Nanjing Institute of Technology

Course Description

Bachelor of Management
Information Management and Information System
Name: Li Jiaao

(including all basic and specialized courses)

Content

Foreword

In contrast to the European education system, in which not only the time of attendance but also the self-study time contributes to the credit points, only the presence time is considered for credit points in the Chinese education system.

Given the inequality of both systems, the Chinese credit points should be multiplied by a factor of 1.5.

1000 Professional Courses about Mathematics

Assigned Modules:	1001 Advanced Mathematics D I + II
Total ECTS Credits: 27.0	1002 Linear Algebra B
Total Study Hours: 810.0	1003 Operations Research A
	1004 Statistics
	1005 Technique of Data Processing and SPSS

Module: Advanced Mathematics D I + II

Number:	1001	**Duration:**	2 Semester
Credits:	8.0	**ECTS Credits:**	12.0
Score:	78.0 & 72.0	**Study Hours:**	360.0
Language:	Chinese	**Semester:**	Fall Term 2017-2018 Spring Term 2017-2018

Learning Outcomes:	The Students • master the concepts and basic calculation methods of limit, differentiation, and integral of multivariate functions, and understand the similarities and differences with corresponding concepts of unary functions. • master the basic ideas for solving corresponding practical problems, and at the same time further improve their ability to analyze and solve problems.
Content:	• Vector algebra number and space analytic geometry: the concept of vector and the expression of vector, the number product, vector product and mixed product of vector, plane and its equation, space straight line and its equation, space surface, space curve and its equation, quadratic Standard equation of surface • Multivariate function differentiation: the concept of multivariate functions, the limit and continuity of multivariate functions, partial derivatives, total differentiation, the derivation rule of multivariate compound functions, derivatives of implicit functions, high-order partial derivatives and high-order derivatives, directional derivatives and gradients • Multivariate function integrals: double integral, triple integral, generalized double integral, curve integral on arc length, surface integral on area, Riemann integral • Application of calculus of multivariate function: Taylor formula of multivariate function, tangent and normal plane equation of space curve, arc length of curve and envelope of plane curve family, tangent plane and normal equation of curved surface, unconstrained extreme value and existence Constraint extreme value, area of plane figure and surface, volume of geometry, application of multivariate function integral in physics • Curvilinear integration and surface integration of coordinates: Curvilinear integration of coordinates, Green's formula, surface integration of coordinates, Gauss formula and Stokes formula • Ordinary differential equations: basic concepts of differential equations, first-

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order differential equations, high-order differential equations that can be reduced, structure of linear differential equation solutions, high-order linear differential equations with constant coefficients, Euler equations, power series of linear differential equations Solution, constant coefficient linear differential equations

- Vector function and field theory: the limit and continuity of vector function, analytical calculation of vector function, quantity field and its physical quantity, vector field and its physical quantity, several common important fields
- Integral with parameter: the concept and operation of integral with parameter, infinite integral with parameter, Γ function and Β function, application examples of integral with parameter
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Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Linear Algebra B

Number:	1002	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	72.0	Study Hours:	90.0
Language:	Chinese	Semester:	Fall Term 2018-2019

Learning Outcomes:	The Students - are proficient in the basic knowledge, basic theories and basic methods of determinants and matrices, vectors and equations, matrix similarity and quadratic form. - cultivate the consciousness of independent learning and lifelong learning.
Content:	- The definition, nature and calculation of the determinant, the determinant expansion theorem by row (column), Cramer's rule - The concept of n-dimensional vector is related to linear operation, the linear representation of vector, the linear correlation of vector group is independent of linearity, and the maximum linear independent group of vector group is related to rank. The concept of vector space, basis and dimension, coordinates - The concept and operation of matrix, the concepts and properties of identity matrix, diagonal matrix, triangular matrix, symmetric matrix, adjoint matrix, square matrix power, square matrix determinant, inverse matrix concept and properties, matrix invertible conditions - Elementary transformation and elementary matrix of matrix, rank of matrix, use elementary transformation to find the rank of matrix, rank of vector group and maximum linear independent group and inverse matrix - The concept and operation of block matrix, the concept and nature of block diagonal matrix. Base transformation and coordinate transformation, transition matrix - The conditions for homogeneous linear equations to have non-zero solutions, the properties, basic solution system and general solution structure of the homogeneous linear equations - Non-homogeneous linear equations have solution theorems, the properties

	and general solution structure of non-homogeneous linear equations
	• Vector inner product, length, orthogonality, orthogonal matrix and other concepts and properties, Schmidt orthogonalization
	• The concepts, properties and methods of eigenvalues and eigenvectors of matrices, the concepts and properties of similar matrices, the conditions of similar diagonalization of matrices and the diagonalization of matrices, the diagonalization of real symmetric matrices
	• Quadratic form and its matrix representation, the concept and nature of matrix contract, use orthogonal transformation and matching method to transform quadratic form into standard form, the concept and judgment of positive definite quadratic form
Required Modules:	Advanced Mathematics D I + II
Course Form:	Lecture
Exam Form:	Written Examination

Module: Operations Research A

Number:	1003	**Duration:**	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	71.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Fall Term 2019-2020

Learning Outcomes:	The Students
	• correctly understand the methodology of operations research and master the overall optimization ideas of operations research.
	• master the functions and characteristics of basic models such as linear programming, integer programming, nonlinear programming, and dynamic programming. They are familiar with their modeling conditions, steps and corresponding skills, and can abstract appropriate operations research models based on their actual background.
	• are proficient in the solution methods of various models, especially deterministic models, and can make simple analysis of the solution results.
	• master the basic concepts and basic principles related to the basic model, and achieve clear thinking and clear concepts.
	• have the ability to analyze and solve practical problems using operational research ideas and methods, as well as creative thinking and application skills.
Content:	• Introduction: Overview of Operations Research, Mathematical Models of Operations Research
	• Linear programming: linear programming problem, feasible region and feasible solution, simplex method, initial solution, duality and dual simplex method, sensitivity analysis
	• Integer linear programming: integer linear programming problem, Gomory cutting plane method, branch and bound method
	• Non-linear programming: basic concepts, convex function and convex programming, one-dimensional search method, unconstrained optimization method, constrained optimization method
	• Dynamic programming: optimization principle, deterministic periodic multi-

	stage decision-making problems, deterministic irregular multi-stage decision-making problems
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Statistics

Number:	1004	**Duration:**	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	84.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Spring Term 2019-2020

Learning Outcomes:	The Students • master basic concepts such as sample space, random events, and event probability, understand the stability of frequency, understand the relationship and calculation of events, and are familiar with some properties of probability, and will use them to calculate probability. • are proficient in calculating the probability of classical probabilities. • master conditional probability, multiplication theory, and the independence of events, and use them to calculate probability. • master the total probability formula and Bayesian formula, and use them to calculate the probability of an event.
Content:	• Random events: sample space and random events, time-related operations • The probability of events: the concept of probability, classical probabilities, geometric probabilities, and axiomatic definitions of probability • The independence of conditional probability and time: conditional probability, total probability formula, Bayesian consensus, independence of events, Bernoulli test and binomial probability, subjective probability • Random variables and their distribution: random variables and distribution functions, discrete random variables, continuous random variables • Two-dimensional random variables and their distribution: two-dimensional random variables and distribution functions, two-dimensional discrete random variables, two-dimensional continuous random variables, marginal distribution, independence of random variables • The function and distribution of random variables: the function and distribution of one-dimensional random variables, the distribution of functions of multivariate random variables • Numerical characteristics of random variables: mathematical expectation and median, variance and standard deviation, covariance and correlation coefficient, Chebyshev's inequality and law of large numbers, central limit theorem • Statistics and sampling distribution • Point estimation: point estimation problem, estimation method, goodness of point estimation • Interval estimation: confidence interval, confidence interval under normal population, sampling inference • Hypothesis testing: basic principles of testing, significance level testing and

	normal population testing, goodness of fit testing • Unary linear regression: some basic concepts, testing and confidence inference of unary linear regression, prediction
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Technique of Data Processing and SPSS

Number:	1005	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	70.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Spring Term 2019-2020

Learning Outcomes:	The Students • understand and master the main concepts, basic ideas and basic methods of this subject. • learn to use their knowledge to solve some simple multivariate statistical problems and can do some statistical analysis of simple data. • master commonly used statistical analysis methods and can implement these operations through software, and use SPSS to implement descriptive statistical analysis, parametric testing, non-parametric testing, and analysis of variance.
Content:	• Getting started with SPSS: The characteristics and main application areas of SPSS software, the basic windows, menu arrangements and basic operations of SPSS software, the three ways of using SPSS and their characteristics and applications, the basic steps of SPSS for data analysis. • Data entry and data acquisition: basic operations such as SPSS entry and exit, basic window and menu arrangement of SPSS, establishment and management of SPSS data files, reading of data files in other formats, and merge of SPSS data files • SPSS data management: the basic methods and specific operations of SPSS data screening, the basic operations of SPSS data sorting and counting, the meaning and specific operations of SPSS classification and summary, the characteristics and use occasions of various data groups, and the operation of SPSS group spacing groups Operation, using the weighting function to restore the SPSS calculation data to the original data. • SPSS statistical description analysis: the basic method of SPSS frequency analysis and its specific operation, the basic description of the meaning of statistics and the specific operation of calculation, the basic method of cross-contingency table analysis, the basic idea of chi-square test and the chi-square test On-machine operation, using multiple options analysis for data analysis of different split methods and applications of multi-options • Graphic display of data: table editing, table drawing, table template, pie chart, bar chart, histogram, scatter chart • Distribution type test: basic idea of hypothesis test, normal distribution test, binomial distribution test, run test • SPSS parameter test: t test

	• SPSS one-way analysis of variance • SPSS nonparametric test • SPSS chi-square test
Required Modules:	Statistics
Course Form:	Lecture
Exam Form:	Written Examination

2000 Professional Courses about Informatics

Assigned Modules: **Total ECTS Credits: 45.0** **Total Study Hours: 1350.0**	2001 Computer Fundamentals A 2002 Data Structure 2003 GX University Computer - An Introduction to Computational Thinking 2004 Programming Language C 2005 Programming Language Java 2006 Curriculum Project of JAVA 2007 Programming in Java 2008 Objective-Oriented Programming 2009 Objective-Oriented Programming 2010 Computer Network B 2011 Webpage Design and Production 2012 Website Design and Planning

Module: Computer Fundamentals A

Number:	2001	**Duration:**	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	93.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Fall Term 2017-2018

Learning Outcomes:	The Students • can master basic computer knowledge, basic use methods of microcomputers, text information processing methods, data information processing techniques and some basic use methods of microcomputer tools.
Content:	• Computer basic knowledge: information and data, information technology, information construction, computer development, classification, characteristics and applications, coding representation of information in computers, computer system composition, microcomputer systems, multimedia technology foundations • Windows operating system: Windows operating system characteristics, operating environment, Windows startup and exit, basic knowledge of Windows desktop, windows, dialog boxes, menus, toolbars and clipboards, file and folder operations, introduction to accessory programs, Windows Environment setting and system maintenance, Chinese input method • Word processing software Word: the development of word processing software, the main functions of Chinese Word, the start and exit of Word, the role and use of the Word interface and its menus, toolbars, and status bars, document editing, formatting documents, table operations, inserting Graphics and objects, layout design and document printing, introduction to other functions of Word, presentation of presentations • The use of Access: basic concepts of databases, basic operations of databases, creation of data tables and queries, operations of creating forms

	and reports, and printing of data • Computer network foundation: the concept and development process of computer network, composition, classification and function, computer network protocol and architecture, basic knowledge of computer network, network function of Windows • Internet foundation: Internet history, TCP/IP protocol, IP address and domain name system, Internet applications, browser settings, information retrieval using search engines, email account settings and use, file transfer and remote login • Web page creation: HTML introduction, FrontPage overview, web page creation • Introduction to computer network information security: network information security, computer crime, password technology, firewall, intellectual property protection
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Data Structure

Number:	2002	Duration:	1 Semester
Credits:	3.0	ECTS Credits:	4.5
Score:	70.0	Study Hours:	135.0
Language:	Chinese	Semester:	Fall Term 2018-2019

Learning Outcomes:	The students • have a deep understanding of the various commonly used data structures and the logical relationships between various data structures. • are proficient in the storage representation of various data structures in the computer and the computational and practical algorithms on these data structures, and can make a brief analysis of the efficiency of the algorithm. • are able to learn how data is organized and how computers are represented by actual problems.
Content:	• Introduction: Basic concepts and terminology, representation and implementation of abstract data types, algorithms and algorithm analysis • Linear tables: types and definitions of linear tables, sequential representation and implementation of linear tables, chained storage and implementation of linear tables, representation and addition of unary polynomials • Stacks and queues: definition and implementation of stacks, application of stacks, definition and implementation of queues, application of queues • Array: type definition of array, sequential representation and implementation of array, compressed storage of matrix • String: type definition of string, representation and implementation of string, pattern matching • Trees and binary trees: definitions and basic terms of trees, binary trees, traversing binary and clue binary trees, trees and forests, Huffman trees and their applications

	• Figure: The definition and terminology of the graph, the storage structure of the graph, the traversal of the graph, the connectivity problem of the graph, the directed graph and its application, the shortest path • Sorting: Insert sort, quick sort, select sort, merge sort, compare discussion of various internal sorting methods • Find: static lookup table, dynamic lookup table, hash table
Required Modules:	Computer Fundamentals A
Course Form:	Lecture
Exam Form:	Written Examination

Module: GX University Computer - An Introduction to Computational Thinking

Number:	2003	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	90.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Fall Term 2017-2018

Learning Outcomes:	The Students • master the basic knowledge of Python basic grammar, strings, lists, tuples, dictionaries, file reading and writing, functions and modules. • understand the characteristics, development and recommended learning methods of Python, and then learn basic Python syntax, flow control statements, data types, functions, modules, object-oriented, file operations, exception handling, database operations, and third-party library related knowledge.
Content:	• Data types and Python environment • Spyder interface and common sentences • Judgment statement and loop statement • NumPy and Pandas application basics • Data access and network data reading • Graph drawing and visualization • Descriptive statistics • Correlation analysis and unary regression data analysis • Multiple regression data analysis • Machine learning • Python application of time series • Python applications for quantitative data analysis
Required Modules:	Computer Fundamentals A
Course Form:	Lecture
Exam Form:	Written Examination

Module: Programming Language C

Number:	2004	Duration:	1 Semester
Credits:	3.0	ECTS Credits:	4.5
Score:	83.0	Study Hours:	135.0
Language:	Chinese	Semester:	Spring Term 2017-2018

Learning Outcomes:	The Students • could apply C features to program design and implementation. • could explain object-oriented concepts and describe how they are supported by C including identifying the features and peculiarities of the C programming language. • are able to use C to demonstrate practical experience in developing object-oriented solutions.
Content:	• Basic data types and input and output: character set and reserved words, basic data types, variable definitions, constants, I/O flow control, Print and scan • Expressions and statements: expressions, arithmetic operations and assignments, arithmetic type conversions, increments and decrements, relational and logical operations, IF statements, conditional operators, comma expressions, evaluation order and side effects • Procedure statement: While statement, Do... while statement, For statement, Switch statement, steering statement, process application • Functions: function prototype, global variables and local variables, function call mechanism, static local variables, recursive functions, inline functions, overloaded functions, default parameter functions • Program structure: external storage type, static storage type, scope, visibility, lifetime, header file, multi-file structure, compilation pre-processing • Array: define, access array elements, initialize array, pass array two-dimensional array to function • Pointers: pointer concepts, pointer arithmetic, pointers and arrays, heap memory allocation, pointers and functions, character pointers, pointer arrays, command line arguments, function pointers • Reference: the concept of a reference, the operation of a reference, passing a function argument with a reference, returning a value with a reference, calling the function as lvalue, returning a reference to the variable in the heap • Structure: structure and pointer, structure and array, pass, structure parameters, return structure, linked list structure, create and traverse linked list, delete linked list nodes, insert linked list nodes • Functions • Pointer and Application of Pointers - Linked List • Bit Operations • Files • Compilation Preprocessing • Introduction to C Language Drawing Function
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Programming Language Java

Number:	2005	Duration:	1 Semester
Credits:	3.0	ECTS Credits:	4.5
Score:	77.0	Study Hours:	135.0
Language:	Chinese	Semester:	Fall Term 2018-2019

Learning Outcomes:	The Students • understand how polymorphism, abstract classes, and interfaces are used in a real object-oriented programming process. • are familiar with and master various design patterns and their application methods in object-oriented programming.
Content:	• Java's basic data types (value types) and reference types • Java statements, methods and method overloads, Java arrays • Java classes, abstract classes and interfaces • How to use the commonly used classes in Java JDK such as String, StringBuffer, and basic data types of packaging classes • Use methods of container classes commonly used in Java JDK such as ArrayList and HashMap • Java generics • Java multithreading • Java exception handling • The concepts of inheritance, aggregation, overloading, polymorphism and their application in object-oriented programming • Object-oriented modeling and its application in object-oriented programming • Introduction to object-oriented design patterns and its application in object-oriented programming • JAVAFX user interface programming
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Curriculum Project of JAVA

Number:	2006	Duration:	1 Semester
Credits:	1.0	ECTS Credits:	1.5
Score:	85.0	Study Hours:	45.0
Language:	Chinese	Semester:	Fall Term 2018-2019

Learning Outcomes:	The Students • master the specifications and ideas of JAVA language programming, and have the ability to write small programs.
Content:	• JAVA overview, development tool introduction, examples • JAVA basics, variables, statements, data type conversion • JAVA process control

	• Method declaration, call, parameter passing
	• Array declaration, operation, parameter, string
	• Object-oriented programming concepts, classes, objects
	• Class encapsulation, polymorphism and inheritance
	• Interfaces and packages: abstract classes and methods, interface packages
	• Guide often processing, try...catch...finally
	• Input and output: class library, file operation
	• Graphical user interface, AWT package, SWING package
	• Advanced user interface, GUI design, manager, event handling
	• Applet program
	• Multi-threaded, multi-threaded mechanism
	• Database programming: JDBC build data source, etc.
	• Network programming: URL type, SOCKET communication
Required Modules:	Programming Language Java
Course Form:	Practice
Exam Form:	Practical Report

Module: Programming in Java

Number:	2007	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	77.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Spring Term 2018-2019

Learning Outcomes:	The Students • master the basics of JAVA programming and JAVA's object-oriented programming techniques and applications.
Content:	• Overview of the Java language: the history of the development of Java, the characteristics of the Java language, the similarities and differences with the C and C++ languages, an introduction to the actual application of Java, the implementation and operating mechanism of Java, the development and operating environment of Java programs, the types and examples of Java programs, package and Use of import statement, JavaAPI documentation • Java language foundation: Introduction to basic data types, keywords and identifiers, Java operators and expressions, examples of simple data type programs, arrays, branch statements, loop statements, and other statements • Classes and objects: Introduction to OOP, class definitions, construction methods, method overloading, package and import, class member variables and method access rights, instance members and class members, finalize() method • Inheritance, polymorphism and interfaces: Inheritance (sexuality), final, this, super, polymorphism (method coverage), Object, Class, abstract classes and abstract methods, interfaces, nested classes, introduction to Jar files • Commonly used system classes: string constants, introduction to the String class, introduction to the StringBuffer class, application of the StringTokenizer class, conversion between strings and other data types, the main classes in the Java.lang package, Java data type packaging classes, Java collection

	framework, Collection , Map, Set, List, Iterator and other interfaces, TreeSet, HashSet, ArrayList, LinkedList, Vector, HashMap, HashTable, TreeMap, Collections, other tool classes (Java.util.*), Date, Calendar, Properties, Random • JavaApplet: Introduction to Applet, Applet mark, AppletViewer, simple application, Java support for multimedia, Applet communication, Applet AWT drawing • Graphical user interface programming: Java graphical interface overview, Java.awt package, containers and components, commonly used containers and layout managers, AWT event model, event processing model, event objects and event handlers, AWT drawing, commonly used GUI standard components, mouse and keyboard events, the use of menus, the use of dialog boxes • Exception handling: what is the exception of Java, the division of exception classes, the exception handling mechanism of Java, the handling of exceptions • Streaming input/output and file processing: I/O stream division (including basic stream types), byte stream processing, character stream processing, serialization • Multithreading: thread concept, thread creation (including thread body construction), thread status and basic control (including priority), multithreaded mutual exclusion and synchronization, critical resources and mutual exclusion locks (Synchronized), multithreaded Synchronization (wait and notify) • JDBC technology and database application: Overview of JDBC, access to the database through JDBC • Java network programming: URL overview, Socket communication, datagram communication
Required Modules:	Programming Language Java
Course Form:	Lecture
Exam Form:	Written Examination

Module: Objective-Oriented Programming

Number:	2008	**Duration:**	1 Semester
Credits:	4.0	**ECTS Credits:**	6.0
Score:	83.0	**Study Hours:**	180.0
Language:	Chinese	**Semester:**	Fall Term 2019-2020

Learning Outcomes:	The Students • master the basic concepts and basic principles of object-oriented programming, and master some common object-oriented programming practical development methods and techniques. • master how to develop software projects with object-oriented techniques and methods, as well as the similarities and differences between visual programming methods, event-driven methods, and process-oriented programming methods.
Content:	• Introduction: Development of computer programming language, object-

	oriented approach, object-oriented software development, information representation and storage, basic C++ programming for program development: C++ language overview, basic data types and expressions, data input and Output, basic control structure of the algorithm, custom data type
	• Functions: definition and use of functions, inline functions, functions with default parameter values, function overloading, C++ system functions
	• Constructors and destructors, combinations of classes, UML graphics, structures, and unions
	• Data sharing and protection: scope and visibility of identifiers, lifetime of objects, static members of classes, friends of classes, protection of shared data, multi-file structure and compile pre-command commands
	• Arrays, pointers, and strings: arrays, pointers, dynamic memory allocation, array objects created with vectors, deep copy and shallow copy, strings
	• Inheritance and Derivation: Class inheritance and derivation, access control, type compatibility rules, constructor and destructor of derived classes, identity and access of derived class members
	• Polymorphism: Polymorphism Overview, Operator Overloading, Virtual Functions, Pure Virtual Functions, and Abstract Classes
	• Stream class library and input and output: I/O stream concept and stream class library structure, output stream, input stream, input and output stream
	• Exception handling: basic idea of exception handling, implementation of C++ exception handling, construction and destruction in exception handling, standard library exception handling
	• Complex programming issues such as: the concept of multithreaded programs, typical synchronization problems and common solutions to these
	• Programming for portable devices in Java
	• Manual and automated software testing principles and methods
	• Class: from structure to class, defining member functions, calling member functions, protecting members, internal implementation of masked classes
	• Constructors: classes and objects, use of constructors, destructors, constructors with arguments, overloaded constructors, default constructors
	• Object-oriented programming: abstraction, classification, design and efficiency, structured methods, object-oriented methods
	• Heap and copy constructor: about heap, copy constructor, default copy constructor, temporary object, unnamed object, constructor for type conversion
	• Static members and friends: use of static members, static data members, static member functions, use of friends
	• Inheritance: the concept of inheritance, the way in which inheritance works, the construction of derived classes, inheritance and composition
Required Modules:	Programming Language C
Course Form:	Lecture
Exam Form:	Written Examination

Module: Objective-Oriented Programming

Number:	2009	**Duration:**	1 Semester
Credits:	1.0	**ECTS Credits:**	1.5
Score:	95.0	**Study Hours:**	45.0

Language:	Chinese	Semester:	Fall Term 2019-2020

Learning Outcomes:	The Students
	• can debug C++ programs in VISUAL C++ environment and are familiar with the characteristics of C++ language.

Content:	• Use of Visual C++ Integrated Programming Environment • Class and object • C++ program structure • Arrays, pointers and strings • Inheritance and Derivation • Polymorphism • Templates and files

Required Modules:	Programming Language C
Course Form:	Lecture
Exam Form:	Written Examination

Module: Computer Network B

Number:	2010	Duration:	1 Semester
Credits:	3.0	ECTS Credits:	4.5
Score:	75.0	Study Hours:	135.0
Language:	Chinese	Semester:	Fall Term 2018-2019

Learning Outcomes:	The students
	• can learn about computer network development and principle architecture, physical layer, data link layer, network layer, transport layer, application layer, network security, audio/video services on the Internet, wireless networks, and next-generation Internet.

Content:	• Overview: The role of computer networks in the information age, the Internet overview, the composition of the Internet, the development of computer networks in China, the category of computer networks, the performance of computer networks, the architecture of computer networks • Physical layer: basic concept of physical layer, basic knowledge of data communication, transmission medium under physical layer, channel multiplexing technology, digital transmission system, broadband access technology • Data link layer: Data link layer using point-to-point channel, point-to-point protocol PPP, data link layer using broadcast channel, Ethernet using broadcast channel, extended Ethernet, high-speed Ethernet, other types of high-speed LAN or interface • Network layer: two services provided by the network layer, Internet Protocol IP, subnetting and construction super network, Internet Control Message Protocol ICMP, Internet routing protocol, IP multicast, virtual private network VPN and network address translation NAT • Transport layer: transport layer protocol overview, user datagram protocol UDP, transport control protocol TCP overview, reliable transmission working

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principle, TCP packet header format, TCP reliable transmission implementation, TCP traffic control, TCP congestion control, TCP transport connection management
- Application layer: Domain Name System DNS, File Transfer Protocol, Remote Terminal Protocol TELNET, World Wide Web WWW, Email, Dynamic Host Configuration Protocol DHCP, Simple Network Management Protocol SNMP, Application Process Cross-Network Communication
- Network security: an overview of network security issues, two types of cryptosystems, digital signatures, authentication, key distribution, security protocols used by the Internet, link encryption and end-to-end encryption, firewalls
- Audio/Video Services on the Internet: Streaming Audio/Video, Interactive Audio/Video, Improving "Best Delivery" Service
- Wireless network: wireless LAN WLAN, wireless personal area network WPAN, wireless metropolitan area network WMAN
- Next Generation Internet: Next Generation Internet Protocol IPv6 (IPng), Multi-Protocol Label Switching MPLS, P2P File Sharing
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Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Webpage Design and Production

Number:	2011	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	80.0	Study Hours:	90.0
Language:	Chinese	Semester:	Spring Term 2018-2019

Learning Outcomes:	The Students - should have a broad understanding of the design and technical knowledge of Web site development. - understand and master the art design, visual communication, information architecture, computer science and programming knowledge necessary to develop a Web site. - can combine Web programming technology to solve certain practical problems, and combine these technologies with artistic design to achieve efficient and attractive Web design.
Content:	- Web basics and overview: the working principle of the Web, Internet network protocols, IP address, domain name and URL, hypertext markup language HTML, extensible markup language XML - Creating web pages: a brief history of HTML, the syntax of XHTML - Advanced XHTML: Use XHTML to implement the basic operations of tables and tables in the page, use tables to layout the overall page, search engines and pages, forwarding pages, portable pages, the role of frameworks, common page errors, and page inspection and verification - Design basis: a brief history of design and web design, design elements, unification and changes of design elements, level, contrast and visual balance in design, CSS design, and page design using CSS.

	• Information architecture, page layout and typesetting: the concept of layout, Web site architecture, information system structure, organizational framework, basic typesetting, reading fonts on the Web, commonly used font families, layout grids, evaluation of Web grids • Color and graphics: color theory history, color wheel, harmony, contrast and other concepts, Web colors and the meaning and readability of colors, colors on computers, image coding formats, and the use of appropriate colors in Web programming • Forms and form processing, Client-side script JavaScript • Graphics, audio and video and site production, Perl and CGI programming
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Website Design and Planning

Number:	2012	**Duration:**	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	93.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Spring Term 2019-2020

Learning Outcomes:	The Students • can use the Dreamweaver8 operating environment proficiently, master the grammatical rules of HTML, and can make use of the powerful functions of Dreamweaver8 to make beautiful web pages, and can create and manage websites independently.
Content:	• Introduction to Dreamweaver8: Dreamweaver8's working interface, custom working environment, choice of view mode, new functions • Basic knowledge of webpages and websites: webpage design and layout principles, planning and creation principles, website development process • HTML language control: What is HTML, the basic syntax of HTML, recognize the "Code Checker" panel, set HTML code parameters, clean up HTML code, edit HTML code • Set text and web page properties: basic operations of the document, input text, search and replace "Find and Replace" dialog box, spell check "Check Spelling" dialog box, format text, use horizontal dividers, set web page properties • Use webpage image: brief description of webpage image, insert image, edit image, create image map • Create and use tables: create tables, edit tables, apply table styles, nest tables, use tables for page layout • Create and use frame: create frame and frame set, select frame and frame set, set frame and frame set properties, edit frame page • Create and use layers: create layers, set layer properties, edit layers, layer and table conversion layers • Forms: basic concepts of forms and form elements, text fields and text areas, check boxes, radio buttons and radio button groups, list boxes and pop-up

	menus
	• Add hyperlinks and navigation toolbars: the concept of hyperlinks, link paths, use internal hyperlinks, external hyperlinks, add hyperlinks to E-mail and download files, use anchors, use navigation toolbars
	• Cascading style sheets: overview of cascading style sheets, creation, editing and export of CSS styles, application class styles, setting CSS style attributes, priority order of CSS styles
	• Insert multimedia components: insert multimedia file introduction, add Flash animation, insert Shockwave movie, insert JavaApplet program, set ActiveX control, set NetscapeNavigator plug-in, add sound in web page, insert date and time, use counter
	• Generate dynamic special effects: behaviors, application behaviors, dynamic special effects examples in Dreamweaver8
	• Libraries and templates: Overview of libraries and templates, use library items, edit library items, update websites with library items, create templates, create templates-based documents, modify template attributes, import and export XML content
	• Planning and designing the site: about site planning and design, several concepts about local and remote, creating a local site, setting up local and remote folders, and managing Web sites
	• Upload site: apply for website space, upload site, website promotion and promotion
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

3000 Professional Courses about Economic Informatics

Assigned Modules:	3001 Electronic Commerce A
Total ECTS Credits: 31.5	3002 Curriculum Project of Electronic Commerce
Total Study Hours: 945.0	3003 The Analysis on Implementation of Electronic Commerce
	3004 Introduction to Management Information System (Bilingual)
	3005 Analysis and Design of Information System
	3006 Analysis and Design of Information System
	3007 Internet Marketing
	3008 KX Internet Finance
	3009 Multimedia Technology and Application

Module: Electronic Commerce A

Number:	3001	**Duration:**	1 Semester
Credits:	4.0	**ECTS Credits:**	6.0
Score:	73.0	**Study Hours:**	180.0
Language:	Chinese	**Semester:**	Spring Term 2018-2019

Learning Outcomes:	The Students
	• master the basic concepts and characteristics of e-commerce, the composition and commonly used technologies of e-commerce transaction systems, commonly used encryption technologies, types and functions of firewalls, authentication protocols and certification centers, commonly used electronic money and online payment systems, e-commerce logistics technologies and operations Mode, basic knowledge and common marketing methods of network marketing, concepts and main content of e-commerce law.
	• can master the search, collection and processing technology of business information, the use of security protocols and authentication technology in application software, the operation process and background processing process of e-commerce transactions.
	• have the ability to comprehensively apply knowledge of network technology, Internet technology and web page production technology, as well as the comprehensive ability to apply and operate e-commerce transaction systems.
Content:	• Overview of e-commerce: basic concepts of e-commerce, development status of e-commerce, influence of e-commerce
	• E-commerce technology foundation: computer network communication technology, TCP/IP system structure WWW technology and application, Internet access method, EDI technology
	• Commercial website construction and e-commerce: typical website examples, website planning and design, e-commerce processes and characteristics, e-shop construction and management
	• E-commerce security system: security threats to network systems and e-

	commerce transactions, encryption technology, firewall technology, authentication technology, characteristics of SSL, SET protocol, e-commerce security strategy
	• Electronic payment: the concept of electronic payment system, the types, characteristics, and electronic systems of electronic money, the meaning, characteristics, and advantages of online banking
	• Logistics distribution: the concept and content of modern logistics, the characteristics of logistics distribution, logistics information technology, logistics and supply chain management content and methods
	• E-commerce law: the background of e-commerce law, the legal relationship of e-commerce participants, the characteristics of e-contracts, laws and regulations concerning network security and transaction security
	• Internet marketing: Internet marketing concepts, basic theories, Internet marketing methods and strategies, corporate website promotion, online advertising, online research, online customer service, online business information collection and release
	• E-government: the basic content and structure of e-government, the development of e-government
	• Customer relationship management: the concept and reasons of customer relationship management, the composition of customer relationship management system, system implementation and management
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Curriculum Project of Electronic Commerce

Number:	3002	**Duration:**	1 Semester
Credits:	1.0	**ECTS Credits:**	1.5
Score:	85.0	**Study Hours:**	45.0
Language:	Chinese	**Semester:**	Spring Term 2018-2019

Learning Outcomes:	The Students
	• understand the composition of e-commerce systems and the basic principles of e-commerce activities, and understand the basic operating procedures of information flow, capital flow, and logistics in e-commerce activities.
	• master the use of basic network tools, can use them to engage in basic e-commerce activities, and master the relevant technologies to realize e-commerce security.
	• understand the basic functions of online banking, master the basic processes and procedures of electronic payment, and master the negotiation process of electronic contracts.
Content:	• Use of Internet and network tools
	• B2C e-commerce simulation
	• B2B e-commerce simulation
	• Realization of Safe Transaction and Electronic Payment
	• Electronic transaction contract negotiation

Required Modules:	Electronic Commerce A
Course Form:	Practice
Exam Form:	Practical Report

Module: The Analysis on Implementation of Electronic Commerce

Number:	3003	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	85.0	Study Hours:	90.0
Language:	Chinese	Semester:	Spring Term 2019-2020

Learning Outcomes:	The Students • master e-commerce case analysis methods, are familiar with e-commerce operation ideas, understand e-commerce from an operational perspective, and have the ability to conduct case analysis and innovative applications based on professional knowledge.
Content:	• E-commerce starting abroad and domestic development • Common E-commerce Models and Model Innovation • E-commerce product development and corporate positioning • E-commerce market segmentation and field deepening • E-commerce business operation and marketing promotion • E-commerce brand creation and derivative services • E-commerce logistics express and transportation • E-commerce financial services and venture capital
Required Modules:	Electronic Commerce A
Course Form:	Practice
Exam Form:	Practical Report

Module: Introduction to Management Information System (Bilingual)

Number:	3004	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	86.0	Study Hours:	90.0
Language:	Chinese & English	Semester:	Spring Term 2018-2019

Learning Outcomes:	The Students • have a deeper understanding of the theory and application of information systems, systematically understand the concept and structure of management information systems and are familiar with the application of information technology in organizational management. • basically master the process and methods of information system development, and initially have the ability to correctly use, manage and organize information systems, and cultivate the ability to integrate

	management concepts into MIS, making them middle- and high-level managers in the information society.
Content:	• Definition, concept and structure of management information system: concept of management information system, structure of management information system, development of management information system, subject content of management information system and relationship with other disciplines • Basic knowledge of management: definition and nature of management, organization of management • Basic knowledge of information: definition and nature of management information, various stages of information life cycle • The concept and nature of the system: system definition, system classification, system performance evaluation, system planning and control • System integration: concept and importance of integration, classification of system integration, integration strategy • Computer system: the development of computer, the basis of computer operation • Computer hardware: central processor, storage system, input / output devices • Computer software: concept of software, system software, programming language • Communications and networks: communications systems, types of communications networks, enterprise computer networks • Database resource management technology: file organization, database technology • Application system classification: evolution of information system role, application system classification, multi-dimensional model of application system • Functional information system: the status quo of the application of financial information system in China, the functional structure of accounting information system, introduction of main functional modules, financial information system • Organizational information system: the basic concept of MRP-II, the composition of MRP-II, the status quo and development trend of the application of MRP-II in China • Decision support system: basic concepts of decision-making, decision-making process, basic concepts of DSSS, structural model and basic functions of DSSS, technical level of DSSS, development of DSSS • Information system planning: the concept of management information system strategic planning, the main methods of management information system planning, and feasibility studies • Management information system development methods: selection of development strategies, structured system development methods, prototype methods, object-oriented development methods, computer-aided development methods • System analysis: system detailed investigation, organization structure and function analysis, business process analysis, data and data process analysis, function / data analysis, establishment of new system logic scheme • System design: system overall structure design, code design, data structure and database design, input and output design, module function and process design, system design report • System implementation, evaluation and operation management: system implementation, information system evaluation system
Required Modules:	None

Course Form:	Lecture
Exam Form:	Written Examination

Module: Analysis and Design of Information System

Number:	3005	Duration:	1 Semester
Credits:	4.0	ECTS Credits:	6.0
Score:	64.0	Study Hours:	180.0
Language:	Chinese	Semester:	Fall Term 2019-2020

Learning Outcomes:	The Students • master the basic methods, techniques and applications of information system construction and management. • have the preliminary ability to analyze and solve practical problems in information system planning, system analysis, system design, system implementation, and system maintenance and management, expand their knowledge and improve their ability to deal with the development of different types of information systems in the future.
Content:	• Information system: information, system, information system, development of information system, development trend of information system, development of information system under INTERNET • Introduction to information system development: complexity of information system construction, overview of information system development, organization and management of information system development, information system development methods, information system development methods • System planning: overview of system planning, tasks and functions of system planning, content and characteristics of system planning, principles and advantages of system planning, system planning methods, feasibility studies of system planning • Structured system analysis: system analysis tasks, system analysis goals, system analysis content, system analysis methods, detailed investigations, business analysis, data flow analysis, data dictionary, description of processing logic, data immediate access diagram, new System logic model, system analysis specification • Object-oriented system analysis: object-oriented technology, unified modeling language (UML), the basic process of object-oriented system analysis, identification of the goals and system boundaries of information systems, object and class diagrams, sequence diagrams • Structured system design: system design goals, system design principles, system design content, system design methods, functional module design, system physical configuration design, code design, database design, man-machine interface design, process design, System design specification • Object-oriented system design: OOD system model, OOD design • System implementation: tasks in the system implementation stage, characteristics of the system implementation stage, steps in the system implementation stage, top-down implementation method, system implementation risk assessment, program development, software testing, system conversion

