FINAL INTERNATIONAL UNIVERSITY
FACULTY OF ENGINEERING

Program	Software Engineering (English)
Medium of Instruction	English

Category		Associate Degree	X	Undergraduate		Masters (Project Based)		Masters (Thesis)		PhD

CURRICULUM

ABBREVIATIONS

UC: University Core   **FC:** Faculty Core   **AC:** Area Core
UE: University Elective   **AE:** Area Elective

YEAR 1

FALL

Semester	Course code	Course name	Course Category	Lec.	Pract.	Tot.	Pre-requisite	ECTS Credits
1	MATH101	Calculus I	FC	4	1	4	–	6
	MATH103	Discrete Mathematics	FC	3	0	3	–	6
	SOFT100	Computer Fundamentals and Introduction to Programming	FC	2	2	3	–	3
	SOFT103	Computer Literacy & Introduction to Information Technology	FC	2	1	2	–	3
	PHYS101	Physics I	FC	3	2	4	–	6
	ENGL101	English I	UC	3	0	3	–	6
Total Credit						**19**		**30**

SPRING

Semester	Course code	Course name	Course Category	Lec.	Pract.	Tot.	Pre-requisite	ECTS Credits
2	MATH102	Calculus II	FC	4	1	4	MATH101	6
	MATH104	Linear Algebra	FC	3	1	3	–	5
	SOFT104	Computer Programming	FC	3	2	4	SOFT100	5
	PHYS102	Physics II	FC	3	2	4	PHYS101	6
	ENGL102	English II	UC	3	0	3	ENGL101	6
	HIST100/ TURK100	History of Turkish Republic / Turkish as a Second Language	UC	2	0	2	–	2
Total Credit						**20**		**30**

YEAR 2

FALL

Semester	Course code	Course name	Course Category	Lec.	Pract.	Tot.	Pre-requisite	ECTS Credits
3	MATH205	Differential Equations	FC	4	1	4	MATH101 MATH104	6
	SOFT215	Data Structures	AC	3	2	4	SOFT104	6
	SOFT235	Electrical Circuits for Software Engineers	AC	3	2	4	MATH101	4
	COMP225	Digital Logic Design	AC	3	2	4	MATH103	6
	ENGL201	English III	FC	2	0	2	ENGL102	4
	GEED-01	General Education Elective I	UE	3	0	3	–	4
Total Credit						**21**		**30**

SPRING								
	MATH206	Probability and Statistics	FC	3	1	3	MATH102	5
	SOFT252	Analysis of Algorithms	AC	3	2	4	SOFT215	8
4	SOFT254	Automata Theory	AC	3	1	3	MATH103	7
	COMP216	Object Oriented Programming	AC	3	2	4	SOFT215	6
	GEED-02	General Education Elective II	UE	3	0	3	–	4
		Total Credit				**17**		**30**

YEAR 3

FALL								
	MATH309	Numerical Analysis	AC	3	1	3	SOFT104 MATH205	6
	SOFT315	Visual Programming	AC	3	2	4	SOFT215 COMP216	5
5	SOFT321	Machine Language and Microprocessors	AC	3	2	4	SOFT104 COMP225	6
	SOFT341	Database Design and Management	AC	3	2	4	SOFT215	6
	SOFT343	Software Engineering Analysis and Design	AC	3	2	4	COMP216	6
	SOFT299	Summer Training I	FC	0	0	0	–	1
		Total Credit				**19**		**30**

SPRING								
	SOFT316	Internet & Web Programming	AC	3	0	3	SOFT315	6
	SOFT332	Operating Systems	AC	3	2	4	SOFT215	5
6	SOFT342	Software Project Management	AC	3	1	3	SOFT343	5
	TE1	Technical Elective I	AE	3	0	3	*check*	5
	COMP352	Programming Languages	AC	3	0	3	COMP216	5
	GEED-03	General Education Elective III	UE	3	0	3	*check*	4
		Total Credit				**19**		**30**

