHRIST *stands high on*

Faith in God | Moral Uprightness | Love of Fellow Beings | Social Responsibility | Pursuit of Excellence

BENCHMARK RANKINGS

#1 DEEMED TO BE UNIVERSITY

#8 INDIAN UNIVERSITY

#301 BRICS UNIVERSITY

#451 ASIAN UNIVERSITY

Sources

India Today-Nielsen Survey
QS Top Universities



St. Kuriakose Elias Chavara

CHRIST (Deemed To Be University) was born out of the educational vision of St. Kuriakose Elias Chavara.

1969

Established Formally as "Christ College"

2004

UGC of India conferred Autonomy to Christ College

2006

Identified as an Institution with Potential for Excellence

2008

Declared as Deemed to be University

2009

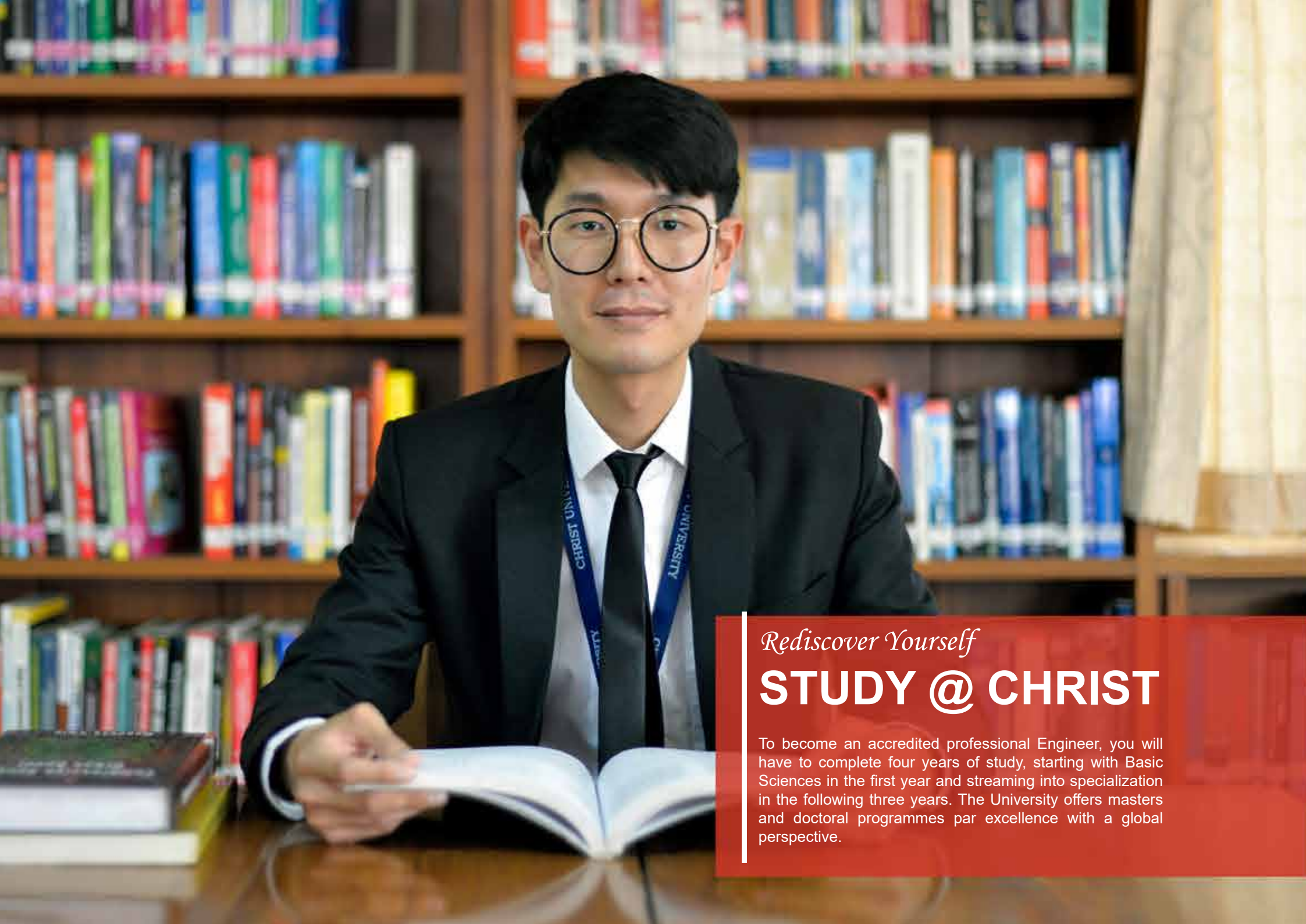
Established Faculty of Engineering Kengeri Campus

2016

Reaccredited 'A' by NAAC

2018

CHRIST celebrates its Golden Jubilee



Rediscover Yourself

STUDY @ CHRIST

To become an accredited professional Engineer, you will have to complete four years of study, starting with Basic Sciences in the first year and streaming into specialization in the following three years. The University offers masters and doctoral programmes par excellence with a global perspective.

Programmes Offered

Undergraduate Programmes (BTech)

- Civil Engineering (CE)
- Computer Science and Engineering (CSE)
- Electronic and Communication Engineering (ECE)
- Electrical and Electronics Engineering (EEE)
- Information Technology (IT)
- Mechanical Engineering (ME)
- Automobile Engineering (AU)

Undergraduate Programmes (BArch)

- Architecture

Doctoral Programmes (PhD)

- Civil Engineering (CE)
- Computer Science and Engineering (CSE)
- Electronics and Communication Engineering (ECE)
- Electrical and Electronics Engineering (EEE)
- Information Technology (IT)
- Mechanical Engineering (ME)

Postgraduate Programmes (MTech)

- Computer Science and Engineering
- Communication Systems (IC Design)
- Information Technology
- Machine Design
- Power Systems
- Structural Engineering

Master of Business Administration (MBA)

- Finance
- Human Resources
- Lean Operations and Systems
- Marketing
- Business Analytics

USP of Faculty of Engineering

- Innovative Teaching Pedagogy
- Industry Derived Courses
- CIMA : Chartered Institute of Management Accountants
- Engineering – Services Assisted Integrated Learning (E-SAIL)
- Service Learning

Industry Based Fastrack Courses

Fast track courses for the students excelling in their academics. It allows for quick curriculum course completion in 40 to 50 days so that students can get a hands-on working experience in their choice of industry. The students of final year BTech are eligible for this industry internship program which they have to carry out during 8th semester for a duration of 4-6 months which will instil the industry culture in them and open up job opportunities. To increase the industry liaising with the academia and provide sufficient exposure to the real life projects, Faculty of Engineering has initiated Fastrack courses. Following are the verticals being chosen:

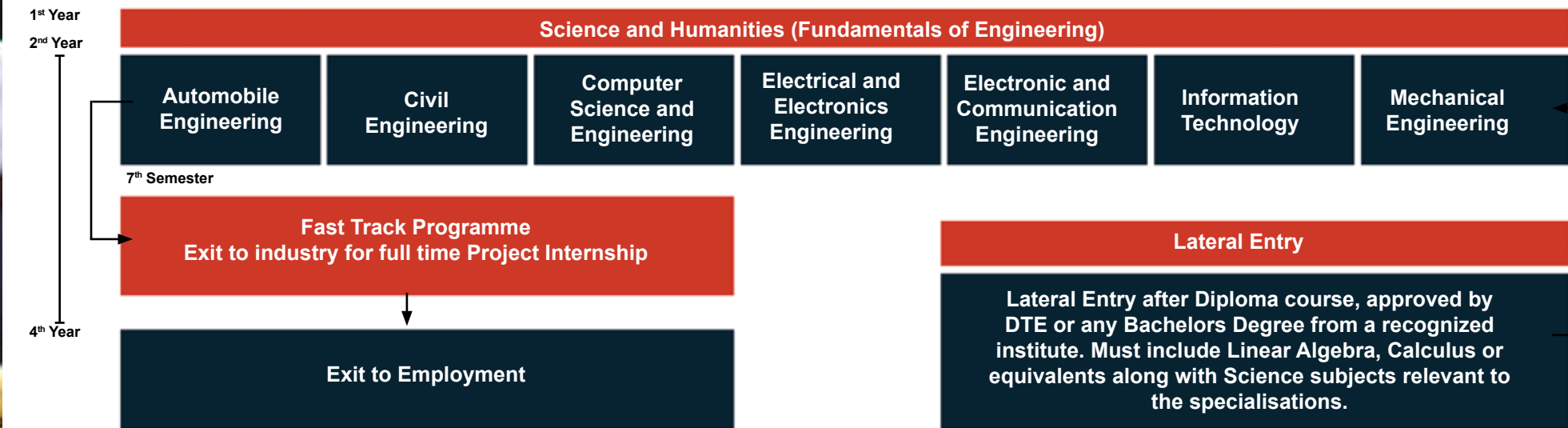
1. Academia-Industry
2. Academia-Research
3. Academia-Entrepreneurship