	• System maintenance and evaluation: system maintenance, system evaluation
Required Modules:	Introduction to Management Information System (Bilingual)
Course Form:	Lecture
Exam Form:	Written Examination

Module: Analysis and Design of Information System

Number:	3006	**Duration:**	1 Semester
Credits:	1.0	**ECTS Credits:**	1.5
Score:	90.0	**Study Hours:**	45.0
Language:	Chinese	**Semester:**	Fall Term 2019-2020

Learning Outcomes:	The Students • understand and comprehend some general analysis and design methods of information systems, as well as master some commonly used implementation tools. • have a strong level of computer operation, software engineering implementation specifications, relatively proficient network programming technology and program design and debugging methods.
Content:	• Analysis of Information System Operation Mode • System modeling of a imagined company • Database Design of Information System • Information system input and output design • Information System User Interface and Interface Design • Object-oriented system design based on UML
Required Modules:	Introduction to Management Information System (Bilingual)
Course Form:	Lecture
Exam Form:	Written Examination

Module: Internet Marketing

Number:	3007	**Duration:**	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	88.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Spring Term 2019-2020

Learning Outcomes:	The Students • master the basic principles, knowledge and methods of network marketing, and master the theoretical basis of network marketing in a comprehensive and systematic manner. • master the latest online marketing tools and skills, complete basic training in online marketing methods and skills, and be able to apply in-depth online

	marketing platforms and tools that are popular nowadays. • can use the content learned in the course to think and analyze various network marketing phenomena in daily life, and can plan network marketing activities according to the marketing goals of the company.
Content:	• Overview of network marketing: the concept, functions, characteristics, development history of network marketing, the relationship between network marketing and traditional marketing • Network marketing environment: the meaning of network marketing environment, macro environment, micro environment, online consumer analysis, online market analysis • E-commerce strategy and evaluation indicators: e-commerce strategy, ESP model, e-commerce model, performance evaluation indicators • Network marketing plan: the connotation and function of the network marketing plan, the seven steps to make the network marketing plan • Network marketing strategy: market segmentation strategy, target market positioning, differentiation strategy, market positioning and China's strategic positioning in the international market • Internet marketing research: data-driven strategy, big data, marketing knowledge management, other research methods based on information technology, field research methods, marketing databases and data warehouses, data analysis and submission • Network products: Overview, combination strategy of network marketing products, brand strategy of network products, network marketing to promote product development • The price of network products: the pricing of the Internet world, the pricing views of buyers and sellers, and pricing strategies • Internet and Distribution Channels: Overview of Distribution Channels, Types of Online Marketing Channels, Online Channel Members, Functions of Online Marketing Channels • Owned media: overview of network marketing communication, integrated marketing communication, integrated marketing goals and strategies, marketing communication methods: own media, paid media, word-of-mouth media • Paid Media: Overview, Trust in Paid Media, Development and Trends of China's Internet Advertising Industry, Paid Media Forms, Social Media Advertising, Paid Media on Weibo, Paid Media on WeChat, Paid Media on Facebook, Online Video Paid media, paid search • Word-of-mouth media: user participation level, encourage users to create word-of-mouth media, online reputation management, and word-of-mouth media performance evaluation indicators
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: KX Internet Finance

Number:	3008	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	96.0	**Study Hours:**	90.0

Language:	Chinese	Semester:	Fall Term 2019-2020

Learning Outcomes:	The Students • master the basic theory, knowledge and main analysis methods of Internet finance. • master the problem-oriented Internet finance case analysis method and can conduct in-depth analysis of fresh Internet finance problems to obtain effective conclusions and express them correctly. • master the analysis tools of Internet finance and the application methods of various financial databases, and gradually have the ability to apply advanced tools to solve practical problems of Internet finance.
Content:	• Introduction: Overview of Internet Finance, Development and Reform of the Financial Industry, Internet Finance and Financial Internet • Internet-induced financial changes: an overview of the development of the Internet, social changes caused by the Internet, and financial changes caused by the Internet • Internet Finance Theory and Logic: Information Economics, Industrial Organization Theory, Financial Intermediary Theory, Financial Function Theory, Financial Deepening Theory, Inclusive Finance Theory • The main modes of Internet finance: third-party payment model, P2P model, crowdfunding model, big data financial model • Risk management of internet finance: payment and clearing risks of internet finance platforms, information risks of internet finance platforms, operational risks on internet finance platforms • Internet finance supervision: Internet finance supervision institutions, Internet finance supervision rules
Required Modules:	None
Course Form:	Practice
Exam Form:	Practical Report

Module: Multimedia Technology and Application

Number:	3009	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	89.0	Study Hours:	90.0
Language:	Chinese	Semester:	Fall Term 2020-2021

Learning Outcomes:	The Students • master the basic concepts, technologies and applications related to network multimedia technology, learn to use multimedia hardware devices and multimedia software environments, and can use multimedia authoring tools to develop multimedia application software or make multimedia works from an application perspective.
Content:	• Summary of Multimedia Basics: The concept of multimedia, the compression and coding of multimedia data, multimedia and optical discs, multimedia and networks, multimedia international standards, multimedia content processing,

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towards the information age
- Data lossless compression: data redundancy, statistical coding, RLE coding, dictionary coding
- Digital sound coding: introduction to sound, digitization of sound signals, MOS scoring standards for sound quality, pulse code modulation (PCM), application of PCM in communications, delta modulation and adaptive delta modulation, adaptive differential pulse code modulation, G .722SB-ADPCM codec, the concept of linear predictive coding (LPC), introduction to GSM sound, summary of speech coding standards
- Basics of color digital image: the perception of color by the visual system, the color model of the image, the three basic attributes of the image, the type of image, gamma (γ) correction, JPEG compression coding, image file format
- Color measurement system: a brief history of color science, several terms describing color, summary of color measurement system, Munsell color system, Ostwald color system, CIE color system
- Wavelet and Wavelet Transform: Introduction to Wavelet, Haar Function, Haar Wavelet Transform, Normalization Algorithm, Two-dimensional Haar Wavelet Transform
- Wavelet image coding: from subband coding to wavelet coding, PSNR distortion measurement, EZW coding, SPIHT coding, introduction to EBCOT coding, introduction to JPEG2000
- Digital TV basics: analog color TV system, TV scanning and synchronization, types of color TV signals, TV image digitization, image sub-sampling, digital TV, digital TV image format
- MPEG summary: MPEG-1 digital TV standard, MPEG-4 audio-visual object coding, MPEG-7 multimedia content description interface standard, MPEG-21 multimedia framework standard, MPEG-A~MPEG-E
- MPEG sound: the perceptual characteristics of the auditory system, perceptual sound coding, MPEG-1Audio, MPEG-2Audio, MPEG-2ACC, MPEG-4Audio
- MPEG video: video data redundancy, video data rate, MPEG-1 video, MPEG-2 video, MPEG-4Visual video
- MPEG-4AVC/H.264: The origin of MPEG-4AVC/H.264, the main technology to improve coding efficiency, the coding structure of video data, the structure of codec, intra-frame prediction, inter-frame prediction, transformation and quantization, Entropy coding

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Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

4000 Professional Courses about Economics

Assigned Modules:	4001 Economics A
Total ECTS Credits: 21.0 **Total Study Hours: 630.0**	4002 Marketing C 4003 Enterprise Resources Planning (ERP) 4004 Curriculum Project of Enterprise Resource Planning ERP 4005 The Analysis on Implementation of Enterprise Resources Planning 4006 Business Management Integrative Simulation Training A

Module: Economics A

Number:	4001	**Duration:**	1 Semester
Credits:	4.0	**ECTS Credits:**	6.0
Score:	80.0	**Study Hours:**	180.0
Language:	Chinese	**Semester:**	Spring Term 2017-2018

Learning Outcomes:	The Students • understand the basic concepts, principles and analysis methods of economics, and cultivate and develop observation and analysis abilities. • are able to convert practical problems to be solved into problems that can be handled with standard economic theories.
Content:	• Basic concepts of economics: the meaning of economics, the essence and tasks of economics • Attack and demand: market content, equilibrium, elasticity of demand and supply, price determination • Utility and Consumer Behavior: Consumer Behavior, Consumption Function, Engel's Law • Costs and benefits: short-term costs and long-term costs, maximize benefits and profits • Market failure and microeconomic policies: monopoly, external effects, public goods • National Income and Economic Growth: National Income Accounting Index, National Income Determination, National Income Flow Cycle Model • Inflation and unemployment: inflation, unemployment • Government Macro Control: Fiscal Policy, Monetary Policy
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Marketing C

Number:	4002	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	71.0	Study Hours:	90.0
Language:	Chinese	Semester:	Fall Term 2019-2020

