SGT University, Budhera, Gurugram
Ph.D. Programmes

Ph. D. Programmes

PREAMBLE:-

PhD degree is recognition of the highest achievements, independent research and application of scientific knowledge to the soluti0on of technical and scientific problems. Creative and productive inquiry is the basic concept underlying the research work.

In order to overcome any deficiency in breadth of fundamental training or for proper foundation for advance work, special scale up or pre-departmental course are required to be given in each department, including a pre-PhD course work on Research methodology, Biostatistics & computer fundamentals and other relevant subjects.

GOALS:

Goal of PhD degree programme is to prepare and train the scholar for indepedent research and application of scientific knowledge to the solution of technical and scientific problems. Creative and productive inquiry is the basic concept underlying the research work.

OBJECTIVES:

- Provide comprehensive research experience in relevant field
- To create a category of research scholars that is well oriented in research practices in order to fill the gaps in existing knowledge and continuity of additional knowledge in future.

Duration of Study:

M Phil programme shall be of minimum duration of 2 (Two) consecutive semesters/ one year and maximum of 4 (Four) consecutive semesters/2 years.

PhD programme shall be of minimum duration of three years, including Pre-phD course work and maximum of six years of admission. Candidates have to submit his/her thesis within 4 years but not before minimum 3 years from date of his/her registration or 2 years of approval of synopsis by concerned board of studies, whichever is earlier. which may be extended on yearly basis by VC of the SGT University on genuine ground to maximum permissible duration of 3 years..

The women candidate and the person with disability (more than 40% disability) may be allowed additional one year for M Phil and 2 years for PhD by concerned university. In addition women candidate care allowed 240 days maternity leave once in entire duration of M. Phil/ PhD programme.

Eligibility:
Master degree holders with at least 55% marks in aggregate or equivalent grade B in UGC 7 point scale or equivalent grade in a point scale.
A relaxation of 5% marks, from 55% to 50% or equivalent grade may be allowed in case of Candidate belonging to SC/ST/OBC (Non creamy layer)/ Differently- Abled.

Candidates who have cleared M. Phil course work with minimum 55% marks may be allowed to proceed for PhD programme in same institution as integrated programme. A relaxation of 5% marks, from 55% to 50% or equivalent grade may be allowed in case of Candidate belonging to SC/ST/OBC (Non creamy layer)/ Differently- Abled.

Intake
The university shall notify the No. of seats for M. Phil and Ph. D programmes in in advance to the admission. Admission will be through entrance test as prescribed by university/UGC norms.

Registration
The candidate shall be registered for Ph.D on completion of the course work and on submission of research proposal duly approved by the DRC, Board of Studies and Ethical Committee as the case may be.

Eligible Criteria for Supervisor
Any regular full time Professor of the SGT university/institution with at least 5 research publications in referred journals and any Regular Associate /Assistant Professor of the university/ college with a PhD Degree and at least 2 research publications in referred journals may be recognized as Research Supervisor. In addition to Supervisor, a Co- supervisor may be allowed in interdisciplinary areas form other dept of same institution or other related institution with approval of DRC. In addition to above university can appoint research supervisor who is otherwise eligible as per UGC regulations. Maximum No. of Research Scholars to be registered under a supervisor or co-supervisor any given point of time shall be as under:

	Ph D		M Phil
Professor	8	+	3
Associate Professor	6	+	2
Assistant Professor	4	+	1

Allocation of Supervisor:
Allocation of supervisor will be decided by department concerned/ DRC depending upon area of research and availability of supervisor in that area with consultation with the student and the supervisor.
Supervisor will be allocated within 3 months of research scholar joining the PhD programme.

If circumstance so warrant, A change in supervisor may be carried out by DRC at request of research scholar or supervisor.

Coordinating Department: Ph D & Research Cell of SGT University located in Department of Community Medicine, Faculty of Medical & Health Sciences Budhera, Gurgaon

Fee Structure: Rs. 150,000/- per year. The examination fees will be decided by University from time to time. JRF & SRF facilities are available under UGC for students under this university for funding the research.

