

1939

Printing and Book Production: Prospectus of Courses Session 1939-40

City of Dublin Vocational Education Committee

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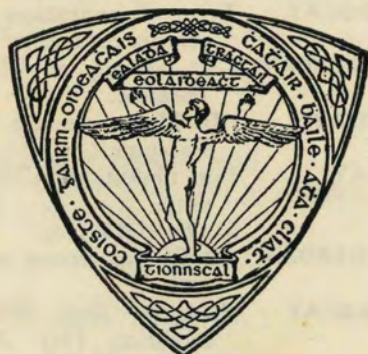
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City of Dublin Vocational Education Committee

SCOILEANNA CEÁRD-OIBEACÁIS
City of Dublin Technical Schools

Séiriún 1939-40



PRINTING AND BOOK PRODUCTION

BOLTON STREET

PROSPECTUS OF COURSES

CALENDAR—SESSION 1939-40

1939—SEPT. 4, MONDAY	Whole-time Day Schools open for enrolment, and Day Apprentice School resumes work.
SEPT. 11, MONDAY	Part-time Day Classes open for enrolment, and Whole-time Day Schools commence work.
SEPT. 18, MONDAY	Evening Classes open for enrolment, and Part-time Day Classes commence work.
SEPT. 25, MONDAY	Evening Classes commence work.
NOV. 1, WEDNESDAY	<i>All Saints' Day.</i> Whole-time Day Schools—excepting Day Apprentice School and Special Classes—closed.
DEC. 8, FRIDAY	<i>Feast of Immaculate Conception.</i> Whole-time Day Schools—excepting Day Apprentice School and Special Classes—closed.
DEC. 13, WEDNESDAY	Teaching work in Whole-time Day Schools ceases (excepting Day Apprentice School and Special Classes).
DEC. 14, THURSDAY	Term Examinations in Whole-time Day Schools commence.
DEC. 20, WEDNESDAY	Last meeting of Classes before Christmas Vacation.
1940—JAN. 8, MONDAY	All Classes resume work after Christmas Vacation.
MAR. 15, FRIDAY	Last meeting of Classes before Easter Vacation.
MAR. 17	<i>St. Patrick's Day.</i>
MAR. 27, WEDNESDAY	All Classes resume work after Easter Vacation.
MAY 2, THURSDAY	<i>Ascension Day.</i> Whole-time Day Schools—excepting Day Apprentice School and Special Classes—closed.
MAY 3, FRIDAY	Evening Classes close—excepting Special Classes.
MAY 13, MONDAY	<i>Whit-Monday.</i> Schools closed.
MAY 23, THURSDAY	<i>Feast of Corpus Christi.</i> Whole-time Day Schools—excepting Day Apprentice School and Special Classes—closed.
JUNE 22, SATURDAY	Teaching work ceases in Whole-time Day Schools—excepting Day Apprentice School and Special Classes.
JUNE 24, MONDAY	Sessional Examinations commence in Whole-time Day Schools—excepting Day Apprentice School and Special Classes.
JUNE 28, FRIDAY	Whole-time Day Schools and Part-time Domestic Economy Classes close—excepting Day Apprentice School and Special Classes.
JUNE 29, SATURDAY	<i>Feast of Saints Peter and Paul.</i>
JULY 13, SATURDAY	Day Apprentice School and Special Classes close.

Schools closed on all Bank Holidays not specified in above Calendar.

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CITY OF DUBLIN
VOCATIONAL EDUCATION COMMITTEE

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MR. T. A. CRAMPTON, Hammersmith Works, Ballsbridge.

GENERAL NOTICES

Admission and Attendance.—The Evening Session opens on Monday, 18th September, 1939, when teachers will be present to advise applicants regarding suitable Courses of Study and to certify Entrance Forms.*

Students, on enrolment, may be required, at the discretion of the Principal or Head Teacher, to sit for an Entrance Examination. Introductory Classes are provided for those not sufficiently qualified to enter a full Technical Course.

Each student must present a *Class Ticket* before admission to a class.

