CHITKARA UNIVERSITY

DISCOVER ENGINEERING

IMAGINE | INNOVATE | INSPIRE

Engineering Viewbook 2024

CHITKARA
UNIVERSITY

Explore
Your
Potential

CHITKARA ENGINEERING

Engineering Education ahead of its time.

Engineering programs at Chitkara University in Punjab and Himachal Pradesh do more than just develop world-class engineers and computer scientists. We help these bright minds develop into changemakers with global perspective, technical prowess and leadership skills to make a difference in the world.

Get ready to chart your course to a career that is as meaningful as it is successful. Every possible path starts with a common engineering core curriculum for the first year and a half, which lets you explore your options and discover the discipline that's right for you.

There are many forces behind our strength: our academic reputation, top rankings, varied specialisations, small class sizes and 100% campus recruitment.

Come Explore Your Potential at Chitkara University!

Dr. ASHOK CHITKARA
CHANCELLOR
CHITKARA UNIVERSITY

Selecting a university program marks the beginning of an exciting journey in your life. It expands your opportunities as well as brings you life changing experiences.

Students from around the world are attracted to Chitkara University for several reasons. This includes our commitment to teaching excellence, research that makes a difference, industry partnerships and our tailored courses.

We are invested in the growth of every student and ensure they evolve into well rounded personalities, subject experts, creative thinkers and future-facing individuals - set to grapple with real world challenges and become changemakers of tomorrow.

We look forward to welcoming you as part of the Chitkara University fraternity.

STRONG ACADEMIC HERITAGE

Dr. MADHU CHITKARA
PRO CHANCELLOR
CHITKARA UNIVERSITY

Chitkara Education brings with it a reputation for excellence and innovation that has been earned through years of serving the career-needs of the student community.

Chitkara University is known and trusted by the best of employers for preparing graduates who have the knowledge and skills they need to succeed in their workplace.

There are many reasons for choosing Chitkara University. Our students go on to achieve successful careers. We teach in a hands-on and responsive manner. We provide a wonderful learning atmosphere and our research is world-class.

Our industry-relevant curriculum, global exposure, inclusive pedagogy, faculty mentoring and student resilience are all in sync. Our excellent placements bear testimony to all of this.

> The learning environment at CHITKARA UNIVERSITY is a unique combination of illustrious faculty, brilliant & intellectual students and proactive industrial collaborations.

CHITKARA UNIVERSITY

Things we're proud of

THERE ARE SO MANY REASONS TO CHOOSE CHITKARA UNIVERSITY. HERE ARE A FEW REASONS WHY WE BELIEVE YOU'LL LOVE US AND BE PROUD TO JOIN US.

Punjab
Himachal Pradesh

STRONG ACADEMIC HERITAGE

Chitkara University has been established and managed by passionate academicians with the sole mission of making each and every student "Industry ready".

INDUSTRY-LED COURSES

We maintain close links and associations with leading blue-chip companies to deliver our academic programs and ensure that our courses are relevant, practical and deliver the skills in demand, allowing our graduates to hit the ground running.

TOP 20 RANKING

Chitkara University has been consistently ranked among the top 20 Private Universities of the country.

5 STARS

All our institutions and academic programs are recognised and approved by UGC and various regulators such as NAAC | AICTE COA | NHMCT | INC.

LEARNING BY DOING

Our curriculum is based on the framework of strategic competitiveness, which teaches the concepts of creativity, entrepreneurship, innovation, sustainability, leadership and incisive decision making.

COUNTED AMONG THE BEST

Our programs are consistently ranked among the top 50 in the country.

TOP SKILLS

There is an intense focus on developing communication skills, team work and leadership for each and every student.

WORLD-CLASS RESEARCH **EXCELLENCE**

With more than 200 patents and project funding from leading organisations such as DST and HP, our researchers, staff and students work across disciplines to extend the boundaries of knowledge. We are being recognised nationally for pioneering research in Nanotechnology, Mobile Learning, Robotics, Renewable Energy and Mechatronics.

MORE **CEOs**

Industry leaders from across sectors visit our campus and interact with our faculty as well as student community to groom them for future leadership roles.

CAMPUS **PLACEMENTS**

Chitkara University has established an unassailable reputation for strong on-campus recruitments. Our students have gained employment in diverse professional roles and areas across the world. From managing hotels to discovering new drugs to helping patients in hospitals to analysing the stock market, a Chitkara University degree can lead to varied and rewarding career paths.

LEARN FROM THE BEST

You'll work with some of the brightest and most inspiring academics, lecturers and researchers in the world.

LEADING **INNOVATION**

Chitkara Innovation Incubator helps turn students' business ideas into reality. Student ventures with scalable, commercial potential are given access to high tech, a collaborative office space, and are paired with industry mentors to develop scalable business plans and market testable products and services.

TRAVEL THE WORLD

At Chitkara University, we offer over 170 exchange destinations to consider.

MODERN **FACILITIES**

Chitkara University has made huge investments in developing student facilities - giving our students access to state-of-the-art labs, design studios, libraries, sporting and social facilities.

BEST **LOCATION**

With a high quality of living and vibrant student mix, Chandigarh, also known as City Beautiful, has rightfully earned its place in the 'Times 15 Best Asian Spots'.

SAFE & SOUND

We take great pride in looking after our students. We have zero tolerance to ragging.

CITY BEAUTIFUL
Chandigarh

A MILLION PEOPLE; INFINITE POSSIBILITIES

Chandigarh is undergoing rapid urbanisation and the transformation has been holistic and all-inclusive. Over the years, the city has made remarkable progress in terms of physical infrastructure and business environment and has emerged as an economic growth centre with one of the highest per capita incomes in India.

Ample opportunities are available to work and grow in the IT, BPO and pharmaceutical sectors in the region. It has proven to be a magnet for potential employers and employees.

The open hand is the official emblem of Chandigarh; it symbolises the city's philosophy of being "open to give" and "open to receive". Chandigarh has seen the growth of some major start-ups over the last few years. The city has kept pace with the ever evolving education sector to become one stop destination for all education needs. This makes Chandigarh ideal for students who wish to enjoy the blend of rich culture of city life and the peaceful environment that Chandigarh offers.

Chandigarh is easily accessible from Delhi, Haryana, Punjab, Himachal Pradesh and metropolitan cities with various modes of transportation, viz. buses, trains and direct flights, both national and international, from Dubai, Singapore, Sharjah, etc.

Step into a new world

You solve problems. Build. Innovate. You take things apart to see how they work and think about how to make them better—it's why you're drawn to engineering. And maybe you can already see a better way forward with cleaner energy, more efficient travel or new technologies that will change the world. We can help you get there.

Committed to your success from day one

We offer you the resources of a big university with the caring and personal attention of a small college. We believe the cornerstone of your education should be hands-on experience, which is why you'll take what you learn in the classroom and apply it to the real world from day one.

Experience speaks volumes to employers

When you graduate from Chitkara University, you'll be a functional, experienced engineer ready to contribute to the industry from the day you're hired—which is why many of our students have jobs lined up well in advance of graduation.

Discover a higher standard in education

Practicing what we profess

Our faculty is accomplished in the field as they are in the classroom. And with an open door policy and regular office hours, they're dedicated to guiding and mentoring you.

Building personal connections

Smaller classes mean you get individual attention. With average class sizes under 50 students, you'll get to know your professors.

Programs customised to your pursuit

Get the support you need in your studies to pursue internships, collegiate athletics or passions in different avenues of engineering.

Cutting-edge, career-ready curriculum

A state-of-the-art curriculum grounded in experiential learning, plus strong industry partnerships, mean our classes teach the skills employers want. Our faculty is always looking ahead, designing new classes that keep us at the forefront of innovation.

Engineering programs with a world-class reputation

At Chitkara University, our Engineering Programs will equip you with all the skills necessary to make you employable, enterprising and entrepreneurial. Engineering graduates are some of the most sought-after across the world and we will do our utmost to prepare you for future success.

MEETING THE DEMANDS OF INDUSTRY

No matter which course you choose, you can be certain that its content will be current and at the forefront of knowledge. Engineering is a rapidly advancing discipline and we want you to be ahead of the game.

KNOWLEDGEABLE & FRIENDLY FACULTY

As a Chitkara Engineering student, you'll learn from leaders in the field. Our faculty includes award-winning scholars, determined researchers, innovative entrepreneurs and celebrated personalities. They're experienced and inspiring with a genuine desire to help you achieve your full potential. Our tutors have considerable industry experience. Many of them are also actively involved in providing consultancy and knowledge transfer for local and national companies. With extensive business links, they bring expertise and innovation into their teaching. So not only will you gain an extensive knowledge of your subject, you will also get plenty of hands-on experience solving real world Engineering challenges.

A REPUTATION FOR INNOVATION

Our academic expertise has given us an international reputation for innovation. Year after year, Chitkara University has been ranked among the Top 10 Universities of the country for filing maximum patents which speaks volumes about our research team, state-of-the-art infrastructure and intensive focus on new ideas and technologies.

HIGHLY RATED PROGRAMS

Our Engineering programs are endorsed by leading external accreditation bodies for their ability to equip you to meet the requirements of the modern engineering environment. These accreditations include: The Institution of Mechanical Engineers (IMechE) and The Institution of Engineering and Technology (IET).

GLOBAL ENGINEERING

Our Engineering graduates have the option to study the first 2 years of Engineering programs at Chitkara University campus and then complete their Degree at over 100+ partner Universities across the world.

100% CAMPUS RECRUITMENT

We have established an unassailable reputation for very strong on-campus recruitments by sheer virtue of our intensive focus on making all our graduates “industry ready”. 500+ leading Blue Chip companies visit our campus for hiring our Engineering Graduates.

A+

NAAC

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

CHITKARA UNIVERSITY IS NAAC A+ ACCREDITED

Chitkara University has been accredited with coveted A+ grade by National Assessment and Accreditation Council (NAAC) which now firmly positions us among the top 5% Higher Education Institutions of the country. This bears testimony to our unique blend of distinguished faculty, brilliant and intellectual students, world class research labs coupled with proactive industry collaborations.

With its brand of academic excellence and innovation, Chitkara University provides groundbreaking education and ensures you have access to vast recruitment opportunities with top companies.


ITKARA
IVERSITY
OCATION

CHITKARA ENGINEERING

Counted among the best

NATIONAL INSTITUTIONAL RANKING FRAMEWORK
Ministry of Human Resource Development
Government of India

Our Engineering programs have once again been ranked among the Nation's Best in the 2023 NIRF Ranking and has been ranked Band 11-50 in overall Innovation Category.

ARIIA
ATAL RANKING OF INSTITUTIONS ON INNOVATIONS ACHIEVEMENTS

We have been ranked 2nd across country in the prestigious ARIIA 2022.

QS WORLD UNIVERSITY RANKINGS
QS Asia University Ranking | 2024

We are proud to be ranked among the world's best in the QS World University Rankings: Asia 2024.

THE 2023

Chitkara University has achieved the overall position of 301-400 and an impressive 5th position in India

WURI
WORLD'S UNIVERSITIES WITH REAL IMPACT

Chitkara University has been placed 3rd in India and in 101-200 Band in the Top Innovative Universities

Clarivate
Derwent™

Chitkara University makes it into top 200 in Clarivate Analytics' leading innovators list 2021.

We are the only Indian University shortlisted for 'Technological Innovation of the Year' of 'Times Higher Education Asia Awards 2022'

MHRD
Ministry of Human Resource Development
Government of India

स्वच्छ भारत
एक कदम स्वच्छता की ओर

We are ranked as one of the Cleanest Universities of India in the 'SWACHHTA' ranking.

Chitkara Engineering is ranked in the Top 25 Engineering programs.

BW BUSINESSWORLD

Chitkara University has ranked an impressive 24th nationally in annual Engineering Rankings.

THE WEEK

Chitkara Engineering is ranked among Top 40 in the country.

INDIA TODAY

Chitkara Engineering is ranked among Top 40 in the country.

Josh

Chitkara University ranked as the Top Engg. University in Punjab.

DATAQUEST

Chitkara Engineering is ranked in the Top 25 Engineering programs.

CAREERS

Chitkara University Ranked 26th in India's Best Private Engineeing Universities.

Outlook

Chitkara University rated in 'Top 30' in the Engineering Rankings.


FORMULA
STUDENT
096
CHITKARA
UNIVERSITY, PUNJAB

CHITKARA ENGINEERING

Key Facts

Here are a few reasons why Engineering programs at Chitkara University in Punjab & Himachal Pradesh are rated as the best by our students, parents, alumni and industry.

HIGH GRADUATE EMPLOYMENT

Our Engineering graduates are highly employable. We have been achieving 100% campus recruitment record for our graduates since inception.

HIGHLY RANKED PROGRAMS

Our Engineering programs have been consistently ranked as one of the best in the country by NIRF, ARIIA, QS World University Rankings among others.

ENTREPRENEURSHIP START ME UP

Do you have the “E gene”? We help students turn an idea into a product, company, or social movement through our unique entrepreneurship programs and competitions.

SUPPORT IN MATHEMATICS

All our Engineering programs have intensive focus on Mathematics and Applied Sciences. Our team helps Engineering students from different Maths backgrounds succeed through special modules and workshops.

RESEARCH EXCELLENCE

Study with us and you will learn from faculty with a stellar reputation for research.
We have 35 crore+ research grants & students can embark on research right from Day 1.

ELECTIVES AND SPECIALISATIONS

We offer more than one path to your goal — 70 percent of Engineering Undergraduate students pursue various specialisations and electives or a minor, often in a non-Engineering discipline.

INDUSTRIAL PLACEMENTS

Our courses include placement opportunities to give you valuable real-world experience and boost your employment prospects. We have strong links with organisations such as Google, Amazon, Infosys, L&T, Wipro and Virtusa among other 500+ employers.

LEADING INNOVATION

Year after year, we have been ranked among the Top 10 Universities of the country for filing maximum patents which speaks volumes about our research team, state-of-the-art infrastructure and intensive focus on working with new ideas and technologies.

CUTTING-EDGE FACILITIES

Get hands-on experience building everything from microprocessors to industrial robots with 100+ cutting edge labs using the same generation of technology as leading industries.

GLOBAL PARTNERSHIPS

Our reputation has led to strong partnership with top global Universities across the world providing Engineering students unlimited opportunities for summer schools, semester exchange, international internships and work integrated learning.

WORK-READY WORLD-READY

Study with us and we'll equip you to become 'The Chitkara Graduate' – a world-ready professional, with the knowledge, attributes and expertise that employers look for.

SHOWCASE YOUR WORK

Each year we have annual design and research festival NOVATE, an opportunity for graduating students to showcase their work to employers and industry specialists.

Hands-on
& state of the art

Turn what you learn in class into reality in more than 100+ cutting-edge labs. Get hands-on experience building everything from microprocessors to industrial robots, using the same generation of technology as leading industries across the region.

The focus is to generate new ideas, create innovative solutions and apply basic principles with an emphasis on using all this knowledge in developing industry-university Engineering centres.

We have collaborations with world-class companies to include faculty development programs, soft-skills training workshops, industrial visits, technical competitions, live projects and guest lectures. Notably, our Engineering facilities include a number of instructional and research laboratories, including the Microsoft Innovation Centre, nVidia CUDA Teaching Centre, NXP Semiconductors Signal Lab and Dassault Systèmes.

Labs & facilities

Advanced Materials & Manufacturing Lab

ARM Research Lab

Artificial Intelligence Lab powered by NEC Corporation

Automation Lab

Building Energy Efficiency Ergonomics Lab

CAD/CAM Lab

Cadence Microelectronics Lab

Capgemini Wireless Lab

CISCO Networking Lab

CoE on Emerging Technology

Dassault Systèmes

Digital Communications Lab

Digital Enterprise Service Lab under Nexus CoE

Digital Signal Processing Lab

Electrical Engineering Design Lab

Electrical Engineering Lab

Electrodynamics Lab

Emerging Technologies Lab

Ergonomics Lab

Fluid Applications Lab

Fluid Dynamics Lab

Fiat Crysler Automobile Lab

Google Innovation Lab

Honda Design Lab

Integrated Circuit Design Lab

Internet of Things Lab

iOS App Development Centre

Lean Manufacturing Lab

Mahindra Rise Innovation Lab

Microsoft Innovation Lab

Mitsubishi Electric Lab

Metrology Lab

Microwaves & Electromagnetics Lab

National Centre of Excellence for Cyber Security (NCoE)

NewGen IEDC Innovation Lab

nxP Design Lab

Robotics & Mechatronics Lab

Plumbing Lab

Power Systems Lab

Rapid Prototyping Lab

Robotics and Intelligent Systems Lab

SAP Innovation Lab

Schneider Electric Lab

Wittur Transportation Lab

Vibrations Lab

Virtusa Full Stack Lab

The transformation of complexity by applying Engineering

Interdisciplinary Engineering Programs

Over the past several years, there has been a rapidly increasing interaction between the traditional fields of engineering, as well as between engineering and other disciplines. Examples of this include biomedical engineering, mechatronics, environmental engineering and industrial design. It has also become very common for students to complete an undergraduate program in engineering and then continue on to pursue graduate work and careers in fields such as medical device design and technology, patent law, medicine, robotics and nanotechnology.

Students who wish to pursue careers in these diverse and interdisciplinary fields, or go onto graduate school, are best served by an undergraduate education somewhat different from that offered by traditional Engineering programs. The Interdisciplinary Engineering track at Chitkara University is one such program that provides the student with the opportunity to define their own unique engineering expertise.

Many of today's most pressing issues demand solutions that defy traditional academic boundaries. Real progress requires incorporating perspectives from business, science, arts and the humanities. To encourage creative problem-solving, Chitkara University has developed some of the most innovative and flexible programs in higher education. Our unique interdisciplinary programs blend engineering with fields of study with Chitkara Business School, Chitkara Design School and other schools of the University. Alumni go on to create and follow their own intellectual and professional paths in areas such as law, medicine, business, academia and government.

Multidisciplinary engineering degree programs allow students to develop unique skill sets and specialise in areas that may not be provided in traditional degree programs. Such specialisations are driven by emerging technical fields or by a student's desire to have an immersive multidisciplinary experience.

