

FINAL INTERNATIONAL UNIVERSITY FACULTY OF ENGINEERING

Program	Information Technology
Medium of Instruction	English

COURSE DESCRIPTIONS / SYNOPSES

<u>ABBREVIATIONS</u> IT: Information Technology

 1.
 Course Code: ITEC 100
 Course Name: Foundations of IT and Systems
 T-P/L-C: (2-2-3)

 Course Description: This course introduces the concepts of information and networking technologies, and operation. This course introduces the following topics: Computers and peripherals. Commonly used software. Information storage and retrieval, information input and output. Computer networks, networking, internet. Windows operating system, Linux operating system, HTML, computer graphics and multi-media; Computer security.

 Textbook: Introduction to Computers and Information Technology (2nd Edition) by Emergent Learning

2.	Course Code: ITEC 101	Course Name: Computer Programming I	T-P/L-C: (3-2-4)
	Course Description: This course int	roduces the C programming language and struc	tured and modular
	programming using C. The topics to	be covered in this course are: Local and global v	ariables. Structured
	programming constructs. Arrays and arr	ay handling. Multi-dimensional arrays. Structures an	d Unions. Arrays of
	structures. Defining new data types in	C. Functions in C. Recursion. Pointers and pointer	arithmetic. Call-by-
	value and call-by reference. Character a	and string functions. Scope and extent. Dynamic men	mory allocation and
	simple data structures in C. Arrays of	pointers. Bit manipulation. Files; data and file proc	cessing. Conditional
	compilation and exception handling in C	1 •	

Textbook: Deitel & Deitel, C How to Program, 8th Ed., Prentice Hall, 2016.

3.	Course Code: ITEC 103	Course Name: IT and Applications	T-P/L-C: (2-1-3)
	Course Description: This course aims t	to introduce the students to the basic concepts of info	ormation technology
	and to train them in the skills needed to	use the office productivity tools. The aim is to learn	to apply these skills
	in their freshman year and to be able to	continue to use these skills during their undergradua	te studies as well as
	professional lives after graduation.		
	Textbook:		

4.	Course Code: MATH 105	Course Name: Mathematics I	T-P/L-C: (3-0-3)
	Course Description: This course intro	duces the following topics: Functions, limit, contin	uity and derivative.
	Mean Value Theorem and applications.	Definite and indefinite integrals. Logarithmic, expe	onential, hyperbolic
	and inverse trigonometric functions. L	.'Hopital's Rule. Integration techniques. Area, vol	ume and rotational
	surface area calculation. Applications in	physics. Sequences and series. Power and Taylor series	es.
	Textbook: Thomas' Calculus, 13th Edi	tion, George B. Thomas, Maurice D. Weir, Joel R.	Hass, Published by
	Pearson, 2016.		

5.	Course Code: ENGL 101	Course Name: English I	T-P/L-C: (3-0-3)
	Course Description: This is a first-sen	nester EAP course for freshman students, and it foc	uses on developing
	both receptive and productive skills as w	ell as the study skills required for university-level cou	ırsework.
	Textbook:		

 6.
 Course Code: ITEC 102
 Course Name: Computer Programming II
 T-P/L-C: (3-2-4)

 Course Description: This course introduces the C++ programming language. The topics to be covered in this course are: Classes, Objects and Strings, File Processing, Operator Overloading, Object Oriented Programming, Inheritance, Polymorphism, Templates, Stream Input/Output, Exception Handling.
 Textbook: C++ How to Program, 9th Edition, Paul Deitel, Harvey Deitel, 2013.

7.	Course Code: ITEC 124	Course Name: Introduction to Multimedia	T-P/L-C: (3-1-3)
		Systems	
	Course Description: This course introd	uces multimedia, audio, video and text integration, n	nultimedia tools and
	development environments, education, to	purism, culture and applications to computer art.	
	Textbook:		

8.	Course Code: MATH 106	Course Name: Mathematics II	T-P/L-C: (3-0-3)
	Course Description: This course intro	duces the following topics: Plane and polar co-ordi	nates, area in polar
	coordinates, arc length of curves. Limit,	continuity and differentiability of function of several	d variables, extreme
	values, method of Lagrange multipliers.	Double integral, triple integral with applications. Lin	ne integrals, Green's
	theorem. Sequences, infinite series, power	er series, Taylor's series. Complex numbers.	-
	Textbook: Calculus, Thomas- Finney, A	Addison-Wesley, 1998.	

