

Somaiya Institute for Research and Consultancy

Admission Manual

Ph.D. Programme Physics

July 2025

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

About Somaiya Vidyavihar University

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

We made this milestone after six decades of creating holistic teaching learning experience educational institutes of great repute. Somaiya Vidyavihar University has become a self finance – the first private University in Mumbai vide the Maharashtra Self-Financed Universities (Establishment and Regulation) Act 2013.

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. Somaiya Vidyavihar University is a place where students and faculty can explore “ Freedom of Possibilities” , pursue your passion and above all, find yourself.

Our History and Vision

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

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.

In six 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, Dharma Studies ,Pure Sciences and Commerce & Business Studies, with more than 39000+ Candidates and 3000+ Faculties and staff on a throbbing 50 acre campus.

Our Founder, Padmabhushan Shri K. J. Somaiya founded Somaiya Vidyavihar on 9th 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.

With PhD programmes in various faculties , we provide innovative platform for research aspirants to make a niche of their own to impact society and life.

1. Eligibility criteria for PhD Admission

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

1. Education Qualification

i.	Master's degree (2 year or 1 year) 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.	Candidate seeking admission after a 4-year/8-semester bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent as per UGC regulations
iii.	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.
iv.	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

2. PhD Entrance Exam

i.	MUST qualify a passing score of Ph.D. Entrance Examination of SVU . This is a mandatory eligibility criteria for all candidates with exemptions mentioned in Point 2.(ii)
ii.	Exemption Criteria from SVU Ph.D. Entrance Examination are: <ol style="list-style-type: none"> Candidates who qualified in UGC - CSIR -NET-JRF/ ICMR-JRF / DBT-JRF (BET)/ INSPIRE/ICAR/JEST/ Qualified/valid GATE score in relevant branches /Prime Minister's Fellowships and those qualified in any of the UGC recognized national or state level eligibility tests with a valid fellowship/scholarship in the related subject. Any candidates having 5 year of teaching/research experience and have published research paper in SCOPUS ; Web of science journal/published patents/grant received from government agencies will be exempted from appearing for the SVU PhD entrance exam but will be required to appear for an interview at the respective departments. The exemption criteria will be applicable ONLY when relevant document are uploaded during application submission. If relevant documents are not submitted , the candidate have to appear for Entrance exam.

Note: However, the candidates who fulfill the above criteria **MUST** fill the application form as per the schedule displayed on the website.

3. Other Documents

- UG Degree or equivalent Mark List
- UG Degree certificate
- PG Degree or equivalent Mark List
- PG Degree or equivalent certificate
- AADHAR card
- Degree equivalence / eligibility certificate – wherever is applicable
- Transfer Certificate and /or Leaving Certificate

8. Migration certificate
9. Two colour passport size Photograph
10. If appearing the PG degree examination – bonafide certificate
11. If employed, then No Objection Certificate (NOC) from the employer – at the time of provisional admission
4. Important Links
UGC Notification 2022 (Link)

2. Categories of Ph.D. Students

1. Candidates with externally funded scholarships/Fellowships; (a full tuition fee waiver will be provided to candidates who join as JRF/SRF under government of INDIA research funded scheme)
2. Candidates who work in funded projects within the University or in approved research centres which are collaborating with the University;
3. Jointly guided PhD or Co-supervised PhD with International Universities;
4. Teaching/work integrated research candidates who are the faculty/employees in pursuit of advancing their academic qualification, recommended by the Head of the Institution and the Academic Advisory Committee. This provision is for those candidates who shall take an undertaking that their routine responsibilities would be duly attended and under no circumstances compromised. The university shall reserve the rights to consider the registration of candidates who do not adhere to these guidelines;
5. Research and Teaching Associates of the Somaiya Vidyavihar University.
6. "Somaiya Vidyavihar University Research fellow under Chancellor's Scholarships Programme".
7. "Any candidates having 5 year of teaching/research experience and have publish research paper in SCOPUS; Web of science journal/published patents/grant received from government agencies will be excepted from appearing for the SVU PhD entrance exam but will be required to appear for an interview at the respective departments"
8. Candidate is permitted to pursue studies on a part-time basis provided all the conditions stipulated in UGC 2022 regulations are fulfilled.

3. Overview of Steps involved in Ph.D. Programme

Sr.No.	Steps
Ph.D. Pre-selection Phase	
1.	Advertisement / Call for SVU Ph.D. entrance exam on website / media handles
2.	Acceptance of the applications for Ph.D. entrance examination along with the applications processing fee
3.	Execution of Ph.D. entrance examination for all Ph.D. programmes
4.	One- on -one Interviews of candidates before an expert panel
5.	Display of selected candidates for provisional admission - Selection process complete
Provisional Admission Phase	
6.	Provisional admission and payment of fees in accounts/admin office of the colleges.

