Master of Engineering Programs in

- Computer Science & Engineering
- Electronics and Communication Engineering
- Mechanical Engineering
EXPLORE YOUR POTENTIAL

Whether you want to broaden your mind, advance your career, increase your knowledge, travel the globe or change the world, Chitkara University can provide you with the opportunity and real life skills to do it.

STRONG ACADEMIC HERITAGE

Chitkara University which has been founded by highly accomplished and passionate academicians is emerging as one of the leading non-profit private Universities in the country.

100% CAMPUS RECRUITMENT

Chitkara University has established an unassailable reputation for strong on-campus recruitments on the sheer virtue of our intensive focus on making all our graduates “industry ready”.

INNOVATION

Chitkara University is different. Our students are different. So are our faculty, our academic strengths, research pedigree and our outlook on teaching and learning.

THINK

Students from around the country are attracted to Chitkara University because all our academic programs are designed with keeping YOU in mind.

So go ahead. Sign on the dotted line for your future success.
AN INSPIRATIONAL STUDENT EXPERIENCE AT A LEADING NON-PROFIT PRIVATE UNIVERSITY OF INDIA
WHO ARE WE?

Chitkara University has been founded by Dr. Ashok Chitkara and Dr. Madhu Chitkara who have been passionate teachers for more than 40 years now.

Since the inception of the University, Chitkara University has been different. Our students have been different. So are our faculty, our academic strengths and our outlook on teaching and learning.

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

This difference has been acknowledged by students, parents, alumni, Government and Industry since the inception of the University. Within a decade, most of our academic programs are ranked among the top 50 programs in the country which speaks volumes about our strong academic heritage, highly committed faculty, extensive Industry collaborations, great international connections and state of the art campus facilities.

JOIN CHITKARA UNIVERSITY TO EXPLORE YOUR POTENTIAL !!
Dr. ASHOK K CHITKARA  
CHANCELLOR  
CHITKARA UNIVERSITY  

Selecting a university program marks the start of an exciting period of your life. When you are selecting a program at an institution, you add life-changing experiences and expanded opportunities as well.

Students from around the country are attracted to Chitkara University because of our commitment to teaching excellence, because we conduct research that makes a difference, because of our industry partnerships and because of our tailored courses.

We look forward to welcoming you to Chitkara University.
Dr. MADHU CHITKARA  
VICE CHANCELLOR  
CHITKARA UNIVERSITY

Chitkara Education brings with it a reputation that has been earned through years of serving the career-needs of the student community. It is a reputation for excellence and innovation among coveted employers for preparing graduates who have the knowledge and skills they need for success in their workplace.

There are many reasons to choose Chitkara University. Our graduates go on to great careers, we’re hands-on and responsive in our teaching, we provide a great environment to study and our research is world-class.

“\nThe learning environment at CHITKARA UNIVERSITY represents a unique blend of distinguished faculty, brilliant and intellectual students with a proactive collaboration with industry."
CHITKARA UNIVERSITY IN PUNJAB

Chitkara Educational Trust established its Punjab campus in the year 2002 on the Chandigarh-Patiala national highway which is 30 kms from Chandigarh. In the year 2010, Chitkara University was established by the Punjab State Legislature under “The Chitkara University Act”. Chitkara University is a government recognized University with the right to confer degrees as per the sections 2(l) and 22(1) of the UGC Act. 1956. Chitkara University Punjab is a multi-discipline student centric campus with more than 6000 students and 1000 faculty members.
Big business greets our students with open arms.

Recognised for teaching excellence across the country, Chitkara University is the perfect preparation for your future career. Strong academic legacy, personal attention, student-centered education, outstanding teachers and a great place to study are just some of the highlights of our academic framework. We have established an unassailable reputation for very strong on-campus recruitment by sheer virtue of our intensive focus on making our students 'industry ready'.

Explore Your Potential with our following programs at the University campus in Punjab

Chitkara Institute of Engineering and Technology
- Bachelor of Engineering (B.E.) in
  - Computer Science
  - Electronics & Communication
  - Mechanical
- MCA
- BCA
- Master of Engineering (M.E.) for working professionals in
  - Computer Science
  - Electronics & Communication
- Research Induced Fellowship Program for Master of Engineering (RIFP-M.E.)
  - Computer Science
  - Electronics & Communication
  - Mechanical

Chitkara College of Education
- B. Ed.
- MBA in Marketing / Finance & Banking
- MBA (Financial Markets) with Bombay Stock Exchange
- MBA (Healthcare) with Fortis Healthcare
- MBA (HR) with Manpower Group
- MBA in Logistics & Supply Chain Mgmt with Safeducate
- B. Com
- BBA

Chitkara Business School
- MBA in Sales & Retail Marketing
- BBA in Sales & Retail Marketing

Chitkara Polytechnic
- Civil Engineering
- Electrical Engineering
- Mechanical Engineering

Chitkara School of Planning & Architecture
- B. Arch.

Chitkara College of Hotel Management & Catering
- B. Sc. (Hospitality)

Chitkara School of Mass Communication
- BAJMC
- MAJMC

Chitkara College of Pharmacy
- Pharm.D
- B. Pharm.
- M. Pharm.

We also offer specially designed Doctoral programs (PhD) in Management / Computer Science & Engineering / Electronics & Communication Engineering / Pharmaceutical Sciences / Applied Sciences / Education for working professionals.
Chitkara University’s reputation for innovative teaching, strong industry links and highly employable graduates continues to set us apart from other Indian Universities.

**SMALL WORLD**

Whether you are a Bachelor’s student, Master’s student or taking part in one of our exchange programs, we make sure you feel right at home with us.

Chitkara University provides a specially safe and serene setting for studies. Students get to enjoy the changing seasons and are able to grow in various ways.

At Chitkara University, Education is not only “State-of-the-art” but truly “State-of-the-heart”. Everything we do shares the same mindset and determination.

---

**CLEARED FOR LAUNCH**

Any decent road map to success requires that you know where you are going – and also where you have been. The third element is momentum.

In accordance with Chitkara strategy, we allocate more and more resources to excellence in teaching and learning. The entire approach at Chitkara University is learning-centric, enhancing knowledge, skills and understanding through practical experience.

Today, we have impressive world-wide collaboration agreements with top International Universities and research institutions which is helping us train Chitkara students for the new global economy.

We strongly believe that we are creating the right kind of future for the professionals of tomorrow who we are educating today. Our Education is always supported by the exceptional research that we conduct. This is a solid platform for your potential, for your ambition and for your career.
INDUSTRY-LED COURSES

Chitkara University offers a learning experience that improves your employment prospects. We maintain close links with leading blue-chip companies and professional associations to deliver most of our academic programs. Through these alliances we stay in touch with industry, ensuring that our courses are relevant, practical and deliver the skills in demand allowing our graduates to hit the ground running.

Strong corporate relationships also have a direct influence on our degree programs and have resulted in our “industry facing” curricula. This ensures that our education is up to date and valued by the future employers of our alumni. Chitkara University’s board also has a strong representation of top level executives from top corporations across the world.

GREAT CAMPUS RECRUITMENT

Chitkara University has established an unassailable reputation for very strong campus recruitment on the sheer virtue of our intensive focus on making all our graduates “industry ready”.

START ME UP

Innovation and entrepreneurial thinking are highly valued at Chitkara University. The possibility to combine business and technology in their studies gives our students unique opportunities to build their future careers, be it through top-class companies or capitalizing on their own innovations in order to create new businesses.

Think of it as your very own, personal Launch pad.
THE
CITY
BEAUTIFUL
CHANDIGARH
A million people; infinite possibilities

Located in the foothills of the Shivalik mountain ranges, Chandigarh is India’s best planned city, with world renowned architecture and an unparalleled quality of life. The face of modern India, Chandigarh, is the manifestation of a dream that Pt. Jawahar Lal Nehru envisaged and Le Corbusier executed.

Chandigarh was the first planned city in India post independence in 1947 and is known internationally for its architecture and urban design. The city has projects designed by architects such as Le Corbusier, Pierre Jeanneret, Jane Drew and Maxwell Fry. It is an urban showpiece - where plants and trees are as much a part of construction plans as the roads and buildings.

Chandigarh and its surrounding areas, namely Mohali and Panchkula are on their way to become the north Indian hubs for IT industry with major presence of companies such as Infosys Technologies, Dell, Tech Mahindra, Quark and Wipro. Chandigarh is also home to several regional offices for major multinational banks, retail establishments and real estate corporations.

With its world class infrastructure and highest per capita income Chandigarh is fast emerging as the entrepreneurship hub of the country.

Chandigarh is also attracting the service industry, education, health, food processing and a host of other companies who view it as their regional center for all north Indian states namely Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab and Haryana.

- Chandigarh is a city that comes under ‘Times’ 15 best Asian spots. ‘Times’ magazine has dubbed Chandigarh as "the thinking man’s city" amidst a continent of mindless growth
- In major surveys, Chandigarh beats Bangalore, Chennai & Hyderabad in the overall ranking of India’s best cities for doing business.
- A confederation of Indian Industries (CII) commissioned study has ranked Chandigarh as the overall third best city for doing business among 35 cities with an urban population exceeding population of one million.

