



# **Ph.D. Degree Programme**

**(Academic Ordinance 2018-19)**

University and have become qualified under these regulations for the award of the Degrees, one month prior to the Convocation.

- (a) If a student is unable to attend the Convocation in person to receive his/her degree, he/she may obtain his/her degree in absentia by submitting an application in prescribed format fifteen days prior to the convocation.
- (b) If the Convocation is not held due to some unforeseen reasons or unavoidable circumstance within six months after the batch of the students has become eligible to receive the degree, the degree be dispatched by mail or collected by the students from the office of Registrar.

#### 1. **Ph.D. PROGRAM:**

- (a) A candidate applying for Ph.D. Program in a particular discipline must possess a Master's degree in relevant/appropriate discipline/field/subject with first division. Where the division is not awarded, the applicant must have obtained a minimum of First Class in Master's degree. A candidate for Applied Sciences and Humanities & Social Sciences will also be considered with 55% marks in Master's degree provided he/she has qualified NET/JRF or equivalent examination.

If a candidate has obtained a Master's degree by Research only, then in his/her case, the requirement of first division/CGPA will be waived off provided the candidate has at least one publication in refereed journal of repute.

Further, a candidate holding Bachelor's degree in Engineering/Pharmacy with Honours based on CGPA/CPI or marks obtained (8.00 and above on a 10 point scale or 75%), and five years of teaching/research experience with at least one publication in refereed journal of repute, can be considered for admission to Ph.D. Program.

In addition all applicants shall have to qualify the Ph.D. entrance test conducted by the University or by Central Bodies such as UGC/CSIR/IITs/IIMs. The applicants qualifying in the entrance test shall also undergo an interview by the Departmental Research Degree Committee (**DRDC**) of the Institute/Department.

**\*NRI candidates** having recognized qualification certified by AIU and foreign nationals sponsored by ICCR/MHRD are eligible for admission in Ph.D. at the GLA University.

**\*A woman Ph.D. Scholar** registered in any UGC recognized University may take admission in Ph.D. at the GLA University as per the guidelines laid by the UGC dated 12<sup>th</sup> April, 2016.

***\*The University shall follow guidelines as laid down by the regulatory agency UGC from time to time in its Ph.D. program.***

(\*Adopted by the Executive Council in its 12<sup>th</sup> meeting held on Aug. 21, 2016 under Item No. 12.06)

- (b) Any Regular Faculty member from the University having Ph.D. degree with post Ph.D. experience of at least ONE year of teaching/research will be permitted to supervise a candidate for his/her Ph.D. Program. A supervisor shall not have, at any given point of time, more than eight Ph.D. scholars under him/her. The candidate can have a co-supervisor from amongst the

faculty having a Ph.D. Degree with at least three years of teaching/research experience.

The University shall permit eminent faculties from other reputed National Institutions/Research Laboratories etc to serve as a joint Supervisor or a Joint Co-Supervisor, if it feels necessary. The provision of exclusive/sole External Supervisor shall be applicable for registered part-time Ph.D./Research Scholars provided the External Supervisor agrees to attend meetings of the RDC of his/her scholars at the University.

*(This clause is amended on approval by the Executive Council in its meeting held on November 15, 2013 under Agenda No. 7.04)*

Co-Supervisors can also be from the same department or from other department (for inter-disciplinary areas) of the same institute or from other related institute by the approval of the Research advisory committee.

- (c) The appointment of the supervisor/External Joint Supervisor for a selected student shall be approved by the Vice-Chancellor/Director/Principal of the Institution/Faculty through DRDC of concerned Department in a formal manner depending on the number of student(s) per faculty member, the available specializations among the faculty supervisors, and the research interest of the student as indicated during the student's interview. The selection and appointment of Co-Supervisor/External Joint Co-Supervisor, if any, shall also be done by the Director of the Institution in consultation with HoD and Supervisor.
- (d) The Supervisor/External Joint Supervisor and/or the Co-Supervisor/External Joint Co-Supervisor of the student once selected shall not be changed except in extra-ordinary circumstances, by the Director in consultation with HoD.
- (e) Each student with a Master's degree and admitted to a Ph.D. Program shall be required to undertake course work for a minimum period of one semester. He/she shall undertake a minimum of three courses including one on Research Methodology totaling to a minimum of twelve credits. However, candidates possessing M. Phil. degree will be governed by the norms of the UGC in respect of the course requirements. The students with a Bachelor's degree admitted to a Ph.D. Program, shall be required to undertake a minimum of six courses totaling to a minimum of 24 credits.