The opening of a class will depend on the enrolment of a sufficient number of students.

A class may be discontinued at any time should the attendance fall below the number necessary to justify its continuance, and the number of evenings allotted weekly to a class may be reduced if there be a falling away in the attendance.

The name of a student who has been absent from three successive class meetings may be removed from the Register unless a note of explanation has been sent.

Students are required to come provided with a note-book and pencil or with such drawing instruments or other requisites as may be necessary for the work of the class.

Discipline.—Strict order must be observed at all times in the precincts of the School.

Student's Property.—The Vocational Education Committee do not accept responsibility for loss or damage to any property—bicycles, coats, hats, books, etc.—brought to the School by students.

Damage to Person.—The Committee do not accept responsibility for injury to a student resulting from the student's personal neglect or disregard of the Regulations laid down for the conduct of the operations in the workshops or laboratories.

* The Linotype and Intertype students will be enrolled on Monday evening, 4th September. They will be divided according to seniority and previous attendance into four groups, each to be given 10 weeks intensive training. The senior group will start work at once, four evenings per week.

LIST OF COURSES

A.—TYPOGRAPHY*

Compositors' Work	...	...	...	1—4
Linotype and Intertype Operating	...	...	...	5—7
Linotype and Intertype Mechanism	...	...	...	8
Monotype Keyboard	...	...	...	9—12
Monotype Caster	...	...	...	13—14
Press, Platen and Machine Work	...	...	...	15—18

B.—BOOKBINDING*

Stationery Binding and Marbling	...	...	...	19
Letterpress Binding and Gilding	...	...	...	20
General Warehouse and Stationery Work	(a) Women's Section.	(b) Men's Section	...	21—22

C.—PHOTOGRAPHY AND BLOCKMAKING

Pure Photography	...	...	...	23—24
Photographic Chemistry	...	...	...	25
Line and half-tone blockmaking	...	...	...	26
Three-colour process work	...	...	...	27

D.—LITHOGRAPHY*

Lithography—Theory and Practice	...	...	...	28
Photo-Lithography	...	...	...	29

E.—OFFICE WORK.

Junior Clerks and Warehousemen	...	...	...	30
Costing and Estimating	...	...	...	31

F.—BOOK CRAFTS.

History and Development of Printing	...	...	...	36
Methods and Processes of Illustration	...	...	...
Binding (Stationery, Publishers' and Library Work).	...	...	...

G.—ART AND DESIGN

Drawing for Bookbinders	...	...	...	32
Drawing for Lithographers	...	...	...	33
Advertising and Printing Design	34
Lettering and Scribe Work	35

H.—IRISH

	37
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*NOTE.—With each of these "Practical" Classes a course in either E, F, G or H *must* be taken by all Third year and more advanced students. Only one "Practical" Class may be attended by any one student, but a Special Course—E, F; E, G, or F, G, may also be chosen if desired.

PROGRAMME AND TIME TABLE

of the

SCHOOL OF PRINTING AND BOOK PRODUCTION

Technical School, Bolton Street

TEACHING STAFF

COLM O LOCHLAINN, M.A. *Head Master.*

W. J. FITZPATRICK	F. NOLAN, M.Sc.
WM. R. QUINN	J. ROONEY
C. J. TIMMINS	C. CHAMBERLAINE
P. MAHER	R. WILSON
J. KEARNS	W. L. WHELAN
J. SULLIVAN	W. J. KEIRAN
P. MacMANUS	

EQUIPMENT

LETTERPRESS SECTION; in addition to full range of modern type and up-to-date equipment for Compositors, there is installed a "Pony" Miehle Machine, Phoenix, Arab and Favourite Platen Machines, Heidelberg Automatic Platen; Dawson Payne S.W. Automatic Cylinder Machine, Demy Wharfedale, two Linotype Machines, one Intertype Machine (latest model), two Monotype Keyboards and Monotype Caster, with Lead and Rule and Display Type attachment.