With easy connectivity to major cities across India by flight as well as rail Chandigarh serves as the gateway to northern India. There are also direct flights to connect with the rest of the country mainly Mumbai, Delhi and Bangalore. Indian rail network connects this city to various Indian cities chiefly Delhi, Shimla, Lucknow, Jaipur, Mumbai, Goa and Kerala.
WE ARE
HANDS-ON & RESPONSIVE IN THE WAY WE TEACH
HANDS-ON TEACHING

Our degree programs prepare students for the real world and offer the opportunity for practical, hands-on experience, internships and projects. Take advantage of this experience to gain the practical skills employers are looking for and open your mind to career opportunities. Academics at Chitkara University keep pace with workplace demands and ensures that students are ‘work ready’ and in touch with what’s expected in a professional environment.

**Academic Excellence**

Our academic programs enjoy a great reputation in the industry. To maintain our leadership position, we focus on inducting the best faculty from across the industry and academia. Our faculty is known for its strong academic orientation contributing to the creation of knowledge in a dynamic, ever changing environment. Classes are built around experiential learning where students are pushed to their limits to take conceptual framework and apply them. Teaching methods include lectures and tutorials that emphasize a learning-centric approach and application of knowledge. Faculty brings their broad based experience into the classroom to enrich the learning process and to ensure that coursework reflects current industry practices.

**Problem Based Learning (PBL)**

Some of our courses are being taught using the PBL approach where students apply their knowledge to solve problems they may encounter in a professional context and in doing so, extend their experience beyond their text books. Elements of the work situation are brought into the classroom by the PBL approach. Students undertake a series of tasks that bring industry problems into the academic environment.
Guest Lectures
Guest lectures are regularly organised by eminent industry experts, entrepreneurs and HR managers from large and medium sized companies to give information to students on latest trends and happenings.

Applied & Project Based Learning
Applied learning is a hallmark of all teaching at Chitkara University. We believe that the best way to learn is by "doing" and that’s why we emphasize a hands-on approach. We lay stress on project based learning. Thus, the need for independent thinking and creativity is encouraged among students resulting in interesting and novel projects. Further, a significant increase in the open category credits enables students to have a broad base and pursue interests and adopt a multi-disciplinary approach.

Specialisation Options
In every program, further specialisation and electives are offered in the last year of the study. To help a student in this task, various tracks have been identified through our curriculum geared towards a variety of specialisations. Our goal is to prepare students for a satisfying career in Engineering. Following a particular curricular track will equip a student with the skills needed for progressing further in the chosen career.

Faculty
Chitkara University boasts of strong faculty with Masters and Doctorate degrees in different specialisations with appropriate academic and research blend of mind. The entire faculty has been drawn from leading academic institutions and corporations from across the country with years of teaching and research experience. Our faculty enjoys a good reputation and strong relations with leading industrial houses in terms of consultancy and research work. Our faculty not only focuses on conceptual understanding of various academic concepts but also gives first hand experience to all students through role plays, experiential exercises, industrial visits and classroom lectures.
INTERACT WITH THE LEADING GLOBAL MINDS
Lectures, demos, assignments, seminars, tutorials, laboratory assignments, internships and corporate visits are an integral part of Chitkara Education. Our study methods are continuously developed and new creative ones introduced. Small student groups allow teachers and professors to get to know every student on an individual level.

Your academic studies will be challenging. We offer the highest quality academic experience and expect you to excel. You will be an active part of a leading academic community where originality, independent thought and enquiry are not only encouraged but expected. You will be studying and working alongside academics who are experts in their fields. Our outstanding and responsive support services will be actively available to you right from the start of your transition to University life, until the end of your degree.

You will be encouraged to become an independent and self motivated learner. This means you will be able to spend your time outside of lectures reading around your chosen subject, formulating your own ideas. This will encourage you to develop an enquiry-based approach to learning, enabling you to challenge ideas and put forward your own opinion.

This approach may be very different to the way you have studied in the past. With the support of your lecturers and tutors, you will learn to adapt to this participative approach and reap the rewards it brings you. Our enquiry based approach enables you to take control of your own learning, encouraging you to develop the skills that employers are looking for.
INSPIRING AND HIGH QUALITY EDUCATION

TEACHING METHODS

We have a range of teaching methods, designed so that you can get the most from your studies such as:

**Lectures**
You will listen to experts sharing their knowledge and discoveries in challenging and encouraging ways. Academics will introduce you to key facts and ideas in your subject. There may be mini activities and pair work to complete later. You may like to take written notes, but most lectures are now recorded, so you can access the information afterwards on the Virtual Learning Environment.

**Seminars**
In small groups led by academics you will be encouraged to present and discuss your ideas and debate interpretations and opinions with other students.

**Tutorials**
You will have the opportunity to discuss your work and assignments with your tutor, usually in small groups.

**Laboratory-Based work**
You will have a chance to get practical experience and apply the knowledge you have developed in your lectures to a laboratory setting. Through these sessions you will learn to expertly analyze real life problems that will equip you with the practical and analytical skills so valued by employers.

**Workshops**
You will engage in problem solving sessions facilitated by a member of academic staff; these sessions usually involve students working in groups.

**Self Study**
You will be expected to read around the subject matter of your lectures. Lectures will stimulate your curiosity to find out more through your own independent study and teamwork with fellow students, both before and after the lecture itself.

**Peer Group Learning**
You will be asked by your tutor to direct a lesson or prepare a presentation with your fellow classmates. By interacting with the lesson material, you will remember the content more effectively.

CUTTING EDGE EQUIPMENT AND UP-TO-DATE LABORATORIES

Ample, up-to-date computer resources and the newest technology are available to students. Laboratories are equipped with tools used by the industry and businesses making our education future-proof.
ATTITUDE, COMMUNICATION & KNOWLEDGE ARE THREE ESSENTIALS FOR STUDENTS TO SUCCEED IN THEIR LIVES. WE EMPHASIZE MORE ON THESE THREE ASPECTS THOROUGHLY TO MAKE OUR STUDENTS COMPETENT AND CAPABLE PROFESSIONALS.

We provide a specially designed training program to the students in order to improve their employability skills and to prepare them to face the interview boards more effectively. The objective of this program is to provide the students with an integrated module of personality enhancement emphasizing those areas which are essential for the overall growth and development of a confident and well groomed professional.

In a recent survey of recruiters from companies with more than 50,000 employees, communication skills were cited as the single most important decisive factor in choosing employees. The survey points out that communication skills, including written and oral presentations and an ability to work with others are the main factors contributing to job success.

At Chitkara University, our qualified in-house trainers for communication skills provide language training where students learn to speak and communicate effectively. Sufficient opportunities are provided to our students to master their language skills through group discussions and presentations.
RESEARCH OPPORTUNITIES

Research at Chitkara University is growing steadily but strongly. Led by successful strategies to develop a vibrant research culture which aligns with and informs our learning and teaching activities. Our goal is to improve Chitkara’s research performance by building a critical mass of researchers who will develop a distinctive portfolio of high quality discovery, applied and commercial research.

The University’s approach to its research is differentiated, targeted and welcoming of quality collaborative partners. Our strategies include: concentrating research in areas of strength and excellence; engaging widely with local, national and international institutions, industry and community partners, and all levels of government; establishing and partnering in research centres; appointing researchers who are leaders in their fields; and commercialising applied outcomes.

Both the faculty and doctoral scholars actively involve themselves in research projects. Interdisciplinary research, a system level approach and close ties to industry combine to yield up-to-date research. Strong ties with industry complement these top-notch research opportunities. Through research centre-industry liaison programs and departmental advisory boards, faculty and students are working towards future technologies. Lot of our research initiatives are under the funding consideration from DST and other related agencies.

The students and faculty take part in national/international conferences as well as workshops and seminars in their areas of interest. Faculty are constantly involved in research publications and quality improvements programs. This approach helps the faculty in taking the student imagination beyond classroom teaching to actual scientific exploration.

Chitkara University is one of the two institutions in India that received the prestigious HP Innovation Grant of USD 1,70,000 and one among five selected from Asia Pacific including Japan for creating technology which is accessible to everyone as a way to learn, work and benefit from information.
VIBRANT RESEARCH CULTURE
Library Facilities

Library services at Chitkara University are the cornerstone of our education system. The mission of our library services is to facilitate creation of new knowledge through acquisition, organisation and dissemination of knowledge resources.

The libraries at Chitkara University Punjab have spacious reading hall, periodical centre, group discussion rooms and online database browsing area.

The University libraries offer a wide range of materials in a variety of formats—from traditional books and serials to films, multimedia and networked information from around the world. Highly skilled staff assists students to use the local collections and find information on specific topics.

Our libraries are a learning space where students are inspired to explore, research, and create. Our libraries are not only the place to think, but also an informal work area where students gather to collaborate. Social elements include a café and vending machines, lounge areas, and newspapers. Use our libraries to study for exams, finish assignments, and to balance study and work.

Our libraries house a collection of more than 20,000 items including books, journals, microfilms, audio-visual material and CD-ROMs. Furthermore, the students have access to more than 10,000 electronic journals available online.

