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F.No. 6-38/2018(SUG) Annual system-HPU (Acad) VOL-IV  
Himachal Pradesh University  
(NAAC Accredited "A" Grade University)  
Academic Branch, Summer Hill Shimla-5

Dated: 25.11.2019

To

1. The Controller of Examinations, HPU, Shimla-171005.
2. The D.R/A.R Eval./Re.Eval/Conduct/Exams, HPU, Shimla-171005.
3. The D.R/A.R. Secrecy, HPU, Shimla-171005.with 2 spare copies.
4. The D.R/A.R Exam/ S.O.Exam (UG) HPU, Shimla-171005
5. The Incharge (RUSA Programmer/ERP), Computer Centre Examination Wing, HPU, Shimla-171005.

**Subject:** *Complimentary copy of Correction/Addition in B.Sc. with Geology for annual system for the session 2018-19 onwards.*

Sir/Madam,

In continuation to this office letter of even number dated 16-07-2018. I am directed to send herewith complimentary copy of correction/addition in the syllabus in respect of above mentioned subject under CBCS annual system which have already been uploaded on the University's Website: [www.hpuniv.ac.in](http://www.hpuniv.ac.in) duly approved by the Standing Committee of Academic Council in its meeting held 16.11.2019 vide item No. 2, as per annexure-IV, on the recommendations of the concerned Board of Studies/Faculties (UG/PG) for its implementation from the Academic Session 2018-19 onwards.

Yours faithfully,

Assistant Registrar (Acad)  
HP University Shimla-5

Encls. As Above.

Endst. No. Even

Dated: 25-11-2019

CC:-

1. The Dean, Faculty of Physical Sciences, HPU, Shimla-171005.
2. The Chairperson/Principal, Department of Geology, Govt. College Dharamshala, Kangra with the request to send 2 authenticated hard copies of the concerned syllabus to academic branch and soft copies in PDF format to Web Admin on [webhpuniv@gmail.com](mailto:webhpuniv@gmail.com) as early as possible.
3. All the Principals of the Govt./Non-Govt./Maintained/Regional Centre/Colleges running UG classes of H.P.U. with the request that above mentioned syllabi may kindly be downloaded from the aforesaid website.
4. The Supdt. Meeting (Acad), HPU, Shimla-5, w.r.t decision taken by Standing Committee of Academic council in its meeting dated 16.11.2019 vide item No. 2 for information and further necessary action.
5. The Web Admin, HPU, Shimla-5, with the request to upload this letter with syllabi on the website.

Assistant Registrar (Acad)

**Annexure- IV**

**SCHEME FOR ANNUAL SYSTEM IN B. SC. WITH GEOLOGY FOR THE ACADEMIC SESSION 2018-19 ONWARDS**

<b>Year</b>	<b>Discipline specific core courses DSC *Credits</b>	<b>Ability enhancement Compulsory Courses AECC *Credits</b>	<b>Skill enhancement Compulsory Course SECC *Credits</b>	<b>Discipline Specific Elective DSE *Credits</b>
<b>First Year</b>	DSC-1 Physical Geology and Geomorphology GEOL 101 (TH) 04* GEOL 101 (PR) 02*  DSC-2 Structural Geology and Mineralogy GEOL 102 (TH) 04* GEOL 102 (PR) 02*	AECC-1 English/Hindi/MIL/04*  Environmental Sciences 04*		
<b>Second Year</b>	DSC -3 Petrology GEOL 201(TH) 04* GEOL 201(PR) 02*  DSC-4 Stratigraphy and Paleontology GEOL 202 (TH) 04* GEOL 202 (PR) 02		SECC-1 Geochemistry GEOL 203 (TH) 04*  SECC-2 Fuel Geology GEOL 204 (TH) 04*	
<b>Third Year</b>			SECC -3 Photo Geology and Remote Sensing GEOL 301 (TH) 04*  SECC -4 Himalayan Geology GEOL 302 (TH) 04*	DSE-1 Applied and Economic Geology GEOL 303(TH) 04* GEOL 303 (PR) 02*  DSE-2 Environmental Geology and Geohydrology GEOL 304TH) 04* GEOL 304 (PR) 02*

## SECOND YEAR

### FUEL GEOLOGY

Name of the Course	Geology-SECC 2: Fuel Geology
	Theory-04
Theory	30 Lectures
Code	GEOL-204 TH
Yearly Examination	70 marks (3 Hrs)
Continuous Comprehensive Assessment (CCA)	30 marks

CCA: Based on midterm exam, class test/seminar/assignments/quiz and attendance. Midterm Exam=15 marks, Class test/seminar/assignments/quiz =10 marks, Attendance=05 marks; a)  $\geq 75\%$  to 80% : 3 marks b)  $\geq 80\%$  to 90%= 4 marks c)  $\geq 90\%$  and above = 5 Mark

#### Instructions for Paper Setters and Candidates:

1. The question paper will consist of five sections: Section A (compulsory, covering syllabus from all the units), Section B (Unit I and II), Section C (Unit III and IV), Section D (Unit V and VI) and Section E (Unit VII and VIII). Examiner will set nine questions in all, question number 1 (One) will be compulsory and comprise one question each from all the Units. Each question from section B, C, D and E will carry 10 marks. Question Number 1 (Section-A), will consist of ten sub-questions each of 1 mark of various types such as: Multiple Choice Questions (MCQ)/fill in the blanks and/or short answer type questions.
2. The candidate will be required to attempt five questions in all i.e. selecting one question from each sections B, C, D and E and ten sub-questions from section A. (Compulsory question number 1). The duration of the examination will be 3 hours.

