

# EBLA PRIVATE UNIVERSITY

## Collage of Engineering

### Department of Informatics and Communications

#### Courses Description

##### University Requirements:

<b>ENG100</b>	<b>English (1)</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
This course provides training on English conversational and compositional skills, and adopts the communicative conversational approach in instruction. Throughout this course, a review of grammar and vocabulary basics is done, with special focus on those that Arabic speakers find particularly hard to learn.			

<b>ITC100</b>	<b>Computer Skills (1)</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
This course is an introduction to computer basics, hardware and software, MS-DOS and Windows Operating Systems, Word processing, Excel Spreadsheet, PowerPoint, Internet, and the role of Information Technology (IT) in institutions as well as its use in administrations.			

<b>ARB100</b>	<b>Arabic</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
This course deals with how to improve student's expressive aptitude, strengthening his/her command of Standard Arabic so that it becomes the medium of expression for him/her in writing and conversation. The focus is on a variety of skills: writing, grammar, comprehension, composition, and aesthetic appreciation skills. This is attained through the study of various literary texts, and the analysis of their grammatical and linguistic structures, shedding light on aesthetic aspects in terms of form and content.			

<b>ACI100</b>	<b>Arab Civilization</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
This course provides the student with a historical synopsis of Arab society, its political, economic, and cultural systems and their development. It also deals with the change and the development within Arab society.			

<b>ENV100</b>	<b>Society and Environment</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
This course focuses on the concept, the elements, and the importance of the ecosystem. It deals with environmental equilibrium, and man's interaction with the environment around him. It talks about the various types of pollution (the atmosphere, water and food, radioactive, and noise pollution). It also deals with the connection between developmental issues, population growth, and the role of international governmental and environmental organizations, in reducing environmental pollution.			

<b>PSY100</b>	<b>Introduction to Psychology</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
The course deals with psychology and its relation to social science and humanities. It concentrates on development, learning, intelligence, cognition, character, behavior, motives, and impulses.			

<b>ECN100</b>	<b>Principles of Economy</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
The course deals with the economic problem from the perspective of both needs and resources, suggesting solutions using marginal theory, relative advantage, and scarcity. It also studies			

concepts in economics such as production, income, consumption, and the role of money in economics.

<b>ENG105</b>	<b>English (2)</b>	<b>3 Cr. Hrs</b>	<b>Pre: ENG100</b>
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This course is considered a continuation of ENG100, and provides training to students in terms of conversational skills, including discussions about everyday topics, exchanging views about various issues, providing information, making short presentations, taking notes, listening comprehensions, and commenting on news items and reports( written and spoken).

<b>ITC105</b>	<b>Computer Skills (2)</b>	<b>3 Cr. Hrs</b>	<b>Pre: ITC100</b>
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This course aims at introducing management and accounting concepts for projects in computer skills learned in ITC100. The focus is on programs' applications like using functions. The student is also introduced to other business management software such as SPSS and MS Project.

<b>ENG110</b>	<b>English (3)</b>	<b>3 Cr. Hrs</b>	<b>Pre: ENG105</b>
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This course aims at raising the students' level in their mastery of English which is built on previous courses the students have already studied. It adopts well-proven and world-famous integrated curricula (for example: Cutting Edge, and Headway ...etc.). The focus is on the four language skills: listening, speaking, reading, and writing. This course utilizes some of the most recent and effective methods of language instruction, it covers topics of general and comprehensive scope related to various aspects of students' practical and academic lives.

<b>ENG115</b>	<b>English (4)</b>	<b>3 Cr. Hrs</b>	<b>Pre: ENG110</b>
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This course comes as the final step in the series of English courses offered to non-specialists, and is meant to raise the students' level in their mastery of English to a point where they can communicate effectively using English in their field of specialization in the years to follow.

<b>SOI200</b>	<b>Sociopolitical Science</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
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This course deals with issues and concepts related to social politics (sociopolitics), the relation between state and society, authority, sovereignty, social classes, elitism, and the role played by social organizations in political decision making. It also covers public opinion and the factors that influence it. Furthermore, it studies social movements, political parties, pressure groups, special interests groups, and the political culture in a society. It explains bureaucracy, technocracy, educational system, and political authority.

<b>BUS120</b>	<b>Communication skills</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
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This course aims at upgrading students' communication skills so that they can communicate successfully with themselves and others, helping them to acquire skills of getting along well with others, aside from accumulating information about communication, and its various aspects. The goal is to help students to succeed in their personal lives as well as in their practical lives.