LITHOGRAPHY SECTION; Royal Folio Waite Rotary Offset Machine, four transfer presses and copper-plate press.

PHOTOGRAPHY and PHOTO-MECHANICAL SECTION; four 12" x 10" Cameras for line, half-tone and colour work; Levy Acid Blast Etching Machine and three-bath power-rocking apparatus; Royle Routing Machine and Power Beveller, six powerful arc lamps, special plant for copying, enlarging, and photo-micrography.

BOOKBINDING SECTION; Camco Folding Machine, Brehmer Thread Sewing Machine, and the usual appliances for Forwarding and Finishing in both Stationery and Letterpress Binding, and a Treble Striker "Shaw" Ruling Machine.

COURSES AND TIME TABLES

For 1st and 2nd Year Courses in Typography see Day Apprentice School of Printing.

No. of Course	SUBJECT	Day	Hour	Room	TEACHER	Syllabus No.
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TYPOGRAPHY—COMPOSITORS' WORK.

THIRD YEAR.

205 B	Compositors' Work, Lecture—III.	Tues.	7.30-9.30	A 1	P. Maher.	1
	.. Work, Practical—III.	Mon., Thurs.	7.30-9.30	A 1	P. Maher.	2

E, F or G (see Syllabus).

FOURTH YEAR.

206 B	Compositors' Work, Lecture—IV.	Tues.	7.30-9.30	A 1	P. Maher	3
	.. Work, Practical—IV.	Mon., Thurs.	7.30-9.30	A 1	P. Maher	4

E, F or G. (see Syllabus).

In Fifth Year, Linotype or Monotype Work may be taken instead of or in addition to Case Work, Practical, provided the pupil has an attendance of 75% at the evening classes for Third and Fourth Year Course.

TYPOGRAPHY—MECHANICAL.

LINOTYPE AND INTERTYPE OPERATORS' COURSE.

FIRST YEAR [Third Term—Mar.—May].

Intensive Course.

210 B	Linotype and Intertype					
	Operating—I.	Tu., Wed., Th.	7.30-9.30	A 2	J. F. Kearns	5
	Lecture and Demonstration—I.	Fri.	7.30-9.30	A 2	J. F. Kearns	8

SECOND YEAR [Second Term—Dec.—Feb].

Intensive Course.

211 B	Linotype and Intertype					
	Operating—II.	Tu. W., Thu.	7.30-9.30	A 2	J. F. Kearns	6
	Lecture and Demonstration—II.	Fri.	7.30-9.30	A 2	J. F. Kearns	8

THIRD YEAR [First Term—Sept. to Dec.].

Intensive Practical Course—III.

212 B	Lecture and Demonstration—III.	Tu., Wed., Th.	7.30-9.30	A 2	J. F. Kearns	7
		Fri.	7.30-9.30	A 2	J. F. Kearns	8

MONOTYPE OPERATORS' COURSE.

FIRST YEAR.

215 B	Monotype, Keyboard Operating—I.	Thurs., Fri.	7.30-9.30	A 2	J. Sullivan.	9
	Monotype, Keyboard Mechanism—I.	Mon., Tues.	7.30-9.30	A 2	J. Sullivan.	12

E, F or G (see Syllabus)

SECOND YEAR.

216 B	Monotype, Keyboard Operating—II.	Thurs., Fri.	7.30-9.30	A 2	J. Sullivan.	10
	Monotype, Keyboard Mechanism—II.	Mon., Tues.	7.30-9.30	A 2	J. Sullivan.	12

E, F or G (see Syllabus).

THIRD YEAR.

217 B	Monotype, Keyboard Operating—III.	Thurs., Fri.	7.30-9.30	A 2	J. Sullivan.	11
	Monotype, Keyboard Mechanism—III.	Mon., Tues.	7.30-9.30	A 2	J. Sullivan.	12

E, F or G (see Syllabus).

Students may add a Class in Monotype Casting.

