

# 'HR Training Tracker'

## Database Design Specification

Prepared by

Nathan Willett

---

### Document Version Control

Version #	Description	Date
Draft 0.1	DRAFT Analysis: Scope, Requirement Assumptions and Conceptual ERD	10/28/22
Draft 0.2	DRAFT Analysis revisions based on feedback	11/4/22
Draft 0.3	DRAFT Design: Business Rules, Logical ERD, Data Dictionary	11/18/22
Draft 0.4	DRAFT Design revisions based on feedback	N/A
Draft 0.5	DRAFT Revised with peer review feedback	11/29/22
Final v1.0	Final Deliverable	12/9/22

# Table of Contents

<b>Purpose and Scope Statement</b>	<b>3</b>
Database Design Assumptions	3
Inputs	3
Processes	3
Outputs	4
Rules	4
Conceptual Model	4
<b>DESIGN</b>	<b>5</b>
Logical Data Model (Entity Relationship Diagram)	5
Business Rule Statements	5
Data Dictionary	6

## Purpose and Scope Statement

The local college has expressed the need for an 'HR Training Tracker' to facilitate the training of faculty and staff. Such a system will require a database to record these training modules as they are created, assigned, and completed. It must also store a list of users, their credentials, and department info in order to properly determine their level of access regarding specific training modules. Additionally, defining which members of the organization have the ability to assign these modules, and to whom, will also be important. Training modules will have several categories which will ultimately determine the frequency of their assignment and the length of time allowed for their completion. Modules which have not been completed by the requested or required due date will be flagged as overdue, using a Query or Report. This system will ensure that college faculty and staff are held accountable with regard to their training, and overall, help streamline this process for the entire organization.

## Database Design Assumptions

### Inputs

- Relevant personal information of faculty and staff shall be retrieved from the Enterprise HR System and reside in the 'EMPLOYEE' table. Create, update, and delete operations over this table will not be necessary, nor permitted.
- 'In Person' training modules will be entered into the database manually using a SharePoint list or web-based interface.
- 'Online' training modules should be updated automatically from whichever online libraries the college wishes to use.
- Assuming one doesn't already exist through the platform hosting the training modules, a form will need to be created which allows supervisors the ability to assign trainings based on the data stored in USR\_ASGN\_ACCS and MOD\_ASGN\_ACCS. This could be done through the previously mentioned SharePoint or web-based interface.

### Processes

- All existing 'In Person' trainings and workshops will need to be recorded into a SharePoint list or other digital format which suits the college's preference. This set of data will be appended to the list of online trainings via UNION query and be stored in the MODULE table. All instances of MODULE must receive a CategID and TypelD.
- As college employees complete their trainings, a CompDate will be added into the MOD\_ASGMT\_LOG. These records may either be kept indefinitely or deleted after a certain period of time.