We have access to a large number of e-resources, ASCE Journals, ASME Journals, IEL online, Science Direct, EBSCO, EMERALD, SCIFINDER, SAE-Tech Papers, Indian Standards Codes, ACM, ABI / Inform Complete (PRO QUEST), Springer Link and IEEE and ACM databases. Our libraries have a Video Conferencing facility and also provide classroom teaching through EDUSAT programs and NPTEL video courses in the different fields of education.
The annual TEDx Chitkara University, an ideas conference with an international perspective run under the banner of TED, the non-profit organisation ‘devoted to ideas worth spreading’.
PEOPLE WHO STUDY HERE DO WELL
**OUR INDUSTRY ACADEMIA RELATIONSHIPS**

Chitkara University maintains close link with leading corporations and professional associations to deliver most of our professional programs. Through these alliances we stay in touch with industry, ensuring that our courses are relevant, practical and deliver the skills in demand allowing our graduates to hit the ground running. Some of our leading industry collaborations are:

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<th>SAP</th>
<th>Google</th>
<th>Microsoft</th>
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<td>Ericsson</td>
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<td>Infosys</td>
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<td>Mahindra</td>
<td>Tata Technologies</td>
<td>Dassault Systemes</td>
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<td>Shoppers Stop</td>
<td>Fortis</td>
<td>Sankara</td>
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OUR INDUSTRY COLLABORATIONS

CHITKARA UNIVERSITY HAS ESTABLISHED AN UNASSAILABLE REPUTATION FOR VERY STRONG CAMPUS RECRUITMENT ON THE SHEER VIRTUE OF OUR INTENSIVE FOCUS ON MAKING ALL OUR GRADUATES “INDUSTRY READY”.

- Marquee companies such as ARM, Cadence and NXP Semiconductors are supporting us in terms of supplying state of the art equipments for best hands-on classroom training.
- nVIDIA which is one of the leading companies in the parallel computing space has granted the status of “CUDA teaching Centre” to Chitkara University.
- Infosys Campus Connect and Wipro 10X Mission has provided us an important framework for our Engineering curriculum Strong linkages with Industry leaders such as CISCO, Ericsson, Dassault Systems, National Instruments & Oracle to develop and deploy industry-relevant curricula on various technologies for our Engineering curriculum.
- Our program in Mechanical Engineering has been endorsed by leading companies such as Mahindra, Rasco, Dassault Systemes, Tata Technologies And Bosch.
- Chitkara Business School is offering a unique 2 year MBA program in Human Resource management with Manpower Group which is the leading manpower consultancy in the world.
- Joint management programs with BSE Institute has helped us initiate academic programs in the realm of financial sector knowledge.
- Our program in supply chain management works towards bridging the huge skill gap prevalent in the logistics industry through our industry partner, Safexpress, India’s largest supply chain & logistics company.
- All degree programs offered by the School of Health Sciences are in collaboration with Fortis Healthcare which is one of the leading healthcare providers in Asia.
- Our Optometry programs are fully endorsed by Sankara Healthcare which is one of the leading eye care chains in the country.
- The curriculum and program structure for all our Journalism and Mass Communication has been inspired and adapted from the UNESCO Model Curricula for Journalism Education.
- Strong Association with leading media corporations such as ZEE Network and other media companies has been a great support in redefining our programs in Mass Communication.
- Quadrant Televnture Ltd has installed Advanced Communication Lab on campus, which has latest equipment on 2G, 3G and 4G communication techniques to give state-of-art experience to engineering students.
THE START OF SOMETHING BIG
OUR CAMPUS RECRUITERS

SINCE INCEPTION, CHITKARA UNIVERSITY HAS A PATH BREAKING RECRUITMENT RECORD FOR GRADUATES FROM VARIOUS ACADEMIC PROGRAMS. SOME OF THE PROMINENT RECRUITERS ON CAMPUS ARE:

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<th>Infosys</th>
<th>flipkart.com</th>
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<td>Fortis</td>
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<td>asian paints</td>
<td>HONDA</td>
<td>Taj Hotels Resorts and Palaces</td>
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CAREER SERVICES

We offer our students comprehensive opportunities to occupy themselves with questions around their career planning right from the beginning of their studies. A broadly diversified choice of career activities accompanies them during their studies and offers numerous networking opportunities with company representatives and alumni.

Focus on Careers
Chitkara prepares students for the real world and fulfilling careers. With industry representation our course continues to keep pace with real world practice making our students work-ready the moment they graduate.

Mentoring
Sometimes a little advice and guidance from someone who has “been there and done that” can go a long way. Students have unlimited opportunities to interact with professionals from their field to build contacts and learn about new industry trends.

Student Support Services
Our Career Centre provides personal career counselling, extensive career development seminars and invaluable assistance in developing one’s resumes that showcase his/her skill and experiences.

Networking
Smart graduates require tapping into network of people, technology and information. At Chitkara, you are connected with world-class faculty, savvy technocrats and innovators. Technical workshops with guest speakers from the industry are held regularly to acquaint you with the latest happenings.

Internships
At the end of every academic year, most students are provided opportunities to pursue internships to gain some real world practical experience. Emphasis is placed on ensuring that students attending the program are placed in rewarding, real-world company assignments that extend the learning experience into areas that are not available at the University. Most of our degree programs offer the opportunity for practical, hands-on experience, internships and projects within the local community. This is why our graduates are in demand.
GET OUT THERE AND SEE THE WORLD
THE GLOBAL UNIVERSITY

Internationalisation and globalisation are key characteristics of today’s environment. The world has become a “Global Village” where economical, political, social and cultural dimensions are tightly intermingled. Such a platform offers not only considerable opportunities but also higher complexity. One must prepare for the future by anticipating the challenges and having a vision for the wide-ranging possibilities.

Chitkara University is prepared to face these new challenges, responding to professional and international commitments, by educating and training students and managers to be “Global Ready” for tomorrow’s world and by helping them in developing skill sets desired by future employers.

As a consequence, celebrating diversity, preparedness for international careers and “Being Global” are embedded in our organisational culture at Chitkara University.

The International Experience
Combining an international education and study abroad experience is a strong asset in today’s marketplace. It gives candidates a huge competitive advantage but also greatly contributes to students’ personal development.

Students from Chitkara University enjoyed unforgettable experiences during their study abroad programs, such as semester exchange and summer school programs, at partner universities in countries like Germany, France, South Korea, England and USA.

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 enhances candidates’ professional, global & 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 Unique Global Network
Chitkara University has established a unique network of more than a 50 partner universities and educational institutes 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.

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.

CHITKARA UNIVERSITY STUDENTS ARE EXPOSED TO A HOST OF INTERNATIONAL PROGRAMS WHICH RESULTS IN A TRULY “GLOBAL” PROFESSIONAL.
STONG INTERNATIONAL FOCUS

Programs taught in English by local and international faculty, student exchanges from partner universities all over the world, international research co-operation, dual-degree and twinning program development by international partners, international faculty exchange; all of these are key features of Chitkara University.

Twinning Programs
Chitkara students have option to finish the last 1/2 years of their degree programs at our partner Universities which helps them gain Dual degrees in they chosen specialisations.

Semester Exchange
Students visit Partner Universities for six months to one year for completing their semesters abroad.

Summer Programs
Summer Program is short duration program of 15 days to one month on various specialisations. It adds to the international exposure of the students.

International Competitions
Students participate in competitions conducted by several institutions & organisations at International Level such as MUN.

International Conferences
Students participate in International conferences that help them to experience International academic standards.

Leadership Camps
Student based leadership camp for 15 days or more and as off now the students generally travels to South Korea.

Study Based Scholarships
Partner Universities offer full year scholarships and semester long scholarships to students through which study is absolutely free for the students for those terms.

International Faculty
We regularly invite faculty from accredited Institutions across the world and it helps our students to understand diverse Education standards.
Global Connections

CHITKARA UNIVERSITY HAS STRONG AGREEMENTS FOR FACULTY AND STUDENT ACADEMIC EXCHANGE WITH TOP EDUCATION PROVIDERS ACROSS THE WORLD. SOME OF THE MAJOR INSTITUTIONS ARE

**ASIA**

**SOUTH KOREA**
- Soongsil University
- Kookmin University
- Korea University (Sejong Campus)
- Kongju National University
- Chung Ang University
- Kyung Hee University
- Sookmyung Women’s University
- Hanbuk University
- Chonbuk National University
- Kyungpook National University
- Chosun University
- Sangmyung University
- Jungwon University

**INDONESIA**
- Binus University
- Telkom University

**TAIWAN**
- China Medical University
- Providence University

**MALAYSIA**
- HELP University

**AUSTRALIA**
- Deakin University
- Edith Cowan University
- Flinders University

**SOUTH AMERICA**

**BRAZIL**
- The Pontificia Universidade Catolica DO Rio Grande Do Sul

**NORTH AMERICA**

**U.S.A**
- Central Michigan University
- University of Florida
- Purdue University
- San Diego State University
- University of Massachusetts, Lowell
- Missouri University of Science and Technology
- Northern Illinois University
- Northern Arizona University
- Portland State University

**CANADA**
- George Brown College
- British Columbia Institute of Technology
- Kings University College at Western University
- University of Prince Edward Island (UPEI)
- Vancouver Island University
- Georgian College
MEXICO
- Universidad Autonoma Delestad De Hidalgo