## College Requirements:

<b>BUS500</b>	<b>Management of Engineering</b>	<b>2 Cr. Hrs</b>	<b>Pre: ✕</b>
<ul style="list-style-type: none"> <li>- Documentation management and programming.</li> <li>- Man power and vehicles management and organization.</li> <li>- Financial management-payment system-materials and storage control system.</li> <li>- Project- steps management and programming.</li> </ul>			

<b>BUS510</b>	<b>Ethics of Practice</b>	<b>2 Cr. Hrs</b>	<b>Pre: ✕</b>
<ul style="list-style-type: none"> <li>- Introduction about the importance of ethics- identifying the professional culture.</li> <li>- Types of human behavior-human role for conscience diffusion</li> <li>- Cooperation and working in team groups-professional decency through different civilizations</li> <li>- Role of organizations in profession rationalization</li> <li>- Introduction into profession decency and its exercising methods-laws and decrees which organized engineering</li> </ul>			

<b>ARC115</b>	<b>Engineering Chemistry</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
<ul style="list-style-type: none"> <li>- Chemical laboratory operations</li> <li>- Chemical emancipated-quantitative and qualitative chemical emancipation</li> <li>- Water rawness-cement testing-suppleness testing-stones testing</li> <li>- Cladding-cladding with zinc, nickel, copper</li> <li>- Metallic coloring</li> </ul>			

<b>MTH105</b>	<b>Mathematics (1)</b>	<b>3 Cr. Hrs</b>	<b>Pre: ✕</b>
<ul style="list-style-type: none"> <li>- Inverse Trigonometric functions and derivatives, Limits and Opital rule, Partial derivatives.</li> <li>- Concept and properties of integration, methods of integration.</li> <li>- Numerical and functional series.</li> <li>- Analytical chemistry, Differential equations, Linear equations.</li> </ul>			

<b>MTH110</b>	<b>Mathematics (2)</b>	<b>3 Cr hrs</b>	<b>Pre:MTH105</b>
<ul style="list-style-type: none"> <li>- Solving set of linear equations, Matreces, Four series.</li> <li>- Lablas transformation.</li> <li>- Boolean algebra, Logic circuits.</li> <li>- Numerical sets.</li> <li>- Linear programming</li> </ul>			

<b>MTH115</b>	<b>Mathematics (3)</b>	<b>3 Cr hrs</b>	<b>Pre:MTH110</b>
<ul style="list-style-type: none"> <li>- Probability (distributions).</li> <li>- Operation research.</li> <li>- Simulation.</li> <li>- Project programming using CPM and PERT.</li> </ul>			

<b>PHS105</b>	<b>Physics (1)</b>	<b>3 Cr hrs</b>	<b>Pre:✕</b>
<ul style="list-style-type: none"> <li>- Kinetic theory of gases, Heat transfer.</li> <li>- Geometric light.</li> <li>- Movement, Newton law, work and energy.</li> <li>- Sound, Magnetism.</li> <li>- Static electricity, DC current.</li> <li>- Electromagnetism.</li> </ul>			

<b>PHS110</b>	<b>Physics (2)</b>	<b>3 Cr hrs</b>	<b>Pre:PHS105</b>
- Physical light - Quantum theory - Electrical materials - Semiconductors.			

<b>ARC205</b>	<b>Computer Aided Drawing</b>	<b>2 Cr hrs</b>	<b>Pre:ITC100</b>
This course aims at teaching the student the principal concepts of design using computer (CAD) in architectural engineering and thus by:			
<ul style="list-style-type: none"> <li>- Training students on the use of applications of two dimensional drawings in order that students obtain the principals skills and understanding about ground floor plan ,two dimensional drawing and printing two dimensional structural drawing</li> <li>- Teaching students the concepts and theories of computer aided drawings in order to design architectural plans in the future using the computer</li> </ul>			

<b>ARC317</b>	<b>Engineering Software</b>	<b>2 Cr hrs</b>	<b>Pre:ARC205</b>
<ul style="list-style-type: none"> <li>- This subject is a continuation to the previous subject. It is to educate the students an advanced principal in two dimensional design and the basic principal of three dimensional drawings and its application in architecture</li> <li>- Advanced knowledge and principals about two and three dimensional plans</li> <li>- Deepening student's understanding in three dimensional design.</li> <li>- Training students on the use of the most used soft wares.</li> <li>- Training students on simple constructional software.</li> </ul>			

<b>ITC110</b>	<b>Principles of Computer</b>	<b>3 Cr hrs</b>	<b>Pre:✕</b>
- Principal components of computer sciences – Software - Interaction and communication - Systems.			

