

K J Somaiya College of Engineering
Admission Manual

Ph.D. Programme
Electronics and Telecommunication Engineering

July 2021

Visit for Further Details: <https://www.somaiya.edu/en/phd/>

About Somaiya Vidyavihar University

On 26th August 2019, Somaiya Vidyavihar University has become a reality

A new milestone in a glorious ongoing journey established in 2019, Somaiya Vidyavihar University, Mumbai recognised by the University Grants Commission (UGC). Somaiya Vidyavihar, with over six decades of rich experience in building and managing educational institutes of great repute, is the sponsoring body. With over six decades of rich experience Somaiya Vidyavihar has become a self-finance Private University. Somaiya Vidyavihar University is the first private university in Mumbai vide the Maharashtra Self- Financed Universities (Establishment and Regulation) Act 2013. With this status, we now have the academic, administrative, and financial freedom, to achieve the dreams as imagined by our founders. We have a dream to build and support a world class institution, one that is proudly Indian, and excels in education, research and service. Somaiya Vidyavihar University will be a place where knowledge is preserved, disseminated, and new knowledge is created. It will be global in the reach of its ideas and universal in its service. Operational from 26th August 2019, Somaiya Vidyavihar University is a place where you can explore new possibilities, pursue your passion and above all, find yourself.

Our History

An all-round education must integrate Indian culture, values & morality into the curriculum.

In just five decades it has grown into a large educational complex with 34 institutions catering to diverse fields of education such as Humanities, Engineering, Education, Medicine, Management, Pure Sciences and Mass Communication, with more than 39000+ Candidates and 3000+ Faculties and staff on a throbbing 65 acre campus.

The Somaiya Vidyavihar Complex was founded in 1959 by late Shri K.J. Somaiya (1902-1999). Endowed with a sharp business acumen, a balanced perspective and a social bent of mind, Karamshibhai set up the Somaiya Trust in 1953 for furthering his dream of shaping young minds through quality education. For this purpose, he bought a large area of land at Ghatkopar, then considered to be distant, meagrely populated.

Our Vision

Our Founder, Padmabhushan Shri K. J. Somaiya founded Somaiya Vidyavihar on the 9th of September 1959. He later founded the Girivanvasi Pragati Mandal, The K J Somaiya Medical Trust, Girivanvasi Education Trust and sister institutions to make great citizens of India and the World. In the words of Swami Vivekananda, “We want that education by which character is formed, strength of mind is increased, and the intellect expanded, and by which one can stand on one’s own feet.” We have now grown into a multi-disciplinary and multi-campus education institution with over 1500 faculty, and 38, 000 candidates.

The Somaiya Vidyavihar University admitted 3000+ candidates in 100+ UG/PG/PhD/PG Diploma/Diploma/Certificate programmes in the very first year of establishment.

About Research Center

Department of Electronics and Telecommunication Engineering offers a full time Doctoral programme focusing on the upcoming research areas such as Signal Processing, Communication Engineering, Networking etc. We welcome you to these challenging fields, which offers exciting opportunities in the development of technology in the domain of Electronics and Telecommunication. After successfully completion of the doctorate programme, candidates will have the opportunities to start their career in academics, research institutes as well as in industry, as an expert in interdisciplinary domains of software design and development of technology.

The Signal Processing group has an expertise in Image Processing & Video Processing, Multirate Signal Processing, Wavelets, Machine Learning, Artificial Intelligence Data Networks & Security, Signal Compression and Cryptography. The Communication Engineering group has huge potential in Networking, Wireless Communication, various types of Antennas and Antenna Arrays and RF passive and active devices. Apart from the core telecommunication areas, the department has proficiency in cutting edge technologies like Internet of Things, Machine learning, Artificial Intelligence, Data Science, Computer Vision, Natural Language Processing and Embedded Systems.

To enhance research in core and allied areas, the department of Electronics and Telecommunication is well equipped with high end software and hardware facilities. The department of Electronics and Telecommunication has CISCO Centre of Excellence established with the help of CISCO systems Pvt Ltd. Latest equipment and software related to Networking is available in the CISCO centre. The Department has MOU with TEXAS instruments leading to the establishment of innovation center in the area of Internet of Things. This innovation centre is equipped with MSP430 Microcontroller Family, Tiva Launchpad, Sensor Hub Booster Pack, CC3200 Launchpad, CC3100 Boosterpack, etc. The department has hardware facilities like RF sources, Vector Network Analyser, Antenna Pattern Trainer, etc in the domain of RF and Microwave. The department is also well equipped with research and industry-oriented software like MATLAB, NETSIM, CST Microwave Suite and IE3D.