EUROPE

U.K
- Glasgow Caledonian University
- Anglia Ruskin University

NETHERLANDS
- Fontys University of Applied Sciences

SPAIN
- University of Alicante

FINLAND
- Helsinki Metropolia University of Applied Sciences

GERMANY
- Cologne Business School
- Karlshochschule International University
- Hochschule Osnabruck University of Applied Sciences Osnabruck
- Duale Hochschule Baden Wurttemberg (DHBW)

BELGIUM
- IHECS

PORTUGAL
- Politecnico De Coimbra

FRANCE
- ESIGELEC – School of Engineering Rouen
- Ecole Pour L’ Informatique Et Les Techniques Avancees - EPITA
- EM Normandie
- Kedge Business School
- Institute D’ Etudes Politiques De Toulouse
- Sciences Po Lille
- ISTIA-Universite Angers
- Université Montpellier 2 Sciences et Techniques
CHITKARA INSTITUTE OF ENGINEERING & TECHNOLOGY
BE PART OF A TECHNOLOGICAL FUTURE
Chitkara Institute of Engineering & Technology (CIET)

Chitkara Institute of Engineering & Technology was initiated in the year 2002 with the sole focus to prepare students from all backgrounds for careers as Engineering in a rapidly changing, technology-driven society. Within a decade, our Engineering programs have emerged as among the top 50 of the country which speaks volumes about our strong academic heritage, innovative teaching methodology and proactive industry collaborations.

Creating, inventing, innovating, attacking challenges, solving problems, improving the quality of life—these are the driving forces for Engineers. The Engineer’s ingenuity is a driving force in our society. From space stations to microsystems, the potential for innovative engineering is endless. 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. 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. We are dedicated to giving you an exceptional Engineering experience with knowledgeable and engaged faculty and the latest equipment and technology.

For the academic year 2015, we are offering the following programs:

- **3-Year Master of Engineering (M.E.) for Working Professionals in**
  - Computer Science & Engineering
  - Electronics & Communication Engineering

- **3-Year Research Induced Fellowship Program for Master of Engineering (RIFP-M.E.)**
  - Computer Science & Engineering
  - Electronics & Communication Engineering
  - Mechanical Engineering
SO WHAT DOES IT TAKE TO BECOME AN ENGINEER?

Technical Excellence

As a top-50 Engineering school of the country, it’s given that you will be challenged technically at Chitkara University. Our students take Engineering classes from day one, as well as calculus and other technical electives. Classes normally have a lecture, a lab, and practical. We offer undergraduate degrees in three traditional disciplines: Computer Science & Engineering, Electronics & Communication Engineering and Mechanical Engineering.

Exploration and Innovation

Our students must have the ability to think for themselves. Chitkara students are passionate and focused. Our students all have that drive—the need to investigate and ferret out solutions, to build, to invent, to design, to develop. Not only do we recognize it, we welcome you to bring it on!

We prioritize teaching students how to bring their ideas to fruition, not just by enhancing technical skills, but by teaching them how to foster innovation. We teach students to manage the process, to make sure that you have the skills to take your ideas to the highest possible level. We know you have the passion; we will teach you how to harness and apply it.

Intellectual Curiosity

At Chitkara, you should expect more than a course schedule and books. We want you to get your hands dirty. Majority of our students participate in research during their undergraduate years. You will be given opportunities to work with faculty and can even apply for financial support for your own research projects.

Communication Skills

The stereotypes of engineers are a thing of the past. Students who graduate from Chitkara must be capable of articulating their ideas, contributing successfully in teams, and working collaboratively with non-engineers, such as product designers or business managers. To manage projects, to solve problems, to partner on ideas, to successfully advance your career.

Verbal and written communication is also essential to being a world class engineer. You can have the best idea in the world, but if you can’t articulate it, it probably isn’t going very far. Chitkara students are required to fulfill general education requirements that include intensive focus on communication skills.
HALLMARKS OF OUR ENGINEERING EDUCATION

At Chitkara University, our Engineering students receive a quality education that prepares them to advance the frontiers of technology. Through our “hands-on” curriculum, students design and construct all-terrain vehicles; design, build and load steel bridges; produce computer animations and video games; and harness the power of the sun to race cars that they design, build and test. Our Engineers don’t just learn theory – they expand upon it and apply it.

- **Engaging Student centric Education** dedicated laboratories allows students to combine their practical and theoretical studies beginning in their first year and continuing throughout their four year program.

- **Courses have compulsory projects** as part of the curriculum. Students are engaged in engineering design from the first year itself.

- **Size and educational philosophy.** Our students have competed in many national and international design projects like solar car, mini-Baja, steel bridge and video game design.

- **Small Classes allow faculty to provide for individual attention.** Students learn in small groups, receive hands on experience every semester and participate in faculty research projects.

- **CU facilities include a number of instructional and research laboratories** including the Microsoft Innovation Centre, nVidia CUDA Teaching Centre, NXP Semiconductors Signal Lab and Dassault Design Centre.

- **Students can participate in research projects** of national character and work with blue chip companies such as Google, Texas Instruments & Hewlett Packard (HP) as well as the state governments.

- **Study abroad opportunities** are an integrated part of our Engineering curriculum which helps our students to become Global Engineers.

- **Strong Industry Collaborations.** Chitkara University has very strong industry collaborations with global industry leaders. These companies such as ARM, Cadence, Wipro, Infosys, Oracle, Microsoft, SAP and Dassault Systemes provide a platform for our budding Engineers to experience the latest technologies hand-on.

- **Campus recruitment by the best in the Industry.** We are the preferred university for fresher intake for many leading blue chip companies around the country including Microsoft, Google, Amazon and Google.
We encourage our students to enter competitions to enhance their learning experience. You will have opportunities to gain recognition of your skills and add to your resume while you are studying.
STRONG INDUSTRY COLLABORATIONS

Chikara Engineering has established an unassailable reputation for very strong campus recruitment on the sheer virtue of our intensive focus on making all our graduates “Industry Ready”.

For our Engineering programs, we realize that our technical graduates are the foundation of the new knowledge based Indian economy. We also know that an active industry-academic interface is required to achieve the goal of producing “industry ready” students who are well rounded and quick learners. For this purpose, linkages have been established with industry partners such as CISCO, CA, Dassault Systems, National Instruments and Cadence Design Systems to develop and deploy industry-relevant curricula on various technologies.

Marquee companies such as nVidia, ARM, cadence, nxP semi conductors and Texas Instruments have recently supported us in terms of supplying state of the art latest equipments for best hands-on training for our students.

- Chitkara University is privileged to be part of the SAP University Alliance.
- The Google Student Ambassador Program is an opportunity for students to act as liaison between Google and the University.
- Microsoft Innovation Centre at Chitkara University provides incubation and expert hands-on support on Microsoft technology innovation, research, and software solutions.
- nVIDIA which is one of the leading companies in the parallel computing space has granted the status of “CUDA teaching Centre” to Chitkara University.
- Marquee companies such as ARM, Cadence and NXP Semiconductors are supporting us in terms of supplying state of the art equipments for best hands-on classroom training.
- Infosys Campus Connect and Wipro 10X Mission has provided us an important framework for our Engineering curriculum
- Strong linkages with Industry leaders such as CISCO, Ericsson & National Instruments to develop and deploy industry-relevant curricula on various technologies for our Engineering curriculum.
Wipro Technologies has been hiring Engineering graduates from Chitkara Institute of Engineering and Technology for the last three years. Looking at the academic standards and performance of our alumni, Wipro Technologies has conferred “The Trusted Academic Partner” status to Chitkara University. Our Engineering curriculum now boasts of Wipro’s Talent++ series which consists of bouquet of student engagement initiatives exclusively designed for Chitkara University students.
Integrated Circuit (IC) design is a crucial Engineering field, where one has to learn the nitty-gritty involved in designing chips for complex applications. Cadence has its largest market share in design of state of the art EDA tools. Chip design in India has also moved into the big league with multinationals, design services companies, product companies and start-ups in the country growing by the day. Chitkara University has invested in procuring the necessary industry standard tools which enables innovators to design a full-fledged integrated circuit chip right from inception of an idea to layout to customize for the full scale design. Many microelectronic circuits design courses have been embedded into the course curriculum for Electronics and Communication Engineering students.

ARM is the world’s leading semiconductor intellectual property (IP) supplier. The technology designed by ARM is at the heart of many of the digital electronic products sold. ARM Technologies has taken an initiative in establishing a Microcontroller laboratory by donating state of the art embedded kits. This enables students to explore their potential and use the latest technologies to build the applications, which can compete with the best in the world.

NXP semiconductors lab has been established by a 4 billion dollar Multi National company with its presence in 25 different countries of the world. NXP Semiconductors provides High Performance Mixed Signal and Standard Product solutions that leverage its leading RF, Analog, Power Management, Interface, Security and Digital Processing expertise. As a part of this laboratory, Chitkara University has been granted state of the art software as well as hardware for realizing various electronic circuit design applications.
Oracle Workforce Development Program (WDP) is one of the most popular database management education programs in the world and we have integrated important elements of WDP in some of our programs.

Mr. Ratan Tata interacting with Chitkara students at Auto Expo where our students got the opportunity to display their design concepts for the next generation automobiles.