CIMA

Chartered Institute of Management Accountants (CIMA) is the world's largest and leading professional body of management accountants. It aims to support people and businesses to succeed in the public and private sectors. CIMA remains committed to upholding the highest ethical and professional standards, and to maintain public confidence in management accounting. In order to become a member of Chartered Institute of Management Accountants and the CGMA (Chartered Global Management Accountant) students need to clear 17 papers and Case studies spread across 4 levels of evaluation: Certificate Level, Operational Level, Management Level and Strategic Level. Students of Faculty of Engineering, get the privilege of some paper exemptions out of the 17 papers and Case studies of CIMA. Curriculum from the exempted and rest of the non-exempted papers will be integrated and embedded into the syllabus of BTech.



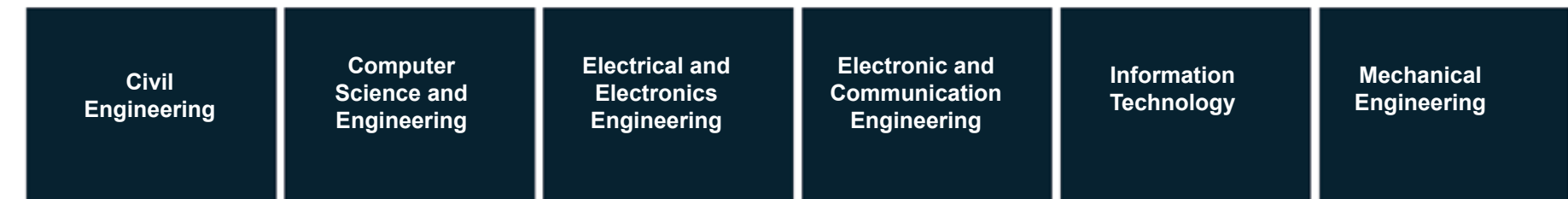
Bachelors in Technology (4 Years)

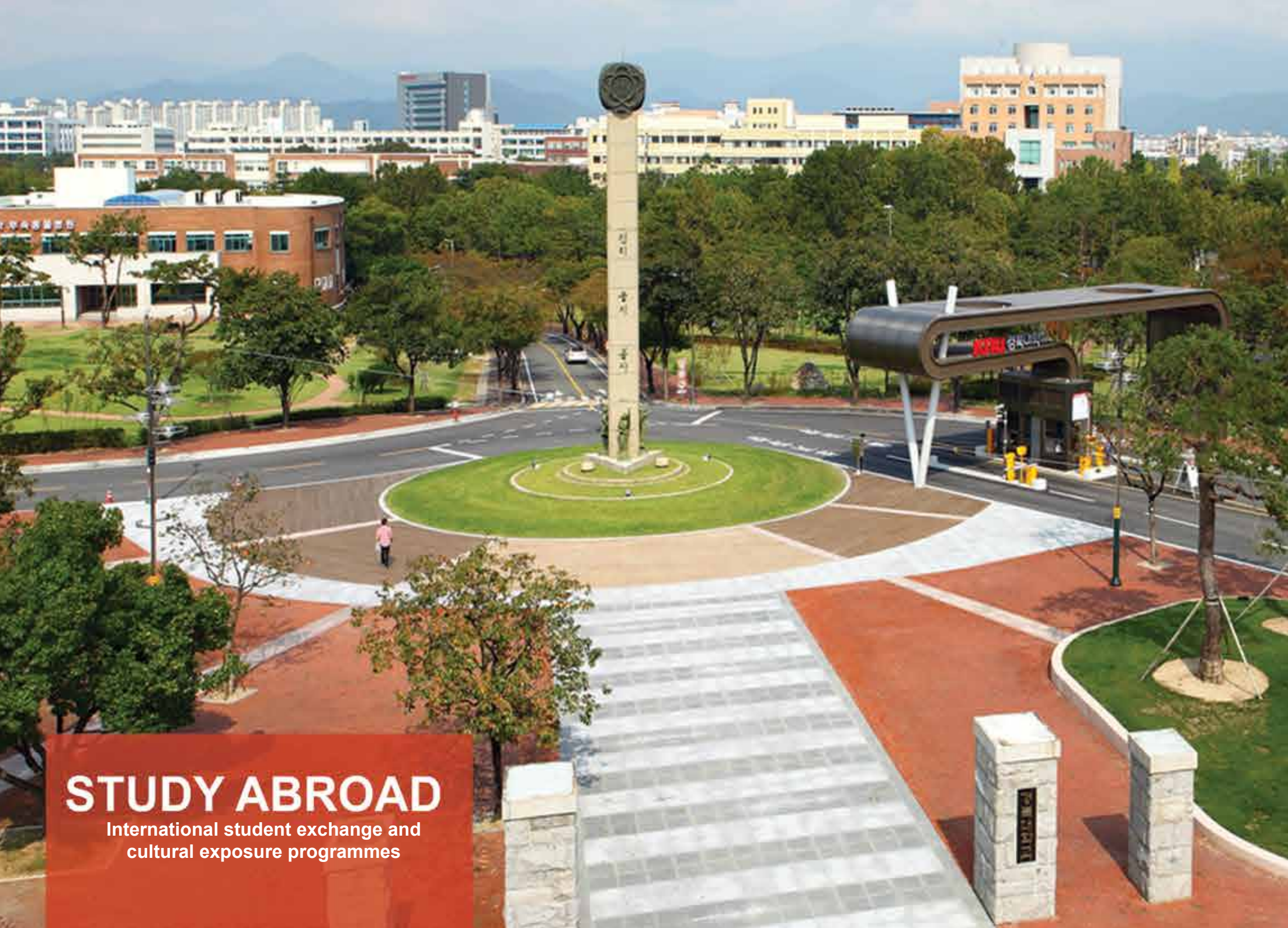


Masters in Technology (2 Years)



Doctor of Philosophy





STUDY ABROAD

International student exchange and cultural exposure programmes

Catholic University of America (CUA), USA	
Bachelor Degree Program	CHRIST (2 Years) + CUA (2 Years)
Masters Degree Program	CHRIST (2 Years) + CUA (3 Years)
University of Massachusetts Boston, USA	
Bachelor Degree Program	CHRIST (2 Years) + University of Massachusetts Boston (2 Years)
Saint Martin's University, USA	
Bachelor Semester Exchange	CHRIST (7 Semesters) + Saint Martin's University, USA(1 Semester)
The University of Applied Sciences Würzburg-Schweinfurt (FHWS), Germany	
Bachelor Degree Program	CHRIST (1 Years) + FHWS (3.5 Years)
Institut supérieur d'électronique de Paris, France (ISEP)	
Masters Semester Exchange	CHRIST (3 Semesters) + ISEP (1 Semester for Final Year Project/Dissertation)
Kyungpook National University (KNU), South Korea	
Bachelor Degree Program	CHRIST (2 Years) + KNU (2 Years)
Masters Semester Exchange	CHRIST (3 Semesters) + KNU (1 Semester for Final Year Project/Dissertation)
Republican Institute for Vocational Education (RIPO), Minsk, Belarus	
International Internship (UG/PG)	4 weeks (Internship / Training) + 8 months (Full-time Project)

Department of **CIVIL ENGINEERING**



Rich Industry Collaborations



Industry Assisted Courses

AUTOCAD 2D/3D
Building Information Modeling (BIM)



Research on Trending Domains

Mining waste management Disaster Management
Blast Analysis

Civil Engineering provides indepth knowledge on Materials, Construction Methods, Analysis, Design, Costing and Estimation. It also provides knowledge and skills on Concrete and Construction Technology, Exploration and Analysis of Soil, Highway Engineering, Transportation and Project management. Over the years, the Department has built excellent experimental and computational facilities for carrying out advanced research in frontier areas of Civil Engineering. Introduction to CAD, applications in Civil Engineering, regular technical visits, project tours and design project works are the features of the course contents.