<b>REE410</b>	<b>Sustainable Architecture</b>	<b>2 Cr hrs</b>	<b>Pre: ✕</b>
<ul style="list-style-type: none"> <li>- Theory of architecture – Natural and environmental issues</li> <li>- Environmental factors influencing the architecture</li> <li>- Environmental design- sustainable architecture</li> <li>- Effects of implementing renewable energy resources on architecture</li> <li>- Natural lighting-concepts and architectural applications</li> <li>- Energy resources and thermal evaluation</li> </ul>			

<b>MCH114</b>	<b>Static</b>	<b>3 Cr hrs</b>	<b>Pre: MTH105</b>
<ul style="list-style-type: none"> <li>- An Introduction to mechanics of rigid bodies.</li> <li>- Forces and displacement vectors.</li> <li>- Equivalent forces.</li> <li>- Statical equilibrium.</li> <li>- Friction.</li> <li>- Geometric properties of sections ( area, centroids, statical moments, and moment of inertia).</li> </ul>			

<b>STA400</b>	<b>Statistics</b>	<b>2 Cr hrs</b>	<b>Pre:✕</b>
<ul style="list-style-type: none"> <li>- Organization of statistical data.</li> <li>- Basic principles of probability.</li> <li>- Random variables and probability distributions.</li> <li>- Correlation types.</li> <li>- Divergence.</li> <li>- Choosing the statistical hypothesis.</li> </ul>			

## Department Requirements:

<b>ITC115</b>	<b>Programming Principles</b>	<b>3 Cr.</b>	<b>Pre.x</b>
<ul style="list-style-type: none"> <li>- Basic techniques of program (algorithm) design and analysis</li> <li>- Programming languages paradigms (OO, functional, event driven, concurrent)</li> <li>- Complexity theory</li> <li>- Computability</li> <li>- The Building Blocks of Programming</li> <li>- Program debugging</li> <li>- Code optimization</li> <li>- User interfacing</li> <li>- Internet programming</li> </ul>			

<b>ELC120</b>	<b>Electrical Engineering Principles</b>	<b>3 Cr.hrs</b>	<b>Pre:PHS105</b>
<ul style="list-style-type: none"> <li>- An introduction.</li> <li>- Elements of DC Circuits.</li> <li>- Power and Energy in DC Circuits.</li> <li>- Theories and Methods of Calculating DC Circuits.</li> <li>- Single Phase Sinusoidal AC Circuit.</li> <li>- Theories and Methods of AC Circuits Analysis.</li> <li>- Responding and Quality Factor.</li> <li>- Final circuits.</li> </ul>			

<b>ELC201</b>	<b>Electronic Engineering Principles</b>	<b>3Cr hrs</b>	<b>Pre: PHS110</b>
<ul style="list-style-type: none"> <li>- Electrical elements.</li> <li>- Doped semiconductors.</li> <li>- p-n communication.</li> <li>- Dual transistor.</li> <li>- Special transistors.</li> <li>- Bipolar transistors.</li> <li>- Field effect transistor.</li> </ul>			

<b>ITC203</b>	<b>Signals and Systems</b>	<b>3 Cr hrs</b>	<b>Pre:PHS110</b>
<ul style="list-style-type: none"> <li>- Signals Types.</li> <li>- Systems Types.</li> <li>- Time and Frequency Domains for Signals and Systems.</li> <li>- Laplace Transformation.</li> <li>- Convolution Product.</li> <li>- Random Signals &amp; Noise.</li> <li>- Discrete Signals &amp; Systems.</li> </ul>			

<b>ELC207</b>	<b>Electromagnetic Fields Theory</b>	<b>3 Cr. hrs</b>	<b>Pre:PHS110</b>
<ul style="list-style-type: none"> <li>- Introduction to Vectors.</li> <li>- Maxwell's Equations.</li> <li>- Static Electric Field.</li> <li>- Static Magnetic Field.</li> <li>- Dynamic Electric Field.</li> <li>- High Frequency Electromagnetic Fields.</li> <li>- Electromagnetic Compatibility.</li> </ul>			

<b>ITC209</b>	<b>Object Oriented Programming</b>	<b>3Cr. hrs</b>	<b>Pre: ITC115</b>
<ul style="list-style-type: none"> <li>- Objects and classes</li> <li>- Object oriented programming</li> <li>- Objects and methods</li> <li>- Inheritance</li> <li>- Abstract Classes and multitude.</li> <li>- Basic Graphical User Interfaces</li> <li>- Exceptions and I/O</li> <li>- Threads</li> </ul>			

<b>ITC212</b>	<b>Digital Signal Processing</b>	<b>3Cr. hrs</b>	<b>Pre: ITC203</b>
<ul style="list-style-type: none"> <li>- An introduction and basic Concepts.</li> <li>- Z - Transform. Discrete Fourier Transform (DFT).</li> <li>- Fast Fourier Transform ( FFT ).</li> <li>- Digital Filters Design (IIR and FIR).</li> <li>- Windowing functions.</li> <li>- Adaptive Filters.</li> <li>- Filters Bank and Wavelets.</li> </ul>			

<b>ITC214</b>	<b>Information Theory</b>	<b>3 Cr. hrs</b>	<b>Pre: x</b>
<ul style="list-style-type: none"> <li>- An introduction. Fundamentals of Information Theory.</li> <li>- Information Sources. Sources Coding Principles.</li> <li>- Information Channels.</li> <li>- Error - Detection &amp; Correction Codes</li> <li>- Interleaving.</li> </ul>			

<b>ITC216</b>	<b>Logic Systems and Digital Circuits</b>	<b>3 Cr.hrs</b>	<b>Pre:ITC201</b>
<ul style="list-style-type: none"> <li>- Introduction to logic and to logic systems.</li> <li>- Introduction to digital systems.</li> <li>- Data representation in computer systems.</li> <li>- Combinational circuits analysis and design</li> <li>- Sequential circuits analysis and design</li> <li>- Practical aspects in digital circuits <ul style="list-style-type: none"> <li>o IC technologies and how to read their data sheets</li> <li>o Timing and clock distribution</li> <li>o Voltage regulation and power distribution</li> <li>o Noise in digital systems</li> </ul> </li> <li>- Asynchronous sequential circuits</li> </ul>			

<b>ITC218</b>	<b>Algorithms and Data Structures</b>	<b>3 Cr. hrs</b>	<b>Pre :ITC115</b>
<ul style="list-style-type: none"> <li>- Algorithms Definition. (Theories)</li> <li>- Marker Algorithm.</li> <li>- Algorithm Parallel</li> <li>- Scheduling.</li> <li>- Algorithm Complexity</li> <li>- Compatibility</li> <li>- Formal Languages</li> <li>- Turing Machine</li> <li>- Data structures</li> </ul>			

- Tree structure
- Storage structure for the tree structure
- Doubly linked circular list
- Representation of list L (LIFO , FIFO)
- Set concepts , Record and Field
- Operations on Sets
- Set Description , Set Classes , Set Occurrences
- Data Structure Diagrams
- Physical and Logical Storage Structure
- Storage Allocation Structure

<b>ELC222</b>	<b>Electronics 1</b>	<b>3 Cr. hrs</b>	<b>Pre :ELC201</b>
<ul style="list-style-type: none"> <li>- Analysis of transistors issues of different types (BJT – JFET- MOSFET)</li> <li>- Transistors operating in amplifying connections and its function as electronic keys.</li> <li>- Study operational amplifier according to structure and different connectors.</li> <li>- Modeling and Simulation of electronic circuits.</li> </ul>			

<b>ELC313</b>	<b>Electronics (2)</b>	<b>3 Cr. hrs</b>	<b>Pre :ELC222</b>
<ul style="list-style-type: none"> <li>- Digital circuits.</li> <li>- Integrated circuits.</li> <li>- Programmable logic circuits.</li> </ul>			

<b>ITC301</b>	<b>Computer Organization and Assembly Language</b>	<b>3 Cr. hrs</b>	<b>Pre:ITC110</b>
<ul style="list-style-type: none"> <li>- Introduction.</li> <li>- The instructions set.</li> <li>- The assembly language level.</li> <li>- Data path and control.</li> <li>- Instruction level parallelism.</li> </ul>			

<b>ITC303</b>	<b>Principles of Artificial Intelligence</b>	<b>3 Cr hrs</b>	<b>Pre :ITC115</b>
<ul style="list-style-type: none"> <li>- Basics of neural networks</li> <li>- Neural Networks: Types (MLP, RBF, SOM, RNN)</li> <li>- Supervised Learning</li> <li>- Unsupervised Learning.</li> <li>- Advanced Optimization Techniques: Evolutionary Algorithm, Genetic Algorithm, SWARM Algorithm,</li> </ul>			