No. of Course	SUBJECT	Day	Hour	Room	TEACHER	Syllabus No.
MONOTYPE CASTERS' COURSE.						
218 B	Practical Operating	Mon., Tues.	7.30-9.30	A 2	P. McManus.	13
	Caster Mechanism	Fri. ..	7.30-9.30	A 2	P. McManus.	14
	E, F or G (see Syllabus).					
LETTERPRESS MACHINE WORK.						
THIRD YEAR.						
223 B	Machine Work, Lecture—III. ..	Fri. ..	7.30-9.30	A 3	C. J. Timmins	15
	Machine Work, Practical—III. ..	Mon., Thurs.	7.30-9.30	A 3	C. J. Timmins	16
	E, F, or G (see Syllabus) ..					
FOURTH YEAR						
224 B	Machine Work, Lecture—IV. ..	Fri. ..	7.30-9.30	A 3	C. J. Timmins	17
	Machine Work, Practical—IV. ..	Mon., Thurs.	7.30-9.30	A 3	C. J. Timmins	18
	E, F or G (see Syllabus).					
BOOKBINDING.						
225 B	Stationery Binding and Marbling	Mon. & Fri.	7.30-9.30	A 9	R. Wilson	19
	Letterpress Binding and Gilding	Mon. & Fri.	7.30-9.30	A 9	C. Chamberlaine.	20
	General Warehouse Work					
	Men	Tues. ..	7.30-9.30	A 9	C. Chamberlaine.	21
	Women	Thurs. ..	7.30-9.30	A 9	C. Chamberlaine.	22
	Drawing	Wed. ..	7.30-9.30	B 24	W. J. Keiran.	22
PHOTOGRAPHY.						
FIRST YEAR.						
227 B	Pure Photography—I.	Tues. ..	7.30-9.30	A 11	—	23
	Photographic Chemistry	Thurs. ..	7.30-9.30	Kevin St.	F. Nolan,	25
SECOND YEAR.						
228 B	Pure Photography—II .. ..	.. ..	7.30-9.30	A 11	—	24
PROCESS PHOTOGRAPHY AND ETCHING.						
230 B	Line and Half-tone Block Making	Mon. ..	7.30-9.30	—	—	26
231 B	Three-colour Process Work ..	Fri. ..	7.30-9.30	—	—	27
LITHOGRAPHY AND PHOTO-LITHO.						
332 B	Litho Theory and Practice ..	Mon. & Thurs.	7.30-9.30	—	—	28
	Drawing for Lithographers ..	Wed. ..	7.30-9.30	B 24	W. J. Keiran.	33
B	Photo Lithography	Mon. ..	7.30-9.30	—	—	29
SPECIAL COURSES.						
E	Office Work, Junior Clerks, etc.	Tues. ..	7.30-9.30	A 12	J. Rooney.	30
	Costing and Estimating	Mon. ..	7.30-9.30	A 12	J. Rooney.	31
F	Book Crafts	Wed. ..	7.30-9.30	A 1	Colm O Lochlainn.	36
G	Drawing for Lithographers and Bookbinders	Wed. ..	7.30-9.30	B 24	W. J. Keiran.	32,33
	Advertising and Printing					
	Design	Fri. ..	7.30-9.30	A 1	W. J. Keiran	34
	Lettering and Scribe Work ..	Fri. ..	7.30-9.30	A 1	W. J. Keiran	35
H	Irish	Thurs. ..	7.30-9.30	C2	P. O'Riain	37

SYLLABUSES

SUBJECTS

1—COMPOSITORS' WORK, LECTURE III.

Review of the work of the First and Second Years. Type casting, type metal alloys, essential qualities of good type, selection for various classes of work. Weight of type and spacing material required for specified work. Arrangement of case room. Mechanical composition, instructions necessary when giving out work, designing and laying out copy. Paper; equivalent weights of standard and odd sizes, various qualities. Printings; writing, coated, banks, etc., water-marks. Metals; results of overheating; fluxing and renovating.

2—COMPOSITORS' WORK, PRACTICAL, III.

Advanced composition, display and colour work, book work, intricate tabular work. Arrangement of panels to suit style of display and shape of page. Making up and preparation for machine.

3—COMPOSITORS' WORK, LECTURE IV.

Problems connected with the management of the case room, the issuing of work, keeping track, estimating and cost finding. Advanced typographical problems, with lectures on trades allied to letterpress printing, paper making, testing, etc.

4—COMPOSITORS' WORK, PRACTICAL, IV.

Advanced work on Syllabus of previous years.

5—LINOTYPE AND INTERTYPE OPERATING, I.

Practical work in keyboard operation. Instruction in fingering, touch and other practical points under the direct supervision of the instructor.

6—LINOTYPE AND INTERTYPE OPERATING, II.

Practical work of a more advanced nature, including simple table work, with special attention to style and correctness. Instruction on the mechanism during operation.

7—LINOTYPE AND INTERTYPE OPERATING, III.

Advanced work on Syllabuses of former Years such as twin-slug composition, tabular and advertisement work, introducing a two-line letter, headline work, etc. Instruction on the mechanism whilst in operation.

8—LINOTYPE AND INTERTYPE MECHANISM.

Keyboard: Construction and operation, action of cams and rods. *Matrix*: care of and alignment. *Spaceband*: line justification, importance of cleanliness. *Assembler*: star wheel, guides, chute, brake, adjustments. *Line Delivery Carriage*: components, control adjustments. *Magazine*: single, multiple, split, auxiliary, entrance, escape-ments, changes. *Distributor*: distributor bar and box, controls, single and multiple mechanisms, adjustments. *Mould*: varieties and care of, making changes. *Metal Pot*: component parts and their functions. *Knives*: varieties and care of, adjustments. *Vice*: jaw and lock, adjustments. *Elevators*: first and second, adjustment. *Cams*: names, functions and adjustments. *Driving Mechanism*: Clutch and associated mechanism, adjustments. Care of general machine, oiling, cleaning, etc. Automatic stops.

9—MONOTYPE KEYBOARD OPERATING, I.

Operating the keyboard and method of correct fingering, the general principles governing practical work.

10—MONOTYPE KEYBOARD OPERATING, II.

More advanced practical work, including tabular work and the calculations connected therewith.

11—MONOTYPE KEYBOARD OPERATING, III.

Instruction in advanced and difficult composition; speed tests, etc.

12—MONOTYPE KEYBOARD MECHANISM.

Action of key buttons and valves, operation of punches and recording units, driving of unit wheel and recording of units, justifying scale and M scale pointer. Recording mechanism, paper feed and take-up and release mechanism, automatic cut-out, operation of bell trip and line counter, reversing valve and switch. Mechanism for adjusting length of line, justifying and reversing keys. Air compressor and filter. Mechanism for automatically moving sticking valves, method of placing keybanks and keybar frames in position.

13—MONOTYPE CASTER OPERATING.

Practical operation of caster, including care necessary while working. Explanation of running adjustments.

14—MONOTYPE CASTER MECHANISM.

Driving gear, cam levers, type carrier and adjustments, pump action, transfer wedges and adjustments. Die centreing lever, tong mechanism, locking racks, mould blade moving gear, type pusher, paper tower bridge and its adjustments. Line shifting and galley mechanism. Changing founts, centreing, sizing and aligning, justification. Care of matrices, system of locating derangements. The mould, care and upkeep, disassembly and re-assembly, adjustment. Compressor and air tank. Lead and rule and display type attachment.

15—MACHINE WORK, LECTURE, III.

Review of the work of the First and Second Years. Various classes of printing machines, construction and principles of make-ready. Average runs per hour, power and transmission, shafting, lubrication. Paper; cockling and creasing, stretching, fluffing, etc. Boards; paste, pulp, art, strawboards and millboards. Inks: various qualities and colours, copyable, double tone, trichromatic, etc. Outline of method of reproduction of illustrations. Machine room costs, method of ascertaining and checking. Costs of production, percentages for handling, time and work sheets, general supervision.

16—MACHINE WORK, PRACTICAL, III.

