

Diploma in Database Administration - Level 4

Units structure of the qualification:

1. Introduction to Database
2. Designing of Database System Architecture
3. Logs and Buffers in MYSQL
4. Administration of MYSQL

Qualification Objective

This program will enable the students to become competent Database Administration Specialist within an organization with the required skills set to provide assistance and maintenance database. Besides, the program will help students in installing, configuring, updating and maintaining database.

Students will be assessed through different methods which include assignments, exams, group presentation etc. Most of the learning is built practically in response to real world situation.

Entry Requirements:

- A Score of 70% or above in Entrance Examination
- Basic Computer knowledge
- Senior School Graduate / School dropouts
- An unemployed youth with at least Grade 9 Certificate
- To be able to read, write and understand English Language

Total Credit Value (Contact Hours + Non-Contact Hours): 220 hours

Contact Hours: 144 hours / 6 Months

Units Structure of the Qualification, Level and Credit Value

Diploma in Database Administration	Level	Credit Hours
Introduction to Database	Level 4	24
Designing of Database System Architecture	Level 4	48
Logs and Buffers in MySQL	Level 4	24
Administration of MySQL	Level 4	48
Total Contact Hours		144CH

Non-Contact Hours: 76 hours

Assignments and Tutorials

Diploma in Database Administration	Level	Assignments Hours	Tutorials Hours	Total Hours
Introduction to Database	Level 4	10	5	15
Designing of Database System Architecture	Level 4	10	20	30
Logs and Buffers in MySQL	Level 4	10	5	15
Administration of MySQL	Level 4	10	6	16

Total Non-Contact Hours				76 NCH
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Assessment Grades and Methods:

PERCENTAGE (%)	GRADE	DESCRIPTION
80 – 100%	A	Distinction
70 – 79%	B	Excellent
60 – 69%	C	Very Good
50 – 59%	D	Good
40 – 49%	E	Pass
30 – 39%	F	Fail

Practical training / industrial attachment/internship

IIHT Gambia Limited has entered into an agreement with a couple of ICT companies in the Gambia to provide internship opportunities for its most outstanding students from various programs upon successful completion of their programs of study. We also use Radio and Newspaper adverts to help our students to get placement in their various fields of specialization. In addition, we also obtain letters of intent from prospective companies expressing interest in hiring our students in specific job areas.

We do provide our students with placement services and in job search through Resume/CV preparation, interview questions, drafting employment application letters etc. We also do have a good working relationship with a couple of organizations in the country such as Gamjobs.com, GRA, KMC, MRC, GPA, and The Gambia Bankers' Association.

The following methods will be used to assess students in their various programs of study:

Daily Assessment of Students through the Training Management System (TMS) – We will use our TMS for daily assessment of students' levels of understanding of each lesson taught in class. By the end of each week, a comprehensive performance/program report will be generated for each student/trainee in each program for necessary action taking.

Assessing Students Using Google Forms – We do also use Google Forms to conduct Module-end exams for students in various programs. Questions are normally sent to students/trainees electronically to which they are expected to respond. With Google Forms, there is no risk of data loss as students' performance reports can always be retrieved at any time so long as there is proper internet connection.

Assessing Students through Mini-Projects. This may take the form of developing a static Website, or to design a local area network for internal communication or to develop a disaster recovery plan for

chosen companies based on which they will also be graded. This can serve as a pathway for students/trainees to venture into their own private businesses.

Final Examinations – Upon completion the whole program, students/trainees will take a final online examination to be conducted by our Head Office, IIHT Technologies Private Limited in India which will lead to the awarding of their Professional Diploma in their field of study.

ASSESSMENT METHOD	MARKS
Practical:	60%
<ul style="list-style-type: none"> • Daily Quiz (oral, written and online) • Projects/Assignments • Demonstration (individual & group) • Presentation (individual & group) 	
Theory:	40%
<ul style="list-style-type: none"> • Module test (written & online) • Final examination (written & online) 	
TOTAL	100%

Introduction to Database

The data is always easily available and is in plenty. It can be used for processing some useful information from it. Also, it can be in redundant, can be irrelevant. Data can exist in form of graphics, reports, tables, text, etc. that represents every kind of information, that allows easy retrieval, updating, analysis, and output of data by systematically organized or structured repository of indexed information.