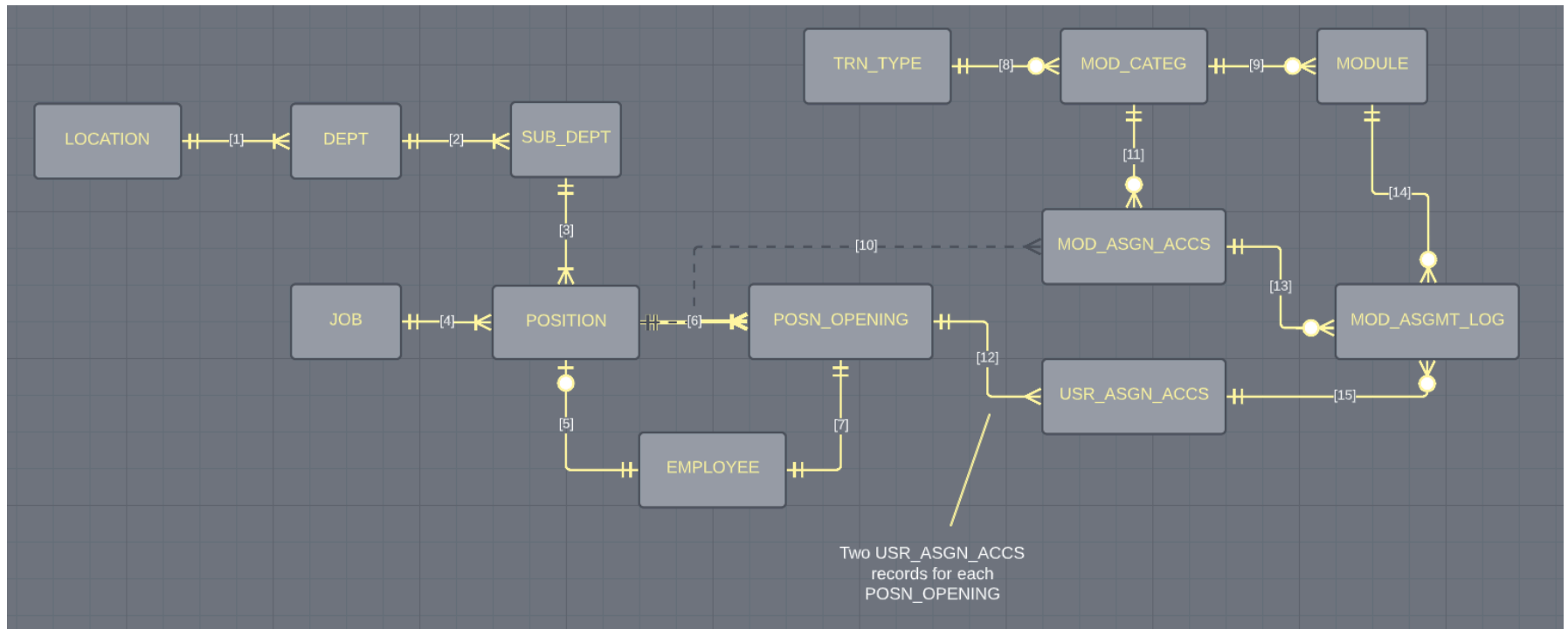
## Outputs

- All incomplete (and mandatory) module assignments with less than 3 months until their 'DueDate' will be listed on a 'Nearing Due Date' report. Automated reminder emails will be sent to these individuals and their supervisors on a monthly basis.
- Another report called 'Overdue' will be created to show all training assignments which are incomplete and past their due date. Similar emails will be sent to these individuals, but on a weekly basis.

## Rules

- Mandatory training types include 'Enterprise Compliance' and 'Position Specific'. All other training types are optional.
- Training types (TRN\_TYPE) may exist without any related module categories.
- Module categories (MOD\_CATEG) may exist without any related training modules.
- Module categories may exist without any users having access to it (in MOD\_ASGN\_ACCS).
- Further rules and assumptions are stated in the following section 'Entity Descriptions'.

