

COMPUTER SCIENCE

MS and PhD Programmes

Fall 2019



SBASSE | SYED BABAR ALI SCHOOL OF
SCIENCE AND ENGINEERING

CREATING A BETTER WORLD WITH LUMS SBASSE

SBASSE offers Undergraduate, Graduate and Doctoral degrees

6

disciplines:
Biology
Chemistry
Computer Science
Electrical Engineering
Mathematics
Physics

Syed Babar Ali School of Science and Engineering (SBASSE) imparts top-quality education in Science and Engineering with a vision to carry-out world-class, multidisciplinary education and research.

The MS Programmes at SBASSE are rigorous and designed to impart specialised professional and research oriented training to students. To graduate, students must complete a total of 30 credit hours either entirely from coursework, or by collecting 24 credit hours from coursework and the rest from a thesis. Hence, all SBASSE departments offer two options to choose from: MS-by-Coursework or MS-by-Thesis.

The SBASSE PhD Programmes prepare students to think scientifically and conduct high-quality research independently. To graduate, students must earn a total of 42 credit hours from which 18 must be from coursework and 24 from research work or a thesis. Major milestones that must be achieved for the successful completion of the PhD degree include the Comprehensive (Qualifying) Examination, Thesis Proposal Defense, Research Publication(s) and PhD Thesis Defense.

During the course of study, students learn through lectures, tutorials, laboratory work, problem-solving exercises, research projects and frequent interaction with experienced faculty members and advisors.



"I joined SBASSE in late 2011 and since then I have had a wonderful experience. I have been very fortunate to have worked with outstanding students and colleagues on exciting research problems and have thoroughly enjoyed teaching here. The CS Department is one of the oldest Departments at LUMS. Our students receive academic training under the mentorship of excellent faculty members, who have made substantial impact in their respective fields. In our Department, we intensively focus on the development of analytical and critical thinking skills of our students. The work environment and the facilities in the CS Department are absolutely world-class. Our students have had placements at top graduate programmes of the world including MIT, Stanford University, UC Berkeley, and Carnegie Mellon University, they have been placed in leading companies including Google, Facebook, Amazon, Apple and Microsoft, and have also been able to work on successful startups e.g. PakWheels. Our faculty has consistently published in top research conferences and journals in their fields, established international collaborations with both academia (e.g. UC Berkeley, UIUC, MIT and Brown University) and industry (e.g. Google and Facebook), and are making great impact both locally and internationally through their work."

Dr. Ihsan Agyub Qazi
Associate Professor and Chair,
Department of Computer Science

WHY CHOOSE SBASSE

- Top academic offers: MIT, University of Warwick, London School of Economics, University of Oxford, University of Cambridge etc.
- Hiring by top local and international organisations: Microsoft, Google, Facebook, Packages Ltd.

60%

graduates placed on jobs within the first year of graduation

75 research active faculty members from top-tier universities

COLLABORATIONS WITH NATIONAL AND INTERNATIONAL EDUCATIONAL INSTITUTIONS

- Institute of Electronics and Telecommunication of Rennes (IETR) Research Laboratory, Rennes France
- Singapore University of Technology and Design (SUTD), Singapore
- Supelec, France
- Texas A&M University, Qatar
- CoNNekt Lab, NUST School of Electrical Engineering and Computer Science (SECS)

INTERDISCIPLINARY PROGRAMMES

The rigorous curriculum of the Graduate Programmes at SBASSE provides a multidisciplinary learning environment. Students get the opportunity to work with knowledge drawn from all 6 disciplines as a part of the free elective requirement.

GLOBAL EXPOSURE THROUGH INTERNATIONAL EXCHANGE PROGRAMMES

MS and PhD Programme students participate in various exchange programmes and research opportunities sponsored by National ICT R&D Fund, HEC, Commonwealth, Erasmus-Mundus and DAAD etc.

FINANCIAL SUPPORT

From scholarships, loans, work options and partial tuition fee waivers for MS students to full funding and research grants for PhDs, the School offers substantial support to promote the study of Science and Engineering disciplines.

