

16-4137-50A

REORGANIZED PROGRAMS SUBDIVIDED INTO COURSES

SECTOR: TECHNICAL DRAFTING
825-000

F O R E W O R D

This document describes the existing programs of study in terms of how they will be reorganized as of September 1987, when the vocational éducation sections of the **Regulation Respecting the Basis of Secondary School Organization**, as amended by government decree on December 10, 1986, will come into effect.

The new organizational framework will in no way affect the official or experimental status of these programs.

However, the present grouping of certain programs into the branch leading to a Secondary School Vocational Diploma (SSVD) may be reexamined once the criteria for classification into either one of the two basic branches (SSVC or SSVD) have been established and all necessary consultation has been completed. Clearly, any students who have already begun their studies in the branch leading to a Secondary School Vocational Diploma will be able to complete their studies in this branch.

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INTRODUCTION

This document covers the programs listed in Handbooks 02 and 04 and those labelled "Revised Version" which pertain to the branch leading to a Secondary School Vocational Diploma. Only the programs currently being offered have been reorganized.

These programs have been divided into several courses. Their content and objectives remain unchanged, except in a few cases where adjustments were necessary in order to incorporate the new organizational framework for vocational education.

This document has three sections:

1. Changes to the Regulations Respecting the Basis of Secondary School Organization

This section describes the basic changes adopted by the Québec government in December 1986.

2. The New Organizational Framework For the Programs

This section outlines the overall aim of the reorganization of the programs, the characteristics of the reorganized programs and the general model for the presentation of these programs.

3. The Reorganized Programs

This section lists the reorganized programs for each vocational sector. It also describes the particular features, if any, of certain programs that differ in their presentation, content or mode of instructional organization. Finally, it gives a breakdown of the reorganized programs themselves.

1. CHANGES TO THE REGULATION RESPECTING THE BASIS OF SECONDARY SCHOOL ORGANIZATION

The Regulation was amended by the Government in December 1986. The amendments adopted define the admission requirements for the vocational education programs and make substantial changes to the organizational framework for vocational education as well as to the rules regarding certification of studies.

In terms of organization, the Regulation introduces two basic branches of study: one leading to a Secondary School Vocational Diploma (SSVD) and the other to a Secondary School Vocational Certificate (SSVC). It also introduces a complementary branch which leads to an Attestation of Vocational Specialization (AVS). The branch leading to a SSVD will be made available to students as of September 1987. The two other branches will be open as of September 1988.

The programs leading to an SSVD are full-time vocational education programs which entail either 900, 1 350 or 1 800 hours of study. The programs in this branch do not include any general education courses, as was the case with the long-vocational programs.

The specific rules for the certification of studies in vocational education have been modified in such a way that a student must now earn credits for each course of a given program in order to receive either of the two certification documents for vocational studies. These rules also imply the evaluation of the student's learning in each course of a program.

2. THE NEW ORGANIZATIONAL FRAMEWORK FOR THE PROGRAMS

2.1 Aim

The new rules for the certification of studies in vocational education stipulate that all programs must be presented in the form of courses. These rules will be applied to the branch leading to a Secondary School Vocational Diploma as of September 1987.

Neither the programs listed in Handbook 02 (1977-1979) and in the English equivalent, Handbook 04 (1977-1979), nor the programs labelled "Revised Version" meet the requirements of the new rules for the certification of studies because these programmes are not made up of courses. The purpose of reorganizing the programs is thus to make them conform to the new rules applicable to the certification of studies by dividing the content of each program into several courses. A credit value is assigned to each course and is determined by the duration and level of difficulty of the course.