Practice in every class of work of a higher grade from laying-out of forme to completion of printed sheets. Use and adjustment of automatic feeders for Platen and Cylinder machines.

17—MACHINE WORK, LECTURE, IV.

Advanced work, dealing mainly with the principles of costing, estimating, paper testing. Lectures on trades allied to letterpress printing.

18—MACHINE WORK, PRACTICAL, IV.

The operation of two-revolution and automatic machines, make-ready of three- and four-colour work. Vignetted blocks. Colour mixing, etc.

19—STATIONERY BINDING AND MARBLING.

Description of tools; technical terms, materials and appliances used in stationery work. Weights, sizes, and wire gauges of millboards and strawboards; joint and end papers. Styles of sewing; flush and turned-in binding. Cloths and fabrics. Account books, skeleton guard books, portfolios. Loose-leaf ledger binding; vowel and proportionate indices; tight and open back. Lettering and finishing account books. Lettering pieces, loose covers.

Marbling.—Preparation and use of marbling trough. Colours, combs, rake, brushes, etc. Various designs and patterns in general use. Edge and sheet marbling.

20—LETTERPRESS BINDING AND GILDING.

Sewing for various styles. Rounding, backing, boarding, lacing in; forwarding and cloth case-making. Cut sizes; book cutting, book-edge gilding. Binding fancy leather work; banded work. Library binding, repair work, vamping, etc. Function and utility of the finisher's work. Character of various leathers and preparatory treatment for tooling them. Treatment of cloth, silk, etc., for tooling.

Gold leaf as a medium for book decoration, its character and use, substitutes and imitations.

Various tools used for book finishing, methods for handling them. Degree of moisture in materials, in conjunction with heat required for tooling. Cleaning of the gold. The tooling of leather without gold. Planning and spacing for hand lettering on back and sides of book. Method of using type on the backs. Use of fillets, rolls, pyllets, gouges and other tools. Various methods of inlaying. Practical application and principles of design, planning and building up of ornament, and limitations imposed by technicalities.

21—GENERAL WAREHOUSE AND STATIONERY WORK —MEN.

Technical terms; section, endorse and simple sheet folding. Paper sizes and sub-divisions. Styles of sewing, wire stitching, numbering, hand sewing, thread stitching. Feeding ruling machines; gathering, interleaving, manifold work, perforating.

Making up account and letterpress work; standard sizes of paper; qualities and weights. Plating; imperfections in print; guard book work, holing and eyeletting, gumming, folding impositions, guarding plates, making up duplicate and triplicate work. Other miscellaneous details of work, calendar and show card work, etc.

Setting and use of folding and sewing machines; method of obtaining the correct setting for folding to print. Mechanism of numbering, sewing, thread and wire-stitching machines, methods of adjustments. French tape, string and sewing through mull by machine; magazine and catalogue work. Paper-slitting by hand, folioing, paging, box register, and sheet-numbering. Taping before and after sewing. Flat and saddle thread and wire stitching machines; gold laying on. Departmental management, elementary costing and estimating

22—GENERAL WAREHOUSE AND STATIONERY WORK —WOMEN.

Handling and care of paper; counting and tying up reams, holing, eyeletting and stringing. Paper sizes; section and sheet folding by hand, wirestitching. Perforating; paper terminology, water marks, sizes of cards. Browns and wrappings; gathering and collating, packing and labelling, stringing of calendars, mottoes, etc.

Keeping stock, classes of papers and equivalent weights, judging and testing. Imperfections in print and how they affect the folder. Giving paper out to the printer, ruler and binder. Percentage of overs to allow. Weights of paper suitable for book production. Position of the print for machine folding; cut sizes for bookwork. General knowledge of various warehouse machines. Magazine and catalogue work.

Construction of and setting wire-stitching machine. Impositions; setting and adjusting folding, thread-sewing, eyeletting, round-cornering, holing and perforating machines. Board cutting, board bevelling and miscellaneous practice.

23—PURE PHOTOGRAPHY, I.

