

**GUIDELINES**  
**ON**  
**RESEARCH PROGRAMMES AT VTU**

(Based on Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011)



***\*DOCTOR OF PHILOSOPHY (Ph.D.)***

***\*MASTER OF SCIENCE IN ENGINEERING  
[M.Sc. (Engg)]***

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**  
**“Jnana Sangama”, Belgaum – 590 018**  
**Karnataka, India**

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Visvesvaraya Technological University(VTU), Belgaum has been established in 1994 and started functioning from 1998 for the purpose of ensuring proper and systematic instruction, teaching, training and research in the disciplines of Engineering, Technology, Allied Sciences and Management in the state of Karnataka. With this motto, the University has been providing high quality education in the faculties of Engineering, Technology, Allied Sciences and Management through its Regional Centres as well as Affiliated Colleges. In each programme the University ensures the provision of high quality education, the pursuit of knowledge and the generation of new ideas.

**Vision Statement**

*“To become an outstanding Technological University at the cutting edge of Science and Technology that produces world class knowledge delivery, research, extension and leadership in technology innovation for industry and society”*

Visvesvaraya Technological University, one of the highly prestigious Universities in India has been functioning with its affiliated Technological Institutions offering Programmes in about 32 disciplines at Under Graduate and over 81 at Post Graduate levels. The University has a student base of around three lakhs spread across the State of Karnataka in varied disciplines. Visvesvaraya Technological University has instituted four Regional Centres at Belgaum, Bangalore, Gulbarga and Mysore where rigorous academic activity has been taking place. Post Graduate Courses like MBA, MCA and M.Tech. in various disciplines have been initiated at these Centres. More than 430 Departments have been recognized as Research Centres in various University affiliated Institutions and research organisations. More than 2500 candidates are now nurturing their MSc(Engg) by Research/PhD aspirations under various faculties of the University.

## PROGRAMME OBJECTIVES

Promotion of Research activity and strengthening the base of academic circuit, correspondingly nurturing the research ambitions of innumerable individuals has been the long standing goals of the University. The Research initiatives at the University have been formulated with the following objectives:

1. Promoting quality research and facilitating the candidates to pursue their research aptitude.
2. Providing equal opportunity at the highest educational level to all the deserving candidates.
3. Creating a talent pool drawn from academic and corporate fraternity and directing it towards up-grading the research threshold of the University.

## RESEARCH PROGRAMMES OFFERED BY VTU

- A. DOCTOR OF PHILOSOPHY (Ph.D.)
- B. MASTER OF SCIENCE IN ENGINEERING [M.Sc.(Engg)]

The programmes are being offered at VTU under the following Faculties:

- A. DOCTOR OF PHILOSOPHY (Ph.D.) PROGRAMMES** are being offered at VTU under the following Faculties

SL.NO	PROGRAMME
1.	Faculty of Engineering
2.	Faculty of Architecture
3.	Faculty of Science
4.	Faculty of Computer Applications
5.	Faculty of Business Administration

- B. M.Sc.(Engg) BY RESEARCH PROGRAMMES** are being offered under various Departments as listed below:

SL.NO	PROGRAMME
1.	Mechanical Engineering Sciences
2.	Electrical & Electronics Engineering Sciences
3.	Civil Engineering Sciences
4.	Computer & Information Sciences

## **IMPORTANT NOTES**

1. Address for correspondence:  
**The Registrar,  
“Jnana Sanagama”, VTU, Belgaum-590018,  
Karnataka State, India**
2. Retain Photocopies of the correspondence made with the University.
3. All correspondences relating to registration shall be forwarded through the Supervisor and the Head of the Institute. Individual correspondence by the candidate shall not be entertained.
4. An application will be summarily rejected if it is not complete in all respects and if there is any discrepancy between the material particulars furnished in the application form and the supporting documents.

## **ELIGIBILITY FOR ADMISSION**

1. The minimum qualification to be satisfied by the candidates seeking admission to PhD Programmes shall be as per Section PHD 5.2 of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011.
2. The candidates shall qualify in the UL RAT Conducted by the University. However, mere clearance of UL RAT is not a guarantee for registration.
3. The candidates who have acquired M.Tech./M.Sc. degree through Distance mode shall not be eligible for admission.

## **Recognition of Supervisors**

Candidates aspiring to register for the Research Programme are required to apply through eligible supervisors as per Section PHD -6.1.2. of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011.