9.	Course Code: ENGL 102	Course Name: English II	T-P/L-C: (3-0-3)
	Course Description: This course is con	ntinuation of ENGL 101 - English I. It involves fur	ther development of
	students' EAP oral and written communi	cation skills as well as further development of the stu	dy skills essential to
	success at this level.	_	-
	Textbook:		

 10.
 Course Code: GEED-01
 Course Name: General Education Elective I
 T-P/L-C: (3-0-3)

 Course Description: Students can select appropriate courses from a Faculty approved course list. The course list includes but is not limited to Economics, Business, and Accounting courses. For detailed contents please see the Course Descriptions of the individual courses.

 Textbook:

11.	Course Code: ITEC 211	Course Name: Discrete Structures	T-P/L-C: (3-0-3)
	Course Description: This course introd	luces the following topics: Set theory, functions and	relations; inductive
	proofs and recursive definitions. Combir	natorics; counting rules, permutations, combinations, a	allocation problems,
	selection problems. Relations and dig	raphs. Generating functions; ordinary generating	functions and their
	applications. Recurrence relations. Ana	lysis of algorithms. Propositional calculus and Boo	olean algebra; basic
	Boolean functions, digital logic gates, m	interm and maxterm expansions, simplifying Boolea	n functions. Graphs
	and trees; adjacency matrices, incidence	e matrices. Eulerian graphs, Hamiltonian graphs, col	ored graphs, planar
	graphs, spanning trees, minimal spanning	g trees. Languages and finite-state machines.	
	Textbook: Discrete Mathematics and Its	Applications, 7th Edition, Kenneth H. Rosen, McGra	w-Hill Education.

12.Course Code: ITEC 215Course Name: Algorithms and Data StructuresT-P/L-C: (4-2-4)Course Description: This course introduces the following topics: Data structures and their usage. Programming
methods, sorting, searching algorithms and applications, storage, time analysis. Stacks and queues. Linked lists
and applications. Recursion. Trees and tree searching algorithms.Textbook: Algorithms in C (Vol. 1), Sedgewick, 3rd Ed. Addison-Wesley, 1998.

13.Course Code: MATH 203Course Name: Probability and StatisticsT-P/L-C: (3-0-3)Course Description: This course introduces the probability concept and basic theorems. The topics to be coverd
in this course are: Independency, conditional probability and Bayes' rule. Random variables and functions. Some
important discrete and continuous distributions. Distribution of random variable functions. Statistics. Unit, mass,
data analysis. Sampling and sampling methods.Textbook: Probability and Statistics, Morris H. DeGroot, Mark J. Schervish, Pearson, 4th Edition, 2011.

14.	Course Code: ITEC 231	Course Name: Web Technologies and	T-P/L-C: (3-2-4)
		Programming	
	Course Description: This course introd	luces the Web technologies and give students exper	ience creating Web
	applications. The course introduces m graphics, event-driven programming, applications.	narkup languages, scripting languages, network pr and databases, and shows how they all work t	otocols, interactive together to deliver
	Textbook:		

15.	Course Code: ENGL 201	Course Name: English III	T-P/L-C: (2-0-2)
	Course Description: This second year	English course helps develop the academic language	ge skills required to
	write, format, and reference a short profe	essional or technical report, and to present a summary	y of its contents to a
	public audience.		
	Textbook:		

16.	Course Code: ITEC 212	Course Name: Object Oriented Programming	T-P/L-C: (4-2-4)
	Course Description: This course introd	luces object oriented programming, classes and defin	itions, methods and
	inheritance, information hiding, operato	r overloading, project development using object orie	nted languages like
	C++ and JAVA. This course provides st	udents to improve their skills in observing and report	ing. They will learn
	how to collect data, describe, categorize	and analyze them. Computer packages for data anal	ysis will be used as
	well.		
	Textbook:		

