UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(22/Sent./Adp/44)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the Syllabi and Courses of Study in the subject of **Geology** of Semesters **Ist** and **IInd** for **Four Year Under Graduate Programme** under the **Choice Based Credit System** as per **NEP-2020 (as given in the annexure)** for the examinations to be held in the years as per the details given below:

Subject	**Semester**	**for the examination to be held in the years**
Geology	Semester-I	December 2022, 2023 and 2024
	Semester-II	May 2023, 2024 and 2025

The Syllabi of the courses is available on the University website: www.jammuuniversity.ac.in

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/22/7226-7245
Dated: 28-9-2022
Copy for information and necessary action to:

1. Special Secretary to the Vice-Chancellor, University of Jammu for information of Hon'ble Vice-Chancellor
2. Dean, Faculty of Science
3. Head, Department of Geology,
4. Sr. P.A.to the Controller of Examinations
5. All members of the Board of Studies
6. Confidential Assistant to the Controller of Examinations
7. I/C Director, Computer Centre, University of Jammu
8. Deputy Registrar/Asst. Registrar (Conf. /Exams. UG/ Exam Eval Non-Prof/CDC)
9. Incharge, University Website for Uploading of the notification.

Sunilasharma 27/9/22
Deputy Registrar (Academic)

27/9 27/9/22

SYLLABI AND COURSES OF STUDY IN GEOLOGY AT FOUR YEAR UNDERGRADUATE PROGRAMME (FYUP) UNDER CBCS AS PER THE NEP-2020

Sem	Course Type	Course Code	Course Title	Credits	Marks				Total Marks
					Theory		Practical/Tutorial		
—	———	———	———	———	Mid Sem	End Sem Exam	Assessment	Ext. Exam	———
1st	Major	UMJGET101	Fundamentals of Geology	3Th+1P/T = 4	15 marks	60 marks	10 marks	15 marks	100
	Minor	UMIGET102	Elements of Geology	3Th+1P/T = 4	15 marks	60 marks	10 marks	15 marks	100
2nd	Major	UMJGET201	Geomorphology	3Th+1P/T = 4	15 marks	60 marks	10 marks	15 marks	100
	Minor	UMIGET202	Earth Surface Processes	3Th+1P/T = 4	15 marks	60 marks	10 marks	15 marks	100
1st	Multidisciplinary	UMDGET103	Introductory Geology	3	15 marks	60 marks	———	———	75
2nd	Multidisciplinary	UMDGET203	Understanding Landforms	3	15 marks	60 marks	———	———	75
1st	SEC	USEGET104	Understanding Disasters	2	10 marks	40 marks	———	———	50
2nd	SEC	USEGET204	Disaster Management	2	10 marks	40 marks	———	———	50

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Major Course

Course code: UMJGET101	Course title: Fundamentals of Geology
Credits: 03 (Theory) + 01 (Practical)	Total no. of lectures (Theory): 45 hours
	Practical: 30 hours

Total Marks: 100
Maximum Marks Theory: 75
Maximum Marks Practical: 25

Objectives: To impart knowledge about the origin and age of planet Earth, its geophysical properties and geodynamical characteristics. To acquaint the students with the minerals, rocks, fossils, volcanoes, plate tectonics, etc.

UNIT 1

1.1 Geology as a discipline: its historical development and holistic understanding of dynamic planet 'Earth' through interdisciplinary approach; branches of Geology.

1.2 The Solar System: its origin (Nebular Theory) and general characteristics of the Sun, planets and other cosmic bodies (natural satellites, meteorites, comets and asteroids).

1.3 The Earth in the Solar System – size, shape, mass, density, rotational and revolution parameters; an introduction to the Earth's spheres.

1.4 The Earth's interior: Compositional and mechanical layers – role of seismic waves in probing the interior of the Earth; Generation of the Earth's magnetic field.

UNIT 2

2.1 Earthquakes: terminology and the Elastic Rebound Theory; magnitude and intensity of earthquakes; distribution of earthquakes and seismic zones of India.

2.2 Volcanoes: causes and types; products of volcanism and types of volcanic eruptions; distribution of volcanoes.

2.3 The Earth materials: an introduction to minerals and rocks; classifying minerals into rock-forming and ore-forming minerals.

2.4 Rock types and rock cycle in the Earth system; general classifications of igneous, sedimentary and metamorphic rocks.