## Conceptual Model



## Entity Descriptions

- **[LOCATION]**
  - Stores unique campus locations.
  - Each campus location is represented by a unique location 'Code'.
- **[DEPT]**
  - Stores unique departments within the college and associates them with their location code.
  - Each department is represented by a unique description 'DeptDescr', and a 'LocationCode'.
- **[SUB\_DEPT] - 'Sub Department'**
  - Stores unique DeptID's and associates them with their (not always) unique 'DeptDescr'.
  - Each sub department requires a unique 'DeptID', a 'DeptDescr', and 'DeptDescrShort'.
- **[JOB]**
  - Stores unique job codes.
  - Each job requires a unique 'JobCode', a 'Descr', and 'DescrShort'.
- **[EMPLOYEE]**
  - Stores a record of every college employee, using EMPLID.
  - Each employee requires a unique 'EMPLID', a 'LastName', 'FirstName', and 'PrimaryEmail'.
- **[POSITION]**
  - Stores each unique position that exists within each department (by associating DeptID with JobCode).
  - Associates SupEMPLID with DeptID and JobCode, thereby defining manager-position relationships.
  - Each position requires a unique 'DeptID' and 'JobCode', and a (non)unique 'SupEMPLID'.
  - SupEMPLID remains part of the composite key because numerous supervisors oversee DeptID: 98880 JobCode: 00256B and 00256C.
- **[POSN\_OPENING] - 'Position Opening'**
  - Associates each employee with the position they hold, as well as their direct supervisor.
  - Each position opening requires a 'DeptID', 'JobCode', 'SupEMPLID', and a unique 'EMPLID'.
- **[TRN\_TYPE] - 'Training Type'**
  - Stores a record of each training type as it relates to the training modules in the database.
  - Each training type requires a unique 'TypeID', a 'Name', a 'Frequency' which is used to automatically reassign training modules based on this value (in months), a 'Mandatory' status, and a 'TimeLength' which is used to calculate the due date in MOD\_ASGMT\_LOG.

- **[MOD\_CATEG]**
  - Stores each unique module category in the database and associates it with a training type.
  - Each module category requires a unique 'CategID', a 'TypeID', 'Name', and optional 'TargetAudience'.
- **[MODULE]**
  - Stores a record of every training module in the database.
  - Each module requires a unique 'ModuleID', a 'CategID', 'Name', 'InPerson' status, 'Online' status, and 'URL' hyperlink.
- **[MOD\_ASGN\_ACCS] - 'Module Assign Access'**
  - Determines which module categories may be assigned to each user, by associating the DeptID and JobCode of each position to the category ID of each Module which may be accessed.
  - Each instance of MOD\_ASGN\_ACCS requires a unique 'DeptID', 'JobCode', and module category 'CategID'.
- **[USR\_ASGN\_ACCS] - 'User Assign Access'**
  - For each unique employee, there are two and only two [USR\_ASGN\_ACCS] privileges granted.
  - Every employee in the database has at least one supervisor, therefore each employee can either assign training documents to themselves or have them assigned by their supervisor.
- **[MOD\_ASGMT\_LOG] - 'Module Assignment Log'**
  - Stores a record of every training module which has been assigned to an employee (either by the employee themselves or their supervisor).
  - Each training module assignment requires a unique 'Asgmt#', a 'CategID', 'ModuleID', 'AsgnTo' value, 'AsgnBy' value, 'AsgnDate', and optional 'CompDate'.

# Design

## Business Rule Statements

### 1. [LOCATION] *contains* [DEPT] - 1:M

- Each location contains one or many departments.
- Each department has one and only one location.

### 2. [DEPT] *contains* [SUB\_DEPT] - 1:M

- Each department contains one or many sub departments.
  - Ex. DeptDescr: 'Monroe Correctional Complex' contains several DeptID's: '98819', '99802', '99832'. Most DeptDescr's contain only one DeptID.
- Each sub department belongs to one and only one (parent) department.
  - Sub departments may still share parent departments.

### 3. [SUB\_DEPT] *contains* [POSITION] - 1:M

- Each sub department contains one or many positions.
- Each position belongs to one and only one sub department (as each instance of a position is unique to its sub department).

### 4. [JOB] *relates to* [POSITION] - 1:M

- Each job relates to one or many positions.
  - Ex. JobCode: '8000' (Full Time Faculty).
- Each position relates to one and only one job.

### 5. [EMPLOYEE] *oversees* [POSITION] - 1:0,M

- An employee oversees zero or many positions. Employees who oversee positions are classified as Supervisors.
  - Not all employees are supervisors, and therefore have no positions to oversee.
- Each position is unique to the supervisor who oversees it, meaning, the same combination of DeptID and JobCode may be shared by multiple SupEMPLID's. However, an employee will only ever report to one supervisor.
  - Ex. DeptID: '98880', JobCode: '00256B' & '00256C' (EARLY CHILDHOOD SPEC 2 & 3).