Somaiya Vidyavihar University

7.	Orientation and initiation of course work (1 year – 2 sem)
8.	First semester encompasses research methodology & publication ethics along with subject specific topic. Second semester majorly focus on building research , technical & soft skills. It includes research activities, lab rotation and research proposal drafting & presentation and its evaluation.
9.	ATKT examination for the semester I and II for unsuccessful candidates or for grade improvement
10.	Issue of mark sheets for course work of semester I and II
Allotments & Registrations	
11.	Allotment of the guide at individual college-level /department (within the first six months of provisional admission)
12.	Topic approval of the thesis work within 2-3 months after Qualifying course work examination
13.	Registration for Ph. D programme
PhD Phase	
14.	Appointment of Examiners and chairman from Research Committee
15.	Annual Progress Seminars (APS) and Intermediate Progress Seminar (IPS) for the academic year by Doctoral Advisory Committee (DAC)
Submission & defence	
16.	Approval of examiners to present pre-synopsis in one of the APS and IPS
17.	Presentation of pre-synopsis and its approval by the examiners
18.	Submission of thesis to COE office
19.	Sending the thesis to reviewers
20.	Receipt of reviews about thesis from the reviewers
21.	The final defence of the thesis
22.	Submission of the final corrected thesis after defence
23.	Issue of provisional Ph.D. certificate
24.	Issue of Ph.D. 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

4. Pattern and syllabus of SVU Ph.D. Entrance Examination

Paper-1 Qualitative Test – 40 marks

- a) Essay Writing – 20 marks
 - b) Comprehension – 20 marks
- (50% choice in selecting questions in paper I)

Paper – 2 Subject Specific Test – 60 marks

- a) Multiple Choice Questions – 20 marks (Attempt 20 out of 30 questions)
- b) Subjective Questions – 40 marks (with 50% Choice)

5. About Course Work

The course work will be of one academic year (two semesters) and out of which first semester will be full time. It is expected that during the first semester, the student will report the college/department/section/laboratory for attending the sessions as per Timetable. The student will have to complete total of 14 credits (semester I) + 5 credits (semester II) = total 19 credits with CGPI as per the Ph.D. regulations to become eligible for the registration to Ph.D. programme.

6. Fee Structure of Ph.D. Program

(This is common across disciplines, all categories of students)

Particulars	@Total Fees per annum (₹)	
	First Year	Second Year Onwards
Tuition Fee	30,000/-	30,000/-
Development Fee	10,000/-	10,000/-
Examination Fee	10,000/-	10,000/-
Caution money Deposit (Refundable)	1,000/-	-----
Library Deposit (Refundable)	2,000/-	-----
Total (₹)	53,000/-	50,000/-
@ If paid provisional admission fee then should be deducted 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	

7. Registration, Synopsis & Ph.D. Thesis Submission Fees

Particulars	Amount
Registration fees	5000/-
Approval of Synopsis of Ph.D. Thesis Topic	5000/-
Ph.D. Thesis Submission	10000/-
Total	20,000/-

Note:

1. Registration fees to be paid by the Ph.D. scholars before submitting the application for Registration for Ph.D.
2. Synopsis & Ph.D. Thesis Submission fees to be paid by the Ph.D. scholars before submission of synopsis.

8. 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	Total fee	53,000/-	Within eight days from the date of receiving the offer letter
Second Year and Onwards	Total fee	50,000/-	Within first week 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			

9. Guidelines to make fee payment in Online Mode

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

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

In the 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 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 in 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

10. Admission Cancellation policy of Ph.D. programme (All Categories of Ph.D. Students)

Somaiya Vidyavihar University

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 the application for admission cancellation is received by the 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 the academic term	10% of total fees
3	Less than 15 days from the date of commencement of the academic term	20% of total fees
4	On or beyond the 15th day but within six weeks from the date of commencement of the academic term	50% of total fees
5	More than six weeks from the date of commencement of the academic term	100% of total fees

Note:

- Total Fees for the program per year is Rs. 50,000/- for All Categories of Ph.D. Students
- 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 an 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

II. Process of getting documents submitted return

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

About Research Center

The primary focus of the Ph.D. centre for Physics is to provide world class education, training and conduct innovative research at the interface of multiple disciplines to create high quality human resource in disciplinary and interdisciplinary areas of Physics in a globally competitive research milieu. Both basic and applied research topics will be addressed. The Ph.D Research programme has started from the academic year 2020- 21. Faculty members also collaborate with scientists from National Institutes in India and abroad. Their research components further strengthens & enrich the teaching programme. Owing to the best academic practices for the teaching programme, this Department has been able to generate excellent human resources in Physics. The department has an excellent track record of research in various areas of Physics with exposure to various themes. The Faculty members have excellent records of publication in journals with high impact factors. At present, we have Ph.D. guide with expertise in Nanoscience and nanotechnology, Materials Science, Photovoltaics and Solar Cells.

