

Explore **Your** Potential



DOCTORAL PROGRAM (Ph.D) IN COMPUTER SCIENCE & ENGINEERING

WHO ARE WE?

Chitkara University has been founded by **Dr. Ashok K 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 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 in **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 !!



OVERVIEW OF CHITKARA ENGINEERING EDUCATION

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.

Engineering programs were 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.

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.

Chitkara University’s Doctor of Computer Science & Engineering degree builds on the foundation of a master’s degree to prepare students for senior level leadership, consulting, and teaching positions within business, government, nonprofit organizations, and higher education. CU doctoral students are educated to discover new solutions to unsolved problems in a range of fields. Students develop analytic and research skills to define problems, study advanced content knowledge to discover innovative solutions, and practice consulting and leadership techniques to facilitate innovative change in organizations, communities, and society. Using these skills, graduates may find opportunities as leaders within nonprofit organizations and businesses, as consultants, or as faculty within higher education.

Our Doctor of Computer Science & Engineering degree program has been designed to help you gain an in-depth understanding of a specialized subject related to computer science so that you can predict trends and, ultimately, make contributions in your area of expertise. Along with intensive research and writing projects, you will have the opportunity to explore high level design issues, evaluate methods of maintaining security in distributed systems, develop a software process improvement plan for an organization and design, test and implement an experiment ñ including reporting on the results.

Accelerate Your Career with a Doctorate Degree in Computer Science & Engineering

The Ph.D. Program in Computer Science & Engineering at Chitkara University is designed to prepare selected students for leadership in industrial and research careers ñ and for teaching in academia. A research career can bring rewards unequaled in any other profession. You will meet and work with some of the brightest people on the planet. You will reach for ideas beyond your grasp, and in so doing extend your intellectual capabilities. You will solve problems that have not been solved before. You will explore concepts that have not been explored. You will uncover principles that change the way people use computers.

Earning a doctoral degree in Computer Science empowers you to

- Launch an academic career
- Value addition in your technical expertise
- Initiate a creative and innovative ideas

Exploring innovative ideas with other experienced professionals guided by a renowned research faculty enable you to

- Acquire theoretical knowledge
- Develop Analytical Skills
- Cultivate new expertise
- Explore innovative and creative concepts
- Enhance professional networks
- Earn a respected credential