UNIT 3

3.1 Plate tectonics as a grand unifying theory: concept of continental drift and sea-floor spreading; types of plate boundaries and associated geodynamic elements.

3.2 Major Features of the Continents: Stable shields, platforms and mountain belts; causes of mountain building.

3.3 An introduction to rock deformation in the crust: Brittle and ductile deformation; basic deformation structures – faults (normal, reverse and strike-slip); folds and its types.

3.4 Styles of continental deformation: tensional, compressive and shearing tectonics.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Major Course

Course code: UMJGET101 Course title: Fundamentals of Geology

UNIT 4

4.1 Introduction to the concept of time in geological studies: relative and absolute ages; radiometric dating; age of the Earth and the Geological Time Scale (GTS).

4.2 Stratigraphic principles and the nature of stratigraphic records; an introduction to stratigraphic classification.

4.3 Unconformities as gaps in geological record; Origin and types of unconformity.

4.4 Fossilisation processes and the types of fossils; modes of preservation and significance of fossils; Geobiologic events in Earth's history.

PRACTICAL

1. Study of physical properties and diagnostic features of the following minerals: Quartz, muscovite, biotite, tourmaline, hornblende, augite, diopside, olivine, feldspar, epidote, garnet, corundum, talc, gypsum, calcite, fluorite.
2. Identification of important Igneous rocks in hand specimen.
3. Identification of important Sedimentary rocks in hand specimen.
4. Identification of important Metamorphic rocks both in hand specimen.
5. Identification and morphological characters of some important fossil genera.

NOTE FOR PAPER SETTER

Examination Theory/Practical	**Syllabus to be covered in Examination**	**Time allotted for Exam**	**% weightage**
Mid Semester Assessment Test	Upto 50%	1½ Hour	15 Marks
End Semester Examination	100%	3 Hours	60 Marks
Internal Practical	-	-	10 Marks (Based on daily performance only)
External Practical	-	-	(10 Marks Test & 5 Marks Viva)

External End Semester Theory Examination will have two sections (A & B):

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Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Major Course

Course code: UMJGET101 Course title: Fundamentals of Geology

1. **Section A** shall be of ***12 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. one question from each unit. Each question shall be of **3 marks (All compulsory)**.
2. **Section B** shall be of ***48 Marks*** and will comprise of Eight (8) long answer type questions **(Four to be attempted)**, representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **12 marks**.

Books Recommended:

1. Edward J. Tarbuck, Frederick K. Lutgens, Dennis G. Tasa, 2016. Earth: An Introduction to Physical Geology; Pearson.
2. Stephen Marshak, 2015. Earth - Portrait of a Planet; W. W. Norton & Co.
3. Kevin Hefferan, John O'Brien, 2010. Earth Materials; Wiley-Blackwell.
4. Robert W. Christopherson, 2013. Elemental Geosystem; Pearson.
5. Grotzinger, J.P., Jordan, T.H., 2014. Understanding Earth; W.H. Freeman and Company.
6. Clarkson, E., 2012. Invertebrate Paleontology and Evolution; Blackwell Publishing.
7. Benton, M., 2009. Vertebrate Paleontology. John Wiley & Sons.

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Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Minor Course

Course code: UMIGET102	Course title: Elements of Geology
Credits: 03 (Theory) + 01 (Practical)	Total no. of lectures (Theory): 45 hours
	Practical: 30 hours

Total Marks: 100
Maximum Marks Theory: 75
Maximum Marks Practical: 25

Objectives: To impart knowledge about the origin and age of planet Earth, its geophysical properties and geodynamical characteristics. To acquaint the students with the minerals, rocks, fossils, volcanoes, plate tectonics, etc.

UNIT 1

1.1 Historical development of Geology; Geology and its relationship with other allied sciences; Introduction to various branches of Geology.

1.2 The Solar System: its origin (Nebular Theory) and general characteristics of the Sun, planets and other cosmic bodies (natural satellites, meteorites, comets and asteroids).

1.3 The Earth in the Solar System – size, shape, mass, density, rotational and revolution parameters; an introduction to the Earth's spheres.

1.4 The Earth's interior: Compositional and mechanical layers – role of seismic waves in probing the interior of the Earth; Generation of the Earth's magnetic field.

UNIT 2

2.1 Earthquakes: terminology and the Elastic Rebound Theory; magnitude and intensity of earthquakes; distribution of earthquakes and seismic zones of India.