Ph.D. Admission Eligibility for Somaiya Vidyavihar University (SVU): Minimum Qualifications for Admission

Subject to the conditions stipulated in the Regulations, the following candidate are eligible to seek admission to the Ph.D. Programme

| | |
|------|---|
| i. | Master's degree or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent as per UGC regulations. |
| ii. | A person whose Master's dissertation has been evaluated and the viva-voce is pending may be admitted to the Ph.D. Programme but subject to completion of Master's degree before provisional admission to SVU Ph.D. Programmes. |
| iii. | Candidates possessing a Degree considered equivalent to Master's Degree of an Indian Institution, from a Foreign Educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to Ph.D. Programme. |
| iv. | Candidate not having Master's degree but having research / work / professional experience or possessing post graduate diploma may appear for Ph.D. Entrance Examination of SVU subject to such candidates need to apply separately to SVU for obtaining equivalence for Master's degree. The SVU will have final rights reserved to give such equivalence as per the regulations. Such candidates must possess undergraduate degree with at least 55% marks in aggregate or its equivalent as per UGC regulations. The relaxation will be as per UGC norms from time to time. |
| v. | MUST have qualified score of Ph.D. Entrance Examination of SVU – mandatory eligibility criteria for all candidates. |
| vi. | Candidates exempted from appearing for Ph.D. Entrance Examination of SVU MUST fill the application form as per the schedule displayed on website. The exempted candidates need not pay the application processing fee. |
| vii. | A No Objection Certificate (NOC) in prescribed format from the employer in case of those who are applying to Ph.D. Programme as a sponsored candidate. |

| Eligibility at UG/PG Degree | |
|------------------------------------|---|
| Branch of study at UG | Computer Science and Engineering /Computer Engineering/Information Technology/Computer Technology/Computer Science and Technology/ Electrical Engineering//Electrical and Electronics Engineering/Electronics and Communication Engineering/ Electronics and Telecommunication Engineering/Electronics Engineering/ Electronic and Communication Technology/ Instrumentation Engineering/ Power Electronics/ Information and Communication Technology/ Telecommunication Engineering/ Biomedical Engineering/ Allied Branches or Equivalent from recognized university or eligibility as per AICTE / UGC. |
| Branch of study at PG | Computer Science and Engineering /Computer Engineering/Information Technology/Computer Technology/Computer Science and Technology/ Electrical Engineering//Electrical and Electronics Engineering/Electronics and Communication Engineering/ Electronics and Telecommunication Engineering/Electronics Engineering/ Electronic and Communication Technology/ Instrumentation Engineering/ Power Electronics/ Information and Communication Technology/ Telecommunication Engineering/ Biomedical Engineering/ Allied Branches or Equivalent from recognized university or eligibility as per AICTE / UGC. |

| Exemption Criteria for SVU Ph.D. Entrance Examination |
|---|
| <p>Qualified/Valid GATE Score in Electronics and Telecommunication Engineering</p> <p style="text-align: center;">OR</p> <p>Candidates who hold a JRF Fellowship with CSIR/UGC/ICAR/ ICMR and DBT examinations are exempted from appearing for Ph.D. entrance examination of SVU.</p> <p style="text-align: center;">OR</p> <p>Candidates having qualified SVU Ph.D. entrance examination January 2021 but fail to appear interview due to medical emergency /unforeseen circumstances</p> <p>However, the candidates who fulfill the above criteria MUST fill the application form as per the schedule displayed on the website.</p> |

| Pattern and syllabus of SVU Ph.D. Entrance Examination |
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| Subject of Entrance Examination: Electronics and Telecommunication Engineering |
| The SVU Ph.D. Entrance examination will be proctored/supervised close book examination |

Paper-1 General Aptitude Test – MCQs Online test of 30 marks with 30 questions - duration of the test 30 min.- no negative marking and options

- a) Logical Reasoning
- b) Numerical Ability
- c) Reasoning and Language Aptitude

Paper - 2: Subject Specific Test – Online of 70 marks - duration 1 and half hours

- a) Multiple Choice Questions – Maximum marks – 10 - MCQs online or offline test of 10 marks with 10 questions - no negative marking and option
- b) Theoretical / Descriptive Questions – Maximum marks 60 – online or offline descriptive type six questions each of 15 marks - any four to be solved

Syllabus for Entrance Examination

Probability and Random Processes: Probability, Sampling statistics and parameter estimation, Hypothesis testing, Linear Regression and correlation.