YEAR 4

FALL								
	SOFT401	Capstone Project I	FC	1	4	3	–	6
	SOFT411	Software Validation & Testing	AC	3	1	3	SOFT343	5
7	SOFT415	Software Architecture	AC	3	1	3	SOFT343	4
	TE2	Technical Elective II	AE	3	0	3	*check*	7
	TE3	Technical Elective III	AE	3	0	3	*check*	7
	SOFT399	Summer Training II	FC	0	0	0	SOFT299	1
		Total Credit				**15**		**30**

SPRING								
	SOFT402	Capstone Project II	FC	0	8	4	SOFT401	9
	SOFT404	Engineering Attributes & Ethics	FC	2	0	2	–	3
8	SOFT412	Software Quality Assurance	AC	3	1	3	SOFT343	4
	TE4	Technical Elective IV	AE	3	0	3	*check*	7
	TE5	Technical Elective V	AE	3	0	3	*check*	7
		Total Credit				**15**		**30**

AREA ELECTIVE COURSES

Technical Elective Courses		Credit			
Course Code	**Course Name**	**Lec.**	**Pract.**	**Tot.**	**ECTS**
COMP322 (TE1)	Signals and Systems	3	0	3	6
COMP324 (TE2) (Pre-req.)	Computer Architecture	3	0	3	5
COMP332 (TE2)	Data Communication and Computer Networks	3	0	3	6
SOFT421 (TE1) (Pre-req.)	Embedded Systems	3	0	3	7
SOFT422 (Pre-req.)	Mobile Application Development	3	0	3	7
SOFT431	Human-Computer Interaction	3	0	3	7
SOFT434	Cryptography and Network Security	3	0	3	7
SOFT441 (Pre-req.)	Advanced Database	3	0	3	7
SOFT442 (Pre-req.)	Object-Oriented Programming Languages & Systems	3	0	3	7
SOFT444 (Pre-req.)	Software Construction	3	0	3	7
SOFT445 (Pre-req.)	Rapid Application Development	3	0	3	7
SOFT451	Information Retrieval	3	0	3	7
SOFT462 (Pre-req.)	Service-Oriented Computing	3	0	3	7
SOFT463 (Pre-req.)	Cloud Computing	3	0	3	7
SOFT464 (Pre-req.)	Artificial Intelligence	3	0	3	7
SOFT465	Neural Networks	3	0	3	7
SOFT466	Expert Systems	3	0	3	7
SOFT467	Data Mining	3	0	3	7
SOFT468	Process Mining	3	0	3	7
SOFT472	Computer Graphics	3	0	3	7
SOFT473	Digital Image Processing	3	0	3	7
SOFT474	Introduction to Parallel Computing	3	0	3	7

COURSE BREAKDOWN

	Total		
	Number	**Credit**	**ECTS Credits**
All Courses	**46**	**145**	**240**
University Core Courses	3	8	14
Faculty Core Courses	17	49	81
Area Core Courses	18	64	100
Area Elective Courses	5	15	33
University Elective Courses	3	9	12
Summer Internship	2	0	2

Semester	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Average**
Number of courses	6	6	6	5	6	6	6	5	**5.75**
Total credits	19	20	21	17	19	19	15	15	**18.125**
Total ECTS Credits	30	30	30	30	30	30	30	30	**30**

COURSE DESCRIPTIONS / SYNOPSES

MATH101: Calculus I

Functions, limit, continuity and derivative. Mean Value Theorem and applications. Definite and indefinite integrals. Logarithmic, exponential, hyperbolic and inverse trigonometric functions. L'Hopital's Rule. Integration techniques. Area, volume and rotational surface area calculation. Applications in physics. Sequences and series. Power and Taylor series.
Textbook: Thomas' Calculus, 13th Edition, George B. Thomas, Maurice D. Weir, Joel R. Hass, Published by Pearson, 2016.