Earn the Ideal Ph.D

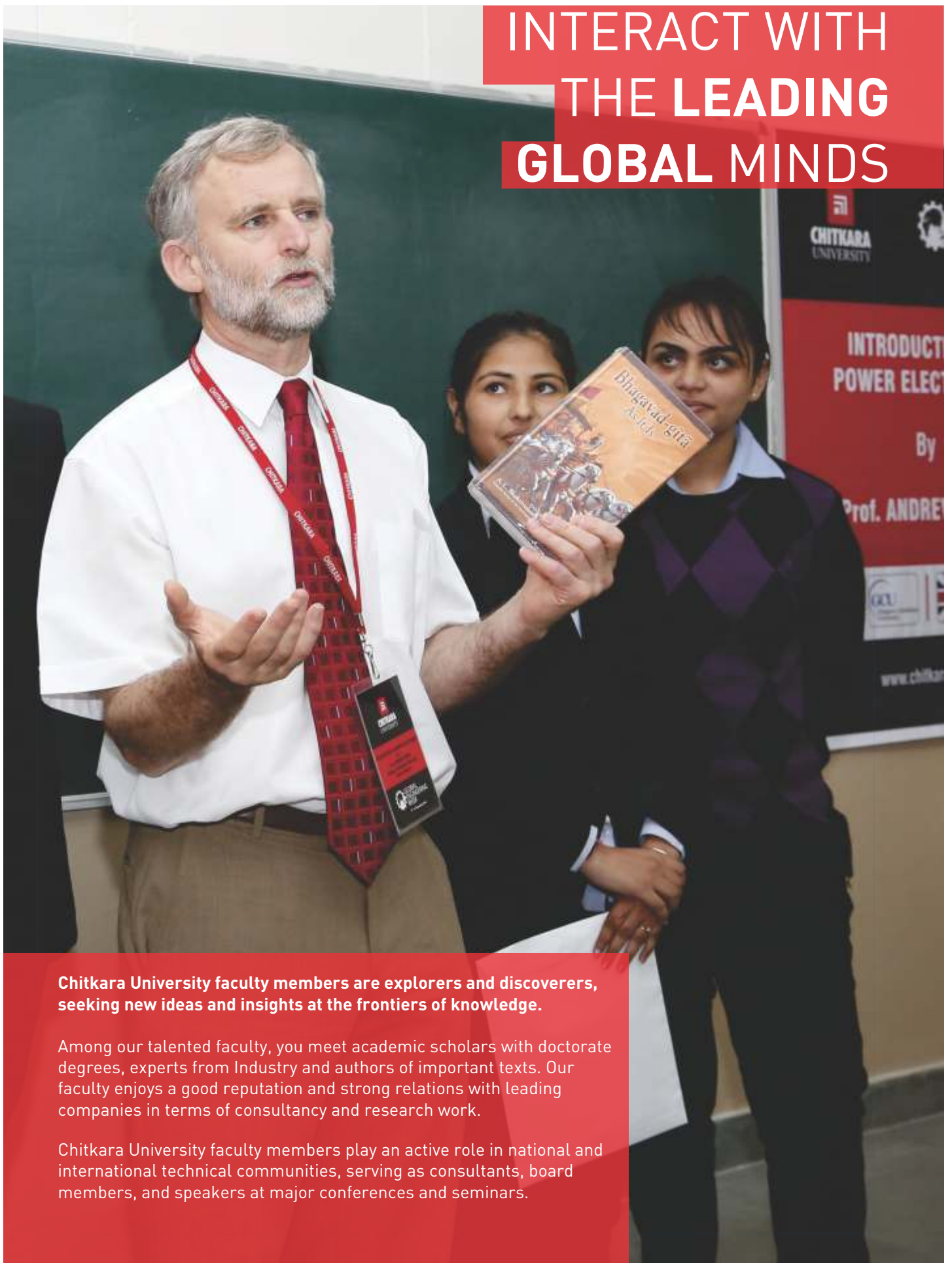
Chitkara University is the ideal place for you to earn a doctorate in Computer Science & Engineering. Our doctoral program for working executives combines

- Outstanding Faculty and Researchers in the field of Computer Science
- Rigorous Curriculum
- Innovative pedagogy
- Stimulating environment
- Intensive relationships
- Flexible Scheduling

You are an ideal applicant if you want to associate with

- Technocrats who combine significant technical experience with high intellectual capacity and curiosity
- Software professionals who view higher education as a resource for creativity confronting contemporary CyberWorld challenges.
- Leaders who see comprehensive understanding of Computer Science and ICT environment
- People who must maintain full-time employment while pursuing advance education.
- Professionals who desire more powerful tools to analyze complex problems

INTERACT WITH THE LEADING GLOBAL MINDS



Chitkara University faculty members are explorers and discoverers, seeking new ideas and insights at the frontiers of knowledge.

Among our talented faculty, you meet academic scholars with doctorate degrees, experts from Industry and authors of important texts. Our faculty enjoys a good reputation and strong relations with leading companies in terms of consultancy and research work.

Chitkara University faculty members play an active role in national and international technical communities, serving as consultants, board members, and speakers at major conferences and seminars.



Program Mission and Objectives

Driving Education Strategically

Program Mission

The Mission of our Doctoral Program is to enable successful Software Professionals to pursue their academic career by infusing them with theoretical knowledge to conceptually understand cyber world issues and develop enhanced research skills. This will enable them to do better problem solving and generation of workable solution to the complex Information and Communication Technology issues.

Educational Objectives

The educational objectives of our Doctoral Program in Computer Science & Engineering are to enable students to :

- Apply theoretical and analytical competency in own working and functional area.
- Exhibit analytical and research skills necessary to create knowledge and apply it to emerging ICT issues.
- Demonstrate expertise in specific topic through the design, execution and completion of doctoral dissertation that contributes to the knowledge and practice of the field.

Benefit from the Unique Doctoral Experience

Combining Research and Reality

This Doctoral Program uniquely fulfills the educational needs of active Computer Professionals

- **Balancing breadth and depth**

The program includes four core courses to prepare research, contemporary issues in Computer Science and emerging concepts of Operating System, Computer Networks, Database Systems, Software Modeling , Data Structure and Algorithm Development.