Network Theory: Nodal and Mesh analysis; Network theorems; Star-Delta transformation; Circuit analysis; Frequency domain analysis; 2-port Networks; Transfer functions

Electronic Devices & Circuits: Energy bands; diffusion, drift current, mobility of electrons; P-N junction diodes; Zener diode, BJT, MOSFET, LED, photodiode; photolithography; CMOS; HDL, VHDL, Nanotechnology; MEMS.

Analog Circuits: Clipping, clamping, and rectifiers; op-amp circuits; Active filters; oscillators: wave-shaping circuits; Supply regulation; 555 timers and applications.

Digital Circuits: Boolean algebra, Karnaugh map, logic gates; arithmetic circuits, multiplexers, decoders, and PLAs; Sequential circuits: latches and flip-flops, counters, shift-registers, sample and hold circuits, ADCs and DACs; ROM, SRAM, DRAM; microprocessors and microcontrollers, memory, and I/O interfacing.

Signals & Systems: Laplace transform continuous-time and discrete-time Fourier series, continuous-time, and discrete-time Fourier Transform, DFT and FFT, Z-transform. LTI Systems, parallel and cascade structure, signal processing; filter design; correlation; wavelets.

Control Systems: Control system components; Feedback; Transfer function; Block diagram; Signal flow graph; Transient and steady-state analysis; Routh-Hurwitz and Nyquist stability criteria; Bode and root-locus plots; Lag, lead and lag-lead compensation; state-space analysis

Communication Systems: Random processes: autocorrelation and power spectral density, Analog communications: AM, FM, PM; entropy, channel capacity theorem; Digital communications: PCM, DPCM, ASK, PSK, FSK, QAM, Concepts of SNR and BER, error correction coding, Hamming codes; ISI; TDMA, FDMA, and CDMA, Maxwell's equations, phase & group velocity, Transmission lines, S-parameters, Waveguides, Antennas; Radar; Optical fibers; Mobile communication; Satellite communication; Communication Networks; Network security.

Documents Required

1. UG Degree or equivalent Mark List
2. UG Degree certificate
3. PG Degree or equivalent Mark List
4. PG Degree or equivalent certificate
5. AADHAR card
6. Degree equivalence / eligibility certificate – wherever is applicable
7. Migration certificate
8. Two colour passport size Photograph
9. If appearing the PG degree examination – bonafide certificate
10. If employed, then No Objection from the employer – at the time of provisional admission

| Sr. No. | Steps adapted for Ph.D. Programme |
|---------|--|
| 1. | Advertisement in the newspaper |
| 2. | Acceptance of the applications for Ph.D. entrance examination along with applications processing fee |
| 3. | Execution of Ph.D. entrance examination for all PhD programmes |
| 4. | Results of Ph.D. entrance examination |
| 5. | Selection process - Display of list of eligible shortlisted candidates for interview |
| 6. | Selection process – Interviews of shortlisted candidates |
| 7. | Display of shortlisted candidates for provisional admission |
| 8. | Provisional admission and payment of fees in accounts/admin office of the colleges. |
| 9. | Orientation and beginning of the yearlong two semester course work |
| 10. | Allotment of the guide at individual college level / department (within the first six months of provisional admission) |
| 11. | In the first year, first semester is course work, which includes teaching learning, continuous evaluation and ESE examination (Comprehensive examination). The second semester will have dedicated research activities, lab rotation and research proposal drafting & presentation and its evaluation. |
| 12. | Research proposal presentation (Qualifying examination) |
| 13. | KT examination for the semester I and II for unsuccessful candidates or for grade improvement |
| 14. | Issue of mark sheets for course work of semester I and II |
| 15. | Topic approval of the thesis work (after Qualifying course work examination) |
| 16. | Registration for Ph. D programme |

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| 17. | Appointment of Examiners and chairman from Research Committee |
| 18. | Annual Progress Seminars (APS) every June/July and Intermediate Progress Seminar (IPS) every January/February of the academic year |
| 19. | Approval of examiners to present pre-synopsis in one of the APS and IPS |
| 20. | Presentation of pre-synopsis and its approval by the examiners |
| 21. | Submission of thesis |
| 22. | Sending the thesis to reviewers |
| 23. | Receipt of reviews about thesis from the reviewers |
| 24. | Final defence of the thesis |
| 25. | Submission of final corrected thesis after defence |
| 26. | Issue of provisional degree certificate |
| 27. | Issue of degree certificate |
| | The steps and the progress evaluation of Ph.D. students by the committee/examiners/experts will be as per the provisions of Ph.D. regulations |

