

1.	Name of Course				Advanced Database System			
2.	Course Code				CCPS3663			
3.	Name(s) of academic staff							
4.	Rationale for the inclusion of the course/module in the programme				<u>Elective</u> Efficient storage and retrieval of data is central to the functioning of modern information systems. This module is devoted to the understanding of such information systems, and the environment in which they operate, design, construction and use of databases. This course provides an insight into different aspects of database programming. It exposes the students to user friendly software tools, which are used by IT professionals to storage, manage and access information, the way that suits to their decision making needs. The course focuses upon the development of software application using fourth generation languages.			
5.	Semester and Year offered				2/3			
6.	Total Student Learning Time (SLT)		Face to Face			Total Guided and Independent Learning		
	L = Lecture T = Tutorial P = Practical O= Others		L	T	P	O	Independent study=84 hours	
			28	0	28	0	Total =140	
7.	Credit Value				3			
8.	Prerequisite (if any)				none			
9.	Objectives: This subject is designed to enable students: - To discuss the behaviors and applications of SQL commands in generating information from a database. - To discuss the practical implementation of a database in an organization. - To emphasize the different types of SQL commands and the rules associated to each type. - To provide an information to PL/SQL commands.							
10.	Learning outcomes: Upon completion of this subject, students should be able to: - Demonstrate knowledge in using SQL language to generate information from a database. - Apply and use commercial database software to create and support organizational database operations. - Work as part of a team to design a physical data model, construct and present a database from a given case study. - Differentiate the behaviors and rules pertaining to Data Definition Language (DLL), Data Manipulation Language (DML) and Data Control Language (DCL) statements. - Demonstrate knowledge in using basic PL/SQL commands to create database scripts.							
11.	Transferable Skills: - Discuss the practical implementation of a database and help the organization to develop a high quality database consistent with organizational business goals. - Recommend database tools and procedures for specific tasks. - Develop appropriate security policies and guidelines for database systems. - Communicate effectively about database systems, with specialists and non-specialists.							

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12.	Teaching-learning and assessment strategy A variety of teaching and learning strategies are used throughout the course, including: - Classroom lessons. Lectures and Power Point presentations - Laboratory sessions: Practice exercises - brainstorming - Lecturer-led problem-solving sessions - collaborative and co-operative learning; - Independent study. Assessment strategies include the following: - Performance Assessment (Project, Assigned exercises) - Lecturer Observation - Quizzes, tests, and examinations																																			
13.	Synopsis: This course emphasizes on learning advance database methodologies and technologies. The course provides an insight into different aspects of database programming. It exposes the students to user friendly software tools, which are used by IT professionals to storage, manage and access information, the way that suits to their decision making needs. The course focuses upon the development of software application using fourth generation languages. Students will learn how to access and manipulate information from database using fourth generation language (4GL), which may include query language and report generators.																																			
14.	Mode of Delivery: - Classroom lessons. Lectures and Presentations - Laboratory sessions: Practice exercises																																			
15.	Assessment Methods and Types: The assessment for this course will be based on the following: <table><tr><td></td><td>Coursework</td><td>50%</td></tr><tr><td>• Midterm test</td><td>20%</td><td></td></tr><tr><td>• Group Project</td><td>20%</td><td></td></tr><tr><td>• quizzes and Assignments</td><td>10%</td><td></td></tr><tr><td></td><td>Final Examination</td><td><u>50%</u></td></tr><tr><td></td><td></td><td>100%</td></tr></table>													Coursework	50%	• Midterm test	20%		• Group Project	20%		• quizzes and Assignments	10%			Final Examination	<u>50%</u>			100%						
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18.	Content outline of the course/module and the SLT per topic <table><tr><td></td><td></td><td colspan="4">SLT</td></tr><tr><td></td><td>Details</td><td>L</td><td>P</td><td>Indep.</td><td>Total</td></tr><tr><td>Topic 1</td><td>Course Introduction. - Data Modeling: The Conceptual Model, Internal Model, External Model and Physical Model, - Process of Database Design - advance database methodologies - Introduction to Oracle9i Review. - Structured Query Language (SQL): Review - DML Features in SQL, - DDL - Updates in SQL, - Views in SQL </td><td>4</td><td>4</td><td>12</td><td>20</td></tr></table>														SLT					Details	L	P	Indep.	Total	Topic 1	Course Introduction. - Data Modeling: The Conceptual Model, Internal Model, External Model and Physical Model, - Process of Database Design - advance database methodologies - Introduction to Oracle9i Review. - Structured Query Language (SQL): Review - DML Features in SQL, - DDL - Updates in SQL, - Views in SQL	4	4	12	20						
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	Topic 2	• Embedded SQL, • Query-by-Example (QBE). • Advance SQL statements • Subqueries. • Advanced Subqueries.	4	4	12	20
	Topic 3	• Manipulating Data. • Creating & Managing Tables using Oracle • Readable Output. • Constraints & Views.	4	4	12	20
	Topic 4	• Database Objects. • User Access. • Data Dictionary. • Dynamic SQL Scripts (Variables)	4	4	12	20
	Topic 5	• Set Operators. • Data-Time Functions. • Hierarchical Retrieval. • SQL Optimization. • Intro to PL/SQL.	4	4	12	20
	Topic 6	• Writing Executable Statements. • Interacting with Oracle Server. • Control Structures • Composite Data Types. • Cursors	4	4	12	20
	Topic 7	• Handling Exceptions • Creating Procedures • Transaction, Concurrency.	2	2	6	10
	Topic 8	• Recovery and Security Issues. • Current Trends in Database Systems: Distributed Database Management Systems, • data warehousing and data mining concepts	2	2	6	10
	Total SLT		28	28	84	140
	<u>Laboratory Details</u> Exercises based on topics covered in each lecture. programming work must include the following: • Introduction to Oracle9i Review. introductory examples • SQL Subqueries. • Manipulating Data. • Creating & Managing Tables using Oracle • Readable Output. • Constraints & Views • User Access. • Data Dictionary • Data-Time Functions. • Hierarchical Retrieval. • SQL Optimization. • Handling Exceptions • Creating Procedures • Recovery and Security					
19.	Main references supporting the course: 1. Michael McLaughlin, Oracle Database 11g PL/SQL Programming (Oracle Press) (2008) 2. Benjamin Rosenzweig and Elena Silvestrova Rakhimov, Oracle PL/SQL by Example (4th Edition) (Prentice Hall PTR Oracle Series) (2008)					

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	Additional references supporting the course: 1. Preece, L. L. (2004). Oracle SQL and Introductory PL/SQL. Singapore: McGraw-Hill/Osborne. 2. Hector Garcia-Molina, Jeffrey D. Ullman, and Jennifer Widom, Database Systems: The Complete Book (2nd Edition) (2008) 3. Morris-Murphy, L. L. (2003). Oracle9i: SQL with an introduction to PL/SQL. Boston, MA: Thomson Course Technology.
20.	Other additional information All materials will be available to the students online.