17.	Course Code: ITEC 214	Course Name: Client/Server Side	T-P/L-C: (4-2-4)
		Programming	
	Course Description: This course provide	des an introduction to the client-server model, and	covers the basics of
	distributed computing and computer networks. On the client side, the course introduces graphical user-interfaces,		
	their design and implementation, tools such as database access clients. On the server side, the course introduces		
	database management systems and the use of server-side programming tools which provides connectivity for		
	clients.		
	Textbook:		

18.	Course Code: ITEC 222	Course Name: Information Systems Analysis	T-P/L-C: (3-0-3)
		and Design	
	Course Description: This course introd	luces information system analysis and design metho	dology. The course
	includes transactional, database and web/ecommerce topics and integrates them within a common method for the		
	successful analyst/designer. The topics further to be covered in this course are: Emerging technologies, such as		
	agile methods, cloud computing, and mobile applications, critical thinking and IT skills in a dynamic, business-		
	related environment. Web interface tools and data warehouse system design.		
	Textbook: Information Systems Analysi	s and Design, Shouhong Wang, Universal Publishers,	, 2012.

Course Code: ITEC 232	Course Name: Computer Networks I	T-P/L-C: (4-0-4)
Course Description: This course intr	oduces the principles of data communications, in	formation transfer,
computer networks and their application	ons. The topics to be covered in this course are: 1	Network structures,
architectures and protocols. Open sy	stems and the ISO-OSI reference model; serv	vices and network
standardization. Communication systems	s: transmission media, analog and digital transmission	on. PSTN, modems,
PCM, encoding and digital interface. Tr	ansmission and switching: FDM, TDM, modulation,	, circuit, packet and
message switching.		
Textbook: Stallings W., Data and Comp	uter Communications", 8th Ed., Prentice-Hall, 2007.	
	Course Code: ITEC 232 Course Description: This course intr computer networks and their application architectures and protocols. Open sy standardization. Communication system PCM, encoding and digital interface. Tr message switching. Textbook: Stallings W., Data and Comp	Course Code: ITEC 232 Course Name: Computer Networks I Course Description: This course introduces the principles of data communications, in computer networks and their applications. The topics to be covered in this course are: I architectures and protocols. Open systems and the ISO-OSI reference model; servistandardization. Communication systems: transmission media, analog and digital transmission PCM, encoding and digital interface. Transmission and switching: FDM, TDM, modulation, message switching. Textbook: Stallings W., Data and Computer Communications, 8th Ed., Prentice-Hall, 2007.

Reading: Computer Networks, 5th Edition, Andrew S. Tanenbaum, David J. Wetherall, Pearson, 2010.

20.	Course Code: GEED-02	Course Name: General Education Elective II	T-P/L-C: (3-0-3)
	Course Description: Students can selec	t appropriate courses from a Faculty approved course	list. The course list
	includes but is not limited to Economics	, Business, and Accounting courses. For detailed con	itents please see the
	Course Descriptions of the individual courses.		_
	Textbook:		

21.	Course Code: HIST 100 / TURK 100	Course Name: History of Turkish Republic /	T-P/L-C: (2-0-2)
		Turkish as a second language	
	Course Description: "HIST 100" course is designed to provide Turkish-speaking students enrolled in English-		
	medium programs with a brief historical account of the Republic of Turkey. "TURK 100" course is designed to		
	provide international students with the basic lexis and grammar of the Turkish language and to develop basic		
	receptive and productive skills in Turkish.		
	Textbook:		

22.	Course Code: ITEC 313	Course Name: Operating Systems	T-P/L-C: (3-0-3)
	Course Description: This course is an	introduction to operating systems: usage areas, funct	tions and properties;
	Resource allocation, work and resource organization. Giving precedence to processes. Memory manager		
Interrupts and their control. Internal communication, control of peripherals.			
	Textbook: Abraham Silberscharz, Galvin, Gagne, Operating System Concepts, Eighth Edition, John Wil		
	Sons, 2010.		

23.	Course Code: ITEC 331	Course Name: Fundamentals of Cybersecurity	T-P/L-C: (3-2-4)
	Course Description: This course provid	les an overview of the field of information security.	Students learn about
	what it takes to manage and operate an	information security program. The course focuses o	n areas such as risk
	assessment, risk management, incider	t handling and business continuity planning. St	udents explore the
	challenges information security profession	ionals face related to network security, system secu	rity and application
	security.		
	Textbook.		

