



**Technology Management**

**Career Pathway**

**Data Science Syllabus**

**MTA 98-364 – DATABASE FUNDAMENTALS**

**INTERMEDIATE**

## INTERNSHIP OVERVIEW

School districts are recognizing that graduates must possess new skills for the demands of the 21st-century workforce. They are increasingly looking for ways to incorporate college and career readiness opportunities into their school experience.

IU13's Technology Management Career Pathway internship program is designed to give students through mentorship, online coursework, and hands-on training (8 weeks during the summer) the ability to prepare and take a Microsoft certification test. Participants will have the option to participate in one of three career pathways. The online portion of the program will run from January through May, leading to a summer eight week paid internship opportunity. Throughout the entire process, assigned to the student is an intern supervisor who will monitor assignments and progress, as well as a mentor who will coach, train, and provide deeper insights into the technology field. At the end of the program, the students should be prepared to take a Microsoft Technology Associate exam to obtain a certification.

## EXAMPLE ONLINE COURSEWORK SCHEDULE

January 16 – January 25, 2019 – Orientation & Unit 1	March 25 – April 5, 2019 – Exam Kit Unit 1
January 28 - February 8, 2019 – Unit 2	April 8 – April 19, 2019 – Exam Kit Unit 2
February 11 – February 22, 2019 – Unit 3	April 22 – May 3, 2019 – Exam Kit Unit 3
February 25 – March 8, 2019 – Unit 4 &5	May 6 – May 17, 2019 – Exam Kit Unit 4
March 11 – March 22, 2019 – Unit 6 & 7	May 20 – May 31, 2019 – Exam Kit Unit 5 & 6

## EXAMPLE SUMMER INTERNSHIP SCHEDULE

June 17 – August 9, 2019

Tuesday – Thursday

8 AM – 4 PM

## INTERN ORIENTATION

Identified participants will go through two orientations. The first orientation will be scheduled before the student commencing the program. This orientation will include:

- an introduction to the program
- a review of expectations, assignments, and requirements
- a tour of the IU13 technology department
- a meeting with Intern supervisor and mentor
- a tutorial of the online platform
- completion of HR related clearances

Students, school official, intern supervisor, and mentor will need to sign off on a memorandum of understanding (MOU).

The second orientation will be scheduled before the student beginning their summer internship. Students will go through IU13's new employee orientation and will meet with the Intern Supervisor and mentor to go over expectations, assignments, etc.

**BENEFITS OF INTERNSHIP PROGRAM:**

- College Readiness

Microsoft Technology Associate (MTA) certifications provide students with the foundation, readiness, and confidence to continue and succeed in advanced technology studies. For example, many colleges and higher education courses require students to possess critical thinking skills; a student who has earned a certification in Computer Science will have a head start through experience creating new software and applications.

- Career Readiness

Achieving a Microsoft Certification enables students to confidently enter the workforce with proven technical skills and an internationally recognized certification, both of which can significantly increase their chances of finding employment. Ninety-one percent of hiring managers consider certification as part of their hiring criteria (Microsoft, Microsoft Certification Program Satisfaction Study, April 2012). Most jobs today require some degree of technical skills, and this only increases over time.

- Gain Real Work Hands-on Experience

Students will receive eight weeks of hands-on experience, allowing them to apply knowledge learned through their online coursework. This is a great time for students to reflect and decide if a technology track is a right path for them.

- Learn new skills and build the Resume
- Certification

On average, Microsoft certified technologists earn 15% more than their uncertified peers. What's more, certified employees are often entrusted with supervising their peers—putting students on the fast track for a promotion.

Microsoft Certified Professionals spend less time interviewing and more time driving value. Adding a Microsoft certification to your resume helps you stand out and get hired—faster. What's more, certified new hires are fully productive an entire month sooner than their uncertified peers, making your skills stand out.

- Make new connections / Network
- Earn Money

#### **ROLE AND DUTIES OF INTERN SUPERVISOR:**

- Schedule career pathway first orientation
- Explain the program & review syllabus with student
- Have all parties sign off on MOU
- Explain and train the student on how to use the online learning platform
- Review online coursework is being completed
- Schedule weekly meetings between student and mentor
- Monitor progress and communicate progress with the district
- Schedule second orientation and summer internship
- Supervise interns and make sure tasks are being completed and mentoring is occurring
- Be available for consultation
- Meet with the mentor and decide if the student is ready for testing
- Develop a follow-up method to track interns after the internship

**ROLE AND DUTIES OF INTERN MENTORS:**

- Schedule and meet with intern weekly either virtually or in person.
- Coach and train interns, tying what they have learned in their course to real-life examples
- Be accessible to answer questions and concerns
- Be a role model and help develop interns skills and strengths
- Provide detailed and effective feedback

**ROLE AND DUTIES OF INTERN:**

- Attend scheduled orientations
- Sign an MOU committing to the internship program
- Complete self-guided coursework promptly
- Meet (either virtually or in-person) on a regular basis with intern supervisor and mentor
- Communicate any issues or concerns with the intern supervisor
- Participate in a summer internship at IU13
- Perform duties assigned in a professional manner
- Prepare for Microsoft exam
- Take Microsoft exam (if deemed ready)

**INSTRUCTIONAL RESOURCES**

Microsoft Imagine Academy Curriculum

Schoology

**UNIT 1: UNDERSTANDING CORE DATABASE CONCEPTS**

Students will learn about:

- Database Concepts
- Relational Databases
- Data Manipulation Language (DML)
- Data Definition Language (DDL)

## STUDENTS WILL BE ABLE TO...

- Understand how data is stored in tables.
- Understand relational database concepts.
- Understand data manipulation language (DML).
- Understand data definition language (DDL).

## SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Read chapter one of the e-book and follow the directions throughout the chapter.

**Activity 3:** Watch Instructional Videos (if applicable)

**Activity 4:** Complete the Knowledge Assessment

**Activity 5:** Complete the Competency Assessment

**Activity 6:** Complete the Proficiency Assessment

**Activity 7:** Take Quiz

## UNIT 2: CREATING DATABASE OBJECTS

Students will learn how to:

- Define Data Types
- Create and Use Tables
- Create Views
- Create Stored Procedures

## STUDENTS WILL BE ABLE TO

- Choose data types.
- Understand tables and how to create them.
- Create views.
- Create stored procedures and functions.

## SUGGEST ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Read chapter two of the e-book and follow the directions throughout the chapter.

**Activity 3:** Watch Instructional Videos (if applicable)

**Activity 4:** Complete the Knowledge Assessment

**Activity 5:** Complete the Competency Assessment

**Activity 6:** Complete the Proficiency Assessment

**Activity 7:** Take Quiz

### UNIT 3: MANIPULATING DATA

Students will learn to:

- Use queries to select data
- Use queries to insert data
- Update data and databases
- Delete data

#### STUDENTS WILL BE ABLE TO

- Select data.
- Insert data.
- Update data.
- Delete data.

#### SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Read chapter three of the e-book and follow the directions throughout the chapter.

**Activity 3:** Watch Instructional Videos (if applicable)

**Activity 4:** Complete the Knowledge Assessment

**Activity 5:** Complete the Competency Assessment

**Activity 6:** Complete the Proficiency Assessment

**Activity 7:** Take Quiz

#### UNIT 4: UNDERSTANDING DATA STORAGE

Students will learn to:

- Normalize a Database
- Use Primary, Foreign and Composite keys
- Use Clustered and Non-Clustered Indexes

#### STUDENTS WILL BE ABLE TO

- Understand normalization.
- Understand primary, foreign and composite keys.
- Understand indexes.

#### SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Read chapter four of the e-book and follow the directions throughout the chapter.

**Activity 3:** Watch Instructional Videos (if applicable)

**Activity 4:** Complete the Knowledge Assessment

**Activity 5:** Complete the Competency Assessment

**Activity 6:** Complete the Proficiency Assessment

**Activity 7:** Take Quiz

#### UNIT 5: ADMINISTRATING A DATABASE

Students will learn to:

- Secure Databases
- Back Up and Restore Databases



## STUDENTS WILL BE ABLE TO

- Understand Database Security Concepts
- Understand Database Backups and Restores

## SUGGEST ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Read chapter five of the e-book and follow the directions throughout the chapter.

**Activity 3:** Watch Instructional Videos (if applicable)

**Activity 4:** Complete the Knowledge Assessment

**Activity 5:** Complete the Competency Assessment

**Activity 6:** Complete the Proficiency Assessment

**Activity 7:** Take Quiz

## EXAM PREP

This Microsoft® Technology Associate (MTA) Certification Exam Review Kit contains a series of 20 review lessons intended to reinforce concepts in preparation for the *MTA Certification Exam: 98-364 Database Administration Fundamental*.

## EXAM KIT UNIT 1: UNDERSTANDING CORE DATABASE CONCEPTS

## STUDENTS WILL BE ABLE TO

- Understand how data is stored in tables.
- Understand relational database concepts.
- Understand data manipulation language (DML).
- Understand data definition language (DDL).

## SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Complete Assignments

**Activity 3:** Complete Assessment**EXAM KIT UNIT 2: CREATING DATABASE OBJECTS**

## STUDENTS WILL BE ABLE TO

- Choose data types.
- Understand tables and how to create them.
- Create views.
- Create stored procedures and functions.

## SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation**Activity 2:** Complete Assignments**Activity 3:** Complete Assessment**EXAM KIT UNIT 3: MANIPULATING DATA**

## STUDENTS WILL BE ABLE TO

- Select data.
- Insert data.
- Update data.
- Delete data.

## SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation**Activity 2:** Complete Assignments**Activity 3:** Complete Assessment**EXAM KIT UNIT 4: UNDERSTANDING DATA STORAGE**

## STUDENTS WILL BE ABLE TO

- Understand normalization.

- Understand primary, foreign, and composite keys.
- Understand indexes.

#### SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Complete Assignments

**Activity 3:** Complete Assessment

#### EXAM KIT UNIT 5: ADMINISTERING A DATABASE

#### STUDENTS WILL BE ABLE TO

- Understand database security concepts.
- Understand database backups and restore.

#### SUGGESTED ACTIVITIES

**Activity 1:** Review the PowerPoint presentation

**Activity 2:** Complete Assignments

**Activity 3:** Complete Assessment

#### EXAM KIT UNIT 6: REVIEW

This unit is a master review of the Database Administration Fundamentals course.

#### SUGGESTED ACTIVITIES

**Activity 1:** Review vocabulary.

**Activity 2:** Take a practice exam.

**SUMMER INTERNSHIP- TBD**

WEEK 1

WEEK 2

WEEK 3

WEEK 4

WEEK 5

WEEK 6

WEEK 7

WEEK 8