The use of cameras. Exposure and development of dry plates and films, after treatment of negatives, intensification, reduction, retouching, varnishing. Printing process, print-out and development

papers, bromide and gaslight. Toning, trimming, mounting, spotting and finishing prints. Optical calculations, orthochromatic photography and printing in carbon. Copying and enlarging.

The practical work will include the application of the theory.

24—PURE PHOTOGRAPHY, II.

Advanced and detailed instruction in subjects of Syllabus of First Year, including the theory of light as applied to photography, orthochromatic and panchromatic photography, the use of colour filters, the chemistry and process of manufacture of dry plate emulsions, platinotype printing, colour photography, autochrome, Paget, etc., the wet collodion process, scientific and technical uses of photography, photo-micrography, photography by flash-light, etc.

Practical work of an advanced nature, including retouching.

25—PHOTOGRAPHIC CHEMISTRY.

Instruction in chemistry and its general principles necessary for an understanding of the processes used in Photography, Photo-Process Work, Lithography, etc. *General Chemistry*: Physical and chemical changes, mixtures and compounds, elements, the atomic theory. The atmosphere, oxygen and nitrogen. The common acids. Alkalies: lime, caustic soda, sodium carbonate, ammonia. Salts; water of crystallisation. Water, natural waters. Sulphur; oxides, sulphites, sulphates, thiosulphates. The halogens. Oxidation and reduction; typical examples with reference to photographic operations. Metallic salts: silver, gold, copper, iron, uranium. *Applied Chemistry*: Photo-chemistry of certain metallic salts, silver salts. Theories concerning latent image, sensitisers, history of photographic processes, collodion and gelatine emulsions, ripening, dry plates. Theory of developers and retainers, acid and alkaline developments, fixing agents, intensification and weakening of silver image. Printing, toning processes, platinotype. Chemistry of photo-mechanical and lithographic processes.

26—LINE AND HALF-TONE BLOCK MAKING.

Line Block Making; Types of suitable originals. Effects of Chinese and process whites. Lamps employed for illuminating the original. The process camera, methods of making line negatives on dry plate, paper or wet collodion. Wet collodion process in detail,

various methods of reduction, exposure and intensification, the use of masks for duplicate exposures, stipping of negatives. Metal printing by the albumen method, tint laying, reversing. *Line Etching*; Line etching by rolling up and dragon's blood methods. Routing and mounting. Pulling the proof. *Half-tone Block Making*; the half-tone screen, properties. Translation of continuous tone to dots of varying sizes. Effect of flashing on graduation. Lenses and prisms, their optical properties. Methods of finding and controlling screen distances, lens aperture and exposure. The making of screen negatives by dry and wet plate processes. Metal printing by "fish glue" and "cold top" methods. Half-tone etching of zinc and copper plates. Fine etching, relations of tones of original and reproductions without fine etching. Deep etching for newspaper work. Combination line and tone work.

27—THREE-COLOUR PROCESS WORK.

Method of reproduction in three and four printings by the direct half-tone process. Character of light of electric lamps. Half-tone screens for three-colour work, orientations of their rulings. Lenses, colour filters, construction and optical properties. Making the negatives. Metal prints and colour etching. Relation of light photographed to light reflected by inks. Relation of actual inks to light reflected by inks, fastness of inks. Screen plate processes such as Autochrome and Paget, colours used in these as primaries. Application of three-colour method to other photo-engraving processes.

28—LITHOGRAPHY, THEORY AND PRACTICE.

Litho stone, composition, physical nature, preparation, grinding, polishing and graining. Plates: re-cleaning, re-grinding, nature and use of materials employed. Hand litho press: construction and use. Copper plate press rollers: structure, covering and breaking in. Transferring: essential principles, commercial work for hand press and machine. Transfer inks and papers: composition. Doctoring work, bronzing, transposing. Zincography, alterations and corrections. Papers, various types and qualities. Cards, plain and glazed. Inks: source, nature of coloured pigments, mixing of tints. Creasing of paper and remedies. Machines: construction and management; hand presses. Rollers: breaking in "nap" and "glazed,"

re-packing, re-covering. Transfer papers, inks and crayons, patching up. Treatment of drawings on grained stones, etching and proving. Chromo-lithography; superimposing colours, registering, etc. Shading mediums, stippling film, splash work, aerography. Metal-leaf work, photo-lithography by various transfer methods; transpositions and reverse image methods.

