

Department of Geology
Central University of Punjab, Bathinda

Minutes of 2nd Curriculum Development Committee (CDC)

Date: 06th March, 2020, **Time:** 4.30 pm, **Venue:** AC-021 (Faculty Cabin)

The 2nd meeting of Curriculum Development Committee (CDC) of Department of Geology was conducted with the attendees: Dr. Jitendra Kumar Pattanaik (Convenor), Dr. K. Krishnakanta Singh (Member), Dr. Rahul Mukherjee (as faculty invitee) and Ms. Amrutha K. (as Ph.D. Scholar invitee). Agenda of the meeting was as follows:

Agenda:

1. To discuss possible modification and updation of M.Sc. Geology, Ph.D. course work of Geology syllabus.
2. To discuss the students feedback on curriculum

Resolutions:

- 1) The committee unanimously decided to modify and update M.Sc. Geology syllabus and Ph.D. course work curriculum as per the suggestion received during curriculum audit.

The major modifications are:

A) EGS 552 (Hydrogeology, Remote Sensing and GIS)

Units	Modify/Removed/corrected	Addition/modification/replaced
I	(i) Factors that affect occurrence of groundwater - Climate, topography, geology (ii) concept of groundwater potential, validity of Darcy's law for laminar and turbulent flow	(i) Darcy's law and its validity, concept of permeameters, water table, peizometer.
II	(i) Derivation of Darcy's law (ii) aquifer properties and yield of wells in different rock types (iii) Impact of drought and groundwater overexploitation on aquifers; groundwater pollution	(i) Assessment of groundwater quality using hydrochemical parameters: hydrochemical data presentation and data analysis, concept and evaluation of hydrochemical facies, use of environmental isotopes in groundwater studies.
III	(i) Introduction to Global Positioning System (GPS): Types of Satellites; Different satellite exploration programs and their characteristics: LANDSAT, METEOSAT, MODIS, SPOT and IRS Satellite Series. Google Earth; Bhuvan; GPS; GAGAN. Elements of GIS; Map Projection; Data structures in GIS, GIS softwares; Vector and Raster based analysis;	(ii) Components of remote sensing, energy sources, Electromagnetic spectrum, energy interaction in the atmosphere, Atmospheric windows, Spectral reflectance (iii) Aerial Photography: types of aerial photography, scale of aerial photograph, stereoscopes.

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	Overlays operations; Network Analysis; Spatial analysis.	stereoscopic viewing model. Visual Image Interpretation. Digital image processing: radiometric correction, geometric correction, image enhancement, image classification. Basics of Geographic Information System: spatial data and non-spatial data, vector and raster data, coordinate system
IV	(i) sand and gravel (aggregate) exploration/ exploitation; hydrocarbon exploration (ii) geobotany; sedimentation mapping and monitoring; event mapping and monitoring	(i) groundwater exploration

3) EGC 553 (Hydrogeology and Remote Sensing & GIS, practical):

Lab exercise:(Rearranged)

1. Water table contour mapping.
2. Interpretation of flow net: groundwater flow movement, delineation of recharge and discharge areas.
3. Calculation of hydraulic gradients.
4. Representation of hydrochemical data in Stiff plot and interpretation.
5. Representation of hydrochemical data in Schoeller diagram and interpretation
6. Representation of hydrochemical data in Box and Whisker plot and interpretation
7. Evaluation of hydrochemical facies in Trilinear diagram and interpretation
8. Analysis of hydrochemical facies in Durov diagram.
9. Identification of landforms on toposheets, aerial photographs and satellite images
10. Digital image processing and data interpretation using image processing software

Learning Outcome: Upon successful completion of this course, the student will be able to:

- Construct water table maps for evaluation of groundwater flow, recharge and discharge site identification.
- Maximize exploration of groundwater resource using hydrogeology, remote sensing & GIS integrated approach
- Assess the quality of groundwater for different uses and to propose development and management of groundwater resource
- Improve the use of digital imaging software in groundwater mapping, exploration and management
- Propose GIS related models in assessing quantity and quality aspects of groundwater resource.

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Evaluation Criteria:

- End semester exam (50 marks), Continues assessment (30 marks), Lab record (10 marks), Viva (10 marks)

C) Engineering Geology and Geophysics course is shifted to 3rd semester and Ore Geology course is changed to 4th Semester.

Practical course on Hydrogeology is combined with the Remote sensing and GIS course.

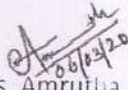
Ore geology practical is combined with exploration and shifted to 4th semester.

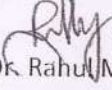
D) M.Sc. Geology program and learning outcome of individual courses have been modified as per the suggestion.

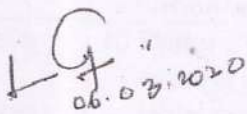
E) Evaluation criteria for M.Sc. project work has been modified as per the suggestion.

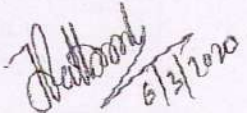
2) The Committee discussed and analyzed the feedback on curriculum from students, parents and teachers for necessary improvement.

The meeting ended with thanks to and from the convener.


Ms. Amrutha
Ph.D. Scholar

 06.03.2020
Dr. Rahul Mukherjee
Guest Faculty

 06.03.2020
Dr. K. Krishnakanta Singh
Asso.Prof., Member

 6/3/2020
Dr. Jitendra K. Pattanaik
Asso.Prof., Convener

Dean of School:

DAA: