

2024 / 25

School of Science and Computing

☎ +353 (0)51 302037

✉ Eleanor.Reade@setu.ie

🌐 www.wit.ie/schools/science_computing



**SE
TU**

Ollscoil
Teicneolaíochta
an Oirdheiscirt

South East
Technological
University

Module Descriptor

Data Mining 2 (Computing and Mathematics)

Data Mining 2 (A29443)

Short Title: Data Mining 2
Department: Computing and Mathematics
Credits: 5
Level: Advanced

Description of Module / Aims

It is assumed the student is familiar with the fundamental concepts and techniques of Data Mining. The purpose of this module is to apply the theory of Data Mining. The student will learn about the data mining process and experience the steps involved; including data pre-processing, modelling and optimisation and result interpretation and validation. For each step in the data mining process the student will learn and apply an appropriate methodology, tool or technology.

Programmes

stage/semester/status		
COMP-0572	BSc (Hons) in Applied Computing (International) (WD_KACCM_BI)	4 / 8 / M
COMP-0572	BSc (Hons) in Applied Computing (WD_KACCM_B)	4 / 8 / M
COMP-0572	BSc (Hons) in Applied Computing (WD_KCOMP_B)	4 / 8 / M
COMP-0572	BSc (Hons) in Computer Forensics and Security (WD_KCOFO_B)	4 / 8 / M
COMP-0572	BSc (Hons) in Computer Science (WD_KCMSC_B)	4 / 8 / M
COMP-0572	BSc (Hons) in Physics for Modern Technology (WD_KPHTE_B)	4 / 8 / E
COMP-0572	BSc (Hons) in the Internet of Things (International) (WD_KINTT_BI)	4 / 8 / M

Indicative Content

- Introduction to the Data Mining Process
- Pre-processing: data gathering, wrangling, and transformation
- Model building, optimization and evaluation
- Result analysis, validation, deployment
- Use of data mining tools

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Summarise the Data Mining process and have a clear understanding of its stages.
2. Evaluate the fundamental concepts behind each stage of the Data Mining process.
3. Justify the use of appropriate tools and techniques for each stage of the Data Mining process.
4. Evaluate, interpret and utilize results obtained at each step of the Data Mining process.
5. Create a solution for a set of Data Mining problems.

Learning and Teaching Methods

- The lectures will introduce the theory content to the student. The student will be encouraged to participate in class discussions and ask questions to support their learning process.
- The practical classes facilitate the student in implementing the theory learned in the lectures.
- Students will apply appropriate tools and methods to Data Mining exercises provided in the practical classes.
- Students will implement appropriate tools and methods to a Data Mining continuous assessment.
- Students will interpret and present the findings produced in the practical classes and continuous assessment.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	12	
Practical	36	
Independent Learning	87	

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	
Assignment	60%	3,4,5
In-Class Assessment	40%	1,2

Assessment Criteria

<40%: Unable to describe and apply key concepts of the data mining process.

40%–49%: Be able to describe and apply key concepts of the data mining process.

50%–59%: Ability to discuss key concepts of the data mining process and ability to discover and integrate related knowledge in other knowledge domains.

60%–69%: Be able to solve data mining problems by applying each step in the data mining process.

70%–100%: All the above to an excellent level. Be able to analyse and design solutions to a high standard for a range of both complex and unforeseen problems through the use and modification of appropriate skills and tools.

Supplementary Material(s)

- Han, J., M. Kamber and Jian Pei. *Data Mining Concepts and Techniques*. NY: Jian Pe, 2015.
- Leskovec, J., A. Rajaraman and J. Ulman. *Mining of Massive Datasets*. NY: Cambridge University Press, 2014.
- Witten, I., E. Frank and M. Hall. *Data Mining, Practical Machine Learning Tools and Techniques*. NY: Elsevier, 2011.

Requested Resources

- Room Type: Computer Lab