However, the RDC, on the recommendations of the Supervisor, after due consideration of the background of the student in relation to the proposed topic of research, may require the students to register for more courses. The course work shall be treated as pre-Ph.D. preparation and shall include a course on research methodology.

A Ph.D. student pursuing the course work must attend at least 85% of classes in each course. However, the Director may condone the attendance requirement for a student depending upon the genuineness of the case.

If found necessary, the course work may be carried out by the doctoral candidates in sister Departments/Institutes either within or outside the University for which due credit will be given to them.

The minimum acceptable Cumulative Grade Point Average for the course work shall be **6.50** on 10 point scale or **First Division** where marks are awarded.

# PMG1001: Research Methodology

## Objective:

- » To familiarize the scholars with the concept and the techniques of research methodology applicable to develop broad comprehension of research area.

<b>UNIT – I</b>	Introduction to research-motivation and objectives, Uniqueness of Ph.D. Thesis research, Research Philosophy, structure of research (The research hourglass) research process, research design, different types of research design (Exploratory, descriptive, experimental). Analysis of Literature Review – Primary and Secondary Sources, Websources –critical Literature Review, Hypothesis – Different Types – Significance – Development of Working Hypothesis, Null hypothesis, Research Methods: Scientific method vs Arbitrary Method, Logical Scientific Methods: Deductive, Inductive,	<b>(15 Sessions)</b>
<b>I TERM EXAMINATION</b>		
<b>UNIT – II</b>	Methods of Collecting Data : Observation, field investigations, Direct studies– Reports, Records or Experimental observations., Measurement and Scaling, Questionnaire Design, Concept of Reliability and Validity,, Population and sample, fitting the sample with the real world, Identifying and Defining Research problems, Guidelines for writing research proposals, Thesis, Research Paper, Patents. Reference writing: APA Format, MLA Format, Chicago Style manual and IEEE Editorial Style Manual.	<b>(15 Sessions)</b>
<b>II TERM EXAMINATION</b>		
<b>UNIT – III</b>	Data Analysis- Various Statistical tools and techniques (Measure of Central Tendency & Dispersion, correlation, regression, Parametric Tests & Non-Parametric tests, factor analysis, cluster analysis), Simulation and numerical methods, Concepts of Artificial intelligence and Associated Techniques. Introduction to Intellectual Property rights, Ethics in Research, Plagiarism – definition, forms and consequences.	<b>(15 Sessions)</b>
<b>* Provision for presentations / assignments / case analysis in additional sessions</b> <b>** 1 Session = 60 Minutes</b>		

## Note:

- Relevant Case Studies and research papers should be discussed and presented in the class (Background and interest areas of the students should be considered while selecting the Cases).
- Practical problems should be discussed, analyzed and solved wherever applicable. Students may be exposed to relevant software's like SPSS, MATLAB etc. used for Data analysis keeping in mind the background of the student.

### **Suggestive Readings:**

- »» Panneer Selvam – Research Methodology, Prentice Hall of India, Edition 2008.
- »» Cooper and Schindler – Business Research Methods, Tata McGraw Hill, 9th Edition.
- »» Zikmund William G. – Business Research Methods, 7th Edition, Cengage Learning India Pvt. Ltd., New Delhi
- »» Saunders M., Lewis P., Thornhills A. – Research Methods for Business Students, Pearsons Education, New Delhi 2005.
- »» Malhotra & Dash – Marketing Research, Pearsons Education, New Delhi
- »» Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E.- Multivariate Data Analysis, 7th Edition, Prentice Hall, India 2010.

### **Learning Outcomes:**

- »» Scholars will be able to understand the concept of research, research philosophy and research structure.
- »» Able to understand the importance of literature review and can independently do it.
- »» Working knowledge of different statistical fundamentals and tools.
- »» Aware with different style of referencing.