

**Catalogue Description of the Courses for  
Associate Degree Program  
in Electrical / Electronics Engineering Technology (Instrumentation)**

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
ENG 001	ENGLISH I	15	5	7

**Course Detail**

This course is intended to develop the ability of the incoming college student to communicate comprehensively and to undertake technical studies in the College in English, using appropriate vocabulary and grammatical structures. The course focuses on all language skills as well as accuracy. Students encounter various activities and audio visual aids as sources/cues for learning and using the language. The course aims to consolidate the English that the students already know, and to give them confidence in using the language.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
ENG 002	ENGLISH II	15	5	7

**Course Detail**

This course is intended to develop the ability of the incoming college student to communicate comprehensively and to undertake technical studies in the College in English, using appropriate vocabulary and grammatical structures. The course focuses on all language skills as well as accuracy. Students encounter various activities and audio visual aids as sources/cues for learning and using the language. The course aims to consolidate the English that the students already know, and to give them confidence in using the language.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
ENG 101	ENGLISH COMMUNICATION	2	0	2

**Course Detail**

This course is designed to develop student's ability to converse accurately and efficiently in English. Students encounter a variety of situations which encourage authentic use of English conversation through situational dialogues, descriptions, instructions and problem solving. In addition, presentational techniques and skills are taught and students gain experience in speaking in front of an audience by giving individual presentations on selected topics.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
ENG 102	ENGLISH COMPOSITION	2	0	2

**Course Detail**

This course is designed to provide students with the practical and theoretical skills needed in the preparation and execution of written compositions. It involves exercises aimed at developing and improving students' ability to write compositions of one or more paragraphs accurately and effectively. Particular attention is paid to the improvement of cursive handwriting, sentence structure, verb formation and punctuation.



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ENG 201	TECHNICAL REPORT WRITING	3	0	3

**Course Detail**

This course is designed to provide students with the practical skills needed in the preparation of written technical communications. It involves exercises aimed at developing and improving students' ability to write effectively in technical areas. In addition to this, instruction covers the accepted techniques of producing a technical report. This covers the planning and production stages and includes format and use of graphics/pictorials, culminating in the actual production of an academic technical report from an area of specialization.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 100	ELECTRICAL AND ELECTRONICS DRAFTING	1	3	2

**Course Detail**

This course provides knowledge of Electrical and Electronics Drafting Techniques and an understanding of electrical and electronics drawings and layout diagrams as a means of technical communication. This course includes basic theoretical information of drafting instruments, symbol templates, CAD equipment and in depth knowledge of various electrical and electronics drawings used currently by engineers in Industries. This course covers standard electrical and electronics drawings such as electrical plans, schematic diagrams, layout diagrams, assembly drawing and pictorial diagrams, PCB drawings.

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MATH 001	ALGEBRA	4	0	4

**Course Detail**

This course covers algebraic concepts and skills needed in mathematics, basic sciences and technology. Emphasis is given to topics that are broadly useful in technological fields. Topics include: sets and number systems, inequalities, polynomials and factoring, algebraic equations, functions, graphs, variation, exponential and logarithmic functions. A variety of applications are included in the course. Application problems will be solved during problem solving sessions (one hour per week)

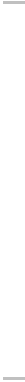
<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 001	INTRODUCTION TO COMPUTERS	1	2	2

**Course Detail**

The purpose of this course is to provide fundamental knowledge of computer, computer applications and to prepare students for advanced courses. The course introduces the students to basic computer concepts through training in Windows along with the four major personal computer applications, word processing, Web Page Development, electronic spreadsheets, and databases and provides an overview of internet and its applications.



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EEET 101	FUNDAMENTALS OF ELECTRIC CIRCUITS	3	3	4

**Course Detail**

This course provides the student with an understanding of the concepts and techniques in the characterization of electrical circuits and their components. This course introduces the student to the basic concepts of current, voltage, power, electromagnetism, basic laws and theorems for the analysis of electric circuits. Pulse-Response and resonance are also covered. Theory classes are supported by laboratory experiments to study, test and verify the characteristics of these basic electrical concepts.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 103	ELECTRICAL MACHINES I	2	3	3

**Course Detail**

This course deals with the fundamentals of transformer and DC and AC electrical machines. The theory, construction and operation of ideal and practical transformers are covered in details. Theory of autotransformer is also briefly covered. The construction, operation and characteristics of DC machines are studied. The starting, speed control and applications of DC motors are dealt with. The single phase AC motors are introduced. Special emphasis, however, is given to the single phase induction motors. Laboratory exercises reinforce theory and provide students with hands on experience.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
ISLS 101	ISLAMIC STUDIES	2	0	2

**Course Detail**

This course is to vitalize the students' knowledge of and commitment to Islamic doctrines, seeking thereby to fortify them against the onslaught of godless ideologies. Topics include an introduction to faith, its foundations and sources; The fundamentals of belief: divinity, prophet-hood, and afterlife; the treatment of different subjects in the Qur'an which deal with the universe, man, and life; and a consideration of the position of the contemporary Muslim vis-à-vis the different alien doctrines and need for his adherence to Islam and renunciation of all false ideologies. The Islamic family system, economic system, and Islamic society are studied.