Learning Outcomes:	The Students • can relatively correctly use marketing concepts to select market opportunities. • can combine theory with practice and effectively combine various resources to achieve marketing goals. • are able to use marketing skills to solve practical problems in corporate marketing activities.
Content:	• Introduction to Marketing: The meaning and content of marketing, the evolution of marketing concepts, and the methods of learning marketing • Marketing environment: the relationship between the company and the marketing environment, the macro environment, the micro environment • Buyer behavior: consumer purchasing behavior, market organization and buyer behavior • Market research and forecast: market research, market forecast • Market segmentation, target marketing and market positioning • Product strategy: product and brand, service strategy, product portfolio strategy, product life cycle theory, new product development strategy • Price strategy: the main factors affecting product pricing, the main method of product pricing, pricing techniques, price adjustment strategies • Distribution strategy: overview of distribution channels, types of middlemen, management of distribution channels • Promotion strategy: promotion and promotion combination, advertising strategy, personnel promotion, business promotion, public relations • Marketing competition strategy: competitor analysis, company's competitive position and competitive strategy • Marketing planning and marketing decision • Marketing organization and control: marketing organization, marketing implementation, marketing control • International marketing: international marketing environment, the way companies enter the international market, the marketing strategy of entering the international market • New concepts of marketing: green marketing, network marketing, relationship marketing, service marketing, technical marketing
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Enterprise Resources Planning (ERP)

Number:	4003	Duration:	1 Semester

Credits:	3.0	ECTS Credits:	4.5
Score:	84.0	Study Hours:	135.0
Language:	Chinese	Semester:	Spring Term 2019-2020

Learning Outcomes:	The Students • understand the connotation of ERP, master the concept, basic working principle, analysis methods and precautions of each stage of ERP application, and have an understanding of the ERP market and current Chinese enterprise informatization.
Content:	• ERP management ideas: the management ideas contained in ERP, business operation and ERP application environment, the development background of ERP, and the core management ideas of ERP • The basic concepts of ERP: ERP planning levels, ERP data systems and related concepts, environmental conditions and operating processes of ERP • The basic principles of ERP: the logical flow and basic structure of MRP, master production plan, material requirement plan, capacity requirement plan, MRP II principle, ERP principle • The composition of the ERP system: the overall structure of the ERP system, the main software modules of the system, and MRP II/ERP software products • ERP software functional modules: production management and control, logistics management, financial accounting system, human resource management module, salary system • ERP system implementation ERP: ERP project implementation organization, pre-implementation preparations, software selection, process reorganization, ERP implementation and operation, ERP implementation effect evaluation
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Curriculum Project of Enterprise Resource Planning ERP

Number:	4004	Duration:	1 Semester
Credits:	1.0	ECTS Credits:	1.5
Score:	85.0	Study Hours:	45.0
Language:	Chinese	Semester:	Spring Term 2019-2020

Learning Outcomes:	The Students • have a clear understanding of corporate strategy and key success factors, and can look at corporate financial management, corporate operations and decision-making from a strategic perspective. • use strategies to improve business operating procedures, create value, find a "dashboard" to track the operation of the business, and "driving skills" to grasp the direction of the business in a timely manner.
Content:	• Overview of Modern Enterprise Management Information System • Why do ERP business operation drills

	• Sand table simulates ERP enterprise 1～6 • ERP fund management, supply chain management
Required Modules:	Enterprise Resources Planning (ERP)
Course Form:	Practice
Exam Form:	Practical Report

Module: The Analysis on Implementation of Enterprise Resources Planning

Number:	4005	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	95.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Fall Term 2020-2021

Learning Outcomes:	The Students • master the basic concepts, theories and implementation methods of the ERP system. • can analyze the key technologies, common main problems and solutions in the process of ERP system implementation through case studies. • understand the relationship between the functional modules in the ERP system and the relevant information subsystems of unit informatization, the evaluation and implementation process and methods of ERP system software selection. • can deeply analyze the whole process of the informatization process of small and medium-sized enterprises and the key factors that affect the success or failure of the implementation of the ERP system.
Content:	• Introduction: Enterprise Informatization Engineering and ERP System, ERP System Development, ERP System Application Fields, Overview of ERP System Application at Home and Abroad, Survey of the Great Changes of Informatization in China in the Past Decade • Basic knowledge of ERP system: basic production management, composition and function of ERP system, basic data of ERP system • Principle of ERP system: principle of order point method, principle of time-period MRP, principle of closed-loop MRP, principle of MRP II, principle of ERP system • Traditional management mode and ERP system management mode: Invoicing subsystem and ERP system inventory management module, just-in-time mode and ERP system production management, supply chain management and ERP system procurement management, customer relationship management and ERP system sales Management, computerized accounting and financial management of ERP system, total quality management and quality management of ERP system, human resource management information system and human resource management of ERP system • ERP system selection: ERP system selection and selection evaluation principles, ERP system selection process, ERP system method • ERP system implementation: ERP system implementation methods and planning, ERP system implementation process, ERP system implementation process evaluation system

	• Typical cases of ERP system implementation in my country: the road to success in the implementation of ERP system in Jiangsu Lixi Zipper Co., Ltd., the analysis of the effect of ERP system implementation in Qianchao Bearing Co., Ltd., and the implementation case of ERP system in Xuji Group • Analysis and Countermeasures of Key Factors for Successful Implementation of ERP System
Required Modules:	Enterprise Resources Planning (ERP)
Course Form:	Practice
Exam Form:	Practical Report

Module: Business Management Integrative Simulation Training A

Number:	4006	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	85.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Fall Term 2020-2021

Learning Outcomes:	The Students • understand the general picture of the company, recognize professional office tools, and think about business operations. • learn business management and operation, fill in various bills, and master work processes to improve professionalism.
Content:	• Work preparation • Build a team: CEO campaign, recruitment • Account construction at the beginning of the period: account construction explanation, assessment at the beginning of the period • Fixed data summary • Self-management: preparation for self-management, self-management and operation
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

5000 Professional Courses about Management

Assigned Modules:	5001 Management
Total ECTS Credits: 16.5	5002 Production and Operation Management B
Total Study Hours: 495.0	5003 Management of Supply Chain B
	5004 Human Resources Management B
	5005 Academic English for Administration

Module: Management

Number:	5001	Duration:	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	79.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Fall Term 2017-2018

Learning Outcomes:	The Students • clarify the basic concepts, basic principles and basic methods of enterprise or general social and economic organization management. • understand the process of the emergence and evolution of management ideas and management theory, as well as the main representative figures of the main theoretical schools formed in this process and their theoretical contributions. • are familiar with the main work content of management process and its organization method.
Content:	• Managers and management • The management environment • Foundations of decision making • Foundations of planning • Organizational structure and culture • Managing human resources • Managing change and innovation • Motivating and rewarding employees • Leadership and trust • Communication and interpersonal skills • Foundation of control • Operations management
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Production and Operation Management B

Number:	5002	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	86.0	Study Hours:	90.0
Language:	Chinese	Semester:	Fall Term 2020-2021

Learning Outcomes:	The Students • master theoretical and practical knowledge related to production operation management. • master the principles and methods of planning, organizing, commanding, controlling and coordinating enterprise production activities, understand the latest technology and development trends of production operation management on a global scale, and have certain production operation management capabilities.
Content:	• Introduction to production and operation management: the concept and content of production and operation management, the status and goals of production and operation management, the type of production operation system, the development and modern characteristics of production operation management • Production process organization: the spatial organization and time organization of the production process, the organization of streamlined production and production leveling, the design of labor organization, work design and work research • Production operation plan and control: the concept and main indicators of production plan, comprehensive plan and master production plan, preparation of rolling production operation plan, production capacity plan, production operation control • Production site management: the concept, characteristics and basic content of site management, the main content of 5S activities, the main content of fixed management, the selection, use and maintenance of production equipment • Logistics management: the main content and functions of logistics management, material planning and procurement, material inventory control, material distribution management • Quality management: the concept of quality and its important role, the concept of quality management and its development stage, total quality management and its main characteristics, commonly used quality management tools, quality management systems and quality certification • Project plan management: the importance of project management, key factors affecting project success, network plan technology • Advanced production operation management mode: the structure and characteristics of the supply chain, just-in-time production, agile manufacturing, mass customization
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Management of Supply Chain B

Number:	5003	Duration:	1 Semester
Credits:	2.0	ECTS Credits:	3.0
Score:	75.0	Study Hours:	90.0
Language:	Chinese	Semester:	Fall Term 2019-2020

Learning Outcomes:	The Students • master the basic theories of supply chain management, understand the latest trends and status quo of current supply chain management development at home and abroad, and understand the basic technologies and methods of supply chain management. • master the application of supply chain management theories in the fields of procurement, production, logistics and inventory control, and master the theoretical knowledge required to build a supply chain management platform under the network environment, as well as the comprehensive application of these knowledge.
Content:	• Introduction to supply chain management: the concept and development of supply chain, overview of supply chain management, necessary conditions for supply chain management, the relationship between supply chain management and logistics management, supply chain management system • Supply chain management related theories: business outsourcing, core competitiveness theory, value chain theory, principal-agent relationship theory, business process reconstruction theory • Supply chain management strategies and methods: changes in the corporate competitive environment, competitive strategies and supply chain strategies, matching of supply chain management strategies, strategic choices for supply chain management, two supply chain management strategies and methods • Supply Chain Relationship Management: Overview of Supply Chain Relationship Management, Supplier Relationship Management, Customer Relationship Management • Supply chain system planning and design: overview, several common supply chain architecture models, supply chain system design strategies, and product-based supply chain design steps • Supply chain planning management: Overview of planning management, supply planning management, production planning and control in a supply chain management environment, demand planning and distribution planning management • Procurement management in the supply chain environment: overview of procurement management, procurement planning, supplier management • Production operation management in a supply chain environment: overview of production operation management, overall concept of production operation management system in a supply chain environment, push and pull production, comparison of ERP, JIT, and TOC • Supply chain distribution and distribution management: overview of distribution management, order processing, distribution management • Supply chain inventory management: basic principles and methods of inventory management, inventory problems in a supply chain management environment, inventory management strategies in a supply chain management environment, strategic inventory control: workflow management • Supply chain information management: overview of information management, application of information technology in supply chain management, e-

	commerce and supply chain management, e-commerce logistics mode
	• Supply Chain Finance: Overview of Supply Chain Finance, Overview of Internet Finance, Analysis of the Main Problems Existing in my country's Supply Chain Finance, Small and Medium-sized Enterprise Financing Models Based on Supply Chain Finance, Supply Chain Financing Model Innovation, Supply Chain Finance Model Risks and Preventive Measures
	• Supply chain management incentives and performance evaluation
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Human Resources Management B