2.2 Volcanoes: causes and types; products of volcanism and types of volcanic eruptions; distribution of volcanoes.

2.3 The Earth materials: an introduction to minerals and rocks; classifying minerals into rock-forming and ore-forming minerals.

2.4 Rock types and rock cycle in the Earth system; general classifications of igneous, sedimentary and metamorphic rocks.

UNIT 3

3.1 Plate tectonics as a grand unifying theory: concept of continental drift and sea-floor spreading; types of plate boundaries and associated geodynamic elements.

3.2 Major features of the Continents: Stable shields, platforms and mountain belts.

3.3 Faults and faulting: terminology; classification of faults: normal, reverse and strike-slip.

3.4 Folds: terminology; geometry and types of folds.

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Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Minor Course

Course code: UMIGET102 Course title: Elements of Geology

UNIT 4

4.1 Introduction to the concept of time in geological studies: relative and absolute ages; radiometric dating; age of the Earth and the Geological Time Scale (GTS).

4.2 Stratigraphic principles and the nature of stratigraphic records; an introduction to stratigraphic classification.

4.3 Unconformities as gaps in geological record; Origin and types of unconformity.

4.4 Fossilisation processes and the types of fossils; modes of preservation and significance of fossils.

PRACTICAL

1. Study of physical properties and diagnostic features of the following minerals: Quartz, muscovite, biotite, tourmaline, hornblende, augite, diopside, olivine, feldspar, epidote, garnet, corundum, talc, gypsum, calcite, fluorite.
2. Identification of important Igneous rocks in hand specimen.
3. Identification of important Sedimentary rocks in hand specimen.
4. Identification of important Metamorphic rocks both in hand specimen.
5. Identification and morphological characters of some important fossil genera.

NOTE FOR PAPER SETTER

Examination Theory/Practical	**Syllabus to be covered in Examination**	**Time allotted for Exam**	**% weightage**
Mid Semester Assessment Test	Upto 50%	1½ Hour	15 Marks
End Semester Examination	100%	3 Hours	60 Marks
Internal Practical	-	-	10 Marks (Based on daily performance only)
External Practical	-	-	(10 Marks Test & 5 Marks Viva)

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Minor Course

Course code: UMIGET102 Course title: Elements of Geology

External End Semester Theory Examination will have two sections (A & B):

1. **Section A** shall be of ***12 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. one question from each unit. Each question shall be of **3 marks (All compulsory)**.
2. **Section B** shall be of ***48 Marks*** and will comprise of eight (8) long answer type questions **(Four to be attempted)**, representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **12 marks**.

Books Recommended:

1. Edward J. Tarbuck, Frederick K. Lutgens, Dennis G. Tasa, 2016. Earth: An Introduction to Physical Geology; Pearson.
2. Stephen Marshak, 2015. Earth - Portrait of a Planet; W. W. Norton & Co.
3. Kevin Hefferan, John O'Brien, 2010. Earth Materials; Wiley-Blackwell.
4. Robert W. Christopherson, 2013. Elemental Geosystem; Pearson.
5. Grotzinger, J.P., Jordan, T.H., 2014. Understanding Earth; W.H. Freeman and Company.
6. Clarkson, E., 2012. Invertebrate Paleontology and Evolution; Blackwell Publishing.
7. Benton, M., 2009. Vertebrate Paleontology. John Wiley & Sons.

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Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Major Course

Course code: UMJGET201 — Course title: Geomorphology

Credits: 03 (Theory) + 01 (Practical) — Total no. of lectures (Theory): 45 hours

Practical: 30 hours

Total Marks: 100

Maximum Marks Theory: 75

Maximum Marks Practical: 25

Objectives: To introduce fundamental concepts governing the landforms, understand various geomorphological processes and landform evolution.

UNIT 1

1.1 Geomorphology as a discipline: its nature, approaches and branches. Models of landscape development: Davis's cycle, Penck's Model, Hack's Model.

1.2 Exogenous and endogenous processes. Rates of uplift and denudation. Landform in relation to lithology and structure.

1.3 Weathering and its agents; Types of weathering. Factors affecting weathering; Products of weathering: regolith and soil.

1.4 Soil profile and horizons; factors affecting soil formation. Classification of soils; Soils of India.

UNIT 2

2.1 Mass wasting: its types and causes; factors responsible for mass wasting.

2.2 Drainage system and its types; types of drainage pattern. River profile and developmental stages of a river.

2.3 Fluvial erosion: its types, processes and erosional landforms.

2.4 Depositional landforms produced by fluvial processes.

UNIT 3

3.1 Glaciers: types and morphology. Glacial erosion: processes and associated landforms. Depositional landforms produced by glaciers.

