# DATA SCIENCETECH INSTITUTE

*Applied MSc in Data Science – Applied MSc in Data Engineering*
## Data Wrangling with SQL
### *(Information Systems Major - IS3-001)*

## Volume of classes hours:   25 hrs *(± same personal work expected)*

## Course summary:

This workshop-based course aims to expose students to the Structured Query Language and its environment for achieving reporting and data visualisation.

**Topics to be covered are:**
1. Review of basic SQL queries structures including creating "views".
2. Using joins & sub-queries for complex reporting questions
3. Understanding indexing and exposure to query performance tuning
4. Parametric SQL
5. Flow-controlled SQL using stored procedures
6. Extract-Transform-Load processes between MySQL and MS SQL Server
7.  Review of the new built-in Machine Learning Services with Python

## Course objectives:

- Dealing with the most common forms of business questions to be transformed in SQL.
- Practice SQL in the Microsoft SQL Server 2016 and MySQL environments
- Gather information from technical documentation *(chiefly Microsoft MSDN)*

## Course mini-projects description:

The class is organised as an on-going workshop. As such **no** *"PowerPoint lecture notes"* will be presented: students will **practice** instead.
A compendium of reference materials will be provided to allow revisions.

## Theoretical background used:

- Common sense, basic understanding of the set theory.

*According to DSTI Scientific Advisory Board policy for ever-evolving programmes, this syllabus may be subject to adaptations and changes when the class will be delivered by the selected Professor(s).*

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## Technologies used:

Should students have a Mac or Linux, make sure to have either a Virtual Machine or BootCamp *(better for Apple users)*

1. Download and install **SQL Server 2017 Enterprise** for Microsoft Imagine: https://e5.onthehub.com/WebStore/OfferingDetails.aspx?o=38b962bc-e6ad-e711-80f7-000d3af41938&ws=3436b5ca-07c3-e611-9424-b8ca3a5db7a1&vsro=8

2. Download and install the current version of **MySQL Community Server**: http://dev.mysql.com/downloads/mysql/
   *(default configuration on port 3306 is fine)*

3. Download and install **Microsoft SQL Server Data Tools 2017**: https://go.microsoft.com/fwlink/?linkid=2038031
   *(this must be done when you have Visual Studio 2017 installed)*