- 50+** Publications
- 50+** Elective Subjects
- 6+** Research Areas

MEGATRENDS

- IoT**
- Disaster Management
- Structural Health Monitoring
- Quantity Surveying and estimation
- Traffic and Water Resource Mangement
- Building Information Modeling





Electro Dynamic Shake Table

It is a state of the art facility, is capable of testing 2D and 3D scaled models for dynamic loading. The equipment has a shake table capable of producing vibrations in X, Y and Z axis one at a time.

Electro dynamic shake tables are capable of producing vibration of very high frequency as compared to mechanical and servo shake tables. The data acquired are of very high precision.

Specifications:

1. Model: SEV 180
2. Armature Diameter: 180 mm
3. Force: 600 kGf peak sine wave.
4. Frequency Range: 5 Hz to 3500 Hz
5. Max Displacement: 38 mm
6. Pay load capacity: 100 kg



Semi-Automated Mud Block making Machine

Semi-automatic mud block making machine is faster compared to manual block making machine. The mud blocks manufactured are of higher precision and consistency.

Specifications:

1. Brick Size: 230 mm X 200 mm X 100 mm
2. Loading: Top – 10 Tonnes, Bottom – 20 Tonnes
3. Working pressure: 175 bar (Maximum)
4. Cycle time: 25 sec (Max)
5. Control Panel: PLC operated.



Structural Engineering Lab

The Department of Civil Engineering has a 2 legged and 4 legged structural loading frame which is a state of the art research facility. The loading frame is capable of applying loads up to 200 tonnes which is stress controlled. It also consists of a fully automated data acquisition system through which the stresses and strains can be measured. Various full scale and prototype structural elements such as beams, columns, slabs, wall elements and beam column joints can be tested using this facility.

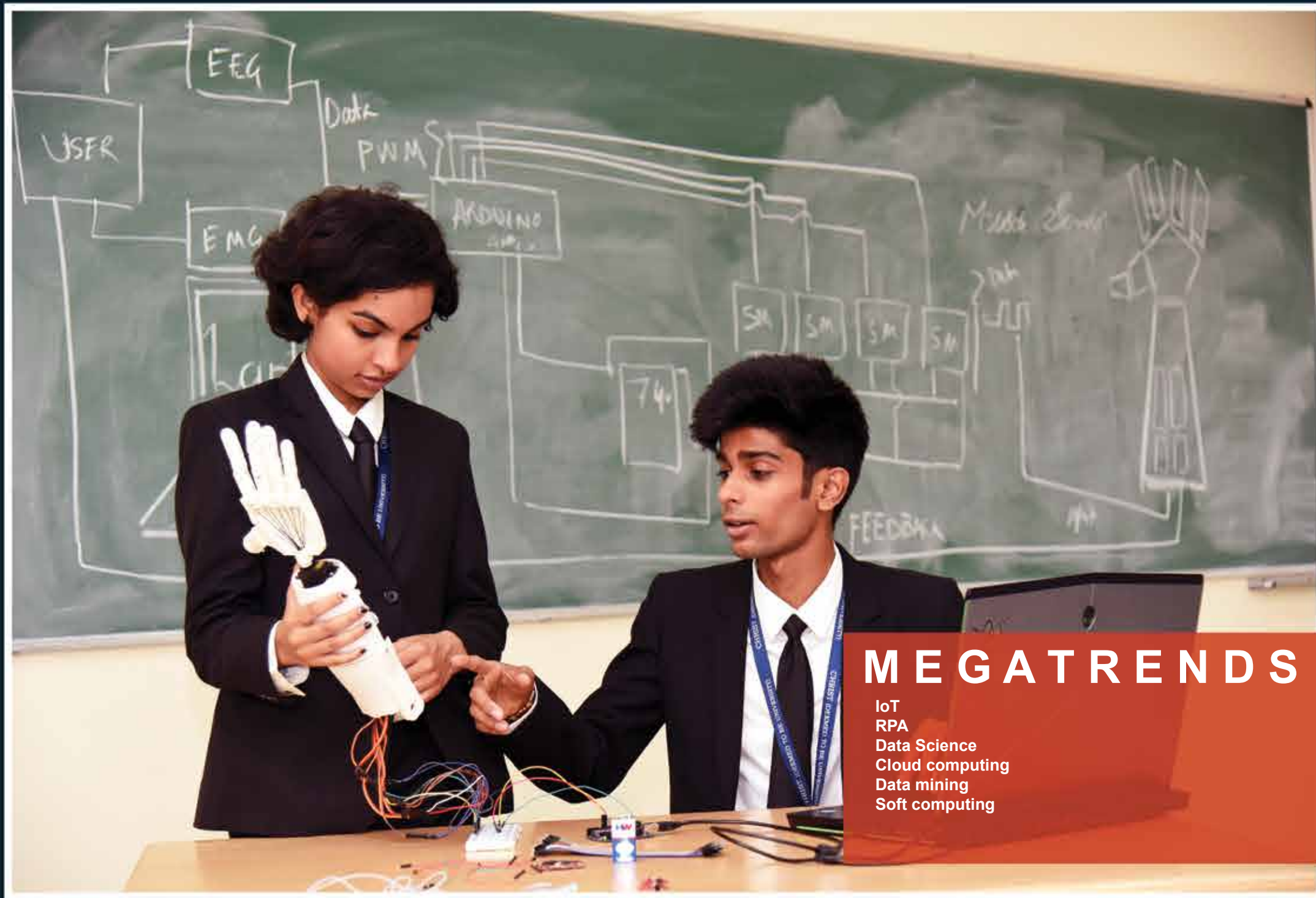
Specifications

1. 4 – Legged, 3DI Loading frame (3 Meter X 2.5 Meter X 2.5 Meters)
2. 2 – Legged, 2D Loading frame (3 Meters X 2.5 Meters X 4 Meters)



Drone Based Surveying

A 30 hour Drone training by HuviAir Technologies, is organised for a group of 20 selected students. The training is conducted by HuviAir Technologies, a drone data solutions company. The 30 hour training program is conducted during Feb – March 2019. The training comprises of hands on training, online video sessions, real world assignments, webinars, assessment and certification. The main purpose of the training is to expose the students to the world of Drones and familiarize them with drone applications with an intention to bring in Drone based surveying into academic curriculum. The drone will soon dominate a lot of construction engineering projects because of its ingenuity, practicality, and affordability. Drones will accelerate processes, facilitate quality inspections, assess problems and picture alternatives.



MEGATRENDS

IoT
RPA
Data Science
Cloud computing
Data mining
Soft computing

Department of COMPUTER SCIENCE AND ENGINEERING



Rich Industry Collaborations



Industry Assisted Courses

CCNA Routing and Switching

Programming Essentials in Python

NDG Linux Essentials

Java Programming through ORACLE Academy



Research on Trending Domains

Curve Based Cryptography

Secured Data Analytics

Computer Vision

Multi Path Computing

Natural Language Processing

Smart IOT

The programmes aim to provide students with strong foundational background in computing and software processes by imparting various core concepts. It also aims at inculcating the students with application based skill sets to become IT professionals.

Students are encouraged to carry out projects in various domains like Data Mining, Knowledge Based Systems, Artificial Intelligence, Mobile development and also in interdisciplinary areas.

200+ Publications

30+ Elective Subjects

6+ Research Areas



CISCO Networking Lab

Cisco Networking Academy partners with professional learning organizations to prepare students for rewarding careers. Cisco provides the learning platform and the partners provide course content, support, and instructor training. The courses are available as instructor-led at academies. Cisco Networking Academy is an IT skills and career building development program for learning institutions and individuals worldwide. CCNA Routing and Switching, NDG Linux Essentials, CLA: Programming Essentials in C and PCAP: Programming Essentials in Python courses that are part of Cisco Networking Academy® program and offered by Department of CSE, CHRIST (Deemed to be University), Bangalore.



REDHAT Linux Lab

The Department of Computer Science and Engineering has partnered with Red Hat Academy which trains and prepares our students to be Industry-ready. This academy intends to enhance their technical skills through internships and trainings based on current trends of the IT industry. Red Hat Academy offers international certificates on Red Hat Certified System Administrator, Red Hat Certified Engineer, Red Hat Certified Enterprise Application Developer, Red Hat Certified Enterprise Microservices Developer. An Indigenous lab prospective for advanced Operating system is established to cater for all the trainings and learning through this tie-up.



Oracle Academy

The Department of Computer Science has partnered with Oracle Academy to establish CHRIST Oracle Academy which trains the students and prepares for various rewarding careers. Through the academy students are trained by experienced faculty members who have been trained by Oracle Academy. This training platform offers the courses on Java fundamentals and Java program and also students are attending the webinar on recent technologies like Artificial Intelligence, Machine Learning and Deep Learning. The training is designed with an eye toward providing an excellent learning experience that gives the knowledge, confidence and tools to deliver.



“These Data Science Enthusiasts From Christ University Solved Our Insurance Products Hackathon”

-TEG Analytics and Analytics India Magazine

‘Team Neuron’ - The team consisted of four 3rd year undergraduates from Christ. Their journey in data science began in their second year of engineering after attending an introductory machine learning workshop organised by their seniors. It took time to learn the statistics and mathematics side of data science but they never gave up. The team leader later co-founded a data science club in his college and named it Neuron, which has been growing exponentially since its inauguration. They participated in Kaggle competitions where they had to predict poverty levels in Costa Rica, and several other online and offline competitions, which helped them to stay in touch with all new innovations in the data science world.

Department of
**ELECTRONICS & COMMUNICATION
ENGINEERING**



**Rich Industry
Collaborations**



**Mahindra
ELECTRIC**

EDAAS



**Industry
Assisted
Courses**

Analog & Digital IC Design

FESTO Automation

MATLAB Programming

LabVIEW



**Research on
Trending
Domains**

Energy harvesting antenna

MEMS

Biomedical imaging

E- Mobility



The Department concentrates both in academic and research in the thrust areas such as Sensor Networks, Wireless Networks and Communication, Digital Transceiver, Speech, Video, Biomedical Signal Processing, Biomedical Imaging, Compressive Sensing, Low Power Circuits, RF, Microwave & Antenna Design, Millimeter Wave Communication and Smart Beam Forming for UG, PG & PhD programmes. The two year industry oriented PG programme, M.Tech-Communication Systems(IC Design) is offered in collaboration with an industry providing emphasis on IC Design concepts in the field of Communication Systems application. Project based pedagogy with real time projects ensures 100% placement assistance for the programme.

100+ Publications

8+ Patents

10+ Research Areas

MEGATRENDS

IoT

Optical Imaging

RF & Microwave Systems

System on Chip

Process Control and Automation

Thin Film Technology



Hardware Software CO-DESIGN Lab

Hardware Software Co-design Laboratory is established to design high speed systems which support hardware as well as software implementation of real time application. The lab is equipped with tool like XILINX VIVADO, XILINX ISE, XILINX EDK, XILINX SYSTEMGENERATOR, XILINX SDK and also XILINX VIRTEX 5, SPARTAN 6, SPARTAN 3 FPGA boards to support hardware implementation of the real time applications. The resources are made available for the faculty as well as to students for their research in the area of hardware software co-design, wherein students are exposed to learn the concepts of design high speed systems on FPGA. Further, they are given a hands-on session, both on analog and digital IC design by Industry experts.



RF and Microwave Research Lab

The RF and Microwave is a Research Laboratory which caters researchers to explore the field of wireless communication with respect to conventional & planar antennas and RF systems including investigations on the effect of metamaterials and ambient RF energy harvestment. This Research Laboratory provides a complete platform for simulation and experimental validation of antennas & RF system designs upto 40 GHz. This lab is equipped with HFSS EM simulation software and the state-of-the-art kind of measuring instruments Vector Network Analyzer, Spectrum Analyzer, PCB Printing Machine, RF modules and an Anechoic Chamber measuring a size of 7m x 4m x 3m. The long term goal is to develop this laboratory as a center of excellence for microwaves.



Photonics Lab

Photonics lab is a research laboratory which caters young researchers to explore the field of Light with respect to the Imaging, development of Instrumentations for Biomedical Imaging, Synthesis of Near Infra-Red Fluorescent Dye, Characterization, In-Vivo and In-Vitro studies Validations. The Photonics laboratory also provides a base and a platform to conduct experimental research and development on photonics based heterogeneous optical computing. The long term goal is to develop a bed-side diagnostic tool for early detection of cancer and development of optical computing framework so that it can replace the silicon based processor by optical based computing processor in near future.



Smart Irrigation System

Scarcity of water for agriculture is a serious problem affecting the farmer. In addition to this wastage of water is one more concern. Manual irrigation will lead to unnecessary water wastage which will severe the scarcity of water problem. This calls for a smart irrigation system which can identify the water requirement and irrigate as when needed as sensed by the sensors. The proposed system can also control the pressure of the water supply which is of utmost importance especially while watering the plants in a nursery. This system was successfully implemented in one of the nurseries inside the Kengeri campus. In this project, students were divided into hardware team and software team. Finally all the students worked for the assembly of both hardware and software.

Department of ELECTRICAL AND ELECTRONICS ENGINEERING



Rich Industry
Collaborations

Mahindra
ELECTRIC

SAFRAN **FESTO**

ECOSENSE

FESTO Automation

E- Mobilty: SAFRAN & Mahindra Electric



Industry
Assisted
Courses



Software
Based
Learning

MATLAB HIL (Hardware in Loop) for E-Vehicles

ETAP



Research on
Trending
Domains

Electric Vehicles

Renewable Energy

Battery Management

Power System Dynamics &
Stability



Electrical and Electronics Engineering is a field of engineering that deals with the study and application of electricity, electronic hardware, embedded system, electromagnetism, automation, control and related software. The discipline offers opportunities to pursue career and higher education in varied fields relating to electrical, electronics or software engineering. The course offers varied job opportunities in areas such as designing, developing, manufacturing and testing of electrical and electronic equipment, control and instrumentation, power generation and transmission, illumination and automation.

60+ Publications

30+ Elective Subjects

10+ Research Areas

MEGATRENDS

IoT

E-Mobility

Renewable Energy

Signal Processing in Wideband

Battery Management Systems



Electrical Machines Lab

Faculty of Engineering–Christ (Deemed to be University) has a state of the art Electrical Machines laboratory. It is well equipped with transformers, DC generators and motors, single and three induction machines, alternators and synchronous with power electronics control. This laboratory serves students to understand working and performance characteristics of various electrical machines and has gained prominence due to emerging electric vehicle field. The laboratory exposes the students to the operation of DC machines, transformers, AC generators and AC motors and gives hands on experience on connecting and operating electrical machines. At the end of the course students will have a comprehensive understanding of the applications and operational characteristics of various electrical machines. The lab is also equipped to perform hands on interdisciplinary projects.



E-Mobility Research and Development Facility

E-Mobility Research and Development Facility is a CSR initiative of Safran Engineering Services and IEEE. The Facility aims at providing the following avenues with regards to improved charging infrastructure, Smart Electric Drive systems, IoT technologies for EVs and improved Power System Dynamics.

