MANAGEMENT INFORMATION SYSTEMS

UNDERGRADUATE PROGRAM

COURSE DESCRIPTIONS

BİLİŞİM SİSTEMLERİ VE TEKNOLOJİLERİ BÖLÜMÜ (İngilizce)

LİSANS PROGRAMI DERS İÇERİKLERİ

(Theory – Application – Laboratory – Credits - ECTS)

INF113 Introduction to Computer Programming (3-0-0-3-5)

Establishment of Eclipse Development Environment; Running a Java program in Media II; Fundamentals of the Java project; Java Spelling Rules and Recommendations; Libraries in the Java language; Expressions and Process Operators in Java language; Control Structures in Java (if Statements; Question Mark Operator; switch / case structure; while loop; do while loop; for loop; the break statement; the continue Statement); Series; ; Multidimensional Arrays; Evaluation of Extraordinary Situations (try / catch / finally structure).

Course Book:

- Java A Beginner's Guide, Sixth Edition, Herbert Schildt,McGraw-Hill Education, 2014,New York

Additional Resource:

- Java EE 7 Essentials Book by Arun Gupta, Oreilly & Associates Inc, ISBN10: 1449370179, 2013
- JAVA: A Beginner's Guide to Learning the Basics of Java Programming, Kindle Edition, February 18, 2016, Amazon Digital Services LLC.

INF115 Computer Programming Applications (3-0-0-3-5)

Java String Methods; Sample Java Programs with String Method; History Operations in Java; Static methods; Enum Declarations; Random class; Finalize Method; Filing Procedures in Java; 4 Essential Feature of the object; and Object Oriented Programming Theory; abstraction; wrap; inheritance; polymorphism; Creating a class in Java; Data Storage Assistant Libraries in Java; java ArrayList; java hash / map; java set; threads.

Course Book:

- Object-Oriented Programming with java, ., C. Thomas Wu, ISBN-13: 978-0073523309,

Additional Resource:

- A Comp. Intro. to Object-Oriented Programming w/Java., C. Thomas Wu, Naval Postgraduate School, ISBN: 0073523399, 2008
- Java Methods: Object-Oriented Programming and Data Structures, by Maria Litvin (Author), Gary Litvin (Author).

INF114 Algorithm Development (3-0-0-3-5)

Problem solving techniques; (input_process_output) process; algorithm analysis; certainty; finitude; events; mathematical terms (arithmetic; relational and logical operators); conditional and iterative statements; vector and matrix representation; one or multi-dimensional operations except for simple data; subroutine and function of the sub-programs; evaluation algorithms.

Course Book:

- Introduction to Algorithms, 3rd Edition, Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, MIT Press, 2009

Additional Resource:

- The Algorithm Design Manual, Steven S Skiena, Springer, New York, 2012
- Introdusction to Programming i,n Java,Addison-Wesley Professional, Robert Sedgewick, Kevin Wayne, New Jersey.

INF112 Logic Design(3-0-0-3-6)

Logic gates; Boolean algebra; Circuit simplification; United Circuits; Semi-collector; Full Adder; summer-break; Sequential Circuits; Combined Circuits; Decoders; Selectors; Registers; Shift Registers are; Binary Counters; Memory; Number Systems; Complements; Fixed Point Representation; Arithmetic Collection; Removing Arithmetic; Floating Point Representation; Error Detection Code; Language Transfer Registers; Break Transfer Registers; and Memory Bus Transfer; Micro arithmetic operations; Micro logical operations; Scroll Micro Operations; Arithmetic Shift Unit.

Course Book:

- Digital Design: With an Introduction to the Verilog HDL, by M. Morris R. Mano and Michael D. Ciletti,ISBN-13:978-0132774208,Jan 12, 2012,

Additional Resource:

- Digital Design Essentials: 100 Ways to Design Better Desktop, Web, and Mobile Interfaces, Raj Lal, Rockport Publishers,
- Digital Design: Basic Concepts and Principles, Mohammad A. Karim, Xinghao Chen, by CRC Press,November 27, 2007 by CRC Press

INF211 Data Structures and Algorithms (3-0-0-3-5)

Introduction to algorithms and data structures; Array data structure and dynamic memory allocation; Recursive programming; Linked lists; Stacks; Queues; Wood construction; Search techniques; Ranking techniques; Hash techniques; Information compression techniques; Basic graph algorithms; Problem-solving work.