Course Name: Computer Networks II 24. **Course Code: ITEC 333** T-P/L-C: (3-2-4) Course Description: This course is the continuation of "Computer Networks I" course. The course covers the following topics: The store and forward concept. Networking characteristics. Storage, delay, multiplexing, bandwidth sharing and dynamic bandwidth management, QoS. Channel organization, framing, channel access control. PSPDN and integrated digital network concept: ISDN. LANs, MANs and WANs. ATM and gigabit networking. Communication models. De-facto standards. The Internet open architecture and the protocol suite. Wireless networks. Modern applications of networking. Textbook: Stallings W., Data and Computer Communications", 8th Ed., Prentice-Hall, 2007. Reading: Computer Networks, 5th Edition, Andrew S. Tanenbaum, David J. Wetherall, Pearson, 2010.

25.	Course Code: ITEC 335	Course Name: Mobile Application	T-P/L-C: (3-1-3)
		Development	
	Course Description: This course int	forms students on application development on r	nobile devices the
requirements of mobile applications and the differences in application development for mobile devices an			le devices and other
programmable devices The students become familiar with mobile application development frameworks and			ameworks and gain
	practical experience by developing mobile applications. They use web services and databases in their mo		
applications.			
	Textbook:		

26.	Course Code: ITEC 341	Course Name: Database Administration DBMS T-P/L-C: (3-2-4)
	Course Description: This course is an	introduction to database management; Data storing methods and data
	organization. Hierarchical data modeling	and schemas. E-R diagrams. Relational algebra and database processing
	languages (SQL, Quel etc). Synchronou	is tasks and their design. Logical database design. Object oriented and
	fuzzy logic databases.	
	Textbook. Fundamentals of Database Sy	vstems Flmasri & Navathe Addison-Wesley

27.	Course Code: ITEC 342	Course Name: Software Engineering	T-P/L-C: (3-2-4)
	Course Description: This course introd	luces Software Engineering paradigms. The topics to	be covered in this
course are: The software life cycle. Systems analysis. Requirements analysis. Specification of re-		on of requirements.	
Software design and selection. Initial design, modularity, structure charts and partitioning. Detaile		Detailed design and	
notations. Data structure design. Database Design. User interface Design. Design documentation and		tation and software	
maintenance.			
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Textbook: Pressman R.S., Software engineering: Analysis and Design, 5th Int. Ed., McGraw Hill.

Course Code: ITEC 362 Course Name: Human Computer Interaction 28. T-P/L-C: (3-0-3) **Course Description:** This course informs students on the principles of human computer interaction. The course introduces the following topics: Items of interactive computer systems, windows and input devices. Window systems and interview management. Interactive design in interactive systems. Psychological, physiological, linguistic and perceptual factors. Import and export of various interaction techniques, command language syntax and data presentation. Design methodology and main points.

	Textbook:		
29.	Course Code: ITEC 364	Course Name: Information Systems	T-P/L-C: (3-0-3)
		Administration and Operations	
	Course Description: This course introd	uces system management, knowledge management ar	nd security, database
	management, user support, electronic data processing department management.		
	Textbook:		

30.	Course Code: ITEC 368	Course Name: IT Project Management	T-P/L-C: (3-0-3)
	Course Description: This course inf	forms students on project selection, project man	ager's role, project
organization and planning, budgeting and cost estimation, time management, resource d		distribution, project	
monitoring using information systems, monitoring and finalizing the project. Students explore project		e project leadership	
in conflict-based projects and learn about conflict resolution and communication skills, risk analysis a		nalysis and problem	
solving.			
	Textbook:		

31.	Course Code: GEED-03	Course Name: General Education Elective III	T-P/L-C: (3-0-3)
	Course Description: Students can selec	t appropriate courses from a Faculty approved course	e list. The course list
	includes but is not limited to Economics, Business, and Accounting courses. For detailed contents please see th		
	Course Descriptions of the individual courses.		
	Textbook:		

32.	Course Code: ITEC 403	Course Name: Summer Training	T-P/L-C: (0-0-0)
	Course Description: In partial fulfillme	ent of the graduation requirements, all students mus	t complete 40 work
	days of summer training after the end of	the second and/or (preferably) third year, during sum	nmer vacations. The
	summer training should be carried out in	accordance with the rules and regulations set by the	Department/Faculty.
	Registration of summer training is done	during the semester immediately following the trainin	
	Textbook:		-

