PERIYAR UNIVERSITY

SALEM-636 011

DEGREE OF MASTER OF PHILOSOPHY

M.PHIL.,

APPLIED GEOLOGY

(Choice Based Credit System (CBCS))

Common Syllabus for Both University Department and Affiliated College

REGULATIONS AND SYLLABUS

(For the Candidates admitted from the Academic year 2009-2010 and onwards)

DEGREE OF MASTER OF PHILOSOPHY (M.PHIL.,)

REGULATIONS

(Effective from July 2009)

FULL – TIME

1. Eligibility

Candidates who have qualified for Post Graduate degree of this University or any other University recognized by the Syndicate as equivalent thereto shall be eligible to register for the Degree of Master of Philosophy (M.Phil.,) in their respective subject and undergo the prescribed course of study in an approved institution or department of this University.

Candidates who have qualified their postgraduate degree on or after 1st January 1991 shall be required to have obtained a minimum of 55% of marks in their respective postgraduate degree to become eligible to register for the degree of the Master of Philosophy (M.Phil.,) and undergo the prescribed course of study in an approved institution or department of this University.

For the candidates belonging to SC/ST community and those who have qualified for the Master's degree before 01.01.1991 the minimum eligibility marks shall be 50% in their Master's Degree.

2. Duration

The duration of the M.Phil., course shall extend over a period of one year from the commencement of the course.

3. Course of the study

The course of study for the degree shall consist of (a) Part –I comprising three written papers according to the syllabus prescribed from time to time; and (b) Part- II Dissertation.

Part-I shall consist of paper – I Research Methodology and paper – II and advanced paper in the main subject. There shall also be third paper which shall be the background paper relating to the proposed Dissertation conducted internally by the College/Departments.

4. Scheme of the examinations

Part – I Written Examination: Paper I, II & III

The examination of the paper I,II & III shall be held at the end of the six months. The duration for each paper shall be 3 hours.

4.1 The allotment of Marks for theory, internal, external, Dissertation and Viva voce are as follows.

(i) Theory Papers,

Internal: 25 Marks

External: 75 Marks Total Marks =100

(ii) Project Dissertation

Dissertation: 150 Marks

Viva Voce: 50 Marks Total Marks =200

4.2 The following procedure to be adapted to award internal mark.

i) Seminar : 10 marks.

ii) Test : 10 Marks

iii) Attendance : 05 Marks

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25 Marks

4.3 The following credits are allotted to the theory Papers and Project.

Credit for theory Papers

Part – I

Paper – I ---------- 1x 4 = 4 Credits

Paper – II ---------- 1x 4 = 4 Credits

Paper – III ---------- 1x 4 = 4 Credits

(Guide Paper)

Part – II

Project –Dissertation and Viva voce = 12 Credits

(Dissertation: 8 Credits; Viva voce: 4 Credits).

4.4 The Viva-Voce to be conducted with the following Members.

i) HOD - Member of the Viva Board.

ii) Guide - Chairman of the Viva Board.

iii) External examiner from other University area – Member of the Viva board.

4.5 The examiners will be appointed from the panel for four names of each paper (I and II) submitted by the College/Department concerned. If one examiner awards a pass mark and the other awards fail mark then the paper will be valued by a third examiner whose award of marks will be final.

4.6 The Paper III (Guide Paper) will be commonly conducted by the University to all the colleges along with the papers I & II.

4.7 The respective research guide should send two sets of question papers for paper -III along with the syllabus to the University at an early date.

4.8 Double valuation procedure adopted for the paper III. by respective guide and the 2nd valuation by the external examiner, preferably the Viva – Voce examiner.

4.9 The following question paper pattern will be adopted.

Part - A	5 x 5 =	(25Marks)
	(Internal choice)	
Part - B	5 x 10 =	(50Marks)
	(Internal choice)	

Part – II Dissertation

The broad area of research shall be intimated within one month after the completion of the written examination. Upon satisfactory completion of course work, M.Phil., scholars shall undertake research work and produce a draft thesis. Prior to submission of thesis, the students shall make pre-M.Phil., presentation in the department that may be open to all faculty members and research students, forgetting feedback and comments, which may be suitably incorporated into the draft thesis under the advise of the supervisor. Candidates shall submit the Dissertation to the University through the supervisor and Head of the Department at the end of the year from the commencement of the course which shall be valued by internal examiner

(supervisor) and one external examiner appointed by the University from a panel of four names sent by the Supervisor through the Head of the Department/Principal at the time of submitting the dissertation.

Submission or resubmission of the Dissertation will be allowed twice a year. On receipt of satisfactory evolution reports M.Phil., students shall undergo a Viva-voce examination which openly defended.

5. Passing Minimum

A candidate shall be declared to have passed Part – I of the examination if he / she secure not less than 50% of the marks in each paper including paper – III.

