डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद

परिपत्रक क्रमांक/एस.यू./विज्ञान/अभ्यासक्रम/७४/२०१४

या परिपत्रकाद्वारे सर्व संबंधीतांना सुचित करण्यात येते की, विज्ञान विद्याशाखेने शिफारस केल्यानुसार बी. एस्सी. / एम. एस्सी. प्रथम व द्वितीय वर्षाच्या सुधारित अभ्यासक्रमास आणि बी. एस्सी. प्रथम वर्षाच्या अभ्यासक्रमात किरकोळ बदल करण्यास विद्यापरिषदेच्या वतीने मा. कुलगुरु यांनी, त्यांना प्राप्त असलेल्या विशेष अधिकार महाराष्ट्र विद्यापीठ अधिनियम-१९९४ कलम १४(७) अन्वये मान्यता दिलेली आहे. त्या अनुषंगाने सुधारीत तयार केलेल्या अभ्यासक्रमाची प्रत या परिपत्रकासोबत आपल्या पुढील कार्यवाहीसाठी पाठविण्यात येत आहे.

[1]	B.Sc. Physics	Semester-III & IV,
[2]	B.Sc. Chemistry	Semester-III & IV,
[3]	B.Sc. Botany	Semester-III & IV,
[4]	B.Sc. Zoology with minor changes	Semester-I & II,
[5]	B.Sc. Zoology	Semester-III & IV,
[6]	B.Sc. Fisheries	Semester-III & IV,
[7]	B.Sc. Electronics (Opt.)	Semester-III & IV,
[8]	B.A./B.Sc. Mathematics	Semester-III & IV,
[9]	B.Sc. Computer Science	Semester-I & II,
[10]	B.Sc. Information Technology	Semester-I & II,
[11]	B.C.A.	Semester-I & II,
[12]	B.Sc. Computer Science(Opt.)	Semester-I & II,
[13]	B.Sc. Information Technology(Opt.)	Semester-I & II,
[14]	B.Sc. Computer Application(Opt.)	Semester-I & II,
[15]	B.Sc. Computer Maintenance(Opt.)	Semester-I & II,
[16]	B.Sc. Biotechnology (Progressively)	Semester-I to VI,
[17]	B.Sc. Biotechnology (Opt.) (Progressively)	Semester-I to IV,
[18]	B.Sc. Sericulture Technology	Semester-I & II,
[19]	B.Sc. Networking Multimedia	Semester-III & IV,
[20]	B.Sc. Bioinformatics	Semester-I & II,
[21]	B.Sc. Hardware & Networking	Semester-I & II,
[22]	B.Sc. Animation	Semester-I & II,
[23]	B.Sc. Dairy Science & Technology	Semester-III & IV,
[24]	B.Sc. Biochemistry	Semester-III & IV,
[25]	B.Sc. Analytical Chemistry	Semester-III & IV,
[26]	B.Sc. Textile & Int. Decoration with minor changes	Semester-I & II,
[27]	B.Sc. Textile & Int. Decoration	Semester-III & IV,
[28]	B.Sc. Home Science with minor changes	Semester-I & II,
[29]	B.Sc. Home Science	Semester-III & IV,
[30]	B.Sc. Agro.Chem. & Fertilizers	Semester-III & IV,

..2..

[31]	B.Sc. Geology	Semester-III & IV,
[32]	B.A. Statistics with minor changes	Semester-I & II,
[33]	B.A. Statistics	Semester-III & IV,
[34]	B.Sc. Statistics with minor changes	Semester-I & II,
[35]	B.Sc. Statistics	Semester-III & IV,
[36]	B.Sc. Industrial Chemistry	Semester-III & IV,
[37]	B.Sc. Horticultural	Semester-I & II,
[38]	B.Sc. Dry land Agriculture	Semester-I & II,
[39]	B.Sc. Microbiology	Semester-III & IV,
[40]	M.Sc. Computer Science	Semester-I to IV,
[41]	M.Sc. Information Technology	Semester-I to IV.

हा सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाचा आराखडा शैक्षणिक वर्ष २०१४-१५ करिता मर्यादित असेल व विद्यापरिषदेच्या अंतिम मान्यतेनंतर हे परिपत्रक नियमित ठेवण्याबाबत या कार्यालयाद्वारे नवीन परिपत्रक पारीत करण्यात येईल. तसेच सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाची प्रत विद्यापीठाच्या संकेतस्थळावर उपलब्ध आहे.