### 6. [POSITION] *contains* [POSN\_OPENING] - 1:M

- Each position has one or many related position openings.
- Each position opening relates to one and only one position.

### 7. [EMPLOYEE] *fills* [POSN\_OPENING] - 1:1

- Each employee fills one and only one position opening.
- Each position opening is filled by one and only one employee.

### 8. [TRN\_TYPE] *contains* [MOD\_CATEG] - 1:M

- Each training type contains one or many module categories.
- Each module category has one and only one training type.

### 9. [MOD\_CATEG] *contains* [MODULE] - 1:M

- Each module category contains one or many training modules.
- Each training module belongs to one and only one module category.



**10. [POSITION] *is granted* [MOD\_ASGN\_ACCS] - 1:M**

- Each position is granted one or many instances of MOD\_ASGN\_ACCS. In other words, each position may access one or many training module categories.
- Each instance of MOD\_ASGN\_ACCS relates to one and only one position.

**11. [MOD\_CATEG] *is referenced by* [MOD\_ASGN\_ACCS] - 1:M**

- Each module category is referenced by zero or many instances of MOD\_ASGN\_ACCS, meaning, each module may be accessed by zero or many positions.
- Each instance of MOD\_ASGN\_ACCS relates to one and only one module category.

**12. [POSN\_OPENING] *generates* [USR\_ASGN\_ACCS] - 1:2**

- Each position opening generates two and only two instances of USR\_ASGN\_ACCS. Meaning, training modules can only be assigned by the employee themselves or their supervisor. Two instances are therefore required for this to be done.
- Each instance of USR\_ASGN\_ACCS relates to one and only one position opening, and therefore by extension, one and only one employee.

**13. [MOD\_ASGN\_ACCS] *determines* [MOD\_ASGMT\_LOG] 1:0,M**

- Each instance of MOD\_ASGN\_ACCS determines the result of zero or many module assignments.
- Each entry in the MOD\_ASGMT\_LOG references one and only one instance of MOD\_ASGN\_ACCS.

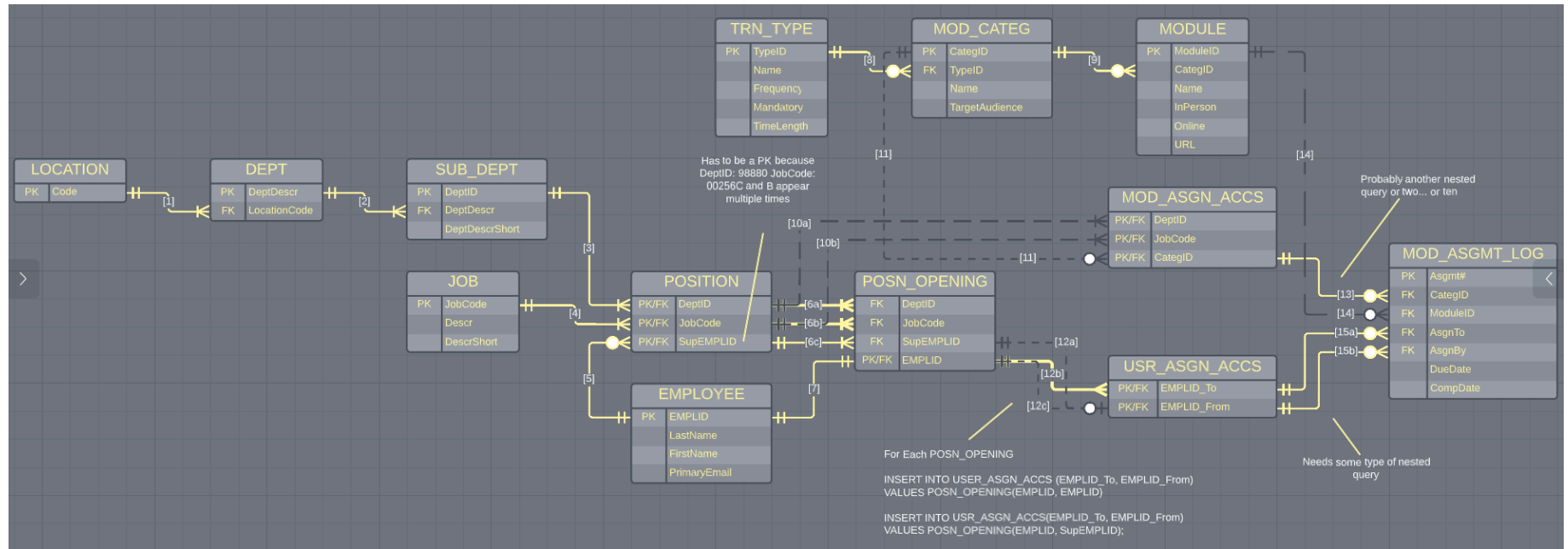
**14. [MODULE] *is assigned by* [MOD\_ASGMT\_LOG] - 1:0,M**

