Module specification

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IMPORTANT NOTES – PLEASE READ THEM BEFORE COMPLETING THIS FORM

1. The module learning outcomes in <u>section 7</u> should be mapped against the overall programme outcomes listed in the programme specification.

2. Learning outcomes in <u>section 7</u> are grouped under four main headings (A/B/C/D). However, where a heading is not appropriate to a particular module, it would be reasonable to remove it from this form.

3. The number of learning outcomes should be sufficient to show the character of the module and differentiate it from other modules, and may vary according to content. Experience suggests that the fewer learning outcomes the better, and certainly no more than twelve per module.

4. The assessment strategy and methods in <u>section 9</u> should cover the full range of intended learning outcomes.

5. Detailed guidance on credit level descriptors and on linking module learning outcomes to assessment and teaching strategy can be found in the SEEC website at http://www.seec.org.uk/wp-content/uploads/2016/07/SEEC-descriptors-2016.pdf and the QAA website http://www.qaa.ac.uk/aboutus/glossary/pages/glossary-c.aspx .

6. This form covers the minimum set of information required by the Open University but institutions may add other information for internal use if required.

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1. Factual information

Module title	COMPUTER SCIENCE 312 – Database Management Systems		
Module tutor	Christos Christodoulou	**Level**	5
Module type	Taught	**Credit value**	15
Mode of delivery	Taught, 100% face-to-face		
Notional learning hours	150; Notional value based on estimates of what it would take for a good student to achieve all learning outcomes		

2. Rationale for the module and its links with other modules

The purpose of COMP SCI 312 is to offer a systematic coverage of modern Database Computing theory and technology. Topics include: Relational Algebra, Data Modelling, Database Design, Client-Server Database Management Systems, Interface Design, trends in Database Systems, combination of Object Oriented Modelling and Relational Databases.

This is a module in continuance of the CS 205 Business Data and it educates students how to create and maintain a fully functional relational database. This knowledge will be applied on CS 325, CS412, CS 422 and CS 444 where students are required to create and/or alter various databases, used along for

2. Rationale for the module and its links with other modules

programming assignments.

3. Aims of the module

The aims of this module are to:

Teach students what Client-Server Database Management System is, and

To use simple and advanced SQL along with PL/SQL programming features such as IF statements, loops, stored functions, procedures, tables, cursors, packages, triggers

To create and maintain an oracle database.

Microsoft Access and/or SQL Navigator for browsing objects and databases.

SmartDraw is used for ERD's.

Apex, SQL Plus and SQL Navigator are used as user interface of the oracle database

Students develop technical, analytical, and business skills that support the pursuit of professional careers and advanced computer science study.

4. Pre-requisite modules or specified entry requirements

CS 205 or permission by the Department.

5. Is the module compensatable?

N/A

6. Are there any PSRB requirements regarding the module?

N/A

7. Intended learning outcomes		
A. Knowledge and understanding	**Programme Learning Outcome(s) this maps against**	**Learning and teaching strategy**
At the end of the module, learners will be expected to: **A1**: Demonstrate understanding of the standard SQL, the ANSI standard language for databases. **A2**: Create and test standard SQL statements. **A3:** Demonstrate understanding and write advanced SQL statements combined with relational Algebra. **A4:** To read and create implicit and explicit cursors and use them to manipulate the database **A5:** To create and execute PL/SQL stored functions, procedures and packages **A6**: To create triggers and use them as integrity measures when manipulating the database. **A7:** Administer and manage access rights in a multiuser database.	A1, A2, A3, A5	**A1:** The student will acquire a detailed understanding of the language used for databases through the study of online material provided from the latest Oracle Academy SQL class. There are 17 different classes, where in each one, a specific subjected is fully described with definitions and examples. Every class has 3-4 sections, complete with quizzes for each subject. **A2, A3, A4, A5, and A6:** Students will be using an online server provided by our Oracle 11g called APEX, there they will use an SQL workspace where they can write, test, execute and store all material mentioned in A2 ... A6. The platform is used as a replacement of SQL/Plus.