Course Book:

- Data Structures and Algorithms Made Easy in Java, Narasimha Karumanchi, 2011

Additional Resource:

- The Algorithm Design Manual, Steven S Skiena, Springer, New York, 2012
- Data Structures and Algorithms in Java, 2nd Edition, Robert Lafore, 2002

INF220 Database Management (3-0-0-3-6)

Structure of Microsoft SQL Server. The concept of database; relational database; data storage models; database components; database management systems; database products and versions; Microsoft SQL Server installation; SQL Server Management Studio; SQL Server database architecture; the standard SQL server databases; database creation and deletion; DDL; collation; Recovery-Transact Log; compatibility; set the options for the database; data types; data-entry; and delete tables; database backup and restore; queries; the SELECT command; INSERT; DELETE; and UPDATE commands; data transfer operations; join tables; constraints; the concept of index; constraints; stored procedures; triggers; SQL Server Agent.

Course Book:

- Introducing Microsoft SQL Server – Microsoft Press – 2012

Additional Resource:

- Microsoft SQL Server 2012 T-SQL Fundamentals - Itzik Ben-Gan - Microsoft Press - 2015
- Structured Query Language - Hans-Petter Halvorsen – University College of Southeast Norway – 2016

INF223 Object Oriented Programming (3-0-0-3-6)

The basic principles of object-oriented programming-oriented; Microsoft.net framework structure; class - object concepts; key features of the C # programming language; the structure of the C # language; Name Space concept; variables; data types; input / output methods; operators; flow control structures (if; if / else; if / else / if; switch / case); Loops (for; while; do / while; foreach) creating Class and Object access tokens; encapsulation; arrays; methods (functions; actions); inheritance; polymorphism.

Course Book:

- Beginning Visual C# - Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner - Wiley Publishing – 2010

Additional Resource:

- Microsoft Visual C# 2013 Step by Step - John Sharp -- Microsoft Press - 2013
- C# For Programmers- Paul Deitel, Harvey Deitel – Prentice Hall -2010

INF224 – Visual Programming (3-0-0-3-6)

Microsoft.net framework structure; Windows form objects and form controls; Standard Forms and features; MDI Forms and features; Design and make menu and toolbar; Visual programming with databases (with Microsoft SQL Server; and database objects: Connectionstring; SqlConnection; SqlCommand; ExecuteScalar; ExecuteReader; ExecuteNonQuery; DataReader; DataAdapter; DataTable; DataSet); App.config file.

Course Book:

- Beginning Visual C# - Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner - Wiley Publishing -2010

Additional Resource:

- C# For Programmers- Paul Deitel, Harvey Deitel – Prentice Hall – 2010

INF226 Operating Systems Management (3-0-0-3-6)

Installation of operating system (Windows based); System resources; File and Disk Management (FAT; NTFS); Memory Management; Product Activation and Licensing; Performance analysis; Management of services; Network settings and security; Sharing; Domain server (create; add; manage); DHCP server and settings; DNS server; Structure of Active Directory; Installation of Active Directory; Create user-group-organization unit; Group rights; Group schemas; Group policy (user and computer); Installation of Linux operating system.

Course Book:

- Microsoft Windows Operating System Essentials – Tom Carpenter - John Wiley & Sons -2012

Additional Resource:

- Active Directory Design Guide- Microsoft Corporation and Crown - 2008
- The Windows Operating Systems – William Stallings – Prentice Hall – 2005

INF313 Data Mining (3-0-0-3-6)

Data; information and knowledge concepts; Introduction to data mining; Knowledge discovery in databases (KDD); Databases; OLTP; Data warehouses; Data cubes; OLAP; KDD- data select; KDD- data preprocessing (data cleaning – data transformation); Classification concepts (decision trees; ID3 and bayes algorithms; etc.); Cluster concepts (k-means; k-medoids; dbscan algorithms; etc.); Association rules concepts (market basket; apriori algorithm; etc.); Case study with apriori algorithm.

Course Book:

- Data Mining Concepts and Tecniques - Jiawei Han, Micheline Kamber – Elsevier 2006

Additional Resource:

- Principles of Data Mining – Max Bramer - Springer-Verlag London Limited 2007
- Data Mining Methods and Models - Daniel T. Larose - John Wiley & Sons - 2006

INF314 Computer Networks - Cisco (3-0-0-3-5)

Network system concepts; the evolution of the internet ; the concept of the protocol and protocol descriptions; OSI reference model; connection types; application layer; transport layer; network layer addressing; the network layer routing; link layer and the LAN; data link layer; physical link layer; network software-based applications; error detection and correction; IP4 and IP6; IP segmentation; network applications in Linux operating system;examination of IP packets with wireshark application.