Number:	5004	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	89.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Spring Term 2019-2020

Learning Outcomes:	The Students • define the basic concepts and principles of modern human resource management • master the contents and concrete operation methods of various practical activities of human resource management in modern enterprises. • can follow up on the framework of human resources management to carry out in-depth thinking and practice. • master the basic skills of using what they have learned to solve practical management problems in different situations.
Content:	• Introduction to human resource management • Strategic human resource management • International comparison of human resource management and development in enterprises • Global human resources management • Human resource planning and design • Job analysis & design • External impact, methodology and cost-benefit analysis of recruitment • Selection: influencing factors, standards, procedures, selection of managers, cost-benefit analysis • Performance evaluation and management • The goal of remuneration, influencing factors • Welfare management • Training & development • Career planning and development • Labour relations and collective bargaining • Safety, health & discipline
Required Modules:	None
Course Form:	Lecture

Exam Form:	Written Examination

Module: Academic English for Administration

Number:	5005	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	77.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Fall Term 2020-2021

Learning Outcomes:	The Students
	• improve academic English ability and professional English level, expand humanistic and subject content, improve English level and comprehensive cultural literacy, and achieve higher requirements for expressing knowledge in English and communicating culture in English to meet the needs of my country's social development and international exchanges.
	• develop the ability to use English in management studies, as well as academic critical skills and the ability to solve practical problems.
Content:	• Introduction to Management English Course
	• Text explanation and language exercises
	• Unit topic discussion
	• Teaching of academic essay writing
	• Demonstration of oral presentations on professional topics
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

6000 Professional Courses about Data and Information Analysis and Management

Assigned Modules: **Total ECTS Credits: 31.5** **Total Study Hours: 945.0**	6001 Introduction to Information Systems and Information Management 6002 Information Management A 6003 Database Management System 6004 Curriculum Project of Database Management 6005 KX Information System and Database Technology (ZD31) 6006 Information Storage and Management 6007 Information Retrieval 6008 Data Warehouse and Data Mining 6009 Data Analysis and R Language 6010 GX Information Security and Protection in Mobile Internet Era (ZD23)

Module: Introduction to Information Systems and Information Management

Number:	6001	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	95.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Spring Term 2017-2018

Learning Outcomes:	The Students • understand the cutting-edge technologies related to information management and information systems, and understand the development direction of this field.
Content:	• Application of information system in government agencies • Application of Information System in Enterprises • Application of Information System in Social Economy • Information System Research Methodology • Main research issues of information system • The latest research issues of information systems
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Information Management A

Number:	6002	Duration:	1 Semester
Credits:	3.0	ECTS Credits:	4.5
Score:	74.0	Study Hours:	135.0
Language:	Chinese	Semester:	Fall Term 2018-2019

Learning Outcomes:	The Students • acquire basic theories, basic knowledge and basic skills in information management. • cultivate the ability to analyze and solve practical problems, train experimental skills, and lay a good foundation for subsequent professional courses and future applications.
Content:	• The scientific basis of information management: A brief introduction to information, the basis of information science of information management, the basis of management science of information management, towards information management science • Technical basis of information management: Introduction to Information Technology, Information Processing Technology, Communication Technology • Information Behavior Theory: Information Needs and Information Motivation, Information Behavior of Users • Information Communication Theory: Information Representation-Symbols and Coding, Information Communication Mode, Social Information Flow • Development of information products: information collection, information sorting, information analysis • Circulation of information products: information services, information markets • Information System Management: Information System Engineering, Information System Resource Management, Development of Modern Information System Management • Information Industry Management: Information Industry Theory, Information Industry Management Fundamentals, Information Industry Policy, Informationization
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Database Management System

Number:	6003	Duration:	1 Semester
Credits:	4.0	ECTS Credits:	6.0
Score:	72.0	Study Hours:	180.0
Language:	Chinese	Semester:	Spring Term 2018-2019

Learning Outcomes:	The Students • master the basic concepts of relational models and relational databases, and understand the hierarchy and model structure of network databases.

	• are proficient in the CREATE, SELECT, ALTER, and DROP syntax of the SQL language, and can use the SELECT statement to complete general query operations. • understand query optimization methods. • master the discrimination and decomposition methods of 2NF, 3NF, BCNF paradigm of standardization theory. • master the design steps of database design and the method of logical structure design. • have a preliminary grasp of database recovery technology, concurrency control and security control, and master integrity setting methods.
Content:	• Introduction: Overview of database system, data model, database system structure, composition of database system, research field of database technology • Relational database: overview of relational model, relational data structure and formal definition, completeness of relation, relational algebra, relational calculus • Relational database standard language-SQL: SQL overview, data definition, query, data update, view, data control, embedded SQL • Relational system and its query optimization: relational system, query optimization of relational system • Relational data theory: the necessity of standardization, standardization, the axiom system of data dependence, the decomposition of patterns • Database design: database design overview, demand analysis, conceptual structure design, logical structure design, physical design of the database, implementation and maintenance of the database • Database recovery technology: basic concepts of transaction, overview of database recovery, types of failures, recovery implementation technology, recovery strategy, recovery technology with checkpoints, database mirroring, Oracle recovery technology • Concurrency control: Concurrency control overview, blockade, blockade protocol, deadlock and livelock, serializability of concurrent scheduling, two-stage lock protocol, block size, Oracle concurrency control • Database security: Introduction to computer security, database security control, statistical database security, Oracle database security • Database integrity: integrity constraints, integrity control, Oracle integrity
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Curriculum Project of Database Management

Number:	6004	**Duration:**	1 Semester
Credits:	1.0	**ECTS Credits:**	1.5
Score:	85.0	**Study Hours:**	45.0
Language:	Chinese	**Semester:**	Spring Term 2018-2019

Learning Outcomes:	The Students • master the basic theories, concepts and methods of database technology,

	and learn to design and manage databases.
Content:	• Software function learning part • SQL practice part: table building, data update, query, understand the query performance analysis function of the system, DBMS function and stored procedure and transaction • Database application system design: telecommunication charging management system, employee training management system, car rental information system, hospital management system, track and field sports meeting management system, air ticket reservation system, salary management system, online sales system, warehouse management system, supermarket cashier system • Writing course practice report
Required Modules:	None
Course Form:	Practice
Exam Form:	Practical Report

Module: KX Information System and Database Technology (ZD31)

Number:	6005	**Duration:**	1 Semester
Credits:	1.0	**ECTS Credits:**	1.5
Score:	99.79	**Study Hours:**	45.0
Language:	Chinese	**Semester:**	Spring Term 2018-2019

Learning Outcomes:	The Students • master the knowledge, techniques and methods of comprehensive application of information technology to realize the management and utilization of information resources. • master information system knowledge, basic knowledge and design methods of relational database, relational database management system, T-SQL language and database system application development.
Content:	• Information system overview: basic concepts, information system applications, information system management • Information system development methods: information system technology basis, development methods, development process management, development environment, information system working mode • Basic knowledge of relational database: database system, data model, relational database, relational algebra, a simple relational database of educational administration management system • Relational database management system and SQL language: Overview of MicrosoiftSQLServer2000, SQLServer database creation and maintenance, Transact-SQL language, views, stored procedures, triggers, database management and protection • Relational database design: overview, demand analysis, database conceptual design, database logic design, database physical design, database implementation, database operation and maintenance • Program design foundation: overview, basic grammar, forms and common controls, program debugging and troubleshooting

	• Database application development: introduction, data access based on binding, data access based on Sqlcommand, data access examples
	• Data report and data chart: overview of crystal report, realization of crystal report, report integration based on Windows application, realization of data chart, export and printing of crystal report
	• Examples of Comprehensive Application Development of Information System
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Information Storage and Management

Number:	6006	**Duration:**	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	82.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Fall Term 2019-2020

Learning Outcomes:	The Students
	• understand the application of big data storage technology in various industries, and conduct more in-depth research on the application of big data storage technology.
Content:	• The course design, course motivation and status of big data storage, the relationship between information, data and storage, the current storage needs in the era of big data
	• Introduction to storage: storage development history (ancient, modern and modern), basic storage media: disks, flash memory and memory, and the hierarchical structure of storage
	• Big data storage devices: classification of new non-volatile memory, storage-level memory (SCM), storage-computing fusion devices, challenges of non-volatile memory, memory computing and persistent memory: memory computing, non-volatile memory.
	• Big data storage equipment: Near data processing (active object storage, data-side processing acceleration), heterogeneous converged storage (extensive development of storage tiering system, heterogeneous storage management), intelligent storage (cooperation between data processing acceleration and heterogeneous storage control) , Open channel storage device)
	• Big data storage system: the concept of cloud computing, the relationship between cloud computing and cloud storage, cloud storage case (Alibaba Cloud), data reliability issues in Alibaba Cloud, the principle and technology of copy, the principle and technology of coding, cloud storage service Quality evaluation, source oversupply problem, methods to ensure service quality, cloud-based storage resource sharing, performance isolation problem of shared storage, method of maximizing service level objectives, accurate assurance of multiple storage performance indicators, precise assurance based on service level objectives Performance optimization, data reduction problems in Alibaba Cloud, data compression principles and technologies, data deduplication principles and technologies, cloud storage tail delay

	prediction problems, cloud storage tail delay prediction technology, disk failure problems in Alibaba Cloud, disk Failure prediction technology
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Information Retrieval

