।। सा विद्या या विमुक्तये ।।

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

"ज्ञानतीर्थ" परिसर, विष्णुपूरी, नांदेड - ४३१६०६ (महाराष्ट्र)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

"Dnyanteerth", Vishnupuri, Nanded - 431606 Maharashtra State (INDIA)

Established on 17th September 1994 – Recognized by the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'A' Grade

25 1994 - 2019 SILVER JUBILEE YEAR

ACADEMIC (1-BOARD OF STUDIES) SECTION

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संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे CBCS Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९–२० पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, **दिनांक ०८ जून २०१९ रोजी संपन्न झालेल्या ४४व्या मा. विद्या परिषद बैठकीतील ऐनवेळचा विषय क्र.११/४४–२०१९** च्या ठरावानुसार प्रस्तुत विद्यापीठाच्या **संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे** खालील विषयांचे **C.B.C.S. (Choice Based Credit System) Pattern** नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९–२० पासून लागू करण्यात येत आहेत.

1. Agricultural Microbiology
2. Agrochemicals & Fertilizers
3. Analytical Chemistry
4. B.C.A.
5. B.Voc. (Food Processing, Preservation and Storage)
6. B.Voc. (Web Printing Technology)
7. Biochemistry
8. Bioinformatics
9. Biophysics
10. Biotechnology (Vocational)
11. Biotechonology
12. Botany
13. Chemistry
14. Computer Application (Optional)
15. Computer Science (Optional)
16. Computer Science
17. Dairy Science
18. Dyes and Drugs
19. Electronics
20. Environmental Science
21. Fishery Science
22. Food Science
23. Geology
24. Horticulture
25. Industrial Chemistry
26. Information Technology (Optional)
27. Mathematics
28. Microbiology
29. Network Technology
30. Physics
31. Software Engineering
32. Statistics
33. Zoology

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या **www.srtmun.ac.in** या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.: शैक्षणिक–०१/परिपत्रक/पदवी–सीबीसीएस अभ्यासक्रम/२०१९–२०/**२९२**

दिनांक : ०३.०७.२०१९.

स्वाक्षरित/–
उपकुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत माहिती व पुढील कार्यवाहीस्तव :

१) मा. कुलसचिव यांचे कार्यालय, प्रस्तुत विद्यापीठ.
२) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.
३) प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
४) साहाय्यक कुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
६) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ.

Swami Ramanand Teerth Marathwada University, Nanded
Distribution of credits for B.Sc. Geology (optional) Under Faculty of Science
B. Sc. Syllabus structure Semester Pattern
With Effective from June 2019
Subject: Geology
B. Sc. First Year
Syllabus

Preamble of the syllabus

B.Sc. Degree course is of six semester in Geology would be of 36(08*) credits, where one credit course of theory will be of (3) three lectures per week running for one term and one practical course will consist of laboratory exercises of three (3) clock hours per week . Student will have to take admission inGeology as optional subject with other two optional subjects and compulsory or optional languages. Complete 36 credits incorporated in the syllabus of Geology. Every student shall complete 36 credits in a minimum of four semesters. All semesters will have 06 credits each. The field work is included as part of syllabus and mandatory for fulfillment of course. An academic calendar showing dates of commencement and end of teaching, Continuous. Internal Assessment (CIA) and End Semester Examination (ESE) will be prepared and duly notified before commencement of each semester per year.

Eligibility

The candidate should have passed H.S.C. in Science with minimum 45% marks.

The students with Geology as optional subject at H.S.C. level will be preferred for admission. External Students: An external student is not able to admit for the course.

Prerequisite: The course paper is essential to have clear cut understanding in the basic science knowledge at H.S.C.level and general mathematics at S.S.C.level.

Aims and Objectives of the Course:

The aims and objectives of the Geology (UG) course for students are to absorbs the fruitful and skillful knowledge in the field of Geoscience.The maingoal of the Course of the Geology in undergraduate program is to equip students with the fundamental knowledge of the diverse fields of Geology (encompassing Geomorphology and Surface Processes, Hydrology and Low-Temperature Geochemistry, Sedimentology and Paleoecology, and Tectonics and Solid-Earth Processes). Apart from this, to generate the mental ability of students on the basis of practically scientific level and research oriented knowledge in their academic coursework. In addition, it is critical that students should learn to think like a scientist and to apply the scientific method in their coursework and in their lives.

To prepare the students for post- graduate study in various disciplines of the Earth Sciences

To equip the students for career after Bachelor Degree.

