**Name of Programme:** M. Sc. Applied Geology
**Course Code:** GEO-524
**Title of the Course:** Practical of Groundwater Geology (Skill Based Course)
**No of Credits:** 01
**Effective from AY:** 2022-23

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| **Prerequisites for the course:** | Degree of Bachelor of Science in Geology from any UGC recognized University or an equivalent examination. | |
| **Objective:** | To make use principles of groundwater movement and well hydraulics to solve problems related to groundwater flow and hydraulic parameters | |
| **Content:** | **Module 1:** Exercises on Groundwater flownet construction and interpretations of equipotential line and groundwater flow direction, interaction between various surface water, movement of contaminants related to groundwater flow.<br><br>**Module 2:** Problem related to aquifer parameters such as hydraulic conductivity, transmissivity and specific yield. Analysis of aquifer test data; Theis method, Jacob-cooper method and chows method. Problem solving on groundwater recharge and groundwater volume.<br><br>**Module 3:** Problems related to wells under various aquifer conditions. Graphical plotting and interpretation of chemical quality data of waters: Hill piper diagram, Schoeller diagram, | 30 hours |
| **Pedagogy:** | Lectures / Self-study | |
| **References/ Readings** | 1. Mays, L. W., and Todd, D. K. (2005). *Groundwater Hydrology.* John Wily and Sons, Inc., Arizona State University, Third addition.<br>2. Raghunath, H. M., and Raghunath, H. M. (2007). *Ground water*. New Age International (P) Limited Publishers.<br>Fetter, C. W. (2018). *Applied hydrogeology*. Waveland Press. | |
| **Course outcomes** | 1. Students will understand about the natural occurrence and circulation of groundwater.<br>2. Learn about different types of aquifers and its relation to the groundwater flow.<br>3. Solve problems related to groundwater flow.<br>4. Understand groundwater quality and its relation with different lithologies associated. | |