University of Mumbai

Th/ICD/2021-22/1265   13th July, 2021

Circular:-

The Directors / Principals / Heads / Co-ordinators of Research Institutes / Colleges / University Departments / University Sub-Campuses are instructed to note that the University has adopted the UGC guidelines issued vide D.O.No.F.1-1/2018 (Journal/CARE) of December, 2019 regarding **two credit courses** for awareness about publication misconducts entitled **"Research & Publication Ethics (RPE)"** to be made **compulsory** for all **Ph.D students** for pre-registration **course work** (attached as Annexure).

In view of the above, the Directors / Principals / Heads / Co-ordinators of Research Institutes / Colleges / University Departments / University Sub-Campuses are requested to ensure that the above two credit courses may be made compulsory for all Ph.D. students for pre-registration course work undertaken in your Research Centre.

Deputy Registrar
Research Administration & Promotion Cell

CC for information and necessary action:-
The Directors / Principals / Heads / Co-ordinators of Research Institutes / Colleges / University Departments / University Sub-Campuses

विश्वविद्यालय अनुदान आयोग
University Grants Commission
(मानव संसाधन विकास मंत्रालय, भारत सरकार)
(Ministry of Human Resource Development, Govt. of India)

बहादुरशाह जफ़र मार्ग, नई दिल्ली-110002
Bahadur Shah Zafar Marg, New Delhi-110002
Ph :. 011-23236288/23239337
Fax : 011-2323 8858
E-mail : secy.ugc@nic.in

ज्ञान-विज्ञान विमुक्तये

प्रो. रजनीश जैन
सचिव
Prof. Rajnish Jain
Secretary

सत्यमेव जयते

D.O.No.F.1-1/2018(Journal/CARE) December, 2019

Respected Sir/Madam,

University Grants Commission in its 543rd meeting held on 9th August, 2019 approved two Credit Courses for awareness about publication ethics and publication misconducts entitled **"Research and Publication Ethics (RPE)"** to be made compulsory for all Ph.D. students for pre-registration course work (**attached as Annexure**).

In view of the above, you are requested to ensure that the above two Credit courses may be made compulsory for all Ph.D. students for pre-registration course work undertaken in your University from the forthcoming academic session.

With regards,

Yours sincerely,

(Rajnish Jain)

TO THE VICE-CHANCELLORS OF ALL UNIVERSITIES

Course Title:

- **Research and Publication Ethics (RPE)**-Course for awareness about the publication ethics and publication misconducts.

Course Level:

- 2 Credit course (30 hrs.)

Eligibility:

- M.Phil., Ph.D. students and interested faculty members (It will be made available to post graduate students at later date)

Fees:

- As per University Rules

Faculty:

- Interdisciplinary Studies

Qualifications of faculty members of the course:

- Ph.D. in relevant subject areas having more than 10 years' of teaching experience

About the course

Course Code: CPE- RPE

Overview
- This course has total 6 units focusing on basics of philosophy of science and ethics, research integrity, publication ethics. Hands-on-sessions are designed to identify research misconduct and predatory publications. Indexing and citation databases, open access publications, research metrics (citations, h-index, Impact Factor, etc.) and plagiarism tools will be introduced in this course.

Pedagogy:

- Class room teaching, guest lectures, group discussions, and practical sessions.

Evaluation

- Continuous assessment will be done through tutorials, assignments, quizzes, and group discussions. Weightage will be given for active participation. Final written examination will be conducted at the end of the course.

Course structure

- The course comprises of six modules listed in table below. Each module has 4-5 units.

Modules	Unit title	Teaching hours
Theory		
RPE 01	Philosophy and Ethics	4
RPE 02	Scientific Conduct	4
RPE 03	Publication Ethics	7
Practice		
RPE 04	Open Access Publishing	4
RPE 05	Publication Misconduct	4
RPE 06	Databases and Research Metrics	7
	Total	30

Syllabus in detail

THEORY

- **RPE 01: PHILOSOPHY AND ETHICS (3 hrs.)**

  1. Introduction to philosophy: definition, nature and scope, concept, branches
  2. Ethics: definition, moral philosophy, nature of moral judgements and reactions

- **RPE 02: SCIENTIFICCONDUCT (5hrs.)**

  1. Ethics with respect to science and research
  2. Intellectual honesty and research integrity
  3. Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP)
  4. Redundant publications: duplicate and overlapping publications, salami slicing
  5. Selective reporting and misrepresentation of data

- **RPE 03: PUBLICATION ETHICS (7 hrs.)**

  1. Publication ethics: definition, introduction and importance
  2. Best practices / standards setting initiatives and guidelines: COPE, WAME, etc.
  3. Conflicts of interest
  4. Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types
  5. Violation of publication ethics, authorship and contributorship
  6. Identification of publication misconduct, complaints and appeals
  7. Predatory publishers and journals

PRACTICE

- **RPE 04: OPEN ACCESS PUBLISHING(4 hrs.)**

1. Open access publications and initiatives
2. SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies
3. Software tool to identify predatory publications developed by SPPU
4. Journal finder / journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.