TOP-QUALITY PUBLICATIONS

Research by graduate students has been published in top-quality journals

Journal of Mathematical Analysis and Applications

IEEE/ACM Transactions on Networking

Artificial Intelligence Review

Photonics and Nanostructures: Fundamentals and Applications

Organic Letters

The Journal of Biological Macromolecules

Nature Publishing Group

Royal Society of Chemistry Journals

Journal of Computational and Applied Mathematics

SBASSE ranks between 451-500 in QS World Rankings by Subject 2018 in Engineering and Technology



MS | PhD COMPUTER SCIENCE

QUICK FACTS



The Department of Computer Science has been awarded 'W' ranking by the HEC through its national-level body, NCEAC, which aims to assure quality in computing education.



100% success rate of admissions to fully funded graduate programmes of the world's top universities

HOW WILL YOU LAUNCH YOUR NEW WORLD?

The Department of Computer Science will help you stay on top of the growing trends of information and technology. It equips you with first-hand experience of the quality work being done in the areas of Computer Vision, Data Mining, Polymers and Nanocomposites, Networks, Information Security, Privacy and Distributed Systems, Software Engineering, Human Computer Interaction, Big Data, Artificial Intelligence and Robotics.

As an integral element of graduate education, the Department of Computer Science provides unmatched research possibilities, opportunities and resources. Students are not only encouraged to get involved in rigorous research alongside coursework but are also provided fully equipped clusters, groups and laboratories.

WHAT WILL YOUR NEW WORLD INVENT?

The faculty members at the Department of Computer Science have years of experience exhibited not only through their taught courses and curriculum but also through their rigorous research work and publications in renowned journals.

● Computer Vision

Dr. Murtaza Taj
Dr. Sohaib Ahmed Khan

● Data Mining

Dr. Asim Karim
Dr. Arif Zaman
Dr. Yasir Mehmood

● Polymers and Nanocomposites

Dr. Habib-ur-Rehman

● Networks, Information Security, Privacy and Distributed Systems

Dr. M. Fareed Zaffer
Dr. Ihsan Ayyub Qazi
Dr. Basit Shafiq
Dr. Zartash Afzal Uzmi

● Software Engineering

Dr. Hamid Abdul Basit
Dr. Naveed Arshad
Dr. Junaid Haroon Siddiqui
Dr. Shafay Shamail
Dr. Suleman Shahid

● Algorithms and Theory of Computation

Dr. Imdad Ullah Khan
Dr. Arif Zaman

● Artificial Intelligence and Robotics

Dr. Mian Muhammad Awais
Dr. Asim Karim



Muhammad Hamad Alizai | Assistant Professor, Department of Computer Science

"The Computer Science Graduate Programmes boast exceptional faculty and great students; together we have made thriving research journeys to many Computer Science sectors including Networks and Systems, Software Engineering, Computer Vision and Data Science. If you have the will, we have the way: an inspiring teaching and research culture for you to fulfil your Computer Science dreams!"



HOW LUMS SBASSE WILL HELP YOU REALISE YOUR AMBITION

Research Facilities

- Computer Vision Laboratory
- Robotics and Intelligent Computing (RICE) Laboratory
- Knowledge and Data Engineering (KADE) Laboratory
- Software Engineering Research Laboratory (SERL)
- Networks and Systems Group (NSG)
- Programme Analysis Group (PAG)
- Technology for People Initiative (TPI)
- Computer Human Interaction and Social Experience Lab (CHISEL)
- Embedded Systems and Networks (SYSNET) Laboratory
- 4G Wireless Research Lab
- Computer Science graduates receive offers from leading universities of the world, like Massachusetts Institute of Technology, Stanford University, University of Oxford, University of Cambridge, Harvard University and University of Illinois Urbana-Champaign to pursue higher studies.
- Graduates find direct placements at various national as well as international companies like Google, Microsoft, Facebook, IBM, McKinsey & Company, Bain & Company, Unilever, Procter & Gamble, L'Oréal, Philip Morris International, Mitsubishi Corporation, Nestlé, Reckitt Benckiser, PepsiCo, Coca-Cola Beverages Ltd., Jazz, Ufone, Dawood Hercules Corporation Ltd., Engro Corporation, Standard Chartered Bank, Habib Bank Ltd., House of Habib etc.
- Students work alongside faculty members at SBASSE as Teaching Assistants and Research Assistants.