<b>ITC307</b>	<b>Programming languages and</b>	<b>3 Cr. hrs</b>	<b>Pre:ITC209</b>
<ul style="list-style-type: none"> <li>- Survey on programming languages.</li> <li>- Compiler conception and structure. Virtual computer.</li> <li>- Using final automat applications in programming.</li> <li>- Lexical analyzer design.</li> <li>- Context free bases, automat with stack.</li> <li>- LL1 bases.</li> <li>- Compositional analysis execution according to repeated systems.</li> <li>- Translation bases and automat.</li> <li>- Translation bases attributed to L characteristic.</li> <li>- L compiler defined by L attributed bases.</li> <li>- Data modules</li> <li>- Subroutines</li> <li>- Abstract data</li> <li>- Code generating.</li> </ul>			
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<b>ITC309</b>	<b>Database</b>	<b>3 Cr. hrs</b>	<b>Pre:ITC115</b>
<ul style="list-style-type: none"> <li>- Introduction to database.</li> <li>- Database structure.</li> <li>- Abstract data, physical model.</li> <li>- Inquiry in database- relational algebra.</li> <li>- SQL language.</li> <li>- E-R model.</li> <li>- Normal forms.</li> <li>- Relational database algorithms.</li> <li>- Database refresh.</li> <li>- New directions in database.</li> </ul>			

<b>ITC311</b>	<b>Communication Principles</b>	<b>3Cr.hrs</b>	<b>Pre:PHS105</b>
<ul style="list-style-type: none"> <li>- General Concepts: Signal Spectrum, Special Function Transformations, Information and Bandwidth, Transmission Medium ( Wireless – Waveguide - Wire Lines), Transmission, Reception, Point – to - Point Transmission, Broadcasting, General Communication Block Diagram, Filters)</li> <li>o Amplitude Modulation &amp; Detection</li> <li>o Frequency Modulation &amp; Detection</li> <li>o Mixers</li> <li>o Super heterodyne Receiver</li> <li>o FDMA</li> </ul>			

<b>ITC314</b>	<b>Computer Interfacing Systems</b>	<b>3Cr.hrs</b>	<b>Pre:ITC313</b>
<ul style="list-style-type: none"> <li>- Serial communications</li> <li>o UART</li> <li>o RS-232, RS-422</li> <li>o Modems</li> <li>- Parallel communications</li> <li>- I/O Expansion Buses and Cards</li> <li>- Wireless interfaces</li> <li>- Serial Buses—USB and Fire Wire</li> <li>- Ethernet</li> <li>- Transducers</li> </ul>			



- Digital-analog conversion
- Man-machine interface

<b>ITC316</b>	<b>Logic Control</b>	<b>3Cr.hrs</b>	<b>Pre:*</b>
<ul style="list-style-type: none"> <li>- Numerical groups- logic sequent- combinational and sequential systems.</li> <li>- Control theory</li> <li>- Tools used in logic control.</li> <li>- Programmable logic control devices PLC and its complexes.</li> <li>- Programming languages used in PLC.</li> <li>- Microcontroller.</li> </ul>			

<b>ITC318</b>	<b>Digital Communications</b>	<b>3Cr hrs</b>	<b>Pre:ITC311</b>
<ul style="list-style-type: none"> <li>- Signal numbering steps learning.</li> <li>- Pulse analog modulation PAM, pulse coding modulation PCM and delta modulation DM.</li> <li>- Binary digital modulating with its different types (OOK-BPSK-FSK-QAM...).</li> <li>- Learning the probability of errors in digital signals.</li> </ul>			

<b>ITC322</b>	<b>Computer Architecture</b>	<b>3Cr hrs</b>	<b>Pre:*</b>
<ul style="list-style-type: none"> <li>- Memory Hierarchy Design</li> <li>- Secondary storage systems</li> <li>- Computer arithmetic</li> <li>- High speed computer arithmetic</li> <li>- Floating point arithmetic</li> <li>- Arithmetic logic unit</li> </ul>			

<b>ITC326</b>	<b>Software Engineering (1)</b>	<b>3Cr hrs</b>	<b>Pre:ITC209</b>
<ul style="list-style-type: none"> <li>- Software life cycle development, projects management and organizing team-works.</li> <li>- <a href="#">Formal and informal definitions.</a></li> <li>- Diagram techniques for data analysis documentation.</li> <li>- Diagram techniques for functional analysis representation.</li> <li>- <a href="#">Diagrammatizing techniques for representation of dynamic ----- of systems.</a></li> <li>- Design and definition of user interface, methods of programming and examples.</li> <li>- Requirements analysis and conditions forming.</li> <li>- Object-oriented analysis methods.</li> <li>- Conditions implementation and design documentation.</li> </ul>			