Fee Structure and payment for regular/confirm admission – as per schedule specified in notification from time to time

| Particulars | @Total Fees per annum (₹) |
|--|---|
| Tuition Fee | 1,68,670 |
| Development Fee | 21,930 |
| Examination Fee | 4,400 |
| Caution money Deposit (Refundable) | --- |
| Library Deposit (Refundable) | --- |
| Total (₹) | 1,95,000/- |
| @ If paid provisional admission fee then should be debited from total fee | |
| Link for fees payment (Fees will be accepted via online payment gateway only and in no case, it can be paid using any other type of mode of payment and to any office/person) | https://myaccount.somaiya.edu/#/login |

Payment of fees schedule for Provisional admission and subsequent years of Ph.D. programme

| Program Academic Year | Particulars | Amount in Rupees (₹) | Payment Schedule |
|-----------------------|---------------------------|----------------------|---|
| First Year | Provisional admission fee | 50,000/- | Within eight days from the date of receiving the offer letter |

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| | | | |
|---|-------------------|---|--|
| | First Instalment | 90,000/- | Within two weeks from the commencement of the Academic Year |
| | Second Instalment | 55,000/- | Within six weeks from the commencement of the Academic Year |
| Second Year and Onwards | First Instalment | 100,000/- | Within first week from the commencement of the new Academic Year |
| | Second Instalment | 95,000/- | Within six weeks from the commencement of the new Academic Year |
| Link for fees payment (Fees will be accepted via online payment only and in no case it can be paid using any other mode of payment and to any office/person) | | https://myaccount.somaiya.edu/#/login | |
| Note: Students have to pay the full fees of the program per year till the submission of the thesis | | | |

Guidelines to do fee payment in Online Mode

There is a provision of ONLINE PAYMENT of college fees for student's convenience 24x7 on or before scheduled due date. Student will get notification from institute in three ways.

- 1) SMS
- 2) Email
- 3) Notification on myaccount.somaiya.edu portal

In notification there will be a link to make the payment. You just need to click on the link and follow below simple steps to make the payment.

STEP 1: Link will take you to myaccount.somaiya.edu portal. Use Somaiya SVV Net ID and password to login. Want to know more about [myaccount.somaiya.edu](https://somaiya.edu/media/pdf/SVVNetID_and_Email%20id.pdf) click on https://somaiya.edu/media/pdf/SVVNetID_and_Email%20id.pdf

STEP 2: Login, select instalments and click on **"Pay Now"**.

STEP 3: System will redirect to Online Payment Gateway. Fill the required information and follow payment options to complete the payment cycle.

STEP 4: After the successful payment, the payment receipt will be available at student's MyAccount portal

Admission Cancellation policy of Ph.D. programme

If the candidate has accepted the allotted seat by paying the fees and later chooses/decides to withdraw from the programme of study, then cancellation option is available at his/her MyAccount login.

The college shall follow the below system for deduction of fees against the cancellation request for the candidate.

| Sr. No. | Point of time when application for admission cancellation is received by college | Applicable Deduction |
|---------|---|----------------------|
| 1 | 15 days or more before the date of commencement of academic term | Rs 5,000/- |
| 2 | Less than 15 days before the date of commencement of academic term | 10% of total fees |
| 3 | Less than 15 days from the date of commencement of academic term | 20% of total fees |
| 4 | On or beyond 15th day but within six weeks from the date of commencement of academic term | 50% of total fees |
| 5 | More than six weeks from the date of commencement of academic term | 100% of total fees |

Note:

- Total Fees for the program per year is Rs. 1,95,000/-
- Tentative date of commencement of every academic term will be announced on website.

Typical Sample example for further illustration to know about cancellation charges with reference to the date of commencement of term

Refer the **below example** for clarification of Ph.D. admission cancellation policy

Assume that the academic term commences from **15th July** of a particular academic year. Based on this assumption, following table illustrates important dates of cancellation policy:

Illustration:

| Sr. No. | Point of time when application for admission cancellation is received by college | Applicable Deduction |
|---------|--|----------------------|
| 1 | Cancellation on or before 30th June (up to 11.59pm) | Rs 5,000/- |
| 2 | Any time from 1st July to 14th July (up to 11.59pm) | 10% of total fees |
| 3 | Any time from 15th July to 28th July (up to 11.59pm) | 20% of total fees |
| 4 | Any time from 29th July to 25th August (up to 11.59pm) | 50% of total fees |
| 5 | After 25th August | 100% of total fees |

Process of getting documents submitted return

After verifications of documents, within 7 days, documents will be returned to students.

Contact

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