QUICK FACTS



Our success in innovative scientific research is evident from our students' and faculty's rigorous research work and publications in renowned journals including ACM Transactions and IEEE Transactions and participation in top flight ACM Special Interest Groups sponsored conferences.



Dr. Ayesha Afzal | PhD Computer Science 2013

"The School provided me with ample resources to conduct high-quality research. Additionally, the exceptional mentorship provided by the faculty advisers helped me achieve my professional goals. Lastly, the supportive cohort of brilliant PhD students made the journey even more rewarding."

QUICK FACTS



Our PhD graduates are teaching at some of the renowned local as well as international universities.

EMBRACE THE SBASSE EXPERIENCE

- 1** SBASSE student, Faaiz Arbab has manufactured GOBEE, Pakistan's first voice-operated smart wheel chair. GOBEE has received the best Consumer Product & Design Award (2018).
- 2** The Nuclear Magnetic Resonance (NMR) Lab, inaugurated in January 2018, aims to study the structural aspects of molecules.
- 3** Dr. Ihsan Ayyub Qazi and Dr. Zafar Ayyub Qazi, CS faculty, have won the Google Faculty Research Award.
- 4** SBASSE faculty, Dr. Rahman Shah Zaib Saleem and Dr. Amir Faisal have published their research in Bioorganic Medicinal Chemistry Letters.
- 5** Research by Dr. Ihsan Ayyub Qazi has been selected as one of the two best papers by the ACM SIGCOMM Computer Communications Review (CCR) Editorial Board and will be presented at ACM SIGCOMM 2018 in Budapest, Hungary later this year.
- 6** Dr. Salman Noshear Arshad has taught at Middlesex University London under the support of the Erasmus International Credit Mobility (ICM) Grant.
- 7** National Center in Big Data and Cloud Computing, inaugurated in May 2018, established by the Higher Education Commission (HEC) of Pakistan, will promote the culture of Big Analytics and Cloud Computing. The PKR 1.5 Billion Center will be housed at LUMS and will comprise 12 'Affiliated' Laboratories at 11 Universities across the country.



Samar Abbas | PhD Computer Science 2016

"The world-class mentors and their cross domain collaboration enhanced my problem-solving techniques and increased my horizon and scope in research. My research journey continued in the form of a PhD where I am using machine learning along with IOT to solve critical indigenous problems."



YOUR JOURNEY BEGINS HERE!

Admission Process

Admission is purely merit-based and rests solely on the following criteria:

- Academic record
- Admission Test performance*
- Interview performance

*For admission test details, please visit

<https://admission.lums.edu.pk/graduate-programmes>

Financial Support

Several funding opportunities are available to deserving MS and PhD students. These include:

- LUMS Interest Free Loan
- Merit Scholarships for MS Programmes
- External Scholarships (if available)*
- 100% Scholarships for PhD students
- Partial tuition fee waivers for all MS students (Basic Sciences and Mathematics)
- HEC Research Grants
- Options to work as Research or Teaching Assistants

*Support and eligibility for these scholarships vary depending on the donor.

For details, please visit

<https://financial-aid.lums.edu.pk>

CRITICAL DATES

Deadline to Apply
April 02, 2019

Deadline to take GRE
April 14, 2019

LUMS Graduate
Admission Test and
SBASSE Subject Test on
April 14, 2019

Admission Decisions
June-July 2019

Classes Commence
September 2019

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www.lums.edu.pk



#KEEPPROGRESSPLACES #MERITMATTERS