ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
MANGALORE UNIVERSITY
(Accredited by NAAC with 'A' Grade)

ಕ್ರಮಾಂಕ/ No. : MU/ACC/CR.46/2014-15/A2

ಕುಲಸಚಿವರ ಕಛೇರಿ
ಮಂಗಳಗಂಗೋತ್ರಿ – 574 199
Office of the Registrar
Mangalagangothri – 574 199

ದಿನಾಂಕ/Date: 15.02.2016

NOTIFICATION

Sub : Revised syllabus for Ph.D. Course work in Materials Science
Ref: Academic Council decision No.: 3:20(2015-16), dated 25.01.2016.

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The revised Syllabus for Ph.D Coursework in Materials Science which approved by the Academic Council at its meeting held on 25.01.2016 is hereby notified for implementation with effect from the academic year 2015-16.

REGISTRAR.

To:

1) The Chairmen of P.G. Departments/ Co-ordinators of P.G. Courses/ Principals of the Recognised Colleges/ Directors of Recognised Institutions of Mangalore University.
2) The Chairman, Board of Studies in subject concerned.
3) The Superintendent (ACC), O/o the Registrar, Mangalore University.
4) Guard File.
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MANGALORE UNIVERSITY
DEPARTMENT OF MATERIALS SCIENCE

SCHEME OF EXAMINATION AND SYLLABUS FOR THE Ph D DEGREE COURSE WORK IN MATERIALS SCIENCE

Scheme

Papers	Particulars	Hours of instruction per week	Duration of examination (hrs)	Marks			Credits
				IA	Theory	Total	
Paper I	Research methodology	4	3	30	70	100	4
Paper II	Reviewing of literature Review Report Viva	16	-	-	-	150 50	8 2
						Total	14

SYLLABUS FOR THE Ph.D. PROGRAMME IN MATERIALS SCIENCE

PAPER I: RESEARCH METHODOLOGY-

Introduction to Research Methods: Objectives, significance, type of research, design of research, Literature Survey, Exploratory Studies, Basic outlines of experiments. (10 h)

Conditions for Material Preparation and Characterization : Production and measurement of high temperature, low temperature and high vacuum. (10 h)

Instrumentation and Techniques of Analysis: Principles of XRD, Spectrophotometers, DSC, TGA, UTM, Electron Microscopy, AFM, Microtron (10 h)

Analysis of Data: Fundamentals of Computers, Curve fitting, Treatment of errors and numerical methods, graphical representation. (10 h)

Preparation of Technical Papers/ Reports: Interpreting & reporting results, General Guidelines for writing, Types of reports, format and style, Main body of the report/paper, Illustrations. Plagiarism and Scientific ethics. (10 h)

References:

1. Research Methodology- S.C. Sinha, A.K. Dhiman (Ess Ess Publications, 2002)
2. Research Methodology in Social Science- Arvind Kumar (Sarup & Sons, 2002)
3. Hand book of Research Methodology, Modern Methods & New Techniques-M.N. Borse (Shree Niwas Publications, 2004)
4. Fundamentals of Vacuum Techniques-A. Pipco *et al* (MIR, 1984)
5. Instrumental Methods in Chemical Analysis – G.W. Ewing (McGraw Hill, 1975)
6. Heat & Thermodynamics- Zeemansky & Markw (Mc Graw Hill, 1968)
7. Modern Metallographic Techniques and their Applications-V.A. Philips (Wiley Interscience, 1971)
8. Elements of X-ray Diffraction-B.D. Cullity (Addison-Wesley, 1956)
9. An Introduction to X-ray Crystallography- M M Wolfson (Vikas C U P, 1980)
10. The Principles & Practice of Electron Microscopy, 2^{d} Ed, I M Watt (Cambridge Uni Press, 1997)

ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
MANGALORE UNIVERSITY
(Accredited by NAAC)

ಕ್ರಮಾಂಕ/ No. : MU/ACC/CR 67/2020-21/A2

ಕುಲಸಚಿವರ ಕಛೇರಿ
ಮಂಗಳಗಂಗೋತ್ರಿ – 574 199
Office of the Registrar
Mangalagangothri – 574 199
ದಿನಾಂಕ/Date:25.11.2021

NOTIFICATION

Sub: Revised syllabus for Ph.D. Coursework in Materials Science
Ref: Academic Council approval vide agenda
No.: ಎಸಿಸಿ:ಶೈ.ಸಾ.ಸ.2: 18(2021–22) dated 27.10.2021

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The revised syllabus for Ph.D. Coursework in Materials Science which has been approved by the Academic Council at its meeting held on 27.10.2021 is hereby notified for implementation with effect from the academic year 2021-22.

REGISTRAR

To,

1. The Chairman, Dept. of Materials Science, Mangalore University, Mangalagangothri
2. The Chairman, BOS in Materials Science, Mangalore University.
3. The Registrar (Evaluation), Mangalore University.
4. The Superintendent (ACC), O/o the Registrar, Mangalore University.
5. The Asst. Registrar (ACC), O/o the Registrar, Mangalore University.
6. Guard File.

MANGALORE UNIVERSITY
DEPARTMENT OF MATERIALS SCIENCE

SCHEME OF EXAMINATION AND SYLLABUS FOR THE Ph D DEGREE COURSE WORK IN MATERIALS SCIENCE

Scheme

Papers	Particulars	Hours of instruction per week	Duration of examination (hrs)	Marks			Credits
				IA	Theory	Total	
Course I	Research methodology	4	3	30	70	100	4
Course II	Research and Publication Ethics	2	3	30	70	100	2
Course III	Reviewing of literature Review Report Viva	3	-	-	-	150 50	6
						Total	**12**

Course II: Research and Publication Ethics(RPE)

THEORY

I. 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

II. SCIENTIFIC CONDUCT(5 hrs)

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

III. 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

IV. 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.

V. PUBLICATION MICONDUCT(4 hrs)

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

VI. DATABASES AND RESEARCH METRICS(7 hrs)

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.

Rensik, D.B(2011).What is ethics in research & why is it important. National Institute of Environmental Heal 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