Northern Technical University

الجامعة التقنية الشمالية

First Cycle – Bachelor's degree (B.Tec.) –Statistics Information Technology

بكالوريوس تقنيات الإحصاء والمعلوماتية

Table of Contents

1. Overview

This catalogue is about the courses (modules) given by the program of Statistics Information Technology to gain the Bachelor of Technique degree. The program delivers (؟؟) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظره عامه

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج تقنيات الإحصاء والمعلوماتية للحصول على درجة بكالوريوس تقني. يقدم البرنامج (50) مادة دراسية (اجبارية واختيارية)، مع (٦٠٠٠) إجمالي ساعات حمل الطالب و ٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

2. Undergraduate Courses 2024-2025

Module 1

Code	Course/Module Title	ECTS	Semester
TCMM 108	Principles of Economics	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	78	4.8
Description			
This module introduces students to the fundamental concepts of microeconomics and macroeconomics. Focusing on how economic principles impact technology management, students explore topics such as supply and demand, market structures, economic cycles, fiscal policies, and the influence of economic factors on technology innovation and deployment. The course aims to equip future IT managers with the ability to make informed decisions that reflect both economic realities and technological advancements.			

Module 2

Code	Course/Module Title	ECTS	Semester
SIT 108	Principles of Mathematics	8	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	4	93	7.13
Description			
Tailored for Information Techniques Management students, this module focuses on mathematical concepts applicable to technology and management. It includes studies in algebra, calculus, probability, and statistics, providing the quantitative tools necessary for data analysis, decision making, and problem solving in IT management. The course is designed to strengthen analytical skills that are crucial for optimizing systems and interpreting data trends within the technology sector			

Model3

Code	Course/Module Title	ECTS	Semester
NTU 100	Human rights and democracy	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	1.13
Description			
n this module, students explore the principles of human rights and democracy, particularly in the context of information technology. The course discusses ethical considerations, legal frameworks, and the role of technology in promoting transparency and democratic processes. It also covers issues related to privacy, surveillance, and the digital divide. This knowledge is crucial for future IT managers to ensure that technology deployment upholds democratic values and human rights.			

Model4

Code	Course/Module Title	ECTS	Semester
NTU 101	English Language(1)	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	1.13
Description			
Designed for students in Information Techniques Management, this course focuses on enhancing proficiency in English, with an emphasis on terms and contexts relevant to the tech industry. It includes technical reading, writing, speaking, and listening skills, aimed at improving communication in			

professional and technical settings. This module is crucial for students to effectively engage with global IT literature, documentation, and collaborations.

Module 5

Code	Course/Module Title	ECTS	Semester
TCMM 107	Principles of statistics	8	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	6	123	5.13
Description			
Tailored for information management students, this course covers statistical methods that are vital in analyzing data and informing decision-making in technology-driven businesses. Topics include descriptive statistics, probability, hypothesis testing, and regression analysis. This knowledge is fundamental for IT managers to make data-driven decisions and to apply statistical tools in optimizing business operations and technology strategies.			

Module 6

Code	Course/Module Title	ECTS	Semester
SIT 110	Index Number	4	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	100	2.47
Description			
. An index number is a statistical device designed to measure the relative changes in a series of numbers over time or across different locations. It's a convenient way to compare the differences in a set of values, with one value serving as a base or reference point .			

Module 7

Code	Course/Module Title	ECTS	Semester
SIT 109	SPSS Applications	3	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
0	2	33	1.13
Description			
It appears you're interested in exploring SPSS applications in the context of summer statistics. SPSS (Statistical Package for the Social Sciences) is a popular statistical software used for data analysis, visualization, and modeling.			

Model8

Code	Course/Module Title	ECTS	Semester
SIT 114	Minitab Applications	3	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
0	2	33	1.13
Description			
Minitab is a popular statistical software package used for data analysis, visualization, and modeling. It is widely used in various fields, including academia, research, and industry, to analyze and interpret data.			

Model9

Code	Course/Module Title	ECTS	Semester
SIT 111	Statistics Applicatons	9	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	4	93	8.8
Description			
Statistics is a branch of mathematics that deals with collecting, analyzing, interpreting, presenting, and organizing data. Its applications span various fields, providing valuable insights and aiding decision-making processes.			