- Each module has zero or many entries in the Module Assignment Log.
- Each module assignment references one and only one module.

**15. [USR\_ASGN\_ACCS] *determines* [MOD\_ASGMT\_LOG] - 1:M**

- Each instance of USR\_ASGN\_ACCS determines one or many module assignments.
- Each module assignment references one and only one instance of USR\_ASGN\_ACCS.

## Logical Data Model (Entity Relationship Diagram)



## Data Dictionary

### Entity: LOCATION

Attribute	Definition	Data Type	Format	Constraints
<i>Code</i>	<i>Primary key of LOCATION</i>	<i>CHAR(5)</i>		<i>PRIMARY KEY</i>

### Entity: DEPT

Attribute	Definition	Data Type	Format	Constraints
<i>DeptDescr</i>	<i>Primary key of DEPT</i>	<i>VARCHAR(35)</i>		<i>PRIMARY KEY</i>
<i>LocationCode</i>	<i>Location code of the department</i>	<i>VARCHAR(5)</i>		<i>FOREIGN KEY (LOCATION), ON UPDATE CASCADE, ON DELETE SET NULL</i>

### Entity: SUB\_DEPT

Attribute	Definition	Data Type	Format	Constraints
<i>DeptID</i>	<i>Primary key of SUB_DEPT</i>	<i>MEDIUMINT</i>	<i>XXXXX</i>	<i>UNSIGNED, PRIMARY KEY</i>
<i>DeptDescr</i>	<i>Long description/name of the department</i>	<i>VARCHAR(35)</i>		<i>FOREIGN KEY (DEPT). ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>DeptDescrShort</i>	<i>Shortened description/name of the department</i>	<i>VARCHAR(15)</i>		<i>NOT NULL</i>

### Entity: JOB

Attribute	Definition	Data Type	Format	Constraints
<i>JobCode</i>	<i>Primary key of JOB</i>	<i>VARCHAR(6)</i>		<i>PRIMARY KEY</i>
<i>Descr</i>	<i>Long description/name for job</i>	<i>VARCHAR(30)</i>		<i>NOT NULL</i>
<i>DescrShort</i>	<i>Shortened description/name for job</i>	<i>VARCHAR(15)</i>		<i>NOT NULL</i>

**Entity: EMPLOYEE**

Attribute	Definition	Data Type	Format	Constraints
<i>EMPLID</i>	<i>Primary key of EMPLOYEE</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>UNSIGNED, PRIMARY KEY</i>
<i>LastName</i>	<i>Last name of the employee</i>	<i>VARCHAR(20)</i>		<i>NOT NULL</i>
<i>FirstName</i>	<i>First name of the employee</i>	<i>VARCHAR(20)</i>		<i>NOT NULL</i>
<i>PrimaryEmail</i>	<i>Primary email address of the employee</i>	<i>VARCHAR(25)</i>		<i>NOT NULL</i>

