

major topics covered, as well as give many examples of digital applications in industry.

DRFT197 - Electronic Drafting

Introduces the student to manual/CAD technical sketching, and printed circuit board technology used in the electronic industry today. The student will be exposed to electronic terminology, symbols, components and their applications. Extensive use of component data sheets from various suppliers will be used to increase the student's knowledge of various electronic components. ACAD will be used to design a personal logo, a title page, printed circuit board layouts, and a chassis layout.

ELEC101 - DC Theory

Study of electron theory, resistivity, capacitance, Ohm's Law, DC circuits and various network theorems. Circuits will be analyzed using both theoretical and practical methods.

ELEC208 - AC Theory

Continues the study begun in DC theory starting with magnetism and transient behaviour of RL and RC circuits. Subsequent topics include the characteristics of the AC waveform, the behaviour of R, L, and C in AC circuits, and the application of various network theorems to the analysis of AC circuits.

MATH149 - Mathematics

Introduces the fundamental concepts of mathematics (algebra, trigonometry and complex numbers) required to understand the theory of electricity and electronics. Topics include positive and negative exponents, functions and graphs, system of equations, trigonometric functions including radian measure, and complex numbers.

MATH249 - Mathematics

Topics include: special products, factoring, algebraic fractions, fractional equations, quadratic equations, exponents, radicals, logarithms, exponential and logarithmic equations, word problems involving the above topics.

MATH349 - Mathematics

An introductory calculus course. Topics include plane analytic geometry; functional notation; limits of algebraic expressions; derivatives of algebraic, sinusoidal, exponential and logarithmic functions; applications of derivatives; differentials; integration of algebraic, sinusoidal and exponential functions with applications.

PHYS396 - Physics

A general physics course for electrical and electronics technicians which covers the following topics: electrostatics, heat and heat transfer, waves and wave phenomena, refraction of light.

PLSE301 - Pulse Circuits

This course covers the characteristics of sinusoidal, pulse and rectangular waveforms; CR circuit response to these waveforms; diode and transistor switching circuits; clipping and clamping circuits; op-amp and digital IC Schmitt triggers; voltage comparators; multivibrators and ramp generators. In addition to regular labs, many of these circuits will be simulated using an electronics simulation software package.

PRCT108 - Electronic Shop Practices

The purpose of this practical course is to introduce the student to: tools and tool safety; shop safety; fire-fighting procedures at home and at work; soldering, splicing and constructing meter and oscilloscope leads; construct, solder and desolder hand wired and printed circuit board projects; create a parts/cost list for certain constructed audio projects and obtain technical information on various electronic hardware.

PRCT212 - Practical & Test Equipment

Focuses on practical applications in electronics. The student will learn how to etch a p.c.b. from artwork designed in DRAF198. Assembly techniques, soldering/de-soldering methods, electronic testing and safety procedures will be taught. The student will learn how to look at circuit diagrams and translate them to the actual working project. The handling of electronic parts and identification of components will be an important part of this course. All projects will be built to CSA standards.

PRCT310 - Practical and Test Equipment

The student will use a printed circuit board CAD system to produce the artwork required to fabricate the board for an approved project of their choosing. Seminars will be given on a variety of topics relevant to the construction of a piece of electronic hardware, emphasizing CSA standards and time management.

PRCT410 - Practical and Test Equipment

The electronic project started in PRCT 310 will be completed with emphasis on time management and quality of construction for evaluation purposes. Seminars will be given on a variety of topics relevant to the construction of a piece of electronic hardware including troubleshooting techniques and CSA standards.

PRCT420 - Electronic Troubleshooting

The purpose of this course is to teach a logical approach to electronic troubleshooting. The material provided will help make troubleshooting less frustrating and more rewarding. Emphasizing the "do's" and "don'ts" of troubleshooting will help the student/technician avoid costly errors.

TELE310 - Video Systems

This course will introduce the student to antenna theory, transmission line theory, video theory, computer monitors, CATV transmission systems, CATV scrambling methods and MACRO vision encoding on video tapes. Students will design, build and test a 5 element UHF YAGI antenna. Performance testing using the spectrum analyzer, TDR, power meters, sweep oscillators and oscilloscope will be the major focus in the lab.

TELE321 - Telecommunication Systems

Communication systems employing amplitude, phase, frequency and pulse modulation will be studied. FM, AM and SSB transmitters are analyzed for the purpose of troubleshooting systems. Communication receivers and circuits are studied, in addition to propagation and antenna theory from LF to UHF. Laboratory work will include work on printed circuit boards, commercial communication equipment, and a variety of electronic test equipment.

TELE410 - Data Communication

This course reviews the existing telephone system and then examines the various digital systems that are typically incorporated into the network. A fiber optic link is discussed, with emphasis on the practical aspects of the installation and maintenance of fiber optic networks. The operation and maintenance of LAN's is also discussed.