Course Book:

- Computer Networks, Andrew S. Tanenbaum, David J. Wetherall, Peorson, 2011

Additional Resource:

- Computer System and Network Security, Gregory B. White, Eric A. Fisch, Udo W. Pooch, Washington, 1996
- Introduction to Computer Networks and Cybersecurity, Chwan-Hwa (John) Wu, J. David Irwin, 2013

INF315 Industry 4.0 (3-0-0-3-6)

Web 1.0, 2.0, 3.0, 4.0; internet of objects; cloud computing; SLI contracts; reengineering; automation types;dark Factory term; semantic web; decision support systems; XML; HTML 5.0; online operating systems; online software solutions; artificial intelligence; expert systems; human-machineinteraction; wearable information systems; mobile electroniccommerce systems; B2B.

Course Book:

- Industry 4.0: The Industrial Internet of Things, Alasdair Gilchrist , Thailand, 2016

Additional Resource:

- Getting Started with the Internet of Things, Cuno Pfister, USA, 2011

INF311 Web Based Programming (3-0-0-3-6)

Microsoft.net framework structure; HTML; Windows Web Server installation; ASP.NET web forms and form controls; Use validations and sessions; Web programming with databases (with Micrososft SQL server and database objects: Connection string; SqlConnection; SqlCommand; ExecuteScalar; ExecuteReader; ExecuteNonQuery; DataReader; DataAdapter; DataTable; DataSet; DataBind); Web.config file; Use cookies; writing and Using javascript.

Course Book:

- Microsoft ASP.NET 4 Step by Step - George Shepherd - Microsoft Press – 2010

Additional Resource:

- Beginning Visual C# - Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner - Wiley Publishing - 2010
- C# For Programmers- Paul Deitel, Harvey Deitel – Prentice Hall -2010

INF401 Project Management (3-0-0-3-6)

Definition and historical development of the concepts of project management; project planning and implementation stages; feasibility concept; method of time management; scheduling; project management and identification of difficulties during project closure; project development methods; project manager duties and responsibilities; a new generation of project development methods; change management ; Scrum method; object-oriented system development methods.

Course Book:

- Fundamentals of Project Management, Joseph Heagney, USA, 2012

Additional Resource:

- The Project Management Book, Richard Newton,Financial Times,2013

INF303 System Analysis (3-0-0-3-6)

System concept; system development life cycle; system development methods; project team and roles; object-oriented systems and design; planning; creating a system demands; feasibility; project management concepts and processes; process management tools; Gant and Pest was method; requirements determination process and functional modeling; structural modeling; behavioral modeling; the design process; class design and methods; data management design; user interface design; physical architecture design; application process; test methods; installation and operational processes; finalization of the project; Scrum method.

Course Book:

- Systems Analysis and Design, Global Edition, Kenneth Kendall, Julie Kendall, Peorson, 2013

Additional Resource:

- Essentials of System Analysis and Design, Joseph Valacich, Mary Sumner, Joey George, Jeffrey Slater, Iowa, Peorson, 2009

INF450 Graduation Project (1-2-0-2-6)

Students select, offer and prepare a thesis with their academic consultant. Project selection; preparation of project proposal; project topic selection; preparation of the process of the project and time management; the transition to project; project development; project

presentations and pre-intermediate assumptions; starting to write the appropriate code in the appropriate model development project; project delivery; project presentation.

Course Book:

- Fundamentals of Project Management, Joseph Heagney, USA, 2012

Additional Resource:

- The Project Management Book, Richard Newton,Financial Times,2013

BBA101 Introduction to Business (3-0-0-3-7)
Definition of business; business administration functions; formation of a business unit; business in global markets; general management in business; human resource management in business; accounting and financial activities in business; operations management in business; marketing management in business; business and economics; social responsibility, ethics and law in business; new developments in business.

Course Book:

- Introduction to Business, Betty J Brown, John E Clowi, Glencoe, 2006

Additional Resource:

- Introduction to Business, Mohammed Amin halid, K-Be Book Bank,2014
- Introduction to Business , Les Dlabay, Ed.D., James L. Burrow, Brad Kleindl, 2009

INF111 Mathematics 3-0-0-3-4)
First and second degree equations and inequalities; graph of coordinates; function concept; Applications of function; exponential and logarithmic functions and applications; limits and continuity; differential; logarithmic and exponential functions; partial derivatives; Lagrange multiplier; integral; definite integral.

Course Book:

- Mathematics for Economics and Business, Mr Ian Jacques, 2006

Additional Resource:

- Applied Mathematics for Business, Economics and the Social Sciences, Frank S. Budnick, McGraw-Hill Companies, 1993

INF215 Statistics (3-0-0-3-6)
Measures of central tendency (mean, median, mode, range); measures of dispersion (variance, standard deviation); histogram; diagrams, charts and plots, distinguishing between sample and thepopulation; probability; permutation; combination; probability rules; bivariate probability, joint probability; conditional probability; Bayes' theorem, discrete and continuous variables and probability distributions (binomial, Poisson, exponential distributions); expected value; sampling and sampling distribution (sampling distribution of the sample mean and sample

proportion); point estimation; confidence interval; hypothesis testing (z, student's t, F and Chi-square distributions); linear correlation; population and sample correlation coefficient.