Students who study physics or engineering physics are prepared to work on forefront ideas in science and technology, in academia, the government, or the private sector. Careers might focus on basic research in Atomic physics, photonics or condensed matter physics. It also include teaching, medicine, law (especially intellectual property or patent law), science writing, history of science, philosophy of science, science policy, energy policy, government, or management in technical fields.

KEY FEATURES

- State-of-the-art laboratories
- Department with Ph.D.-qualified faculty
- Dynamic curriculum with right mix of various fields of Physical sciences
- Research-driven opportunities in Institutions in India and abroad
- Wide range of program and choice of open electives
- Opportunity for students to carry out inter-disciplinary research projects
- Workshops and Guest Lectures on a regular basis

Eligibility at UG/PG Degree	
Branch of study at UG	Physics Electronics Maths Chemistry
Branch of study at PG	Physics Electronics Applied Physics Materials Science

Syllabus for Entrance Examination

UNIT 1. Mathematical Physics: Vector algebra, Vector calculus, Linear algebra, matrices, linear differential equations, elements of complex analysis: Cauchy-Riemann conditions, Cauchy's theorems, singularities, residue theorem and applications; Fourier and Laplace transforms, elementary ideas about tensors.

UNIT 2. Classical Mechanics: Newton's laws, D'Alembert's principle, cyclic coordinates, variational principle, Lagrange's equation of motion, central force and scattering problems, rigid body motion; small oscillations, Hamilton's formalisms; Poisson bracket; special theory of relativity: Lorentz transformations, relativistic kinematics, mass-energy equivalence.

UNIT 3. Electromagnetic Theory: Electrostatics: Gauss's law and its applications, Laplace and Poisson equations, Magnetostatics: Biot-Savart law, Ampere's theorem. Electromagnetic induction. Maxwell's equations in free space and linear isotropic media; boundary conditions on the fields at interfaces. Scalar and vector fields and potentials, gauge invariance. Electromagnetic waves in free space. Dielectrics and conductors. Reflection and refraction, polarization, interference, coherence, and diffraction.

UNIT 4. Quantum Mechanics: Wave-particle duality, de-Broglie's hypothesis and its experimental verification, Postulates of quantum mechanics; uncertainty principle; phase velocity and group velocity of matter waves; Schrodinger time dependent and time independent wave equation; potential problems in one-, two- and three-dimensional, particle in infinite potential well, harmonic oscillator, hydrogen atom.

UNIT 5. Thermodynamics and Statistical Physics: Laws of thermodynamics; Maxwell's fundamentals thermodynamic relations, phase space; ensembles; partition function, Free energy and its connection with thermodynamic quantities, calculation of thermodynamic quantities; classical and quantum statistics; degenerate Fermi gas; Planck's radiation formula, black body radiation and Planck's distribution law; Bose-Einstein condensation; first and second order phase transitions.

UNIT 6. Atomic and Molecular Physics: Quantum states of an electron in an atom, Electron spin, Spectrum of helium and alkali atom. Energy levels of hydrogen atom, Zeeman and Stark effects; electric dipole transitions and selection rules; rotational and vibrational spectra of diatomic molecules; electronic transition in diatomic molecules, Raman effect; NMR, ESR, X-ray; He-Ne and NdYAG LASERS: Einstein coefficients, Optical pumping, population inversion, two and three level systems.

UNIT 7. Solid State Physics & Electronics: Elements of crystallography; diffraction methods for structure determination; bonding in solids; lattice vibrations and thermal properties of solids; free electron theory; band theory of solids: Fermi level, nearly free electron and tight binding models; metals, semiconductors and insulators; conductivity, mobility and effective mass; optical, Hall effect, dielectric and magnetic properties of solids; elements of superconductivity: Type I and Type II superconductors, Meissner effect, Liquid Crystals.

UNIT 8. Semiconductor devices: Diodes, Bipolar Junction Transistors, Field Effect Transistors; operational amplifiers: regulated power supplies; basic digital logic circuits, sequential circuits, flip-flops, counters, registers, A/D and D/A conversions.

Contact

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