- Study and Optimization of Electric Motor Drive Powertrain, packaging the Electrical & Mechanical subsystems and integrating it for control of Vehicle dynamics
- Facility for High/Regular Speed Charging of Electric Vehicle using Grid and Solar Power.
- IoT Based Smart Assist Technology.



High Voltage Measurement and Testing Lab

This laboratory is equipped with 100kV AC/DC SET Includes Resistance Divider, Capacitance Divider), 150kV-225J-5 Stage Impulse Generator with wave shape Recording Oscilloscope, 0-60kV Oil Test kit with oil cell and 30kV AC - 30mA High Voltage Tester. The aim of this laboratory is to learn more about the High Voltage equipment's mainly used for testing the electrical equipment's used in the Generation, Transmission and Distribution. After the course in this laboratory students acquire skills to test the High voltage Electrical equipment's for its performance in Lightning strokes so as to prevent electrical accidents in the society. They also learn learning to test the Electrical equipment for its withstanding capacity for electrical stress on it and testing procedures with respect to IEEE, IEC, BS and IS Standards.



Renewable Energy Lab

The Laboratory of Renewable Energy investigates the conversion of renewable energies (solar, wind) into storable fuels, materials and commodities. A special focus lies on solar driven energy conversion processes based on solar thermal and thermochemical processes. Further, this laboratory helps the students to carry out their academic projects and through this they acquire hands on experience on solar energy conversion related experiments

Facilities available in the Laboratory:

- Solar PV Grid Tied Training System
- Solar PV Emulator
- Wind Energy Training System
- Wind Emulator
- Solar Thermal Training System
- Solar Concentrator Training System



MEGATRENDS

IOT
 Industry 4.0
 Advanced Materials
 Alternate Fuels
 CFD
 E-Mobility
 Renewable Energy Resources

150+ Journal Publications

15+ MoU's

10+ Book Publications

15+ Research Areas

Department of MECHANICAL ENGINEERING



Rich Industry Collaborations

FESTO **ECOSENSE** **TATA Advanced Materials Limited** **JNARDDC**



Industry Assisted Courses

FESTO Automation course BOSCH engine Diagnostics
KUKA Robotics



Software Based Learning

ANSYS SOLIDWORKS ABAQUS
CATIA STAR-CCM+ MATLAB



Research on Trending Domains

MR fluid Surface Engineering E –Mobility
Bio fuel Composite materials

The life of a student at Department of MECHANICAL ENGINEERING has variety of hues and encompasses an exciting and challenging set of experiences. The core values of the department are to guide the students to develop their overall personality and make them worthy technocrat to compete and work at global level. Department has procured state of the art equipment like 3D Printer, KUKA Robot, FFT analyzer, Wind Emulator etc. to cater the need of both researchers and students. The students and faculty of Mechanical Engineering Department are challenged to go beyond the portals of the classroom, by involving themselves in project work, professional conversation and by participating in various technical as well as co-curricular events.



CENTRE FOR INDUSTRIAL AUTOMATION

Centre of Excellence in Industrial automation is a training centre started in the year 2012 in collaboration with FESTO India Private Limited headquartered in Esslingen, Germany. The centre is aimed to enable students to develop skills and solve complex technological problems. The lab is equipped with state of the art equipments which are used in many processing and manufacturing industries. Main focus of the centre is on skill development on Industrial automation. The centre is equipped to learn Pneumatics, Hydraulics, Electro pneumatics, Electro hydraulics, Programmable logic controllers, FluidSim (software) and CoDeSys - IEC 61131-3 Programming tool. Students have the opportunity to do their internship on Industrial automation in Republican Institute for vocational education, Minsk, Belarus. After successfully completing the courses offered from the Centre for Industrial Automation. The internship is about Industry revolution 4.0 which is the current trend of Automation and data exchange in manufacturing technologies.



THERMAL BARRIER COATING LAB

A state of the art diesel engine research and development lab with the facilities like Eddy current dynamo meter, Smoke meter and Gas analyzer is available at the lab premises. A surface engineering lab with burner rig facility is set up to measure the temperature gradient across the coating and also to give thermal shock to the samples. This laboratory involves fabrication of two similar test set-ups: Thermal shock Test Facility which involves moving the test sample in and out of the flame impingement. Thermal Barrier Test Facility which involves measurement of temperature drop across the ceramic coating. This facility has been established under Major Research Project for 58 Lakhs funded by CHRIST (Deemed to be University). Through the established MOU, Renault Nissan, Chennai, sponsored a 65 HP diesel engine for R & D purposes.



ADVANCED MACHINING LAB

The laboratory is equipped with advanced automated machines and robots to cater the needs of industrial solutions and defines the problem encountered in motion planning and machining conditions. The current research activities include parametric optimization of high speed machining of Inconel steel using CNC Milling machine and CNC turning machine. These machines can develop close tolerances and accuracy in improving the machinability conditions of the products. This laboratory is also equipped with KUKA KR6 R900 robot, a well advanced robot which can be used to grip and manipulate. The grippers of the robot are made up of ABS plastic which can be easily 3D printed by FDM/SLS process. The current research activity includes the analysis and optimization of the end effector/ gripper movement using KUKA robot Parametric optimization of hard machining of Inconel 718 using coated tools.



MAGNETO-RHEOLOGICAL FLUID (MRF) LAB

Magneto-rheological fluid (MRF) is a type of smart material whose rheological properties (e.g. Viscosity) can be rapidly varied by applying a magnetic field. MR fluid is prepared in the laboratory with predetermined composition of key ingredients including silicon oil, additives and Carbonyl Iron Particles. The fluid is then tested on Rheometer and in-house Electrodynamic Shaker for the magnetization, rheological fluid characterization and vibration damping, respectively. The MRF offers high resistance to the applied force and exhibited high yield stress which makes it suitable with good damping for use in the MR Damper. The applications of this damper include Vehicle suspension system, Helicopter Vibration Isolation, Prosthetic leg, Gun recoil and more. The experimental results shows the MR Damper can effectively damp out the vibration transmitted by the wheels when it encounters a rough roads and potholes.



MEGATRENDS
 IOT
 E-Mobility
 Alternate Fuels
 Battery Technology
 Hybrid Vehicles

Department of **AUTOMOBILE ENGINEERING**
 IN ASSOCIATION WITH AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA



Rich Industry Collaborations



Industry Assisted Courses

MBRDI Tear Down

E- Mobilty program with SAFRAN

PIP program with ARAI



Software Based Learning

ANSYS

SOLIDWORKS

ABAQUS

CATIA

STAR-CCM+

MATLAB



Students into Vehicle design competition

SAE BAJA

F-3 Vehicle Design

Shell Eco-marathon

SAE SUPRA

Go-Kart Competition

The Department of Automobile Engineering is driven primarily by dynamics of technological advances and sustainable development and with active involvement of industry, alumni, research organizations and other stakeholders. B.Tech in Automobile Engineering is jointly conducted by CHRIST, Bengaluru and ARAI, Pune to develop a new breed of engineers required for the ever expanding automotive industry.

The shift to experiential and student-centered learning is very much realized at the department by having collaboration with leading luxury car manufacturer Mercedes-Benz in the form of a Daimler Truck Tear down Facility. The students are challenged to go beyond the portals of the classroom, by involving themselves in various design and build competitions



ALTERNATIVE FUEL ENGINE LABORATORY

The Alternative Fuel Engine Laboratory addresses the surge of fossil fuels by developing a process for conversion of available nonedible oils, waste resources into biofuels. The lab has the facility of production of biofuels, thermal physical and chemical property characterization and engine testing with emission analysis. The research facility established are Biodiesel plant, Fuel testing facility, Customized multi-fuel engine equipped with research needs and data acquisition system, smoke meter and gas analyzer. Ongoing research projects are based on waste to energy concept by utilizing waste oils, waste animal fat and bird skin to biodiesel as an alternative to mineral diesel. Alcohols derived from bio resources and waste resources as an alternative to gasoline fuel. A strategy has put in place to utilize algae, microbial lipids, lignocelluloses, plastic, hemicelluloses, lignin and genetically engineered crops as an alternative source of fossil fuels.