- **RPE 05: PUBLICATION MISCONDUCT (4hrs.)**

  ### A. Group Discussions (2 hrs.)

  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 (2 hrs.)

  Use of plagiarism software like Turnitin, Urkund and other open source software tools

- **RPE 06: DATABASES AND RESEARCH METRICS (7hrs.)**

  ### A. Databases (4 hrs.)
  1. Indexing databases
  2. Citation databases: Web of Science, Scopus, etc.

  ### B. Research Metrics (3 hrs.)
  1. Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score
  2. Metrics: h-index, g index, i10 index, altmetrics

References

Bird, A. (2006). *Philosophy of Science*. Routledge.
MacIntyre, Alasdair (1967) *A Short History of Ethics*. London.
P. Chaddah, (2018) Ethics in Competitive Research: Do not get scooped; do not get plagiarized, ISBN:978-9387480865
National Academy of Sciences, National Academy of Engineering and Institute of Medicine. (2009). *On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition*. National Academies Press.
Resnik, D. B. (2011). What is ethics in research & why is it important. *National Institute of Environmental Health Sciences*, 1–10. Retrieved from https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm
Beall, J. (2012). Predatory publishers are corrupting open access. Nature, 489(7415), 179–179. https://doi.org/10.1038/489179a
Indian National Science Academy (INSA), Ethics in Science Education, Research and Governance(2019), ISBN:978-81-939482-1-7. http://www.insaindia.res.in/pdf/Ethics_Book.pdf

CIRCULAR:-

A reference is invited to the Syllabi relating to the Ph. D. Course Work **vide** this office Circular No.UG/121 of 2015-16, dated 24th November, 2015 and the Directors/Heads of the University Departments, Dean/Principals of the affiliated Colleges in Faculty of Technology and Engineering, Pharmacy, Architecture and MCA. are hereby informed that proposal received from Co-ordinator Faculty of Technology, approved by the Academic Council at its meeting held on 30th September, 2016 **vide** item No. 4.17 and in accordance therewith, the revised syllabus as per the Choice Based Credit System of Ph. D. Course Work for Engineering Faculty, which is available on the University's web site (www.mu.ac.in) and that the same has been brought into force with effect from the academic year 2017–2018.

MUMBAI – 400 032   (Dr.M.A.Khan)
4th January, 2017   REGISTRAR

To,
    The Directors/Heads of the University Departments, Dean/Principals of the affiliated colleges in Faculty of Technology and Engineering, Pharmacy, Architecture and MCA.
A.C/4.17/30.09.2016

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No. UG/213 -A of 2016-17   MUMBAI-400 032   4th January, 2017
Copy forwarded with Compliments for information to:-

1) The Co-ordinator, faculties of Technology and Engineering,
2) The Chairman & Chairperson of the board of Studies & Ad-Hoc Board of Studies of various subject at faculty of Technology and Engineering, Pharmacy, Architecture and MCA,
3) The Director, Board of College and University Development,
4) The Co-Ordinator, University Computerization Centre,
5) The Controller of Examinations.

(Dr.M.A.Khan)
REGISTRAR

PTO..

UNIVERSITY OF MUMBAI

Revised Syllabus for PhdCourse Work

(As per Credit Based Semester and Grading System with effect from the academic year 2017–2018)

Course Work Structure for Phd Program in Faculty of Technology
Mumbai University
(With effect from Academic Year 2017-18)

CODE	NAME OF COURSE	CONTACT HOURS	CREDITS	EXAMINATION SCHEME				
				MID TERM TEST	END SEMESTER EXAM	TERM WORK	SEMINAR PRESENTATION	TOTAL
Phd101	Research Methodology	6	6	20	80	--	--	100
Phd102	Course suggested by Guide*	6	6	20	80	--	--	100
Phd103	Seminar	-	4	-	-	50	50	100
Total		12	16	40	160	50	50	300

Grading of Research Candidates Performance

Awarding of gradesto research candidates based on their performance shall be done as per the applicable ordinances and regulations for undergraduate and Post graduate programs of Engineering under the Faculty of Technology. Semester Grade Point Index (SGPI) shall be also calculated based on the ordinances and regulations applicable for engineering programs under Faculty of Technology. Approved and recognized Research Centers shall prepare Phd course work grade card after successful completion of course work and issue to candidates and one copy to University concerned section for record.

