ENGINEERING – CO-OP PROGRAM

QUALIFICATIONS OF ENGINEERING TRAINEES

Work term	Civil	Electrical	Mechanical
Work term 1 2nd year completed **Fully supervised**	• basic technical drawing using the computer (using AutoCAD and other software); • enter data in tabulated form using spread sheets (Microsoft Excel and others); • perform basic calculations in civil engineering; • be a member of a survey crew; • collect data and measurements (materials, traffic).	• do computer-aided technical drawings (using AutoCAD and other software); • enter data in files and help in computer programming; • collect data and make simple measurements; • do computations and simple research with the knowledgPE 06e of the functioning of simple electrical circuits.	• perform technical drawings using computer (AutoCAD, SolidWorks and other software); • enter data in tabulated form by using Microsoft Excel and others; • perform simple tasks in calculation and research ; • collect data and measurements.
Work term 2 3rd year completed **Work with less supervision**	• perform testing and quality control of materials (soils, concrete and asphalt); • perform basic supervising and inspection of work; • perform more advanced calculations and analyses; • has basic knowledge of road and structural designs.	• help in the supervision and inspection of electrical installations; • help in following up on the maintenance of electrical installations with the knowledge of logic circuits, three-phase circuits, semi-conductor circuits and various transformer types.	• can perform survey and inspection of mechanical works; • perform supervision of installation and maintenance of mechanical equipment; • can perform calculations on HVAC systems, fluid and canalization systems; • perform more advanced research on design of mechanical components.
Work term 3 **Work term 4** 4th year completed **Work with a certain autonomy**	• estimate projects costs; • select construction method and procedures; • help to manage construction contracts and works; • assist professional engineers during the design and planning of tasks; • has knowledge in the design of steel structures, reinforced concrete, foundations and hydraulic projects.	• manage electrical contracts; • design simple analogue and digital filters; • study and implement automatic control systems; • study instruments related to biomedical equipment with the knowledge of communications networks (analog, digital, and optical), antenna systems, and energy distribution systems (static power converter).	• perform the design and fabrication of mechanical components assisted by computers; • perform more complex studies on material and manufacturing processes, on vibration and noise problems, on heat transfer and energy conversion processes; • estimate costs of a project and select components for a mechanical system.

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