करिता, या परिपत्रकाची सर्व संबंधितांनी नोंद घ्यावी.

विद्यापीठ प्रांगण,
औरंगाबाद-४३१ ००४.
संदर्भ क्र.एस.यु./सा.शा./सबवि /२०१३-१४/
६५९९-७०२
दिनांक :- २७-०५-२०१४.

संचालक,
महाविद्यालये व विद्यापीठ
विकास मंडळ.

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या परिपत्रकाची एक प्रत :-

१) मा. परिक्षा नियंत्रक, परिक्षा विभाग,
२) मा. प्राचार्य, सर्व संलग्नीत महाविद्यालये,
३) संचालक, युनिक यांना विनंती करण्यात येते की, सदरील अभ्यासक्रम विद्यापीठाच्या संकेतस्थंळावर उपलब्ध करुण देण्यात यावेत.
४) संचालक, ई-सुविधा केंद्र, विद्यापीठ परिसर,
५) जनसंपर्क अधिकारी, मुख्य प्रशासकीय इमारत,
६) कक्ष अधिकारी, पात्रता विभाग, मुख्य प्रशासकीय इमारत,
७) कक्ष अधिकारी, बी.ए. / बी.एस्सी./ बी.सी.एस./एम.एस्सी. विभाग, परीक्षा भवन,
८) अभिलेख विभाग, मुख्य प्रशासकीय इमारती मागे,
डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Revised Syllabus of

B.Sc. Second Year

Geology [Optional]

Semester- III & IV

Effective for-2014 – 2015

B.Sc. IInd Year Geology , Semester IIIrd & IV.
Course Structure

Year	Semester	Paper No.	Title	Hours	Marks
IInd	IIIrd	Paper-VII	Physical-Mineralogy & Igneous Petrology	45	50
		Paper –VIII	Crystallography & Optical Mineralogy.	45	50
		Paper –IX	Practical-Physical Mineralogy and Igneous petrology	45	50
		Paper –X	Practical-Crystallography and optical mineralogy	45	50
	IVth	Paper XI	Sedimentary & Metamorphic Petrology	45	50
		Paper XII	Structural Geology & Paleontology	45	50
		Paper XIII	Practical-Sedimentary and Metamorphic Petrology	45	50
		Paper XIV	Practical-Structural Geology and Palaeontology	45	50

Semester III
Paper – VII Physical – Mineralogy and Igneous Petrology

Sr. No.	Syllabus	No. of Lectures
1.	Broad outline of crystalline and non-crystalline minerals	2
2.	Classification of Silicates	2
3.	Study of the following rock forming silicates groups 1. Olivine 2. Pyroxene, 3. Amphibole 4. Mica 5. Garnet 6. Feldspar 7. Silica, Secondary minerals in basalt, Precious & semiprecious stones	18
4.	Physico-chemical constitution of magma Diversity of Igneous rocks. Concept of Primary magma. Crystallization of unicomponent, bicomponent and ternary magma Bowens reaction series.	8
5.	Igneous textures and microstructures a) Definition, factors determinative of textures of rock. b) Study of various textures with respective characters and genesis c) Study of various structures and microstructures with respect to characters and genesis	8
6.	Study of basic and ultra basic rocks fractional crystallization of basaltic and granitic magma, Differentiation & assimilation of magma	7
	Total No. of Lectures	45

Books

1.	Text book of Geology	Mahapatra
2.	Ruttey's Elements of Mineralogy	H. H. Read
3.	Mineralogy	I. G. Berry and B Mascon
4.	Crystal Minerals and rocks	K. G. Cox
5.	A Text book of mineralogy	E. S. Dana
6.	Rock forming Minerals	Deer, Howie Zussman
7.	Mineralogy and Petrography	A. V. Milorsky
8.	Principles of Petrology	G. W. Tyrrel
9.	Petrology Igneous Sedimentary and Metamorphic	E. G. Ehler
10.	Igneous and Metamorphic Petrology	Turner & Verhogen