**Entity: POSITION**

Attribute	Definition	Data Type	Format	Constraints
<i>DeptID</i>	<i>DeptID associated with the position</i>	<i>MEDIUMINT</i>	<i>XXXXX</i>	<i>UNSIGNED, PRIMARY KEY, FOREIGN KEY (SUB_DEPT), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>JobCode</i>	<i>Job code associated with the position</i>	<i>VARCHAR(6)</i>		<i>PRIMARY KEY, FOREIGN KEY (JOB), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>SupEMPLID</i>	<i>EMPLID for the supervisor of the position</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>UNSIGNED, PRIMARY KEY, FOREIGN KEY (EMPLOYEE), ON UPDATE CASCADE, ON DELETE SET NULL</i>

### Entity: POSN\_OPENING

Attribute	Definition	Data Type	Format	Constraints
<i>DeptID</i>	<i>DeptID associated with the position opening</i>	<i>MEDIUMINT</i>	<i>XXXXXX</i>	<i>UNSIGNED, FOREIGN KEY (POSITION), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>JobCode</i>	<i>Job code associated with the position opening</i>	<i>VARCHAR(6)</i>		<i>FOREIGN KEY (POSITION), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>SupEMPLID</i>	<i>EMPLID for the supervisor of the position opening</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>UNSIGNED, FOREIGN KEY (POSITION), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>EMPLID</i>	<i>EMPLID of the employee assigned to the position opening</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>UNSIGNED, PRIMARY KEY, FOREIGN KEY (EMPLOYEE), ON UPDATE RESTRICT, ON DELETE SET NULL</i>

### Entity: TRN\_TYPE

Attribute	Definition	Data Type	Format	Constraints
<i>TypeID</i>	<i>Primary key of TRN_TYPE</i>	<i>TINYINT</i>	<i>XX</i>	<i>UNSIGNED, AUTO_INCREMENT, PRIMARY KEY</i>
<i>Name</i>	<i>Name of the associated training type</i>	<i>VARCHAR(30)</i>		<i>NOT NULL</i>
<i>Frequency</i>	<i>Frequency of repetition (in months)</i>	<i>TINYINT</i>	<i>XX</i>	<i>UNSIGNED</i>
<i>Mandatory</i>	<i>Mandatory status. (0 = No, 1 = Yes)</i>	<i>BINARY</i>	<i>X</i>	<i>DEFAULT 0</i>
<i>TimeLength</i>	<i>Time length (in months). Calculates MOD_ASGMT_LOG(DueDate).</i>	<i>TINYINT</i>	<i>XX</i>	<i>UNSIGNED</i>

**Entity: MOD\_CATEG**

Attribute	Definition	Data Type	Format	Constraints
<i>CategID</i>	<i>Primary key of MOD_CATEG</i>	<i>TINYINT</i>	<i>XX</i>	<i>UNSIGNED, AUTO_INCREMENT, PRIMARY KEY</i>
<i>TypeID</i>	<i>Training type associated with the module category</i>	<i>TINYINT</i>	<i>XX</i>	<i>UNSIGNED, FOREIGN KEY (TRN_TYPE), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>Name</i>	<i>Name of the module category</i>	<i>VARCHAR(35)</i>		<i>NOT NULL</i>
<i>TargetAudience</i>	<i>Expected audience for the module category</i>	<i>VARCHAR(20)</i>		