B. Cognitive skills	**Programme Learning Outcome(s) this maps against**	**Learning and teaching strategy**

B. Cognitive skills	Programme Learning Outcome(s) this maps against	Learning and teaching strategy
B1: To read, implement and design ERD diagrams. **B2:** Demonstrate understanding of Client-Server Database Management Systems **B3:** Demonstrate understanding of Data Modelling and how modern database systems are structured	B1, B2, B3	**B1, B3:** SmartDraw is used to design and create ERD diagrams. Student that have the knowledge of ERD design from CS 205 are given different cases studies and asked to provide fully descriptive ERD's. **B2:** Learn the different Client-Server Database Management Systems, by using the latest database management tools, such as SQL Toad Client, APEX (Online Cloud User Interface of Oracle), and many other applications.

C. Practical and professional skills	Programme Learning Outcome(s) this maps against	Learning and teaching strategy
At the end of the module, learners will be expected to: **C1**: Build databases from ERD and from scratch **C2**: Demonstrate understanding and write PL/SQL statements combined with relational Algebra. **C3**: Document and communicate domain properties, design and implementation choices, and application functionality.	C3, C4, C6	**C1:** Learn to use RAD tools such as Oracle Designer to rapidly develop relational databases along with the corresponding constraints. **C2:** We use PL/SQL, Oracle's procedural language extension to SQL. PL/SQL allows you to mix SQL statements with procedural statements like IF statement, Looping structures etc. PL/SQL is the superset of SQL. It uses SQL for data retrieval and manipulation and uses its own statements for data processing.

D Key transferable skills	Programme Learning Outcome(s) this maps against	Learning and teaching strategy
At the end of the module, learners will be expected to: **D1** :*Classify Various Databases Techniques* **D2** :*Construct or Alter Databases*	D1, D2, D3, D5	**D1:** The module will teach the students to distinguish between different Database techniques such as details of installations, application servers needed for online services and discusses the various pricing schemes. **D2:** Students learn how to effectively use APEX online platform to create and transform various database structures.

8. Indicative content.
The module main focus is on teaching SQL and PL/SQL programming languages for oracle databases. Advanced query capabilities and procedural constructs are described using Oracle SQL and PL/SQL. The theoretical foundation for using these capabilities is presented. Performance issues are discussed including indexing, key definitions, DE normalized databases and triggers, and data constraints. The role of application development in ease of use, query optimization, and system performance is discussed

9. Assessment strategy, assessment methods, their relative weightings and mapping to module learning outcomes
Assessment Strategy:

Assessment Task	Weighting	Week submitted	Grading (Pass / Fail / %)	Module Learning Outcome(s) the assessment task maps to
Quiz set: In Lab (Online). A set of three quizzes, spread throughout the semester,	30%	3, 6, 9	%	See below

9. Assessment strategy, assessment methods, their relative weightings and mapping to module learning outcomes

testing knowledge and programming skills				
Final Project: Design and development of a DB application in stages. Final stage should be a Denormalized DB, with optimizations assisted by triggers and other PL/SQL functionality.	30%	11	See Grading scales at the end of the module	See below
Research Project: Research scholarly literature and the internet on a topic of choice.	10%	11		
Final Exam: In-class (lab) on the computer: Emphasis (though not exclusively) on probability and inferential statistics problems.	30%	Final Exam week		See below

9. Mapping of assessment tasks to learning outcomes

Assessment tasks	Learning outcomes														
	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	C1	C2	C3	D1	D2
Quiz set	X	X	X	X	X						X	X			
Final Project					X	X	X	X	X	X	X		X	X	X
Research Project									X	X			X	X	
Final Exam	X	X	X	X	X	X	X		X	X		X			X