Pre –PhD Course Work:

After having admitted, each MPhil/PhD student shall be required to undertake Pre-PhD course work for a minimum period of one semester and must be completed within one year of admission. The pre-PhD course work will include the followings:

1. Research Methodology & Research and Publication Ethics
2. Statistics and Computer Fundamentals
3. Subject Specific Course
4. Compulsory course in outline of review/ report/ thesis writing and presentation (Non Credit Course)

Course work will be treated as prerequisite for MPhil/ PhD preparation. A minimum of 4 credits shall be assigned to one or more courses on Research Methodology which will cover areas such as quantitative research methods, computer applications, research ethics and review of published research in relevant field, training, field work etc. Other courses will be advance level courses preparing the students for M. Phil or PhD degree.

Candidate already holding M. Phil degree and admitted to PhD programme or those who have already completed the Pre- PhD course work and have been permitted to proceed to PhD integrated course may be exempted by the department from Pre- PhD course work.

Teaching strategies:-

Pre PhD Course Work:

The PhD Scholars are prepared to participate in a multi-disciplinary approach to planning, implementing, managing research and update for research and concerned subjects through Pre-PhD Course Work during First or second semester of programme.

The interdisciplinary curriculum is based on both a qualitative & quantives research models for programme. The major focus is on research methods, statistics, Computer Fundamentals including use of analytic package like SPSS, Epi Info, STRATA etc, report writing and pedagogy lecturer & presentation in addition to subject specific preparation.

Scholars are be exposed to practical demonstration in various statistical package for above purposes.

Duration of course – 6 months

Eligibility for admission- Master degree holders with at least 55% marks in aggregate or equivalent grade B in UGC 7 point scale or equivalent grade in a point scale.

A relaxation of 5% marks, from 55% to 50% or equivalent grade may be allowed in case of Candidate belonging to SC/ST/OBC (Non creamy layer)/ Differently- Abled.

Pass percentage- 55% in aggregate

Other rules- as per UGC notification and Pre-PhD Course Work Ordinance

Scheme for exams:

Paper No.	Nomenclature of paper	Credits	IA	University Exam	Max Marks
01	Research Methodology & Research and Publication Ethics	4	20	80	100
02	Statistics and Computer Fundamentals	4	20	80	100
03	Subject Specific Course	3	20	80	100
04	* Outline of review/ report/ thesis writing and presentation (Non Credit Course)	0	20	80	100
05	Computer Fundamentals and Software Applications (Practical)	1	10	40	50
	Total	12			450

*Review/ report/ thesis writing (40), Presentation (40)

Pass percentage required 55% of total maximum marks.

Part time PhD is permitted but PhD is not allowed through Correspondence/ Distant Learning Course as per UGC Regulations. For pursuing PhD programme, faculty engaged in teaching / research are not required to take study leave. The duration of PhD will be counted as teaching experience for those engaged in teaching.

Syllabus for Pre- PhD COURSE WORK

Paper/ S. No	Topics to be Covered	Teaching Hours
***101 Section1	**Research Methodology & Research and Publication Ethics (Paper code 101)**	**60**
	Introduction and basic concepts in Research Methodology: Meaning of research, characteristics, significance & types of research, research approaches, research plan & its components, Criteria for good research & problems encountered by research scholars. **Identification and formation of research problem**: Necessity & Techniques involved in defining problem, Formulation of research question / hypothesis.	8
Section II	**Research Design:** Concept of research design, independent , dependable & extraneous variables**,** research hypothesis, case study method, descriptive & diagnostic studies, analytic studies, experimental designs- CRD, RBD, LSD & Factorial designs	8
Section III	**Data Collection-** primary & secondary data collection, Case study method etc. Data preparations, processing, analysis & interpretation.	8
	Writing of report- types of reports, stages in preparation, Characteristics, layout structures, documentation, footnotes, Bibliography & References- various methods. Editing final report, characteristics of good report	
Section IV	**Presentation of report/ paper**- Oral, Poster, publication of Paper, critical appraisal of Journal article.	6
	Funding agencies such as DSF, DST, DBT, ICMR, CSIR, UGC etc. Preparing proposal for funding, Role of IPR in research & development	
Section V	**Philosophy and Ethics** **Introduction to philosophy :** definition, nature and scope, concept, branches **Ethics:** definition, moral philosophy, nature of moral judgments and reactions	3