Course Book:

- Principles of Applied Statistics, Professor D. R. Cox, Professor Christl A. Donnelly, Cambridge University Press 2011

Additional Resource:

- Applied Statistics : From Bivariate Through Multivariate Techniques, Rebecca M. Warner, SAGE Publications Inc, USA, 2012

BBA201 Organizational Behavior (3-0-0-3-6)

Definition of organizational behavior; diversity and cultural values; ethics; personality and attitudes;attitudes and job satisfaction; emotions and moods; perception and individual decision-making; motivation concepts; motivation; from concepts to applications; foundations of group behavior; understanding work teams; communication; leadership; power and politics; conflict and negotiation; foundations of organization structure; organizational culture; human resource policies and practices; organizational change and stress management.

Course Book:

- Organizational Behavior, Stephen Robbins, Timothy Judge, Pearson Higher Education, 2013

Additional Resource:

- Organizational Behavior, John R Schermerhorn, Hunt, Dr. Richard N Osborn, John Wiley & Sons, 2010

BBA220 Entrepreneurship (2-2-0-3-7)

Basic concepts of entrepreneurship; franchising; buyouts; small and medium sized enterprises; startups; entrepreneurship process; implementing new business plans; commercialization; business plan canvas; innovation and organizational change in existing organizations; entrepreneurship; creating and expanding new markets; operational challenges and opportunities; development and management of family businesses; examples from entrepreneurial successes and failures; types of entrepreneurship; social entrepreneurship.

Course Book:

- Entrepreneurship- an evidence-based guide, Robert Baron, Edward Elgar 2012

Additional Resource:

- Entrepreneurship, Robert Hisrich, Michael Peters, Dean Shepherd, McGraw-Hill/Irwin, 2007

INF404 Research Methods and Applications (3-0-0-3-6)

Introduction to research methods; Academic research methods (survey, correlational, causal-comparison, experimental, case-study, action, phenomenon, ethnography, theory formation etc.); Stages of research; Research problem and subject; Hypothesis determination; Literature Review; Ethics in research; Sample; Data analysis methods (Determining dependent and independent variables, Validity and reliability, Correlation coefficient, Cronbach Alpha, Descriptive statistics, Inferential statistics, T-test, F-test (ANOVA), Thesis and Article writing rules, APA writing rules.

Course Book:

- Business Research Methods, Şener Büyüköztürk and Oth., 2012

Additional Resource:

- Research Methods for Business Students, Mark N.K. Saunders, Adrian Thornhill , Philip Lewis , Peorson, 2007

- Research Methods for Business: A Skill-Building Approach, Uma Sekaran, Roger Bougie, 2013

INF116 Management Information Systems (3-0-0-3-6)
Organizational foundations of information systems; hardware; software, wireless communication; internet; management information systems; ERP systems; planning; implementation and the stages of YBS systems; application areas; decision-making methods and the effects of these systems on the functions of management.

Course Book:

- Management Information Systems:Managing the Digital Firm, Kenneth C. Laudon, Jane P. Laudon, 2013

Additional Resource:

- Management Information Systems, Kenneth Laudon, Jane P. Laudon,2014

BBA341 Marketing Management (3-0-0-3-7)
Developing marketing strategies and plans; connecting with customers: creating long-term loyaltyrelationships, building strong brands: identifying market segments and targets, creating brand equity; product and service strategies; pricing strategies; managing marketing channels; elements of integrated marketing communications, digital communications; advertising, sales promotions, events and experiences, and public relations; direct marketing; word of mouth; and personal selling.

Course Book:

- Marketing Management, Philip T. Kotler, Kevin Lane Keller, Peorson, 2008

Additional Resource:

- Strategic Marketing Management, Alexander Chernev, Philip Kotler, Cerebellum Press, 2014

BBA442 Customer Relationship Management (3-0-0-3-6)

Maximizing profitability; customer selection metrics; managing customer profitability; maximizingcustomer profitability; managing loyalty and profitability simultaneously; optimal allocation of resources across marketing and communication strategies; choosing the right product to the right customer at the right time; preventing attrition of customers; managing multichannel shoppers; linking investments in branding to customer profitability; acquiring profitable customers; managing customer referral behavior; organizational and implementation challenges; the future of customer management.

