



## Ph.D Admission Notice for 2022-23

VMSB Uttarakhand Technical University, Dehradun invites online application forms (link available <https://uktech.ac.in>) on for the admission in **Ph.D. Program for academic session 2022-23**. Applications are invited from highly motivated and research oriented candidates for admission in Ph.D. Programmes of University in below mentioned disciplines & available seats. The reservation policy is applicable as per Govt. norms.

Sl. No.	Branch	Vacant Seats*
01	Electrical Engineering	02 (Gen-2)
02	Computer Science & Engineering/ Computer Science	06 (Gen-4, SC-1, OBC-1)
03	Electronics & Communication Engineering	07 (Gen-5, SC-1, OBC-1)
04	Mechanical Engineering	05 (Gen-3, SC-1, OBC-1)
05	Civil Engineering	01 (Gen-1)
06	Biotechnology	01 (Gen-1)
07	Pharmacy	01 (Gen-1)

\*The number of seats are tentative and may change at the time of admission.

### 1. Eligibility for Admission to Ph.D. Programme

1.1 Candidates for admission to the Ph.D. programme shall have a relevant Master's degree in engineering for programmes in engineering, MCA for Computer Science, M. Pharma for Pharmacy, M.HM for hotel and hospitality management and MBA for Management with minimum of 60% of marks at Master's degree from a University, a deemed to be University or any other University of India or any equivalent from abroad.

1.2 A relaxation of 5% of marks, or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/differently-abled and other categories of candidates as per the decision of AICTE/UGC from time to time.

1.3 A candidate shall ordinarily be permitted to work for Ph.D. degree in the subject in which he/she has obtained his Master's degree and Bachelor's degree.

Provided that the subject must be one of the subjects included in the list of subjects in the BOS of the University and teaching must be going on in that subject in any one of the research centres approved by the University.

Provided that research work leading to Ph.D. degree may be allowed in allied subjects of interdisciplinary nature of the same faculty or the allied faculties. Provided further that whether a subject is allied or not to the subject in which the candidate has done Master's or Bachelor's

degree in engineering /technology/pharmacy/ Management shall be decided by the Interview board constituted according to the ordinance.

1.4 A candidate who has not completed Master's degree, may be allowed to appear for entrance test for the Ph.D. programme. However, such candidate has minimum 10 years of experience and has published SCI/SCIE papers of cumulative impact factor of 5 alone or calculated as per AICTE norms for joint publication and submits undertaking that he will pass M. Tech course during Ph.D. work.

## **2. Procedure for Admission**

2.1. Admission into the Ph.D. programme shall be through an entrance test and subsequent interview conducted by the University. There will be common entrance test for all colleges under University, which includes Autonomous Colleges. GATE/NET/GPAT/Other qualified candidates may have to appear for written exam but will get 20% weightage of these national eligibility tests in merit.

2.2. Reservation shall be applicable as per the reservation policy of the Government.

2.3. The admission into the Ph.D. programme shall be on the basis of marks obtained by the candidate in the entrance test and subsequent interview, the weightage of these components shall be 85% and 15% respectively. All candidates other than those, are compulsorily required to appear in the entrance test. Only those candidates shall be called for the interview who have scored at least 50% marks in the entrance test. Candidates who have qualified GATE/NET/GPAT/Other examination conducted by central government shall be awarded additional marks which shall be 20% (if they are to appear for test) of the marks scored by the candidate in the entrance test; however to qualify for the interview these candidates shall be required to score at least 50% marks in the entrance test without adding these additional marks. These shall be subject specific, the syllabus for which shall be notified by the university from time to time.

2.4. Junior research fellowship (JRF) holders of UGC/CSIR, teacher Fellowship holders of central government and teachers selected under QIP programme of central government or state government of Uttarakhand are exempted to appear in the entrance test. These candidates shall have first preference in the admission process.

These candidates shall be required to appear in the interview like any other candidates mentioned above. Relative merit of these candidates shall be decided by the marks obtained by them in the interview.

2.5. Passing an Entrance Test, excepting exempted category candidates, will be essential for a candidate to seek admission for Ph.D. course with 50% qualifying marks. The syllabus of the Entrance Test shall consist of subject specific (minimum 50%), reasoning, General knowledge, RM, and aptitude. The Entrance Test shall be conducted at the Centre(s) notified in advance (changes of Centre(s), if any, also to be notified well in advance) at the level of the university.

2.6. Based on available vacancies and the reservation policy selection and final merit list shall be declared, in which first preference shall be given to the JRF candidates. The remaining vacancies shall be filled after adding marks obtained by the candidates in different criteria as mentioned above.

2.7. Candidate qualifying the entrance test shall have to appear in an interview. The interview shall be conducted in the University premises. The venue and the time to be notified by the University.

2.8. At the time of interview, the candidate is expected to discuss his/her research area of interest and choice of supervisors and co-supervisor (if any). During the interview the interview board shall assess the subject knowledge and research aptitude of the candidate.

For further details refer to Ph.D. Ordinance 2020 of the University as available on [www.uktech.ac.in](http://www.uktech.ac.in).