To develop the earth science skills in Students

Swami Ramanand Teerth Marathwada University, Nanded

Distribution of credits for B.Sc. I year Geology (optional)

Under Faculty of Science

B. Sc. I Syllabus structure

Subject: Geology

Semester	Paper No.	Name of the Course	Instruction Hrs/ week	Total period	Continuous Assessment (CA)Marks	ESE Marks	Total Marks	Credits
I	CCG-I (Section A)	Earth as a Planet and Dynamic Geology (P-I)	03	45	10	40	50	02
	CCG-I (Section B)	Mineralogy and Crystallography (P-II)	03	45	10	40	50	02
II	CCG-II (Section A)	Physical Geology and Paleontology (P-III)	03	45	10	40	50	02
	CCG-II (Section B)	2 Petrology- (P-IV)	03	45	10	40	50	02
	(CCGP-I [CCG IandII (SectionA and B)]	Practical's based on Section A and Section B of CCG III (P-V)	04	20	20	80	100	04

Total credits semester I and II: 12

B.SC. I Year

Semester-I (CCG-I)

Core Course Geology –I

Section A –Earth as a planet and Dynamic Geology - Paper No. I (Credits -2)

Salient Features: The paper is divided in two units comprising Earth as a planet and Dynamic Geology

The paper is designed in order to understand the earth with reference to its significance in space, solar system, atmosphere and interior of the earth and its dynamic activities.

Utility: Both the Earth as a planet and Dynamic Geology are basics of the Earth and to understand the regularities of the solar system and dynamicity of the Earth.

Objectives: i) To study the internal and external zones of the earth.

ii) To study some of the dynamic processes related to earth.

Prerequisite: The course paper is essential to have basic information structure and nature of earth.

Unit-I: Earth as a planet (Periods 25, Marks 25)

Geology and its Perspective. Earth in the solar system: Origin, Size, Shape, Mass, density rotational and revolution of the earth. Relief features of the earth surface and interior of earth as core, mantle, and crust. Introduction to hydrosphere, lithosphere, atmosphere and biosphere and elemental abundance in each constituent. Age of the Earth.

Unit-II: Dynamic Geology (Periods 20, Marks 25)

Introduction, causes, types & effects of Earthquake, Volcanoes and their distribution.

Section B - Mineralogy, Crystallography- Paper No. II (Credits -2)

Salient Features: The paper is divided in two units comprising Mineralogy and Crystallography. The fundamentals and identification of minerals are significant in understanding the earth composition.

Utility: Both Mineralogy and crystallography are basic geology topics interrelated to each other and are useful before the study of rocks.

Learning objectives: i) To acquaint the students with Mineralogical applications in Geology.

ii) To understand, the formation and physico-chemical characters of earth's composition.

Prerequisite: The course paper is essential to have understanding of the basic chemistry and physical characters of materials and to have basic information of earth crust.

Unit-I: Mineralogy **(Periods-25, Marks 25)**

Chemical bonding and compound formation. Mineral: definition, classification and composition. Physical properties of mineral. Introduction to common groups of rock forming minerals such as Olivine, Pyroxene, Amphibole, Mica, Silica and Feldspar. Study of Common ore minerals, industrial minerals and atomic minerals.

Unit –I I: Crystallography **(Periods-20, Marks 25)**

Elementary ideas about crystal structure. Crystal: faces, edges, solid angles. Crystallographic axes and axial angles. Interfacial angles, Contact Goniometer; Parameters and indices; Crystal symmetry characters. Classification of crystals into six systems for normal classes such as Cubic, Tetragonal, Hexagonal, Orthorhombic, Monoclinic and Triclinic systems and their forms; Twin and Twin laws.

Core Course Geology – Practical-I Paper No. V **(Credits -2)**

1. Reading of Survey of India (SOI) topographical maps.

2. Study of physical properties of minerals in hand specimen.

3. Study of axial characters, elements of symmetry and forms for normal classes of six crystal system.

B.SC. I Year

Semester-II (CCG-II)

Core Course Geology –II

Section A - Physical Geology and Paleontology Paper No. III **(Credits -2)**

Salient Features: The paper is divided in two units comprising Physical Geology and Paleontology. The Physical geology is essential to study the nature of physical processes related to river, wind, glaciers and ocean and its impact on development of earth surface features. Similarly, to understand the palaeo-environment and ancient life during the earth history in the study of Paleontology.

Utility: Physical geology is useful for exploring the earth surface features by atmospheric agents and paleontology is required for studying the palaeo-environment and ecology.

Learning objectives: i) To acquaint the students with physical process of the earth.

ii) To understand the evolution, preservation of ancient life on the earth surface.