2.2 Characteristics of the Reorganized Programs

- a) The reorganized programs comprise full-time vocational education studies and do not include any general education courses. The total number of teaching hours corresponds to the length of time allotted to the program in question.
- b) The reorganized programs combine the common core courses and the specialized courses of the currently existing programs. Each reorganized program is identified by its area of specialization and bears a new four-digit code.
- c) The duration of the new programs is set at 900, 1 350 or 1 800 hours. The majority of them are 1 350 hours long. The existing programs are being reorganized (divided into courses) and extended from 1 200 to 1 350 hours. A few have been reduced to 900 hours because their current content does not justify the time formerly allocated to them.
- d) Most of the programs which have been extended to 1 350 hours do not include any additional content or objectives. The 150 additional hours have been distributed among the different courses for the purpose of facilitating the evaluation of the student's learning, which must be done for each course.
- e) The number of credits assigned to each course conforms with the definition of a credit based on 15, and not 25, hours of activities. A course can therefore be 15 hours in length or any multiple thereof, up to a maximum of 120 hours.

- f) The courses are offered on the basis of the semestrial school calendar, whereby each semester comprises 450 course hours. This is not a compulsory model for scheduling, but in most cases it serves to facilitate instructional organization.
- g) Some of the courses will span one or more semesters, but the final evaluation of learning must take place at the end of the course only. The teacher must take the end of the school year into account when organizing the learning activities for the course.

2.3 General Model of Presentation

All the reorganized programs are presented according to the same general plan.

- a) All the reorganized programs within a given sector are grouped in the same document.
- b) A complete list of the courses in a given program, arranged on the basis of a 450-hour semester, is presented at the beginning of every reorganized program. This list provides the following information:
 - the new program code;
 - the title of the program;
 - the length of the program in hours;
 - the number of credits assigned to the program.

The list also provides the following information for each course:

- the new course code (applicable in most cases);
 - the title of the course;
 - the length of the course in hours;
 - the semester in which it is recommended that the course be given.
- c) The programs themselves are presented in terms of their component courses, with two categories of entries listed in two columns for every course. The course title and the total duration of the course in hours are indicated at the top of each two-column table.
 - d) The format for presenting the course content varies, depending on the program involved. Examples of the two types of format used are presente below.

COOLING SYSTEMS		30 hours (1)
Content	Content (version améliorée) (6)	
(2) Cooling Systems (820-616) Inspecting and Servicing the Cooling System (820-224)	Entretien du système de refroidissement (341-118)	(4)
(3) Cooling System Accessories (820-225)	Système de refroidissement du moteur (347-111)	(5)
Main Focus of Evaluation		
Remove and replace a thermostat Remove and replace a water pump		

- (1) Course title and course duration in hours;
- (2) Titles of the program modules as listed in Handbook 04.
- (3) Codes of the program modules as listed in Handbook 04.
- (4) Titles of the program modules as listed in the "Version améliorée" (Revised version).
- (5) Codes of the program modules as listed in the "Version améliorée" (Revised version).
- (6) Specifications regarding the focus of evaluation. For some programs, this space will be left blank and teachers can write in their own notes on the focuses of evaluation.

ANATOMY AND PHYSIOLOGY I		30 hours (1)
Content (Handbook 04)	Course Objectives	(4)
(2) Anatomy and Physiology (3) (640-207)	Distinguer les composantes de la structure normale de l'organisme humain (cellules - tissus - organes - systèmes) Distinguer les composantes: de la <u>fonction de relation</u> - systèmes locomoteur, nerveux et sensoriel; de la <u>fonction de génération</u> - système reproducteur Décrire le fonctionnement des systèmes: locomoteur, nerveux, sensoriel, reproducteur Utiliser le vocabulaire spécifique	

- (1) Course title and course duration in hours;
- (2) Titles of the program modules as listed in Handbook 04.
- (3) Codes of program modules as listed in Handbook 04.
- (4) Course objectives: This section covers the objectives of the module. It is intended to help the teacher delimit the content of the module as it is outlined in Handbook 04. These objectives also serve as indicators for evaluation.