Semester III

Paper – VIII Crystallography and optical mineralogy

Sr. No.	Syllabus	No. of Lectures
1.	Definition of crystal. Crystallographic and geometrical symmetry. Imperfections in crystals. Law of constancy of Interfacial angle.	4
2.	Study of elements of symmetry and forms occurring in hemihedral classes a) Cubic System : Pyrite type and Tetrahedrite type b) Hexagonal System : Calcite type, Quartz type and tourmaline type	10
3.	Concept of hemrihedrism hemimorphism enantiomorphism, Tetartahedrism, Definition of twinning, Twinning laws in different crystal classes	6
4.	Nature of light Ordinary and plane polarized light Double refraction. Nicol prisms their construction and function. Different parts of petro logical microscope and their function	8
5.	Optical properties of minerals as viewed under plane polarized light and cross nicols isotropism and anisotropism	8
6.	Types of extinction. Extinction positions of minerals in different crystal system	2
7.	Observation of mineral sections under conoscopic light study of uniaxial and biaxial interference figures, Use of accessory plates & their application	7
	Total No. of lectures	45

Recommended books

1.	Optical Crystallography	Wahistrom
2.	A hand book of minerals, Crystals, Rocks and ores	Pramod Alexander
3.	Optical Mineralogy	Winchell
4.	Optical Mineralogy	Royer and Kerr
5.	Crystals, Minerals and Rocks	K. G. Cox

Semester III

Practical Paper – IX Physical Mineralogy and Igneous petrology.

Sr. No.	Syllabus	No. of Practicals
1.	Physical mineralogy : In addition to B.Sc. Ist year megascopic identification of following minerals with the help of physical properties. Apatite, Topaz, Corundum, Tour maline, Andalusite sillimanite, olivine, staurolite, Chlorite, Asbestos, phlogopite, lepidolite Epidote, Rhodonite, Soda lite serpentine, wavellite hypersthene Thomosnite Natrolite.	6
2.	Igneous petrology In addition to B. Sc. 1st megascopic study of the following igneous rocks. Diorite, Syenite, Dunite, Peridotite Norite, Pegmatite, Graphic granite dolerite lamprophyre, Trachyte Andesite and varieties of basalt. Study of thin section of following igneous rocks Granite, Porphyritic Granite, Diorite, Syenite, Rhyolite, Andesite, Basalt, Porphyritic basalt, Amygdaloidal basalt, Trachyte, Dolerite, Gabbro	9
	Total Practicals	15

Semester III
Practical Paper – X Crystallography and optical mineralogy.

Sr. No.	Syllabus	No. of Practicals
1.	Crystallography Study of axial characters, elements of symmetry and forms occurring in the crystal models belonging to the five lower symmetry classes pyrite type, Tetrahedrite type calcite type tourmaline type and quartz type	5
2.	Study of models related to twinning laws in the six crystal systems (only common twin models)	2
3.	Identification of following mineral sections with the help of optical properties under petrological microscope Quartz, orthoclase, plagioclase, Microcline calcite Augite, Diopside Hornblende muscovite Biotite sillimanite kyanite Oliveine Garnet chlorite	5
4.	Identification of uniaxial and Biaxial Interference figures under conoscopic light	3
	Total Practicals	15

Semester IV

Paper – XI – Sedimentary and Metamorphic Petrology

Sr. No.	Syllabus	No. of Lectures
1.	Mineral composition of sediments. Concept of interstitial matrix and cementing materials and their effect on porosity and permeability	5
2.	Textures of sedimentary rocks wentworth and udden grade scale, roundness and sphericity kind of transport of sediments	5
3.	Lithification and diagenesis. Brief outline of diagenetic processes. Important mechanical and chemical structures found in sedimentary rocks	8
4.	Study of following secondary deposits with respect to their texture / structure mineral composition and varieties a) Residual Laterite, Bauxite and soil b) Rudaceous conglomerate and Breccia c) Arenaceous – sandstones d) Argillaceous – shales and Mud stone e) Chemical deposits f) Organic deposits	10
5.	Metamorphism, Difference between diagenesis, metamorphism and metasomatism. Metamorphic minerals textures of metamorphic rocks.	2
6	Metamorphism and Metamorphic products a) Regional metamorphism of i) Argillaceous rocks ii) Quartzofelspathic rocks iii) Basic igneous rocks b) Cataclasis, crush breccia, crush conglomerate, cataclasite c) Thermal metamorphism of i) Pure and impure limestones ii) Arenaceous rocks	15
	Total No. of Lectures	45