Prerequisite: The course paper is essential to have the understanding of the surface features of the Earth and evolution and classification of plant and animal kingdom.

Unit-I: Physical Geology **(Periods-25, Marks 25)**

Geological processes such as erosion, transportation and deposition by river, wind, glaciers, ocean and sea.

Unit-II: Paleontology **(Periods-20, Marks 25)**

Definition and scope of palaeontology. Geological Time Scale, processes of fossilization and preservation. Elementary ideas about origin of life, evolution and fossil record. Systematic classification of organisms, their morphological characters and geological distribution of phylum Arthropoda (Trilobites), Coelenterate (Graptolites), Mollusca (Lamellibranch, Gastropod and Cephalopod), Brachiopods and Echinodermata.

Section B- Petrology Paper No. IV **(Credits -2)**

Unit – I: Igneous and Metamorphic Petrology **(Periods-30, Marks 30)**

Igneous Petrology: Definition, composition & origin of magma. Origin, Forms, Textures, structures and classification of igneous rocks .Study of common igneous rocks.

Metamorphic Petrology: Agents and kinds of metamorphism, metamorphic minerals, structures of metamorphic rocks. Processes of formation of various metamorphic rocks by the process of Cataclastic, Thermal, Dynamothermal and Plutonic metamorphism. Study of common metamorphic rocks.

Unit – II: -Sedimentary Petrology **(Periods-10, Marks 20)**

Sedimentary Petrology: Weathering, soil formation, soil profile, soil types and soil properties. Origin, transportation, deposition, consolidation and digenesis of sediments. Sedimentary textures. Classification of sedimentary deposits and study of common sedimentary rocks.

Core Course Geology –Practical-II Paper No. V **(Credits -2)**

1. Study of megascopic characters of important rocks types of igneous, sedimentary and metamorphic origin.

2. Study of morphological characters of fossils/shells.

3. Geological Field Work (Three Days). Students will be required to carry out fieldwork for three days to study elementary aspects of field geology and submit report thereon.

Swami RamanandTeerthMarathwada University, Nanded

B.Sc. I GEOLOGY

Total Credits -4 Marks 100

Annual Practical Examination

PRACTICAL QUESTION PAPER

(CCGP III): Core Course Geology –Practical-Paper No. V. Marks - 80

Session – I

1. Reading of topographical maps (SOI). Marks 10

2. Study of physical properties of minerals in hand specimenfrom Table No. 1 to 8 Marks-20

3. Study of megascopic characters of important rocks types of Igneous, Sedimentary and Metamorphic originfrom Table No. 9 to 16. Marks-20

Session – II

4. (a)Give axial character, elements of symmetry and forms form normal classes of crystal models from Table No. 1 to 6. Marks -12

   (b) Identify Twin crystal models from Table No. 7 to 8. Marks -03

5. Describe classification morphological characters and geological distribution of Shells/fossils from Table No. 9 to 14. Marks-15

Internal Practical Assessment (CA)

i) Unit Test Marks -10

ii) Geological Field Work (Three Days) Marks -05

iii) Record Book. Marks -05

Books Recommended for B.Sc. I

1. Arthur Holmes, 1992. Principles of Physical Geology. Chapman and Hall, London.

2. Miller, 1949. An Introduction to Physical Geology. East West Press Ltd.

3. Spencer, E.V., 1962. Basic concepts of Physical Geology. Oxford and IBH.

4. Mahapatra, G.B., 1994. A text book of Physical geology. CBS Publishers.

5. Flint, Y., 1975. Essential of crystallography, Mir Publishers.

6. Phillips, F.C., 1963. An introduction to crystallography. Wiley, New York.

7. Berry, L.G., Mason, B. and Dietrich, R.V., 1982. Mineralogy. CBS Publ.

8. Nesse, D.W., 1986. Optical Mineralogy. McGraw Hill.

9. Read, H.H., 1968. Rutley's Element of Mineralogy (Rev. Ed.). Thomas Murby and Co.

10. Principles of Petrology. Methuren and Co (Students ed.).

11. Ehlers, WG, and Blatt, H., 1987. Petrology, Igneous, Sedimentary and Metamorphic rocks, CBS Publishers

12. Shrock, R.R. and Twenhoffel, W.H., 1952. Principles of Invertebrate Paleontology, CBS Publ.

13. Swinerton, H.H., 1961. Outlines of Paleontology, Edward Arnold Publishers

14.Jain, P.C. & Anantharaman, M.S.,1983. Paleontology: Evolution and Animal Distribution. Vishal Publisher.

15. Lehmann, U., 1983. Fossil Invertebrate; Cambridge Univ. Press.