

Date: 10.24.2020

To: University Faculty Council

Via: Graduate Studies Committee

Subj: Minor Changes to the Master of Information Technology and Management Data Management and Analytics Specialization

All actions were forwarded from the ITM Curriculum Committee and have been approved by the ITM Faculty.

This is a minor change as it only impacts internal curricula of the Department and is forwarded as an information item.

1. Change the Master of Information Technology and Management Data Management and Analytics specialization as follows:
 - a) Add the following new course to required courses:

ITMD 522 Data Mining and Machine Learning (New course but has previously been run as ITMD 525) Data mining is a useful tool to uncover patterns and underlying relationships in large data by using data analytics and knowledge discovery techniques. Machine learning algorithms additionally learn from the data and make predictions or decisions by different optimization methods. This course is a graduate level survey of concepts, principles and techniques related to data mining and machine learning. Students will become familiar with data preprocessing skills and the popular data mining and machine learning techniques, including the supervised learning (regressions and classification) and unsupervised learning (clustering and association rules analysis), as well as semi-supervised learning and ensemble learning. Students will also learn related applications, including text mining/NLP, Web mining, information retrieval and recommender systems. Students will utilize R and Python programming for data mining and machine learning and be able to handle real-world data or applications.
Corequisite or prerequisite: **ITMD 514**
 - b) Remove the following course from required courses:

ITMD 527 Data Analytics
The mission of the course is now fulfilled by **ITMD 514**. **ITMD 527** will be removed from the *Bulletin*.
 - c) Add the following new course to specialization electives:

ITMD 524 Applied Artificial Intelligence and Deep Learning
Artificial Intelligence (AI) is being used extensively to solve real-world complex problems. This course will deliver concepts and skills in both classical AI and modern AI. The classical AI refers to the fundamental knowledge in AI, such as search, logic, planning, uncertainty, game theory, Markov models, etc. Modern AI, by contrast, will be concentrated on machine learning and deep learning techniques, especially their applications in NLP, object recognition, recommender systems, etc. Students will learn how to use Python to solve specific AI problems.
Prerequisite: **ITMD 514**
 - d) Change the course title of **ITMD 521** from **Client/Server Technologies and Applications** to **Big Data Applications**. This more accurately reflects the existing course description.
 - e) Change the prerequisite for **ITMD 529** from **ITMD 527** to **ITMD 514**.
 - f) Remove the following electives from this specialization. This will streamline it and focus more strongly on courses specifically related to the specialization.
 - 1) **ITMD 515 Advanced Software Programming** (Prerequisite requirements are no longer met.)

2) **ITMM 537 Vendor Mgmt/Service Lvl Agrmts**

3) **ITMM 574 ITM Frameworks**

4) **ITMS 578 Cyber Security Mgmt**

These courses will still be available to students as graduate free electives.

2. This proposed revision as it will appear in the *Bulletin* follows. Changes are indicated in red.

Data Analytics and Management

Code	Title	Credit Hours
Required Courses		
(24)		
ITMD 514	Programming for Data Analytics	3
ITMD 522	Data Mining and Machine Learning	3
ITMD 523	Advanced Topics in Data Management	3
ITMD 526	Data Warehousing	3
ITMS 528	Database Security	3
ITMT 531	Object-Oriented System Analysis, Modeling, & Design	3
Select three credit hours from the following:		(3)
ITMD 553	Enterprise Intelligent Device	3
ITMD 554	Mass-Market Intelligent Device	3
ITMD 555	Open-Source Intelligent Device	3
ITMD 565	Rich Internet Applications	3
ITMD 566	Service-Oriented Architectures	3
ITMT 593	Embedded Systems	3
Select three credit hours from the following:		(3)
ITMD 521	Big Data Applications	3
ITMD 524	Applied Artificial Intelligence and Deep Learning	3
ITMD 525	Topics in Data Science & Management	3
ITMD 529	Advanced Data Analytics	3
ITMD 566	Service-Oriented Architectures	3
ITMO 557	Storage Technologies	3