Cisco Networking Academy program is an e-learning program that delivers Web-based educational content, online testing, student performance tracking, instructor training and support, as well as hands-on labs. The Networking Academy program combines lectures and online learning with hands-on laboratory exercises in which students apply what they learn in class while working on actual networks. Chitkara University seeks to play a major role to provide individuals the knowledge, and teach problem-solving abilities and critical thinking skills they need to pursue a career in ICT industry in the 21st century workplace. Cisco programs prepare students for industry-recognized certification exams such as the Cisco Certified Network Associate (CCNA), Cisco Certified Network Professional (CCNP), and NetPlus+.
Infosys Campus Connect is an industry-academia partnership initiative taken by Infosys to assist the budding engineers improve their employability skills and make them industry ready. Chitkara has partnered with Infosys for this program to increase competitiveness and to enhance the pool of highly capable talent for growth requirements in IT space. The courseware comprises of the IP and experience of Infosys in training thousands of entry-level engineers from diverse backgrounds and disciplines so that they perform their best in delivering world-class projects to global customers. Chitkara University has integrated the foundation program in the curriculum for all engineering programs which covers essential generic topics like -

- Computer hardware and system software concepts
- Programming fundamentals
- RDBMS
- System development methodology
- Analysis of algorithms
- Object oriented concepts
- User interface design
- Web technologies Client/server concepts

Texas is the company of the world, which boasts of the design of first Integrated Circuit sometime in late 60s. For more than 80 years, Texas Instruments has used increasingly complex signal-processing technology—with advances ranging from the incremental to the revolutionary—to literally and repeatedly change the world. TI has sponsored a full fledged laboratory with grant of beagle board kits, which enables students to fly their imagination and create their own electronics applications.

nVIDIA is a giant company in the design of world class Computers Graphics cards. Founded in 1993, nVidia has continuously reinvented itself to delight users and shape the industry. Of late, they have harnessed the parallel computing capabilities of the GPU to advance high-performance computing and this move from nVidia into mobile domain has put them at the center of one of the industry’s fastest-growing segments. Chitkara University has been granted the status of CUDA Teaching Center (CTC) owing to a consistent performance in terms of organisation of large number of workshops on Parallel Programming and also offering courses on most advanced graphics supporting language CUDA.
AAUTOSYNC
Automotive Centre of Excellence

Aautosync is an innovation research centre incepted at Chitkara University, formulated to provide automobile intellect with a blend of practical training and theoretical demonstrations and aims to feed the automotive sphere to fulfil their research targets every year. Aautosync has excellent resources in terms of Research and Validation laboratories and expert Industry faculty promoting academic excellence. We have very strong Industry collaboration with world leaders in automotive technologies.

Tata Technologies and Dassault Systemes lend their technical plus software knowhow to set up a brilliant lab for design, manufacturing and documentation to cater to the rising demands of designers, analysts in the Automotive industry.

Aautosync has collaborated with Steinbeis Centre for Technology Transfer India, which aims to bridge the world of science, academia, and business articulately.

Mahindra Rise Igniters have collaborated with the centre forming "Igniters Innovation Lab”.

BOSCH Aftermarket - Automotive Testing equipment’s and theories which the students shall undergo to form a more coherent linkage with what they have taught.

RASCO Auto and LMI Technologies, U.S.A. associated with the centre to initiate a state of art Laboratory for "Reverse Engineering and 3D Scanning” Technology development. Aautosync stands synonymous to Innovation, Technology Transfer, Live Project management.
Student Chapters On Campus

Institute of Electrical Electronics Engineers

IEEE is the world’s largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity. Through its worldwide network of geographical units, publications, web services, and conferences, it remains the world’s largest technical professional association. Chitkara University has a very strong IEEE chapter since 2009 and has completed initiatives such as Ethical Hacking Competition [participation of more than 60 teams], Youth Parliament and numerous Technical Symposiums.

Association for Computer Machinery

ACM is widely recognized as the premier membership organisation for computing professionals, delivering resources that advance computing as a science and a profession; enable professional development; and promote policies and research that benefit society. ACM students’ Chapter has been active on our campus since 2010 and is serving as a gateway to forums, panel discussions and symposia that further enhances student’s professional development.

Institute of Electronics and Telecommunication Engineers

IETE is a leading professional society devoted to the advancement of science and technology related to “Electronics, Telecommunications and IT”. IETE has a strong campus presence since 2009 and initiating various events which is updating students with latest technological advancements.
The Indian Society for Technical Education

The major objective of ISTE is to assist and contribute in the production and development of top quality professional engineers and technicians needed by the industries and organizations. We became an Institutional member in 2005 and since then over 55 Chitkara faculty have become life members of ISTE.

The Institution of Engineers

The mandate of IE is to “to promote and advance the science, practice and business of engineering in all its branches in India” and has been active on our campus since the year 2009. Students from all branches of Engineering are active members of the Chitkara chapter.

Society of Automotive Engineers

The SAE Collegiate Club, Northern India Section at Chitkara campus was inaugurated in the year 2006 and the Department of Mechanical Engineering is immensely benefited by bringing its student members and faculty on the network of the latest advancements in technology in the field of automobiles.

American Society of Mechanical Engineers

ASME serves its technical community through high-quality programs in continuing education, the development and maintenance of codes and standards, research, conferences and publications, government relations, and various forms of outreach. ASME-Chitkara Students Section is the only one in Northern INDIA. After its beginning in January 2010, the students section has organized three events at National Level.

Computer Society of India

Formed in 1965, the CSI has been instrumental in guiding the Indian IT industry down the right path since its formative years. The mission of the CSI is to facilitate research, knowledge sharing, learning and career enhancement for all categories of IT professionals, while simultaneously inspiring and nurturing new entrants into the industry and helping them to integrate into the IT community. CSI established its chapter at Chitkara University in 2013.
Welcome to the M.E. Program at Chitkara University, an exceptional program to advance your skills and accelerate your career in the field of applied engineering. Masters from Chitkara University not only ensures hallmark education standards but also apex professional training imbued with latest techniques and technologies.

Our mission
Our mission is to provide students with a deep foundation in engineering concepts alongwith required essential skills for a successful career. To cope up with the ever changing engineering world, our curriculum is grounded on present-day engineering technologies and research problems. Our expert pool of academicians and industry experts is exemplary in imparting knowledge through advanced laboratory equipment and student-mentor interaction platforms.

Our philosophy
We strive to offer a personalized, flexible, challenging, and rewarding educational programs, based on contemporary engineering needs and technologies. In doing so, we emphasize on the enduring foundations of the field and adhere to a pragmatic style of instruction blended with the best of art and science of engineering.

Our coursework
Our coursework offers a realistic balance between the foundation courses and applied courses. Foundation courses such as mathematics, programming concepts and computer systems etc. are meant to coagulate the primary engineering concepts of the domain, chosen by the student. The applied courses can either be chosen in accordance to the field in which an aspirant student is working or it can be chosen from listed options which are offered and designed to gain expertise in extending and implementing foundation courses.

Our distinguished faculty
Chitkara University is proud to have a team of renowned researchers and skilled technocrats as its faculty. Our collaborations with industry giants offer trainings, technologies and resources from the partner organizations, so as to make our students industry ready. Students have numerous opportunities to interact with and learn from our in-house faculty and industry experts from partner organizations.

As a M.E. student
Being a Masters student at one of the world’s premier university, you will be a member of unique and distinguished intellectual community and enjoy the many benefits of academic life offered by Chitkara University. A Masters degree from Chitkara University, will not only signify to the industry your deep understanding of the foundations of applied engineering but will also attest to your new and critical skills in the evolving field of technology. We truly live in a technology-driven world where in-depth technical knowledge, advanced skills and forward-thinking philosophies are essential for taking your career to the next level!

We hope that you will consider our graduate program for your studies and we look forward to welcoming you to our community.
M.E. (Computer Science & Engineering)

For Working Professionals

Masters in Computer Science and Engineering indicates two things to prospective employers. Firstly, it guarantees that you have a broad grounding in computer science as a discipline. Secondly, it certifies that you have studied a particular area in detail and thus have additional depth in a particular specialty. The Masters of Engineering in Computer Science and Engineering for working professionals is designed for employed professionals whose primary interest is in continuing on their career paths while acquiring critical skills to move them into positions and projects of greater responsibility and impact.

What sets our program apart from other programs is our ability to tailor course work to the needs of our students, regardless of their previous computing experience. We are able to accommodate working professionals through varying schedules and customized courses, best suited to their interests.

To accommodate those with less experience in mathematics and/or programming, we offer an immersion phase to introduce students to computing and to the fundamental and introductory skills that are required to successfully begin masters level course work.
Framework for 
M.E. Computer Science & Engineering
For Working Professionals

Entry Point 1

Entry Point 2
(After Proficiency Exam)

Level-1
Two Foundation Courses

Level-2
Six Compulsory Core Courses

Level-3
Three Concentration Courses

Level-4
Three Elective Courses (Designed in reference to Concentration Courses)

Level-5
Internship Dissertation

We offer two foundation courses “Concepts of Programming” and “Mathematics for Computer Science” that all incoming students are required to take or place out, prior to start the course curriculum. These courses are of prime importance for students with little or no prior exposure/experience in computer science. These courses are intended to provide students with foundation knowledge for the rest of the program. However, students with prior knowledge/experience in mathematics and computer science can opt for placement exams. We offer flexible options for prerequisite requirements, to ensure that our incoming students are prepared for the ever-demanding curriculum.

