DEPARTMENT OF GEOLOGY

Syllabus for Ph.D Course Work in Geology (2021)

Course Code	Paper	Marks	Credits
1.1.1	Research Methodology	100	4
1.1.2	Geology of Odisha	100	4
1.1.3	Research and Publication Ethics	50	2
1.2.4	Review of Literature	50	2

1.1.1 Research Methodology **100 Marks** **4 Credits**

Objectives

- To acquaint the scholars with the basics of computer fundamentals which are essential for day-to-day work and reporting work
- To learn the working principles and operation procedure of various sophisticated analytical instruments

Outcomes

- After learning the basic operations of computers the scholar will be able to work on the computers for their day-to-day work
- They will be able to obtain accurate data and interpret them for the scientific report writing

Interpretation and Report Writing, Introduction to Computers, Operating System- Windows, MS-Office, MS- Word, MS-Excel, MS- Power Point, Internet

Optical Microscopy, Scanning Electron Microscopy, EPMA, XRD, XRF, Ion Chromatography, AAS, ICP-MS, FTIR

1.1.2 Geology of Odisha (Subject Specific Elective) **100 Marks** **4 Credits**

Objectives

The state of Odisha has bountiful mineral resources and bears a testimony to the various products of earth processes. So this paper on Geology of Odisha is designed to teach the students about the physical, structural, tectonic features of different provinces and the economic mineral resources and the related mineral based industries.

Outcome

This paper will provide them an overall idea on the Geology of Odisha and would help them to choose a suitable topic for their dissertation work.

Physiographic divisions of Odisha, Structure, Stratigraphy and evolution of different tectonic domains, North Odisha Craton, Bastar craton, Eastern Ghats Belt and Gondwana Basins, Mineral Resources of Odisha, Mineral Based Industries in Odisha

1.1.3 Research and Publication Ethics **50 Marks** **2 Credits**

Course Objectives

The main objective of this is to enable the students

- To understand the purpose and value of ethical decision making

- To have a positive disposition towards continued learning about research ethics
- To ensure that research is done to serve the interest of the nation, people and society

Course outcome

On successful completion, the course will provide the students

The purpose and value of ethical decision making

To have a positive attitude towards continued learning about research ethics

To ensure that research is done to serve the interest of the people and society

THEORY

- RPE 01: PHILOSOPHY AND ETHICS (10 hrs.)

1. Introduction to philosophy: definition, nature and scope, concept, branches
2. Ethics: definition, moral philosophy, nature of moral judgments and reactions
3. Intellectual honesty and research integrity
4. Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP)
5. Redundant publications: duplicate and overlapping publications, salami slicing
6. Selective reporting and misrepresentation of data

- RPE 02: PUBLICATION ETHICS (10HRS)

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

PRACTICE

- RPE 03: OPEN ACCESS PUBLISHING (10 HRS)

1. Open access publications and initiatives
2. Journal finder/journal suggestion tools viz. JANE. Elsevier Journal Finder, Springer Journal Suggester, etc.
3. Complaints and appeals: examples and fraud from India and abroad
4. Use of plagiarism software like Turnitin, Urkund and other open source software tools
5. Conflicts of interest

References

Bird, A. (2006). Philosophy of Science, Routledge

Maclntyre, Alasdair (1967) *A Short History of Ethics*, London

P. Chaddah (2018) Ethics in Competitive Research: Do not get sooped: 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

1.1.4 Review of Literature **50 Marks** **2 Credits**