Programme Specification

Computer Science (Data Analytics and Artificial Intelligence) {Double Degree} [TSI]

Version: 2023-24, v2.0, 06 Dec 2023

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Computer Science (Data Analytics and Artificial Intelligence) {Double Degree} [TSI]

Highest award: MSc Computer Science (Data Analytics and Artificial Intelligence)

Interim award: PGCert Computer Science

Interim award: PGDip Computer Science

Awarding institution: Transport and Telecommunication Institute, UWE Bristol

Affiliated institutions: Transport and Telecommunication Institute

Teaching institutions: Transport and Telecommunication Institute

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: No

School responsible for the programme: CATE School of Computing and Creative Technologies, College of Arts, Technology and Environment

Professional, statutory or regulatory bodies: Not applicable

Modes of delivery: Full-time

Entry requirements: Applicates should hold one of the following for entry onto the programme

1.Equivalent of a UK lower second class (2:2) Bachelor's degree with Honours in a relevant subject*.

2.Successful completion of a recognised pre-masters

Plus

CEFR (Common English Framework of Reference) English Level B2

Or an equivalent recognised English Language qualification

We can consider applicants who do not meet the normal entry requirement, but who do have relevant professional experience or qualifications. In your application, you should describe in detail your professional experience and qualifications.

*Relevant subjects include: Computer Science, IT or other computing subjects, Maths, Statistics, any Engineering subject, any quantitative subject such as Physics.

For implementation from: 03 January 2022

Programme code: I2I412

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: This programme is designed to build students skills in data handling and manipulation through the use of AI combined with statistics and programming. In addition, it is vital to have knowledge of the kind of domain-specific issues where data-informed decision making and process improvements are needed. This is encouraged through interdisciplinary and collaborative working, fostering a learning community of students, staff, alumni and industrial / international partners.

Features of the programme: This is a unique opportunity for students in Latvia to gain a UK degree whilst studying in their own country.

Educational Aims: The aim of the MSc Computer Science (Data Analytics and Artificial Intelligence) study programme is to prepare highly skilled specialists in

computer science with an understanding of Data collection, modelling and analysis which will allow graduates to adapt independently to professional work in changing labour market conditions.

Furthermore, the programme objectives are:

Support students to develop the necessary theoretical and practical knowledge in computer science, Data Analytics and AI to be effective computer science professionals.

Develop students' ability to work independently and creatively to evaluate and apply new developments and innovations in technology within the Computer Science industry.

Develop students' scientific and analytical skills to enable them to solve practical and hypothetical problems.

Develop key professional and transferable skills such as leadership and the ability to work effectively in teams.

Expose students to modern educational practice; to create motivation and to facilitate the satisfaction of students' continuing education needs, including motivation to continue their studies in both professional and doctoral study programmes.

Programme Learning Outcomes:

On successful completion of this programme graduates will achieve the following learning outcomes.

Programme Learning Outcomes

PO1. Develop the ability to critically evaluate information, apply analytical skills, and make well-reasoned, evidence-based decisions in complex contexts within Computer Science.

PO2. Acquire the skills to effectively organise and lead diverse teams, taking accountability for team performance by demonstrating robust leadership capabilities, fostering collaborative environments, and employing results-driven strategies to achieve defined objectives within the professional context of the chosen field.

PO3. Develop the expertise to independently conduct research within the IT domain, proficiently analyse data, formulate hypotheses, and derive well-substantiated conclusions and broad generalisations based on findings.

PO4. Research and utilise contemporary as well as modern technologies for continuous learning and professional advancement, adopting a proactive approach towards lifelong learning and skill development in the rapidly evolving landscape of the Computer Science.

PO5. Design contemporary software solutions which integrate ethical, social, legal, and economic considerations, aligning with responsible practices, and addressing societal impact while meeting business objectives in the evolving technological landscape.

PO6. Design, implement and maintain complex data stores and apply modern data organisation, representation and processing techniques

PO7. Design, develop, maintain, test, and evaluate novel data analytics, machine learning, and artificial intelligence solutions and apply them for solving real-world problems

Assessment strategy: The programme will run for 1.5y, the last 0.5y is dedicated to preparation of the master thesis. During the preparation of master thesis student will have direct contact and meeting schedule with assigned supervisor from faculty. The master thesis preparation should be completed individually by the student to demonstrate skills, knowledge and competences got during his/her study. The master thesis will be evaluated by the board and reviewer. Students need to deliver the master thesis , presentation and viva.

During 1(first) year of the study students, will have a variety of the courses, which are aimed to deliver and assess study programme learning outcomes. Each module has its own assessment strategy, which fits best of assessing module learning outcomes.

Most of the modules use reports, presentations and viva, practical assignments and

reflective reports as key assessments, while some of the modules also include exams.
There are set of modules which are primary targeted on development skills, knowledge and competences on individual level, such as Data Mining , Critical Thinking and Innovation , Business Intelligence and Data Visualisation, Cyber Security And Data Protection, Machine Learning And Predictive Analytics, Research Methodology etc
While Artificial Intelligence Group Project is using a group project to develop a soft skills, related with team work on a project.
In addition such modules as Project And Requirements Management and Critical Thinking And Innovation uses a team work a lot as formative assessment.

Student support: A flexible study process that provides students with the opportunity to study, considering everyone's interests and opportunities, and to actively participate in the improvement of the study content.

Students have an opportunity to follow an individual study plan when they enrol to TSI from another higher education institution.

Study course descriptions and study course learning materials are available to students in the e-learning environment, which allows one to adapt the study process to the individual needs of the student.