Delivering employability skills is a key focus of ours. The broad-based Engineering Education benefits our students, alumni and industry. Modules are taught cross-departmentally ensuring that our graduates become agile, interdisciplinary engineers that are sought after across a range of industries. You'll find our graduates working in renowned companies all over the world. Google, Amazon, IBM, Microsoft and Accenture are just some of the companies hiring our interdisciplinary Engineering graduates.

Your career choices with a degree in Interdisciplinary Engineering will be tailored as your degree program. Nearly every industry requires engineers with multidisciplinary skillsets and you will have a unique opportunity to target positions that require multidisciplinary engineers.

Harness the power of the LIBERAL ARTS

Chitkara University's strong liberal arts core curriculum provides students with invaluable skills needed by all engineers to excel not only in their professional careers, but in all aspects of life. The core offers instruction in diverse subject areas as writing, history, philosophy, theology, social science and a foreign language.

By integrating engineering and liberal arts courses, students are also well prepared to work on complex technical problems that require multi-disciplinary teams to obtain effective solutions.

The development of written and oral communication skills is emphasised throughout the curriculum. The total experience provided in our curriculum is devised to enable Chitkara University Engineering students to develop creative solutions to technical problems and communicate these effectively while engaged in detailed analysis and design as well as Engineering project management.

Get set up for academic success

Our aim is to mould the technical minds of our future Engineers into an informed, socially responsible individual with the ability to think critically and make informed judgements lifelong.

Chitkara University takes a holistic approach towards technical education and is looking to provide courses on history, culture, communication, diversity and so on to provide soft skills to our Engineering graduates.

The Engineering programs at Chitkara University combine classroom and laboratory learning in technical areas with a broad liberal arts curriculum and industry assignments to give you an Education tuned to the 21st Century wavelength.

Strong Industry Collaborations

Chitkara University has an intense focus on making each and every Engineering graduate industry ready. In order to make sure that our students have access to latest tools and technology, we have collaborated with industry majors ranging from software, semi conductor to automation and automotive sectors so that our curriculum and innovation labs are in sync with latest industry trends.

CHITKARA ENGINEERING

Be the talent employers want

98%
OF CHITKARA GRADUATES ARE EMPLOYED WITHIN 7th SEMESTER OF DEGREE

72%
OF CHITKARA GRADUATES ARE PAID HIGHER THAN THE MARKET AVERAGE

42%
OF CHITKARA GRADUATES GET PRE PLACEMENT OFFERS DURING THEIR INTERNSHIP TENURE

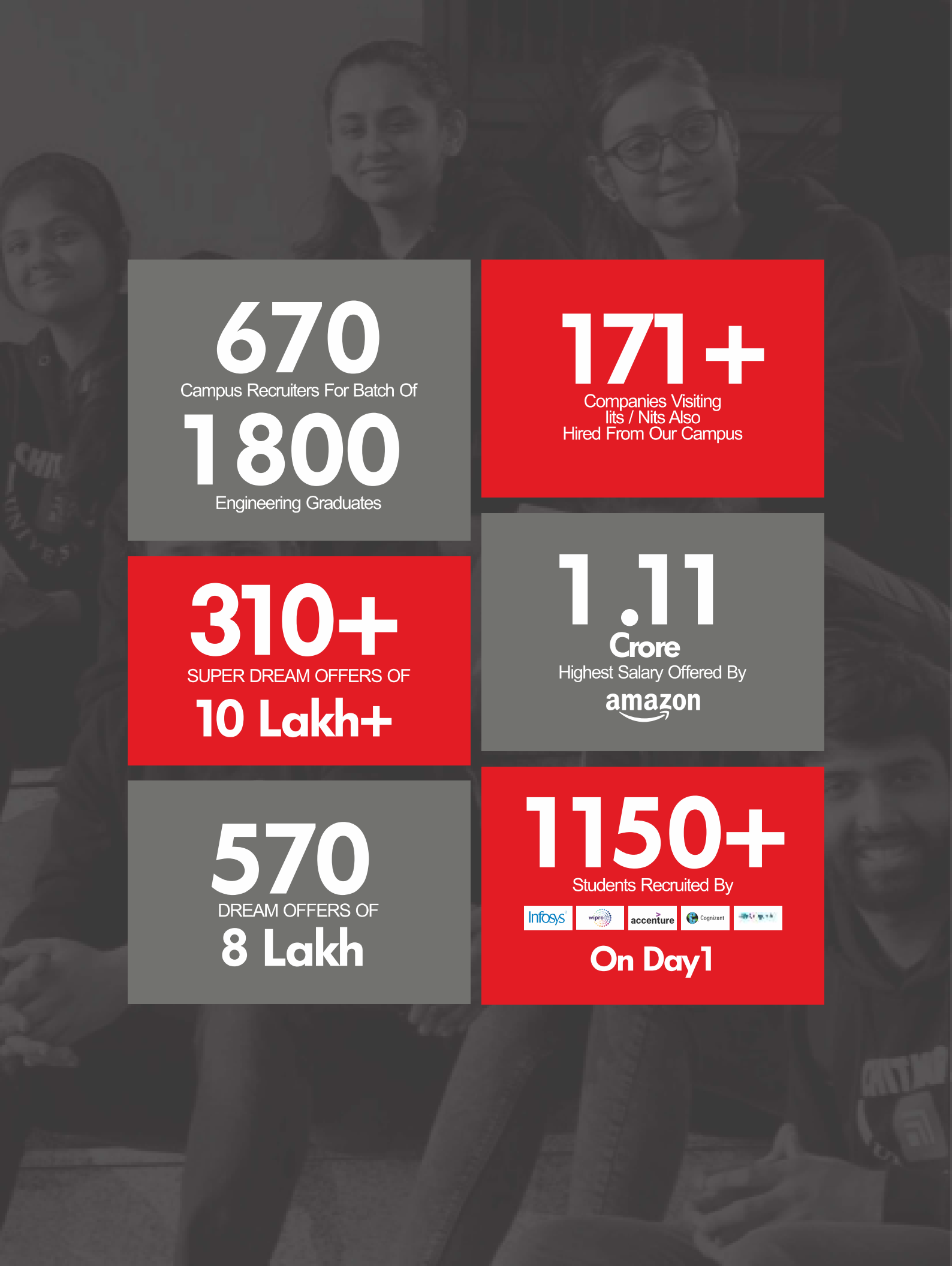
Overview of Campus recruitment for our Engineering programs

Our Engineering graduates go on to have great careers, as we're hands on and responsive in our teaching. We provide a great environment to study and our research is world class. We have established an unassailable reputation for very strong on-campus recruitments by sheer virtue of our intensive focus on making all our graduates "industry ready". Our brilliant campus recruitment is also the end result of our teaching approach which is learning-centric, enhancing knowledge, skills and understanding through practical experience.

23rd batch of Engineering graduates from Chitkara University, Punjab &
15th batch of Engineering graduates from Chitkara University, Himachal Pradesh appeared for the campus recruitment process this year

Some major highlights of the campus recruitment for the batch graduating in the year 2023 were:

- 670+ companies came on-campus for hiring Chitkara Engineering students
- Out of a batch of 1800 around 650 students got "Dream Job Offers" from marquee companies such as Adobe, Delloite, Carrefour, VECO, Amazon, Adani Power, HP Labs, Verizon, FICO, Evalueserve, MakeMyTrip, Reliance Industries, HP & Quick Heal
- 100+ offers given by StartUp unicorns Byju's / OYO / Zomato / swiggy / PlaySimple / GoJek / HyperDart GreyOrange / Quickr / PolicyBazaar / Grab Taxi / Bobble.Ai / Lightplane / Sprinkle Data / Travel Tek
- Some of the top on-campus recruiters were as follows -
  Infosys / Wipro / Capgemini / Mindtree / Cybage / ITC Infotech / iNautix / Hitachi / Newgen
  Unisys / Virtusa / Sears Holding / TechMahindra / NIIT / Mountblue / EXL Services / HighRadius.
  Capgemini / Cognizant Technology Solutions / DXC Technology / Bajaj Finserv
- For Mechanical Engineering students, some of the major companies that visit our campus are -
  Reliance / Mahindra & Mahindra / Hyundai / Honda / Eaton / SML ISUZU / Yamaha / L& T / Escorts / Jindal Saw
  Mondelez / Godrej & Boyce / Coca Cola / Panasonic / Piaggio / Hyundai Infrastructures / JCB India
  Ranault Nissan / Adani Wilmar / Adani Power / Atlas Copco / Grauer & Veil
- For Civil Engineering students, some of the major companies which visit our campus are -
  L&T Construction / Sobha Developers / 3 C / Shapoorji Pallonji / Sterling & Wilson / Cinda Construction / Lafarge
  Afcons / DLF / Raheja Construction / JSW Steel / Mahindra EPC



670
Campus Recruiters For Batch Of
1800
Engineering Graduates

171+
Companies Visiting
Iits / Nits Also
Hired From Our Campus

310+
SUPER DREAM OFFERS OF
10 Lakh+

1.11
Crore
Highest Salary Offered By
amazon

570
DREAM OFFERS OF
8 Lakh

1150+
Students Recruited By
Infosys wipro accenture Cognizant
On Day1

SOME OF THE MAJOR COMPANIES THAT VISITED OUR CAMPUS THIS YEAR AND HIRED OUR GRADUATES

24/7 | Absolutdata Research&Analytics | adani | adani power
adani wilmar | accenture | ACCOLITE | acko | AIDASH
ADIENT | Adobe | ador WELDING | affordplan
AGC | Akanwal | AMADEUS | amazon | Ambuja Cement
amdocs | ANDRITZ Hydro | apollo | aptean


ARICENT
ARM
ASHOK LEYLAND
Autoliv
BAJAJ FINSERV
Bank of America
BARCLAYS
Birla soft®
BLOCK
BMW
bobble.ai
BOON EDAM
BorgWarner
B/S/H/
cadence
calsoft
Capgemini
Carrefour
Chegg
CINDA
CIRCOR
CISCO
CITRIX
cleartrip
Coca-Cola
Cognizant
CompuGain
CONVERGYS
CSC
cvent
Cybage
Delivering Value Scientifically
DANA
ddn
DELL


Deloitte.
dunnhumby
DXC.technology
eClerx
edifecs
EMERSON
ESCORTS
EVALUESERVE
EVEREADY
Complete Building Solutions
Everwell
EXL
EY
Fuji Electric
Felix-ITs
Finolex
fiserv.
FLEXTRONICS
GeekyAnts
GENPACT
Gestamp
Godrej
GO JEK
Goodera
Google
Grab
gradeup
Hashedin
HCL
Hero
highradius
hike
HINDUJA
HLS
ASIA LIMITED
HONDA
H&R BLOCK
Hitachi Consulting
hp
hyperDarl
HYUNDAI
IBM
icertis
Applied Cloud
Infosys
Infotech
InfrasoftTech

Integreon | InterGlobe | INTERNSHALA | ISGEC | GLOBAL

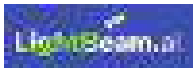
JCB | JINDAL | JINDAL STEEL & POWER

JKT A Global IT Solutions, Consulting and Services Company | JLL | Jocata | Johnson Controls

J.P.Morgan | JSW Energy | JSW Steel | JUSPAY

KEC INTERNATIONAL LIMITED | Kirloskar

KONE | kony | KPMG | LAVA



LG		lentra	LightBeam.ai	
Linde	L&T Construction	L&T Technology Services	LUMINOUS	MARUTI SUZUKI
mahindra Rise	make my trip	MAQ Software	MetricStream	
MICROLAND	Microsoft	MIND	Mindtree Welcome to possible	MOODY'S
Mondelēz International		MRF	muvin	
National Instruments	NCR	NEC	NEROLAC	
NETFLIX	neustar	NEWGEN	NIIT	novem
NUCLEUS SOFTWARE	NXP	NYKAA	OLX	
	OneShield			ORACLE
orange™	OYO	paloalto	Panasonic	
PAXCEL	PIAGGIO	PERSISTENT	Phable Care	PHILIPS

PLAYSIMPLE	plum	JOHNSON LIMITED		Punj Llyod
pwc	Qualcomm	Quark	Quick Heal Security Simplified	Quikr
RAISON Pune	Reliance	RELTIO	RMC	ROYAL ENFIELD
	salesforce	salesforce.org	SAMSUNG	SAP
Sapient	Schneider Electric	SECUDE	servicenow	Shapoorji Pallonji
SHOPCLUES	SIEMENS		SML ISUZU	SMS group


SHOPCLUES

SIEMENS


SML
ISUZU

SMS group

SMARTDATA TECHNOLOGIES

SONALIKA
INTERNATIONAL

SPAN

sprinkle

SPROUTS
FARMERS MARKET

spyne

steria



stm

SURVEY2CONNECT

SUZUKI

sys

syscom
A Morpho Company

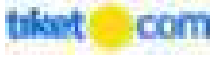
tavisca

talbros

TEKION

TekTravels


TEXAS
INSTRUMENTS

CREATE | CARE | CONSERVE

tikat.com

Time
Warner
Cable

Tech
Mahindra

RAHEJA

TATA

TITAN

toddle

TOSHIBA
Leading Innovation

Tricon Infotech

TRILOGY

TTCONSULTANTS

UPL

UPFRONT


Enabling Smarter Trading

UNISYS

u-shin

VE COMMERCIAL VEHICLES

verizon

virtusa
Accelerating Business Outcomes

vivo


vodafone

wakefit

WIN

wipro

WNS

XL Dynamics

YAMAHA

ZIRÓH

zomato.com

ZopSmart


ZYCUS

Global Engineering

Internationalisation and globalisation are key characteristics of today's work environment. The world has become a "Global Village" where economic, political, social and cultural dimensions are tightly intermingled. Such a platform offers students not only considerable opportunities but also higher complexity.

Chitkara University is prepared to face these new challenges, responding to professional and international commitments, by educating and training future Engineers to be "World Ready" for tomorrow's world and by helping them develop skill sets desired by future employers.

OUR UNIQUE GLOBAL NETWORK

Chitkara University has established a unique network of more than 200+ partner Universities around the globe. This co-operation network forms the basis for student as well as faculty exchange programs within the framework of our educational programs.

THE INTERNATIONAL EXPERIENCE

Combining an international education and study abroad experience is a strong asset in today's marketplace. It not only gives candidates a huge competitive advantage but also greatly contributes to students' personal development.

Engineering Students from Chitkara University enjoyed unforgettable experiences during their study abroad programs, such as semester exchange and summer school programs, at partner universities across the world.

We, at Chitkara University, believe that combining a state of the art education and study abroad experience is strongly desired in today's marketplace; it not only enhances candidates' professional, global and intercultural competence but also greatly contributes to students' personal development. Studying abroad is also an important opportunity to build a new network of friends and contacts from all over the world, which is a major asset in an increasingly interdependent world.

OUR INTERNATIONAL AND SUPPORTIVE STUDY ENVIRONMENT

With its growing number of international students and faculty, Chitkara University offers a truly international study environment. International faculty from partner universities teach short-term courses to students of Chitkara University during global events such as global engineering, automotive and business weeks.

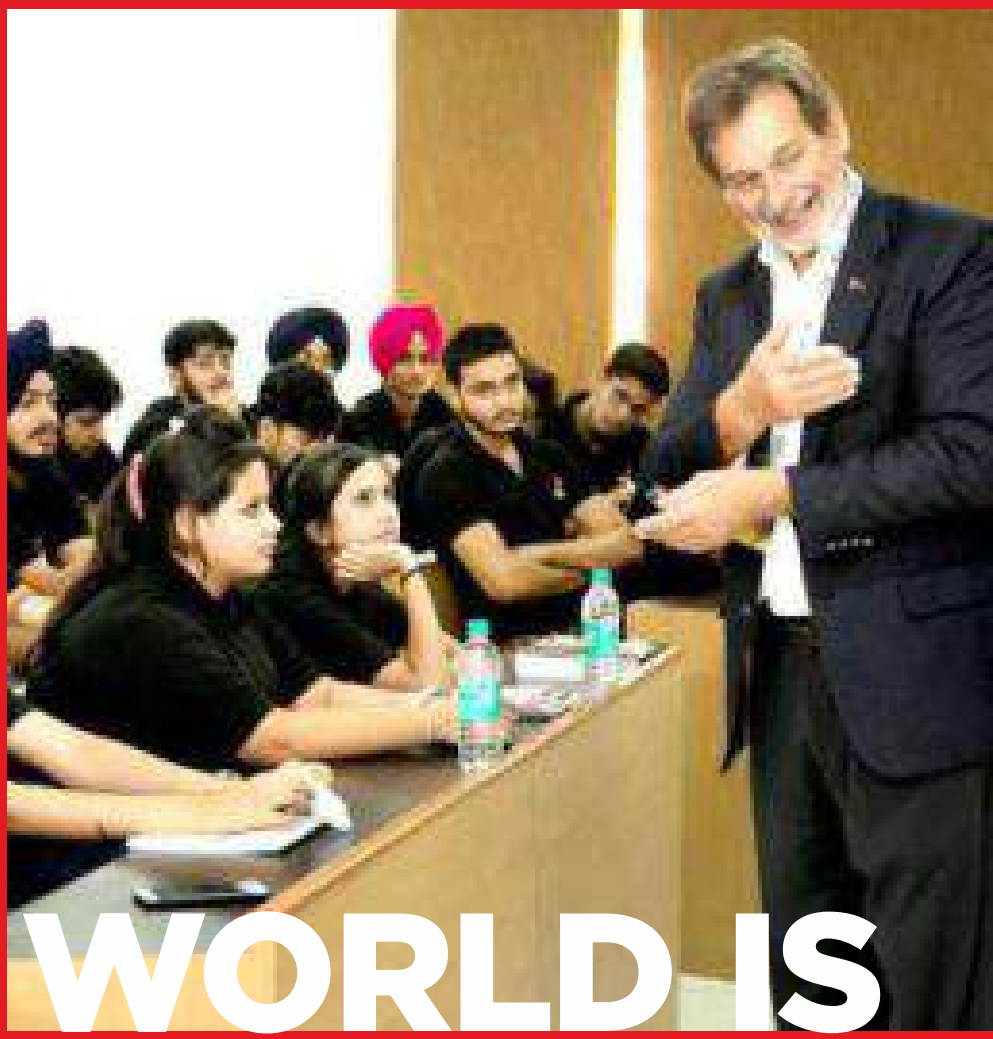
DEAKIN UNIVERSITY

Enrol in the 4-Year B.E. in Engineering Programs at Chitkara University in India with the Academic Mentorship from Deakin University, Australia with an option to transfer in the third year of coveted 4-Year Bachelor of Software Engineering (Honours) Degree in Australia at Deakin University.