3.2 Wind as a transporting agent and processes of wind erosion. Erosional and depositional landforms produced by wind.

3.3 Karst topography: erosional and depositional landforms produced by groundwater.

3.4 Coastal landforms: erosional and depositional features.

UNIT 4

4.1 Landforms associated with extrusive and intrusive igneous activities, folding and faulting.

4.2 Geomorphic provinces of the Indian Subcontinent.

4.3 Evolutionary history of Thar Desert of India.

4.4 Introduction to geomorphology of Moon and Mars.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Major Course

Course code: UMJGET201 Course title: Geomorphology

PRACTICAL

1. Study of important geomorphological models,
2. Reading topographical maps of the survey of India.
3. Identification of geomorphic features.
4. Determination of morphometric parameters of a basin.

NOTE FOR PAPER SETTER

Examination Theory/Practical	**Syllabus to be covered in Examination**	**Time allotted for Exam**	**% weightage**
Mid Semester Assessment Test	Upto 50%	1½ Hour	15 Marks
End Semester Examination	100%	3 Hours	60 Marks
Internal Practical	-	-	10 Marks (Based on daily performance only)
External Practical	-	-	(10 Marks Test & 5 Marks Viva)

External End Semester Theory Examination will have two sections (A & B):

1. **Section A** shall be of ***12 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. one question from each unit. Each question shall be of **3 marks** (**All compulsory**).
2. **Section B** shall be of ***48 Marks*** and will comprise of eight (8) long answer type questions (**Four to be attempted**), representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **12 marks**.

Books Recommended:

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2. Stephen Marshak, 2015. Earth - Portrait of a Planet; W. W. Norton & Co.
3. Richard Jon Hugget, 2016. Fundamentals of Geomorphology (4th Edition); Taylor and Francis Group.
4. John P. Grotzinger and Thomas H. Jordan, 2014. Understanding Earth (7th Edition); W.H. Freeman & Co.
5. Savindra Singh. Geomorphology; Pravalika Publications, Allahabad.
6. P. McL. D. Duff, A., 1993. Holme's Principles of Physical Geology, Fourth Edition; Stanley Thornes (Publishers) Ltd.
7. M. A. Summerfield, 2013. Global Geomorphology; Routledge.
8. V. S. Kale and A. Gupta, 2018. Introduction to Geomorphology; The University Press.
9. V. S. Kale, 2014. Landscapes and Landforms of India; Springer Dordrecht.
10. Robert W. Christopherson, 2013. Elemental Geosystem; Pearson.

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Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Minor Course

Course code: UMIGET202 | Course title: Earth surface processes

Credits: 03 (Theory) + 01 (Practical) | Total no. of lectures (Theory): 45 hours

Practical: 30 hours

Total Marks: 100

Maximum Marks Theory: 75

Maximum Marks Practical: 25

Objectives: To introduce the fundamental concepts governing the landforms, understand various earth surface processes and landform evolution.

UNIT 1

1.1 Geomorphology as a discipline: its nature, approaches and branches. Models of landscape development: Davis's cycle, Penck's Model, Hack's Model.

1.2 Exogenous and endogenous processes. Rates of uplift and denudation.

1.3 Weathering and its agents; Types of weathering.

1.4 Factors affecting weathering; Products of weathering: regolith and soil.

UNIT 2

2.1 Soil profile and horizons; factors affecting soil formation. Classification of soils; Soils of India.

2.2 Mass wasting: its types and causes; factors responsible for mass wasting.

2.3 Drainage system and its types; types of drainage pattern. River profile and developmental stages of a river.

2.4 Fluvial erosion: its types, processes and erosional landforms.

UNIT 3

3.1 Depositional landforms produced by fluvial processes.

3.2 Glaciers: types and morphology. Glacial erosion: processes and associated landforms. Depositional landforms produced by glaciers.

3.3 Wind as a transporting agent and processes of wind erosion. Erosional and depositional landforms produced by wind.

3.4 Karst topography: erosional and depositional landforms produced by groundwater.

UNIT 4

4.1 Coastal landforms: erosional and depositional features.

4.2 Landforms associated with igneous activities, folding and faulting.

4.3 Geomorphic provinces of the Indian Subcontinent.

4.4 Evolutionary history of Thar Desert of India.

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Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Minor Course

Course code: UMIGET202 Course title: Earth surface processes

PRACTICAL

1. Study of important geomorphological models.
2. Reading topographical maps of the survey of India.
3. Identification of geomorphic features:
4. Determination of morphometric parameters of a basin.