### Fuel Geology (GEOL 204TH)

**Unit-I:** Coal :Definition and origin of Coal; Basic classification of coal; Fundamentals of coal petrology - Introduction to lithotypes, microlithotypes and macerals in coal; Proximate and ultimate analysis.

**Unit-II:** Coal as a Fuel: Coal Bed Methane (CBM): global and Indian scenario; Underground coal gasification; Coal liquefaction.

**Unit-III:** Petroleum: Chemical composition and physical properties of crudes in nature; Origin of petroleum; Maturation of kerogen; Biogenic and thermal effect.

**Unit-IV:** Petroleum Reservoir and Traps: Reservoir rocks: general attributes and petrophysical properties; Classification of reservoir rocks - clastic and chemical; Hydrocarbon traps: definition, anticlinal theory and trap theory; Classification of hydrocarbon traps - structural, stratigraphic and combination; Time of trap formation and time of hydrocarbon accumulation. Cap rocks - definition and general properties. Plate tectonics and global distribution of hydrocarbon reserves; Gas hydrates and nuclear fuel.

## BOOKS SUGGESTED

1. Bastia, R. and Radiakrishna, M. (2012). Basin Evolution and Petroleum Prospectivity of the Continental Margins of India, (Vol. 59. Newnes).
2. Bjorlykke, K. (1989). Sedimentology and Petroleum Geology. Springer.
3. Chandra, D. (2007). Chandra's Textbook on Applied Coal Petrology. Jijnasa Publishing House.
4. Shelly, R.C. (2014). Elements of Petroleum geology, 3rd Edn. Academic Press.

## THIRD YEAR

### HIMALAYAN GEOLOGY

Name of the Course	Geology-SECC 4 : Himalayan Geology
Credits	Theory-04
Theory	30 Lectures
Code	GEOL-302 TH
Yearly Examination	70 marks (3 Hrs)
Continuous Comprehensive Assessment (CCA) :	30 marks

CCA: Based on midterm exam, class test/seminar/assignments/quiz and attendance. Midterm Exam=15 marks, Class test/seminar/assignments/quiz =10 marks, Attendance=05 marks; a)  $\geq 75\%$  to 80% : 3 marks b)  $\geq 80\%$  to 90%= 4 marks c)  $\geq 90\%$  and above = 5 Mark

#### Instructions for Paper Setters and Candidates:

1. The question paper will consist of five sections: Section A (compulsory, covering syllabus from all the units), Section B (Unit I and II), Section C (Unit III and IV), Section D (Unit V and VI) and Section E (Unit VII and VIII). Examiner will set nine questions in all, question number 1 (One) will be compulsory and comprise one question each from all the Units. Each question from section B, C, D and E will carry 10 marks. Question Number 1 (Section-A), will consist of ten sub-questions each of 1 mark of various types such as: Multiple Choice Questions (MCQ)/fill in the blanks and/or short answer type questions.
2. The candidate will be required to attempt five questions in all i.e. selecting one question from each sections B, C, D and E and ten sub-questions from section A. (Compulsory question number 1). The duration of the examination will be 3 hours.

### Himalayan Geology (GEOL 302TH)

**Unit-I:** Formation of Tethyes Geosyncline, Phases of upheaval of Himalayas, Geological and Geographical sub-divisions of Himalayas, Stratigraphical and lithological units of Himalayas and their correlation.

**Unit-II:** Structures of the Himalayas; Sedimentation, Igneous activity and metamorphism in Himalayas; Mineral wealth of Himalayas, Detailed study of important rocks type of Himalayas both in hand specimen and under microscope.

**Unit-III:** Geosynclines, their evolution and; Plate tectonics, theories and plate movement; Sea-floor spreading theories and evidences.

**Unit-IV:** Concepts of Isostasy, Horst-Grabens and Rift valleys, Neo-tectonic movements and its indicators.

**Books Suggested:**

1. Dynamic Himalayas by K.S.Valdiya.
2. Himalayas (Geological Aspects) by P.S.Saklani.
3. Geology of Himalayas by Ganssar.
4. Tectonic aspects of Himalayas by K.S.Valdiya.
5. Understanding of the Earth by Gunter Gass.
6. Dynamics of Earth by Spincer