Students with strong mathematical and programming background, can directly opt for entry point II after clearing placement exam for prerequisite courses. The student has to request for course waiver and once reviewed by selection committee, the candidate may be allowed to appear for placement tests covering mathematics, programming or both, before the start of core curriculum. The results of placement exams will not in any way affect your admission to the program.

Duration
The duration of the program varies from 30 months to 36 months.
Program Structure:
Level 1
Foundation Courses

Concepts of Programming
- Data types (native and derived)
- Operators, precedence and exceptions
- Assignment and statements
- Control flow (Conditional logic and looping logic)
- Recursion functions, return types and parameters
- Console and file I/O
- Common libraries

In addition familiarity with the following tools and techniques is useful:
- Express algorithms as pseudo code
- Version control systems
- Integrated development environments
- Advanced libraries.

Mathematics for Computer Science
- Logic
- Mathematical Reasoning
- Functions
- Summations
- Relations
- Modular Arithmetic
- Graphs

In addition familiarity with the following tools and techniques is useful:
- Calculus
- Algebra

Level 2
Core Courses

- Advanced Data Structures
- Software Engineering Methodologies
- Advanced Database Management Systems
- Advanced Programming Languages
- Computer Networks and Security
- Research Methodology
Level 3
Concentration Courses

The concentration courses are a coherent group of advanced courses that is relevant to integrating computer science with your career goals.

Software Development
Rationale: This concentration provides a solid foundation for a career that involves design, implementation, and maintenance of large, complex software systems.

The Courses are based on:
- Computer Graphics
- Database Systems
- Programming Languages
- Compiler Construction
- Advanced Web Technologies
- Artificial Intelligence
- Testing

Cognitive Science
Rationale: Cognitive Science studies the computational and representational structure of the mind. This concentration provides a general background in Cognitive Science that will provide an understanding of how Computer Science will contribute to Cognitive Science studies, and how Cognitive Science can impact Computer Science.

The Courses are based on:
- Artificial Intelligence
- Language Acquisition
- Data Mining for Decision Making
- Neural networks

Artificial Intelligence
Rationale: Many problems do not have algorithmic solutions. Artificial Intelligence is the study of computer information processing to deal with such problems or to simulate some aspect(s) of intelligent behavior.

The Courses are based on:
- Natural Language Processing
- Knowledge Representation
- Internet Information Gathering Systems
- Multi-Agent Systems
- Language Acquisition
- Internet based reasoning

Web Design
Rationale: With the internet growing at such huge rates, everything is going to be tied to it soon. Java knowledge along with networking skills will prepare one well for dealing with internet applications.

The Courses are based on:
- Computer Networks
- Data Compression in Multimedia
- Simulation of Computer Networks
- Advanced Web Technologies
- Legal Issues of the Mass Media
- Theories of Mass Communication

Bioinformatics/ Biotechnology
Rationale: Advances in Biotechnology and theoretical biology are fueled by computer technology. To fully understand how computers might be applied to this field, knowledge of Biochemistry and Cellular and Molecular Biology are important. The courses taken in this concentration emphasize such understanding.

The Courses are based on:
- Concepts and technologies in Biotechnology
- Use of databases, tools, and methods for the storage, searching, and analysis of biological molecules
- Computational problems common to bioinformatics and apply classical computer science solutions to biotechnology
- Data Mining

Econometrics & Banking
Rationale: A concentration in Economics provides an opportunity to study the role that technology, especially computers, has played in money and labor management issues and how technology has changed the way, businesses on a whole interact with one another.

The Courses are based on:
- Intermediate Microeconomic Theory
- Banking and Monetary Policy
- Economics of Human Resources
- Econometrics
- Data Mining for Decision Making
- Knowledge Representation
- Internet Information Gathering Systems
- Data Visualization and Knowledge Discovery
- Trend Forecasting and Association mining
Game Design
Rationale: In order to have a good chance of getting a job in game programming, it is necessary to be familiar with the techniques and technologies used in designing games for today.

The Courses are based on:
- Educational Game Design
- Computer Graphics
- Computer Networks
- Simulation of Computer Networks
- Advanced Web Technologies
- Artificial Intelligence
- Artificial Intelligence and Games
- Elementary Linear Algebra

Information Technology
Rationale: An information technology professional today should be skillful and knowledgeable of networking issues, multimedia, databases, and programming for the internet, given the nature of today’s applications. This concentration will prepare one in these important areas.

The Courses are based on:
- Multimedia and Interactive Design
- Database Systems
- Computer Networks
- Data Compression in Multimedia
- Simulation of Computer Networks
- Advanced Web Technologies
- Internet Information Gathering Systems

Management Information Systems & Project Management
Rationale: This concentration provides a general background in business, with a concentration in the use of computers as a management tool. As there are many different areas of business in which computers can be applied, there are many different business concentrations that could be appropriate, however, if your primary interest is in how business uses computers to gather and process information in order to make better management decisions, this concentration will provide a strong background in these areas.

The Courses are based on:
- Survey of Accounting
- Management information systems
- Decision Support Systems
- Data Mining and Data Warehousing
- Introduction to Technology in Business Process
- Systems Analysis and Implementation
- Enterprise Resource Planning
- Technological Problem Solving
- Problem Solving Project Management

Education Technology
Rationale: The fast emerging field of Educational Technology refers to the thoughtful design, implementation and assessment of new media and technology. Initiatives to give the necessary impetus to create effective learning organizations are required. Educational Technology is the domain of the techno-cognitive era.

The Courses are based on:
- Research, discovery and sustainable technologies
- Distinctive education through the pioneering use of technology
- Using technology to develop talent for sustainable growth of industry and society
- Thoughtful design, implementation and assessment of new media and technology to develop effective learning organizations
- Use and development of ICT concepts for Engineering Education
Level 4
Elective Courses
Design to Support Concentration Courses

Application Development
- iOS Application Development
- Android Application Development
- Web Development
- Security
- User Interface Design

Data Analytics
- Foundations of Data Analytics
- Advance Data Analytics
- Big Data
- Data Warehouse
- Data Mining

High Performance Computing
- Big Data
- High Performance Computing
- Cloud Computing
- Data Science

Software Engineering
- Agile Software Development
- Software Testing & Quality Assurance
- Software Project Management
- Object Oriented Analysis & Design Using UML
- Automated Testing

Machine Learning
- Soft Computing
- Artificial Intelligence
- Pattern Recognition

Advance Programming Concepts
- Advanced Java Programming
- Advanced Object Oriented Programming
- .Net Programming
- R Programming Language
- Computer Graphics and vision

Networks
- Ad-hoc Networks
- Wireless Networks
- Network Protocol Design
- Advanced Network Forensics and Analysis

Level 5
Internship / Dissertation

The students have the option to pursue internship at their parent organization or research based dissertation under the supervision of a mentor (on-roll faculty member), assigned by university.
M.E. (Electronics & Communication Engineering) For Working Professionals

The Master of Engineering in Electronics and Communication Engineering (M.E. (ECE)) for working professionals is designed for employed professionals whose primary interest is in continuing on their career paths while acquiring critical skills to move them into positions and projects of greater responsibility and impact.

Master of Engineering in Electronics and Communication delivers advanced core knowledge required in the electronics area to allow graduates to work in many different disciplines of electronics. It also covers very important area of modern electronic computing. Most modern electronic devices and systems contain microprocessor or computing hardware. There is growing demand for Electronics professionals having expertise in most modern computational and simulation tools.
Framework for M.E. Electronics & Communication Engineering
For Working Professionals

![Diagram of Framework]

We offer two foundation courses “Digital Electronics” and “Mathematics & Basic Programming” that all incoming M.E. (ECE) students are required to take or place out, prior to start the course curriculum. These courses are of prime importance for students with little or no prior exposure/ experience in the field of Electronic and Communication Engineering. These courses are intended to provide students with foundation knowledge for the rest of the program. However, Students with prior knowledge/ experience in Digital Electronics and Mathematics Programming can opt for proficiency exam. We offer flexible options for prerequisite requirements, to ensure that our incoming students are prepared for the ever demanding curriculum.damental and introductory skills that are required to successfully begin masters level course work.

Students with strong mathematical and programming background, can directly opt for entry point II after clearing placement exam for prerequisite courses. The student has to request for course waiver and once reviewed by selection committee, the candidate may be allowed to appear for placement tests covering mathematics, programming or both, before the start of core curriculum. The results of placement exams will not in any way affect your admission to the program.

