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| **SE 465**  **Introduction to Geographic Information Systems** | |
| **Department of Civil Engineering**  **King Saud University** | |
| Course Description:  SE            465  Introduction to Geographic Information Systems   (Required for a BSCE degree) | Definitions; data classification & acquisition; concepts of spatial data handling; analog & digital GIS; vector & raster data representation; functions; uses & status of GIS; selected applications using computer.  3 (2, 0, 2) |
| Prerequisite | SE 423 , SE 452 |
| Course learning Objectives | Students completing this course successfully will be able to  1.        Understand concept of GIS.  2.        create plots in ArcMap.  3.        create a tabular & spatial databases.  4.        Know how to add layers, label & symbolize features.  5.        query & join tables in a tabular database.  6.        Geocoding methods for maps.  7.        Map orientation, Digitizing Vector Maps. |
| Topics Covered | 1.        Definitions.  2.        data classification & acquisition  3.        concepts of spatial data handling.  4.        analog & digital GIS.  5.        vector & raster data representation  6.        uses & status of GIS  7.        selected applications using computer. |
| Class/ tutorial  Schedule | Two hours-lectures, 2-hours lab. |
| Computer Applications | ARCGIS 9.1  Microsoft Access |
| Project | 1.        create a tabular & spatial databases.  2.        A project for Digitizing Vector Maps |
| Contribution of Course to Meeting the Professional Component | 1.        Students learn how create a tabular & spatial databases.  2.        Students can spatial spatial  data by Digitizing Maps.  3.        Students practice team work in surveying. |
| Relationship of Course to Program Outcomes | a.        Students apply knowledge of mathematics, science and engineering [ABET a].  b.        Students are able to identify and formulate an engineering problem and to develop a solution [ABET e].  c.        Students can use the techniques, skills and modern engineering tools [ABET k]. |
| Textbook(s) and/or Other Required Material | P. Langley, Micheal, F. Goodchid, "Geographic Information Systems and Science", American Mathematical Society. |
| Grade Distribution | Lab and projects                 15  Marks  Attendance and home works       5  Two-Mid-term Exams                 30  Final Exam                                 50  Total                                          100 Marks |