MATH103: Discrete Mathematics

Set theory, functions and relations; inductive proofs and recursive definitions. Combinatorics; counting rules, permutations, combinations, allocation problems, selection problems. Relations and digraphs. Generating functions; ordinary generating functions and their applications. Recurrence relations. Analysis of algorithms. Propositional calculus and Boolean algebra; basic Boolean functions, digital logic gates, minterm and maxterm expansions, simplifying Boolean functions. Graphs and trees; adjacency matrices, incidence matrices. Eulerian graphs, Hamiltonian graphs, colored graphs, planar graphs, spanning trees, minimal spanning trees. Languages and finite-state machines.
Textbook: Discrete mathematical structures , B. Kolman, R.C.Busby, S.Ross, Prentice-Hall International, Inc. 1996

SOFT100: Computer Fundamentals and Introduction to Programming

Introduction to Computer Engineering. Professional fields in which Computer Engineers perform. Professionalism, values, attributes and ethics for Computer Engineers. Academic integrity and ethical issues in academia and research. Introduction to fundamentals of computer systems; computer organization, hardware and software, operating systems, language processors, user interfaces, computer networks. Introduction to algorithms and programming; machine, assembly and high level languages. Problem solving and algorithm development. Correctness and efficiency of programs. Data validation and exception handling. The C programming language. Arithmetic and logical statements, data types, input/output, structured programming; sequence, selection and iteration; control structures.
Textbook 1: Computers Are Your Future Complete, C. Laberta, 12th Ed., Pearson Education Ltd., 2014.
Textbook 2: C How to Program, 8th Ed., Deitel & Deitel, Prentice Hall, 2016.

SOFT103: Computer Literacy & Introduction to Information Technology

Fundamental computer literacy for today's life; computer systems; basic concepts about software and hardware; basics of operating systems, recent operating systems; file management; application software; word processing programs; calculation/table/graphics programs; presentation programs; desktop publishing; database management systems; web design; internet use in education; communication and collaborative technologies; safe internet use; information technology ethics and copyright; the effects of computers and the internet on children/teenagers.
Textbook 1: Computers Are Your Future Complete, C. Laberta, 12th Ed., Pearson Education Ltd., 2014.
Textbook 2: Microsoft Office 2016 Step by Step, Joan Lambert

PHYS101: Physics I

Measurement standards and units, vectors and coordinate systems, dynamics, work, energy and power, conservation of energy, systems of particles, collisions, rotation, equilibrium of solids, oscillations, gravity.

Textbook: Sears & Zemansky's University Physics with Modern Physics. 14th Ed., Hugh D. Young, Roger A. Freedman, Pearson Education Limited, 2016.

ENGL101: English I

This is a first-semester EAP course for freshman students, and it focuses on developing both receptive and productive skills as well as the study skills required for university-level coursework.
Textbook: Headway Academic Skills, Reading, Writing and Study Skills – Level three – StudentBook

MATH102: Calculus II

Plane and polar co-ordinates, area in polar co-ordinates, arc length of curves. Limit, continuity and differentiability of function of several variables, extreme values, method of Lagrange multipliers. Double integral, triple integral with applications. Line integrals, Green's theorem. Sequences, infinite series, power series, Taylor's series. Complex numbers.
Textbook: Calculus, Thomas- Finney, Addison-Wesley, 1998.

MATH104: Linear Algebra

Matrices, determinant. System of a linear equations. Vector spaces. Base and dimension. Linear transformations.
Base transformation. Inverse of a linear transformation. Characteristic equations, eigenvalues and eigenvectors and Jordan form. Numerical techniques for calculation of eigenvalues and eigenvectors. Inner product spaces, diagonality, quadratic forms. Norm of a vector space.
Textbook: Steven, J. Leon, "Linear Algebra with Applications", Prentice Hall, 1998.

SOFT104: Computer Programming

Review of the C programming language. Structured and modular programming using C. Local and global variables. Structured programming constructs. Arrays and array handling. Multi-dimensional arrays. Structures and Unions. Arrays of structures. Defining new data types in C. Functions in C. Call-by-value and call-byreference. Character and string functions. Scope and extent. Recursion. Pointers and pointer arithmetic. Dynamic memory allocation and simple data structures in C. Arrays of pointers. Bit manipulation. Files; data and file processing. Conditional compilation and exception handling in C.
Textbook: Deitel & Deitel, C How to Program, 8th Ed., Prentice Hall, 2016.

PHYS102: Physics II

Charge, electrical field and Gauss's Law. Basic circuits and Kirchhoff's Laws. Magnetic field. Ampere's Law. Faraday's Laws. Resistance, Magnetic properties of the material. Maxwell equations. Electromagnetic waves and introduction to modern physics.
Textbook: Physics for Scientist and Engineering, 5th Ed., Serway-Beichner.