Section VI	**Scientific Conduct** • Ethics with respect to science and research • Intellectual honesty and research integrity • Scientific misconduct : Falsification, Fabrication, and Plagiarism (FFP) • Redundant publications: duplicate and overlapping publications, salami slicing • Selective reporting and misrepresentation of data	5
Section VII	**Publication Ethics** • Publication ethics: definition, introduction and importance • Best practices / standards setting initiative and guidelines: COPE, WAME, etc. • Conflicts of interest • Publication misconduct: definition , concept, problems that leads to unethical behavior and vice versa, types • Violation of publication ethics, authorship and contributor ship • Identification of publication misconduct, complaints and appeals • Predatory publishers and journals	7
	PRACTICE: **Open Access Publication:** • Open access publication and initiatives • SHERPA / ROMEO online resource to check publisher copyright & self – archiving policies • Software tool to identify predatory publication developed by SPPU • Journal finder / journal suggestion tool viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc	4
	Publication Misconduct: A. Group Discussion (2hrs) 1. Subject specific ethical issues, FFP, authorship 2. Conflicts of interest 3. Complaints and appeals : examples and fraud from India and abroad B. Software tools (2hrs) Use of plagiarism software like Turnitin, urkund and other open source software tools	4

Databases and Research Metrics:
A. Databases (4 hrs)
 1.   Indexing databases
 2.   Citation databases: Web of Science, Scopus, etc
B. Research Metrics (3hrs)
  1.   Impact Factor of journal as per Journal Citation
       Report, SNIP, SJR, IIP, Cite Score
  2.   Metrics: h-index, g index, i10 index, altmetriics
	7

***102	**Statistics and Computer Fundamentals**	**60**

Section I

1. Generations of Computer (I-V)
2. Block Diagram of a Computer
3. Functions of the Different Units:
    Input unit, Output unit, Memory unit, CPU (ALU+CU)
4. Input & Output Devices:

Input Devices:
   a. Keyboard,
   b. Point and draw devices: mouse, joystick, track ball, light pen
   c. Data Scanning devices: image scanner, OCR, OMR, MICR, Bar code reader, card reader
   d. Voice Recognition Device
   e. Digitizers

Output Devices:
   a. Monitor
   b. Printer: laser printer, ink jet printer, dot-matrix printer
   c. Projector

5. Memories [Memory hierarchy]
   a. Registers [Types of Registers]
   b. Cache Memory
   c. **Primary Memory**:

      i)   RAM
      a)   How data is stored in a RAM
      b)   DRAM and SRAM
      ii)   ROM
      a)   ROM BIOS/ Firmware
      b)   Types of ROM
   d. **Secondary Memories**:

i)   **Hard disk**
a)   Structure of a hard disk, how data is stored in a hard disk, concept of tracks, sectors, clusters, cylinders
b)   Formatting of hard disc (low level formatting and high level formatting)
ii)   **Floppy [data storage mechanism]**
iii)   **CD [data storage mechanism]**
iv)   **USB**

6. Software

System Software
a.   Operating System:

   i. Functions of O/S
   ii. Types of O/S
b.   Program Language Translators:
i.   Assembler
ii.   Compiler
iii.   Interpreter