<b>ELC324</b>	<b>Reliability and Error Detecting</b>	<b>3Cr hrs</b>	<b>Pre: *</b>
<ul style="list-style-type: none"> <li>- Fundamental Principles</li> <li>- Mathematical Theory of Reliability</li> <li>- Exponential Failure Law</li> <li>- Sequential and parallel reliability</li> <li>- Overflowing.</li> <li>- Hybrid overflowing.</li> <li>- Error Analysis</li> <li>- Floating.</li> <li>- Error correction and detection codes.</li> <li>- Hardware and Software Errors.</li> <li>- Algorithms Errors</li> <li>- Absolute and Relative Errors.</li> </ul>			

<b>ITC401</b>	<b>Advanced Digital Communications</b>	<b>3Cr hrs</b>	<b>Pre:ITC318</b>
<ul style="list-style-type: none"> <li>- Learning advanced modulation techniques and optimum receiver( rake receivers)</li> <li>- Introduction to: balancing/ stabilizing, synchronization and modems.</li> <li>- Studying ADSL system.</li> <li>- Studying the international engineering concepts according to digital communications systems.</li> </ul>			

<b>ITC403</b>	<b>Modeling and Simulation</b>	<b>3Cr hrs</b>	<b>Pre: ✕</b>
<ul style="list-style-type: none"> <li>- An introduction.</li> <li>- System modules.</li> <li>- System concept.</li> <li>- System modeling.</li> <li>- Static and dynamic physical modules.</li> <li>- Static and dynamic mathematical modules.</li> <li>- System simulating.</li> <li>- Discrete and continuous systems simulation.</li> <li>- Concepts o probability in simulation.</li> <li>- Simulation programming techniques.</li> </ul>			

<b>ITC407</b>	<b>Operating Systems</b>	<b>3Cr hrs</b>	<b>Pre:ITC322</b>
<ul style="list-style-type: none"> <li>- An introduction to operating systems.</li> <li>- Processes and threads.</li> <li>- Dead locks.</li> <li>- Memory management.</li> <li>- Semaphores&amp; Monitors.</li> <li>- Input/output.</li> <li>- File systems.</li> <li>- Multimedia operating systems.</li> <li>- Security.</li> <li>- Scheduling.</li> <li>- Concurrency control.</li> <li>- Parallel operating systems.</li> </ul>			

<b>ITC409</b>	<b>Micro Waves and Antenna</b>	<b>3Cr hrs</b>	<b>Pre:ITC207</b>
<ul style="list-style-type: none"> <li>- Introduction to micro waves.</li> <li>- Micro wave generation and propagation in wave guides.</li> <li>- Antenna Fundamentals</li> <li>- Antenna types.</li> <li>- Micro wave propagation in space.</li> </ul>			

<b>ITC411</b>	<b>Computer Networks (1)</b>	<b>3CR hrs</b>	<b>Pre:✕</b>
<ul style="list-style-type: none"> <li>- An introduction.</li> <li>- Networking principles oriented to connection and connectionless.</li> <li>- TCP&amp; OSI types and layers.</li> <li>- Data link layer.</li> <li>- WLAN Structure.</li> <li>- Ethernet cables and frames.</li> <li>- Switched Ethernet.</li> <li>- Bridges.</li> <li>- Virtual LAN networks.</li> </ul>			

<b>ITC412</b>	<b>Multi Media Technology</b>	<b>3Cr hrs</b>	<b>Pre:×</b>
<ul style="list-style-type: none"> <li>- Voice and image signals.</li> <li>- Image digitization.</li> <li>- Digital image processing.</li> <li>- Voice and image compression.</li> </ul>			

<b>ITC414</b>	<b>Telephone Switching Systems</b>	<b>3Cr hrs</b>	<b>Pre: ×</b>
<ul style="list-style-type: none"> <li>- Historical overview.</li> <li>- Telephone Techniques.</li> <li>- Programmable Control Telephone Exchanges.</li> <li>- Signaling Systems in Telephone Exchanges.</li> <li>- Fiber Optic Cables for Telephone Exchanges.</li> <li>- Multiplexing techniques.</li> <li>- Modulation Systems.</li> <li>- Data Networks.</li> <li>- Integrated Service Digital Networks ISDN.</li> </ul>			