ENGL102: English II

This course is continuation of ENGL101- English I. It involves further development of students' EAP oral and written communication skills as well as further development of the study skills essential to success at this level.
Textbook: English Grammar, CourseSmart eTextbook 3rd edition, Anita Barry, Pearson Education

HIST100: History of Turkish Republic

This course is designed to provide Turkish-speaking students enrolled in English-medium programs with a brief historical account of the Republic of Turkey.

TURK100: Turkish as a Second Language

This 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: Elementary turkish (dover language guides) 1986 by lewis V. Tomas & Norman

MATH205: Differential Equations

Classification of differential equations. Solving methods of first order differential equations. Linear differential equations of higher degrees. Method of undetermined coefficients. Laplace transformation and convolution. Differential equations with several variables.
Textbook: Elementary Differential Equations and Boundary Value Problems, William E. Boyce – Richard C. Diprima, John-Wiley, 1992.

SOFT215: Data Structures

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.

SOFT235: Electrical Circuits for Software Engineers

Circuits, currents and voltages, power and energy, Kirchoff's current and voltage laws. Circuit elements and circuits. Resistive circuits: resistance in series and parallel, resistive network analysis by series and parallel equivalents, node and mesh analysis. Thevenin and Norton equivalents. Superposition. Inductance and Capacitance, physical characteristics, practical capacitor and inductors. Impedance and maximum power transfer.
Textbook: Electrical Circuits: An Introduction, K. C. A. Smith

COMP225: Digital Logic Design

Binary Systems. Boolean algebra and logic gates. Simplification of Boolean functions. Analysis and design of combinational circuits. SSI, MSI and LSI elements. Synchronous sequential logic; flip-flops, counters, shift registers. Analysis and design of sequential circuits, state tables, state diagrams, state reduction and state assignment. Sequential MSI elements. Large scale system design with MSI. Timing issues. Registers, memory elements and programmable logic devices (PLDs). FSMs and FSMD; datapath and control. Relationship to simple computing architecture.
Textbook: Digital Design, 5th Ed., M. Morris Mano and Michael D. Ciletti, Prentice Hall, 2013.

ENGL201: English III

This second year English course helps develop the academic language skills required to write, format, and reference a short professional or technical report, and to present a summary of its contents to a public audience.
Textbook: English Grammar, CourseSmart eTextbook 3rd edition, Anita Barry, Pearson Education

GEED-01 / 02/ 03: General Education Elective I/II/III

Courses in the General Education classification will be available for students to take as an elective non-technical course. The topics will be balanced between Humanities, Arts and Social Sciences. Approved courses will be announced at the start of each semester by the Faculty of Engineering. One of the courses must be among Introduction to Economics, Business/Engineering Management/Management or Accounting-I courses.

MATH206: Probability and Statistics

Probability concept and basic theorems. 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 For Engineers, I.Miller, J.E.Freund.

SOFT252: Analysis of Algorithms

Definition and properties of Algorithms. Design, analysis, and representation of Algorithms. Data abstraction. Pseudo code conventions. Computation models. Mathematical foundations: growth of functions, asymptotic notations. Study of recursive algorithms and associated recurrence relations (substitution method, iteration method, master method, recursion trees). Algorithm design paradigms: Brute-Force (Exhaustive Search), Divideand-Conquer (Merge Sort, Binary Search Tree), Dynamic Programming (Matrix-Chain multiplication, LCSlength, 01-Knapsack Problem). Greedy algorithms (Greedy Activity Selector, Fractional Knapsack Problem). Graph Algorithms; representation of sets and graphs. Breadth-first search, depth-first search. Minimum spanning trees (MST). Single-source shortest paths. All-pairs of shortest paths.
Textbook: Introduction to Algorithms, 3rd Edition (MIT Press): Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest

SOFT254: Automata Theory

Automata and formal languages, finite state machines. formal languages and push down automata. Context free languages and grammars. Normal structured grammars. Instability and insolvability. Turing machines and their

usage in problem solving.
Textbook: J.E. Hopcroft, J. D. Ullman, Introduction to Automata Theory, Languages and Computation, Addison Wesley 1979.