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EEET 104	COMPUTER PROGRAMMING	1	3	2

**Course Detail**

This course introduces techniques to solve problems through computer programming using high level computer language 'C'. The students will learn problem solving techniques, basic programming concepts such as input/output statements and control statements, use of sub programs and structured data types such as arrays and structures. The course is supported by exercises in the laboratory.



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EGT 201	INDUSTRIAL SAFETY	0	2	1

**Course Detail**

This course covers the importance of safety in plants and deals with hazards, fire safety, static electricity, personnel protective equipment, explosive limits, combustible and toxic chemicals, hazards of air, water and steam, LPG, electrical safety work permit, safety tag and accident prevention.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
MATH 002	TRIGONOMETRY	4	0	4

**Course Detail**

This course covers concepts and skills of trigonometry, linear algebra and discrete mathematics needed in basic sciences and technology. Topics include: solutions of right triangles and oblique triangles, graphs of trigonometric functions, trigonometric identities, trigonometric equations, trigonometric form of complex numbers, matrices, system of linear equations, sequences and series, permutations and combinations, binomial theorem, and discrete probability.

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EEET 105	ELECTRONICS I	2	3	3

**Course Detail**

This course provides the student with an understanding of the physical properties and principles of operation of some common solid state devices. It introduces the student to bipolar devices such as semiconductors, diodes, transistors, and unipolar devices such as junction field-effect transistors. Concepts of ideal op-amp characteristics and some basic applications are also included. It also introduces student to basic electronic circuits such as amplifier, oscillator and regulated power supply. The course is supported by laboratory experiments to study, test, and verify the characteristics of these devices and their operation in typical electronic circuits.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EGT 202	INDUSTRIAL SUPERVISION	1	0	1

**Course Detail**

This course provides students with knowledge and understanding of what industry is and the role of supervision in it. First it discusses the evolution, the meaning and types, the impact of technology, and the factors that influence the location and development of industries in Saudi Arabia. Secondly, it deals with the nature and skills of supervision and functions and responsibilities of supervisors in industries.



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MATH 101	CALCULUS I	3	0	3

**Course Detail**

This course covers the concepts of differential calculus needed in mathematics and science & technology. Topics include: limits and continuity, differentiation of algebraic and transcendental functions and partial differentiation. Emphasis is given on the engineering applications of continuity, derivatives and partial derivatives.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 201	INDUSTRIAL ELECTRONICS	2	3	3

**Course Detail**

This course introduces the student with applications of power electronic devices typically used in industry including thyristors, DIACs, TRIACs, SCRs, UJTs. The course topics include rectifiers, controllers, converters and inverters. The emphasizes is put on fundamentals and applications. The course gives enough background to the student to apply it to a great variety of high power products including heat controls, light controls and power supplies.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
MATH 102	CALCULUS II	3	0	3

**Course Detail**

This course covers the concepts of integral calculus needed in mathematics, basic science and technology. Topics include integration, techniques of integration, definite integrals and their applications, numerical integration, differential equations, and difference equations.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 202	DIGITAL ELECTRONICS I	1	3	2

**Course Detail**

This course provides the basic understanding and application of digital Electronics. It covers logic gates, TTL, number systems, Codes and adder, subtractor circuits, Boolean algebra laws and Rules, DeMorgan's theorem and K-map method. This course also includes flip flops, construction of flip flops using NAND/NOR gates, Conversion of flip flops. Also includes shift registers, counters and introduction to basic microprocessor (8085). Laboratory exercises support and clarify class room discussion.



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MATH 201	APPLIED DIFFERENTIAL EQUATIONS	2	0	2

**Course Detail**

This course covers some advanced topics of calculus, which are useful for applications in different fields of engineering. It includes the study of first order ordinary differential equations of different types, homogeneous and non-homogeneous second order linear differential equations, Laplace transform and its use in solving differential equations, Fourier series, simple partial differential equations, boundary value problems and numerical methods. Application problems will be solved during problem solving sessions (one hour per week).

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 203	CONTROL SYSTEMS	2	3	3

**Course Detail**

The course covers the basics of process control systems. It provides fundamentals of process control in theory and practical work. It covers various types of control systems, their comparison and applications and includes the study of control system components and auxiliaries used in the industries. Application of control system theory to analyze the control system is given with the help of simulink software. Description and programming of PLC are also part of this course.

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EGT 001	INTRODUCTION TO ENGINEERING TECHNOLOGY	1	4	3

**Course Detail**

This is an introductory course; the sole purpose is to provide practical instruction on basic engineering hand skills needed by the students during their study and in their future careers. The course involves students in practical work and observations in the applied workshops and laboratories at YIC. This includes welding, machining, bench fitting, Mechanical Maintenance and Electrical/Electronics laboratories.