33.	Course Code: ITEC 401	Course Name: Senior Project I	T-P/L-C: (2-4-2)
	Course Description: Doing project stud	lies and preparing project reports oriented towards in	ndependent research
	and application under the supervision	n of an academic member. It is desired that e	ach project be an
	interdisciplinary analysis, design and in	nplementation project. The project is spread to one a	cademic year and it
	involves the initial problem formulation, a technical survey, the detailed problem study, analysis and description.		
	as well as formulation of a methodical way for the initial solution. A detailed preliminary analysis and design		
	documentation for the solution of a realistic and reasonably complex IT problem. It is an extended exercise in the		
	professional application of the skills and experience gained in the undergraduate program. Students form teams,		
	and each team chooses a topic proposed	by course instructors. Students are expected to pres	ent their progress in
	the form of reports and presentation, both	h during the semester and at the end of the semester.	
	Textbook:		

34.	Course Code: ITEC 431	Course Name: Information Security	T-P/L-C: (3-0-3)
	Course Description: This course introd	uces the concepts and models of information security	, security principles,
	security requirements, threats and attacks, security policy document, risk management, access control, securit		
	audit, cryptographic techniques and algorithms, database security.		
	Textbook:		

35.	Course Code: ITEC 461	Course Name: Introduction to Virtualization	T-P/L-C: (3-2-4)
		and Cloud Computing	
	Course Description: This course cover	rs the following topics: Definition and historical de	velopment of cloud
	computing; Basic cloud service models; Software as a service, platform as a service, infrastructure as a service,		
	data center as a service; Cloud computing technologies; virtualization; Cloud security; Basic cloud architects,		
	advanced cloud architects, and private cloud architects; Cloud service models, cloud economy, cost metrics and		
	pricing models; Service quality criteria	and service agreements, large data bases, large data	analysis, and large
	data management; Large data processing	, large data source management and storage.	

	Textbook:		
36.	Course Code: AE-01	Course Name: Area Elective I	T-P/L-C: (3-0-3)
	Course Description: Students can select	from available Area Elective courses.	
	Textbook: (See detailed Course Descrip	tion for the course)	

 37.
 Course Code: ITEC 402
 Course Name: Senior Project II
 T-P/L-C: (0-8-4)

 Course Description: This course is the sequel to ITEC 401. It consists of the implementation of a realistic, preferably interdisciplinary, design project emphasizing IT design principles on a computer/applications related topic. It is carried out by a team of students under the supervision of an instructor. The team must complete the detailed design and implementation of the preliminary design they started in the ITEC 401 course. It is an extended exercise in the professional application of the knowledge, experience and skills gained in the undergraduate program. The team has to complete analysis, design, implementation, testing and documentation of a proto-type or actual product, present it and submit a final report in the technical project report.
 Textbook:

38.	Course Code: ITEC 404	Course Name: Social and Professional Issues in	T-P/L-C: (3-0-3)
		IT	
	Course Description: This is a final year	course which aims to provide knowledge and aware	ness of a number of
	important IT issues. The knowledge areas include but are not limited to: professionalism, ethics, project		
	management, sustainable development, risk management, change management, standards, health, environment,		
	hazards, workplace health and security, societal issues as well as contemporary issues reflecting on the		
	applications of the engineering profession. Awareness areas include but are not limited to entrepreneurship.		
	Textbook:		

39.	Course Code: AE-02	Course Name: Area Elective II	T-P/L-C: (3-0-3)
	Course Description: Students can select from available Area Elective courses.		
	Textbook: (See detailed Course Description for the course)		

40.	Course Code: AE-03	Course Name: Area Elective III	T-P/L-C: (3-0-3)	
	Course Description: Students can select from available Area Elective courses.			
	Textbook: (See detailed Course Description for the course)			

41.	Course Code: UE-01	Course Name: University Elective	T-P/L-C: (3-0-3)
Course Description: Students can select University Elective courses from a list approved by the Faculty.			the Faculty.
	Textbook: (See detailed Course Description for the course)		