Faculty members working in VTU affiliated Academic Institutions and Scientists/Engineers working in VTU recognized Research Centres, satisfying the Clause PHD-6.1.2 of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011 shall be eligible for recognition. The said Clause lays down the following criteria:

1. Ph.D. degree from a recognized University in the relevant discipline(s).
2. A minimum of two publications in refereed journals during the preceding five years and,

3. Independent research experience of at least one academic year, after obtaining the provisional Ph.D. degree award.

Further, Faculty Members/Scientists working in Institutions not affiliated to VTU or Research Establishments/Industries, not recognized by VTU as Research Centres, shall be from the *Recognized Panel of Supervisors* by VTU which shall be uploaded in the website from time to time.

### **ADMISSION PROCEDURE**

1. **Application:** An aspiring candidate is required to fill the form of application in full along with all the supporting documents mentioned therein and send the same so as to reach the Registrar on or before the last date of submission.
2. **Screening of Applications for Eligibility to take ULRAT:** All the applications will be reviewed by the Admission Committee to ascertain the eligibility of *Candidate and the Supervisor*. Thereafter, the List of candidates eligible for ULRAT under various Faculties will be displayed on the Website along with the generated Enrolment Numbers.
3. **Conduct of ULRAT:** ULRAT will be conducted for a total of 100 Marks consisting of objective type questions. List of successful candidates in ULRAT will be displayed on the Website with instructions to prepare for the Pre-Registration interview.
4. **Pre-Registration Interview:** The Expert Committee shall conduct the Pre-Registration interview at VTU Head Quarters, Belgaum. Expert Committee shall evaluate the candidates for their research potential. Then the List of successful candidates for provisional registration shall be displayed on the Website with further instructions.

### **OTHER DETAILS**

#### **ULRAT**

All the eligible candidates shall appear for the ULRAT (UNIVERSITY LEVEL RESEARCH APTITUDE TEST) which shall be conducted by the University **once in a year** as per the Clause PHD-10 of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)- 2011.

Admit cards for appearing at ULRAT shall be sent by the university through post/email to the candidates 10 days before the Test. Candidates who do not receive the Admit Card may

communicate the same to the University Via: Fax: 0831-2405467, Phone: 0831-2498100/127 at least 3 days before the date of ULRAT.

### **QUESTION PAPER PATTERN FOR ULRAT**

ULRAT shall be conducted in all the faculties separately for a total of 100 Marks. The Question paper shall include objective type questions with multiple options as per the composition given below:

General Aptitude	: 20 Marks	
Quantitative Aptitude	: 30 Marks	
<u>Subject Aptitude</u>	<u>: 50 Marks</u>	<b>Total : 100 Marks</b>

**A model Question paper shall be made available on the University website**

### **ULRAT ADMISSION NUMBER**

Candidates satisfying academic eligibility criteria shall be assigned ULRAT Seat Number. This number which is different from the Application Number shall continue till the registration is confirmed. After the confirmation of registration, the University shall generate a unique University Seat Number (USN) for each candidate.

### **VALIDITY OF ULRAT CARD**

ULRAT Result Cards shall be issued to all the successful candidates. The validity of the same shall be TWO academic years from the qualifying year.

### **EXEMPTION FROM APPEARING AT ULRAT**

The following categories of candidates are exempted from the ULRAT as per the Clause PHD-10.2 of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011. :

1. Full Time (Special) candidates. (Foreign candidates belonging to NRI/FN/PIO categories)
2. Candidates qualified in UGC / UGC-CSIR JRF / SLET / CAT / GATE / NET or other National Test with valid score.
3. Candidates with M. Phil. Degree or equivalent as recognized by the University.

**Note:** However, the candidates claiming exemption under the above categories shall also submit the ULRAT Application Form duly filled in.

## **PRE-REGISTRATION INTERVIEW**

Candidates who are successful in the ULRAT and all those exempted from ULRAT as per the Clause PHD 5.2 of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011 shall be eligible to appear for the Pre-Registration Interview provided they satisfy all other conditions such as eligibility criteria of the Supervisor, Subject compatibility etc.

Pre- Registration Interview involves objective presentation of the proposed research work by the candidate which may consist of Objectives of the work with Justification, Methodology to be followed, Facilities available at the Research Centre/Parent Institution and the Expected outcome. 10-15 minutes will be generally given to each candidate. The Interview marks shall be 50.

Merit list of the candidates under their chosen Supervisor shall be prepared on the basis of ULRAT performance, Pre-Registration Interview and the available vacancies.

## **COURSE WORK**

Candidates in consultation with the Supervisor are required to finalise the list of prescribed number of courses (Refer the Table given below). Individual courses for the course work shall be selected from different groups in such a way that there shall be a minimum of one course, but not more than two courses from any group.