Different study methods are used in the study process: lectures, seminars, practical work, case studies, projects, meetings with industry specialists, etc., thus ensuring the students' interest in studies.

Students are provided with tutor guidance and individual consultations. Depending on the specifics of the study course, teaching staff use different teaching methods.

Lecturers inform students about the criteria and methods of the knowledge assessment during the first classes. Methods and criteria for the assessment of learning outcomes are included in the study course description available to the

students in the e-learning system.

Commissions for the evaluation of study papers, internship reports and final examinations have been created, and representatives of employers have been invited to participate therein. The commission members are aware of the basic principles of evaluation.

Students may submit their complaints to the management of the institution regarding the content and organisation of studies; the procedure for submitting and reviewing the student complaints and proposals is prescribed in the TSI Regulations for Acceptance and Review of Student Complaints and Proposals, while the requirements for the filing and review of appeals are additionally prescribed in the Rules of Study Procedure.

The Institution ensures the participation of students in the organisation of the study process. Students are represented and actively participate in all TSI collegial institutions - study directions councils, faculty councils, Senate, Constitutional Assembly. Student surveys are conducted every year to assess the teaching staff's teaching methods and quality of the study programmes.

TSI pays a lot of attention to the social aspects of student experience. Students are provided with the possibility to take part and initiate (together with the Students Self-Government) different events at TSI. Students Canteen is open for students to enjoy fresh food and beverages as well as to spend some time together. All TSI students have access to TSI Sports Club and benefit from the discounted membership fees.

Student security is taken seriously at TSI, and it has implemented a CCTV (video surveillance) system in all public areas.

To encourage networking and exchange of information, TSI students have the possibility to meet regularly with TSI alumni during their studies and social events. Annual alumni meetings are organised to connect students with the alumni and build up loyalty and reputation of the institution.

An IT support service is available to ensure the uninterrupted availability of IT resources throughout the learning process. A secure wireless computer network is available in all TSI's buildings. Students can connect to a wireless computer network that is protected by the PaloAlto New Generation Firewall.

Most lecture halls are equipped with visual display equipment, and all lecture halls are equipped with high-power stationary video projectors or large television sets.

Laboratory classes take place in specialised auditoriums. The academic work utilises the Applied Software Systems Laboratory, a multidisciplinary research laboratory that provides TSI's students, lecturers, and researchers with access to software products, some of which are unique.

During the matriculation process, a student's handbook is issued to the students to provide them with an initial information about study process at TSI.

Welcome week in the beginning of the studies is organized to help students to understand how to successfully complete studies at TSI as well as provides team building and cross-cultural training support.

TSI technical support is provided by the IT department. A centralised study process and information structure support - helpdesk - has been set up to receive applications, process them and give guidance to support staff. Questions related to the study process are supported by the Studies Department and the Faculty Office, also providing feedback in communication with students.

TSI is friendly for people with disabilities, incl. infrastructure.

To the foreign students TSI offers visa and residence permit support, pick up from the airport, support in finding an accommodation in Latvia as well as induction activities to organise the integration of foreign students into the TSI study process and student life. TSI has a dedicated Foreign Students Coordinator, whose responsibility it is to give advice on the study process organisation, behavioural, ethical, and other issues at TSI. etc.

TSI has well established cooperation with the industry representatives and offers support to students to help them find internship possibilities. In addition, corporate partners contribute to the development and implementation of the study programmes, deliver guest lectures, and take part in the State Examination Commissions, thereby increasing employability of graduates.

Part B: Programme Structure

Year 1

The student must take a minimum of 120 credits from the modules in Year 1.

Year 1 Compulsory Modules

The student must take 108 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFCE7W-18-M	Artificial Intelligence Group Project [TSI] 2023-24	18
UFCEB1-12-M	Business Intelligence and Data Visualisation [TSI] 2023-24	12
UFCE81-12-M	Critical Thinking and Innovation [TSI] 2023-24	12
UFCE91-12-M	Cyber Security and Data Protection [TSI] 2023-24	12
UFCEA1-12-M	Data Mining [TSI] 2023-24	12
UFCED1-12-M	Machine Learning and Predictive Analytics [TSI] 2023-24	12
UFCE86-12-M	Project and Requirements Management [TSI] 2023-24	12
UFCE71-18-M	Research Methodology [TSI] 2023-24	18

Year 1 Optional Modules
The student must take 12 credits from the modules on Optional Modules - Only 1 option will be offered per intake.

Module Code	Module Title	Credit
UFCEE1-12-M	Big Data [TSI] 2023-24	12
UFCEF1-12-M	Cloud Computing [TSI] 2023-24	12
UFCEJ1-12-M	Quality Models of Software and Information Systems [TSI] 2023-24	12

Year 2

Year 2 Compulsory Modules
The student must take 60 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFCEK1-60-M	Master Thesis [TSI] 2024-25	60

Part C: Higher Education Achievement Record (HEAR) Synopsis

Graduates will exhibit analytical skills in problem framing and project design, data manipulation and retrieval, statistics and coding for data analysis. They will be able to develop and evaluate models, use established tools and methods, and effectively communicate their results to stakeholders. They will be able to work in a multifunctional team and manage a full development lifecycle.

Part D: External Reference Points and Benchmarks

UK:

QAA FHEQ level descriptors

Computing Benchmark (2019)

UWE 2030 strategy

Latvia:

EHEA
LQF

Part E: Regulations

Approved variant to University Academic Regulations and Procedures
https://www.uwe.ac.uk/study/academic-information/regulations-and-procedures