The Global University

Live independently. Gain cultural awareness. Expand your social network around the world. Make new friends who may become your future business collaborators in an increasingly interconnected world.

Learn in a classroom on a different continent. Experience working in the real world, around the world. There are so many new experiences awaiting you at Chitkara University.



THE WORLD IS

INTERNATIONAL STUDENT EXCHANGE PROGRAMS

Gain a global perspective

Chitkara University's robust international exchange program with more than 200 overseas universities gives you the opportunity to experience living on your own in a different country. The networks you build and experiences you encounter will give you a more global and culturally sensitive perspective.

SUMMER STUDY PROGRAMS

Immerse in overseas experience

Summer Programs are short duration programs of 2-4 weeks on various specialisations. It adds to the international exposure of the students.

SEMESTER EXCHANGE PROGRAMS

Foster stronger bilateral ties

Chitkara students have the option to finish the last half part of their degree programs at our partner Universities. Students visit Partner Universities for six months to one year for completing their semesters abroad.

Chitkara University's approach to Global Engineering Education rests on the belief that every student needs global knowledge and mindset. Our Engineering graduates will get many opportunities to globalise their University experience.

YOUR CAMPUS

OVERSEAS STUDY MISSIONS
Gain insights from industry leaders

Overseas study missions bring you right into the heart of multinational organisations around the world, giving you current insights on how they function through site visits. You will also experience a networking journey with prominent industry leaders, opening doors to a world of opportunities.

OVERSEAS INTERNSHIPS
Step into the global marketplace

Experience for yourself how industries and businesses operate, broaden your perspective and apply your skills and knowledge to real-world business operations.

GLOBAL EXPOSURE
Cultivate empathy

We regularly invite faculty from top Global institutions across the world. This exposure helps our students understand diverse cultural and educational contexts.

Collaboration With

Harvard Business School Online

Chitkara University has collaborated with Harvard Business School Online to provide world class Business programs in Business Analytics, Disruptive Strategies, Leadership Development, Negotiation Mastery, Global Business, Sustainable Business Strategy and Entrepreneurship Essentials. Our graduates can take some online courses on Harvard Business School platform towards completing their required Engineering credits.

Global Mobility of our Engineering Graduates

Our Engineering graduates have the option to study the first 2 years of Engineering programs at Chitkara University campus and then complete their Degree at a partner global University. Chitkara University offers study abroad programs across the world.

Through the years annually more than 500+ Chitkara Engineering students experience global mobility across 75+ Universities on internships, summer school and semester exchange.

Embark on Research from Day One

At Chitkara Engineering, we believe every student benefits from being taught by experts active in research and practice. You will discuss latest ideas, research discoveries and new technologies in seminars. You will be actively involved in a research project yourself.

Through Chitkara University Research and Innovation Network (CURIN), our researchers, staff and students work across disciplines to extend the boundaries of knowledge.

40 Centres of advanced research under CURIN build and sustain Chitkara University's competitive advantage through leadership. These centers and institutes are the locus of research for collaborative groups of investigators pushing the frontiers of knowledge forward.

The university with one of the highest number of patents in the country*

INTELLECTUAL PROPERTY **INDIA**

Year after year, Chitkara University has been ranked among the Top 10 Universities of the country for filing maximum patents which speaks volumes of our research team, state-of-the-art infrastructure and intensive focus on working with new ideas and technologies.

2500+ Patents

49 Centres of Excellence

80 Crore+ Research Grants

5000+ Scopus indexed research papers

13+ Joint research projects with **Global Universities**

One of the largest **University grants'** recipient for the **European** Commission **Erasmus+ Programme**

* According to 2 years ranking by the Office of the Controller General of Patents, Designs, Trade Marks and Geographical Indications, India.

Engage in real research

Our faculty and undergraduates are actively working on engineering solutions to problems around the world through research sponsored by private industry and public agencies, including Department of Science & Technology (DST) and other Government agencies.

Research opportunities for undergraduates abound, from participating in a faculty-led research project to working an internship to student organisation projects like building an intelligent traffic management solution or braille based educational kit.

Right from Year 1, students can initiate their research journey at 40+ centre of excellence units or work with faculty on their startups. The University provides complete hand-holding and financial assistance for students' participation in innovation, entrepreneurship events and hackathons.

There are numerous Engineering Research Projects in progress, funded by the industry, charities, government departments and research councils. Our undergraduate students benefit through access to up-to-date equipment, industrially linked projects and staff expertise.

Our Engineering students get involved in cutting edge research and exploring new technologies to improve the country's infrastructure and safety — and contributing to society through innovations.

Research opportunities are open to 100% of Chitkara Engineering students.

Make your mark make a difference

For our Engineering students, there are ample opportunities to showcase their research work and compete in our university-wide Undergraduate Research and Design Day. Each semester, graduating seniors apply what they've learned to real-world product design, system solutions or process improvements. Many senior design projects address specific requests from local businesses and are judged by faculty, alumni and corporate partners.

Chitkara University also has Government of India sponsored **New Generation Innovation and Entrepreneurship Development Centre (NewGen IEDC)** wherein a funding of INR 2.87 crores has been received for a five year period to support upto 100 students' projects.

Apart from this we also have prestigious funding support for establishing **'Science, Technology and Innovation (STI) Hub'** from the Department of Science and Technology, DST, Government of India.

Few notable inventions patented by our undergraduate Engineering students that got funded by Government agencies and other investors during the last year have been:

- **Braille based** educational kit for visually impaired children developed by our student entrepreneurs.
- **Zadd Automotive** - The student start-up designed an electronic bike. This first prototype of the e-bike was 3D printed in rapid prototyping lab of the university.
- **Anukai Solutions** - The student start-up based on building Intelligent Traffic Management System raised funding of USD 55,000 from investors.
- **Air Purifier** that kills different types of viruses designed using Quantum dots based Air Filter.
- Designed a revolutionary **80-wash product** which offers a waterless wash of clothes in 80 seconds.
- Developed the popular **BhuGoal project** which predicts weather in an ultra precise manner.

Traffic signals in Mohali to go smart, intelligent

First 3-D Smart Traffic Signal Starts Working

TIMES NEWS NETWORK

Mohali: The traffic police in Mohali on Friday launched the country's first 3-D Smart Traffic Signal system operating in Mohali on pilot project basis. The system will regulate the traffic signals with a smart bird's-eye view wireless sensor system.

The system was launched by additional director general of police (ADGP)- Traffic Sharad Satya Chauhan. He said this will be first-ever system that would also defend the green corridors for ambulances while controlling the traffic movement. The system has been launched at the traffic crossing near Quark City on Airport Road.

The Punjab Police have adopted the system devised by the students of Chitkara University over three years of research and had been on test for the last eight months. A team comprising Gaurav of Anukai Solutions, Navdeep Asija, Punjab traffic advisor, Arbab Ahmad, project manager -Punjab Vision Zero and Charanjit Singh, road safety engineer, Mohali worked to develop the real-time solution.

Punjab Police have adopted the system devised by students of Chitkara University over three years of research

The new system will function as per the availability of traffic on each side of the road. The pilot project has been selected for the trial run and will be duplicated in other places soon, said ADGP Chauhan.

ADGP Chauhan said, it is the country's first 3-D Smart Traffic Signal system. Traditional methods of traffic police controlling and regulating traffic are much labour-intensive and 2-dimensional. Employing the 3-D technique to make traffic signal fully actuated and on a real-time basis is first of its kind in the country. It will regulate the traffic movement based on the gravity of traffic approaching the signals through self-sensing techniques. This system will also support the green corridor concept by sensing the arrival of ambulances and fire tenders.ñ

A memorandum of understanding to conduct research and development in the area of IT and computation for traffic police with the start-up Anukai Solutions of Chitkara University was signed in the month of September 2018 and immediately after that team was assigned to this task, he added.

The actuated signals incur high initial and on-going maintenance costs than fixed time signals, varying from Rs 70 lakh to Rs 1 crore. This simple mechanism will just cost 1% of the fixed signal cost and will start working as a fully actuated signal. INot only huge saving in costs, but this will also reduce the tendency of drivers to jump traffic light and reduce travel time by cutting the time spent at traffic signal. Each second saved at the traffic signal is saving in litres of fuel and emissions. This system costs just Rs 50,000,ñ said state traffic advisor Navdeep Asija.

Fuel your curiosity

Creating, inventing, innovating, attacking challenges, solving problems, improving the quality of life - these are the motivating factors for an Engineer. And this ingenuity is a driving force of our society. From space stations to microsystems, the potential for innovative Engineering is infinite.

If you're wondering what the future might look like, Chitkara Engineering programs can show you the way. Our courses enable you to develop your Engineering knowledge, skills, imagination and experience to the highest levels in readiness for your future career.

Chitkara University has been the proud host of Mahindra BAJA SAE India Competition for last 6 years where more than 500 teams participate from Engineering institutions across the country.

Tune in, charge up

Get involved in some of the 20-plus student groups exclusively for students of Engineering and Technology. These groups help you develop skills critical to career success— leadership, communication, fundraising and teamwork. You can design, build robots or race vehicles, join a professional organisation or honours society, or make a difference in a service club. The Society of Women Engineers is dedicated to promoting STEM education to children, for example, and Engineers Without Borders designs life-changing solutions like solar power grids and water filtration systems for people around the world.

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

American Society of Mechanical Engineers (ASME)

Association for Computer Machinery

Computer Society of India

Institute of Electrical and Electronics Engineers (IEEE)

Institute of Electronics and Telecommunication Engineers

Society of Automotive and Aerospace Engineers (SAE)

Society of Automotive Engineers

Society of Women Engineers (SWE)

The Indian Society for Technical Education

The Institution of Engineering and Technology

The Institution of Engineers

Competition Teams

- **Aero-Design Team**
- **Formula Racing Team**
- **Mini-Baja Team**
- **Supermileage Team**
- **Robotics Club**

CHITKARA INNOVATION INCUBATOR

THE LARGEST CAMPUS BASED INCUBATOR IN NORTH INDIA

Chitkara Innovation Incubator Foundation (CIIF) is one of the largest Government supported incubators in North India with more than 200+ start-ups. It is designed to provide aspiring student entrepreneurs with the education, resources and funding to start and expand their own businesses. In line with the Government of India's initiative of Startup India (https://www.startupindia.gov.in/), CIIF empowers founders who are and will be solving some of the world's most pressing challenges through technology-based solutions.

Key facts:

- Startups incubated since inception: 260+
- Total valuation of the incubated startups: USD 43 million
- Total mentors: 75+
- Solutions commercialised: 76+
- Jobs created by startups: 1800+
- External funding raised by the startups: USD 3 million
- Total no. of Patents filed by Incubates: 470+
- Current Incubates: 73+
- Ecosystem Partnerships & collaborations: 50+
- Supported & approved by Department of Science & Technology, Govt. of India

Received major grants like:

- Startup India Seed Fund, Niti Aayog, Govt. of India **(https://seedfund.startupindia.gov.in)**
- NIDHI PRAYAS, Department of Science & Technology, Govt. of India **(https://www.nidhi-prayas.org)**
- NIDHI-SSP, Department of Science & Technology, Govt. of India **(https://dst.gov.in/)**
- TIDE 2.0, Ministry of Electronics & Information Technology, Govt. of India **(https://meitystartuphub.in/incubators/schemes/tide-2-0)**

SUPPORTED BY

Department of Science and Technology
Ministry of Science and Technology
Government of India

ISBA

TE

Ministry of Electronics and Information Technology
Government of India

#startupindia

LAUNCH POD

India Fund Fest

NIDHI PRAYAS

Chitkara University

Incubated Startup

Sellebration Services Pvt. Ltd.

Specialisation for Engineering Students

ENTREPRENEURSHIP & INNOVATION

The specialisation in Entrepreneurship & Innovation for our Engineering graduates is designed to prepare future entrepreneurs with the skills and knowledge to start their own businesses. The specialisation will focus on identifying, analysing and evaluating global and local business opportunities, creating new independent business ventures or new ventures within existing firms; developing creativity and understanding innovation; environment assessment for new ventures; marketing research and developing effective business plans to obtain financing, legal issues related to starting and operating a family-owned business.

MAJOR PROGRAM OBJECTIVES WILL BE:

- Be critical thinkers who are capable of identifying business opportunities by using cutting-edge analytical tools.
- Communicate clearly to develop and evaluate business plans and funding proposals.
- Apply relevant financial principles to assess start up capital needs, cash flow needed for growth, break-even analysis and pre and post-funding valuation.
- Effectively understand and implement a marketing plan for a new venture.

A unique and focal aspect of the program is the opportunity to gain real world industry experience and build strong industry links through the development of your Industry Experience Portfolio (IEP). You will be able to tailor your portfolio to the industry of your choice and in your final year you will be required to apply your portfolio knowledge to plan, manage and analyse your own business idea.

Infinite Opportunities

await you at CHITKARA UNIVERSITY

There are countless opportunities to get active and involved, engaged and enriched. We want you to become a part of our diverse community of students who work together to make a better future and also have fun in the present. With 100+ student clubs and organisations based on a wide range of academic, cultural and recreational areas of interest, you will find a way to express yourself.

Join, lead, or start your own club. Engaging with these clubs helps build strong connections with fellow students, provides personal growth and enhances your Chitkara University experience.