Model 10

Code	Course/Module Title	ECTS	Semester
TCMM 106	Principles of Accounting	7	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	4	108	4.46
Description			
This course introduces basic accounting principles, focusing on their applications within the technology sector. Students learn about financial statements, budgeting, cost management, and financial decision-making processes relevant to IT projects and enterprises. The module is crucial for IT managers to oversee financial aspects of technology deployments and to ensure projects align with fiscal guidelines and business objectives.			

Model11

Code	Course/Module Title	ECTS	Semester
SIT 111	Mathematical Applications	9	2

Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	5	93	7.13
Description			
Mathematical applications refer to the various ways in which mathematical concepts and techniques are used to solve real-world problems and understand phenomena in different fields. These applications can be found in diverse areas such as physics, engineering, medicine, biology, finance, business , computer science, and industry			

Model 12

Code	Course/Module Title	ECTS	Semester
TCMM 105	Principles of Management	6	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	78	4.8
Description			
This course covers the essential theories and practices of management, emphasizing the skills necessary to lead and manage in the dynamic field of information technology. Topics include strategic planning, organizational behavior, leadership, control mechanisms, and change management. The module prepares students to effectively manage resources, projects, and teams in IT environments, fostering skills that promote efficiency and innovation within tech-driven organizations.			

Model 13

Code	Course/Module Title	ECTS	Semester
NTU 102	Computer Principles (1)	3	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
1	1	62	0.8
Description			
This foundational course provides an overview of basic computer concepts and operating systems, tailored for students in Information Techniques Management. It covers hardware components, software applications, data storage, and basic network configurations. The module is designed to equip students with a practical understanding of how computer systems function and interact, which is essential for managing and optimizing IT resources in any business environment.			

Model 14

Code	Course/Module Title	ECTS	Semester
NTU 103	Arabic Language 1	2	2

Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	32	1.2
Description			
ocused on enhancing linguistic skills within a technical and managerial context, this course develops proficiency in Arabic reading, writing, and communication. It is particularly structured to support students in Information Techniques Management, emphasizing terminology used in business and technology settings. This module aids in effective communication across diverse professional environments, essential for regional operations and collaborations.			

Model 15

Code	Course/Module Title	ECTS	Semester
SIT 113	Introduction in R	9	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
1	6	108	7.13
Description			
R is a popular programming language used for statistical computing and graphical presentation. It's primarily used to analyze and visualize data. R is a system for statistical computation and graphics, providing a programming language, high-level graphics, and interfaces to other languages. It 's a dialect of S, which was designed in the 1980s and has been in widespread use in the statistical community since. The language syntax has a superficial similarity with C, but the semantics are of the FPL (functional programming language) variety with stronger affinities with Lisp and APL.			

Model 16

Code	Course/Module Title	ECTS	Semester
SIT205	Linear Algebra	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	125	3.13
Description			
Linear Algebra is a branch of mathematics focusing on vector spaces and the linear mappings between them. It involves studying systems of linear equations, matrices, vectors, and vector spaces. These co ncepts are foundational in many areas, including physics, computer science, and economics.			

Model 17

Code	Course/Module Title	ECTS	Semester
SIT 206	Numerical Analysis	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	125	4.13
Description			
Numerical Analysis is a branch of mathematics that focuses on designing algorithms to solve mathema tical problems with numerical approximations. It's particularly important in fields where exact solution s are impractical or impossible to obtain.			

Model 18

Code	Course/Module Title	ECTS	Semester
NTU 200	Crimes of Al-Baath Party in Iraq	2	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	32	1.2
Description			
This course examines the historical and political impact of the Ba'ath Party in Iraq, focusing on human rights violations and political crimes committed during its governance. Through lectures, discussions, and analysis of primary sources, students in Information Techniques Management gain insights into the socio-political dynamics that have shaped modern Iraqi society and governance. This understanding is crucial for future leaders and managers who aim to navigate and contribute to the reconstruction and ethical governance in Iraq.			

Model 19

Code	Course/Module Title	ECTS	Semester
SIT 207	**Principles of Time Series**	4	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	2.47
Description			
Time series analysis is about understanding sequences of data points collected or recorded at specific time intervals. It's a key technique in various fields like economics, finance, environmental science, an d signal processing.			