Application Procedure

In order to apply for admission to this program an applicant must complete an "Application for Admission to Ontario Colleges of Applied Arts and Technology" form and submit this form to the:

Ontario College Application Services
P.O. Box 810, Guelph, Ontario, N1H 6M4
1-888-892-2228

Application Forms and Applicant Guidebooks are available at Ontario Secondary Schools, at Ontario Colleges of Applied Arts and Technology and at the Ontario College Application Services office.

Admission to the College

Complete information concerning admission to programs at Fanshawe College may be found in the Central Admission Publication located in the Office of the Registrar, Fanshawe College.

The College reserves the right to make changes in the information in this brochure without prior notice.

The College reserves the right to cancel at any time a program, course, program major or option, change the location and/or term in which a program or course is offered, or withdraw an offer of admission both prior to and after its acceptance by an applicant or student because of insufficient applications or registrations, over-acceptance of offers of admission, budgetary constraints, or for other such reasons. In the event the College exercises such right, the College's sole liability will be the return of any monies paid by the applicant or student to the College.

This brochure is available in alternative formats, upon request, for persons with disabilities.

For further information on admission and registration, contact:
Office of the Registrar, (519) 452-4277

For further specific program information, contact:
Electrical/Electronics Technology Division: (519) 452-4411

Fanshawe College
1460 Oxford St. E. P.O. Box 7005
London, ON, N5Y 5R6

www.fanshawec.on.ca

Fanshawe COLLEGE

Electronics Engineering Technician




**FANSHAWE
COLLEGE**

*Community Driven...
Student Focused*

Electronics Engineering Technician

A Co-Operative Education Program (Tentative*)

A Two Year Diploma Program

Program Code: ERN1 Campus Code: LC

LC: September/January Admission

Electrical/Electronics Technology Division: (519) 452-4411

Average Salary: \$26,003

Current Grade 9 and Grade 10 Secondary School students considering admission to this program for September, 2003 and beyond should consult the 2001/2002 Fanshawe College Program Guide for the academic admission requirements for 2003/2004.

*This program may be offered as a Co-operative Education program commencing in September, 2001.

This program provides a thorough grounding in electronic fundamentals, as well as practical studies in areas such as communication, television, computers, microwave equipment, television and cable systems, instruments and troubleshooting techniques.

Graduates of this program will be able to modify, maintain, and repair, as well as analyze and troubleshoot electronics circuits, equipment, components, systems and subsystems. In addition, graduates will be able to apply communication, documentation, computer applications, information technology, and teamwork skills to support their engineering activities.

Career Opportunities

Graduates may be employed in testing, service, maintenance, installation and laboratory work in industries such as electronics manufacturing, computers and office equipment, radio, television and cable broadcasting, telephone and other telecommunications companies, stereo and home entertainment products, government agencies, research institutions, etc.

Course Code	Level	Hrs/Wk
ERN11	Level 1	
CMNC155	Language and Communication Skills I	3.0
CMPT142	Computer Fundamentals I	4.0
DIGL101	Digital Fundamentals I	4.0
DRAF197	Electronic Drafting	3.0
ELEC101	DC Theory	6.0
MATH149	Mathematics	4.0
PRCT108	Electronic Shop Practices	2.0

Course Code	Level	Hrs/Wk
ERN12	Level 2	
DEVS101	Electronic Circuits	6.0
DIGL201	Digital Circuits	4.0
ELEC208	AC Theory	6.0
MATH249	Mathematics	4.0
PRCT212	Practical and Test Equipment	4.0

Course Code	Level	Hrs/Wk
ERN13	Level 3	
CCTS301	Op-Amp Circuits and Oscillators	5.0
CMNC255	Language and Communication Skills II	3.0
CMPT301	Microcomputer Systems	5.0
MATH349	Mathematics	3.0
PLSE301	Pulse Circuits	5.0
PRCT310	Practical and Test Equipment	1.0
TELE321	Telecommunication Systems	5.0

Course Code	Level	Hrs/Wk
ERN14	Level 4	
CMNC355	Language and Communication Skills III	3.0
CMPT401	Microprocessor Interfacing	4.0
PRCT410	Practical and Test Equipment	3.0
PRCT420	Electronic Troubleshooting	3.0
TELE310	Video Systems	5.0
TELE410	Data Communication	5.0

Program Eligibility Criteria

Required Academic Preparation

OSSD with courses at the General Level with:

- Mathematics* ONE OF:
 - Grade 12 Mathematics, Advanced
 - Grade 12 Mathematics for Technology
 - OAC Finite Mathematics

Or

BTSD-Level 4 Certificate with:

- Mathematics* ONE OF:
 - Level 4 Mathematics, Advanced
 - Level 4 Mathematics

Or

Pre-Technology Certificate**

Or

Ontario High School Equivalency Certificate (GED) and:

- Mathematics* ONE OF:
 - Grade 12 Mathematics, Advanced
 - Grade 12 Mathematics for Technology
 - OAC Finite Mathematics

Or

Mature Applicant with standing in the required course stated above

Note: Applicants who lack required courses may be admitted to the program subject to appropriate prior upgrading.