CU-MBRDI DAIMLER TRUCK TEAR DOWN FACILITY

The Christ University – Mercedes Benz Research and Development India Pvt.Ltd(CU-MBRDI), Bengaluru formally signed a MoU on August 2017 facilitated the establishment of Daimler Truck Tear Down Facility at Faculty of Engineering, CHRIST. This facility is for the tear down of Daimler trucks starting with a Light Duty Truck (LDT) followed by Heavy and Medium Duty Trucks which involves the dismantling of trucks in sequence starting from cabin and Steering system, Engine Periphery, Transmission System, Electrical System and Suspension and Braking Systems. This facility enables training the MBRDI employees (GET's) and students and faculties of CHRIST. Currently the facility includes FUSO CANTER (LDT) and FUSO SUPER GREAT (HDT). This training provides hands-on experience, benchmarking and knowledge sharing in various verticals of vehicle construction and engineering to provide industry ready engineers.



AUTOMOTIVE MAINTENANCE AND SERVICE LAB

The Automotive maintenance and servicing laboratory helps the students to gain the knowledge in service areas : engine repair, braking systems, engine performance, automatic transmission/transaxles, manual drivetrains/transaxles, suspensions/steering systems, heating and A/C systems and electrical/electronic systems.

Facilities available in the Laboratory

- Sectioning of four stroke diesel engine with manual gear box
- Steering wheel Assembly and layout
- Cut section of four stroke diesel engine
- Indicator light working layout
- Central door locking system
- Blower and Air Conditioning system
- Engine Cooling Fan Control System
- Fuel Injection System
- Head Lamp working principle layout
- Equipment for Testing: Battery, Alternator and starting motor

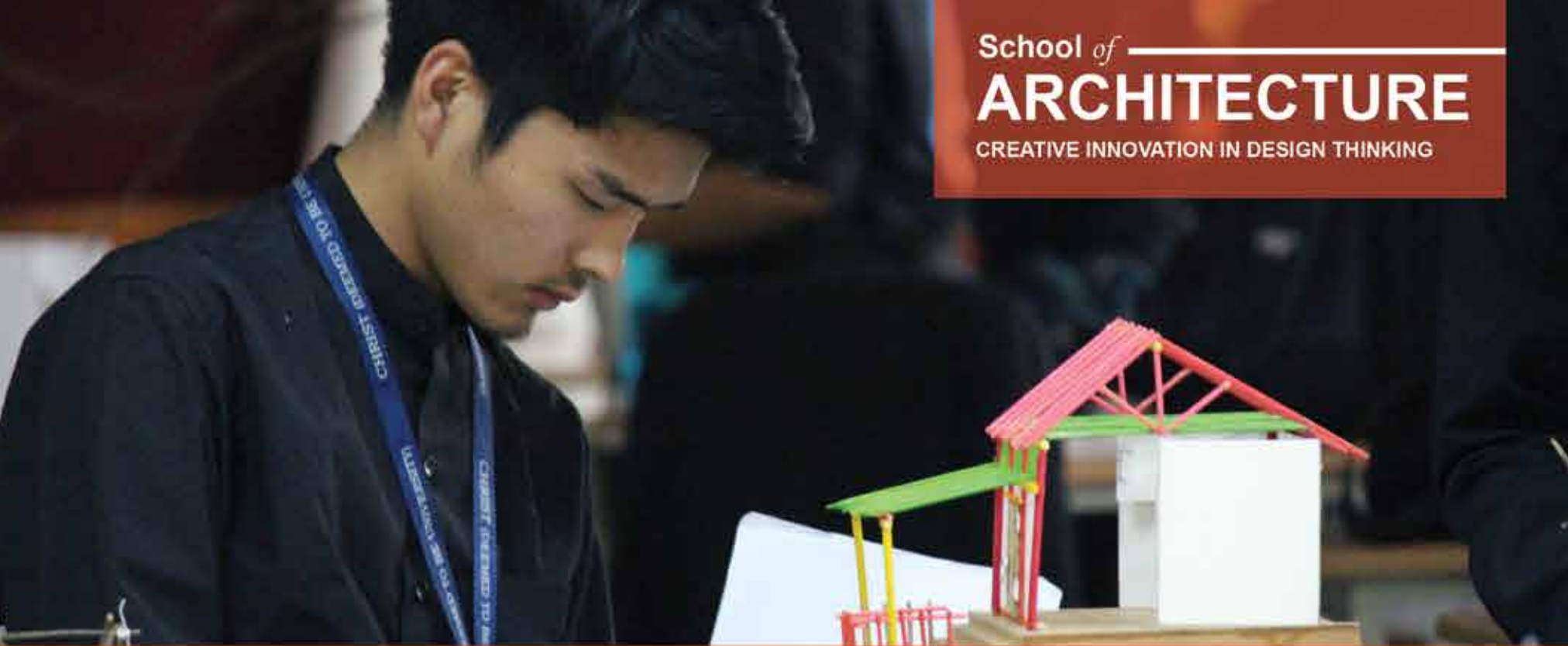


SAE BAJA

SAE BAJA is a highly regarded intercollegiate automobile design competition run by the Society of Automotive Engineers (SAE) which witnesses participation from hundreds of teams of students from various Universities. All cars are expected to adhere to the SAE's rules, specifications, and pass SAE's technical inspection and judging. The Faculty of Engineering was the host for the Virtual Baja, 2016. This is a static event where written reports, presentations and designs developed by participating teams are judged on ergonomics, functionalities and producibility of their cars.

Two teams of CHRIST SAE Collegiate club, Team ZEUS Racing and Team ZELUS Racing participated in both the events, mBAJA and eBAJA respectively. The students are also participating in F3 vehicle competition , Elite Go-Kart Racing and Shell Eco Marathon.

School of
ARCHITECTURE
 CREATIVE INNOVATION IN DESIGN THINKING



An opportunity to be part of a creative innovation in design thinking, design teaching and design learning

The Bachelor's Degree Program in Architecture (B Arch) offers an experiential learning practice in Architectural education through its unique travel and learn studios called "Studio on Wheels" and its Service Learning and Outreach Studios. The concentrating efforts to advance the infrastructural facilities in the Art and Carpentry workshop provides pottery, sculpting, painting and several other forms of art, Climatology Lab that provides facility for building performance analysis and the Computer Lab offers active and experiential learning realms to work with varied materials and media.



Studio on Wheel

Documentation of Melukote
 Padmanabhapuram Palace
 Kochi Biennale and Uru Boat building
 workshop



**Service Learning and
 Outreach Studios**

Bamboo bridge construction at Wayanad



Experiential learning

Construction of Brick Vault in campus
 Wood and Origami Workshop



Climatology Lab

The School of Architecture has a well-equipped climatology laboratory which comprises of a Complete Weather station with WiFi Observer solar Powered Wireless Weather Station for recording parameters like Temperature, Humidity, Wind Speed, Wind Direction, Light Intensity, UV Light, Rain Gauge and Barometric Pressure. And also instruments like Combined CO2, Temperature & Humidity Meter, Solar Radiation Meter, Digital Light Intensity Meter, UV Light Meter, Datalogging Sound Level Meter, Sound Level Meter, Laser Distance Meter which enable building performance analysis with respect to thermal comfort and daylighting.



Wood and Origami Workshop

The concentrating efforts to advance the infrastructural facilities in the Art and Carpentry workshop provides pottery, sculpting, painting and several other forms of art, through varied material, exploration to express their unique expressive style and creative voice. This enables hands-on skill development and a good channel for exploring ones creative abilities. A vast set of tools for carpentry provide an opportunity to explore and pursue their interest in the made world, develop personal projects, conduct academic research and start collaborative projects.