Model 20

Code	Course/Module Title	ECTS	Semester
SIT 208	**Principles of Probability**	6	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	3	93	3.8
Description			
Probability is a fundamental concept in statistics, mathematics, and data science. It is a measure of the likelihood of an event occurring. Probability theory provides a mathematical framework for analyzing and modeling uncertain events.			

Model 21

Code	Course/Module Title	ECTS	Semester
SIT 215	Time Series	4	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	2.47
Description			
Probability is a fundamental concept in statistics, mathematics, and data science. It is a measure of the likelihood of an event occurring. Probability theory provides a mathematical framework for analyzing and modeling uncertain events.			

Model 22

Code	Course/Module Title	ECTS	Semester
SIT 209	**Matlab Applications**	4	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	2.47
Description			
MATLAB (Matrix Laboratory) is a powerful programming platform designed for engineers and scientist s to analyze data, develop algorithms, and create models. Here are some key applications of MATLAB: Data Analysis , Algorithm Development, Modeling and Simulation Image and Video Processing Signal Processing			

Model 23

Code	Course/Module Title	ECTS	Semester
SIT 210	Python Programming	4	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	2.47
Description			
Python is a popular and versatile programming language that is easy to learn and use, making it a great language for beginners and experienced programmers alike. It was created by Guido van Rossum and released in 1991. Python is a high-level, interpreted, and general-purpose dynamic programming language that focuses on code readability.			

Model 24

Code	Course/Module Title	ECTS	Semester
SIT 211	Deferential Equations	5	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	4.13
Description			
Python is a popular and versatile programming language that is easy to learn and use, making it a great language for beginners and experienced programmers alike. It was created by Guido van Rossum and released in 1991. Python is a high-level, interpreted, and general-purpose dynamic programming language that focuses on code readability.			

Model 25

Code	Course/Module Title	ECTS	Semester
SIT 212	Sampling Theory	6	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Sampling theory is a fundamental concept in statistics and data analysis that deals with the selection of a subset of data points from a larger population. The goal of sampling is to make inferences about the population based on the characteristics of the sample.			

Model 26

Code	Course/Module Title	ECTS	Semester
SIT 213	**Hypotheses Testing**	6	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Hypothesis testing is a statistical method used to validate an assumption or hypothesis about a population parameter. It involves testing a null hypothesis against an alternative hypothesis to determine whether the data supports or rejects the null hypothesis. The goal of hypothesis testing is to make inferences about a population based on a sample of data.			

Model 28

Code	Course/Module Title	ECTS	Semester
NTU 202	Computer Principles (2)	3	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
1	2	62	0.6
Description			
Building on foundational knowledge, this course delves deeper into advanced computing concepts, including operating systems, algorithms, and system architecture. Designed for Information Techniques Management students, it focuses on the application of these principles in optimizing and securing IT infrastructures. Students learn critical skills in diagnosing and solving complex technical issues, essential for managing sophisticated information systems in any technological enterprise.			

Model 29

Code	Course/Module Title	ECTS	Semester
NTU 201	English Language (2)	2	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	32	3.33
Description			
This continuation of English Language (1) advances the proficiency of Information Techniques Management students in technical and professional English. Emphasis is placed on business communication, technical documentation, and advanced linguistic skills necessary for global business environments. Students engage in complex conversations, presentations, and writing exercises that mirror real-world IT management scenarios.			

Model 30

Code	Course/Module Title	ECTS	Semester
SIT 214	**Probability**	6	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	3	93	3.8
Description			
probability is a branch of mathematics that deals with the study of probability theory and its applications. It involves the use of advanced mathematical techniques, such as measure theory and functional analysis, to analyze and model complex random phenomena. The field of advanced probability has numerous applications in various areas.			

Model 31

Code	Course/Module Title	ECTS	Semester
NTU 203	Arabic Language 2	2	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	1.13
Description			
Building on the foundations laid in Arabic Language 1, this course further enhances the Arabic language skills of students, with a focus on advanced grammatical structures and vocabulary relevant to the fields of technology and management. Students engage in more complex readings and projects that require precise communication, critical for effective management and professional interactions in Arabic-speaking environments.			