<b>ITC416</b>	<b>Computer Networks (2)</b>	<b>3Cr hrs</b>	<b>Pre:ITC411</b>
<ul style="list-style-type: none"> <li>- Network layer.</li> <li>- Routing algorithms.</li> <li>- Congestion algorithms.</li> <li>- Quality of services algorithms.</li> <li>- Internet working.</li> <li>- IP Protocol.</li> <li>- Mobile IP.</li> <li>- IPv6.</li> <li>- Transport Layer.</li> <li>- Berkeley Sockets.</li> <li>- Elements of Transport Protocols.</li> <li>- TCP and UDP (structure and services).</li> <li>- Application layer.</li> </ul>			

<b>ITC417</b>	<b>Advanced Modeling and</b>	<b>3Cr hrs</b>	<b>Pre: ITC403</b>
<ul style="list-style-type: none"> <li>- Introduction and basics.</li> <li>- Petri nets</li> <li>- Markov chains.</li> <li>- Cellular automata.</li> </ul>			

<b>ITC418</b>	<b>Expert Systems</b>	<b>3Cr hrs</b>	<b>Pre: ×</b>
<ul style="list-style-type: none"> <li>- Introduction to artificial intelligence applications, information, knowledge,----- in decision making.</li> <li>- Expert system design</li> <li>- Simulation of a medical expert system</li> <li>- Prediction system</li> <li>- Backward and forward searching in the expert system</li> <li>- Decision tree</li> <li>- Expert system programming, principles of CLIPS.</li> </ul>			

<b>ITC422</b>	<b>Wireless Communications</b>	<b>3Cr hrs</b>	<b>Pre:✕</b>
<ul style="list-style-type: none"> <li>- Diversity (Frequency, Time and Space Diversity).</li> <li>- Multi-Carrier Modulation.</li> <li>- Orthogonal Frequency Division Multiplexing (OFDM).</li> <li>- MIMO Channels.</li> <li>- Spread Spectrum Techniques</li> <li>- Multiple Access Techniques.</li> </ul>			

<b>ITC501</b>	<b>Communication Systems (1)</b>	<b>3Cr hrs</b>	<b>Pre: ✕</b>
<ul style="list-style-type: none"> <li>- Cellular Telephone: <ul style="list-style-type: none"> <li>○ Basic concepts (Cells, Frequency Reuse, Handover).</li> <li>○ Cellular generation.</li> <li>○ System Structure.</li> </ul> </li> <li>- Satellite Communication: <ul style="list-style-type: none"> <li>○ System Overview.</li> <li>○ Space segment.</li> <li>○ Earth Segment.</li> <li>○ Calculation.</li> <li>○ Applications.</li> </ul> </li> </ul>			

<b>ITC503</b>	<b>Advanced Database</b>	<b>3 Cr hrs</b>	<b>Pre: ITC309</b>
<ul style="list-style-type: none"> <li>- Data files.</li> <li>- Networks.</li> <li>- Distributed data base systems.</li> <li>- Data redundancy.</li> <li>- Horizontal data fragmentation.</li> <li>- Vertical data fragmentation.</li> <li>- Data reorganization.</li> <li>- Entity-Relationship Diagram.</li> <li>- Periodic synchronization.</li> <li>- Standardization</li> <li>- Local independency</li> <li>- Mobilized database.</li> <li>- Non global synchronization.</li> <li>- Organizing policies.</li> </ul>			

<b>ITC505</b>	<b>Open Source Computing</b>	<b>3Cr hrs</b>	<b>Pre:✕</b>
<ul style="list-style-type: none"> <li>- Open source computing history.</li> <li>- Intellectual ownership.</li> <li>- Organizational structure of open source computing.</li> <li>- Open source computing samples.</li> <li>- Open source computing efficiency.</li> <li>- Strategic and work samples.</li> </ul>			

<b>ITC507</b>	<b>Parallel and Distributed Systems</b>	<b>3 Cr hrs</b>	<b>Pre:ITC407</b>
<ul style="list-style-type: none"> <li>- The need for parallel computing</li> <li>- Parallel system architectures</li> <li>- Parallel computers programming</li> <li>- Shared memories multiprocessors and interconnection networks</li> <li>- Performance of parallel architectures</li> <li>- Introduction to distributed computing</li> </ul>			

- Communication in distributed systems
- Synchronization in distributed systems
- Distributed file systems
- Introduction to CORBA
- Distributed shared memory and cache coherency