3. THE REORGANIZED PROGRAMS SUBDIVIDED INTO COURSES

3.1 List of Reorganized Programs

The Technical Drafting sector consists of 2 program which have been reorganized

- 1642 General Draftsman II (old codes 826-400/827-500) 1 350 hours, 90 credits
- 1643 Mechanical Draftsman (old codes 826-400/828-500) 1 350 hours, 90 credits

3.2 Specifications

None

PROGRAM: GENERAL DRAFTSMAN

S.S.V.D. 90 credits

COURSE LIST

First semester: 30 credits	Hours	Credits
Drafting Skills	90	6
Basic Dimensioning and Projections	90	6
Special Projections	90	6
Pictorial Drawing	60	4
Standards and Metals	45	3
Transposition of Data	75	5

Second semester: 30 credits	Hours	Credits
Fastening Devices	60	4
Mechanical Construction	45	3
Architecture I	75	5
Detail and Assembly Drawing	105	7
Architecture II	75	5
Basic Topometry	45	3
Pictorial Drawing II	45	3

Third semester: 30 credits	Hours	Credits
Conception and Estimating	90	6
Mechanical Construction	60	4
Metrology	15	1
Elements of Structure	60	4
Industrial Training	75	5
Minor: Architecture	150	10
Surveying	150	10
Mechanics	150	10
Urban Planning	150	10
Furniture	150	10
Electricity	150	10

SECTOR: TECHNICAL DRAFTING
PROGRAM: GENERAL DRAFTSMAN
PROGRAM LEADING TO SECONDARY SCHOOL VOCATIONAL DIPLOMA: (SSVD)
DURATION OF PROGRAM: 1 350 heures
TOTAL NUMBER OF CREDITS: 90 credits

DRAFTING SKILLS		90 hours
Content (Handbook 04)	Main Focus of Evaluation	
Drafting Instruments (810-202) Elements of Applied Geometry I (810-204) Elements of Applied Geometry II (810-219) Lettering (810-205) Connections and Tangents (810-206)	<ul style="list-style-type: none"> - Identification et usages des instruments - Réalisation d'un projet (simple) où l'on rencontre les principaux éléments de connaissances 	
DIMENSIONING AND PROJECTIONS		90 hours
Content (Handbook 04)	Main Focus of Evaluation	
Orthogonal Projections (810-207) Sketches (810-208) Dimensions (810-210)	<ul style="list-style-type: none"> - Identification de lignes et surfaces - Compléter des projections cotées - Exécuter un croquis simple 	
SPECIAL PROJECTIONS		90 hours
Content (Handbook 04)	Main Focus of Evaluation	
Auxiliary Views (810-213) Sections and Conventions (810-215) Development (810-238)		

PICTORAL DRAWING		60 hours
Content (Handbook 04)	Main Focus of Evaluation	
Perspective Drawing (810-222) Illustration Draughting (810-265)	<ul style="list-style-type: none"> - Projections obliques - Projections isométriques 	
STANDARDS AND METALS		45 hours
Content (Handbook 04)	Main Focus of Evaluation	
Technical References (810-241) Materials for Mechanical Construction (840-204)	<ul style="list-style-type: none"> - Lecture et interprétation de tableaux de normes - Identifications des matériaux - Principales propriétés 	
TRANSPPOSITION OF DATA*		75 hours
Content (Handbook 04)	Main Focus of Evaluation	
Transposition of Data I (810-203) Transposition of Data II (810-217) Transposition of Data III (810-224) Graphical Statics (810-226) Diagram and Graphics (810-227)	<p>* This course will be taught during the entire semester: Evaluation will be conducted on an ongoing basis or at the end of the semester</p>	
FASTENING DEVICE		60 hours
Content (Handbook 04)	Content (Version améliorée)	
Mechanical Construction - Machine Components (840-475)	Organes de construction mécanique (327-552)	