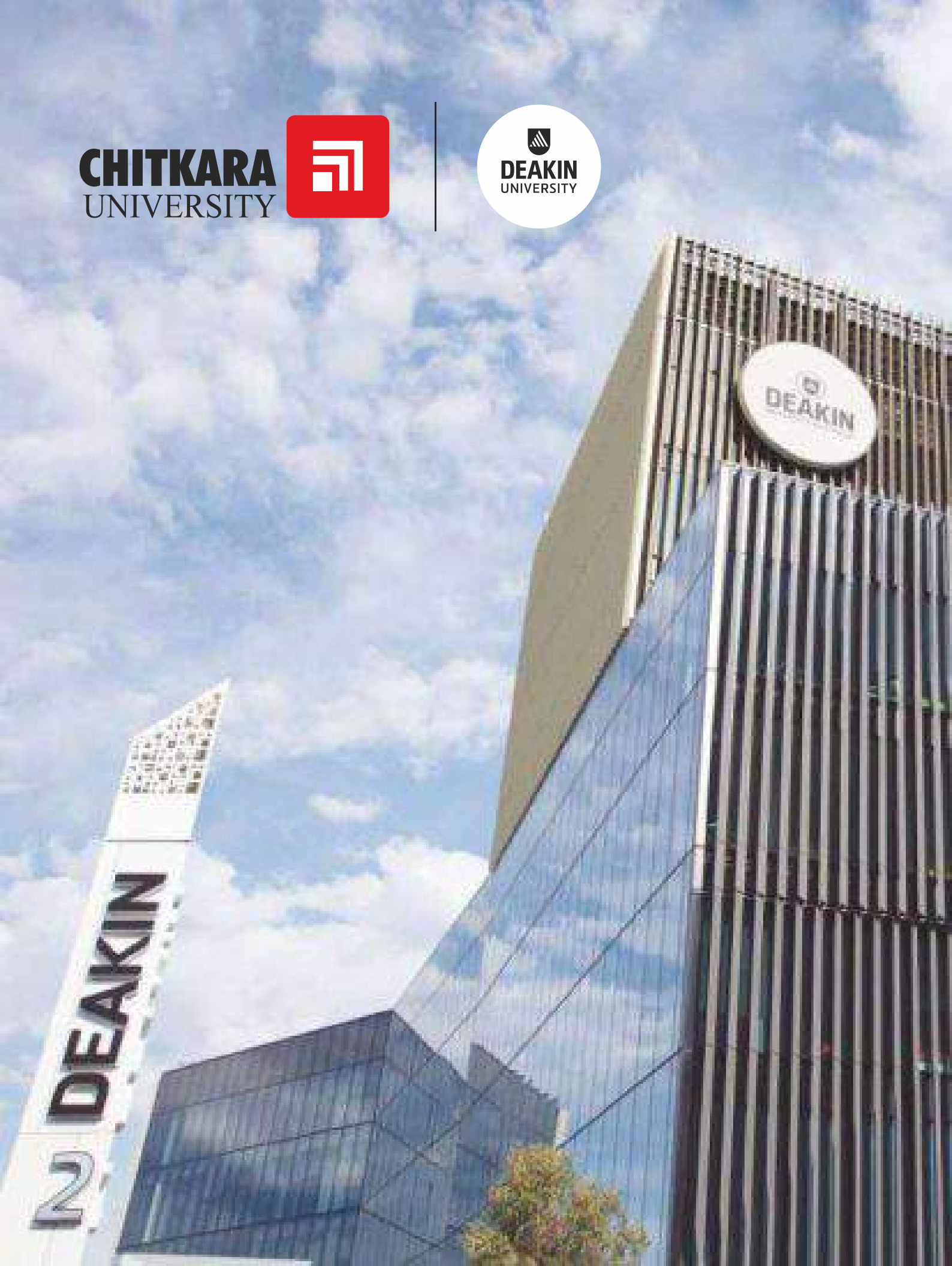

CHITKARA
UNIVERSITY
CHITY

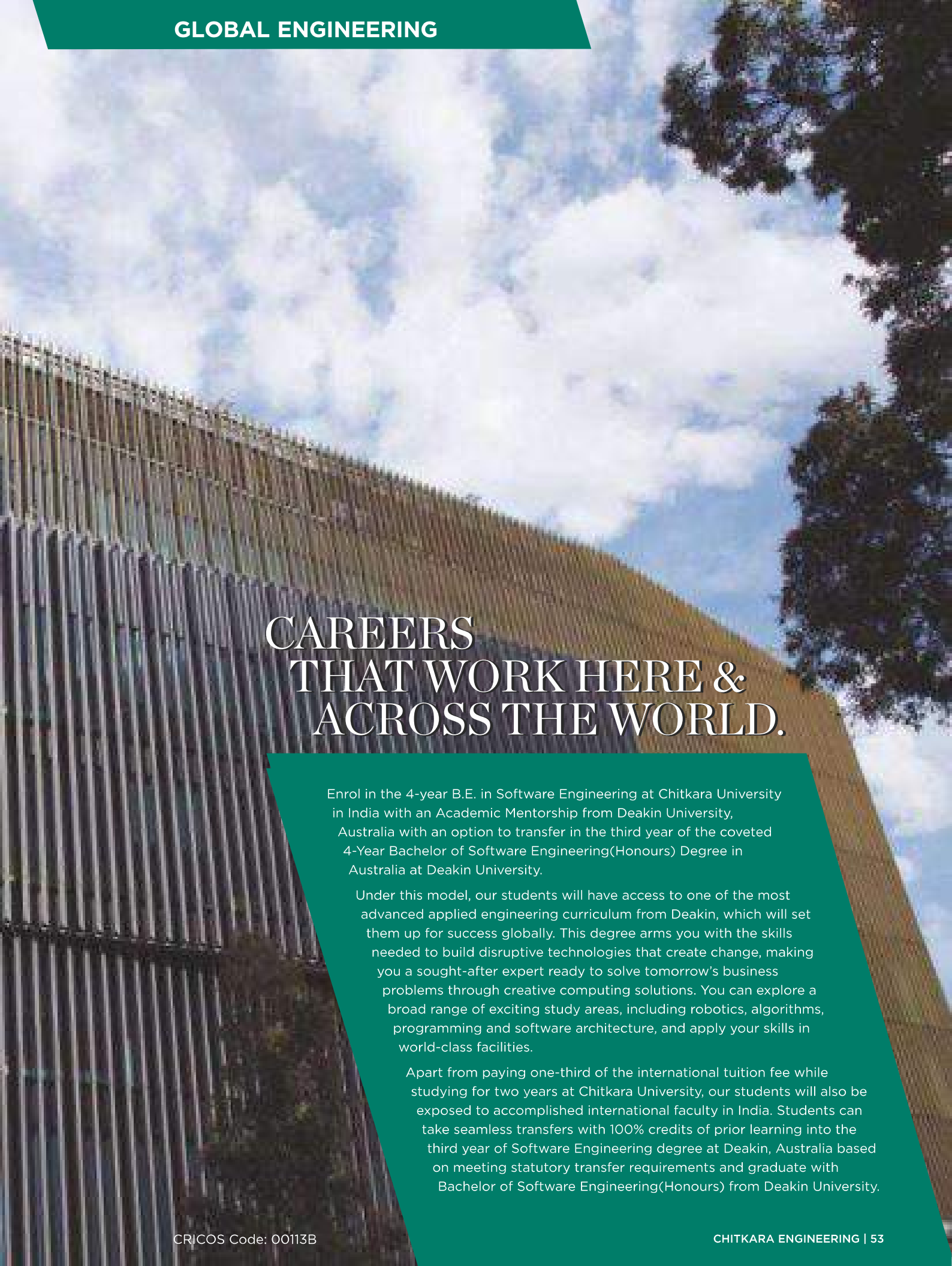

CHITKARA
DESIGN
SCHOOL


TEDx
ChitkaraU
sityPunjab

CHITKARA UNIVERSITY

DEAKIN UNIVERSITY





CAREERS THAT WORK HERE & ACROSS THE WORLD.

Enrol in the 4-year B.E. in Software Engineering at Chitkara University in India with an Academic Mentorship from Deakin University, Australia with an option to transfer in the third year of the coveted 4-Year Bachelor of Software Engineering(Honours) Degree in Australia at Deakin University.

Under this model, our students will have access to one of the most advanced applied engineering curriculum from Deakin, which will set them up for success globally. This degree arms you with the skills needed to build disruptive technologies that create change, making you a sought-after expert ready to solve tomorrow's business problems through creative computing solutions. You can explore a broad range of exciting study areas, including robotics, algorithms, programming and software architecture, and apply your skills in world-class facilities.

Apart from paying one-third of the international tuition fee while studying for two years at Chitkara University, our students will also be exposed to accomplished international faculty in India. Students can take seamless transfers with 100% credits of prior learning into the third year of Software Engineering degree at Deakin, Australia based on meeting statutory transfer requirements and graduate with Bachelor of Software Engineering(Honours) from Deakin University.

CRICOS Code: 00113B

Secure your future

Study at a multi-award winning, internationally recognised university, and join more than 61,000 high-achieving students who chose Deakin for its:

- excellent graduate outcomes
- practical, hands-on approach to learning
- state-of-the-art facilities
- teachers with experience and influence in their field
- courses that are informed by industry and offer real-world learning
- exceptional industry connections and work placement programs, in Australia and overseas
- flexible study options, whether on campus or online.

Top 1%
of universities worldwide[1]

Why you can confidently choose Deakin

Among the Top 1% of all universities worldwide (Source: Shanghai Rankings Academic Ranking of World Universities)

Ranked in the Top 50 young universities in the world (Source: QS top young universities)

Most satisfied students in the Australian State of Victoria for 11 consecutive years (Source: Australian Graduate Survey and Graduate Outcomes Survey, QILT)

#1 university careers service in Australia (Source: Australian Graduate Recruitment Industry Awards)

Australia's top-rated tech support (Source: Voice Project IT Service Quality Support Benchmark Survey)

1 ShanghaiRankings Global Ranking of World Univeristies

DEAKIN UNIVERSITY

Get work-ready with our industry connections and work placements

Our close ties with industry mean that you get:

- work placement and study abroad opportunities to graduate work-ready
- a well-recognised qualification that stands out to employers
- courses matched to current industry practice.

Gain study credit through real-world experience

Get your career off to the best start by gaining skills, knowledge and networks through work experience – and earn credit towards your degree at the same time.

Depending on the course, we offer:

- workplace internships
- placements
- work-integrated learning programs.

A high-quality education, excellent employment prospects and a university experience you will love – this is what Deakin University has to offer. Deakin's approach to learning places emphasis on practical experience and the curriculum is informed by the best in the industry. And through unique DeakinTALENT graduate employment services, you will be able to directly connect with employers, build your experience and prepare for your graduate job search. As we move into an increasingly digital future, Deakin has invested in the latest technology, state-of-the-art learning tools and facilities to ensure our students are ready for the jobs of tomorrow. This includes electrical and renewable energy labs and design and product realisation labs. You don't just study a degree at Deakin – you get a life-changing experience while investing in your career.

Some program highlights of B.E. Software Engineering at Chitkara University in Academic Mentorship with Deakin University

- This program is jointly developed by mapping Chitkara University's B.E. in Software Engineering to the curriculum of the Bachelor of Software Engineering (Honours) degree at Deakin University so that students can seamlessly transfer with 'Recognition of Prior Learning' and receive the same learning outcomes and a globally recognised degree i.e. Bachelor of Software Engineering (Honours) from Deakin University in Australia.

- Study and apply your education in superlative infrastructure at both Chitkara University in India and Deakin University in Australia.

- Apart from saving hugely on international tuition fee when you study 2 years at Chitkara University, a student will also learn an applied Australian pedagogy when they start closer home before opting to transfer after two years to Deakin University in Australia. Besides tuition fees, a student will also save on boarding and lodging costs when they stay in their home country for the first two years.

- Conditional Letter of Offer from Deakin University is issued to all students at the onset of the program who will wish to transfer to Deakin University in Australia (based on conditions) after two years of their study at Chitkara University.

- Students would be coached for the English Language Proficiency requirement (IELTS) during the first two years of your studies at Chitkara University.

Your learning outcomes from the first two years of your study at Chitkara University will be similar to those studying at Deakin University in Australia. This prepares you for a better academic success, should you choose to and become eligible to transfer in the third year of Bachelors of Software Engineering (Honours) at Deakin University in Australia.

Career Opportunities

Deakin University's Bachelor of Software Engineering (Honours) has been designed in response to the industry demand for innovative software engineers capable of designing and developing complex software systems for the modern world; where software not only needs to interact with other software systems and users, but also with the environment itself.

As a graduate of this course you will be well-equipped to find employment in diverse areas of software systems engineering that are increasing in both, complexity and interaction with the physical world. You will be able to develop and implement state-of-the-art smart devices, systems and application frameworks for industries such as smart infrastructure, health, agriculture, manufacturing and transport.

- Business Analyst
- DevOps Engineer
- IoT System Engineer
- Mobile Applications Developer
- Software Engineer
- Systems Architect
- Data Engineer
- Embedded Systems Developer
- Machine Learning Engineer
- Project Manager
- Software Developer
- Web Applications Developer

WORK EXPERIENCE

At least 30 to 60 days of practical work experience in an engineering workplace with assessment tasks designed to develop and enhance your understanding of the engineering profession, professional practice and continuing professional development, possible career outcomes, and the opportunity to establish valuable professional networks during your degree once you move to Australia.

Computer Science Engineering

When you study Computer Science Engineering at Chitkara University, you receive a solid foundation in computer science and engineering principles and theoretical analysis and also learn how to apply them in your actual computing experience.

The best of technology companies recruit our computer science graduates every year giving them a broad range of career choices as they can organise, design and apply digital processing systems, bridging hardware and software.

4-Year Bachelor of Engineering

COMPUTER SCIENCE ENGINEERING

INTRODUCTION

The fundamental objective of Computer Science Engineering at Chitkara University is to provide our students with an opportunity to develop a firm foundation in Mathematics, Science and Design methodology of computing systems. Our course curriculum, which covers design, implementation and management of information system, of both hardware and software, has been designed keeping in mind a holistic learning approach, where students are equipped to apply their knowledge and skillset to 'real time' scenarios in the field of Computer Science Engineering.

LEARNING OUTCOMES

- Design software or digital hardware system, component or process to meet targets within realistic constraints, such as economic, environmental, social, political, ethical, health & safety, manufacturability and sustainability.
- Gain knowledge of probability and statistics, including applications for Computer Science & Engineering.
- Gain knowledge of Mathematics through differential and Integral Calculus, Basic Science, Computer Science and Engineering Sciences.
- Gain knowledge of advanced Mathematics, including Linear Algebra, Numerical Computing Methods for Engineering and Discrete Mathematics.
- Gain knowledge of Algorithms and Data Structures.
- Apply design and development principles in the construction of software systems of varying complexity.
- Understand concept of programming languages.
- Learn computer organisation and architecture.

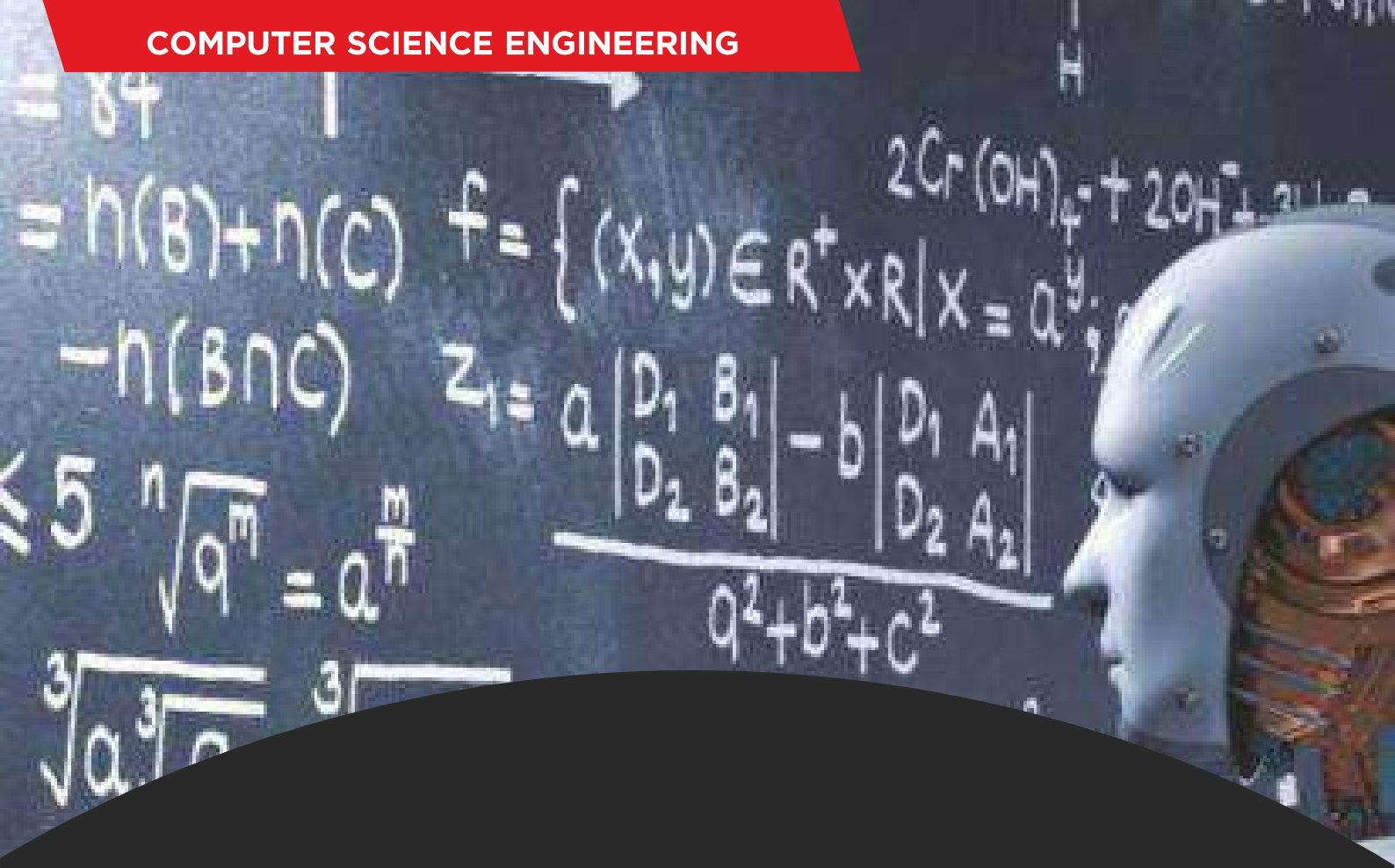
Your undergraduate degree in computer science is designed for flexibility and will provide you with ever-increasing opportunities to solve problems through computing. You might create your own start-up or work with one of the well-established powerhouses of the software industry. Chitkara University professors work closely with the top companies in the industry, so you'll have a chance to work together with individuals and groups that are changing the IT world.

Plus you'll be able to work side by side with some of the top minds in the business—your professors are not only experts in the computing field, but they are terrific mentors and will help you find the best application of your talents and interests. In addition, you'll be getting a superb liberal arts education that will enrich your technical and scientific training and help you to become a better problem solver, team member and manager.

SCOPE OF EMPLOYMENT

Blue chip companies including Google, Microsoft, Amazon, Infosys and Wipro among others have been recruiting our Computer Science Engineering graduates since the inception of the program.
Some roles for which our graduates get hired include:

- Developers and Specialists in high-end Services and IT-product companies
- Development Engineers, Technical Leaders and Managers
- Consultants, Solution Developers and Entrepreneurs
- Computing Specialists in Research Labs and Tech Providers
- System / Network Performance Analysts



Artificial Iintelligence

Artificial intelligence (AI) promises to deliver some of the most significant and disruptive innovations of this century. Self-driving cars, robotic assistants and automated disease diagnosis are all products of an emerging AI revolution that will reshape how we live and work. With demand for talented engineers more than doubling in the last few years, there are limitless opportunities for professionals who want to work on the cutting edge of AI research and development.

Specialisation in Computer Science Engineering

ARTIFICIAL INTELLIGENCE

When it comes to the best jobs for the future, few industries stand out as much as artificial intelligence. 2020 Gartner Report shows that enterprise applications for AI have grown 270% in four years, fueling a level of demand that outstrips the current supply of qualified job candidates.

This is great news for students seeking machine learning jobs and related careers in artificial intelligence. The number of industries using AI is also expanding to the point where virtually no major enterprise will be untouched by this rapidly unfolding technology revolution.

Our specialised Engineering program in Artificial Intelligence gives you the in-depth knowledge you need to transform large amounts of data into actionable decisions. The program and its curriculum focus on how complex inputs — such as vision, language and huge databases — can be used to make decisions or enhance human capabilities. The curriculum includes course work in Computer Science, Mathematics, Statistics, Computational Modeling, Machine Learning and Symbolic Computation.

Students in this program will take courses in Mathematics & Statistics, Computer Science, AI, Science & Engineering and Management. The program builds a solid foundation by covering the most popular and widely used deep learning technologies and its applications, including Computer Vision, Convoluted & Recurrent Neural Networks, Natural Language Processing and Tensor Flow.

COMPUTER SCIENCE

Computer Systems and Programming | Principles of Imperative Computation | Principles of Functional Programming
Data Science Essentials | Parallel and Sequential Data Structures and Algorithms | Agile Software Development
Logic Programming and Computational Logic

CORE SUBJECTS IN ARTIFICIAL INTELLIGENCE

Machine Learning, Deep Learning & Reinforcement Learning | Information Theory, Inference & Learning Algorithms
Neural Networks for Machine Learning | AI Representation and Problem-Solving | Natural Language Processing
Computer Vision and Image Analysis. Once you master some of the fundamentals, we will offer AI subfields that most interest you and you can shape your coursework accordingly. Some sample artificial intelligence clusters and subjects are mentioned below:

Machine Learning

Deep Reinforcement Learning and Control | Applied Machine Learning | Machine Learning for Text Mining
Advanced Data Analysis

Decision-Making and Robotics

Neural Computation | Autonomous Agents | Cognitive Robotics | Strategic Reasoning for AI
Robot Kinematics & Dynamics

Perception and Language

Information Retrieval and Search Engines | Speech Processing | Computational Perception | Vision Sensors
Computational Photography

Human-AI Interaction

Designing Human -Centered Systems | Human-Robot Interaction | Robotic Manipulation | Safe and Interactive Robots

Companies hiring in AI include not only the usual suspects — namely, Google, Amazon, and Apple — but also a host of startup artificial intelligence companies specialising in niche industries.