Semester IV

Paper – XII – Structural Geology and Paleontology

Sr. No.	Syllabus	No. of Lectures
1.	Introduction to structural Geology A) Definition and its relation with other branches of Geology B) Tectonic and non-tectonic structures	2
2.	Planar, Linear Structures outlier and inlier a) Attitude of planar feature strike and dip b) Attitude of linear features; bearing plunge and rake of linear feature in given planar feature. c) Outlier and inlier definition and genesis d) Clinometer compass and its application.	3
3.	Folds : a) Definition, nomenclature of folds. b) Classification of fold geometric, genetic and non tectonic folds	8
4.	Joints a) Definition and nomenclature of joints b) Geometric and genetic classification of joints with examples	3
5.	Faults a) Definition and nomenclature related to faults. b) Geometric and genetic classification of fault. Recognition of faults in the field and geological map.	10
6.	Unconformity Definition, stages in the development of unconformity structural classification of unconformities Recognition of unconformity in the field	6
7.	Determination of top and bottom of a bed with the help of primary structures and interpretation of major structure with which they are associated	3
8.	Palaeontology a) Significance of fossils, index and zonal guide fossils b) Morphological features of trilobites, graptolites & foraminifera. Their geographical distribution and geological history c) Introduction to Gondwana plant fossils. d) Introduction to micropalaeontology & their applications in stratigraphy	10
	Total No of Lectures	45

Books

1. Structural Geology — M. P. Billings
2. Structural Geology — Desitter
3. Structural Geology — Nevin

Semester IV

Practical Paper – XIII – Sedimentary and Metamorphic Petrology

Sr. No.	Syllabus	No. of Practicals
1.	In addition to the syllabus of B. Sc. Ist. year Megascopic study of the following sedimentary rocks and their identification, gragwacke, grit, flagstone, carbonaceous shale Black limestone, Shelly limestone, coral limestone.	4
2.	In addition to the syllabus of Ist year Magascopic study of the following metamorphic rocks and their identification. Pink marble, Serpentine marble, Sachharoidal marble, Mica granet schist, Fuchsite quartzite, Staurotite schist, kyanite schist, Hornblende Biotite gneiss, granite gneiss, Augen gneiss Banded gneiss, Amphibolite schor rock.	5
3.	Microscopic study of the following rocks and their identification. Sandstone, ferruginous sandstone. Limestone, organic limestone, Marble, quartzite, Muscovite schist, chlorite schist, Honblende schist, Hornblende Biotite gneiss, Augen gneiss, staurolite schist, Garnetiferous mica schist.	6
	Total No of Practical	15

Semester IV

Practical Paper – XIV– Structural Geology and Palaeontology

Sr. No.	Syllabus	No. of Practicals
1.	Study of Geological maps; inclined beds, unconformity igneous intrusions, fold and fault. Structural problem. Attitude of beds or orthographic and stereo graphic problems.	8
2.	Study of the following invertebrate fossils and their identifications Lamellibranchia - Gryphaea, exogyra, ostrea, Alectryonia, Pecten, Inoceramus Gastropoda – Physa Cephalopoda - Nautilus, Perisphinetes, Goniatites, Ceratites, Acanthoceras, Phylloceras, Beleminites Brachiopoda - Products, spirifer, Lingula Echinoidea - Cidaris, Micraster Trilobita - Phacops , Calymene, Paradoxides Gondwana plant fossils Glossopteris, calamities ptillophyllum, Gangamopteris vertebraria	7
3.	Geological excursion of one week in selected area, Report writing and sample collection.	
	Total No. of practicals	15

FACULTY OF SCIENCE

B.Sc. (Third Semester) Examination

GEOLOGY

Practical Paper-IX

Physical Mineralogy and Igneous Petrology

Time-2 Hours Maximum Marks-50

"Please check whether you have to the right question Paper"

N.B.:- (i) Question No.1 is Compulsory.

(ii) Solve any two questions from 2,3 & 4 and two questions from 5, 6 & 7

(iii) Use only blue or black pen.

(iv) All questions carry equal marks.

1.	Multiple choice question (All Syllabus)	10
2.	Descriptive	10
3.	Descriptive	10
4.	Short Notes	10
5.	Descriptive	10
6.	Descriptive	10
7.	Short Notes	10

FACULTY OF SCIENCE

B.Sc. (Third Semester) Examination

GEOLOGY

Practical Paper-X

(Crystallography and Optical Mineralogy)

Time-2 Hours Maximum Marks-50

"Please check whether you have to the right question Paper"

N.B.:- (i) Question No. 1 is Compulsory.

(ii) Solve any two questions from 2, 3 & 4 and two questions from 5, 6 & 7

(iii) Use only blue or black pen.

(iv) All questions carry equal marks.

1.	Multiple choice question (All Syllabus)	10
2.	Descriptive	10
3.	Descriptive	10
4.	Short Notes	10
5.	Descriptive	10
6.	Descriptive	10
7.	Short Notes	10

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