MECHANICAL CONSTRUCTION		45 hours
Content (Handbook 04)	Content (Version améliorée)	
Part of: Mechanical Construction Drafting (810-232) Mechanical Drafting (810-430)	Éléments de fabrication mécanique (327-581)	
ARCHITECTURE I		75 hours
Content (Handbook 04)	Content (Version améliorée)	
Part of: Architectural Drafting (810-229) Architecture (810-294)	Éléments d'architecture (327-619) Technologie de construction (327-629)	
DETAIL AND ASSEMBLY DRAWING		105 hours
Content (Handbook 04)	Content (Version améliorée)	
Part of: Detail and Assembly Drawing (810-246)	Éléments de dessin d'ensemble et de détails (327-562)	
ARCHITECTURE II		75 hours
Content (Handbook 04)	Content (Version améliorée)	
Part of: Architecture (810-294) Construction (810-298)	Plan d'exécution I (327-632)	

BASIC TOPOMETRY		45 hours
Content (Handbook 04)	Content (Version améliorée)	
Mapping (810-228) Topographic Drafting (810-236)	Initiation au dessin de topométrie et de cartographie (3276-619)	
PICTORIAL DRAWING II		45 hours
Content (Handbook 04)	Content (Version améliorée)	
Part of: Illustration Drafting (810-265)	Illustration technique (01, 05, 06, 07) (327-682)	
CONCEPTION AND ESTIMATING		90 hours
Content (Handbook 04)	Content (Version améliorée)	
Part of: Basics of Conceptual Drafting (810-280) Basics of Estimating (810-326)	Processus de conception (327-522) Notion d'estimation générale (327-651)	
MECHANICAL CONSTRUCTION		60 hours
Content (Handbook 04)	Content (Version améliorée)	
Part of: Electricity (810-314) Plumbing (810-318) Heating (810-322)	Plomberie chauffage résidentiels (327-641) Electricité (327-661)	

METROLOGY		15 hours
Content (Handbook 04)	Content (Version améliorée)	
	Métrologie générale (327-598)	
ELEMENTS OF STRUCTURE		60 hours
Content (Handbook 04)	Content (Version améliorée)	
Structure I (810-290) Structure II (810-302)	Éléments de structure (327-672)	
INDUSTRIAL TRAINING		75 hours
Content (Handbook 04)	Content (Version améliorée)	
	Stage en milieu de travail (327-692)	
MINOR: ARCHITECTURE		150 hours
Content	Content (Version améliorée)	
	Aménagement extérieure (329-521) Aménagement intérieur (329-542) Notions de résistance de matériaux (329-651) Structure de bois (329-681) Sécurité générale chantier de construction (279-840)	

MINOR: SURVEYING		150 hours
Content	Content (Version améliorée)	
	Mesure de distance horizontale I (330-591) Carnet de notes (330-548) Nivellement direct simple (330-558) Orientation d'une ligne calcul d'un polygone (330-731) Opérateur théodolite I (330-679) Mise en plan I (330-699)	

MINOR: MECHANICS		150 hours
Content	Content (Version améliorée)	
	Dessin d'ensemble et de détails I (327-712) Machine-outils et opération (327-721) Cotation appliqué à la mécanique (328-569) Circuit hydraulique et pneumatique (328-619)	

MINOR: URBAN PLANNING		150 hours
Content	Content (Version améliorée)	
	Introduction à l'urbanisme (327-718) Organisation de l'urbanisme au Québec (327-728) Plan d'urbanisme (327-752) Évaluation foncière (327-739) Référence légales relatives à l'urbanisme (327-749)	

MINOR: FURNITURE		150 hours
Content	Content (Version améliorée)	
	Style de meuble (327-459) Matériaux et ferrage (327-468) Technique de fabrication du meuble (327-471) Dessin d'ensemble et de détails de meubles (327-482) Notion de dessins de construction de meubles (327-491)	

MINOR: ELECTRICITY		150 hours
Content	Content (Version améliorée)	
	Théorie de l'électricité (327-751) Dessin de circuits d'électricité (327-732) Dessin de branchement (327-779) Planification d'un réseau d'éclairage (327-789)	