The marks column values: 5, 5, 5

	c. **Utility Programs** **d.** **Communication Software** **e.** **Performance Monitoring Software** 7. Application Software 8. Software hierarchy and dependence between the different layers 9. **Computer Languages**: i. Machine language ii. Assembly language iii. High level language	
Section II	**Descriptive statistics:** **Measures of Central tendency**- mean, median, mode	
	Measures of dispersion- Range, mean deviation, standard deviation.	5
	Index numbers, Analysis of time series.	5
	Correlation & Regression analysis	
	Probability: Binomial Distribution, Poisson Distribution, Normal Distribution. Geometrical distribution, correlated measurements.	5
	Variance- measures of relationship, covariance's, Karl Pearson's Correlation coefficient, Measures of skewness, kurtosis, Spearman Rank correlation.	5
	Sampling & statistical inferences: Types of sampling, Sampling & non-sampling errors, Sampling distribution- distribution of mean, proportion, student' t, Chi-square test, F- distributions, degree of freedom, central limit theorem & statistical inferences	10
	Testing of Hypothesis-test statistics & critical region, test of significant attributes, Tests of mean, proportion, variance, difference of two means, two proportions, two variances. student' t, Chi-square, F distributions Z test, Small sample tests- T Test, F test of equality of variance, large sample tests, normal test. P value approach, power of test. **Anova**- one way & two way techniques	15
***103	**Subject Specific Paper** Curriculum & syllabus will be as per concerned subject and be of Master's level.	45

***104	**Computer Fundamentals and Software Applications : Practical**
	
	MS Office
	  i) Microsoft Word
	  ii) Microsoft Excel
	  iii) Microsoft PowerPoint
	
	Software
	  i) MATLAB
		30

	ii) XPPAUT iii) SPSS iv) Epi Info v) STRATA vi) ProQuest vii) Delnet viii) SCC ix) J-Gate	

Upon satisfactory completion of course work and obtaining minimum 55% marks or equivalent grade in UGC 7 pint scale or equivalent , the M.phil/PhD Scholar shall require to undertake research work and produce a draft thesis within a reasonable time as stipulated above.

Research Advisory Committee:

There will be research committee or equivalent body for similar purpose for each M Phil and PhD Scholar. Research supervisor will be convener of this committee. The committee will have following responsibilities:

1. To review the research proposal and finalize the topic of research.
2. To guide the research scholar to develop study design and methodology of research and identify the course that she/he may have to do.
3. To periodically review and assist in progress of research work of the research scholar

A research scholar will appear before Research Advisory Committee (RAC) once in six months to make a presentation of progress of his/her work for evaluation and further guidance. Six monthly progress reports will be submitted by Research Advisory Committee to university PhD cell with a copy to research scholar.

In case of progress of research scholar is unsatisfactory, RAC shall record in writing reasons for the same and suggestive corrective measures. In case the Research scholar fails to implement corrective action, RAC may recommend to University/ institution for cancellation of registration of research scholar.

Evaluation and Assessment for award of degree

The overall minimum credit requirement including credit for Pre-PhD course work**,** for award of M. Phil degree shall not be less than 24 credits.

Prior to submission of thesis, the scholar will make a presentation in the department before RAC which shall also be open all faculty members and research scholars. The feedback/ comments obtained from them may be suitably incorporated in final draft in consultation with RAC.

M Phil student shall present make at least one(1) research paper in conference / seminar and PhD scholars must publish at least one (1) research paper in refereed journal and make two paper presentation in conference/ seminar before submission of their thesis/ dissertation for adjudication and produce evidence in form of presentation certificate and/ or reprint.

On completion of research work to the satisfaction of supervisor, the scholar will submit six

(6) printed or typed copies of thesis to DRC through his supervisor who will forward the same to Dean / Controller of Examinations for further processing. In addition, a CD of thesis in PDF format shall also be submitted by the scholar for forwarding it with thesis to Dean/ CoE.

Thesis should be the original research work characterized either by discovery of new fact or by fresh interpretation of known facts or theories. In either case, it shall give evidence of of candidate capacity for original research, critical examination and judgment.

Plagiarism shall be dealt as per regulation of the University.

Thesis will have following certificate signed by supervisor(s):

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This is to certify that the thesis titled "…….(title of the thesis) submitted to SGT University in

partial fulfillment of the requirement s for the award of degree of Doctor of Philosophy in …….. (name of subject) embodies the original research work carried out by Mr/Ms………… (Name of candidate) under my/our supervision and has not been submitted in part or full for any other degree or diploma of university or any other university/ institution anywhere".