**3. Sample Application Form (Only for reference for Apply Online ) for Ph.D. Entrance Exam-2022.**

**4. Tentative identified problems in various branches**

<b>Branch Name</b>	<b>Tentative Identified Problems</b>
<b>Electrical Engineering</b>	<ol style="list-style-type: none"> <li>1. Soft computing applications in frequency control of Hybrid power systems.</li> <li>2. Soft computing applications in Maximum power point tracking of solar photovoltaic power systems.</li> <li>3. Electric vehicle charging control methodologies</li> <li>4. Soft computing in image processing.</li> </ol>
	<ol style="list-style-type: none"> <li>5. Machines, Power Systems, Renewable Energy, Microgrid, Smart grid, Electric Vehicle etc.</li> </ol>
<b>CSE</b>	<ol style="list-style-type: none"> <li>1. Design Forensic Data Search and Investigation System for Digital Evidence</li> <li>2. Design of Cloud Based Identity and Fraud Analytics System</li> <li>3. Design of Emergency Message Disscimation Protocol for Vehicular Adhoc Networks</li> <li>4. A Framework for Automating Drudgery in Medical Practice</li> </ol>
	<ol style="list-style-type: none"> <li>5. Wild forest fire detection using hybrid CNN.</li> <li>6. Optimized Depression analysis using Hybrid model (CNN-biLSTM).</li> <li>7. Energy Optimized network for UWSN</li> </ol>
	<ol style="list-style-type: none"> <li>8. Optimization of Machine Learning and Deep Learning Algorithms for Classification Problems</li> <li>9. Natural Language Processing</li> <li>10. Optimization in Wireless Sensor</li> <li>11. Soft computing Applications</li> </ol>
	<ol style="list-style-type: none"> <li>12. Machine Learning, VANETS, CYBER SECURITY</li> </ol>
	<ol style="list-style-type: none"> <li>13. Research problem will be identified in consultation of the candidate</li> </ol>
	<ol style="list-style-type: none"> <li>14. An efficient mechanism for Review of Data Mining Methods based on Bioinformatics system</li> </ol>
	<p>A new source of Cybersecurity for healthcare IoT-based systems based Regulation and case-oriented assessment scheme</p>
	<ol style="list-style-type: none"> <li>23. Sentiment Analysis on different resources using Machine Learning techniques/Natural Language Processing</li> </ol>
<b>ECE</b>	<ol style="list-style-type: none"> <li>1. Synthesis of suitable Nano Ferrite Material in X-Band for different applications</li> <li>2. To analyze the applicability of suitable Nano-optic material for laser beam</li> <li>3. To improve the design of all existing antennas by replacing FR4 with suitable material</li> <li>4. Design and analysis of planar microstrip antennas for 5 G applications.</li> <li>5. Modeling and Simulation of JLFET based biosensor for Cancer Detection.</li> <li>6. Ultra-Energy-Efficient TFET Based Leaky-Integrate-Fire Neuron.</li> <li>7. Modeling and simulations of Nanosheet FET for memory and analog/RF applications.</li> <li>8. Modeling and Simulation of ultra low power TFET Based biosensor for COVID-19 detection.</li> <li>9. Wireless Propagation Channel Modeling and Performance Analysis of Generalized Fading Channel, Energy detection over Generalized Fading Channel, Cooperative Spectrum Sensing Over Generalized Fading Model.</li> <li>10. In the field of Communication Engg. (Wireless, &amp; Wired), Networking, 5G, 6G, CRN, Antenna, IoT, Sensor N/w's, Artificial Intelligence, Neural N/w's, Fuzzy logic, Security, etc.</li> <li>11. Analysis of biomedical Signal Using Machine learning Algorithms</li> <li>12. Fractional order and integer order Analog Circuits using morden building blocks</li> </ol>

<b>Branch Name</b>	<b>Tentative Identified Problems</b>
<b>Mechanical Engineering</b>	<ol style="list-style-type: none"> <li>1. 3-D simulation of rigid/ flexible flapping wing in standalone and tandem arrangement.</li> <li>2. Modified solar evacuated tube collector for direct heating integrated with heat storage for moderate temperature.</li> <li>3. Thermo-mechanical and wear characterization of natural fiber reinforced polymer composites</li> <li>4. Mechanical and wear characterization of friction stir processed aluminum alloy composites reinforced with industrial wastes</li> <li>5. Investigations on Mechanical and wear behavior of Al metal foam filled with Nano filler for structural application.</li> <li>6. Fabrication and characterization of biodegradable composites: An alternative to conventional plastics.</li> <li>7. Heat transfer and fluid flow in heat storage bed for medium temperature application.</li> <li>8. Impact of magnetic field on heat transfer and fluid flow characteristics in a zig zag mini channel.</li> <li>9. Broad Area - Manufacturing and production Specific Area-</li> <li>10. Optimization of EDM process parameters</li> <li>11. Optimization of Friction Stir Welding Process parameters</li> <li>12. Optimization of Friction Surfacing process parameters</li> <li>13. Optimization of different welding process parameters</li> <li>14. Thermal Performance study on tube heat exchanger/Microchannel</li> <li>15. Physio chemical performance and fluid flow properties of hybrid nanofluid in different types of micro channel with or without micro inserts</li> <li>16. Material Characterization, buckling and postbuckling analysis</li> <li>17. Solar thermal storage system, Biodiesel</li> </ol>
<b>Civil Engg.</b>	<ol style="list-style-type: none"> <li>1. Mapping the climate change prediction in Himalayan Regions</li> </ol>
<b>Biotechnology</b>	<ol style="list-style-type: none"> <li>1. Bioremediation of soil and water contaminants</li> <li>2. Exploring pharmaceutical and neutraceutical potential of lesser known plants of Uttarakhand region</li> <li>3. structural bioinformatics in drug discovery</li> </ol>
<b>Pharmacy</b>	Identifying biomarkers at genetic level for drug target, Looking at the association of particular gene with disease, exploring drug combinations for mental health like schizophrenia, depression, epilepsy etc. for better therapy, Pharmacological and Toxicological parameters studies, Drug Interactions, Adverse Drug reactions.

**Registrar, VMSB-UTU**