Course Book:

- Customer Relationship Management, Francis Buttle, Routledge, NY, 2012

Additional Resource:

- Customer Relationship Management : Concepts and Technologies, Francis Buttle Stan Maklan, ROUTLEDGE, 2015,
- Advances in Customer Relationship Management, Daniel Catalan-Matamoros, InTech, 2012

INF316 Mobile Programming (3-0-0-3-6)

Basic Types, Numbers, Constants, Operations, Floating Point Numbers Comparison, Characters, Booleans, Arrays, Strings, Packages and Imports, Control Flow, Returns and Jumps, Classes and Inheritance, Properties and Fields, Interfaces, Data Classes, Nested Classes, Enum Classes, Objects, Functions, Lambdas, simple project design with Android studio using kotlin.

INF360 Advanced Database (3-0-0-3-6)

On Microsoft SQL database server; advanced techniques of database operations (joins; indexes; triggers [after and instead of]; constraints [foreign keys; unique; check]; data import/export); configure the security mechanism on database servers; use comparison (like; in; between) ; control (if/else; case/when) and loop (while) statements; create stored procedures (IN and IN/OUT parameters); create and use cursor; create user-defined function (scalar-valued; table-valued); create advanced queries; plan scheduled jobs (SQL Agent).

Course Book:

- Introducing Microsoft SQL Server – Microsoft Corporation – 2012

Additional Resource:

- Microsoft SQL Server 2012 T-SQL Fundamentals - Itzik Ben-Gan - Microsoft Corporation - 2015
- Structured Query Language - Hans-Petter Halvorsen – University College of Southeast Norway - 2016

INF481 ANDROID Mobile Programming (3-0-0-3-6)

Mobile Devices; Historical Development; Mobile Application Development Environment Recognition; Create an Android Project; Activity Class; Layout; Visual Components; ListView to use; AndroidManifest.xml; Action Bar to add; Running applications on the device; Packaging and Signing of the application; Google Play App Install and Update; Intent

on - pass Interaction with other applications; Another Activity'y to start; Redirect users to a different application; Example: SMS or Share via e-mail; An application to receive results; ListView privatization; WebView use; Supporting different Android Devices

Course Book:

- ANDROID PROGRAMMING: Complete Introduction for Beginners -Step By Step Guide How to Create Your Own Android App Easy!, Kindle Edition, Amazon Asia-Pacific Holdings Private Limited, ASIN: B00WPK68IQ

Additional Resource:

- Android Programming for Beginners, John Horton, 31 Dec 2015, Kindle Edition
- Android Application Development in 24 Hours: SAMS Teach Yourself, by Delessio , 3e Paperback – 2014

INF482 Procedural Database PL/SQL(3-0-0-3-6)

This course is given in cooperation with the Oracle Academy and course content is PL/SQL. Introduction to PL/SQL; Benefits of PL/SQL; Creating PL/SQL Blocks; Defining Variables and Datatypes; Using SQL in PL/SQL; Conditional Control Statements (IF; CASE/WHEN); Iterative Control (Basic Loops; While; For and Nested Loops); Cursors; Composite Datatypes; Exception Handling; Using and Managing Procedures; Functions; Using and Managing Packages; Using and Managing Triggers.

Course Book:

- Oracle Database PL/SQL Language Reference – Sheila Moore - Oracle Corporation

Additional Resource::

- Oracle PL/SQL Programming - Steven Feuerstein, Bill Pribyl – O'Reilly Publishing
- Mastering Oracle PL/SQL: Practical Solutions, Connor McDonald, Chaim Katz, Christopher Beck, Joel R. Kallman, David C. Knox – Apress Publishing

INF483 Oracle Database SQL (3-0-0-3-6)

This course is given in cooperation with the Oracle Academy. On Oracle database; SELECT queries; Using Character; Number; and Date Functions; Using Single Row; Executing Database; Working With Group Functions; GROUP BY; HAVING; ROLLUP; CUBE and GROUPING SETS structures; sub-queries; DML statements; DDL statements; Creating and Modifying Tables; Using Data Types; Creating and Managing Constraints; Creating and Managing Views; Working With Sequences and Indexes; Fundamentals of Database Security; Understanding Database Transactions .

Course Book:

- Oracle Database SQL Language Reference – Diana Lorentz, Mary Beth Roeser, Simon Watt - Oracle Corporation

Additional Resource:

- Oracle Database 11g SQL – Jason Price – The McGraw-Hill Companies

- Mastering Oracle PL/SQL: Practical Solutions, Connor McDonald, Chaim Katz, Christopher Beck, Joel R. Kallman, David C. Knox – Apress Publishing

INF484 IOS Mobile Programming (3-0-0-3-6)

Xcode 7; View Controller Life Cycle; Controller uınavigatio's; polymorphism in uıtaISLTr; Views and Signs; Protocols; Blocks and animation; Animations and autoLayout; multithreading; scrool View; Table View; Documents and Core Data; Core Data and Table View; uıapplicatio; Network Activity Indicator Maps; Text Fields; Warnings and Actions pages; Application Lifecycle.