Appointment of examiners

Thesis submitted by the Ph D students shall be evaluated by his research supervisor and at least by two external examiners/experts out of which one shall be out of the State or outside the country. In case of thesis of M Phil student, evaluation of thesis may be done by one internal and one external examiner.

These two external examiners and the supervisor (s) of scholar shall form the Committee of examiners for evaluation of thesis submitted by research scholar. The committee will be notified by the Controller of examinations/ Dean (Academic) on approval of VC. Appointment of these examiners shall be strictly confidential.

Viva Voce examination based on critiques given in evaluation report shall be conducted by research supervisor and at least one of two external examiners and shall be open to be

attended by members of research advisory committee, all faculty members of dept, other research scholars and other interested experts/ researchers.

The public viva voce of research scholar to defend the thesis shall be conducted only if evaluation report of external examiner (s) on the thesis is/are satisfactory and include specific recommendation for conducting viva voce. If evaluation report of one of the examiner is unsatisfactory, the university will send the thesis to another examiner out of approved panel of examiners and viva voce will be held only if report of latest examiner is satisfactory. if the report of latest examiner is unsatisfactory, the thesis will be rejected and the research scholar shall be declared ineligible for award of the degree.

If both the external examiners have recommended rejection of the thesis, the thesis shall be rejected outright.

Entire process of evaluation of M Phil/PhD thesis should be completed within six months from date of submission of dissertation/ thesis.

Evaluation of thesis by examiners

Each examiner will give his/her assessment and a clear recommendation about the candidate research work to the Dean (Academic). The assessment report of each examiner shall cover the following:

1. Significance contribution of knowledge
2. Any specific observation made during revision, modification or clarification by candidate
3. Standard of presentation
4. The recommendation made by the examiners about the candidate's research work shall be on prescribed form provided bt SGT university indicating clearly one of the following:

1	Thesis is recommended for award of the PhD degree in present form	Yes/ No
2	a. Thesis is accepted for award of the PhD degree after minor revision	Yes/ No
	b. Examiner will like to examine the response before recommending the award	Yes/ No
OR		
3	a. Thesis may be accepted for award of the PhD degree after minor revision requiring rewriting a portion/ chapter of the thesis incorporating some additional work	Yes/ No
	b. Examiner will like to examine the response before recommending the award	Yes/ No
OR		
4	Rewriting of thesis after further research	Yes/ No
OR		
5	Thesis is rejected outright	Yes/ No

Examiners of thesis may send along with their reports, suggestions on correction amd modifications and questions to be asked from candidate by Committee constituted for conduct of viva-voce examination.

Final Viva Voce

On having received the Thesis Assessment Report and recommendation from all examiners, Dean /CoE will request the supervisor to arrange for final viva voce of the candidate. The viva voce committee will comprise of one external examiner and nominated member of DRC and will be conducted by supervisor & Dean (Academic).
Recommendations of examiners shall be placed with viva-voce committee.

Declaration of result:

Dean will advice the DRC about viva voce recommendation and takes the approval from VC. And shall inform the CoE about approval of VC. Result will be declared by registrar/ CoE. And advise the scholar. CoE will issue the provisional certificate certifying that PhD degree has been awarded by SGT University to candidate in accordance with provision of UGC (Minimum standard of procedure for award of M Phil/ PhD Degree) Regulation 2016 as amended.

Depository with UGC

Following the successful completion of evaluation process and announcement of award of M Phil/ PhD, the university will submit an electronic copy of MPhil/ PhD thesis to INFLIBNET, for hosting the same so as to make it accessible to all Institutions/ Colleges.

Career opportunities

- Ph D is the highest attainable degree in academics & research. Degree is approved by UGC and other national statutory body and recognized internationally.
- It is mandatory requirement for employment as a university teacher in all medical subjects in a medical college for a non-medical individual.
- Career opportunities for working with research organizations at local, state, national & international levels

Syllabus Books

Research Methodology: Methods & techniques by CR Kothari, Gaurav Garg. New Age Publishers.

Research methodology for health professionals by RC Goyal, Jaypee Brothers Medical Publishers.

Ph.D Cell