- **Integrating research and problem solving**

Through specialization research courses, this program enhances your capacity to attack exigent cyber problems in bold new ways by employing systematic analytical methods and research techniques in your chosen field.

- **Merging theory and practice**

The doctoral program emphasizes established and emerging theory that has proven potential for identifying, structure and solving ICT problems. You collaborate with seasoned professionals and accomplished faculty to advance Computer Science knowledge and improve practice.

- **Blending Classroom and Online Learning**

By incorporating the advantages of both co-located contemporary instruction and asynchronous distributed learning this program delivers effective and efficient doctoral education. Seminars continue your learning beyond the classroom. Core courses will however be delivered in the University Campus.

The educational climate of this doctoral program enriches your learning by forming and energizing groups of candidates who complete most of their courses together. The group

- broadens your perspectives by leveraging the diverse experiences of computer professionals from many software industries and functions.
 - Stimulate your intellectual curiosity and critical thinking to attack complex problems.
 - Challenges you continuously through online discussions between monthly class sessions.
 - Motivate you to progress by providing an emotional and social support group.
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Capitalize on the Comprehensive Curriculum

Delivering Rigorous Doctoral Education

Structure

The Doctor of Philosophy in Computer Science & Engineering curriculum includes three core courses of study namely, **Seminar on Research Methodology, Doctoral Foundation Seminar in Computer Science and Seminar on Doctoral Concentration** including specialization and four courses equivalent on thesis progress. Core courses are completed during the first year, through in campus delivery.

Progress Review Seminar

The seminar track progress of Ph.D. Study. These are to be held once every six months after approval of synopsis. Three such seminars are held by the University with intensive mentoring by Doctoral Research Committee.

Publishing Tutorial

The candidates are expected to write at least one well researched article and publish it in International refereed journal before completion of their study. This will provide you an opportunity to conduct in-depth research in the chosen subject.

Seminar on Doctoral Concentration

Each doctoral candidate will complete a comprehensive seminar which will have two modules:

- Contemporary issues in Computer Science
- Core Specialization of the candidate

Curriculum Summary

Areas of Study

Seminar on Research Methods

Seminar on Advanced Research Methods

Doctoral Foundation Seminar in General Management

Seminar on Doctoral Concentration

Submission of Doctoral Research Synopsis

Progress Review Seminars

Publishing Tutorial

Thesis Submission & Defense

TAKE YOUR
CAREER TO THE
NEXT
LEVEL



Framework for Doctoral Program

Deliverable-1 | Submission of Application Form

Please fill out the attached application form

Deliverable-2 | Acceptance by Chitkara University Doctoral Research Center

After acceptance of the form, the admission process will be as follows

- Written Test
- Personal Interview

The syllabus of written test will be communicated to you on e-mail

Deliverable-3 | Selection of Doctoral Program

Once you are selected for the Ph.D. Program at Chitkara University, you would need to deposit a fee of Rs.50,000/- towards registration and commencement of your course.

Deliverable-4 | Course work requirement

Every candidate should complete four courses before working on Doctoral Dissertation. Every course will be held twice in a year and will be scheduled on the weekends. Course work dates for the year will be announced ahead of schedule so that you can plan your break from your workplace. Each course will normally be for four days duration including the weekends.

Details of Courses

- **Deliverable4-(a)** | Doctoral Seminar on Research Methodology.
On completion of this course work, the candidate will be able to:
 - ▶ Understand nature and functions of research
 - ▶ Understand basics of research methodology to include problem formation, hypothesis/questions forming, research design, sampling techniques, data collection, and analyze
 - ▶ Creative Research Concepts
 - ▶ Understand basic APA formatting style to be used for the thesis
 - ▶ Understand structure of Journal article
 - ▶ Knowledge about ethical practices in research.
 - ▶ Understand theory formulation.
 - ▶ Learn concepts of research design.
 - ▶ Understand fundamentals of data analysis.
 - ▶ Use of excel and SPSS for data analysis
 - ▶ System Simulation Applications
- **Deliverable-4(b)** | Doctoral Foundation Seminar in Computer Science
This Course contains seven modules on fundamental courses in the following subjects:
 - ▶ Operating System concepts.
 - ▶ Data Structure, Algorithm Design and Programming.
 - ▶ Computer Network, e-commerce concepts.
 - ▶ Software Engineering and Modelling.
 - ▶ Computer System Architecture.
 - ▶ Concept of Database.

