CSIT 213: DATABASE MANAGEMENT

Learning Outcomes Display (show only)
CC.AI: Certificate of Completion in Artificial Intelligence (https://catalog.ocean.edu/programadmin/?key=81)

1. Course Information

Subject
CSIT - Computer Science/ Information Technology

Course Number
213

School
Science, Technology, Engineering, Mathematics

Course Title
Database Management

2. Hours

Semester Hours
3.00000

Lecture
3

Lab
0

Practicum
0

3. Catalog Description

For display in the online catalog
A course emphasizing the concepts and structure necessary to design and implement database management systems. Hierarchical network and relational models will be evaluated. The student will design and implement a project using a modern relational database package, report generator and SQL. Open lab time required.

4. Requisites

Prerequisites
CSIT165 OR MATH 157

Corequisites
NONE

5. Course Type

Course Fee Code
3

Course Type for Perkins Reporting
vocational (approved for Perkins funding)

6. Justification

Describe the need for this course
This is a required course in Computer Science AS degree Information Technology, Information Systems and Game Development and Design options and Computer Science/Information Technology AAS degree.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Program-specific requirement

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

	Add item
1	Offer comprehensive educational programs that develop intentional learners of all ages and ensure the full assessment of student learning in these programs. (Mission Statement)
2	Foster educational innovation through effective teaching-learning strategies, designed to develop and nurture intentional learners who are informed and empowered. (Vision Statement)
3	Employ technology and learning outcomes assessment to ensure student success in an increasingly diverse and complex world. (Vision Statement)
4	Prepare students for entrance into the workforce and/or for successful transfer to other educational institutions. (Academic Master Plan)
5	Seek to empower students through the mastery of intellectual and Practical Skills. (Academic Master Plan)
6	Challenge students to transfer information into knowledge and knowledge into action. (Academic Master Plan)

9. Related Courses at Other Institutions

Comparable Courses at NJ Community Colleges

Institution

Atlantic Cape CC

Course Title

Database Design Using Oracle

Course Number

CISM170

Number of Credits

3

Institution

Brookdale CC

Course Title

Database Concepts

Course Number

COMP269

Number of Credits

3

Institution

Rowan College at Burlington County

Course Title

Database Systems

Course Number
CSE213

Number of Credits
3

Institution
Camden County College

Course Title
Relational Database Concepts

Course Number
CIS237

Number of Credits
3

Institution
Mercer County CC

Course Title
NONE

Comments
CIS173 limited in scope

Transferability of Course

Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CS231 Introduction to Database Systems 3 credits	Elective	

Kean University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CPS XX103, Systems 3 credits	Elective A minimum grade of 'D' is required to transfer for non-major and 'Free Elective' courses. A minimum grade of 'C' is required for major course	

Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CS002 (3)	200 Level Computer Science Elective	

Rowan University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Computer Science Elective	GenEd	

Rutgers - New Brunswick, Mason Gross School of the Arts

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Will not transfer

Stockton University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CSIS EC , Computer Science Elective, 3 credits	Major	

If not transferable to any institution, explain:

NJTranfer indicates that at Monmouth University this is level 200 Computer Science for transfer credit. It is unknown if credit would be given to MIS02.338 Database Systems at Rowan University

There is no known course on the Rutgers New Brunswick campus to which transfer credit will be given.

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Describe the characteristics of business databases and the features of database management systems including the importance of nonprocedural access for software productivity.
CLO2	Explain relational database terminology, the meaning of the integrity rules for relational databases, referenced rows, relational algebra operations, and determine the tables that must be combined to obtain desired results for simple retrieval requests.
CLO3	Construct SQL statements to retrieve information, change the contents of a database, and document their operation.
CLO4	Use CASE tools and various ERD diagrams to design tables and recognize cardinality as a first step in database design.
CLO5	Employ techniques for normalization based upon identifying functional dependencies; and recognize their usefulness and limitations.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO1	Database Characteristics 1) Features of Database Management systems 2) Development of Data base Technology and Market Structure 3) Architectures of Database Management systems 4) Organizational Impacts of Database Technology	Hands-on; In-class exercises; Lab exercises	Exam	CLO1
TO2	The Relational Data Model 1) Basic Elements a) Tables b) Connections among Tables c) Alternative Terminology 2) Integrity Rules a) Definition of Integrity Rules b) Applying integrity Rules c) Graphical Representation of Referential Integrity 3) Delete and Update Actions impact on integrity 4) Relational Algebra a) Restrict and Project b) Extended cross product c) Join operator d) Outer join Operator e) Union, Intersection, and Difference Operators f) Divide Operator	Hands-on; In-class exercises; Lab exercises	Exam	CLO2