Cloud Computing

The next wave of computing is in the 'Cloud'. Many businesses want to get out of the complexity of managing data centers and instead focus on their core competencies. This means that more and more businesses will adopt Cloud Computing as a means to handle their IT requirements, which gives them the freedom from day-to-day management of IT infrastructure.

Specialisation in Computer Science Engineering

CLOUD COMPUTING & VIRTUALISATION TECHNOLOGY

in academic collaboration with

aws

Chitkara University has prepared the curriculum under the guidance of AWS Educate to make it focused on Cloud Computing and "Industry Aligned", right from Year 1, with the outcome that its students can make their career in the ever-growing field of Cloud Computing & Virtualisation.

The proposed specialisation will prepare students to understand the emerging technologies of Cloud Computing & Virtualisation, their principles, modeling, analysis, design, deployment and industry-oriented applications. All major solution architectures and enabling technologies will be covered under this program.

The curriculum lays focus on introduction to Cloud Computing and its techniques, issues and services that lead to design and development of a simple Cloud Service along with basic fundamentals. Also there would be focus towards security, standards and applications in Cloud, including Cloud Security challenges, software as a service security and its common standards.

This program has been designed keeping the below points in consideration:

- **Technology Skills:** Apply current technical tools and methodologies to create cloud solutions.
- **System Specifications:** Design secure cloud information systems.
- **Technology Analysis:** Evaluate cloud computing trends, practices, and products.
- **Cloud Analysis:** Evaluate the potential impact of cloud-based information systems on business processes.
- **Project Management:** Apply project management practices, tools, and methods to cloud solutions.
- **Professional Development:** Recognise the ethical considerations for IT professionals locally and globally.

COLLABORATION WITH AWS EDUCATE

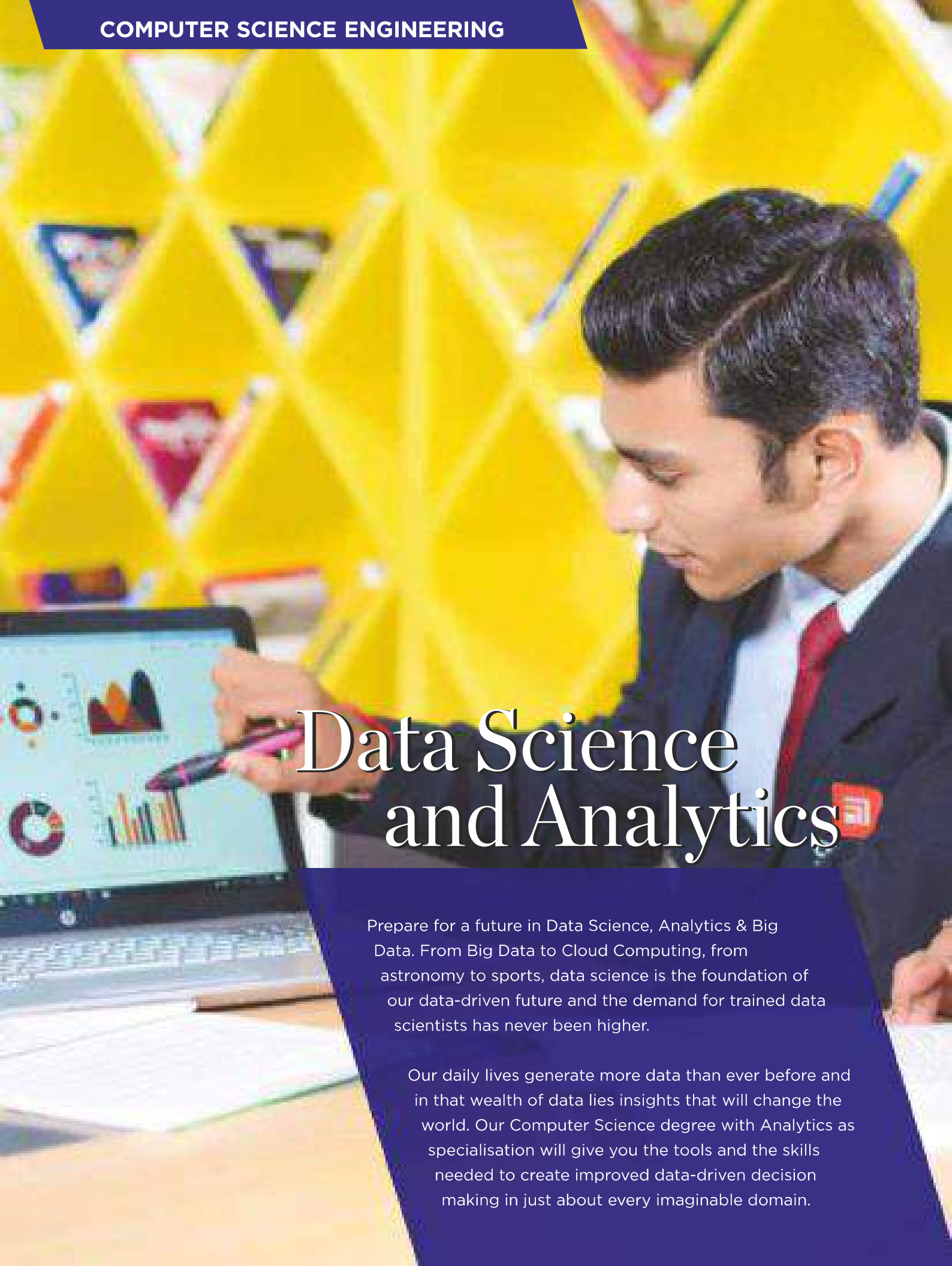
Chitkara University has collaborated with AWS Educate so that our students can access AWS Certifications and start their career in the ever growing field of Cloud Computing & Virtualisation. Some of the topics covered under these certifications are:

- Align curriculum with the cloud computing skills and competencies that employers seek in working professionals.
- Train faculty through professional development sessions in cloud concepts.
- Provide students with resources and training to understand and set goals towards a career path in cloud computing.
- Engage employers with academic institutions to build a pipeline into in-demand cloud career opportunities.

CAREERS

All graduating Engineers with specialisation in Cloud Computing & Virtualisation find excellent placements in companies that require specific development skills towards working with Amazon Web Services (AWS), Microsoft Azure or Google Cloud Platform

- Cloud Solution Architects
- Cloud Security Specialist
- Cloud System Administrator
- Cloud Application Development



Data Science and Analytics

Prepare for a future in Data Science, Analytics & Big Data. From Big Data to Cloud Computing, from astronomy to sports, data science is the foundation of our data-driven future and the demand for trained data scientists has never been higher.

Our daily lives generate more data than ever before and in that wealth of data lies insights that will change the world. Our Computer Science degree with Analytics as specialisation will give you the tools and the skills needed to create improved data-driven decision making in just about every imaginable domain.

Specialisation in Computer Science Engineering

DATA SCIENCE AND ANALYTICS

INTRODUCTION

Our program in Data Science and Analytics is designed to meet the growing demand for data scientists and data analysts with deep analytical and technical skills who can analyse massive amounts of data and extract information from complex data sources. Data Science is very important for organisations as it helps to harness their data and use it to identify new opportunities, leading to smarter business moves, more efficient operations, higher profits and happier customers.

Data scientists need expertise in the three core areas: computer science, mathematics and information management. They also need good critical thinking and effective communication skills.

Our interdisciplinary Engineering curriculum emphasises the core areas of data science, including courses in programming, math, statistical modelling, machine learning and data management. Students learn all the aspects of the data science process from data collection and data understanding to model building and model validation and develop communication and critical thinking skills through real world applications.

The specialisation in Data Analytics equips students with the skills to draw out intelligent analysis of data, which is a crucial component in numerous business applications and supporting business decisions.

The program is designed to cater to the ever-changing needs and demands of the industry. Data Analysis experts are among the most sought-after professionals in IT sector with demand for skilled technocrats in that field outpacing other IT jobs by a wide margin. Some important components of this program are:

- Data Science principles, tools, and techniques to solve "real world" business problems and suggest suitable solution with relevant findings.
- Recognise issues in everyday business; apply Data Science for better understanding of data-driven management decisions to help get an edge over competition.
- Provide insights into leading analytic practices, design and lead iterative learning and development cycles.
- Produce new and creative analytic solutions, which can become a part of any business core deliverables.
- Get insights on how to improve business results by building data-fuelled products.

Some important skill sets taught in this specialisation:
Predictive Analytics | Data Analysis & Management | Data Visualisation | Business Intelligence | SAS Programming
Programming tools like R, Python

CAREERS

According to NASSCOM, the Data Analytics market will reach $16 billion by the year 2025, growing eightfold from its market worth in 2016. India alone will require over 500,000 data scientists, as per various industry insights.

TYPES OF COMPANIES / ORGANISATIONS LOOKING FOR DATA ANALYSTS:

- Big IT companies who have an Analytics Practice - Infosys, TCS, Cognizant, Wipro, Oracle
- Analytics KPOs - Genpact, WNS, Evalueserve, HSBC, EXL
- In-house Analytics Units of large corporates - Citibank, Dell, HP, Spencers, Sears
- Core Analytics firms - Brainmatics, Fractal Analytics, Mu Sigma

Full Stack Development

With advancements in web-based mobile and desktop application development, Full Stack Developers and Engineers have emerged as one of the most strategic and coveted assets in the software industry. With a deep understanding of the Software Development Life Cycle, including planning, requirement gathering, design, development, testing, deployment and production support, Full Stack Engineers are able to drive projects far more efficiently and effectively and thus command a higher value in the job market.

Specialisation in Computer Science Engineering

FULL STACK DEVELOPMENT

INTRODUCTION

Our specialisation in Full Stack Engineering is designed for students who wish to start their career in the IT industry by mastering a full stack of multiple technologies, acquiring an ability to architect high impact solutions, envision and design great new products, solve complex problems and manage cross-functional collaborations.

The program is designed to build skills in high-demand areas such as SDLC, application development for web, mobile & cloud and DevOps.

SOME IMPORTANT COMPONENTS OF THIS COURSE WILL BE

- **Overview of Full Stack Engineering**
  Overview of the modern application landscape; Typical structure of an end-to-end application: components and connections; Design considerations and implementation choices; Case study for each of the topics discussed.
- **Web Development**
  Components of front-end web application development: User interfaces, rendering, Document Object Model, Event and State handling; Languages/tools such as HTML, CSS, JavaScript, AJAX; Web apps development frameworks; Components of back-end web development: Web Server essentials; Server Side scripting; REST architecture; Database interactions; Integration with code repositories.
- **Mobile Application Development**
  Mobile application building blocks such as the screens (UI), background services; Communication between the application components; Application development using native multi-platform development; Interaction of applications with Internet resources, REST APIs, databases; Unit testing of applications; Integration with code repositories.
- **Cloud Native Development**
  Basics of cloud computing; Different types of services; Virtual machines vs Containers deployment; Characteristics of cloud native application; Elements to build cloud-native applications; Cloud native architecture and micro-services; Design, decomposition of applications to micro-services; Developing micro-services; Interactions with data services and databases.
- **Agile and DevOps**
  Overview of Agile methodology: Scrum, Test driven development, DevOps, Continuous Integration/Continuous Delivery (CI/CD); Code repository: Multi-user, distributed development, version control; Continuous inspection of code quality; Build and build tools; Automated Testing; Integration tools; Implementing CI/CD.
- **Deployment of Micro-services 2**
  Containerising applications by creating container configuration files and build processes; Manage deploying, scaling, and updating applications with micro-services using container management platforms such as Kubernetes; Configure and launch auto-scaling, self-healing clusters; Best practices for container management, when architecting and developing new microservices.
- **Capstone Project**
  Full stack applications demonstrating the UI, server and database components of an end to end multi-user application; Usage of one or more well-known development frameworks; Demonstration of scalability and reusability by applying design concepts such as microservices and container-based deployment on the cloud; Demonstration of compliance with principles of agile and CI/CD.

CAREERS

Full Stack Developers design complete apps and websites. They work on all facets of development from front-end to back-end, database, debugging and testing. Full Stack Developers are more sought after because of their expertise in multiple technologies. They can handle all aspects of development and it can result in a more seamlessly created product.

Specialisation in Computer Science Engineering

CYBER SECURITY

INTRODUCTION

Cyber Security is a branch of Digital Forensic Science pertaining to legal evidence found in the cyber space and digital storage media. Cyber Security technologies, processes and practices are designed to protect networks, computers, programs and data from damage or unauthorised access.

Specialisation in Cyber Security offers you the opportunity to gain a comprehensive and critical understanding of the theory and techniques of contemporary Cyber Security and how to apply these in response to "real-world" business problems. The specialist qualification in one of the most in-demand areas of IT, combining - advanced aspects of security, its practical application and the implications of security within a business.

As we all know, the technology industry has taken huge strides in the 21st century with inventions that brought the whole world to our fingertips. While it has made our lives undeniably easier, it has also opened up a world of possibilities for criminals who could make use of the information that has been put online for the wrong reasons. This is where cybersecurity comes in.

CAREERS

With digitalisation moving in the fast lane, it is estimated that a whopping 3 million cyber security professionals will be required in the country to support its fast-growing internet economy.
Our Cyber Security Engineers shall find excellent placements in research-oriented industries and top ranking global companies, with their careers ranging from:

- Cyber Security Specialist ● Security Architect ● Cyber Operations Analyst ● System Administrator
- Security Software Developer ● Security Engineer ● Cyber Forensics Architect ● Cyber Malware Analyst

Specialisation in Computer Science Engineering

GAME DESIGN & AUGMENTED REALITY

INTRODUCTION

We have all played and enjoyed games, but how do people actually design them? What are the basic elements? How do designers create an experience for the player? What about prototyping and iterating? This specialisation in Game Design will help students explore the above questions and much more.

Students will be introduced to Game Design - its concepts, emphasising the basic tools: paper and digital prototyping, design iteration and user testing. They will also learn about the challenging, multi-disciplinary subject area of Augmented Reality (AR), where they will learn the skills required to create VR/AR simulations, games, visualisations and apps.

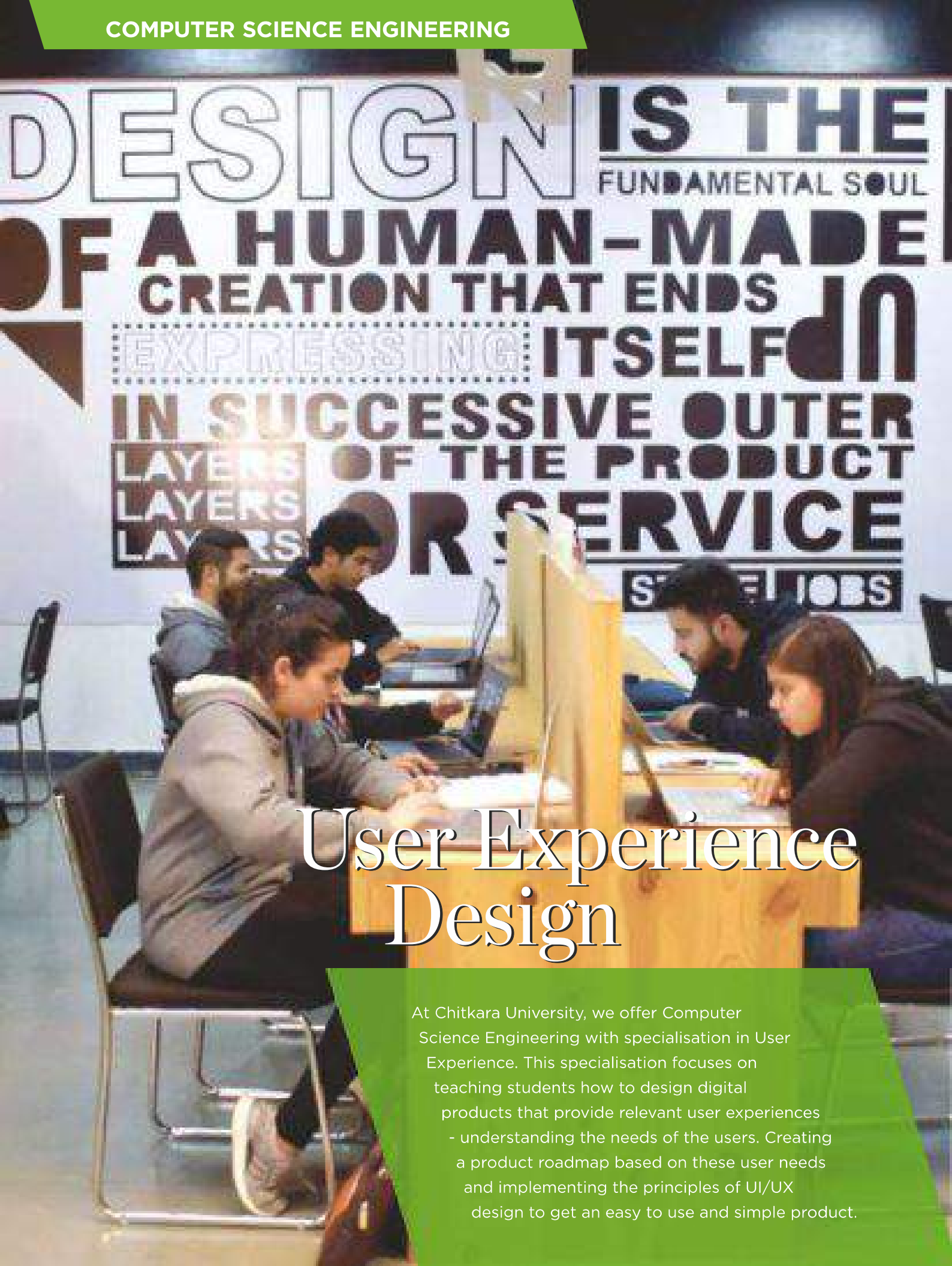
Students will study the creation of digital content and the practical application of VR/AR technologies. Some highlights of the program are:

- Research and develop your own VR/AR concepts by creating 2D and 3D digital artwork.
- Study the evolving theories and principals of design-led VR/AR. This includes designing for immersive environments, location-based mobile apps and wearable technologies.
- Research and explore theories of user-centred design and user experience.