IMPACT OF CHRIST



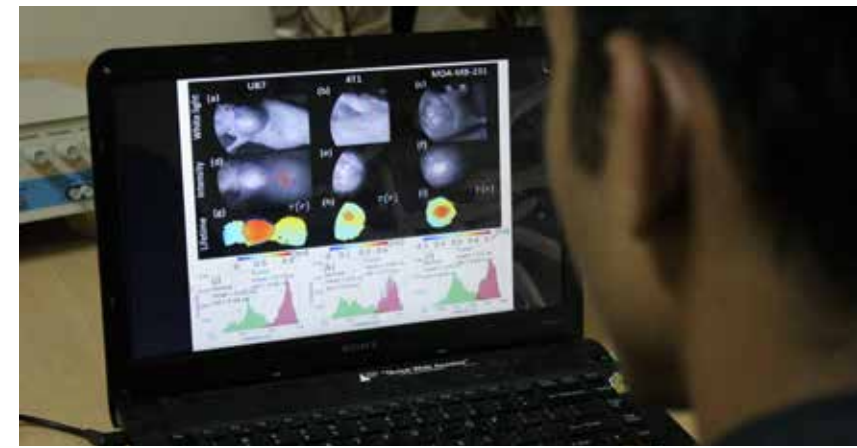
Non Invasive Glucometer

A device has been designed to detect blood glucose level non-invasively using spectrophotometric method and statistical data analysis techniques. This device measures Random Blood Sugar (RBS) of human with an appreciable amount of clinical relevance and accuracy. The trans-receiver module of this instrument consists of a Near Infra-Red light sensor as a transmitter. The receiver module captures the reflected light intensity after it passes through the skin and depicts the value of glucose level in terms of voltage. The calibration and scaling was done on 100 subjects of different age groups and patients with type-1 diabetes. Low cost and compact design make its ideal for regular random blood sugar measurement.



Belgaum Foundry

One of the major challenges faced by the foundry cluster is the generation of waste sand during the metal casting process. In 2015, Belgaum foundry cluster and the Department of Civil Engineering at Christ (Deemed to be University) agreed to collaborate jointly and utilize the waste sand in development of bricks and paver blocks for civil engineering application. The collaborative project between Belgaum Foundry Cluster and Christ (Deemed to be University) was successfully completed by involvement of under-graduate and graduate students from the civil engineering department. Figure A shows the developed products.



Early Detection of Breast Cancer

Primary research at Photonics lab caters to early detection of breast cancer. Seventy percent of breast cancer exhibit estrogen receptors (ER positive) in the nucleus. Therefore ER count plays crucial role in cancer prognosis. We have synthesized a novel fluorescent dye, Near Infrared Dye Conjugate (NIRDC), which has an extra binding ability with ER positive cancerous cell. In-vivo imaging of breast using optical tomography incorporating dye would give great tumor to background contrast. Thus our novel dye is a potential probe that can be used for early detection of breast cancer. An US patent titled "Conjugate of Estradiol and Application Thereof" is received on 21st August, 2018 for the current research work.



Social Outreach Project

The School of Architecture has initiated an outreach project through "Rural Studio" which sensitizes students to social and environmental issues thereby train them towards appropriate technologies. The Semester IV students of Architecture undertook the Reconstruction of a pedestrian bridge in Thrikkaipetta, Wayanad district in Kerala as the earlier the bridge was washed away in the Kerala floods of 2018. The students, through the course of a hands-on bamboo skill development workshop, constructed this bridge in bamboo for the local community there. The material chosen is Bamboo and also an externally funded project would be constructed at Hallikere Hundi in Nanjagud Taluk Mysore district.

Industry Cell

The latest trends in the industry are tracked by the Industrial Cell and these trends are then in a well-defined process used to continuously improve the curriculum. Advanced courses are continuously imparted to students by the Industrial cell to meet industries requirement. The objective of the industrial cell is to bridge and reduce the skill gap between the university and the Industry.

The industrial cell has five verticals.

1. E cell for entrepreneurship and startups
2. Training Cell
3. Internship cell for in house internship placement
4. Industrial Consulting
5. E Sail Societal projects by students

Areas of consultancy

1. Civil engineering
2. Electronic product design
3. Software development
4. Mechanical design and simulation
5. EV mobility
6. RF Antennae design (Anechoic chamber available)

Projects

1. Projects clean Water
2. Health Care
3. Agriculture and Biofuel
4. Electric Vehicle
5. Solar Lighting

E cell for Entrepreneurship

E cell is the incubation platform within Industry cell, which promotes startups. The E cell has successfully incubated three startups as of June 2018. Since its first B- Plan competition IGNITE 2018, the E-cell is encouraging students to bring out their business ideas which will culminate into a startup.

Training Cell

The training cell provides training to students in subjects/topics of immediate industrial relevance. 9 Industry based courses with industry partners are conducted. These include IBM, Redhat, Cisco, Oracle and Robotic process Automation.

Internship cell

The Internship Cell helps place students for internship. The internship program identifies projects internship placement through in house centers of excellence and in house industry projects undertaken on the campus and industries. Nominated students will be interned in these projects under a project mentor from the industry. The internship program will give students an opportunity to work on live projects under industry guidance.

Consultancy

Industry has a need for new inventions and new products for their long term survival. The Industry needs experts to work on exploratory products and ideas. The Industrial cell facilitates the interaction between faculty and the industry to explore and research new ideas. In such projects subject expert faculty provide consultancy to industry.

E-SAIL (Engineering-Services Assisted Integrated Learning)

The university believes in interacting with the society and its immediate neighborhood to identify problems and find solutions to these problems through technology. The E-sail program exposes students to live projects and encourages students find innovative solutions under expert mentorship. The Students are periodically taken around their immediate neighborhood by faculty to identify problems and solutions. The solutions are developed under the umbrella of industrial cell on the engineering campus.



RESPONSIBLY CATERING TO THE NEEDS OF STUDENTS



Centre for Counseling and Health Services (CCHS)

The CCHS, an integral part of the University, is a student support service intended to help students adapt and make the best of their learning environment. The Centre, with two counselors and a Medical Officer interact with and render their support to the students to deal with their academic, social and personal challenges. Every batch of students has a student counselor assigned to ensure their academic and personal wellbeing. Students have free access to the dedicated counselors at any time while in the University, to overcome their personal and psychological stress in learning and other related areas. CCHS functions from 9.30 am to 4.30 pm on weekdays and 9.00 am to 1.00 pm on Saturdays



National Cadet Corps (NCC)

NCC at CHRIST is an organization that moulds youth into becoming systematic and to lead by example. Here in CHRIST we have Air Force and the Army wing which imparts meticulous knowledge to develop Character, Comradeship, Discipline, Leadership, Secular Outlook, Spirit of Adventure, and Ideals of Selfless Service amongst the Youth of the Country. A Suitable Environment is provided to Energize the youth through Motivation talks by officers of the Armed forces, Parades that inculcate togetherness, Personality Development programmes, treks, Flying, Skeet shooting, Rifle firing, National and Local camps, endurance run and fitness. These inspirations have led many cadets to take up their career in the armed forces.



Student Welfare Office (SWO)

The Student Welfare Office is a platform for students to exhibit their talents and skills in managerial roles. It provides a forum through cultural activities for like-minded people to meet each other, exchange ideas and grow into better human beings. The Student Volunteer body continues to grow in strength and successfully organize several events on the campus which includes all kinds of technical events to non-technical and cultural events. The Volunteer Body- The dedicated and hardworking bunch of volunteers work tirelessly day-in and day-out to make all the events a huge success. Under SWO there are four different bodies - Volunteer Body, University Choir, Natyasampurna, and Cult team.



Centre for Academic and Professional Support (CAPS)

CAPS, an open platform that attempts to bridge the gap between classrooms based theoretical learning and career-based applicable knowledge. It is an initiative that facilitates the free exchange of knowledge and sharing of experiences with a view to strengthen students and professionals, providing them access to a learning experience that is not readily available in a classroom environment or a library. At CAPS, we not only aim to bring about a more holistic development at the individual level but also a greater interaction and sharing of resources at the university level. This process is facilitated by the five Wings and six Committees of CAPS which work in tandem to do so.



Centre for Social Action (CSA)

Centre for Social Action (CSA), is a 'Students Movement for a Humane and Just Society', where student communities are sensitized on various issues affecting the poor and the marginalized sections of society. Established in 1999, CSA works towards promoting the value of Social Responsibility amongst the student community. With the support of volunteers, faculty and full time development professionals, CSA is strongly engaged in addressing issues related to child rights, socio-economic development of women, youths and farmers, livelihood, community mobilization and environment/climate change issues.