<b>ITC509</b>	<b>Information Security</b>	<b>3Cr hrs</b>	<b>Pre: x</b>
<ul style="list-style-type: none"> <li>- Encryption:               <ul style="list-style-type: none"> <li>o Encryption principles.</li> <li>o Symmetric key encryption.</li> <li>o Public key encryption.</li> <li>o Hash functions.</li> </ul> </li> <li>- Surfing control:               <ul style="list-style-type: none"> <li>o Identification.</li> <li>o Allowance.</li> </ul> </li> <li>- Protocols:               <ul style="list-style-type: none"> <li>o Identification protocols.</li> <li>o Actual security protocols.</li> </ul> </li> <li>- Software security and operating systems</li> <li>- Electronic mail security.</li> <li>- Network security( viruses, worms, intervention)</li> <li>- Probabilities and ENTROPY.</li> <li>- Headwaters coding and data compression.</li> <li>- Error detection and correction codes.</li> <li>- Cryptography codes.</li> </ul>			

<b>ITC511</b>	<b>Systems Analysis and Design</b>	<b>3Cr hrs</b>	<b>Pre: x</b>
<ul style="list-style-type: none"> <li>- Information and management</li> <li>- Information systems</li> <li>- Introduction to system analysis</li> <li>- Information retrieval.</li> <li>- Defining the requirements.</li> <li>- Files kinds.</li> <li>- Flowcharts</li> <li>- Processors description.</li> <li>- Decision tables.</li> <li>- Database logical design.</li> <li>- System security.</li> </ul>			

<b>ITC512</b>	<b>Computer Vision</b>	<b>3Cr hrs</b>	<b>Pre: x</b>
<ul style="list-style-type: none"> <li>- Image formation.</li> <li>- Motion vision.</li> <li>- Shape forms.</li> <li>- Digital image processing.</li> <li>- Photogrammetric/stereo.</li> <li>- Object representation alignment.</li> <li>- Computational vision.</li> </ul>			

<b>ITC513</b>	<b>Software Programming (2)</b>	<b>3Cr hrs</b>	<b>Pre: ITC326</b>
<ul style="list-style-type: none"> <li>- Testing and editing.</li> <li>- In service System installing, maintaining and removing errors.</li> <li>- Costing.</li> <li>- Object oriented programming applications throughout the study of : generation, factions.</li> </ul>			

<b>ITC514</b>	<b>Internet Technology</b>	<b>3Cr hrs</b>	<b>Pre: x</b>
<ul style="list-style-type: none"> <li>- Internet basics</li> <li>- HTML protocol</li> <li>- Introduction to HTML</li> <li>- Introduction to XML</li> <li>- CSS design basics</li> <li>- Introduction to XSLT</li> <li>- Graph conception</li> <li>- Image and figure processing</li> <li>- Simple applications for the user.</li> <li>- Java Applet , Java Script Applications</li> <li>- VRML 3D on network</li> <li>- Dynamic application on server, programming language that forms a dynamic sphere for pages</li> <li>- Applied project</li> </ul>			

<b>ITC515</b>	<b>Modern Wireless Communication Systems</b>	<b>3Cr hrs</b>	<b>Pre: ITC401</b>
<ul style="list-style-type: none"> <li>- GNSS&amp; GPS Systems.</li> <li>- DVB-S visual space broadcasting.</li> <li>- Third generation systems, 3G systems:IMT-2000,CDMA-2000</li> </ul>			

<b>ITC516</b>	<b>Communications Systems (2)</b>	<b>3Cr hrs</b>	<b>Pre: ITC501</b>
<p>This course is divided into two parts:</p> <ul style="list-style-type: none"> <li>- The first part is about studying optical communications( optical cable specification, system architecture, optical communications and WDMA system, optical nets types and its operating)</li> <li>- The second part is about studying normal and colored TV mechanism( cameras, scanners, combined video signal, colors systems, TV chart box)</li> </ul>			

<b>ITC518</b>	<b>Network Security</b>	<b>3Cr hrs</b>	<b>Pre: ITC509</b>
<ul style="list-style-type: none"> <li>- Studying the principles of encryption science and the privacy of information transformation on different network types.</li> <li>- An introduction to public and private key.</li> <li>- Public key encryption algorithms</li> <li>- Digital Electronic signature</li> <li>- Message recognition methods.</li> </ul>			

<b>ITC520</b>	<b>Graduation Project</b>	<b>3Cr hrs</b>	<b>Pre: ∞</b>
<p>This project is the final evaluation of the student's performance during his five years of study. In this project the student ,either working alone or working in group, is asked to give solution to a specific problem by doing a practical application about the subject given, then the student will summarize his results and feedbacks in his graduation dissertation which will be evaluated by a committee. Graduation period is one study year under the direct supervision of one or more person from the university's academic staff.</p>			

**Dean of the faculty of Engineering**

**Dr. Eng.M.A.NAAL**

**President of Ebla Private University**

**Prof Dr. Azzam Katkhuda**