Model 32

Code	Course/Module Title	ECTS	Semester
SIT 301	**Operations Research**	5	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	4.13
Description			
Operations Research (OR) is a discipline that applies advanced analytical methods to help make better decisions. It uses techniques from mathematical modeling, statistics, and optimization to arrive at opt imal or near-optimal solutions to complex decision-making problems.			

Model 33

Code	Course/Module Title	ECTS	Semester
SIT 302	**Principles of Biostatistics**	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Biostatistics is the application of statistical principles to analyze data in the fields of medicine, public health, and biology. The principles of biostatistics provide a foundation for understanding and interpreting data in these fields. Here are some key principles:			

Model 34

Code	Course/Module Title	ECTS	Semester
SIT 303	**Analysis of Linear Regression**	7	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	4	93	5.47
Description			
Linear regression is a fundamental statistical method used to model the relationship between a depen dent variable and one or more independent variables. It's particularly useful for prediction and trend a nalysis. Here's a breakdown of its key aspects: Model Equation Assumptions Estimation Goodness of Fit Residual Analysis			

Model 35

Code	Course/Module Title	ECTS	Semester
SIT 304	Principles of Mathematical Statistics	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Mathematical statistics is a branch of statistics that focuses on the theoretical foundations and methodologies for analyzing data. It provides the tools necessary for making inferences about populations based on sample data.			

Model 36

Code	Course/Module Title	ECTS	Semester
SIT 305	Computer Applications(R) Language	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
R is a powerful language and environment for statistical computing and graphics. It's widely used in ac ademia and industry for data analysis and visualization. Here's a rundown of its key applications: Data Analysis: Statistical Modeling: Data Visualization: Machine Learning :Bioinformatics: Financial Analysis: Reproducible Research:Big Data:			

Model 37

Code	Course/Module Title	ECTS	Semester
SIT 306	Mathematical Statistics	6	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	2	78	4.8
Description			
Mathematical statistics is the backbone of many scientific endeavors, providing the theoretical frame work for understanding and applying statistical methods. Here are the core elements: Probability Theory: Statistical Inference: Likelihood Theory: Decision Theory: Bayesian Statistics: Non-parametric Methods:			

Model 38

Code	Course/Module Title	ECTS	Semester
SIT 307	Biostatistics	6	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Biostatistics is the application of statistical methods to the analysis of biological and medical data. It pl ays a crucial role in designing research studies, analyzing data, and interpreting results in the health sc iences.			

Model 39

Code	Course/Module Title	ECTS	Semester
SIT 308	Reliability	6	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Reliability statistics focus on the consistency and stability of measurements and tests over time. It involves evaluating how repeatable and dependable the results of an instrument, survey, or test are under various conditions.			

Model 40

Code	Course/Module Title	ECTS	Semester
SIT 309	Non-Linear Regression	7	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	3	93	5.47
Description			
Nonlinear regression is a statistical technique used to model relationships between variables when the data does not fit a straight line. Unlike linear regression, which assumes a linear relationship, nonlinear regression can handle more complex, curved relationships.			

Model 41

Code	Course/Module Title	ECTS	Semester
SIT 310	Queue theory	5	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	4.13
Description			
Queue theory is a branch of mathematics that studies the behavior of waiting lines, or queues. It's widely used to analyze and improve the efficiency of various systems where congestion and delays occur, such as in telecommunications, traffic engineering, and service operations.			

Model 42

Code	Course/Module Title	ECTS	Semester
SIT 311	Data Mining	5	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	4.13
Description			
Data mining is the process of discovering patterns and knowledge from large amounts of data. The ke y idea is to extract useful information from a dataset and transform it into an understandable structur e for further use.			

Model 43

Code	Course/Module Title	ECTS	Semester
SIT 401	Principles of Multivariate	5	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	3.13
Description			
Multivariate analysis deals with the simultaneous observation and analysis of more than one outcome variable. It's fundamental in understanding complex data structures where multiple variables interact			

Model 44

Code	Course/Module Title	ECTS	Semester
SIT 402	Principles of Statistical Inference	5	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	3.13
Description			
Statistical inference is a fundamental component of statistics that allows researchers and analysts to make conclusions about a population based on the analysis of a sample. It provides a framework for understanding how to draw reliable conclusions from data, which is critical in various fields such as medicine, social sciences, economics, and engineering.			