- **Deliverable-4(c)** | Seminar on Doctoral Concentration

This Course will cover the following:

- ▶ Emerging Trend in Computer Science and Contemporary issues in the candidate's specialization.
- ▶ Chosen subject of specialization.

Deliverable-5 | Finalization of synopsis and approval.

This will commence immediately after a candidate successfully completes the course work (i.e. Deliverable 4). A suitable guide is allotted in case a candidate is not able to find a guide in the chosen area. The following process will be followed:

- Extensive review of literature under guidance of the thesis guide.
- Selection of a topic and alternative topic.
- Preparation of Synopsis.
- Presentation of outline synopsis to Doctoral Review Committee(DRC).
- Approval of synopsis and commencement of research.

In case of Inter-Disciplinary topic co-guide can be considered from other relevant discipline.

Deliverable-6 | Progress Review Seminars.

A minimum of three such seminars will be held in the University Campus. The candidate will approach the guide for a suitable schedule. Objective of these seminars is to track progress on the research. One such seminar must be held every six months after the approval of synopsis.

Deliverable-7 | Publishing Tutorials.

Each doctoral candidate is expected to publish a minimum of one research article in a domain specific refereed journal during the entire research period. Progress seminars can be useful to prepare such articles.

Deliverable-8

- **Deliverable-8(a)** | Final Thesis Submission

Each candidate will submit three copies of thesis for examiners evaluation. These will be accompanied by abstract and summary of the thesis as per detailed guidelines.

- **Deliverable-8(b)** | Defense of Thesis

In case the thesis is found to meet University Criteria and has been accepted by the examiners, candidate will be informed about the schedule for defense.

- **Deliverable-8(c)** | Award of degree and convocation at the campus.

After successful thesis completion Ph.D. (Computer Science & Engineering) degree will be awarded.

Admission Criteria

Admission Eligibility

A candidate is eligible for Admission and Registration for Ph.D program provided he/ she has qualified :

- (a) For the award of Master's Degree of any recognized University/other qualification recognized as equivalent thereto in such fields of study as are notified for the purpose from time to time by the University. The minimum qualifying marks are 60% at Post Graduation level (55% in case of reserved categories), and
- (b). Candidates with B.E./B.Tech degree or equivalent with excellent academic record (minimum CGPA of 9.00 on 10 point scale or 80% marks in aggregate) with 2 years experience may be considered for admission.
- (c) In the Entrance Examination conducted by the University at the national level on the pattern of UGC followed by interview.

However, candidates holding M.Phil (Through Regular Mode) degree or those candidates who have cleared UGC-NET or GATE or those having at least five years of related Teaching/Practical/ Industry/Professional experience as validated by Doctoral Research Committee may be exempted from appearing in the Entrance Examination, but interview is mandatory.

Age Limit : Candidate must not be more than 55 years of age as on 30th June, 2014.

Candidates who fulfill the eligibility criteria, are required to fill the admission form with evidences of all particulars to be attached. All application forms will be screened by a separate screening committee whose representatives will be from Doctoral Research Committee and Experts from University and Industry in the respective areas. The candidates short listed on the basis of their academic record and relevant industry experience will appear in written test to be conducted by the University. Date, Syllabus and format will be intimated to the registered candidates. The candidates will then appear for a personal interview for the final selection.

Program Fees

Components	Fee
Enrollment Fee	Rs.50000/-
Course Work Fee 1	Rs.20000/-
Course Work Fee 2	Rs.20000/-
Course Work Fee 3	Rs.20000/-
Doctoral Seminar on Specialization	Rs.50000/-
Synopsis Seminar	Rs.50000/-
Progress Review Seminars 1	Rs.20000/-
Progress Review Seminars 2	Rs.20000/-
Progress Review Seminars 3	Rs.20000/-
Thesis Submission & Defense	Rs.50000/-

www.chitkara.edu.in/phde
phde@chitkara.edu.in

Admissions Helpline:
+91 8288088570 | 8288088571



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Chandigarh-Patiala National Highway | Punjab- 140 401

Rs. 2100/-