PROGRAM: MECHANICAL DRAFTSMAN

S.S.V.D. 90 credits

COURSE LIST

First semester: 30 credits	Hours	Credits
Drafting Skills	90	6
Basic Dimensioning and Projections	90	6
Special Projections	90	6
Pictorial Drawing	60	4
Standards and Metals	45	3
Transposition of Data	75	5

Second semester: 30 credits	Hours	Credits
Elements of Mechanical Construction I	15	1
Elements of Mechanical Construction II	30	2
Machine Tools I	30	2
Development	45	3
Detail and Assembly Drawings I	75	5
Quotation I	75	5
Parts of Mechanical Assemblies I	30	2
Applied Arithmetic	30	2
Conceptual Drafting	75	5
Illustration Drafting	45	3

Third semester: 30 credits	Hours	Credits
Machine Tools II	30	2
Detail and Assembly Drawing II	90	6
Parts of Mechanical Assemblies II	30	2
Parts of Mechanical Transmission	75	5
Quotations II	105	7
Elements of Mechanical Construction III	45	3
Industrial Training	75	5

SECTOR: TECHNICAL DRAFTING
PROGRAM: MECHANICAL DRAFTSMAN
PROGRAM LEADING TO SECONDARY SCHOOL VOCATIONAL DIPLOMA: (SSVD)
DURATION OF PROGRAM: 1 350 heures
TOTAL NUMBER OF CREDITS: 90 credits

DRAFTING SKILLS		90 hours
Content (Handbook 04)	Main Focus of Evaluation	
Drafting Instruments (810-202) Elements of Applied Geometry I (810-204) Elements of Applied Geometry II (810-219) Lettering (810-205) Connections and Tangents (810-206)	<ul style="list-style-type: none"> - Identification et usages des instruments - Réalisation d'un projet (simple) où l'on rencontre les principaux éléments de connaissances 	

DIMENSIONING AND PROJECTIONS		90 hours
Content (Handbook 04)	Main Focus of Evaluation	
Orthogonal Projections (810-207) Sketches (810-208) Dimensions (810-210)	<ul style="list-style-type: none"> - Identification de lignes et surfaces - Compléter des projections cotées - Exécuter un croquis simple 	

SPECIAL PROJECTIONS		90 hours
Content (Handbook 04)	Main Focus of Evaluation	
Auxiliary Views (810-213) Sections and Conventions (810-215) Development (810-238)		

PICTORAL DRAWING		60 hours
Content (Handbook 04)	Main Focus of Evaluation	
Perspective Drawing (810-222) Illustration Draughting (810-265)	<ul style="list-style-type: none"> - Projections obliques - Projections isométriques 	
STANDARDS AND METALS		45 hours
Content (Handbook 04)	Main Focus of Evaluation	
Technical References (810-241) Materials for Mechanical Construction (840-204)	<ul style="list-style-type: none"> - Lecture et interprétation de tableaux de normes - Identifications des matériaux - Principales propriétés 	
TRANSPPOSITION OF DATA*		75 hours
Content (Handbook 04)	Main Focus of Evaluation	
Transposition of Data I (810-203) Transposition of Data II (810-217) Transposition of Data III (810-224) Graphical Statics (810-226) Diagram and Graphics (810-227)	<p>* This course will be taught during the entire semester: Evaluation will be conducted on an ongoing basis or at the end of the semester</p>	
ELEMENTS OF MECHANICAL CONSTRUCTION I		15 hours
Content (Handbook 04)	Main Focus of Evaluation	
Manual and Bench Tools (840-201) Elements of Metrology and Control (840-202)	<ul style="list-style-type: none"> - Identification des outils - Utilisation des instruments de mesure - Principes de sécurité 	

ELEMENTS OF MECHANICAL OF CONSTRUCTION II

30 hours

Content (Handbook 04)**Main Focus of Evaluation**

Transformation of Metals (840-395)
Materials for Mechanical Construction
(840-204)
Treatment of Metals (840-261)