Duration
The duration of the program varies from 30 months to 36 months
Program Structure:
Level 1
Foundation Courses
Digital Electronics
Candidate must have basic knowledge of digital electronics which includes:
- Number System & Codes
- Logic Gates & Boolean Algebra
- Combinational Logic
- Digital Arithmetic
- Latches & Flip-Flops
- Counters & Registers

Mathematics & Programming

Mathematics
- Introduction to Integral Calculus
- Matrix Algebra
- Differential Calculus & Differential Equations
- Complex Numbers
- Vectors

Programming Languages
- C/C++
- Core java

Level 2
Core Courses
- Research Methodology (Compulsory)
- Embedded System Design & Computing
- Computer Communication Networks & Protocols
- Applied Computational engineering
- Advanced Signal Processing
- Neural Networks and Fuzzy Logic
Level 3
Concentration Courses

The concentration courses are a coherent group of advanced courses that is relevant to your career goals.

Wireless Networks & Standards
**Rationale:** This concentration provides a foundation for a career that involves study and implementation of wireless networks and systems.

The Courses are based on:
- 3G/4G Wireless networks
- Smart Antenna designs
- Security issues in Wireless networks
- Wireless protocols & Sensors
- Wireless ERP/CRM

Mobile Communication & Technology
**Rationale:** This concentration provides latest developments and trends in mobile computing and technologies which involves mobile communication, mobile hardware, and mobile software. Moreover, it includes communication issues highlighting ad hoc and infrastructure networks as well as communication properties, protocols, data formats and concrete technologies.

The Courses are based on:
- Mobile application development
- Smart Mobile devices
- Mobile device management
- Mobile device Platforms & Applications
- Mobile Services Protocols
- Mobile based internet services

Antenna Design & Propagation
**Rationale:** This concentration covers all aspects of radio frequency engineering and design of antennas, that incorporate theory and practices to illustrate the concept of electromagnetic spectrum in cellular networks such as GSM, CDMA, UMTS.HSPA+, LTE, LTE-Advanced, Wi-Fi, Bluetooth, Zigbee, WiMAX, Satellite Communications, VSAT, two-way radio, and Public Safety Solutions.

The Courses are based on:
- Computer Aided Microwave circuit design
- Waveguides and Transmission lines
- Electromagnetic Boundary problems
- Guided wave optics
- Radar and remote sensing

- Micro-electromechanical antennas (MEM-tennas) and nano-antennas.
- RF MEMS
- Smart (adaptive) antenna arrays

Low Power CMOS VLSI Design
**Rationale:** This concentration involves methods to design and analyze digital circuits, to understand transistor operations, circuit families, area-power-performance analysis, layout design techniques, signal integrity analysis, memory design and clocking issues. These courses also cover various design methodologies such as custom, semi-custom, standard cell, arrayed logic, sea-of-gates.

The Courses are based on:
- Introduction to VLSI; CMOS; design metrics
- Combinational logic, layout, design rules
- Manufacturing process;
- Low Power design strategies
- Circuit families; Static and Dynamic
- Sequential Circuits
- Clocking and Synchronization
- Deep sub-micron designs
- Memory design
- Emerging topics; On-chip Sensors, Variability and Hardware Security
- CMOS system design, Floor plan, Placement and routing, Project design

Advanced HDL for Programmable Logic
**Rationale:** A concentration in HDL provides an opportunity to study the role that how technology has changed the way to implement large and complex digital system with low power and energy efficient.

The Courses are based on:
- HDL overview and latest developments
- VHDL syntax
- HDL test bench design
- Combinational and sequential circuit design
- Finite State Machine HDL design
Robotic Kinematics & Dynamics

Rationale: This concentration involves techniques and technologies used in designing today’s automatic control systems and mobile robots.

The Courses are based on:
- Realization of high-level autonomous robot behavior based on task-oriented approach and system integration
- Development of new fundamental technologies for intelligent mobile robots
- Human interface and remote control technologies for mobile robots
- Design and Control of Autonomous Robots

Internet of Things

Rationale: This concentration aims to provide the innovative contributions concerning the issues in Internet of Things solutions that involve interconnected smart things which interoperate with the objective of solving problems and provide functionality or optimize multiple tasks.

The Courses are based on:
- Basic principles and instrument characteristics.
- Smart things network and communication: architectures, services and protocols.
- Smart things: privacy, security and identification.
- Internet of Things systems and applications.
- User-centric solutions to define IoT collaborative process.
- Innovative IoT Solutions for handicapped persons.
- Smart things and RFID/NFC communications.
- Intelligent systems based on connected vehicles.
- Smart things networks for real world data management.
- Practical experiences in Smart cities, large-scale IoT systems.

Embedded Computation & Automation

Rationale: This concentration provides analytical and refined knowledge about processes and mechanism involved in latest embedded systems ideally suited for automotive, aerospace, defense, and consumer electronics, as well as for practicing engineers in the embedded systems industry who want to gain knowledge in state-of-the-art tools, theories, & specifications of embedded systems.

The Courses are based on:
- Analysis of embedded systems,
- Interface to the real-time operating systems,
- Hard and soft real-time operating systems, and fault tolerant systems.
- Embedded Processor Design
- Fuzzy System
- Embedded Application Development

Education Technology

Rationale: This concentration refers to the thoughtful design, implementation and assessment of new media and technology initiatives to give the necessary impetus to create effective learning organizations. Educational Technology is the degree of the techno-cognitive era.

The Courses are based on:
- Research, discovery and sustainable technologies
- Distinctive education through the pioneering use of technology
- Using technology to develop talent for sustainable growth of industry and society
- Thoughtful design, implementation and assessment of new media and technology to develop effective learning organizations
- Use and development of ICT concepts for Engineering Education

Nano-Electronics

Rationale: This concentration imparts detailed theories about methods and processes involved to fabricate Nano materials, optimizing Nano instruments which can be used in automobile, defense, medical industries and some others areas.

The Courses are based on:
- Nanotubes /Nano-materials
- Nano-measurements
- Nano Fabrication
- Nano-Optics
- Biomedical Instrumentation
- Medical electronics
**Advanced Signal & Image Processing**  
**Rationale:** This concentration provides knowledge about concept of digital communication, Digital Signal Processing which is the core technology of almost every modern electronic system. All Complex computational processes like seizure analysis and environmental modeling use DSP and other signal processing to interpret vast quantities of data.

The Courses are based on:
- Advanced Digital design
- Adaptive signal processing
- Mathematics for signal processing
- Speech processing
- Biomedical Signal processing
- Information theory & error control coding
- Signal processing for Communication

**Control System**  
**Rationale:** This concentration provides information about methods, processes and technologies used in designing automatic control systems with integrated stability and driving capabilities.

The Courses are based on:
- Linear and Non-Linear Control System
- Robust Control Systems
- State-space Control System
- Modeling of Systems
- Transforms and Stability Measures

**Level 4**  
**Elective Courses**  
**Designed to Support Concentration Courses**

**Wireless and Tele Communication**
- Digital Wireless fundamentals
- Smart Antenna design & Propagation
- Advanced Communication Security

**VLSI Design**
- Processor Architecture for VLSI
- Semiconductor device modeling
- CAD/CAE Designs

**Embedded System Design**
- RTOS
- Hardware & Software Co-design
- Fuzzy System Design
- Application development

**Signal Processing**
- DSP algorithms
- Biomedical Signal Processing
- Data Encryption & Cryptography
- Probability & Random Processes
- Detection & Estimation Theory

**Nano/Opto electronics**
- Nano-materials
- Nanofabrication characterization
- Nano photonics
- Nano-Optics

**Advanced Programming Concepts**
- Advanced Java Programming
- Advanced Object Oriented Programming
- C/System C Language

**System On Chip**
- Large System VLSI Integration
- Mixed circuits VLSI designs
- Analog CMOS designs using CAD Tools

**Digital Communication**
- Coding for discrete sources & Quantization
- Random process & Noise
- Channel modulation, demodulation and interference
- Vector space & Signal space

**Level 5**  
**Dissertation / Thesis**  
The students have the option for internship at their parent organization or research based dissertation under the supervision of a mentor (on-roll faculty member), assigned by university.
Admission Criteria
Admission Eligibility

M.E. [Computer Science & Engineering] for Working Professionals

Candidate having BE/BTech (Electronics/Electrical/CSE/IT) or MSc[CS]/MSc[IT] or MCA with 60% marks or CGPA of 6 on a scale of 10 and 2 years experience in industry/teaching and presently employed in industry/teaching are eligible to apply for admission to this program.

M.E. [Electronics and Communication Engineering] for Working Professionals

Candidate having BE/BTech[Electronics /Electrical /CSE/IT] or MSc[CS]/MSc[IT]/MSc [Electronics] or MCA with 60% marks or CGPA of 6 on a scale of 10 and 2 years experience in industry/teaching and presently employed in industry/teaching are eligible to apply for admission to this program.

Age Limit: Candidates must not be more than 60 years of age as on the date of enrollment.

All applications will be screened by a committee comprising representatives from Academia and Industry. The shortlisted candidates will appear in an entrance test comprising of written test and personal interview. Based on the performance in the entrance test, the candidates will be finally selected for ME program.