TO3	SQL 1) History and scope of SQL 2) Select a) Single table problems b) Joining tables c) Summarizing with GROUP BY and HAVING d) Improving the appearance of results 3) Evaluation of the Select 4) Refining query formulations a) Joining multiple tables cross product style b) Joining multiple tables join operator style c) Self-joins and multiple joins d) Combining joins and groupings e) Traditional set operators in QLS 5) SQL Modification Statements	Hands-on; In-class exercises; Lab exercises	Programming Exercises; Exam	CLO3
TO4	Goals of Database Development 1) Information Systems a) Components b) Development process 2) Goals of Database Development a) Common vocabulary b) The meaning of Data c) Data Quality d) Efficient Implementation 3) Database Development Process a) Phases of Development b) Skills in Database Development 4) Tools of Database Development a) Diagramming b) Documentation c) Analysis d) Prototyping tools e) CASE Tools 5) Entity Relationship diagrams a) Introduction to ER Diagrams b) Basic Symbols c) Relationship Cardinality 6) Relationships a) Identification Dependency(Weak Entities) b) Relationship patters c) Equivalence between 1-M and M-N Relationships 7) Classification of the ER Model a) Generalization Hierarchies b) Disjointness and Completeness Constraints c) Multiple Levels of Generalization	Hands-on; In-class exercises; Lab exercises	Programming Exercises; Exam	CLO4

TO5	Normalization 1) Overview of Relational Database Design a) Avoidance of Modification Anomalies b) Functional Dependencies 2) Normal Forms a) First normal form b) Second and third normal form c) Boyce-Codd Normal Form 3) M-Way Relationships a) Relationship independence b) Multi-valued Dependencies and Fourth normal form 4) Higher Level Normal Forms a) Fifth normal form b) Domain key normal form 5) Role of Normalization in the development process.	Hands-on; In-class exercises; Lab exercises	Programming Exercises; Exam	CLO5
TO6	Application Development with Views 1) Background a) Motivation b) View definition 2) Using views for retrieval a) Using views in SELECT Statements b) Processing queries with view references 3) Updating using views a) Single table updatable views b) Multiple table updatable views.	Hands-on; In-class exercises; Lab exercises	Programming Exercises; Exam	CLO1-CLO5

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized?
Class lecture, discussion, demonstrations, lab assignments, programs and online presentations.

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

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Technological Competency
Yes

Related Course Learning Outcome
CLO1-CLO5

Related Outline Component
TO1-TO6

Assessment of General Education Goal (Recommended but not limited to)
Programming Exercises; Exam

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14. Needs

Instructional Materials (text etc.):

Appropriate textbooks and/or open educational resources will be selected. Contact the department for current adoptions. Class notes, presentations, software and online materials.

Human Resource Needs (Presently Employed vs. New Faculty):

Four (4) presently employed full-time faculty plus additional Adjunct Professors as needed.

Facility Needs:

Laboratory classrooms equipped with computer workstations, each configured to support program development using Java. Podium computer similarly equipped plus the ability to present audio-video presentations to the class.

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

16. Board Approval

History of Board approval dates

Revised: December 1990; February 27, 1996; April 30, 1996; December 1998; May 4, 2004; Feb. 28, 2006; March 8, 2006
Board of Trustees Approval Date: December 11, 2006
Board of Trustees Approval Date: March 26, 2012
Board of Trustees Approval Date: February 25, 2013
Approval of Form: September 2017
Board of Trustees Approval Date: August 27, 2020

Reviewer Comments

Riviello Sylvia (sriviello) (Fri, 10 Sep 2021 15:53:30 GMT): Rollback: We do not have a MATH 157 course

O'Connor Susan (soconnor) (Thu, 28 Oct 2021 20:24:38 GMT): Rollback: See CC minutes about adding CSIT 124 as another possible prereq and discuss transfer component with Eileen Schilling. Tabled at CC on 10-28-21