DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE SYLLABUS

COURSE TITLE	ENGLISH CODE/NO	ARABIC CODE/NO.	CREDITS			
			Th.	Pr.	Tr.	Total
Data Processing Operations Credit	**IE 424**	هـ ص ٤٢٤	3	1	-	3
Pre-requisites:	IE 323					
Course Role in Curriculum	*Required or Elective:*		Elective			

Catalogue Description:
Concepts of advanced database management system design, principles and techniques. Entity relationship diagram. Normalization. Object oriented and object relational databases. Data warehousing. Data mining. Web and semi structural data. Data Security.

Textbooks:
DATABASE SYSTEMS, Thomas Connolly, Carolyn Begg, Addison-Wesley, 2005,4thEdition,
ISBN: 9780321294012.

References:
- **iORACLE DATABASE 10g CERTIFICATION SQL EXAM GUIDE**, Jason Price, Jason Price, ISBN: 0072229810.
- **ENTERPRISE DATA CENTER DESIGN AND METHODOLOGY**, Rob Snevely, Prentice Hall, 2002, ISBN: 0-13-047393-6

Supplemental Materials:

Course Learning Outcomes:
By the completion of the course the student should be able to:

1. Understand two important stages of a database development project: data modelling and database design.
2. Understand and demonstrate popular design methods of a relational database such as normal forms and entity relationship diagrams.
3. Demonstrate and understand the backup and restore procedures and disaster recovery methods.
4. Develop and implement a SQL/PLSQL relational database system.
5. Management of Data warehousing, Data Mining , and distributed systems.
6. Research, write and present technical report using modern engineering tools.

	Topics to be Covered:	Duration in Weeks
1	Introduction to Databases	1
2	Database Theory	1
3	Database Application Lifecycle	1
4	Oracle Forms and Triggers	3
5	Data Modeling	1
6	Database Users and Administration	1
7	PLSQL control structures and loops	2
8	Database Security, Integrity and Recovery	1
9	Object Databases	1
10	Client Server, Distributed and Internet Databases	1
11	Data Warehousing, Mining and Web Tools	1

Student Outcomes addressed by the course: (Put a √ sign)

(a)	an ability to apply knowledge of mathematics, science, and engineering	
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	√
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	√
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	√
(j)	a knowledge of contemporary issues	
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	√

Key Student Outcomes assessed in the course: ( ) and ( )

Instructor or course coordinator: Dr. Waqar Ahmad Gulzar
Last updated: Sep. 2014