CAREERS

According to Statista, Gaming and AR market size was around $6.1 billion in 2016 but is expected to reach $215 billion by 2023. Although companies have spent several years developing and refining this technology, demand for skilled professionals is experiencing a major uptick as more technologies make it out of R&D and enter the marketplace.

- Developers typically collaborate closely with Software Designers and 3D Artists, as well as Design Architects and Engineers who plan and create the hardware on which XR Software runs.
- System Validation Engineers test systems and help resolve technical issues, and circle back with developers to ensure applications get modified accordingly.
- Project Managers coordinate and oversee entire development teams, interface with other business units and work with clients.



User Experience Design

At Chitkara University, we offer Computer Science Engineering with specialisation in User Experience. This specialisation focuses on teaching students how to design digital products that provide relevant user experiences - understanding the needs of the users. Creating a product roadmap based on these user needs and implementing the principles of UI/UX design to get an easy to use and simple product.

Specialisation in Computer Science Engineering

USER EXPERIENCE DESIGN (UX/UI)

UX Design refers to the term “User Experience Design”, while UI Design stands for “User Interface Design”. Both elements are crucial to a product and work closely together. But despite their professional relationship, the roles are distinct different, referring to very different parts of the process and the design discipline. Where UX Design is a more analytical and technical field, UI Design is closer to what we refer to as graphic design, though the responsibilities are somewhat more complex.

Chitkara University has the best in-house faculty, accompanied with guest faculty from Industry with expertise in UI/UX domain. This specialisation has been devised and designed keeping in mind the UX Industry, considering the needs of the job market and thus offers excellent placement.

SOME KEY COMPONENTS OF THE PROGRAM ARE:

- Understanding the fundamentals and principles of UI/UX Design.
- Knowledge of tools and process used in UI/UX Design, with a mix of classroom assignments, projects, field work, industry projects, internships and shadow learning.
- Skillset required in “real-life” design problems through visual design tools and introduction to 6D.
- Quizzes, classroom assignments, field work etc. with “real-life” scenarios. Students are encouraged to come up with efficient solutions.
- Hands-on learning with the process of research, testing, development, content and prototyping to test for quality results.

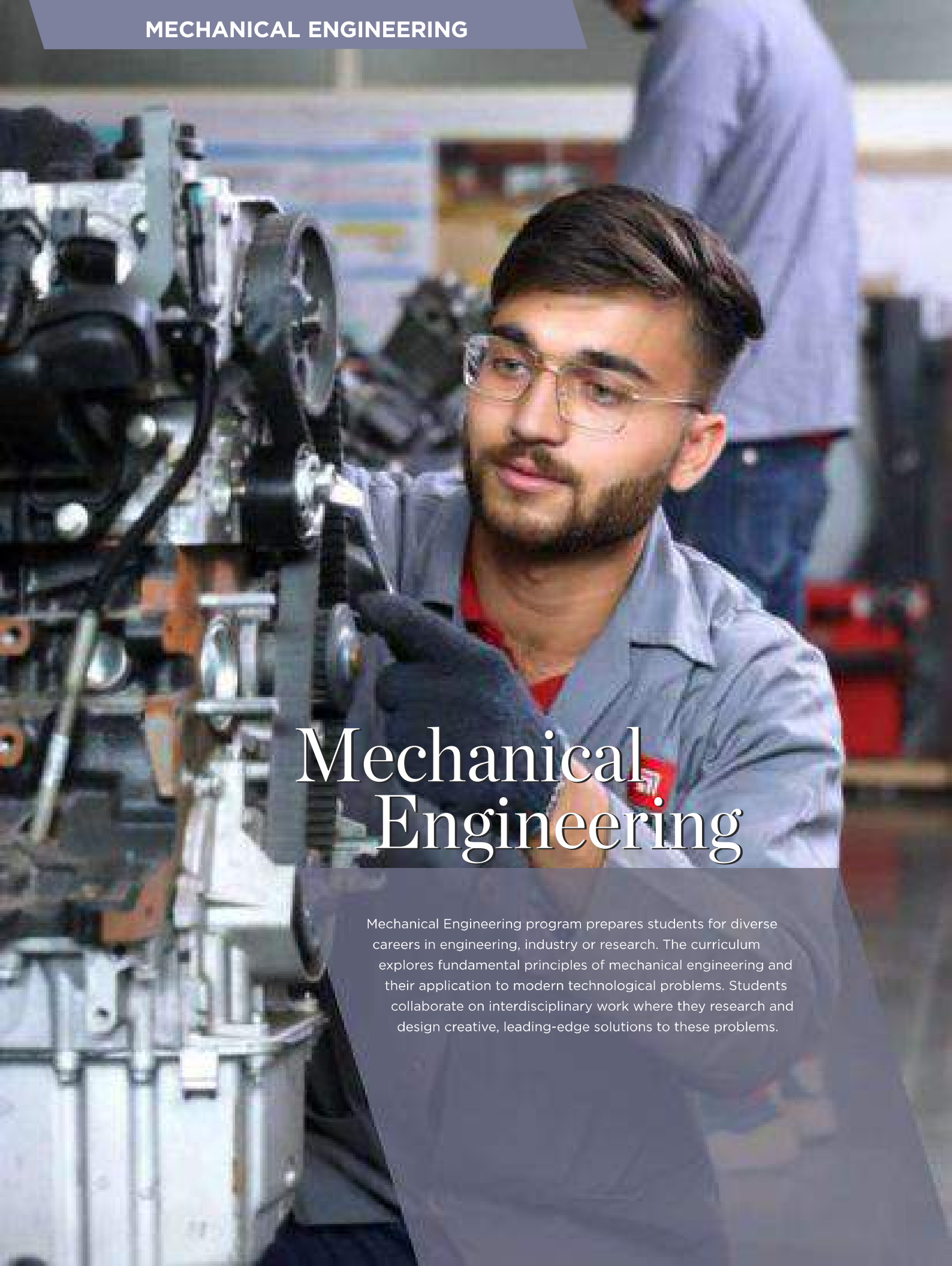
CAREERS

The day-to-day business operations of companies across the globe have changed with advancement of technology and rapid digitalisation. 'Design' of digital product influences business decisions and that's the primary reason of the high demand of UI/UX Designers in industry.

CAREER PATH

- User Researcher
- Interaction Designer
- Design Manager
- Chat UI Designer
- Information Architect
- Information Visualisation
- Usability Analyst
- Voice UI Designer
- Wireframe Expert
- Visual Designer
- Automotive UX Designer
- Haptic UI Designer

SOME OF THE COMPANIES THAT HIRE OUR UI/UX STUDENTS



Mechanical Engineering

Mechanical Engineering program prepares students for diverse careers in engineering, industry or research. The curriculum explores fundamental principles of mechanical engineering and their application to modern technological problems. Students collaborate on interdisciplinary work where they research and design creative, leading-edge solutions to these problems.

4-Year Bachelor of Engineering

MECHANICAL ENGINEERING

PROGRAM OBJECTIVES

Mechanical Engineering is a discipline of Engineering that is concerned with the working mechanisms of heavy tools and machineries. It applies the principles of Physics and Material Science for analysis, design, manufacturing and maintenance of mechanical systems. Students are introduced to the Science & Art of formulation, design, development and control of systems, with components involving Thermodynamics, Mechanics, Fluid Mechanics, mechanisms and conversion of energy. The program addresses both - the quest to understand how things work and the desire to put this understanding to practical use. Students are constantly guided by faculty of national and international repute, who are also members of prestigious Engineering Societies.

LEARNING OUTCOMES

Mechanical Engineers research, design, develop, build and test mechanical and thermal devices, including tools, engines and machines. As Mechanical Engineering students you will have the ability to:

- Apply knowledge of Mathematics, Science and Engineering.
- Design and conduct experiments, as well as analyse and interpret data.
- Design a system, component, or process to meet desired needs within constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
- Function in multi-disciplinary teams, identify, formulate and solve problems.
- Understand the impact of Engineering solutions in a global, economic, environmental and societal context.
- Use techniques, skills and modern Engineering tools necessary for Engineering practice.

SCOPE OF EMPLOYMENT

There is tremendous scope for Mechanical Engineers in industries including Aerospace, Automotive, Biomedical, Chemical, Computers, Electronics, Fossil and Nuclear Power, Manufacturing, Pharmaceutical, Robotics and Textiles. Further, the scope of employment extends into areas of research & development, design, testing and evaluation, manufacturing, operations & maintenance, marketing, sales and administration. Public sector units like Railways, ONGC, Indian Oil, ISRO, SAIL, NTPC, DDRO and IAF.

Leading Mechanical and Automotive companies visit the campus regularly for placement. Our Engineers have successfully obtained placements at leading companies such as Infosys, Godrej, Escort, L&T, Wipro, ISMT, Mahindra & Mahindra, JCB, Eicher, etc.

4-Year Bachelor of Engineering

MECHANICAL ENGINEERING

WITH MINOR IN COMPUTER SCIENCE ENGINEERING

In recognition of the burgeoning industry demand for Mechanical Engineers equipped with essential coding skills, we are excited to offer students the unique opportunity to select Computer Science Engineering as a minor field of study starting from the second semester of their program. This forward-thinking initiative not only enhances the students' mechanical engineering foundation but also opens a world of digital possibilities. In addition to the mandatory courses in Mechanical Engineering, students will embark on an enriching journey through the following credit courses:

- Computer Science Engineering
- Object Oriented Programming
- Data Structures and Algorithms
- Computer Networks
- Data Base and Information Systems
- Design and Analysis of Algorithms
- Web Technology

But that's not all. In addition to the foundational courses in Computer Engineering, students will have the privilege of choosing from a diverse array of electives in cutting-edge technology domains such as Artificial Intelligence, Data Science, and Cybersecurity. This expansive minor in Computer Science Engineering opens doors to a world of opportunities, offering access to placements not only in esteemed IT companies but also in core enterprises seeking Mechanical Engineers with a digital edge. By embracing this minor, students will be poised for success in both the mechanical and information technology sectors, combining the best of both worlds. This unique blend of skills and knowledge ensures that graduates are well-prepared to navigate the dynamic landscape of modern industry and emerge as sought-after professionals at the intersection of mechanical engineering and computer science.

CAREER OPPORTUNITIES

Career opportunities in Mechanical Engineering are aplenty, with every mechanical manufacturer in rapid expansion mode and hiring engineers to meet their ever-growing demand. Our graduates can thus look forward to an exciting career path with the top Mechanical Engineering companies across the globe.

YOU CAN EXPLORE CAREER OPPORTUNITIES AS:

Mining Engineer | Water Engineer | Aerospace Engineer | Mechanical Engineer | Automotive Engineer
Maintenance Engineer | CAD Technician

CAMPUS RECRUITMENT PARTNERS

Given below are some of the blue chip companies who hire our Mechanical Engineering students:

Automobile Engineering

Automotive Research Association of India (ARAI), established in 1966, is the leading automotive R&D organisation of the country set up by the Automotive Industry with the Government of India. ARAI is an autonomous body affiliated to the Ministry of Heavy Industries and Public Enterprises, Government of India. The Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, has recognised ARAI as a Scientific and Industrial Research Organisation (SIRO). Further, ARAI is the prime Testing and Certification Agency notified by Government of India under Rule 126 of Central Motor Vehicle Rules, 1989. ARAI has been playing vital roles in the progress of Indian automotive sector for five decades.

4-Year Bachelor of Engineering

AUTOMOBILE ENGINEERING

in collaboration with

ARAI®
Progress through Research

Chitkara University has collaborated with Automotive Research Association of India (ARAI) to offer 4-Year Engineering in Automobile Engineering in view of Government of India incentivising the adoption of EV and HEV and the resultant need for professionals who can handle these emerging technologies. The collaboration brings in Industry's best curriculum, superior program delivery, wholesome hands-on experience with in-depth knowledge of industry best practices & top notch technical know-how, seamlessly transferred to students by the best minds from ARAI.

PROGRAM OVERVIEW

The automotive industry is changing rapidly and moving towards electrical vehicles which are set to completely dominate the market in the next two decades. This course has been designed with these technological developments in mind with as much emphasis on electrical side of vehicle design as the mechanical side so graduates are well equipped for the automotive industry of the future. It will provide students with the knowledge and skills required in the modern automotive industry, with a focus on EV and HEV.

PROGRAM STRUCTURE

Students will get to learn the fundamentals of EV and HEV in the first two and a half years at Chitkara University after which students would go to ARAI Academy, Pune to study latest technologies and get hands-on practical exposure in the next one and a half years. The last two semesters will be totally devoted to project work, which shall be carried out either in the Automotive Industry or at ARAI Academy.

PROGRAM CONTENT

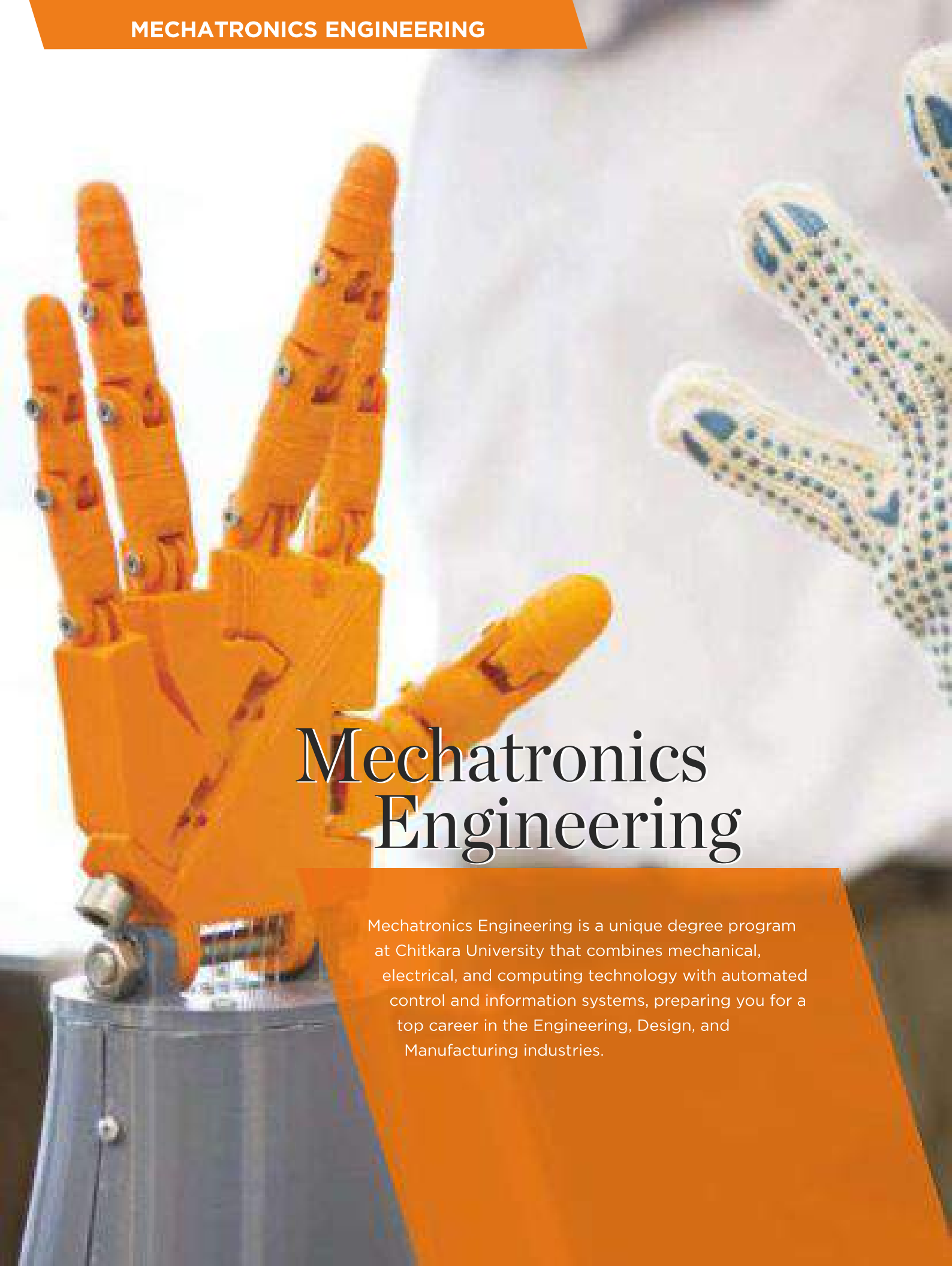
Our Automotive Engineering courses are taught through a combination of lectures, tutorials, group work and workshops. In the first year, you will study modules that are all common between electrical and mechanical engineering students. This is to ensure all underlying requisite knowledge for modern automotive engineering is covered. Finally, you study elements of management, business and professional practice. This will develop your initiative, and effective communication and interpersonal skills, to achieve the high level of technical leadership required in a modern engineering environment.

SOME OF THE COURSES COVERED IN THIS HIGHLY SPECIALISED PROGRAM ARE:

Automotive Manufacturing | Automotive Electrical and Electronics | EV Thermal Systems | Automotive Mechatronics | Electric and Hybrid Vehicles | Energy Storage Systems for EV | Artificial Intelligence | Battery Management System | Vehicle Dynamics and Aerodynamics | Modelling and Simulation of EHV
Testing and Certification of Vehicles

CAREER OPPORTUNITIES

- Manufacturing Engineer
- Vehicle Testing & Homologation Engineer
- Research & Product Development Engineer
- Supply Chain & Logistics Engineer
- Vendor Development & Technical Assistance Engineer
- Hybrid & EV Design Engineer



Mechatronics Engineering

Mechatronics Engineering is a unique degree program at Chitkara University that combines mechanical, electrical, and computing technology with automated control and information systems, preparing you for a top career in the Engineering, Design, and Manufacturing industries.

4-Year Bachelor of Engineering

MECHATRONICS ENGINEERING

INTRODUCTION

Mechatronics Engineers typically act as the link between Technicians and Engineers and work from conception to the completion of the project. They also assist with design, development and testing of electrical or electronic equipment. When mechanical equipment includes electrical or electronics components.