Course Book:

- Programming iOS 10 Dive Deep into Views, View Controllers, and Frameworks, By Matt Neuburg, Publisher: O'Reilly Media, Release Date: September 2016

Additional Resource:

- iOS Programming: The Big Nerd Ranch Guide (5th Edition) (Big Nerd Ranch Guides) 5th Edition, Christian Keur, Aaron Hillegass, ISBN-13: 978-0134390734
- Learning iOS Forensics, 2nd Edition, By Mattia Epifani, Pasquale Stirparo, Publisher: Packt Publishing, Final Release Date: September 2016

INF455 Operating System Applications- Linux (3-0-0-3-6)

The duties of the operating system; architecture and types of operating systems; Linux and Unix operating system; the overall structure and history; Linux commands; file and directory perYBSsions and management; process definition and control; remote access methods; C ; C ++ code review; backup; mounting; using the vi editor; system management and use shell scripts; shell script arithmetic; shell script that loops and samples; system administration and admin tools; server setup and management.

Course Book:

- Linux with Operating System Concepts, Richard Fox, Chapman and Hall/CRC, 2014

Additional Resource:

- LINUX for Beginners, M.J. Brown, Yoann Bomal, 2015,
- Operating System Concepts , Avi Silberschatz, Peter Baer Galvin, Greg Gagne, Wiley, 2012

INF451 Network Security (3-0-0-3-6)

Introduction to network security; security requirements and assets to be protected; security level; how to communicate with network systems; topology security; cryptography and symmetric encryption / decryption; public-key crypto systems; the firewall; biometric security systems; virtual private networks; hacking; disaster prevention and recovery; network usage policies.

Course Book:

- Computer System and Network Security, Gregory B. White, Eric A. Fisch, Udo W. Pooch, Washington, 1996

Additional Resource:

- Introduction to Computer Networks and Cybersecurity, Chwan-Hwa (John) Wu, J. David Irwin, 2013

INF382 New Generation Programming – PYTHON (3-0-0-3-6)

Introduction to Python programminglanguage; installation; types; variables; input- output; functions; arrays; loops; error trapping; conditions; Lists; dictionary structure; String; Tuple String; Tuple Functions; list functions; embedded functions; advanced functions; folders; methods; moduls; objects; advanced Python basedobject based programming; packages; regular expressions; database on Python; voice and animation.

Course Book:

- Dive into Python 3, Mark Pilgrim, Apress, 2013

Additional Resource:

- Learning Python, Mark Lutz, Oreilly, USA, 2013

INF489 Swift Programming (3-0-0-3-6)

Objective-C Development Environment Setup; Libraries in the Objective-C language; Objective-C class Interface (Class Interface) How do you define ?; Data Types in the Objective-C language; process operators and various expressions; Control Structures; Loop (Loop) Creation; Inheritance (Inheritance); polymorphism; Pre-Processor Commands and Macros; Arrays and Dictionary Objects; Functions; Memory classes; File Operations.

Course Book:

- The Swift Programming Language (Swift 3.0.1), Published: 02 June 2014, Publisher: Apple Inc.
- iOS 10 Programming Fundamentals with Swift, Swift, Xcode, and Cocoa Basics, By Matt Neuburg, Publisher: O'Reilly Media, Final Release Date: September 2016

Additional Resource:

- Swift Programming: The Big Nerd Ranch Guide (Big Nerd Ranch Guides) 1st Edition , by Matthew Mathias, John Gallagher, ISBN-13: 978-0134398013
- Cocoa Programming for OS X: The Big Nerd Ranch Guide (5th Edition) (Big Nerd Ranch Guides) 5th Edition , Aaron Hillegass, Adam Preble, Nate Chandler, ISBN-13: 978-0134076959

INF388 Decision Support Systems (3-0-0-3-6)

Decision support system types; the history of business intelligence; the architecture of business intelligence; business intelligence styles; modeling and support; DSS concepts; methods and technologies; modeling and analysis; data mining for business intelligence;

artificial neural networks for data mining; text and web mining; data warehousing; business performance management; collaborative group of computer-aided technologies and support systems; information management; artificial intelligence and expert systems; advanced intelligent systems; management support systems: emerging trends and effects.

Course Book:

- Decision Support Systems and Intelligent Systems, Efraim Turban, Jay E. Aronson, Pearson, 2005

Additional Resource:

- Decision Support Systems for Business Intelligence, Vicki L. Sauter, John Wiley & Sons, 2010
- Decision Support Systems, Dr. Clyde W. Holsapple, Dr. Andrew B. Whinston, West Publishing Company, 1996

INF380 Enterprise Resource Planning (3-0-0-3-6)

Enterprise resource planning (ERP) software components; the realization of the software embedded in business processes; Examination of project examples; the structure of the ERP modules; SAP module structure; the structure of the SAP process and analysis.