Number:	6007	**Duration:**	1 Semester
Credits:	1.0	**ECTS Credits:**	1.5
Score:	88.0	**Study Hours:**	45.0
Language:	Chinese	**Semester:**	Fall Term 2019-2020

Learning Outcomes:	The Students • cultivate information awareness, master the use of various retrieval tools (including network information resource retrieval tools), have basic computer retrieval skills, and improve their ability to collect and use information.
Content:	• Information Retrieval Fundamentals • Chinese database • Foreign language database • Citation database • Foreign-language electronic full-text database • Special literature • Common electronic reference tools • Retrieval of network information resources • Intellectual Property Issues of Digital Libraries • Technology Novelty Search
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Data Warehouse and Data Mining

Number:	6008	**Duration:**	1 Semester
Credits:	3.0	**ECTS Credits:**	4.5
Score:	84.0	**Study Hours:**	135.0
Language:	Chinese	**Semester:**	Spring Term 2019-2020

Learning Outcomes:	The Students • understand the concepts of data, data analysis, data mining and big data analysis, master the concept of big data, the application scope and application value of big data, master the concept of data mining, clarify the

	objectivity of data analysis, and master the relationship between big data and data mining, know the data, understand the characteristics of the data.
	• master basic big data technology, basic big data analysis environment construction methods, and MR programming technology.
	• understand the machine learning and data mining methods in big data technology.

Content:	• Big data introduction: the basic concepts of big data, the development of big data, "penalty kicks to gold" and NBA big data case explanations, the positioning of big data in business management
	• Big data technology: Big data technology route, Hadoop introduction, HDFS distributed file system, MapReduce computing framework, YARN introduction, data warehouse case
	• Big data programming: in-depth analysis of programs, introduction to Hive and HiveQL, Mahout and machine learning, introduction to HBase
	• Big Data Technology: Introduction to Spark, Spark Programming Examples
	• Course practice: Hadoop simulation cluster construction, HDFS file operation, MR algorithm practice, HiveQL practice, search data analysis, Spark simulation cluster construction, Scala algorithm practice

Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: Data Analysis and R Language

Number:	6009	**Duration:**	1 Semester
Credits:	2.0	**ECTS Credits:**	3.0
Score:	87.0	**Study Hours:**	90.0
Language:	Chinese	**Semester:**	Spring Term 2019-2020

Learning Outcomes:	The Students
	• will establish a clear and comprehensive understanding of the value, significance and basic principles of big data analysis, and master the basic principles and methods of data mining, processing, modeling and interpretation.
	• understand and are familiar with actual cases of data analysis in the fields of social science research, business analysis, and public administration.

Content:	• Introduction to R language: basic operations of R, operation interfaces of R
	• How to install, load and use the package
	• Import and export of created data set data
	• Create new variable variable recoding, variable renaming
	• Lost value handling, type conversion
	• Data sorting, data collection merge
	• Numerical and character processing functions, user-edited functions
	• Control flow operation, integration and restructuring, descriptive statistical analysis
	• Statistical analysis: Introduction to data analysis, basis of probability theory,

	basis of mathematical statistics, introduction to R software, exploratory data analysis using R, linear regression model, multi-level, longitudinal data analysis, non-parametric regression
	• Machine learning: regularized supervised learning, in sampling statistics, tree model methods, support vector machines, unsupervised learning: clustering, dimensionality reduction
	• Comprehensive application: text mining and sentiment analysis, social network analysis, introduction to policy informatics
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

Module: GX Information Security and Protection in Mobile Internet Era (ZD23)

Number:	6010	**Duration:**	1 Semester
Credits:	1.0	**ECTS Credits:**	1.5
Score:	98.31	**Study Hours:**	45.0
Language:	Chinese	**Semester:**	Fall Term 2018-2019

Learning Outcomes:	The Students
	• comprehensively learn the basic theories and practical techniques related to information security, master the basic methods of information system security protection, cultivate awareness of information security protection, and enhance the ability of information system security protection.
	• understand the security threats and preventive measures existing in modern information systems, learn and understand related security architectures and models, basic password knowledge and password applications, learn and master basic access control technology, intrusion detection technology, network firewall technology, and general systems.
Content:	• Information Security Overview: Information Security Status, Information Security Threats, Basic Concepts and Main Technologies of Information Security, Development Direction of Information Security, P2DR, PDRR Model
	• Cryptography: basic concepts (including encryption, decryption, plaintext, ciphertext, key, symmetric cryptosystem, asymmetric cryptosystem, etc.), the encryption and decryption process of classical ciphers, the two structures DES and AES of block symmetric encryption, non- Simple calculation of symmetric RSA algorithm, working mode of cryptography, role of symmetric asymmetric cryptosystem
	• Digital signature and identity authentication: digital signature principle and digital signature algorithm DSA and RSA, non-repudiation of digital signature, message authentication concept, message authentication method, similarities and differences between MAC and HASH, identity authentication concept and basic method
	• Public key infrastructure PKI: definition, composition, architecture, basic functions of PKI, CA, RA, certificate format, certificate generation, use, recovery, CRL format and mechanism
	• Firewall technology: firewall concepts, functions, basic performance indicators, rules, several common firewall detection technologies (packet

	filtering, application gateway, state detection), firewall classification, concepts of filtering routers, bastion hosts, and shielding subnets • Intrusion detection technology: the definition, composition, components and functions of the basic model of the intrusion detection system, various classifications and characteristics, detection methods, several detection technologies and development directions • Virtual private network technology: classification, key technologies (tunnels, encryption, key management, user authentication) of virtual private networks, commonly used tunneling protocols • Access control: access control concept and basic composition, autonomous access control matrix model and implementation mechanism and authorization management mode, mandatory access control BLP model, BLP security features and rules and security conclusions, RBAC96 model cluster and specific case analysis • Network security technology: basic concepts of network attacks and basic processes of network attacks, basic steps and methods of network detection, principles and basic methods of network monitoring, principles and methods of network deception, classification and principles of DoS attacks, and buffer overflow attacks Principles of SQL injection attacks, viruses and Trojan horses
Required Modules:	None
Course Form:	Lecture
Exam Form:	Written Examination

7000 Graduation Practice and Thesis

Assigned Modules: **Total ECTS Credits: 24.0** **Total Study Hours: 720.0**	7001 Graduation Practice 7002 Graduation Thesis

Module: Graduation Practice

Number:	7001	**Duration:**	1 Semester
Credits:	4.0	**ECTS Credits:**	6.0
Score:	85.0	**Study Hours:**	180.0
Language:	Chinese	**Semester:**	Fall Term 2020-2021

Learning Outcomes:	The Students • deepen and consolidate their basic theoretical knowledge and improve their professional skills through graduation internships. • basically meet the training objectives and training requirements stipulated in the professional teaching plan.
Content:	***ERP trainee engineer*** • Responsible for the stable and normal operation of the group's ERP system • Dealing with user problems during the use of ERP or related systems • Coordinate internal and external resources to resolve • Participate in the collection and detailed understanding of user needs, organize relevant personnel to communicate and discuss, and finally form an effective solution and realize it. • Responsible for the system settings, the development and modification of programs and reports, and the management of user rights • Participate in the preparation of training materials, user and internal team training • Deeply participate in and lead the construction of IT projects **Project case** • Problem: In the actual warehouse delivery and the batch query of logistics order numbers, there are problems such as repeated operations and cumbersome complexity. • Mission: Improve the batch query function of order numbers • Solution: Improve the front-end Javascript code in the query interface to automate the addition of separators for the batch copied order numbers; and in the back-end ERP system, add the order of the query order numbers to open the operation interface windows in batches • Main work: functional analysis and process design, front-end code writing, back-end code improvement
Required Modules:	None
Course Form:	Practice

Exam Form:	Practical Report

Module: Graduation Thesis

Number:	7002	Duration:	1 Semester
Credits:	12.0	ECTS Credits:	18.0
Score:	95.0	Study Hours:	540.0
Language:	Chinese	Semester:	Spring Term 2020-2021

Learning Outcomes:	The Students • are able to apply the theory and knowledge of the lessons they have learned to solve practical and theoretical problems. • conduct research, review literature, develop research plans, and conduct preliminary training in scientific research.
Content:	***Research on Rural Security Demand Based on Data Analysis under the Background of Rural Land Right Confirmation in Northern Jiangsu*** • From the perspective of rural security and farmers' rights, this article organizes and summarizes the current policies and research results on rural security in various cities in northern Jiangsu, and conducts data mining and data analysis on the data, that combines the development of innovative practices in land transfer and the implementation of relevant farmer security systems and rural land policies. At the same time, it conducts a textual analysis of the content of the rural land property rights and management rights transfer, rural security and farmers' security needs in the work report of the municipalities and township governments in northern Jiangsu, and explores what needs and problems farmers have for rural land transfer at this stage. The significance of this research is to promote the institutional innovation of rural land circulation, strengthen the protection of farmers' legal rights, and promote the modernization of agricultural development. It has certain reference value for the practice of rural grassroots government construction and land policy implementation.
Required Modules:	None
Course Form:	Practice
Exam Form:	Thesis