COMP216: Object Oriented Programming

Introduction to C++, Classes and Objects, File Processing, Operator Overloading, Object Oriented Programming, Inheritance, Polymorphism, Templates, Stream Input / Output, Exception Handling.
Textbook: Software Engineering in C, Peter A. Darnell, Philip E. Margolis, Springer Verlag, 1988.

MATH309: Numerical Analysis

Approximate calculation and error concept. Solution of nonlinear equations. Approximate root finding methods: sequential repeating method, sloping method, Newton-Raphson method, Bairstow method. Numeric integration methods. Finite differences. Numeric derivatives. Euler method, Taylor method.
Textbook: S. C.Chapra, R. P.Canale Numerical methods for Engineers with Software and Programming applications, 2002

SOFT315: Visual Programming

The main concern of this course is to teach Graphical User Interface, event-driven programming and object-oriented programming for Windows and Internet environments with a visual programming language. Candidate visual programming languages for this course can be: Java, C#, VB, and VC Windows Presentation Foundation (WPF) Graphical User Interface, WPF Graphics and Multimedia, Database and Web Application development will also be introduced.
Textbook: Head First C#/Java/Visual Basic by O'reilly (latest version)
Textbook: Microsoft Visual C++ .Net Step by Step (latest version)

SOFT321: Machine Language and Microprocessors

Systems based on microprocessors and their design, software and hardware design integration. Memories, input/output elements, interrupts and priorities. Daisy chaining type of processors. Lines, connections, timing, usage of logic state analyzers. Control programming, permanent programs in the memory and programming. Synchronous multi-tasking usage and system design.
Textbook: The x86 PC: Assembly Language, Design, and Interfacing 5th Edition, Muhammad Ali Mazidi, Pearson

SOFT341: Database Design and Management

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). Synchronous tasks and their design. Logical database design. Object oriented and fuzzy logic databases.
Textbook: Database System Concepts, Silberschatz, McGraw-Hill.

SOFT343: Software Engineering Analysis and Design

Modular software design. Different architectural design styles for software. UML diagrams, Client/server paradigm. Choice of appropriate software and hardware system capabilities. Dealing with timing constraints. Formal software design specification techniques. Configuration management. Software design for distributed systems. Reusability and commercial off-the-shelf software modules.
Textbook: Pressman R.S., Software engineering: Analysis and Design, 5th Int. Ed., McGraw Hill.
Reading: Sommerville I., Software Engineering, Prentice Hall.

SOFT299: Summer Training I

In partial fulfillment of the graduation requirements, all students must complete 30 work days of summer training after the end of the third year, during summer 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 training.

SOFT316: Internet & Web Programming

This course is an introduction to the tools, technologies, and languages used for the design and implementation of Web applications. Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), Extensible Markup Language (XML), Extensible Stylesheet Language transformations (XSLT), JavaScript and AJAX are covered for programming on the client side. XML Web services, a scripting language and the corresponding Web application development environment, session tracking, and using database are covered for programming on the server side.
Textbook: Head First HTML5 Programming by O'reilly

SOFT332: Operating Systems

Introduction to operating systems: usage areas, functions and properties. Resource allocation, work and resource organization. Giving precedence to processes. Memory management. Interrupts and their control. Internal communication, control of peripherals.
Textbook: Abraham Silberscharz, Galvin, Gagne, Operating System Concepts, Eighth Edition, John Wiley & Sons, 2010.

SOFT342: Software Project Management

In this course, software project processes and project management methodologies considering both practical and theoretical aspects in the context of software systems development will be studied in details. Basic principles and methods for initiation, planning and execution of software projects by considering software process management issues are discussed. The students will be supported with sufficient knowledge based on software engineering project management practices by taking this course that provide successfully initialize a project, reduce the development risks and finalize a software project successfully.
Textbook: Introduction to Software Project Management, Auerbach Publications Published February 25, 2014

TE1: Technical Elective I

Can be one among:

- Computer Architecture

- Computer Networks

- Signal Processing

This is a Technical Elective course which will be selected by students in their senior year and is offered by the department alternatively during the Fall and Spring semesters. Please see the Technical Elective courses list.