Main topics of study:

- Database Introduction
- Types of Databases
- Relational Database and its importance

Design of Database System Architecture

Designing an efficient, useful database is a matter of following the proper process, including these phases:

- Requirements analysis, or identifying the purpose of your database
- Organizing data into tables
- Specifying primary keys and analysing relationships
- Normalizing to standardize the tables

Main topics of study:

- Understanding Relational Database Management systems
- What is System Architecture Design & its importance in creating database.
- Comparing MYSQL with other relational databases
- What is a module

- Interaction of core modules
- Queries

Logs and Buffers in MySQL

The database log, sometimes referred to as the transaction log, is a fundamental component of a database management system. All changes to application data in the database are recorded serially in the database log. Using this information the DBMS can track which transaction made which changes to the database.

Main topics of study:

- The Error Log
- The General Query Log
- The Binary Log
- The Slow Query Log
- Buffer Cache
- MySQL query Cache

MySQL Administration

MySQL provides various administration features/tools to configure the MySQL server. These includes server maintenance, database backup, MySQL security, user management, start-up/shutdown, replication management, Configuration of parameters (resource management), check performance/ status etc.

Main topics of study:

- Introduction to Mysql
- Using system variables
- Connection to MySQL database
- Creating database in MySQL
- Creation of tables and load data
- Different data types available in MySQL
- Adding user accounts
- Specifying connection for users to databases in MySQL
- Setting account resource limits
- Assigning account passwords
- Online vs Offline Backup Recovery

Learning Outcomes and Assessment Criteria

Learning Outcomes	Assessment Criteria
<p>Introduction to Database:</p> <p>The data is always easily available and is in plenty. It can be used for processing some useful information from it. Also, it can be in redundant, can be irrelevant. Data can exist in form of graphics, reports, tables, text, etc. that represents every kind of information, that allows easy retrieval, updating, analysis, and output of data by systematically organized or structured repository of indexed information.</p>	<p><u>Practical:</u></p> <ul style="list-style-type: none"> • Quiz and Test in order to measure students' level of understanding and giving them Practical work. <p><u>Theory</u></p> <ul style="list-style-type: none"> • Module Test
<p><i>Design of Database System Architecture</i></p> <p>Designing an efficient, useful database is a matter of following the proper process, including these phases:</p> <ul style="list-style-type: none"> • Requirements analysis, or identifying the purpose of your database • Organizing data into tables • Specifying primary keys and analysing relationships • Normalizing to standardize the tables 	<p><u>Practical:</u></p> <ul style="list-style-type: none"> • Students need to design the database architecture and use it for further actions. <p><u>Theory</u></p> <ul style="list-style-type: none"> • Module Test
<p><i>Logs and Buffers in MySQL</i></p> <p>The database log, sometimes referred to as the transaction log, is a fundamental component of a database management system. All changes to application data in the database are recorded serially in the database log. Using this information the DBMS can track which transaction made which changes to the database.</p>	<p><u>Practical:</u></p> <ul style="list-style-type: none"> • Assessing information by using the logs and maintain data consistency. <p><u>Theory</u></p> <ul style="list-style-type: none"> • Module Test
<p>MySQL Administration</p> <p>MySQL provides various administration features/tools to configure the MySQL server. These includes server maintenance, database backup, MySQL security, user management start-up/shutdown, replication management, Configuration of parameters (resource management), check performance/ status etc.</p>	<p><u>Practical:</u></p> <ul style="list-style-type: none"> • Managing database as an admin and check how the users are working on database. <p><u>Theory</u></p> <ul style="list-style-type: none"> • Module Test

Job Roles:

- Database Developer
- Database Administrator
- Consultant
- Data Analyst
- SQL Programmer

References and Bibliography

- “MySQL Workbench: Data Modeling & Development” by Michael McLaughlin
- “MySQL” by Paul DuBois
- “MySQL Database Design and Tuning” by Robert D Schneider
- “MySQL Cookbook: Solutions for Database Developers and Administrators” by Paul DuBois

Prescribed Textbooks (IIHT E-Books for Learners)