- Propriétés et caractéristiques de matériaux
- Définitions des principaux traitements thermiques

MACHINE TOOLS I

30 hours

Content (Handbook 04)**Main Focus of Evaluation**

Drilling - Machine and Specific Tools
(810-240)
Turning Between Centres I (840-222)

- Capacités, caractéristiques et possibilités des perceuses et des tours

DEVELOPMENT

45 hours

Content (Handbook 04)**Main Focus of Evaluation**

Development (810-238)

- Notion de lignes en vraie grandeur
- Développement d'une pièce de transition

ASSEMBLY AND DETAILS**Content (Handbook 04)****Content (Handbook 04)**

Details and Assemblies (840-246)
Technical References (840-241)

- Lecture de tableaux et d'abaques
- Lecture de plans
- Réalisation d'un dessin de détail

QUOTATION I		75 hours
Content (Handbook 04)	Main Focus of Evaluation	
Quotation Applied in Mechanics (810-248)	<ul style="list-style-type: none"> - Définition des termes spécifiques - Identification des symboles 	
PARTS OF MECHANICAL ASSEMBLIES		30 hours
Content (Handbook 04)	Main Focus of Evaluation	
Parts of Mechanical Assemblies (810-251)	<ul style="list-style-type: none"> - Calcul d'aires et de masse - Résolutions de triangles faisant aptri de mécanisme 	
APPLIED ARITHMETIC		30 hours
Content (Handbook 04)	Main Focus of Evaluation	
Arithmetic Applied in Mechanics (810-243)		
CONCEPTUAL DRAFTING		75 hours
Content (Handbook 04)	Content (Handbook 04)	
Basics of Conceptional Draughting (810-280)	<ul style="list-style-type: none"> - Réalisation d'un projet résumant l'assimilation des notions de conception mécanique 	

ILLUSTRATION DRAFTING		45 hours
Content (Handbook 04)	Main Focus of Evaluation	
Illustration Draughting (810-265)	- Réalisation d'un ensemble en vue explosée	
MACHINE TOOLS II		30 hours
Content (Handbook 04)	Main Focus of Evaluation	
Mechanical Adjustment of Plane Surface (840-226) Simple Milling I (840-227)	- Capacités, caractéristiques et possibilités des fraiseuses et rectifieuses	
DETAIL AND ASSEMBLY DRAWING II		90 hours
Content (Handbook 04)	Main Focus of Evaluation	
Details and Assemblies (810-246)	- Nomenclature d'organes de liaison - Réalisation d'un projet à l'encre (ou DAO)	
PARTS OF MECHANICAL ASSEMBLIES* II		30 hours
Content (Handbook 04)	Content (Handbook 04)	
Parts of Mechanical Assemblies (810-251)	* This course will be taught during the entire semester. Evaluation will be conducted on an ongoing basis or at the end of the semester.	

PARTS OF MECHANICAL TRANSMISSION		75 hours
Content (Handbook 04)	Main Focus of Evaluation	
Parts of Mechanical Transmission - Gear	- Réalisation d'un projet résumant l'identification, le choix et la représentation des organes de transmission	
QUOTATIONS II		105 hours
Content (Handbook 04)	Main Focus of Evaluation	
Quotation Applied in Mechanics (810-248) Elements of Functional Quotations (810-258)	- Réalisation d'un projet nécessitant l'utilisation des principes de cotation fonctionnelle	
ELEMENTS OF MECHANICAL CONSTRUCTION III		45 hours
Content (Handbook 04)	Main Focus of Evaluation	
Analysis of Means of Control (810-267) Basics of Estimating (810-275) Elements of Process (810-279)	- Interprétation de gammes d'usinage - Identification des outils de contrôle	
INDUSTRIAL TRAINING		75 hours
Content (Handbook 04)	Content (Handbook 04)	
Industrial Training (810-285)	- Rapport verbal ou écrit et évaluation du répondant industriel du stagiaire	