A candidate shall be declared to have passed Part – II of the examination if his/her dissertation is at least.

All other candidates shall be declared to have failed in the examinations.

6. Restriction in Number of Chances

No candidate shall be permitted to reappear for the written examination in any paper on more than two occasions or to resubmit a Dissertation more then once. Candidates shall have to qualify for the degree passing all the written papers and dissertation within a period of three years from the date of commencement of the course.

7. Conferment of Degree

No candidate shall be eligible for conferment of the M.Phil., degree unless he/ she is declared to have passed both the parts of the examinations as per the Regulations.

8. Procedure for Admission

All departments in the University and Colleges/Institutions affiliated to University shall admit M.Phil., students through an Entrance Test. Those who have qualify UGC/CSIR (JRF) Examinations/SLET/GATE/teacher fellowship holder exempted from entrance test. It shall be followed by an interview to be organized by the school/Department/Institution/University as the case may be.

Only the predetermined number of students may be admitted to M.Phil., programme.

While granting admission to students to M.Phil., Programmes. The department/ Institute/ School will pay the due attention to the National/State Reservation Policy. Any event if sufficient member of candidates are not available under the reserved category, it is open to fill up the said seats as open category.

9. Qualifications for Supervisor

No teacher shall be recognized as a Supervisor unless he possesses Ph.D., degree or two years of PG teaching experience after qualifying for M.Phil., or M.Litt., Degree. A supervisor shall not have, at any given point of time more than five M.Phil., students Scholars.

Only the postgraduate departments of affiliated college and departments of the University will be recognized for conducting the M.Phil., Course, provided however, the syndicate shall have the power to decide any other institutions of higher learning / research within the University area for conducting the M.Phil., Course on merits.

10. Eligibility for Part-time

(i) Technical Staff/ Research Assistant working in the University departments.

(ii) Teacher candidates working in the Polytechnics approved by the Director of Technical Education or in Higher Secondary Schools and High Schools/Schools approved by State Board or Central Board of Secondary Education or Educational Institutions of IAF (within Periyar University area) who possess a Master's Degree. For the Master's Degree qualified prior to 01.01.1991, a minimum marks is prescribed; but on or after 01.01.1991, a minimum of 55% of Marks is prescribed, provided that for the candidates belonging to SC/ST community a concession of 5% marks will be given in the minimum eligibility marks prescribed.

11. Duration

The course of study shall extended over a period of one year for full-time / part-time two years from the commencement of the course. The examinations for Part –I shall be taken at the end of the 6 month for full-time/ first year part-time and Part –II Dissertation at the end of the second year.

12. Scheme of the Examinations

The Regulations governing the full-time M.Phil., Course with regard to course of study, scheme of examinations passing minimum, etc., and qualifications of guide conducting the M.Phil.,. Course shall apply to part-time candidates also.

13. Restriction in Number of Chances

No candidate shall be permitted to reappear for the written examination in any paper for more than two occasions or to resubmit a Dissertation more than once. Candidates shall have to qualify for the degree passing all the written papers and dissertation within a period of two years for full-time four years for part-time from the date of commencement of the course.

14. Allocation of Supervisor

The allocation of the supervisor for a selected students shall be decided by the Department in a formal manner depending on the number of student per faculty member. The available specialization among the faculty supervisors, and the research interest of the student as indicated during interview by the student. The allotment/allocation of supervisor shall not be left to the individual student or teacher.

Paper – I

MPAG01 RESEARCH METHODOLOGY

Unit – I

METHOD OF RESEARCH

Importance and need for Research Ethics and Scientific Research, Formulation of Hypothesis, Identification of Problem – Literature Survey, Reference collection, Use of Libraries and Information Retrieval systems, Internet Browsing – assessing the current status.

Unit – II

SCIENTIFIC WRITING

Scientific writing – Characteristics. Logical format for writing thesis and papers. Essential features of Title, Abstract, Introduction, Literature Review, Materials and Methods, Result and Discussion and Conclusion. Effective Illustration –Tables, Charts and Figures. Reference style. Presenting Scientific Papers-Synopsis writing –Multimedia techniques in paper presentation.

Unit – III

COMPUTER DOCUMENTATION

Computer application in scientific research-understanding of MS-Office and its uses in project documentation, presentation and analysis of data**.**

Unit – IV

Sampling techniques to Geological study- Geochemical analysis –classical and rapid analytical methods:AAs,ICP-MS-Principles, Instrumentation and Applications-Mineral identification techniques. water sample collection –Water analysis –major and trace elements and their extraction procedures-Application of Geophysical Resistivity survey in Groundwater and Mineral resource exploration.