COMP352: Programming Languages

Introduction to programming languages. History and development of programming languages. Structures and meanings of the languages: CFG, BNF, recursive descent parsing, attribute grammars, Lexical and syntactic analysis using Lex and Yacc. Basic properties of the variables: name, address, type, value, scope and lifetime. Type checking. Analysis of basic and compound data types. Arithmetic and logical statements, assigning. Control structures. Usage and implementation of functions, parameter passing methods. Data abstraction. Object oriented, functional and logic programming languages.

Textbook 1: Krishnamurthi S., Programming Languages: Application and Interpretation,
Textbook 2: Java - How to Program, (2002), Deitel & Deitel, Prentice Hall

SOFT401: Capston Project I

Capston project is an important activity that each engineering student must carry out and go through the phases of the design process. Capston project is expected to be carried out by students within teams under the supervision of an instructor. It is desired that each project be an interdisciplinary capstone design project. The project is spread to one academic year and it involves the courses SOFT401 and SOFT402. SOFT401 includes 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 design documentation for the solution of a realistic and reasonably complex computer engineering 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 present their progress in the form of reports and presentation, both during the semester and at the end of the semester.

SOFT411: Software Validation & Testing

Testing techniques and principles. Black-box and white-box testing. Testing strategies: Unit testing, boundary testing and integration testing. State based testing, configuration testing, compatibility testing, web site testing. Alpha, beta, and acceptance testing. Test coverage criteria. Testing tools. Developing effective test plans. Problem reporting, tracking, and analysis.
Textbook: Verification, Validation and Testing in Software Engineering, Aristides Dasso and Ana Funes

SOFT415: Software Architecture

This course introduces basic concepts and principles about software design and software architecture. It starts with discussion on design issues, followed by coverage on design patterns. It then gives an overview of architectural structures and styles. Practical approaches and methods for creating and analyzing software architecture are presented. The emphasis is on the interaction between quality attributes and software architecture. Students will also gain experiences with examples in design pattern application and case studies in software architecture.
Textbook: Software Architecture in Practice, 2nd ed, Len Bass, Paul Clements, and Rick Kazman, Addison-Wesley, 2003.
Textbook: Software Design: From Programming to Architecture, Eric Braude, Wiley, 2004.

TE2: Technical Elective II

This is a Technical Elective course which will be selected by students in their senior year and is offered by the department alternatively during the Fall and Spring semesters. Please see the Technical Elective courses list.

TE3: Technical Elective III

This is a Technical Elective course which will be selected by students in their senior year and is offered by the department alternatively during the Fall and Spring semesters. Please see the Technical Elective courses list.

SOFT399: Summer Training II

In partial fulfillment of the graduation requirements, all students must complete 30 work days of summer training after the end of the third year, during summer 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 training.

SOFT402: Capston Project II

This course is the sequel to SOFT401. It consists of the implementation of a realistic, preferably interdisciplinary, engineering capstone design project emphasizing engineering design principles on a computer engineering 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 SOFT401 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 engineered product, present it and submit a final report in the technical project report format.

SOFT404: Engineering Attributes & Ethics

This is a final year course which aims to provide knowledge and awareness of a number of important engineering 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, innovation and the legal ramifications of the engineering solutions.

SOFT412: Software Quality Assurance

This course introduces concepts, metrics, and models in software quality assurance. The course covers components of software quality assurance systems before, during, and after software development. It presents a framework for software quality assurance and discuss individual components in the framework such as planning, reviews, testing, configuration management, and so on. It also discusses metrics and models for software quality as a product, in process, and in maintenance. The course will include case studies and hands on experiences. Students will develop an understanding of software quality and approaches to assure software quality .
Textbook 1: Software Quality Assurance : From Theory to Implementation, Daniel Galin, Addison Wesley, 2003.
Textbook 2: Metrics and Models in Software Quality Engineering (2nd Edition), Stephen Kan, Addison Wesley, 2002

SOFT-TE4: Technical Elective IV

This is a Technical Elective course which will be selected by students in their senior year and is offered by the department alternatively during the Fall and Spring semesters. Please see the Technical Elective courses list.

SOFT-TE5: Technical Elective V

This is a Technical Elective course which will be selected by students in their senior year and is offered by the department alternatively during the Fall and Spring semesters. Please see the Technical Elective courses list.