Course Book:

- Concepts İn Enterprise Resource Planning**,** Authors: Ellen F. Monk, Bret J. Wagner, Boston, Mass. ; London, 2009

Additional Resource:

- Enterprise Resource Planning, Mary Sumner, Edwardsville, Peorson, 2005

INF493 Service Based Software Architecture (3-0-0-3-6)

This course uses XML, XML Web Services and Windows Communication Foundation technology. To develop distributed software applications that conform to service-based architectural principles, technical knowledge and skills are given. The course focuses on WCF's foundations, publication, maintenance, implementation, protection and testing. The structure of WCF REST service applications is examined in detail.

INF495 Network Routing and Switching (3-0-0-3-6)

TCP/IP protocol suite, configuration and tshoot network devices, hands-on switch configuration, switching methods, configuration, tshoot and vulnarability of protocols of 2. Layer of OSI model layers, redundant link design, hands-on router configuration, inter-vlan routing, verify route table in router, metric values, best effort delivery of ip traffic, configuration of dynamic routing protocols.

INF499 Innovation (3-0-0-3-6)

Definition of innovation; characteristic of innovation; sources of innovation; creativity; creativity processes, factors and conditions that prevent creativity; the differences between

creativity and innovation; types of innovation; process of innovation; innovation models; diffusion of innovation; Intellectual property rights; innovation based strategies as a source of competitive advantage; implementation of innovation strategies; management of innovation; innovation clusters and national innovation systems; crowdsourcing of innovation; developing innovative user communities; the challenges and opportunities of co-creation.

INF381 Software Verification and Validation (3-0-0-3-6)

Defining the software testing process, explain unit test and integrity test operations, recognition of regression test, research on transparent box and black box test types, define performance, durability and safety system tests. With the help of testing check the software's functional, performance, durability and structural adequacy.

INF390 Robotic Programming (3-0-0-3-6)

This course focuses on RPA as a HyperAutomation Technology and areas of its use. It will comprise the following elements with both theoretical and practical applications: Introduction to Web based process automation with a sample **Low Code RPA** Solution. Download, install and configure an RPA Solution in a standalone configuration. Access and use online help and other related product documentation. Use Design Studio to configure and add attributes to simple and complex data "Types", create and test Robots (both simple and more complex ones with branching), set up database mapping and create and store "Snippets." Create robots to import data from web sites and pages. Create robots to import data from existing databases. Describe Robot "States." Set up data "Converters" using patterns and regular expressions. Configure "Steps" and identify valid and invalid Steps. Set up "Tagfinders." Identify and correct errors. Manage database tables. Use the Management Console to manage clusters, schedule Robot runs, access API, REST and SOAP-based services and create applets.

Course Book:

- Project of Introduction to Arduino, Emre Arslan, Hakan Çolakoğlu, AkademikPort.
- Handbook of Arduino Projects, Mark Geddes, Aba Publishing.

INF494 Advanced Web Programming (3-0-0-3-6)

In this course, using ASP.NET MVC technologies, technical information is provided to develop advanced dynamic web applications. Web-based systems developed with ASP.NET technology focus on data processing, security, state management, routing, file operations, encryption, ajax techniques, graphics and ASP.NET WEB API issues.

Course Book:

- Full Stack MVC, Erkan Güzelküçük, Kodlab, 2005

INF456 Dart Programming Language and Google Flutter (3-0-0-3-6)

The aim of this course is to have students learn about application development on mobile devices, see the differences in application development between mobile devices and other programmable devices, recognize software frameworks for developing applications for mobile devices, and gain practical experience with an application they will develop as a team.Within the scope of this course, Dart Programming Language structure, commands and usages are explained, Flutter installation environment is introduced in Android Studio and program

writing environments in Google Flutter are explained using Dart programming language. In addition, database, firebase and location operations are introduced in flutter.

Course Book:

- Dart Apprentice: Beginning Programming with Dart by raywenderlich Tutorial Team

INF364 Script Programming (3-0-0-3-6)

Why Javascript? How does it work? and History, Visual Code installation, basics of Javascript, Data Types, Operators, Control Structures and Loops, Functions, Arrays, concept of Object, Higher Order function, Callback function, Array Helper methods, concept of Dom, Events, logic of Asynchronous Working, Axios HTTP Client, concept of ES6 Module, usage of Parcel and Webpack.