LEARNING OUTCOMES

Mechatronics Engineers work in all aspects of development of the smart machine – from design and testing right through to manufacture. This could be in industries like robotics, medical and assistive technology, human-machine interaction, manufacturing, unmanned aerial and ground vehicles and education. As a Mechatronics Engineer, students can learn to:

- Develop new solutions to industrial problems using Mechanical & Electronic processes and Computer Technology.
- Design and build completely new products by integrating various technologies, for example, developing robotic vehicles for underwater exploration.
- Build and test factory production lines introducing automation to improve existing processes.
- Apply Mechatronics or Automated solutions to the transfer of material, components or finished goods.

ACADEMIC FRAMEWORK

The core focus areas of the program includes:

- Basics of Mechanical Engineering, Electronics Engineering, Computer Science, Engineering Systems and Control Engineering.
- Introduction to Robotics & Artificial Intelligence, along with Machine Vision.
- Study of Fluid Power Technology - Hydraulics & Pneumatics - and its technology developments.
- Study of Computer Hardware and Software.
- Study properties and applications of Materials Science.
- Analog/Digital Electronics and Communications.

SCOPE OF EMPLOYMENT

Mechatronics Engineers can also find a place in global enterprises developing futuristic vehicles, defence technology and revolutionising consumer products. They may also work in smaller innovative 'high tech' companies supplying software and equipment and they could be product developers, work in manufacturing, or mining or defence industries, and in government and industry research groups. Some of the fields these graduates could explore, include:

- Automation & Robotics
- Design of Subsystems for Automotive Engineering
- Expert Systems & Artificial Intelligence
- Consumer Products
- Medical Imaging Systems
- Computer Integrated Manufacturing Systems
- Machine Vision
- Sensing & Control Systems
- Industrial Electronics
- Medical Mechatronics
- Structural Dynamic Systems
- Diagnostic & Reliability Techniques

Electrical Engineering

Electrical Engineering is one of the largest and most diverse technological and engineering disciplines in today's world. Electrical Engineering is the study and application of electricity, electronics and electromagnetism for the development and maintenance of electrical and electronics equipments such as electric motors, navigation systems, medical devices, broadcast and communication systems, power generation systems, electrical distribution systems, electric grids etc., while keeping in mind the safety, quality, economic feasibility and sustainability of these products and systems.

4-Year Bachelor of Engineering

ELECTRICAL ENGINEERING

PROGRAM OBJECTIVES

India is growing — our economy, population, industry and the demand for Energy is also growing multifold. Electrical Engineering Technologists are specialists in generation, transmission, distribution and utilisation of Energy and can further expand their career horizon into Electrical & Industrial Automation. It's a powerful career choice that demands good problem-solving skills combined with excellent domain knowledge with an eye for detail. As the world prepares for the challenges posed by climate change and ever increasing demand of quality products at a faster pace, if you want to make a difference in combatting this pressing global problem, as innovators of environment-friendly products and services to improve quality of life, this industry integrated Degree in Electrical Engineering with intensive specialisation will put you on the right track.

PROGRAM OVERVIEW

Some of the key components of this specialisation will be:

- To apply knowledge and technical expertise in building, analysing, testing, operating and maintaining electrical, instrumentation, control systems and associated green technologies, including relevant industry standards and code of practices.
- Maintenance, repair and production of electrical automation equipment and its systems.
- Procure, inspect and test electrical and electronic engineering materials.
- To select, operate, maintain, test and repair/replace electrical & electro-mechanical automation machinery used in various industrial appliances.
- Enable industrial installation including automation components, programming cum re-programming of logic controllers cum drives, laying cables, earthing, installing motors, drives with their accessories, wiring & testing of control circuits.
- Preparing estimates of different kinds of jobs in domestic, industrial automation in transmission and distribution systems to install, erect and commission the power & automation equipments.

CUTTING EDGE LABORATORIES & FACILITIES

We have world-class labs including:

- Power Systems Research Lab
- Control Systems Lab
- Power Electronics & Drives Lab
- Virtual Instrumentation Lab
- Solar Energy Lab
- Measurement & Instrumentation Lab
- NxP Semiconductor Lab
- Schneider Electric - Centre of Excellence
- Building Automation Lab - Siemens
- Protection & Switchgear Lab
- Digital Simulation Lab
- Analog and Digital Circuits Hardware Lab
- Process Control Lab
- EDC & Device Research Lab
- Electrical Machines Lab
- Q-Max Technology Lab
- Industrial Automation Lab - Fuji Electric

4-Year Bachelor of Engineering

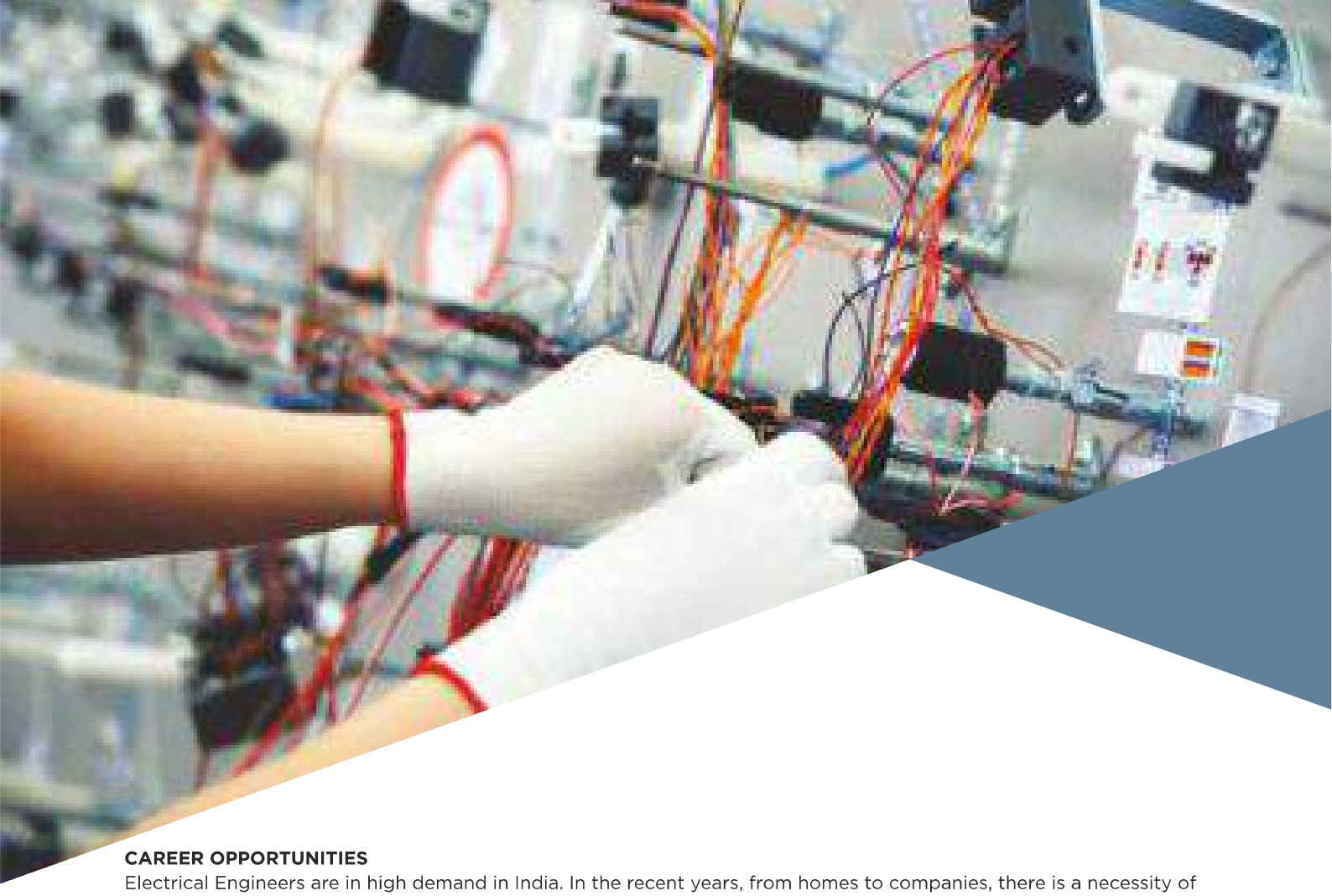
ELECTRICAL ENGINEERING

WITH MINOR IN COMPUTER SCIENCE ENGINEERING

In response to the ever-evolving demands of the engineering industry, our 4-Year Bachelor of Engineering program in Electrical Engineering now offers an enticing opportunity for students to broaden their skillset. We recognise that the modern job market increasingly values engineers with proficiency in computer science and coding. To address this demand, we have introduced a unique option for students: a Minor in Computer Science Engineering, which can be pursued starting from the 2nd Semester. This minor program is carefully designed to complement the core Electrical Engineering curriculum. It includes a range of fundamental computer science courses that will not only equip students with coding skills but also provide a solid foundation in the digital realm. The courses in the Minor in Computer Science Engineering include:

- Object Oriented Programming
- Data Structures and Algorithms
- Computer Networks
- Data Base and Information Systems
- Design and Analysis of Algorithms
- Web Technology

Alongside these fundamental courses, students have the opportunity to explore cutting-edge electives in emerging technology areas including courses in Artificial Intelligence, Data Science, and Cybersecurity. By choosing from these specialised fields, students can adapt their education to meet the unique demands of their career aspirations. One of the significant advantages of pursuing a Minor in Computer Science Engineering is the widening scope of employment opportunities it brings. In addition to the core electrical engineering companies, students become eligible for placements in top-tier IT firms. This versatile skillset opens doors to diverse roles and industries, positioning our graduates as highly sought-after professionals in the job market.



CAREER OPPORTUNITIES

Electrical Engineers are in high demand in India. In the recent years, from homes to companies, there is a necessity of electricity to function, offering numerous opportunities to Electrical Engineers. These Engineers can work in Atomic Power Plants, Hydel or Thermal Power Plants. Job opportunities are ample in both Private & Public sector like, Railways, Civil Aviation, Electricity Board and Utility Companies, Electrical Design and Consultancy Firms and all types of manufacturing industries.

Companies like ABB, Bajaj International Private Ltd, Crompton Greaves Limited, Siemens Ltd, Reliance Power Ltd, Oil and Natural Gas Corporation (ONGC), Bharat Heavy Electricals Limited (BHEL), Steel Authority of India Limited (SAIL), Coal India Limited (CIL), Power Grid Corporation of India Limited (PGCIL), Centre for Electronics Design & Technology and Wipro Lighting are the biggest employers hiring Electrical Engineers.

Career opportunities abound in wide spectrum of industries as Specialists, Technologists, Engineers or Managers in:
Factory Automation | Power Engineering | Energy Management | Facility Management
Operations Management | Sustainable Design & Solutions | Entrepreneurship & own venture

CAMPUS RECRUITMENT PARTNERS

Given below are some of the blue chip companies who hire our Electrical Engineering students:

Electronics & Communication Engineering

With the evolution of technology, Electronics and Communication has become an essential discipline that is required by every other industry. Today we cannot imagine our daily life without the mobile phone, laptop (computer), television, tablets, digital watch, internet banking, ATM cards, Headphones, Wi-Fi, Internet connection, Microwave Oven and many more gadgets and communication systems. The most important benefit that Electronics and Communication branch offers you, is freedom to move between the hardware and software field.

4-Year Bachelor of Engineering

ELECTRONICS & COMMUNICATION ENGINEERING

INTRODUCTION

Electronics & Communication Engineering deals with electronic devices, circuits, communication equipment like transmitter, receiver, integrated circuits (IC). It also deals with basic electronics, analog & digital transmission and reception of data, voice & video (AM, FM, DTH), microprocessors, satellite communication, microwave engineering, antennae and wave progression.

The fields, Engineering & Communications, combined together prove to be a fascinating and challenging choice with well-qualified graduates being in high demand in global industries. At Chitkara University, the program provides students with an understanding of the basic principles of Electronic Engineering, whilst developing their skills in Mathematics and Computing. We aim to deepen knowledge and skills that will equip you in your professional work involving analysis, systems implementation, operation, production and maintenance of the various applications in the field of Electronics & Communications Engineering.

LEARNING OUTCOMES

Group design/project work is incorporated into all modules. Final year students are mandated to be a part of a team project, within the University or outside, to facilitate hands-on learning and industry interaction.
Future Engineers:

- Design and maintain satellites, which bring TV, Telephone and Internet service into remote and rural regions.
- Create advanced communication facilities to bring people together from all over the world.
- Develop programs for various control and communication systems.

SCOPE OF EMPLOYMENT

There are many opportunities for Electronics & Communication Engineers as they are employed in variety of sectors such as Telecom Industries, Civil Aviation, Development Centers in various states, Defense, NPL, A.I.R, Posts and Telegraph Department, Railways, Bharat Electronics Limited, D.R.D.O, Telecommunication, Software Engineering/IT, Power Sector, Hardware Manufacturing, Home Appliance and VLSI Design, Television Industry and Research & Development. Some industry roles include:

- Service Engineer
- Technical Director
- Senior Sales Manager
- Customer Support Engineer
- Research & Development Software Engineer
- Software Analyst
- Field Test Engineer
- Network Planning Engineer
- Electronics & Communications Consultant

Our students have obtained prestigious placements at leading companies such as Infosys, nVidia, Texas Instruments, Cadence and ARM, among others.

Specialisation in Electronics & Communication Engineering

EMBEDDED SYSTEMS & INTERNET OF THINGS (IoT)

INTRODUCTION

The explosive growth of the 'Internet of Things' is changing our world. At Chitkara University, students can pursue specialisation in Internet of Things (IoT), which is among the newest innovations in the field of Information Technology and change the way we receive information. This technology connects devices to each other and to the people who use it in their daily life.

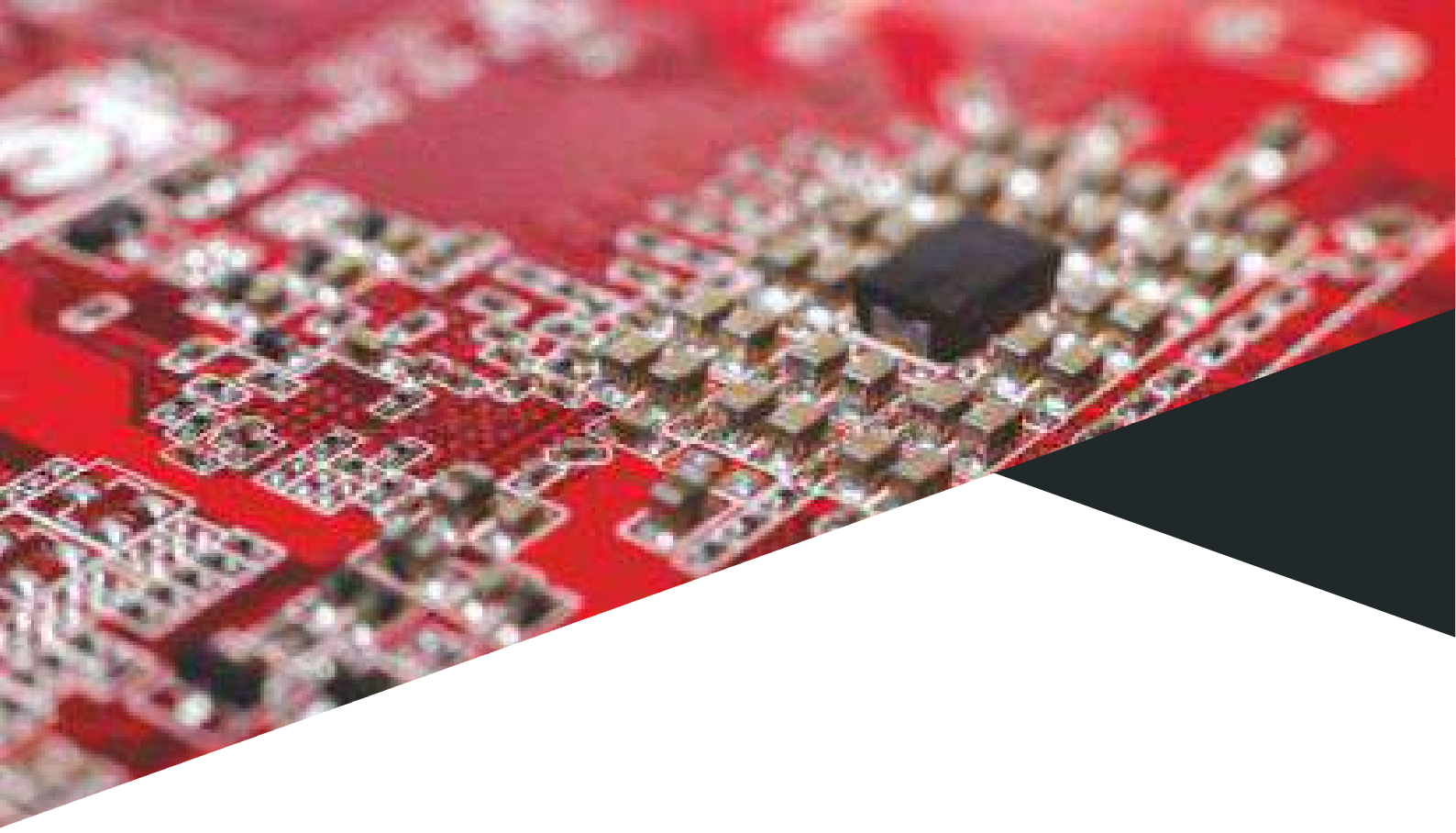
With this specialisation you will learn the importance of IoT in the society, the current components of typical IoT devices and trends for the future. Important components and skills taught in this program include:

- IoT design considerations, constraints and interfacing between the physical world and your device will be covered.
- Make design trade-offs between hardware and software.
- Cover key components of networking to ensure that you understand how to connect their device to the Internet.
- Study how various trends have enabled the Internet of Things and how it changes the way design is performed.
- Participate in open house interactions to discuss some of the ramifications that IoT has on the society today.

CAREERS

As digital transformation continues to accelerate, IoT is at the center of this change - supporting organisations' digital journeys and offering professionals exciting career opportunities. Research and advisory company, Gartner, Inc., predicted that 8.4 billion connected things will be in use worldwide in 2017, up 31% from 2016 and will reach 20.4 billion by 2020. Here are some of the roles:

- IoT Engineer ● Citizen IoT Scientist ● IoT App Developer ● Machine Learning Engineer
- IoT Solution Architect ● IoT System Administrator



Specialisation in Electronics & Communication Engineering

VLSI DESIGN

INTRODUCTION

The VLSI discipline is for design and verification of electronics systems and circuits. Its applications are found in areas like signal processing, image processing, networks and communication applications.