Course Code	Course Name	Credits
PhdC101	**Research Methodology**	**06**

Module	Detailed content	Hrs.
1	**Definition and Characteristics of Research:** Research – Definition; Concept of Construct, Postulate, Proposition, Thesis, Hypothesis, Law, Principle. Philosophy and validity of research. Objective of research. Various functions that describe characteristics of research such as systematic, valid, verifiable, empirical and critical approach.	8
2	**Types of Research:** Pure and applied research. Descriptive and explanatory research. Qualitative and quantitative approaches. Formulating the Research Problem, Literature Review, Developing the objectives, Preparing the research design including sample Design, Sample size.	10
3	**Outcome of Research:** Relevance, interest, available data, choice of data, Analysis of data, Generalization and interpretation of analysis, Preparation of the Report on conclusions reached, Testing validity of research outcomes, Suggestions and recommendations, identifying future scope.	10
4	**Probability Distribution and Hypothesis Testing:** Theoretical: binomial, poisson, normal, exponential, hyper geometric, uniform distributions. Type I and II error, testing of mean, proportion, tests for equality of mean and variances of two populations, confidence interval, Z test and χ^2 test for goodness of fit, ANOVA (one way classification), Non parametric tests: sign test, U test.	14
5	**Correlation and Regression Analysis:** Karl Pearson's and Rank Correlation coefficient, simple linear regression: least squares method, Linear Programming:Graphical solution, simplex method, dual, sensitivity analysis, transportation and assignment problems.	10
6	**Management Decision Making & Computer Applications:** System approach, decision making under uncertainty and risk: decision tables and decision tree. Statistical data analysis: generating charts/ graph and other features. Introduction to tools: Tools used may be Microsoft Excel, Open office, Microsoft Power Point or similar tools.	8

References:
1. Dawson, Catherine, 2002, *Practical Research Methods,* New Delhi, UBS Publishers' Distributors.
2. Kothari, C.R.,1985, *Research Methodology-Methods and Techniques,* New Delhi, Wiley Eastern Limited.
3. Kumar, Ranjit, 2005, *Research Methodology-A Step-by-Step Guide for Beginners,* (2nd.ed), Singapore, Pearson Education.
4. *Shrivastava, Shenoy& Sharma, Quantitative Techniques for Managerial Decisions, Wiley*
5. Goode W J &Hatt P K, Methods in social research, McGraw Hill
6. Basic Computer Science and Communication Engineering – R. Rajaram (SCITECH)

Course Code	Course Name	Credits
PhdC102	**Course suggested by Guide***	**06**

This courseis to be suggested by guide/supervisor in specific domain area of research undertaken by the research candidate.

Research candidates can undertake this course in consultation with guide/supervisor as per guidelines given below;

1. Relevant course shall be successfully completed in IITBombay which has 6 credits.

<div align="center">**OR**</div>

1. Relevant PG course in the research domain area of research candidate at any PG center affiliated to University of Mumbai.

   In this case, PG course as per University of Mumbai syllabus is of 4 credits. Thus additional work needs to be done for remaining 2 credits. (Any relevant PG course suggested by guide 4 credits + additional work suggested by guide for 2 credits).

   Additional work may be in line with any of the following guidelines:

   i. Minimum four assignment problemsfrom same domain area

   <div align="center">**OR**</div>

   ii. Any relevant PG Laboratory course, as per University of Mumbai PG syllabus, suggested by guide

   <div align="center">**OR**</div>

   iii. One course project from same domain area

   <div align="center">**OR**</div>

   iv. One simulation based project in the domain area using relevant software tool.

Course Code	Course Name	Credits
PhdS103	**Seminar**	**04**

Following guidelines for credit seminar shall be followed:

1. Seminar should be based on thrust areas in specific research domain.
2. Research scholar should do literature survey, identify the topic for seminar and finalize the same in consultation with Guide/Supervisor.
3. Research scholar is expected to use multiple literatures and understand the topic.
4. Report should be compiled in the standard format as per University Guidelines for report writing and present in front of pair of Examiners appointed by the Head of the Department/Institute of respective Program.

Seminar should be assessed jointly by the pair of Internal and External Examiners

Following points must be assessed during the presentation of Credit Seminar
   i.   Quality of Literature survey and Novelty in the topic
  ii.   Relevance to the specialization
 iii.   Understanding of the topic
  iv.   Quality of Written and Oral Presentation

B. N. Bandodkar College of Science, Thane

NAAC Reaccredited 'A' Grade
Best College Award, University of Mumbai

'Jnandweepa', Besides CIDCO Bus Stop,
Chendani, Thane (W) 400 601

PRESENTS
(For Candidates pursuing Ph. D. Degree)
Course on

Research Methodology, Computer Applications and Statistical Analysis

Date of commencement : December 26, 2017
Lecture Timings : 10.00 am – 01.00 pm
Practical Timings : 01.30 pm to 04.30 pm

Contents	No. of Hrs
Scientific Research : Definition, Characteristics, need of research, Identification of problem, actua investigation, determining the mode of attack Literature survey : References, Abstract of research paper Documentation and Scientific writing : Results and conclusions, Publication of research paper, Thesis writing, Research report, its types, Bibiliography, writing a review paper, project reports	8
Use of Word Processing, spreadsheet and database software, Plotting of Graphs, Internet and its applications: Email, WWW, Web Browsing, acquiring technical skills, drawing inferences from data	8
Statistical analysis and fitting of data: Introduction to Statistics – Probability theories – Conditional Probability, Poisson Distribution, Binomial Distribution and Properties of Normal Distributions, Estimates of Means and Proportions, Chi-Square Test, Association of Attributes – t-Test-ANOVA-Standard deviation-Coefficient of variations, Correlation and regression Analysis	12
Data Analysis: Mathematical and Statistical analysis using software tools MatLab, SPSS, PsiLAB	4

Course Fees: ₹ 4,000/-

For further details Contact: Mr. Abhijeet Kale (9820841431) kaleabhi@vpmthane.org

Principal