

Somaiya School of Basic and Applied Sciences

Admission Manual

Ph.D. Programme Chemistry

July 2026

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, 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.

About Research Center

Somaiya Vidyavihar University (SVU) offers a Doctoral program in Chemistry, focusing on specialized research areas within Chemistry and related fields. This Ph.D. program is ideal for candidates aspiring to conduct research across various branches of chemistry. Graduates of this program will find numerous employment opportunities in academia, research institutes, industry, and entrepreneurship, along with personal growth and success as individuals.

After completing a Ph.D. in Chemistry, graduates can explore various areas and key positions, including organic synthesis, research and development, API synthesis, analytical methods development, intellectual property rights (IPR), structural determination, and product development. Career opportunities also exist in Contract Research Organizations (CROs), agrochemicals, surfactants, paints, cement, polymers, lubricants, oil and gas, environmental chemistry, and advanced instrumental techniques. Additionally, roles in the management and marketing of chemical products, instruments, and equipment are available.

The Faculty of Chemistry are associated with collaborative, funded research projects as well as industrial consultancy projects.

Somaiya Vidyavihar University

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
v	MUST have qualified the Ph.D. Entrance Examination and interview 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 to pay the application processing fee.
vii	A No Objection Certificate (NOC) from the employer in case of those who are working / employed for applying to Ph.D. Programme
viii	If candidate wants to apply more than one subject then should submit separate / another application and need to pay the application processing fee per subject.

Eligibility at UG/PG Degree	
Branch of study at UG	Physics Chemistry Maths Biology
Branch of study at PG	Organic Chemistry Inorganic Chemistry Analytical Chemistry Physical Chemistry Polymer Chemistry General Chemistry or a related discipline from a recognized university in accordance with UGC norms

Exemption Criteria for SVU Ph.D. Entrance Examination

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.

For further details about exemption and category of students refer PhD regulation - [Link](#)
However, the candidates who fulfil the above criteria MUST fill the application form as per the schedule displayed on the website along with necessary fees.

Pattern and syllabus of SVU Ph.D. Entrance Examination

The Ph.D and JRF Entrance examination will be common and will be at Somaiya Vidyavihar Campus, SVU, Vidyavihar, Mumbai -77

Pattern of entrance examination will be notified separately in due course of time

Unit 1 : Inorganic Chemistry

- a) Chemical Bonding, Structure and bonding in homo- and heteronuclear molecules, including shapes of molecules.
- b) Concepts of acids and bases, Hard-Soft acid base concept, Non-aqueous solvents.
- c) Main group elements and their compounds: Allotropy, synthesis, structure and bonding, industrial importance of the compounds.
- d) Transition and inner transition elements: Structure, bonding theories, spectral and magnetic properties, reaction mechanisms, spectral and magnetic properties, redox chemistry.
- e) Organometallic compounds: synthesis, bonding and structure, and reactivity.

Organometallics in homogeneous catalysis, Cages and metal clusters.

- f) Characterisation of inorganic compounds by IR, Raman, NMR, EPR, Mössbauer, UV-vis, NQR, MS, electron spectroscopy and microscopic techniques

Unit 2 : Physical Chemistry

- a) Basic principles of quantum mechanics: Postulates; operator algebra; exactly- solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom, solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom,
- b) Atomic structure and spectroscopy; term symbols; many-electron systems and antisymmetry principle.
- c) Chemical applications of group theory; symmetry elements; point groups; character tables; selection rules.
- d) Chemical bonding in diatomics; elementary concepts of MO and VB theories; Huckel theory for conjugated π -electron systems.
- e) Chemical thermodynamics: Laws, state and path functions and their applications; thermodynamic description of various types of processes; Maxwell's relations; spontaneity and equilibria; temperature and pressure dependence of thermodynamic quantities; Le Chatelier principle; elementary description of phase transitions; phase equilibria and phase rule.
- f) Electrochemistry: Nernst equation, redox systems, electrochemical cells; Debye- Huckel theory.

Unit 3 : Organic Chemistry

- a) Stereochemistry: Configurational and conformational isomerism in acyclic and cyclic compounds; stereogenicity, stereoselectivity, enantioselectivity, diastereoselectivity and asymmetric induction.
- b) Aromaticity: Benzenoid and non-benzenoid compounds – generation and reactions.
- c) Organic reactive intermediates: Generation, stability and reactivity of carbocations, carbanions, free radicals, carbenes, benzynes and nitrenes.
- d) Organic reaction mechanisms involving addition, elimination and substitution reactions with electrophilic, nucleophilic or radical species. Determination of reaction pathways.
- e) Organic transformations and reagents: Functional group interconversion including oxidations and reductions; common catalysts and reagents (organic, inorganic, organometallic and enzymatic). Chemo, regio and stereoselective transformations. Synthesis and reactivity of common heterocyclic compounds containing one or two heteroatoms (O, N, S).
- f) Structure determination of organic compounds by IR, UV-Vis, ^1H & ^{13}C NMR and Mass spectroscopic techniques.

Unit 4 : General Catalysis, green chemistry, and Sustainable chemistry.

- a) Polymer chemistry.

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

Important Links

Tentative Timeline / Steps adapted for Ph.D. Programme - [Link](#)
Fee Structure of Ph.D. Programme - [Link](#)
Guidelines for Payment of Fees a Refund – [Link](#)
About course work - [Link](#)

Process of getting the documents submitted return

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

Contact

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