10. Teaching staff associated with the module

Name and contact details
Christos Christodoulou, ckchris@act.edu

11. Key reading list

Author	Year	Title	Publisher	Location
Coronel. Carlos	2018	Database Systems: Design, Implementation, Management	Cengage Learning	e-book (vitalsource.com)
Molinaro, Anthony	2017	SQL Cookbook	O' Reilly	e-book (vitalsource.com)
Philip J. Pratt	2015	Concepts of Database Management, 8th edition	Cengage Learning	e-book (vitalsource.com)
OracleAcademy	2018	SQL Module	Academy.oracle.com	online

12. Other indicative text (e.g. websites)

Pribyl, Bill; Feuerstein, Steven	Learning Oracle PL/SQL	O' Reilly	e-book (vitalsource.com)
Oracle Corp.	Oracle Documentation	Docs.oracle.com	online

Additional material uploaded on MOODLE (http://moodle.act.edu/moodle/)
You are responsible for login into the module Moodle website and view/download all material posted there, on a regular basis.

13. List of amendments since last (re)validation

Area amended	Details	Date Central Quality informed

GRADING & ACADEMIC POLICIES

ASSESSMENT DEADLINES

Students must submit work by the deadlines set in the module outline. Where coursework is submitted late and there are no accepted extenuating circumstances it will be penalised in line with the following tariff: Submission within 6 working days: a 10% reduction for each working day late down to the 40% pass mark and no further. Submission that is late by 7 or more working days is refused, mark of 0. Submission after the deadline will be assumed to be the next working day. Mitigating circumstances will be evaluated by the AS&PC

Assessment of non-degree students taking OU-validated courses (e.g., Study Abroad)

Same method of assessment, i.e. only "summative" assessments determine final grade. However, since those students are not pursuing an OU degree, they are not subject to resits or second marking, and final grade is calculated as the (weighted) average of all "summative" assessments, without requirement of passing all summative assessments to pass the course.

Revised Absence Policy – Effective Spring 2017

Maximum Allowed Number of Absences

The maximum allowed number of absences for all ACT courses stands at **6 (six) hours per course**.

Excusing Absences

To excuse absences for good cause (such as medical reasons or personal crises), the student should contact the Registrar's office and, ahead of time or **at the latest within a week from the time the absences took place**, provide written proof of the cause of the absences. The documents submitted are then evaluated by the Associate Dean for Administration and Student Affairs, who decides whether there are valid grounds for excusing the absences.

Successful Attendance

A student is considered to have successfully attended a course if he/she has attended 75% of the course lectures. Thus, **the maximum number of absences (excused or not) stands at 11 hours per course**. In case of an unsuccessful attendance, the student is administratively withdrawn from the course. The student has the right to appeal the decision to be administratively withdrawn from a course due to excessive absences and seek reinstatement. In this case, the student, **within three working days**, must fill in a 'mitigating circumstances'

form in the Registrar's office, where the reasons of the appeal should be explained. Following this, a formal hearing of the Academic Standards and Performance Committee (ASPC) takes place. The decision of the Committee is final.

ACADEMIC INTEGRITY

All academic divisions at ACT, both undergraduate and graduate, will apply the following policy on academic integrity and be included in the syllabus: "A student committing an act of Academic Dishonesty in a given course will receive an F (0 percentage points) in the assignment where the academic infraction took place. If a student commits an act of Academic Dishonesty for a second time in the same course, this student will receive a failing grade in that course".

Special Accommodations

If you have specific physical, psychological, or any other learning disabilities that you believe may require accommodations for this module, you should visit the Dean's office by bringing the appropriate documentation.

The Learning Hub (1st floor, Bissell Library) is staffed by experienced English faculty and you are encouraged to use its services.

GRADING SCALE

Grade Description	UK points	US Letter Grade	US point grade
Excellent	70+	A	4.0
Very Good (high)	65-69	A-	3.67
Very Good (low)	60-64	B+	3.33
Good (high)	55-59	B	3.0
Good (low)	50-54	B-	2.67
Satisfactory (high)	45-49	C+	2.33
Satisfactory (low)	40-44	C	2.0
Fail	0-39	F	0