Model 45

Code	Course/Module Title	ECTS	Semester
SIT 403	Principles of Experimental Design	6	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Experimental design is a crucial aspect of research in various fields, including medicine, social sciences, psychology, and engineering. It involves planning and conducting experiments to test hypotheses, identify cause-and-effect relationships, and draw conclusions about the effects of different variables on a particular outcome. Well-designed experiments provide reliable and generalizable results, while poorly designed experiments can lead to misleading conclusions.			

Model 46

Code	Course/Module Title	ECTS	Semester
NTU 400	Scientific Research	4	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
1	2	48	3.47
Description			
Scientific research is a systematic and structured process used to develop and refine knowledge in various fields. It involves formulating hypotheses, testing them through experimentation and data collection, and drawing conclusions based on the results. The primary goal of scientific research is to contribute to the existing body of knowledge, solve problems, and improve our understanding of the world.			

Model 47

Code	Course/Module Title	ECTS	Semester
SIT 404	Non-Parametric Methods	5	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	3.13
Description			
Non-parametric methods are statistical techniques that do not assume a specific distribution for the data. They are particularly useful when the assumptions required for parametric methods (such as normality or homogeneity of variance) are violated or when dealing with ordinal data or non-linear relationships. Non-parametric methods are often more robust and flexible, making them suitable for a wide range of applications.			

Model 48

Code	Course/Module Title	ECTS	Semester
SIT 405	Machine Learning	5	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	3.13
Description			
Machine learning is a subfield of artificial intelligence that enables computers to learn from data without being explicitly programmed. It involves developing algorithms and statistical models that allow systems to make predictions, classify objects, and make decisions based on data .			

Model 49

Code	Course/Module Title	ECTS	Semester
SIT 406	Information Theory	5	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	3.13
Description			
Information theory is a branch of mathematics that deals with the quantification, storage, and communication of information. It was developed in the 1940s by Claude Shannon and has since become a fundamental tool in many fields, including computer science, engineering, and linguistics.			

Model 50

Code	Course/Module Title	ECTS	Semester
SIT 407	Statistical Inferences	6	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
Statistical inference is a fundamental concept in statistics that involves drawing conclusions about a population based on a sample of data. It provides the framework for estimating population parameters, testing hypotheses, and making predictions. The goal of statistical inference is to make informed decisions and predictions while accounting for uncertainty inherent in the data.			

Model 51

Code	Course/Module Title	ECTS	Semester
SIT 408	Experimental Design	6	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8

Description
Experimental design is a crucial aspect of scientific research, allowing researchers to test hypotheses, establish cause-and-effect relationships, and make informed decisions. It involves planning, conducting, and analyzing experiments to ensure that the results are reliable, valid, and generalizable.

Model 52

Code	Course/Module Title	ECTS	Semester
SIT 409	Multivariate	5	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	3.13
Description			
Multivariate analysis is a statistical technique used to analyze multiple variables simultaneously, allowing researchers to understand the relationships between variables and identify patterns in the data. It is a powerful tool for data analysis, providing insights into complex systems and relationships.			

Model 53

Code	Course/Module Title	ECTS	Semester
SIT 410	Artificial Intelligence	5	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	3.13
Description			
Artificial Intelligence (AI) refers to the simulation of human intelligence in machines programmed to think and learn like humans. AI encompasses a wide range of technologies and applications, making it one of the most transformative fields in modern technology.			

Model 54

Code	Course/Module Title	ECTS	Semester
SIT 411	Stochastic Processes	6	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	78	4.8
Description			
A stochastic process is a mathematical model that describes a sequence of random events, where the outcome of each event is uncertain. Stochastic processes are used to analyze and understand complex systems that involve randomness, uncertainty, and probability. They have numerous applications in fields such as finance, biology, physics, engineering, and computer science.			

Model 55

Code	Course/Module Title	ECTS	Semester
SIT 412	Graduation Project	2	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2		33	1.13
Description			
A graduation project is a culminating academic experience that demonstrates a student's mastery of their field of study. It requires a significant amount of research, critical thinking, and problem-solving skills.			