Recommended Academic Preparation

- Grade 12 English
- Grade 11 or Grade 12 Physics
- Courses in Communications Technology, Analog and Digital Electronics

Applicant Selection Criteria

Where the number of eligible applicants exceeds the available spaces in the program, the Applicant Selection Criteria will be:

- Preference for Permanent Residents of Ontario.
- Receipt of Application by February 1st.
- Achievement in the required academic preparation.
- Achievement in the recommended academic preparation.

Notes:

- *Mathematics to include Algebra, Geometry, Trigonometry.
- **Students admitted to the Pre-Technology program are guaranteed admission the following year to a School of Technology career program (excluding the programs in the Information Technology Division) provided that they achieve a 'B' average in the Pre-Technology program and fulfill any other specified conditions. Normally these students are admitted to their first choice career program.

Advanced Standing

Credit for any course in the program will be given to students who can demonstrate that they have the required skills to meet the objectives of the course.

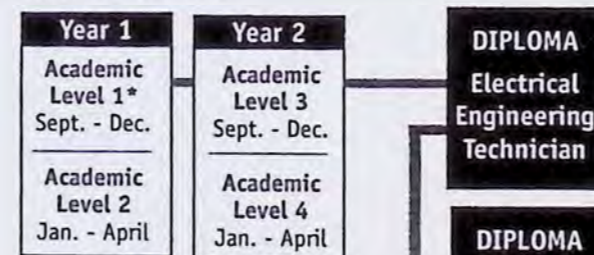
Approximate Costs (2000/2001)

Fees for:	Levels 1 & 2	Levels 3 & 4
	\$2143.90*	\$2143.90*
Books and Supplies:	\$1070.00	\$ 710.00

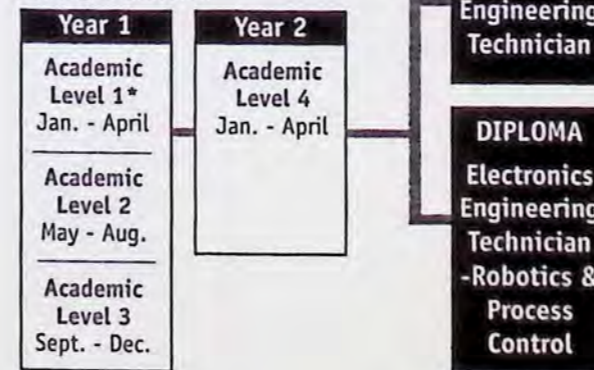
*additional fees will be required if this program is offered as a co-op program

Program Progression

September Admission



January Admission



* Upon completion of Level 1, students may continue in this program (ERN1) or change to ECN32 or ELN12

Course Descriptions

CCTS301 - Op-Amp Circuits & Oscillators

A continuation of the studies undertaken in the prerequisite courses on circuits and devices. Emphasis is on signal processing as opposed to device characteristics. Linear and non-linear circuits utilizing several types of operational amplifiers and the 555 timer are studied, constructed and characterized.

CMNC155 - Language and Communication Skills I

Provides the student with an opportunity to establish skills in reading, writing and editing documents for work-related and personal uses. Students will also practice important study/reading skills and apply grammar rules.

CMNC255 - Language and Communication Skills II

Provides the student with the skills and knowledge required to formulate and articulate his or her responses to literature, with emphasis upon the analysis of audience, purpose, message, and prose texts.

CMNC355 - Language and Communication Skills III

This course will permit the student to perform primary and secondary research, to shape, organize and document a formal report and to present a persuasive oral report.

CMPR142 - Computer Fundamentals

Curriculum is under development.

CMPT301 - Microcomputer Systems

An introduction to the architecture and the operating system of a PC based microcomputer. Topics include: software and hardware components; BIOS; I/O devices and drivers; serial and parallel ports; hard drives; memory and advanced drive technologies. The operation, installation, optimization and troubleshooting of these various components will be covered.

CMPT401 - Microprocessor Interfacing

In this microprocessor course, the MC68HC11 Microcontroller is used to study microprocessor /microcontroller architecture, machine and assembly language programming and hardware interfacing.

DEVS101 - Electronic Devices

The study of semi-conductor materials; the p-n junction; simple diode circuits; bipolar junction and field effect transistors; photo diodes and photo transistors; biasing circuits; rectifiers and power supplies.

DIGL101 - Digital Fundamentals I

The first part of this course introduces the student to the various ssi chips, including AND, OR, INVERTER, NAND, NOR, EXCLUSIVE-OR, EXCLUSIVE-NOR and AND-OR-invert gates. The second part of this course introduces the student to number systems and arithmetic which leads into arithmetic circuits and code converter.

DIGL201 - Digital Circuits

Introduces students to the characteristics of major logic families, I.C. interfacing, Flip-Flops, counters, shift registers, multiplexers/ demultiplexers, and analogue to digital conversion. The laboratory work is designed to emphasize and support the