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EEET 241	PROCESS INSTRUMENTATION	2	3	3

**Course Detail**

This course provides an understanding of various instruments used in process  
Description: control system. Student will learn to read, interpret and draw Process and Instrumentation Diagrams (P&ID) & Instrument Loop Diagrams (ILDs). The course explains a variety of sensors used to measure basic process variables and focuses on the working principle of various types of Transmitters & transducers used in process control system. Laboratory experiments complement the theoretical aspects of the course.



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EGT 002	INTRODUCTION TO DRAFTING	0	2	1

**Course Detail**

This course introduces the student to technical drafting skills. It deals with the basics of freehand sketching and the use of standard drafting instruments to prepare drawings, geometric constructions, and principles of projection. The course prepares the student to understand, read and construct orthographic projections and pictorial drawings of simple objects. Internationally recognized standards are applied throughout the course.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
CHEM 101	GENERAL CHEMISTRY	3	3	4

**Course Detail**

This course is intended to provide students with the knowledge and skills for understanding the basic principles of chemistry. The course covers topics on atomic structure, chemical bonding, gases, thermochemistry, solutions, kinetics, chemical equilibrium, acids and bases, electro-chemistry and modern materials. The course is supported by digital media, both on CDs and online. Also it is supported by experiments in the laboratory and in virtual chemlab using chemlab software.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 243	INSTRUMENTATION ELECTRONICS	2	3	3

**Course Detail**

This course provides the student with the theory and applications of operational amplifiers such as instrumentation amplifier, log and anti-log amplifier, multiplier. The study of integrated circuit, industrial electronic control devices etc. are also included. The course lays emphasis on the principles of operations, purposes and application of these circuits.

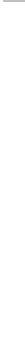
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EEET 233	MICROPROCESSORS	1	3	2

**Course Detail**

This course introduces the student with the functions, capabilities and limitations of the microprocessor. It deals with the architecture of 8085 microprocessor, identifying the function of each component, fetch and execute phases, addressing modes, fundamentals of flow charting and assembly language programming. The course also covers input/output devices and their applications in microprocessor based system, interfacing the microprocessor with input/output devices, types of data transfer schemes. Laboratory exercises support and reinforce class discussion.



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EEET 242	PROCESS CONTROL SYSTEMS II	2	3	3

**Course Detail**

This course provides the student with the concepts of control loops, system disturbances, and outlines of process control synthesis such as adjusting P, PI, PID, PD controllers as well as the principle of operation of cascade control, ratio control and adaptive control. Features and types of control valves, actuators, recorders, indicators and counters are also studied. Laboratory experiments complement the theoretical aspects of the course.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
CHET 221	ANALYTICAL INSTRUMENTATION	1	3	2

**Course Detail**

This course provides instruction and practice in a variety of analytical methods in areas, such as gas, pH, electrical conductivity, thermal conductivity, infrared and ultraviolet analysis and gas chromatography. Through the laboratory content of this course students are given hands-on training in calibration and operation of various types of analytical instruments. Instructions on the safe use of equipment are also emphasized.

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EEET 244	INSTRUMENTATION TROUBLESHOOTING AND MAINTENAN	2	6	4

**Course Detail**

This course provides instruction and practice in maintenance, calibration and troubleshooting of pneumatic, electronic, microprocessor and digital control system components. It also deals with fault diagnosis techniques, noise reduction techniques, concept of distributed control system (DCS) and its use in troubleshooting of loops and components. Laboratory experiments will be used to test, diagnose and rectify faults and support the theoretical lectures. The safety of the technician and the safe use of the equipment are stressed throughout the course.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
EEET 340	INSTRUMENTATION TECHNOLOGY COOPERATIVE TRAININ	0	40	3

**Course Detail**

Instrumentation Technology Cooperative Training (14 weeks)



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PE 001	PHYSICAL EDUCATION I	0	2	1

**Course Detail**

The purpose of this course is to give students the opportunity to take part in three different structured physical education activities. Each activity consists of eight to ten lessons. The activities to be covered in this course are Swimming I, Handball I, and Basketball I.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
PE 002	PHYSICAL EDUCATION II	0	2	1

**Course Detail**

The purpose of this course is to give students the opportunity to take part in four different structured physical education activities. Each activity consists of eight to ten lessons. The activities to be covered in this course are Football, Volleyball, and Track and Field (Athletics).

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
PE 101	PHYSICAL EDUCATION	0	2	1

**Course Detail**

The purpose of this course is to give students the opportunity to take part in three different structured physical education activities. Each activity consists of eight to ten lessons. The activities to be covered in this course are Swimming II, Handball II, and Basketball II.

<b>Course No</b>	<b>Course Title</b>	<b>LT</b>	<b>LB</b>	<b>CR</b>
PHYS 101	GENERAL PHYSICS	3	3	4

**Course Detail**

The aim of this course is to provide the students with basic principles of general physics. It deals with motions, dynamics, work and energy, fluids, heat, electrostatics, electricity and magnetism and light. Laboratory activities reinforce the theoretical aspects of the course.



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