NOTE FOR PAPER SETTER

Examination Theory/Practical	Syllabus to be covered in Examination	Time allotted for Exam	% weightage
Mid Semester Assessment Test	50%	1½ Hours	15 Marks
End Semester Examination	100%	3 Hours	60 Marks
Internal Practical	-	-	10 Marks (Based on daily performance only)
External Practical	-	-	(10 Marks Test & 5 Marks Viva)

External End Semester Theory Examination will have two sections (A & B):

1. **Section A** shall be of ***12 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. one question from each unit. Each question shall be of **3 marks (All compulsory)**.

2. **Section B** shall be of ***48 Marks*** and will comprise of Eight (8) long answer type questions **(Four to be attempted)**, representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **12 marks**.

Books Recommended:

1. Edward J. Tarbuck, Frederick K. Lutgens, Dennis G. Tasa, 2016. Earth: An Introduction to Physical Geology; Pearson.
2. Stephen Marshak, 2015. Earth - Portrait of a Planet; W. W. Norton & Co.

3. Richard Jon Hugget, 2016. Fundamentals of Geomorphology (4th Edition); Taylor and Francis Group.
4. John P. Grotzinger and Thomas H. Jordan, 2014. Understanding Earth (7th Edition); W.H. Freeman & Co.
5. Savindra Singh. Geomorphology; Pravalika Publications, Allahabad.
6. P. McL. D. Duff, A., 1993. Holme's Principles of Physical Geology, Fourth Edition; Stanley Thornes (Publishers) Ltd.
7. M. A. Summerfield, 2013. Global Geomorphology; Routledge.
8. V. S. Kale and A. Gupta, 2018. Introduction to Geomorphology; The University Press.
9. V. S. Kale, 2014. Landscapes and Landforms of India; Springer Dordrecht.
10. Robert W. Christopherson, 2013. Elemental Geosystem; Pearson.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Multidisciplinary Course

Course code: UMDGET103	Course title: Introductory Geology
Credits: 03	Total no. of lectures: 45 hours

Maximum marks: 75

Objectives: To provide basic idea about the origin and age of planet Earth, its geophysical properties and geodynamical characteristics. To acquaint the students with the minerals, rocks, fossils, volcanoes, plate tectonics, etc.

UNIT 1

1.1 Introduction to Geology and its various branches.
1.2 Origin of the Earth: Nebular Theory.
1.3 Earth in the Solar System: size, shape, mass and density; rotational and revolution parameters.
1.4 Earth's internal structure and its composition.

UNIT 2

3.1 Earth materials: an introduction to minerals and rocks; classifying minerals into rock-forming and ore-forming minerals.
3.2 Concept of ore: Ore and gangue minerals; Tenor and grade of ore; Metallic and non-metallic ore minerals.
3.3 Principles of rock cycle; General classifications of igneous, sedimentary and metamorphic rocks.
3.4 Volcanoes: its types, products and distribution.

UNIT 3

3.1 Earthquakes: terminology, magnitude and intensity of earthquakes.
3.2 Concepts of continental drift, sea-floor spreading and plate tectonics.
3.3 Major features of the Oceans: Mid Oceanic Ridges, trenches, transform faults and island arcs; Continental margins.
3.4 Major Features of the continents: Mountain Belts, Stable Shields and Platforms.

UNIT 4

4.1 Faults and faulting: terminology; classification of faults: normal, reverse and strike slip.
4.2 Folds: terminology; geometry and types of folds.
4.3 Fossils: Definition and its types; Modes of preservation and significance of fossils. Principles of Stratigraphy.
4.4 Unconformities as gaps in geological record; types of unconformity. Standard Geological Time Scale.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Multidisciplinary Course

Course code: UMDGET103 Course title: Introductory Geology

NOTE FOR PAPER SETTER

Theory Examination	Syllabus to be covered in Examination	Time allotted for Exam	% weightage
Mid Semester Assessment Test	Up to 50%	1½ Hours	15 Marks
End Semester Examination	100%	3 Hours	60 Marks

External End Semester Theory Examination will have two sections (A & B):

1. **Section A** shall be of ***12 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. one question from each unit. Each question shall be of **3 marks (All compulsory)**.
2. **Section B** shall be of ***48 Marks*** and will comprise of Eight (8) long answer type questions (**Four to be attempted**), representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **12 marks**.