Program Fees

<table>
<thead>
<tr>
<th>Components</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment Fee</td>
<td>Rs.40000/-</td>
</tr>
<tr>
<td>Level 1 Two Foundation Courses</td>
<td>Rs.20000/-</td>
</tr>
<tr>
<td>Level 2 Six Compulsory Core Courses</td>
<td>Rs.60000/-</td>
</tr>
<tr>
<td>Level 3 Three Concentration Courses</td>
<td>Rs.45000/-</td>
</tr>
<tr>
<td>Level 4 Three Elective Courses</td>
<td>Rs.45000/-</td>
</tr>
<tr>
<td>Level 5 Internship Dissertation</td>
<td>Rs.40000/-</td>
</tr>
<tr>
<td>Total</td>
<td>Rs.250000/-</td>
</tr>
</tbody>
</table>
Research Induced Fellowship Program for Master of Engineering (RIFP-M.E.)

At Chitkara University, we offer unique Research Induced Fellowship program (RIFP) for Master of Engineering (M.E.) in

- Computer Science & Engineering
- Electronics & Communication Engineering
- Mechanical Engineering

The aim of this program is to give the aspiring University teachers a broad theoretical knowledge imbued with deep research understanding. It will enable students to tackle practical complex problems of design and development in industrial fields, and to deep dive into research areas of their interest. Some other highlights of the program are:

- On admission, the students are simultaneously hired on Research Assistant / Teaching Assistant role, for which they are paid performance-linked stipend.
- On successful completion of the program, the students have the option to choose (based on selection criteria)
  - Direct entry into the Fellowship PhD program of the University, where they work as Research Associates in CURIN (Chitkara University Research and Innovation Network)
  or
  - Teaching career with School of (Electronics / Computer Science & Engineering / Mechanical Engineering)
**Academic Framework**
The courses in the RIFP – M.E. program are taught in blended learning mode. All combinations of Flipped classrooms, On-line classes and Face-to-face classes, Project based and Experiential classes are organized best suiting to a particular course and to give an exposure to various learning styles and modes to the students. The students are taught courses during winter and summer breaks and are assigned work as Research Assistants with CURIN (Chitkara University Research and Innovation Network) / Teaching Assistants with respective engineering schools during the regular semesters.

Thus, during **August – November** and during **February - May** every year, the RIFP – M.E. students Assist senior teachers in BE classes / Work on an assigned Research Project

And, during **December - January** and **June – July**, the RIFP – M.E. students are taught their RIFP – M.E. courses in blended learning modes

Courses in the said program are designed to give the learners breadth for teaching orientation and depth for research orientation.

**Duration**
The duration of the program varies from 30 – 36 months.

**Program Structure:**
The unique program structure offers a variety of roles and exposure to enrolled students. The student will be provided with firsthand experience in classroom teaching as Teaching Assistants / research projects as Research Assistants and would be taught courses by variety of Learning designs. Courses are offered in any of the modes described above. Learning Management System - Google Classroom is used extensively to keep track of the course work. Research Track Courses and Research projects are offered to give the students the required depth in their chosen area of interest.

**Academic Year I**

<table>
<thead>
<tr>
<th>Month</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>Work as Teaching Assistant with School of Engineering OR</td>
</tr>
<tr>
<td></td>
<td>Work as Research assistant with CURIN</td>
</tr>
<tr>
<td>September</td>
<td></td>
</tr>
<tr>
<td>October</td>
<td>Study 3 Theory Courses And Practice Lab work</td>
</tr>
<tr>
<td>November</td>
<td></td>
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<tr>
<td>December</td>
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<tr>
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<tr>
<td>April</td>
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<tr>
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<td></td>
</tr>
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<tr>
<td>July</td>
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</table>
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<thead>
<tr>
<th>Month</th>
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<tbody>
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<td>August</td>
<td>Work as Teaching Assistant with School of Engineering OR</td>
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</tr>
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</tr>
<tr>
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<tr>
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<tr>
<td>October</td>
<td>Work on Pre-Thesis</td>
</tr>
<tr>
<td>November</td>
<td>Study 3 Theory Courses And Practice Lab work</td>
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<tr>
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</tr>
<tr>
<td>May</td>
<td>Study 3 Theory Courses And Practice Lab work</td>
</tr>
<tr>
<td>June</td>
<td>Work on Thesis</td>
</tr>
<tr>
<td>July</td>
<td>Work on Thesis</td>
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</table>

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</tr>
<tr>
<td>July</td>
<td>Study 3 Theory Courses And Practice Lab work</td>
</tr>
</tbody>
</table>
## Courses offered:

<table>
<thead>
<tr>
<th>Mechanical Engineering</th>
<th>Electronics &amp; Communication Engineering</th>
<th>Computer Science &amp; Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Engineering Mathematics</td>
<td>Mixed Signal Circuit Design</td>
<td>Algorithm and Complexity</td>
</tr>
<tr>
<td>Finite Element Methods &amp; Lab</td>
<td>Digital Image Processing</td>
<td>Advanced Computer Architecture</td>
</tr>
<tr>
<td>Computer Aided Design</td>
<td>Mixed Signal Circuit Design Lab</td>
<td>Mobile Computing</td>
</tr>
<tr>
<td>Computer Programming &amp; Data Structures Mechatronix</td>
<td>CAD for Digital VLSI Design</td>
<td>Algorithm and Complexity Lab</td>
</tr>
<tr>
<td>Optimization Techniques</td>
<td>Digital Image Processing Lab</td>
<td>Advanced Databases</td>
</tr>
<tr>
<td>Research Methodology and Operation Research</td>
<td>Fundamental Programming</td>
<td>Software Testing and Quality Management</td>
</tr>
<tr>
<td>Advanced Heat and Mass Transfer</td>
<td>Logic Synthesis</td>
<td>AI and Expert Systems</td>
</tr>
<tr>
<td>Advanced Engineering Design</td>
<td>Advanced Wireless Networks</td>
<td>Software Testing- Lab</td>
</tr>
<tr>
<td>Advanced Manufacturing Practices</td>
<td>Research Methodology &amp; Operation Research</td>
<td>Research Methodology &amp; Operation Research</td>
</tr>
<tr>
<td>Design of Gas Turbines</td>
<td>Smart Antennas</td>
<td>Advanced Operating System</td>
</tr>
<tr>
<td>Advanced Fluid Mechanics Lab</td>
<td>WDM Optical Networks</td>
<td>Advanced Computer Networks</td>
</tr>
<tr>
<td>Modeling and Simulation</td>
<td>Advanced Digital Communication</td>
<td>Advanced Computer Networks Lab</td>
</tr>
<tr>
<td>Advanced Power Plant Engineering</td>
<td>Pattern Recognition and Analysis</td>
<td>Cloud Computing</td>
</tr>
<tr>
<td>Cold Preservation of Food</td>
<td>Mobile Computing</td>
<td>Data warehousing &amp; Mining</td>
</tr>
<tr>
<td>Refrigeration Engineering</td>
<td>Processor Designs</td>
<td>Network Security</td>
</tr>
<tr>
<td>Cryogenics Engineering</td>
<td></td>
<td>Pre Thesis Work</td>
</tr>
</tbody>
</table>
**Research projects are based on (but not limited to):**

<table>
<thead>
<tr>
<th>Mechanical Engineering</th>
<th>Electronics &amp; Communication Engineering</th>
<th>Computer Science &amp; Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechatronix</td>
<td>Computer Vision</td>
<td>Virtual Private Network &amp; Implementation</td>
</tr>
<tr>
<td>Project Design and Development</td>
<td>Embedded Systems Design</td>
<td>Speech Signal Processing</td>
</tr>
<tr>
<td>Product Life Cycle Management</td>
<td>RF Design</td>
<td>Digital Image Processing</td>
</tr>
<tr>
<td>Robotics</td>
<td>Adaptive Signal Processing</td>
<td>Data Mining &amp; Warehousing</td>
</tr>
<tr>
<td>Advanced Automobile Engineering</td>
<td>Mixed Signal Designs</td>
<td>Advanced Software Engineering Concepts</td>
</tr>
<tr>
<td>Industrial Automation</td>
<td>Nano Technology: System &amp; Materials</td>
<td>Advanced Databases &amp; Knowledge Management Systems</td>
</tr>
<tr>
<td>Advanced Thermal Engineering</td>
<td>VLSI DESIGN</td>
<td>Data mining &amp; Warehousing</td>
</tr>
<tr>
<td>Adaptive Manufacturing</td>
<td>Fuzzy Systems Design</td>
<td>Big Data and business Intelligence</td>
</tr>
</tbody>
</table>

**Dissertation**

After completion of coursework, the candidates are required to submit a dissertation based the research project they have worked upon. The candidate has to defend his/ her research findings before expert committee and to appear for final viva. On successful defense of research findings and acceptance of dissertation, the candidate will be conferred with Masters Degree in the concerned engineering discipline.

**Admission Criteria**

**Admission Eligibility**

**RIFP M.E. [Computer Science & Engineering]**

Candidate having BE/BTech[Electronics/Electrical/CSE/IT] or MSc[CS]/MSc[IT] or MCA with 60% marks or CGPA of 6 on a scale of 10

**RIFP M.E. [Electronics & Communication Engineering]**

Candidate having BE/BTech[Electronics /Electrical /CSE/IT] or MSc[CS]/MSc[IT]/MSc [Electronics] or MCA with 60% marks or CGPA of 6 on a scale of 10

**RIFP M.E. [Mechanical Engineering]**

Candidate having BE[ME/Production Engineering/Industrial Engineering /Automobiles Engineering] with 60% marks or CGPA of 6 on a scale of 10