<b>Prescribed Number of Courses</b>	<b>Number of Courses to be taken for PhD</b>
Candidates with PG qualification in Faculty of Engineering /Arch/MBA/MCA	<b>04</b>
Candidates with PG qualification in Faculty of Science	<b>06</b>
Candidates with M.Phil. Degree from On-campus Programme in Faculty of Science	<b>04</b>
Candidates with M.Phil. Degree from Distance Mode Programme in Faculty of Science	<b>06</b>
Candidates with UG qualification in Faculty of Engineering (other conditions apply as per PHD-5.2 of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011)	<b>08</b>

Note: For Candidates registering for MSc (Engg) by Research, six Courses are prescribed.

## **APPLICATION FORMS**

1. The application for admission shall be in the prescribed format of the University for the particular academic year only.
2. Application shall be downloaded from the website [www.vtu.ac.in](http://www.vtu.ac.in)

## **INSTRUCTIONS FOR FILLING THE APPLICATION FORM**

- (i) Peruse the Application Form, Regulations and this Handbook thoroughly before filling the Application Form.
- (ii) Check your eligibility in terms of academic qualification for the Research Stream you are applying for.
- (iii) A recent passport size Photograph wherever asked, should be signed by the candidate and be duly attested by the Head of the Institution.

***Make sure you enclose the following documents along with the Application Form***

***Application not supported by necessary and adequate documents are liable to be rejected.***

Hence candidates are advised to take due care while filling the Application Form.

For each Application, Attach attested copies of the following:

1. **Detailed Bio-data** of the Candidate, Supervisor. (and Co-Supervisor, if applicable)
2. UG and PG **Degree Certificates** and **Marks cards** of the **Candidate**.
3. UG, PG and PhD **Degree Certificates** of the **Supervisor/Co -Supervisor**.
4. **Category certificate of candidates** belonging to SC/ST/Cat-I/ and any other, if applicable.
5. **Additional Certificates** supporting the claims ( if any):
  - Medical Certificate for the degree of disability in support of candidates claiming benefit.
  - Test Score Card along with Admission ticket in support of clearance of UGC/UGC-CSIR JRF/SLET/CAT/GATE/NET or any other National Test with valid score.
  - In case candidate/Supervisors are possessing degree from Foreign Universities, the Equivalence Certificate issued by the Association of Indian Universities( AIU).
  - Passport with student Visa in the case of Foreign candidates.
6. **Synopsis of the proposed research** : Synopsis shall comprise of,
  - Introduction with problem identification
  - Literature survey
  - Objectives
  - Methodology
  - Possible outcome
  - References.



It shall be in A4 size Bond paper, neatly typed in double line space, in not more than 10 pages.

Page Layout of the Synopsis should be:

- 1 inch margin on all the sides and printed only on one side.
- Cover page should contain only the TITLE and Name of candidate and Supervisor(s) in Times New Roman Font 16 Bold. 14 Bold font to be used for Headings, 12 bold for Sub-headings and 12 normal for Text.

**Note: Synopsis to be in a Booklet form by using a simple Stapler and Cello tape.**

7. **Syllabus of the Course work chosen for the present Research:** Applicable only for Faculty of Science and PB-4 Course of the Faculty of Management.
8. **Demand Draft of ` .500** drawn in favour of The Finance Officer, VTU, Belgaum towards Application and Processing fee.

## **RESEARCH CENTRES OF VTU**

To cater to the needs of research aspirations of eligible candidates irrespective of their affiliation, VTU has been pursuing a scheme for according the status of Research Centers in two different formats as given below:

1. VTU Research Centres (VTU-RC) Recognised Research Centres in affiliated Colleges, R&D Establishments/ Industries and laboratories.
2. VTU Research Resource Centres (VTU-RRC)

### **1. VTU RESEARCH CENTRES (VTU-RC)**

Research Centers are recognised by Visvesvaraya Technological University for the purpose of permitting the Centers to guide candidates for M.Sc. (Engg.) by Research / Ph.D. degrees. Departments of Institutions affiliated to Visvesvaraya Technological University, Research & Development laboratories attached to Industries and such other laboratories of Research Institutions have been recognized as Research Centers on satisfying the requirements as per Regulations and has facilities as required by the University to conduct research in the relevant fields.

1. Candidates irrespective of their affiliation may apply in the prescribed format to the University seeking registration to M.Sc.(Engg) by research/ Ph.D., programmes in any

recognised Research Centre located in VTU affiliated Colleges/ R&D laboratories of Industries and other VTU recognised Laboratories.