Books Recommended:

1. Edward J. Tarbuck, Frederick K. Lutgens, Dennis G. Tasa, 2016. Earth: An Introduction to Physical Geology; Pearson.
2. Stephen Marshak, 2015. Earth - Portrait of a Planet; W. W. Norton & Co.
3. Kevin Hefferan, John O'Brien, 2010. Earth Materials; Wiley-Blackwell (2010).
4. Robert W. Christopherson, 2013. Elemental Geosystem; Pearson.
5. Francisco Borrero et al., 2008. Earth Science: Geology, the Environment and the Universe; The McGraw-Hill Companies, Inc.
6. Benton, M., 2009. Vertebrate Paleontology. John Wiley & Sons.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Multidisciplinary Course

Course code: UMDGET203	Course title: Understanding landforms
Credits: 03	Total no. of lectures: 45 hours
Maximum marks: 75	

Objectives: To introduce the fundamental concepts governing the landforms, understand various earth surface processes and landform evolution.

UNIT 1

1.1 Geomorphology as a discipline: its nature, approaches; Definitions of landforms and landscapes.
1.2 Models of landscape development: Davis's cycle, Penck's Model, Hack's Model.
1.3 Fundamental driving forces of landforms development.
1.4 Weathering and its types; factors affecting weathering.

UNIT 2

2.1 Soil profile and horizons; types of soils in India.
2.2 Geological work of streams: erosional, transportation and depositional processes.
2.3 Erosional landforms produced by fluvial processes.
2.4 Depositional landforms produced by fluvial processes.

UNIT 3

3.1 Glaciers: types, formation and their movements.
3.2 Glacial erosion: processes and associated landforms.
3.3 Depositional landforms produced by glaciers.
3.4 Karst topography: erosional and depositional landforms.

UNIT 4

4.1 Wind as a transporting agent and processes of wind erosion.
4.2 Erosional and depositional landforms produced by wind.
4.3 Coastal landforms: erosional and depositional features.
4.4 Landforms associated with igneous activities.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Multidisciplinary Course

Course code: UMDGET103 Course title: Understanding landforms

NOTE FOR PAPER SETTER

Theory Examination	Syllabus to be covered in Examination	Time allotted for Exam	% weightage
Mid Semester Assessment Test	Up to 50%	1½ Hours	15 Marks
End Semester Examination	100%	3 Hours	60 Marks

External End Semester Theory Examination will have two sections (A & B):

1. **Section A** shall be of ***12 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. one question from each unit. Each question shall be of **3 marks (All compulsory)**.
2. **Section B** shall be of ***48 Marks*** and will comprise of Eight (8) long answer type questions (**Four to be attempted**), representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **12 marks**.

Books Recommended:

1. Edward J. Tarbuck, Frederick K. Lutgens, Dennis G. Tasa, 2016. Earth: An Introduction to Physical Geology; Pearson.
2. Stephen Marshak, 2015. Earth - Portrait of a Planet; W. W. Norton & Co.
3. Richard Jon Hugget, 2016. Fundamentals of Geomorphology (4th Edition); Taylor and Francis Group.
4. Savindra Singh. Geomorphology; Pravalika Publications, Allahabad.
5. V. S. Kale and A. Gupta, 2018. Introduction to Geomorphology; The University Press.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Skill Enhancement Course

Course code: USEGET104	Course title: Understanding Disasters
Credits: 02	Total no. of lectures: 30 hours
Maximum marks: 50	

Objectives: To provide basic idea about the hazards and disasters caused by natural and man-made factors.

UNIT 1

1.1 Definitions of Hazard, Risk, Vulnerability, Disaster.
1.2 Meaning, nature, importance and scope of disaster management.
1.3 Plan for disaster management.
1.4 Disaster Management Cycle.

UNIT 2

2.1 Natural disasters: Definition of natural disasters, their types and effects.
2.2 Hydrological disasters: Floods, cloud burst, avalanche and drought.
2.3 Earthquakes: definition, occurrence and measurement; Hazards and impacts of earthquakes; Mitigation measures.
2.4 Seismic zones of India; History of major earthquakes in India.