Course Book:

- JavaScript: The Definitive Guide, David Flanaga
-

INF471 Asynchronous Programming (3-0-0-3-6)

Introduction to Node.JS and concept of Module, concept of NPM and details, logic of Asynchronous Working, concept of API and HTTP module, create of Node.JS Web Server and Express module, MongoDB database and Mongoose module, construction of Restful API, Middleware, Errors, Validation, Session and Authorization processes, Node.JS Template Engine, usage of EJS, Passport JS, Theme Covering, Email processes (Send, Confirmation, Password Reset), File Upload to Server with Multer, Deploy transactions, Heroku, Digital Ocean, to Publish Applications.

Course Book:

- Advanced JavaScript: Speed up web development with the powerful features and benefits of JavaScript, Zachary Shute, 2019

INF366 Human-Computer Interaction (3-0-0-3-6)

Basic concepts in human-computer interaction; history of human-computer interaction; philosophy of human-computer interaction; cognitive aspects of human being and information processing theory; mental models, psychology and human-computer interaction; technologies used in human-computer interaction; design approaches; usability, effectiveness and efficiency; interface evaluation methods; usability testing.

Course Book:

- Kürşat Çağıltay. 2018. Teoriden Pratiğe İnsan – Bilgisayar Etkileşimi ve Kullanılabilirlik Mühendisliği. Seçkin Yayınları.
- Kerem Rızvanoğlu. 2009. Herkes İçin Web Evrensel Kullanılabilirlik ve Tasarım. Punto Yayınları.

INF386 Graphic Design (3-0-0-3-6)

Graphic design basics, history of graphic design, application areas of graphic design, design process, general design principles, preparing illustrations with graphic design programs, page/screen design with graphic design programs.

Course Book:

- Becer, E. (2000). İletişim ve Grafik Tasarım. Dost Kitabevi
- Williams, R. (2004).The non-designer's design book: design and typographic principles for the visual novice. Peachpit Press, California.

INF339 Software Quality Assurance and Software Testing (3-0-0-3-6)

The aim and objective of this course is to teach students the concepts and skills needed for SQA and Testing. Software quality assurance (SQA or simply QA) is viewed as an activity that runs through the entire development process.

Course Book:

- Software Engineering - A Practitioner's Approach (7th edition) by Roger S. Pressman. ISBN 13. 9780073375977.

INF334 Robotic Process Automation (RPA) (3-0-0-3-6)

This course focuses on RPA as a HyperAutomation Technology and areas of its use. It will comprise the following elements with both theoretical and practical applications: Introduction to Web based process automation with a sample Low Code RPA Solution. Download, install and configure an RPA Solution in a standalone configuration. Access and use online help and other related product documentation. Use Design Studio to configure and add attributes to simple and complex data “Types”, create and test Robots (both simple and more complex ones with branching), set up database mapping and create and store “Snippets.” Create robots to import data from web sites and pages. Create robots to import data from existing databases. Describe Robot “States.” Set up data “Converters” using patterns and regular expressions. Configure “Steps” and identify valid and invalid Steps. Set up “Tagfinders.” Identify and correct errors. Manage database tables. Use the Management Console to manage clusters, schedule Robot runs, access API, REST and SOAP-based services and create applets.

Course Book:

- Arduino Başlangıç Projeleri - Emre Arslan, Hakan Çolakoğlu
- Adım Adım Arduino - Sencer Altun
- Scratch ile Arduino Programlama - Mahmut Bora Karakuş

INF471 Asynchronous Programming (3-0-0-3-6)

To examine in detail the Callback, ES6 Promise and ES7 Async Await structure that enables Asynchronous Operations to be executed in Javascript, to learn the differences between ES5, ES6 and ES7 and to have an infrastructure that can develop applications with NodeJs. Node.JS, Module, NPM concept, Asynchronous Operation logic, API concept, Node.JS Web Server, database, Restful API, Middleware, Session and Authorization operations, E-mail operations (send, confirm, reset password), File Upload to Server.

Course Book:

- https://www.coursera.org/learn/html-css-javascript-for-web-developers
- https://www.w3schools.com/
- https://css-tricks.com/
- https://tr.reactjs.org/docs/getting-started.html

INF412 Information Technologies Management and Audit (3-0-0-3-6)

The Information Technology Management and Audit course comprehensively addresses topics related to information technology management, control, and audit. The course will cover the COBIT 4.0 (Control Objectives for Information and Related Technologies) framework and the ISO/IEC 38500 Corporate Governance of Information Technology standard published by the International Organization for Standardization (ISO), along with their associated best practices. In this context, detailed information will be provided on how to establish processes, quality, and information technology management structures in line with the strategic objectives of businesses, how to manage risks and opportunities, and how to comply with policies and legal obligations. Additionally, different perspectives on problems and solution methods in this field will be discussed and evaluated.