Center for International Students

Internationalization being an ethical imperative, CUFEE promotes Collaborative International Programs with Top Foreign Universities across the globe. The Centre helps the International students for elevating them professionally and academically. These students are encouraged to partake in all cultural activities of the college showcasing their culture. Students are also given special opportunity to perform on stage during Bhasha Utsav to portray their ethnic culture. Foreign Students are given assistance in English to bridge the language barrier. The college provides guest house facility within the campus for International Students who come under the Student Exchange Program.

SNEAK PEEK INTO CHRISTITE'S LIFE



EEP

EEP-experience engineering program is an innovative way of introducing students to the different courses of engineering. It's a three week program that helps students to realize the scope of the subject in each field of engineering. It consists of various lab visits, Industrial visits, exposure to the latest technologies and furthermore hands-on involvement in different fields. It is an interactive program that helps the students to get to know each other and also helps them choose their course. Therefore through EEP, A student can experience what engineering is like, before he/she actually decides to take up the particular stream of Engineering.



CASH

The Christities Association of Sciences and Humanities (CASH) instil in students an understanding of the fundamentals of Mathematics, Physics, Chemistry and in developing their soft skills and language abilities. The various wings of CASH are: The Science Club, The Maths Club, The Seminar Club, The Green Symphony Club and The English Club. CASH, through its various wings hosted multiple events for the benefit of students. The objective of CASH are, to improve and bring out the hidden talents of the students, to provide a platform for discussing new methods of learning and teaching though research.



DARPAN AND BLOSSOMS

"DARPAN", the annual talent search program, run for a weeklong. This is the beginning of all cultural events. It provides a highly motivating environment and a wide platform for students in all streams to participate in. It covers competitions in the cultural disciplines of arts, dance, music, theatre and literature. The beginning of the New Year will be beautifully welcomed by one of the most awaited event of the University, 'BLOSSOMS'. It is again a cultural feast, where the students showcase their talents and the winners get a chance to participate in the 'INBLOOMS'. The events are coordinated by SWO volunteers.



BHASHA UTSAV

Bhasha Utsav is one of the most awaited event for both students and teachers. It is celebrated in the first week of September every year at CUFÉ. The event celebrates the diversity of cultures as students represent their ethnicity, reflected through their colourful ethnic attire and exuberant performances. Culture as we know is greatly preserved and promoted by tradition and how else to showcase traditions but through art forms. The whole Campus comes together as one and showcase the concept of unity in diversity and stands as 'Boundaries do not define humans'. During Bhasha Utsav, the colors and emotions collide and cultures culminate.



ICE^{Tech}

The Faculty of Engineering comes together to celebrate Engineer's day on 16th September not only to commemorate the memory of Sir Mokshagundam Vishvesvaraya. Keeping in the sync with this tradition and penchant, every year the FOE organizes open-air project exhibition. It is an intercollegiate technical project exhibition which provides an opportunity for numerous brilliant mind to come together under one roof and display project prototypes of so far the untouched areas. ICE Tech (Innovation Creativity Engineering) Technology garnered great interest in hands-on experience when it came to scientific thinking and technical innovations.



SPORTS DAY

Sports Day at CUFÉ is a platform to showcase the unit of every department by marching with their respective department flags, Including the faculty and staff. Added to this there is tableau presentation by each department. Then there are several athletic events organised for the students, faculties and the staff. The Physical education department also conducts various events throughout the year which includes 5k Marathon, Tiger league, Devadan Cup, Cantata. At CUFÉ, a well-equipped multi-gymnasium facility is available in addition to the athletic tracks, football, throwball, hockey, basketball, volleyball and cricket fields.



MAGNOVITE

Magnovite is an annual techno-cultural fest organized by the CUFE. Ever since its inception, Magnovite has grown bigger and has hosted students from various parts of country. Magnovite opens up a plethora of events and workshops in collaboration with renowned companies wherein students compete against their peers and bring their classroom teaching to practical knowledge. The fest is tagged with NRITTA, an extraordinary dance event with 400+ students, who come together to celebrate dance in its true form and aesthetic sense. Also as an icing on the cake, an avenue is opened up where the student community can showcase their idea which has the potential to be culminated to a start-up company.



MUN

Model United Nations, also known as Model UN or MUN, is an extra-curricular activity in which students typically roleplay delegates of the United Nations and simulate UN committees. MUN involves researching, public speaking, debating, and writing skills, in addition to critical thinking, teamwork, and leadership abilities. Participants in MUN conferences, known as delegates, are placed in committees and assigned countries to represent, or occasionally other organizations or political figures, where they represent members of that body. Model United Nations Society hosted, "International Model United Nations Conference"



CONVOCATION

At CHRIST, Convocation is a celebration of academic success and future success kindling the spirit of inquiry, social commitment out in the world. Graduation is an important milestone for the graduates. It is a bridge connecting years of hard work and the promise of newer horizons. The convocation at Kengeri Campus usually will be held in the third week of May every year. After the award of degrees, the graduates take a pledge to be honest in the discharge of their duties and serve for the cause of the nation. At the end of the program, Parents express their joyful gratitude to the faculty and the management in molding their wards as professionals in the course of study in our Institution.



Career Guidance cell (CGC)

The CGC provides students to explore the world of employment and new career avenues. It also helps students in career planning through counseling wherein they understand their interests, aptitudes and abilities so that they can choose their career more effectively. CGC also takes the initiative to explore new career avenues for graduates and post graduates through visits to new companies and unexplored sectors. Campus recruitments are organized every year. The selection process generally starts with a pre-placement talk in which a firm/organisation gives the students insights into the company profile, job profile, career path and CTC. which is followed by the actual selection process i.e., written test, group discussion, interview etc. The University has state-of-the-art facilities that make campus recruitment a pleasant experience. Student placement representatives from each class are also present to provide assistance throughout the selection process.

Our association with industry on training, internship and Placement





Facilities



**LIFE IS A
CELEBRATION
AT CHRIST**



Admission Guidelines

Eligibility Criteria

Undergraduate Programmes (BTech)

Basic eligibility for the programme is a pass at the +2 level (Karnataka PUC / ISC / CBSE / NIOS / State Boards) Examination from any recognised Board with a minimum aggregate of 50% marks. Candidates should have studied Mathematics, Physics and Chemistry at Class XII level and obtained a minimum of 50% marks in Mathematics. Students pursuing International curriculum must have AIU approval and must obtain a grade of not less than 'C' or its equivalent.

Lateral entry

Candidates who have successfully completed the 3 year diploma in Engineering are eligible to apply for lateral entry. Candidates will be admitted to second year programme only after appearing the CHRIST (Deemed to be University) selection process for engineering programmes.

Postgraduate Programmes (MTech)

A candidate who has passed in BTech/BE with 55% aggregate marks from any recognised University in India or abroad recognised by UGC/ AIU are eligible to apply.

Students appearing for their final degree examinations are also eligible to apply.

Doctoral Programmes (PhD)

Post graduate Engineering/Technology OR equivalent degree in appropriate discipline / specialization with a minimum of 55 % marks or equivalent grade.

The candidates involved as Research Associate/ Fellow, in a major research project (sponsored by UGC or any other approved institution) of specified duration are preferred.

Architecture (BArch)

[1] A pass in 10+2 scheme of examination with at least 50% aggregate marks in Physics, Chemistry & Mathematics and also at least 50% marks in aggregate of the 10+2 level examination or Passed 10+3 Diploma Examination with Mathematics as compulsory subject with at least 50% marks in aggregate.

[2] Qualified in National Aptitude Test in Architecture (NATA) conducted in 2019. or Qualified in JEE Mains Paper - II Aptitude Test in Architecture 2019

For Details on Fee Structure/Application Process/Selection Process/Admission Guidelines/ Important Dates and other information visit www.christuniversity.in

Student Accomodation Services are available for male and female students.e mail us at sas@christuniversity.in



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