2. A Supervisor / Co-Supervisor depending on his seniority after obtaining PhD can have five Research Scholars working under him/her for M.Sc.(Engg) by Research / PhD Programme taken together, registered under VTU or any other University. In addition to the above, the Supervisor can also have 3 Scholars from the Reserved Categories as per the Clause PHD-7.1 of Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D.)-2011 . The actual number permitted shall be decided by the Research Admission Committee based on the facilities at the Research Centre, performance of the Supervisor and progress of the Research Scholars registered under him/her, but in any case not exceeding Eight as stated above.

### **VTU RESEARCH RESOURCE CENTRES (VTU- RRC)**

VTU Research Resource Centre is an innovative research entity of VTU envisaged to pool the talent of eligible Research Supervisors outside the VTU System for the academic Progress. PhD degree holders working in private/government organizations are encouraged to register themselves as supervisors to Supervise MSc(Engg)/PhD candidates. Presently all the four Regional centres are recognized Research resource Centres of VTU.

1. Candidates irrespective of their affiliation and applying for seeking registration to MSc(Engg) by Research/PhD Programmes in other than VTU-RC, may apply to VTU-RRC through a recognized Supervisor of VTU-RRC.
2. The candidate has to opt for a Co-supervisor working in any VTU affiliated Institution along with the Supervisor from Non-VTU organizations.
3. Age of the supervisor shall be less than or equal to 62 years as on the date of Admission Notification issued by the University.

### **FEE STRUCTURE AND MODE OF PAYMENT**

Prescribed fee for registration, course work under Group I-IV examinations, fees for dissertation valuation & pre-PhD comprehensive Viva-Voce schedule, submission of periodic progress reports, change of topic and /or Supervisor / Co-Supervisors, submission of thesis etc., are as given in the following Table. However they shall be governed by the administrative orders issued by the University from time to time.

Nature of Fee	VTU -RC		VTU -RRC	
	Ph.D.	M.Sc. (Engg)	Ph.D.	M.Sc. (Engg)
Application fee	` . 500.00	` . 500.00	` . 500.00	` . 500.00
Registration Fee(Fresh)	` . 2500.00	` . 2500.00	` . 6000.00	` . 5000.00
<b>Tuition fee</b> per semester				
- Full Time candidates	` . 5000.00	` . 5000.00	` . 10000.00	` . 5000.00
- For External candidates	` . 7500.00		` . 15000.00	` . 7500.00
- For Sponsored candidates from industries	` . 12500.00		` . 25000.00	` . 12500.00
University Sports fee	-	-	` . 100.00	` . 100.00
University Sports Development fee	-	-	` . 200.00	` . 200.00
Career Guidance Fee	-	-	` . 100.00	` . 100.00
Cultural Activities Fee	-	-	` . 100.00	` 100.00
University Development Fee	-	-	` . 500.00	` . 500.00
Library Deposit Fee (Refundable)	-	-	` . 500.00	` . 500.00
Examination fee – per subject	` . 600.00	` . 300.00	` . 1200.00	` . 1200.00
Pre Ph.D. Comprehensive Viva-Voce	` . 1000.00	-	` . 7000.00	-
Thesis Submission fee	` . 10000.00	` . 5000.00	` . 30000.00	` . 10000.00
Penal Fee for late submission of thesis (More than three months and less than twelve months from the date submission of synopsis)	-	-	` . 3000.00	` . 3000.00
Provisional Degree Certificate fee	` . 500.00	` . 200.00	` . 1000.00	` . 1000.00
Convocation Certificate			` . 1200.00	` . 1200.00

Fee as stated above can be paid as and when called by the University only through Demand draft drawn in favour of the Finance Officer, VTU, Belgaum. Please write your name , programme code and address on the back of the Demand draft to ensure proper credit to your fee account. Fee once paid shall not be refunded under any circumstances. It is also not adjustable against any another program of this University.

## **Key Words and Abbreviations**

Ph.D.: Doctor of Philosophy

Pre-PhD Interview: Selection Interview conducted by the Expert Committee after the clearance of ULRAT

ULRAT: University Level Research Aptitude Test

VTU: Visvesvaraya Technological University

VTU-RC: Visvesvaraya Technological University Research Centres. These are the VTU recognised Departments of Institutions affiliated to Visvesvaraya Technological University, Research & Development laboratories attached to Industries and such other laboratories of Research Institutions.

VTU-RRC: Visvesvaraya Technological University Research Resource Centre. This is a research entity of VTU where aspiring candidates may apply for registration to M.Sc(Engg) by Research/Ph.D Programmes through a Supervisor recognized by the University.