Course Specifications

Course Title:	Special purpose database
Course Code:	502576-3
Program:	**Bachelor in Information Technology**
Department:	**Department of Information Technology**
College:	**College of Computers and Information Technology**
Institution:	Taif University

Table of Contents

A. Course Identification

1. Credit hours: 3	

2. Course type

a. University ☐ College ☐ Department ☑ Others ☐

b. Required ☐ Elective ☑

3. Level/year at which this course is offered: 15/5

4. Pre-requisites for this course (if any)**: 502570-3** or **502571-3**

5. Co-requisites for this course (if any)**: NAN**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	7	100%
2	Blended	0	0
3	E-learning	0	0
4	Distance learning	0	0
5	Other	0	0

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	40
2	Laboratory/Studio	30
3	Tutorial	0
4	Others (specify)	0
	Total	70

B. Course Objectives and Learning Outcomes

1. Course Description

The course offers an introduction to the concepts, principles and theories behind Geographic Information Systems and Science (GIS), with emphasis on the nature of geographic information, data models and structures for storing geographic information, geographic data input, data manipulation and simple spatial analysis modeling techniques.

2. Course Main Objective

The main objective of this course is to get a good insight into differences and similarities between geographic data models, the need topology, the main GIS Software Tools Evolution of GIS Software Tools and working knowledge of Distributed GIS Systems.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Define basic concepts in GIS	K1
1.2	Explain different approaches in GIS	K1
1.3	Justify the role of cartographic communication in improving our understanding of GIS	K1
2	**Skills :**	
2.1	Use open source GIS to perform basic spatial analysis functions such as finding features	S2
2.2	Evaluate the process of georeference/geocoding using GIS software tools and spatial joins	S1
3	**Values:**	
3.1	Demonstrate working in a group to build a GIS system to support an organization tasks	V2

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Geographic Information Systems and Sciences, GIS Definitions, History	4
2	Representing Geography Understanding Digital Representation	4
3	The nature of geographic data: understand the nature of spatial and spatiotemporal	4
4	Georeferencing understand geographically reference data, method of georeferencing.	8
5	Uncertainty in GIS definition of uncertainty and relationship to geographic	4
6	GIS Software Tools Evolution of GIS Software Tools, Architecture of GIS Software,	4
7	Geographic data modeling Understand various geographic data models	4
8	Geographic data modeling Sphaghetti data structures, Digital Line graphs, Quad Trees,	8
9	GIS Data Collection Understand various geospatial data capture techniques, primary	6
10	Creating and Maintaining Geographic databases Difference between a RDBMS and	8
11	Distributed GIS Systems Understanding geographic information services, the mobile	8
12	Digital Cartography and Map production Understanding the nature of maps and digital	8
	Total	**70**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods

1.0	**Knowledge and Understanding**		
1.1	Define basic concepts in GIS	Lecture Discussion	Written Exams Assignments
1.2	Explain different approaches in GIS	Lecture Discussion	Written Exams Assignments
1.3	justify the role of cartographic communication in improving our understanding of GIS	Lecture Discussion	Written Exams Assignments
2.0	**Skills**		
2.1	Use open source GIS to perform basic spatial analysis functions such as finding features	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.2	Evaluate the process of georeference/geocoding using GIS software tools and spatial joins	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
3.0	**Values**		
3.1	Demonstrate working in a group to build a GIS system to support an organization tasks	Lecture Discussion Work group	Writing Exam Assignments Reports Oral Presentations

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments	5, 10	5%
2	Mid Exam	6	20%
3	Minor project	10	15%
4	Labs	11	20%
5	Final Exam	12	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Geographic Information Systems and Science, Longley, P.A., Goodchild, M.F and Maquire, D, John Wiley and Sons Ltd, edition 1, 2005
Essential References Materials	Geographic Information Systems: A computing perspective, Worbhoys, M. Edition 1, 1997
Electronic Materials	Presentations and recorded lectures
Other Learning Materials	Computational Geometry:Algorithms and Applications, de Berg, M. Schwarzkopf, O., van Kreveld,M. S,p Mringer-Verlag, 2000

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	● A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. ● A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.
Technology Resources (AV, data show, Smart Board, software, etc.)	● Lab materials and required software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	NAN

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	● Review CAF (Course assessment file) ● Alumni surveys. ● Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Department Council/ Executive program committee
Reference No.	11
Date	23/10/21443