**Entity: MODULE**

Attribute	Definition	Data Type	Format	Constraints
<i>ModuleID</i>	<i>Primary key of MODULE</i>	<i>INT</i>		<i>PRIMARY KEY</i>
<i>CategID</i>	<i>Module category associated with the training module</i>	<i>TINYINT</i>	<i>XX</i>	<i>UNSIGNED, FOREIGN KEY (MOD_CATEG), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>Name</i>	<i>Name of the training module</i>	<i>VARCHAR(30)</i>		<i>NOT NULL</i>
<i>InPerson</i>	<i>In person status (0 = No, 1 = Yes)</i>	<i>BINARY</i>	<i>X</i>	<i>DEFAULT 0, NOT NULL</i>
<i>Online</i>	<i>Online status (0 = No, 1 = Yes)</i>	<i>BINARY</i>	<i>X</i>	<i>DEFAULT 0, NOT NULL</i>
<i>URL</i>	<i>URL hyperlink to the training module</i>	<i>VARCHAR(100)</i>		

### Entity: MOD\_ASGN\_ACCS

Attribute Name	Definition	Data Type	Format	Constraints
<i>DeptID</i>	<i>Primary key for DEPT</i>	<i>MEDIUMINT</i>	<i>XXXXXX</i>	<i>UNSIGNED, PRIMARY KEY, FOREIGN KEY (POSITION), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>JobCode</i>	<i>Job code associated with the access permissions</i>	<i>VARCHAR(6)</i>		<i>PRIMARY KEY, FOREIGN KEY (POSITION), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>CategID</i>	<i>Module category associated with the access permissions</i>	<i>TINYINT</i>	<i>XX</i>	<i>UNSIGNED, PRIMARY KEY, FOREIGN KEY (MOD_CATEG), ON UPDATE CASCADE, ON DELETE SET NULL</i>

### Entity: USR\_ASGN\_ACCS

Attribute Name	Definition	Data Type	Format	Constraints
<i>EMPLID_To</i>	<i>Who training modules can be <u>assigned to</u> (EMPLID)</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>UNSIGNED, PRIMARY KEY, FOREIGN KEY (EMPLID)</i>
<i>EMPLID_From</i>	<i>Who training modules can be <u>assigned from</u> (EMPLID or SupEMPLID)</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>UNSIGNED, PRIMARY KEY, FOREIGN KEY (SupEMPLID &amp; EMPLID)</i>

## Entity: MOD\_ASGMT\_LOG

Attribute Name	Definition	Data Type	Format	Constraints
<i>Asgmt#</i>	<i>Primary key for MOD_ASGMT_LOG</i>	<i>INT</i>	<i>XXXXXXXX</i>	<i>PRIMARY KEY, AUTO_INCREMENT</i>
<i>CategID</i>	<i>Module category of the associated ModuleID</i>	<i>TINYINT</i>	<i>XX</i>	<i>FOREIGN KEY (MOD_ASGN_ACCS), ON UPDATE CASCADE, ON DELETE SET NULL</i>
<i>ModuleID</i>	<i>ModuleID associated with the training assignment</i>	<i>INT</i>		<i>FOREIGN KEY (MODULE), ON UPDATE CASCADE ON DELETE</i>
<i>AsgnTo</i>	<i>EMPLID of the person being assigned the training</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>FOREIGN KEY (USR_ASGN_ACCS)</i>
<i>AsgnBy</i>	<i>EMPLID of the person who assigned the training</i>	<i>INT</i>	<i>XXXXXXXXXX</i>	<i>FOREIGN KEY (USR_ASGN_ACCS)</i>
<i>AsgnDate</i>	<i>The date on which the training module was assigned</i>	<i>DATE</i>	<i>MM/DD/YYYY</i>	
<i>DueDate</i>	<i>Due date of the training assignment. Calculated by adding TRN_TYPE(TimeLength) to AsgnDate</i>	<i>DATE</i>	<i>MM/DD/YYYY</i>	
<i>CompDate</i>	<i>Completion date of the training assignment (if completed)</i>	<i>DATE</i>	<i>MM/DD/YYYY</i>	

## PEER REVIEWS

11/29/22 - Brian Nkandu