At Chitkara University, the objective of this program is to provide students with comprehensive knowledge of VLSI Circuits and systems which is core to the electronics chip manufacturing industry. The program emphasises the key aspects of hardware design and development for VLSI applications. Prime focus is laid on areas like VLSI system design, ASIC design, FPGA-based systems design, RF circuit design and SOC based design and verification.

The main objectives of the course are to analyse the electrical and design characteristics of transistors, gates and to study the issues and methodologies involved in the integration of these devices into complex high-performance systems.

CAREERS

With recent and rapid upsurge in the areas like hardware, software co-design, architectures for machine intelligence, network on chip etc., the program is designed to cater to the needs in producing Engineers trained, in both, hardware and software, bridging the gap between the academia and industry. Apart from a bright scope to pursue higher education and research, students can pursue career opportunities in diverse fields such as Process Industry, Manufacturing Industry, Consumer Electronics, Communication Networks and Automation Industries.

Students can find excellent placements in leading core companies like IBM, Texas Instruments, NXP, Wipro, GE, Motorola, Honeywell, Tata Elxsi, RBEI, TATA, DELPHI, etc.

Civil Engineering

Civil Engineering program at Chitkara University prepares students to effectively supervise, plan, design, construct, and operate the infrastructures that connect our modern world.

Civil Engineers conceive, design, build, supervise, operate, construct and maintain infrastructure projects and systems in the public and private sector, including roads, buildings, airports, tunnels, dams, bridges and systems for water supply and sewage treatment. They work with many other professionals in teams to make our world a better place.

4-Year Bachelor of Engineering

CIVIL ENGINEERING

INTRODUCTION

Civil Engineering program at Chitkara University prepares students to effectively supervise, plan, design, construct, and operate the infrastructures that connect our modern world.

We ensure that our civil engineering graduates have the technical and fundamental attributes of a successful construction manager, design consultant, project engineers and other significant roles they take upon. A lot of effort is put in making the students well versed in the usage and application of latest software tools that are widely used in the construction industry. Our curriculum is further hallmarked by giving experiential learning to students, as a result of which they are able to manage large scale construction projects, while ensuring they are scheduled and built in accordance with plans and specifications.

PROGRAM OVERVIEW

The course outlay covers everything right from basic Civil drafting tools, through all the associated BIM technologies such as Revit Architecture and Structure, Revit MEP, Model Authoring in BIM, Overview of Digital Twin with Virtual reality integration in BIM, planning and costing in BIM and BIM Management. It also includes real time projects which integrate the whole learning environment in a single envelope.

PROGRAM STRUCTURE

Chitkara University's Civil Engineering program focuses on Construction Engineering Management and Structural Engineering. This will provide students with the knowledge of Civil Engineering with extensive focus on modern construction materials, techniques and effective construction management practices. Through this program, Civil Engineers become capable of constructing special structures and manage complete projects within a given schedule and budget. Structural Engineering includes the design of buildings & bridges and considering loads such as wind, earthquakes and people. These design structures could include materials such as concrete, steel, timber, masonry and fibre-reinforced polymers.

Some courses include:

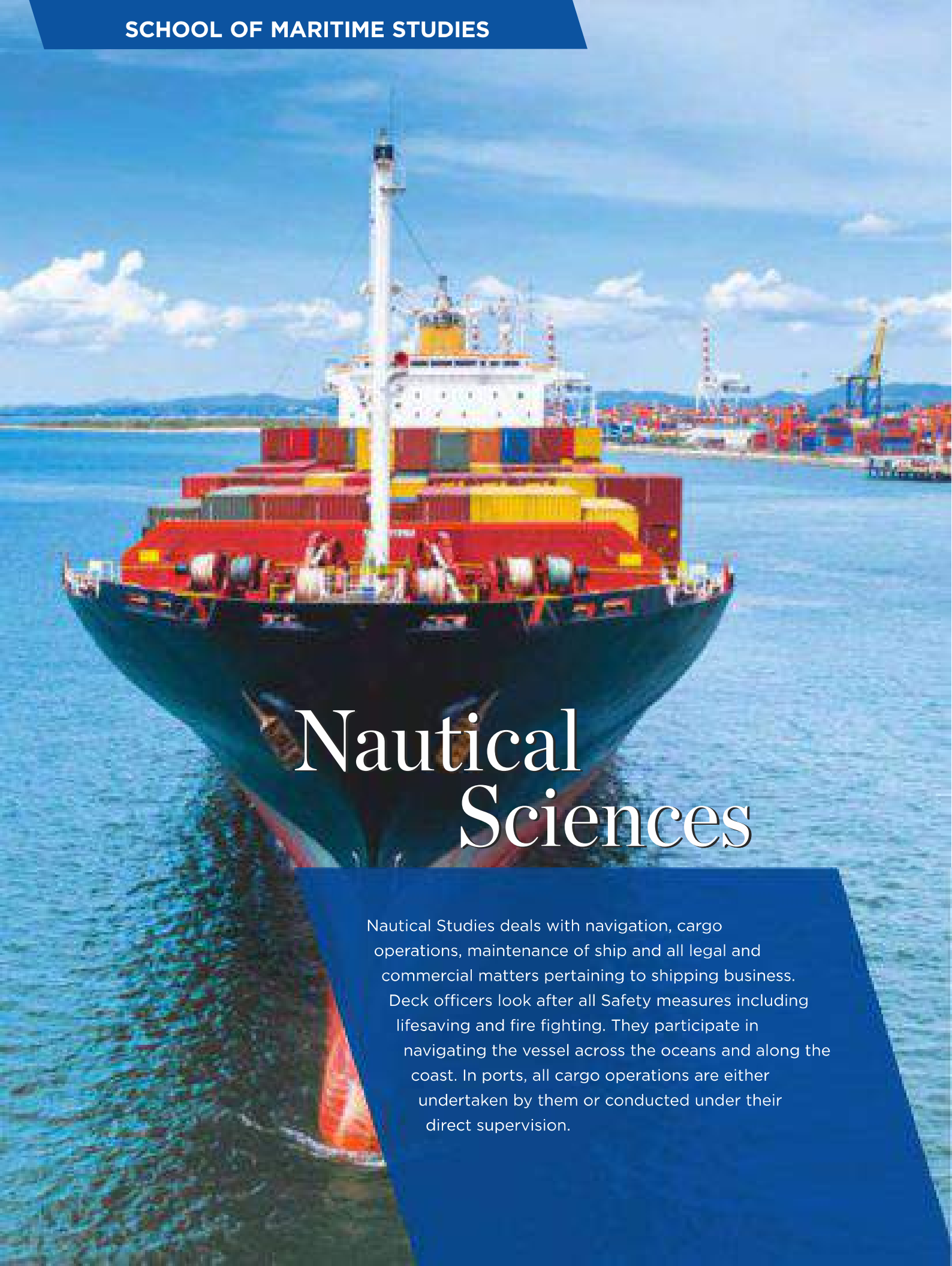
- Introduction to the basics of Science, Mathematics, Engineering Graphics and Computing techniques. Laboratory classes for practical understanding are also conducted.
- Fundamental principles to study the behaviour of solids, fluids and soils.
- Transportation Engineering and Environmental Engineering.
- Focus on analysis & design of steel & concrete structures and foundation Engineering.
- Students can opt for special electives in: Modern Structural Materials and Systems Design, Shoring, Scaffolding and Form Work, Construction Personnel Management, Project Safety Management, Quality Control & Assurance in Construction, Quantitative Techniques in Management, Contract Laws and Regulations.
- A design and main project in the areas of Construction Engineering and Management.

Iconic Plumbing Lab @
CHITKARA UNIVERSITY

CAREERS

Chitkara University students are groomed under high standards of program delivery and rigorous curriculum. This will naturally make them capable enough to match any employer's expectations. Civil Engineers who specialise in Construction Engineering Management, can find jobs in government departments, private and public-sector industries. Opportunities are also available in research and teaching institutions. Abundant job opportunities are available to graduates as:

- Planning Engineer ● Site Engineer ● Quality Control Engineer ● Project Manager



Nautical Sciences

Nautical Studies deals with navigation, cargo operations, maintenance of ship and all legal and commercial matters pertaining to shipping business. Deck officers look after all Safety measures including lifesaving and fire fighting. They participate in navigating the vessel across the oceans and along the coast. In ports, all cargo operations are either undertaken by them or conducted under their direct supervision.

CHITKARA UNIVERSITY

SCHOOL OF MARITIME STUDIES

3-Year Bachelor of Science

NAUTICAL SCIENCES

Approved by
Directorate General of Shipping,
Government of India. (MTI NO. 106025)

INTRODUCTION

A Deck Officer on board a ship needs to function independently at sea for navigational watches and at port keeping cargo watches. He/She must also demonstrate additional skills such as fire fighting and damage control, ship manoeuvring and the ability to carry out rescue operations in an emergency. Further, ships are required to remain in operation 24 hours a day, 365 days a year. All this makes the Deck Officer's job extremely challenging and demanding.

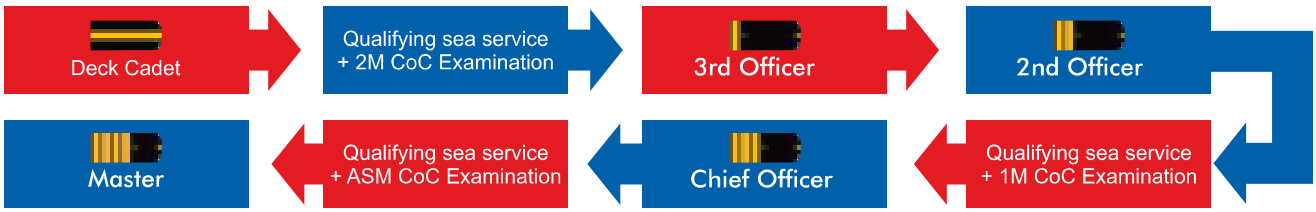
The Captain of the ship is the ultimate authority and responsible for maintaining the administration management onboard. He/She is also the custodian of the cargo which is carried on their ship, thus making them liable for all legal and commercial matters.

SCOPE OF EMPLOYMENT

Opportunity to work as a Deck Cadet on Merchant Ship of Indian or Foreign companies after completing the course. On completion of the stipulated periods on the ship and passing Competency Examinations conducted by Directorate General of shipping, Ministry of Shipping, Government of India, Deck Cadet eventually becomes eligible to be posted as Captain of a Ship.

- As Deck Cadet - 3 Years Degree (Nautical Science) + Five Basic STCW modular courses
- Third Officer / Second Officer - Specified sea service as a Deck Cadet + 2nd Mate (FG) Certification
- Chief Officer - Specified sea service + First Mate (FG) course + Modular Courses + 1st Mate (FG) Certification
- Master (Captain) – Specified sea service + 1 month ASM Course + Master (FG) certification.

FLOW CHART DEPICTING PROGRESS AFTER OBTAINING B.SC. NAUTICAL SCIENCE



PROGRAMS IN COMPUTER APPLICATIONS

3-Year BCA | 5-Year Integrated BCA-MCA | 2-Year MCA (Lateral Entry)

PROGRAM OVERVIEW

Information technology and communication systems have become critical components of almost every company's strategic plan. Companies who want to take advantage of the new information technologies and communication systems require expert professionals, who can apply computer science principles to solve problems produced by the interface between business and technology. In our BCA | MCA programs, students are exposed to various areas of Computer Applications including the latest developments in the industry.

Our program in Computer Applications caters to the foundation of computing principles and business practices and trains the students to analyse problems in a wide range of applications. This program provides exposure to the students to enterprise software management methodologies.

SOME OF THE MAJOR TOPICS COVERED IN THE BCA | MCA PROGRAMS ARE:

- Introduction to Computer Organisation
- Data Structures
- Programming in Java
- Computer Architecture
- Software Engineering
- Operating Systems
- Digital Image Processing
- Programming in C & Algorithm Design
- Object Oriented Programming in C++
- Microprocessors
- Database Management Systems
- Computer Networks
- Computer Graphics
- Compiler Design

PARTNERSHIP WITH IT INDUSTRY

Marquee companies such as Amazon, VMWare, Virtusa, Red Hat, Automation Anywhere and Cisco Network have developed & deployed IT industry relevant curriculum on emerging technologies for our Computer Application programs.

aws | cisco | AUTOMATION ANYWHERE | vmware | redhat | virtusa

5-YEAR INTEGRATED BCA-MCA

Students enrolling in this program can pursue Bachelor's as well as Masters of Computer Application without taking a break. Through this program students not only get a world class, "industry-ready" curriculum but also end up saving a year. After the completion of 3-Year BCA coupled with intensive classes, students get to spend the last 2-Years as an intern in IT companies.

EMPLOYMENT AREAS

- Software Development Companies • Technical Support • System Maintenance • Consultancies
- Computers and Related Electronic Equipment Manufacturers • Schools and Colleges
- Security and Surveillance Companies • Traffic Light Management • Desktop Publishing
- Financial Institutions • Government Agencies • Insurance Providers • Banks

JOB TYPES

- Software Developers • Systems Administrators • Project Manager • Chief Information Officer
- Computer Programmers • Computer Training • Computer Systems Analysts • Computer Scientists
- Computer Support Service Specialist • Database Administrators • Computer Presentation Specialist
- Commercial & Industrial Designers • Independent Consultants • Information Systems Manager
- Software Publishers

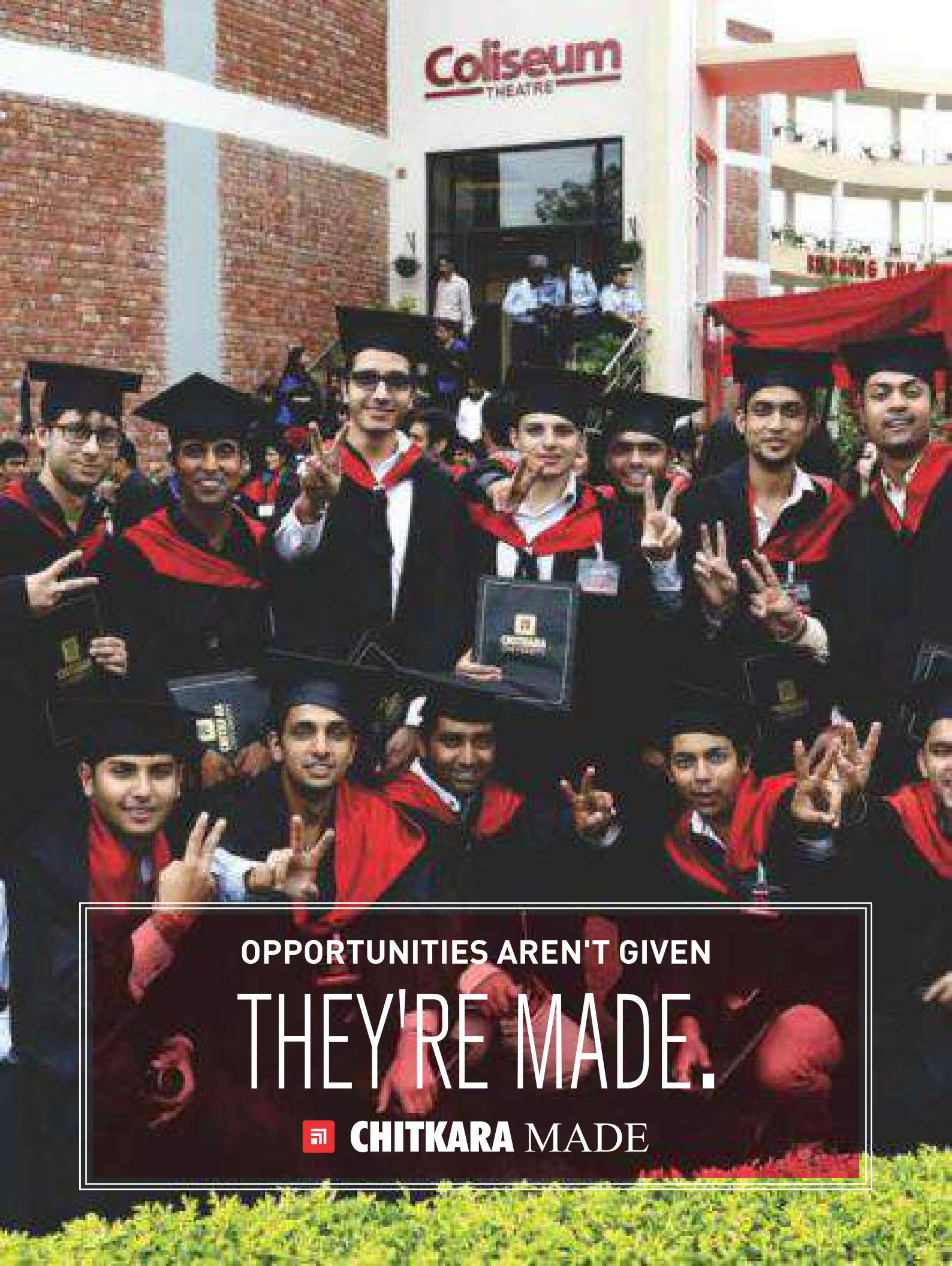
CAMPUS RECRUITERS FOR BCA & MCA GRADUATES

Some of the major companies that visited Chitkara University and hired our graduates:

Infosys® | Tech Mahindra | TATA CONSULTANCY SERVICES | Deloitte. | Capgemini

Mindtree *Welcome to possible* | NIIT | wipro | HCL

hp | amdocs | Cognizant | Panasonic | DELL


Coliseum
THEATRE
OPPORTUNITIES AREN'T GIVEN
THEY'RE MADE.
CHITKARA MADE

Engineering Programs 2024

Computer Science | Software Engineering
Electrical | Electronics & Communication
Civil | Mechanical | Nautical Sciences

CHITKARA UNIVERSITY

PUNJAB
HIMACHAL PRADESH

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