

## GIS and Urban Planning

A Two-Year Ontario College  
Co-operative Education Endorsed Diploma

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### The Program

If you have a background or interest in planning urban and rural communities, environmental conservation and sustainable development, then check out GIS and Urban Planning.

This Ontario College Diploma program is aimed at providing technical and design skills related to land use planning, land development, land conservation and resource management, in both rural and urban communities and from both private and public sector perspectives.

Students acquire skills to build and maintain spatial (geographic) databases and analyze land resource data, plan and design land development projects within a community context, and prepare presentation graphics including 3D visualization of urban spaces. Our graduates are trained to understand the sensory and cognitive relationships between people and their physical environment. They know how people's needs, values and aspirations can best be accommodated in the designed environment.

Three major computer software technologies including GIS (Geographical Information Systems), CAD (Computer Aided Design) and Presentation Graphics are learned using case studies and actual land development projects.

This program emphasizes work experience and is two years in length, comprising of four academic levels and two co-operative work terms.

### Career Opportunities

Graduates will enter the work force as information technicians, operators and analysts using GIS, CAD and Presentation Graphics software. Placement may be in municipal governments, government agencies, urban and regional planning consultants, land development companies, and industrial corporations.

### Sample Co-op Progression Chart:

September Intake Only			
	Sept-Dec	Jan-Apr	May-Aug
Year 1	Academic Term 1	Academic Term 2	Work Term 1
Year 2	Academic Term 3	Academic Term 4	Work Term 2

### Why Should You Hire a Co-operative Education Student?

Many employers feel today's graduates have no concept of the "real" world of work; we are providing this experience in Co-operative Education. Any job that gives the student related background in your business would be suitable.

Eligible employers can claim a tax credit for each qualifying work placement for up to \$3000.

Co-operative Education students are ultimately looking ahead to careers in businesses such as yours. For this reason they are not expecting to simply put in time on the job, but are eager to get involved and make a worthwhile contribution. Participation in co-operative education also gives the employer the opportunity to try out a student's capabilities without obligation or commitment to permanent employment.

This work oriented educational system integrates classroom study and paid, on-the-job work experience, by alternating periods in College with periods of employment by co-operating organizations. The work terms are spaced out through the academic program and students will be at various academic levels in successive work terms. The working experience will ideally increase in difficulty and responsibility as the student progresses academically. However, the College realizes it is often difficult in practice to do this.

It is essential that the work experience be a normal one; that the student be treated like a regular company employee so that a realistic picture of the working environment in that field may be obtained. Perhaps most important is what students gain from the working experience: an attitude for success and the ability to get along with co-workers at all levels.

## Learning Outcomes:

### Year one:

- Knowledge of the Planning Act and associated policy documents (Ontario)
- Understand land use planning policy
- Able to apply various planning implementation tools including zoning, site planning, minor variances and land severances
- Knowledge of Environmental Planning Methods
- Prepare basic land use planning reports utilizing GIS, CAD and Presentation Graphic skills
- Accurately create, edit and update GIS data stored in ESRI shapefile, File Geodatabase, and Microsoft SQL Server formats using ArcGIS
- Perform site selection analysis using ArcGIS
- Create cartographically accurate and well-designed maps using ArcGIS and AutoCAD
- Conceptualize, prepare and revise Site Plans using AutoCAD and Sketch-up
- Utilize Presentation Graphics software (Adobe Illustrator, Photoshop, and InDesign)
- Participate in annual Urban Design Charrette
- Participate in Urban Design field trip to Toronto and other municipalities in South-Western Ontario

### Year Two

- Working knowledge of urban and rural planning including community and urban design concepts
- Working knowledge of environmental conservation, sustainability, assessment
- Working knowledge of Planning Act and associated policy documents (Ontario)
- Have advanced knowledge of land use planning policy
- Prepare planning reports on official plan amendments, zoning by-law amendments, drafts plans of subdivision, site plan applications, and urban design briefs
- Apply land use planning tools including heritage conservation, property standards, by-law enforcement, and community improvement plans
- Conceptualize, prepare and revise Site Plans and Draft Plans of Subdivisions using AutoCAD and Sketch-up
- Utilize advanced CAD in both 2D and 3D environments
- Design field surveys and apply, tabulate and analyze collected data
- Utilize advanced GIS including spatial and network analysis, 3D analysis, address geocoding and building topologies
- Plan and execute GPS Missions to accurately capture data using Sokkia GPS and Trimble hand-held GPS
- Create and edit mobile and web-based GIS applications using ArcServer and Google Maps
- Design and implement GIS Models in ArcToolBox and Python Scripts
- Create topological and attribute domains to control data entry in ArcGIS

- Utilize AutoCAD Map to link to external databases, perform data queries, create and analyze topologies, and prepare thematic maps
- Use advanced presentation graphic techniques to illustrate course projects
- Assume leadership role in annual Urban Design Charrette
- Participate in the second year field trip to a major North American city

### Course Outline

**Level 1** – Take all of the following Mandatory Courses

WRIT-1036	Reason & Writing I – Art & Design
COMP-1414	Presentation Graphics I
CADD-1007	CAD Basics – Urban Planning
METH-1039	Geographical Information Systems I
PLAN-1016	Land Use Planning
PLAN-1014	Site Planning
COOP-1020	Co-op Ed Employment Prep

**Level 2** – Take all of the following Mandatory Courses

COMM-3023	Comm for Designers, Planners, Techs
COMP-3083	Presentation Graphics II
CADD-1011	Intermediate AutoCAD–Urban Planning
METH-1010	Municipal Government & Planning
METH-3015	Geographical Information Systems II
PLAN-1005	Ecological Planning
METH-1001	Databases for GIS

**Level 3** – Take all of the following Mandatory Courses

Gen Ed	– Take a 3 credit Gen. Ed. elective course
PLAN-1004	Subdivision Design
CADD-3025	CAD Applications I
METH-3019	Geographical Information Systems III
COMP-3093	Mobile GIS & GPS
PLAN-3005	Community Planning & Design
ARCH-3004	Modern Architecture
METH-3003	Data Collection & Research Methods

**Level 4** – Take all of the following Mandatory Courses

Gen Ed	– Take a 3 credit Gen. Ed. elective course
PLAN-3003	Rural Planning
LAWS-3017	Real Property Law
CADD-3020	CAD Applications II
METH-3013	Web Based GIS
METH-3016	AutoCAD Map GIS
METH-3009	Geographical Information Systems IV
PLAN-1020	Urban Design

### Program Requirements:

- Take two 3-credit General Education Elective Courses
- Program Residency

Students must complete a minimum of 22 credits in this program at Fanshawe College to meet the Program Residency requirement and graduate from this program.

