ITMD 321 RUBRIC

ITMD 321 Data Modeling and Applications
Students may be scored on a scale of 1 to 5; scores of 2 and 4 may be interpolated.

Program Educational Objectives			
Objective **Score ▶**	**5**	**3**	**1**
Problem solve and create innovative answers to provide technology solutions for the problems of business, industry, government, non-profit organizations, and individuals.	The student is consistently able to solve problems and create innovative technology solutions for defined problems	The student is generally able to solve problems and create innovative technology solutions for defined problems, but this may not be consistent	The student is unable to create technology solutions for defined problems

Course student outcomes			
Upon completion of this course the student should be able to do the following:			
Outcome **Score ▶**	**5**	**3**	**1**
Describe the theoretical and physical concepts of a relational database	The student is able to describe the theoretical and physical concepts of a relational database accurately and in detail	The student is able to describe the theoretical and physical concepts of a relational database with occasional omissions	The student is unable to describe the theoretical and physical concepts of a relational database
Explain the design methodology for databases and verify their structural correctness	The student is consistently able to explain the design methodology for databases accurately and in detail, and is able to verify their structural correctness	The student is able to explain the design methodology for databases with some omissions or inaccuracies, and is able to verify their structural correctness in most cases	The student is unable to explain the design methodology for databases or to verify their structural correctness
Use a query language, primarily SQL, and their database related supported software	The student is consistently able to use SQL and their database related supported software	The student is basically able to to use SQL and their database related supported software, but may require some assistance	The student is not able to to use SQL or their database related supported software
Implement the theory behind the various database models and query languages	The student is consistently able to implement the theory behind the various database models and query languages	The student is generally able to implement the theory behind the various database models and query languages, but may require some assistance	The student is unable to implement the theory behind the various database models and query languages
Design and build a simple database management system (DBMS)	The student is able to design and build a fully functional simple database management system	The student is generally able to design and build a simple database management system, but may require some assistance	The student is unable to design and build a simple database management system
Model, design, and implement a database structure in a DBMS	The student is able to competently model, design, and implement a database structure in a DBMS	The student is able to model, design, and implement a database structure in a DBMS, but may |require some assistance	The student is unable to model, design, and implement a database structure in a DBMS
Create, modify, and query database objects using Structured Query Language (SQL)	The student is consistently able to create, modify, and query database objects using Structured Query Language (SQL)	The student is able, in most cases, to create, modify, and query database objects using Structured Query Language (SQL)	The student is unable to create, modify, and query database objects using Structured Query Language (SQL)
Describe these essential DBMS concepts: data-base security, high availability, backup and recovery, and SQL database tuning	The student is able to describe these essential DBMS concepts accurately and in detail: data-base security, high availability, backup and recovery, and SQL database tuning	The student is able to describe these essential DBMS concepts with some omissions or inaccuracies: data-base security, high availability, backup and recovery, and SQL database tuning	The student is unable to describe these essential DBMS concepts: data-base security, high availability, backup and recovery, and SQL database tuning
Explain normalization and normal forms, and demonstrate the ability to normalize relational database tables	The student is able to explain normalization and normal forms accurately and in detail, and is able to normalize database tables	The student is able to explain normalization and normal forms with some omissions or inaccuracies, and is able to normalize database tables in most cases	The student is unable to explain normalization and normal forms, or to normalize database tables
Contrast and compare relational database concepts and non-relational databases including object-oriented, XML, NewSQL, NoSQL, and de-normalized databases	The student is able to contrast and compare relational database concepts and non-relational databases including object-oriented, XML, NewSQL, NoSQL, and de-normalized databases accurately and in detail	The student is able to contrast and compare relational database concepts and non-relational databases including object-oriented, XML, NewSQL, NoSQL, and de-normalized databases with some omissions or inaccuracies	The student is unable to contrast and compare relational database concepts and non-relational databases including object-oriented, XML, NewSQL, NoSQL, and de-normalized databases
Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions	The student is consistently able to analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions	The student is, under most circumstances, able to analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions	The student is unable to analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions
Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline	The student is consistently able and prepared to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements	The student in most cases is able and prepared to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements	The student is not able to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements
Identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems	The student is always able to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems	The student is occasionally able to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems, but not necessarily consistently	The student shows no ability to recognize professional responsibilities or make informed judgments in computing practice based on legal and ethical principles