Unit - V

Application of Remote sensing in resource mapping –Geophysical techniques in mineral exploration –Geochemical methods, principles and its application – Sedimentology facies analysis and its application-Application of Micropaleontology and Stratigraphy in Petroleum Exploration.

REFERENCES

1. A handbook of methodology Research –Rakammal P.Devadas,R.M.M. Vidyalaya Press(1976).
2. Day.R.., 1969, How to write and publish a scientific paper ,Cambridge University Press.
3. From and style in the theses writing –W.G.Campbe;;
4. Freedman.P-The principles of Scientific Research,Mc Donald and Co.,London (1949).How to write a research paper -Berry
5. jonathan Anderson et.al.-Thesis and Assignment Writing 0-Wiley Eastern Ltd., New Delhi,(1970).
6. Maeve O' Connon R. and Peter Woolford-Writing Scientific Papers in English,(1976).Multimedia Communications – Directions &Systems –John F.Koegel Buford-Twelfth Edtion-Pearson Education-2005.
7. Numerical methods for scientific and engineering Computation –N.K Jain, S.R.K.Iyengar and R.K Jain –Nrw Age International Publishers (2004).
8. Parsons,C.J.-Thesis and Project work –Allen and Unwin Ltd.,London (1973).
9. thesis and assignment-The Art of Scientific Investigation -3rd Edition,Bodley Pub.Co,London,(1952).

Paper II

MPAG02 ADVANCES IN GEOLOGICAL SCIENCE

Unit-I

GEOCHEMISTRY AND MINERALOGY

Chemical differentiation of the earth. Geochemical cycles: chemical weathering, Major elemental cycles, and biogeochemical cycles. Geochemical applications of stable and unstable isotope distribution: Radioactive nuclides, Carbon and Oxygen isotopes. Low temperature geochemistry : - Geochemical characteristics of igneous rocks as petrogenetic indicator; Geochemical characteristics of primary magmas. Distribution of elements in metamorphic rocks. Behavior and significance of trace elements during the metamorphism.

Physical properties of mineral – Isomorphism and polymorphism – Clasification of minerals – structure of silicates – Transmitted polariezed light microscopy and otpical properties of uniaxial and Biaxial Minerals; Biaxial interference figures and their optic sign – Acute bisectrix figure – obtuse bisectrix figure – optic axis figure flash figure – cystal orientation – extinction angle – sign of elongation.

Unit – II

MICRO PALAEONTOLOGY

Historical development, current and future trends in Marine Micropaleontology. Sampling methods, processing techniques, separation and illustration of microfossils. Foraminifera: Systematic position, test morphology, classification, ecology and paleoecology and application of foraminifera in paleodeptth,paleotemprture estimation of Ostracodes,Calcareous Nannofossils, Radiolarian, and Conodonts.Role of Micropaleontology in petroleum exploration.

Unit-III

Sedimentary environmental systems

Concepts of sedmentary environmental modeling,cycles and completeness of sedimentary record correlation of sedmentary sequences,modern methods in paleoenviromental reconstruction and Hydrocarbon exporation.

Unit-IV

HYDROGEOLOGY

factors influencing watershed operation.Morphometric analysis of a river basin,Surface and sub-surface groundwater Exploration methods.Quality of groundwater,Estimatuion of major elements in a water sample.groundwater balance studies. Different types of well logging techniques. linkage of Indian rives. Conjunctive use of groundwater. Need for groundwater legislation.

Unit –V

GEOSPATIAL INFORMATION SYSTEM

Introduction to Digital Photogrammetry, Dem and its Geological Applications satellite Remote Sensing –Interaction with EMR, Geological applications of satellite data introduction to digital Image processing; fundamentals of GIS.Vector data model: raster data model.Buffering.Overlay analysis.GIS applications for Geological studies.

REFERENCE

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Kroner,A,.,Hanson,G.N and Goodwib., Archean Geochemistry 1984. Springer Verlag. Berlin.

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Henderson P., 1982.Inorganic Geochemistry. Pergamon Press Ltd., England, U.K.

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Peter.A.Burrough and Rachael .A.Mc.Donnell., 1998.Principles of geographical; Information system, Oxford university press.

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Yser,T.K198, Stable isotope geochemistry of Low-temperature Fluids (Mineralogical Assn of Canada Short Course Volume 13).

MPAG03 GUIDE PAPER

Paper III Optional Papers

1. Remote sensing in applied Geomorphology
2. Advance in Hydrogeology
3. paleobiology and Stratigraphy
4. Advances in Sedimentary Environmental Modeling
5. Geoinformatics in resource Mapping
6. Application of Geochemistry in Environment System.
7. Petrology
8. Mineralogy
9. Economic Geology
10. Micropalenotology
11. Environmental Geology
12. Geochemistry
13. Any other subjects offered by guide in his field of specialization.