UNIT 3

3.1 Landslide: Introduction, classification; Causes and impacts of landslides; Mitigation measures.
3.2 Basic concepts of climate change; Global warming and sea level rise; Floods: causes, effects and mitigation measures.
3.3 Man-made disasters: Chemical disasters, biological disasters, radiological disasters, nuclear disasters.
3.4 Air and water pollution: Sources of air and water pollutants; their effects on life.

NOTE FOR PAPER SETTER

Theory Examination	Syllabus to be covered in Examination	Time allotted for Exam	% weightage
Mid Semester Assessment Test	Upto 50%	1 Hour	10 Marks
End Semester Examination	100%	2½ Hours	40 Marks

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UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 1st

For the Examination to be held in Year 2022, 2023 & 2024

Skill Enhancement Course

Course code: USEGET104 Course title: Understanding Disasters

External End Semester Theory Examination will have two sections (A & B):

1. **Section A** shall be of ***10 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. at least one question from each unit. Each question shall be of **2½ marks** (**All compulsory**).
2. **Section B** shall be of ***30 Marks*** and will comprise of six (6) long answer type questions (**Three to be attempted**), representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **10 marks**.

Books Recommended:

1. Bryant Edwards, 2005. Natural Hazards, Cambridge University Press, U.K.
2. Carter, W. Nick, 2008. Disaster Management: A disaster manager's handbook; Asian Development Bank, Manila.
3. Government of India, 1997. Vulnerability Atlas of India, New Delhi.
4. Sahni, Pardeep et.al. (eds.) 2002. Disaster Mitigation Experiences and Reflections, Prentice Hall of India, New Delhi.
5. Mukesh Dhunna, 2009. Disaster Management; Vayu Education of India.
6. Rajendra K. Bhandari, 2014. Disaster Education and Management, Springer India
7. Roy, P.S., 2000. Space Technology for Disaster management: A Remote Sensing & GIS Perspective, Indian Institute of Remote Sensing (NRSA) Dehradun.
8. Sharma, R.K. & Sharma, G. (eds.), 2005. Natural Disaster, APH Publishing Corporation, New Delhi.

UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Skill Enhancement Course

Course code: USEGET204	Course title: Disaster management
Credits: 02	Total no. of lectures: 30 hours
Maximum marks: 50	

Objectives: To acquaint students with the basic conceptual understanding of disasters and its relationship with development. To impart knowledge regarding the risks, vulnerability and disaster risk reduction.

UNIT 1

1.1 Framework of disaster management. Stages of disaster management.
1.2 Risk and vulnerability: Risk Reduction – mainstreaming "Risk".
1.3 Role of science and technology in Disaster Risk Reduction.
1.4 Disaster risk reduction, prevention, mitigation and preparedness.

UNIT 2

2.1 Types and dimensions of vulnerability; Social and economic factors of vulnerability.
2.2 Disaster Preparedness: concept and significance; Disaster preparedness measures.
2.3 Institutional mechanism for disaster preparedness.
2.4 Community based disaster preparedness plan; Prediction, early warnings and safety measures of disaster.

UNIT 3

3.1 Impact of disaster management on development.
3.2 National policy on disaster management; National disaster management framework: SDMA; DDMA; NDRF.
3.3 Role and responsibilities of urban and local bodies, armed and paramilitary forces; social media and networking.
3.4 Role of technologies for disaster management: Remote Sensing, GIS and GPS.

NOTE FOR PAPER SETTER

Theory Examination	Syllabus to be covered in Examination	Time allotted for Exam	% weightage
Mid Semester Assessment Test	Upto 50%	1 Hour	10 Marks
End Semester Examination	100%	2½ Hours	40 Marks

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UNIVERSITY OF JAMMU

Syllabus of Geology at FYUP under CBCS as per NEP-2020

SEMESTER: 2nd

For the Examination to be held in Year 2023, 2024 & 2025

Skill Enhancement Course

Course code: USEGET204 Course title: Disaster Management

External End Semester Theory Examination will have two sections (A & B):

3. **Section A** shall be of ***10 Marks*** and will comprise of four (4) short answer type questions representing all units/syllabus, i.e. at least one question from each unit. Each question shall be of **2½ marks (All compulsory)**.
4. **Section B** shall be of ***30 Marks*** and will comprise of six (6) long answer type questions (**Three to be attempted**), representing whole of the syllabus, i.e. two questions from each unit. The students are required to attempt one question from each unit. Each question shall be of **10 marks**.

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