Primary colours, combinations, colour harmony. Off-set work on flat-bed and rotary machines. Rubber blankets, composition and treatment in working. Transferring, transposing and reversing. Rotary off-set machine, fixing the plate, adjustment of inking rollers, damping cylinder and plate adjustment, working mechanism of machine, fine register work. Paper: tests for printing properties and suitability for various classes of work. Estimating.

29—PHOTO-LITHOGRAPHY.

Line and high-light screen, negative making by wet and dry plates, direct and indirect methods, use of "irregular grain" screens. Step and repeat work. Preparation of negatives for printing down, varnishing, lining up, use of air brush, use of shading "mediums" on screen negatives. Zinc and aluminium plates, outline of manufacture, recognition of defects. Gauge of plates, reason for graining, use of different graining materials. Grain required for different classes of work. Storage of plates. Use of "passing bath." Coating and printing down. Relation between lamp distance and light distribution, effects on exposure. Duplicating on plate and securing register, different types of printing frame. Developing, additions, alterations. Use of shading mediums. Rolling up, use and action of litho etches, gum, etc., additions after rolling up. Vandyke, "offset deep" and other positive reversal processes.

30—OFFICE WORK—JUNIOR CLERKS AND WAREHOUSEMEN.

Type: Hand and mechanical composition; size, face and weight of type; "casting up" and "casting off," display work and proof correcting. *Machining*: What the operation involves; types of machines; average output, estimating information for different classes of work. *Illustrations*: Different methods of reproducing photographs, wash-drawings, pen and ink sketches and coloured originals

to print upon different grades of paper; reduction and enlargement. *Ink*: Selection, varieties; double-tone, copyable, dryers. Gold, silver, aluminium and bronze printing. *Colour Printing*: Principles and possibilities; how to take an order for three-colour work and put it through the departments. *Paper*: Size, weight, numerous qualities, characteristics, defects, special uses, etc. Storekeeping and stock-taking. *Binding*: How to order account books; trade terms; ledger papers. Ruling, marbling, letterpress binding, including leathers. *Lithography*: Commercial offset and chromo-lithography. *Warehouse Work*: Approximate times for operations and what they entail; dispatch. Invoicing and checking. Journalising and posting.

31—OFFICE WORK—COSTING AND ESTIMATING.

Definition of cost: fallacy of using "flat" percentage on wages, or on wages and materials combined; objects of correct costing; essentials of a proper costing system; value of adoption of uniform methods of costing by the printing industry. Main principles of Federation Costing System. Capital: its various forms and their bearing on cost; inventories of plant value and their relationship to "working" value; depreciation; importance of keeping a plant record.

Preparation of statement of expenses; necessity for and value of departmentalisation of expenses; sub-divisions of departments; allocation of expenses, method to be applied; multiple businesses; how treated, method of recovering indirect (overhead) expenses, effect of the percentage method on "direct departmental cost." Handling charges on material and outwork; how found and applied, records of stock and of amounts charged to orders. Why time expended, and not wages paid, is used as basis of cost recovery; the meaning of the terms "chargeable" and "non-chargeable." Hourly cost rates; how found and applied, reasons for using inclusive hourly rates, why some operations (*e.g., reading*) are recovered indirectly.

Explanations of standard printed forms and their place in the Federation Costing System; the importance of correct time-recording and necessity for care by cost clerks in transference of time to costing forms. Individual cost sheet; responsibility of cost clerk for details of labour, materials, etc., and the question of economic cost. Descriptions of essential books of account; analysis of expenses, analysis of

sales. Uses to which management may apply information provided by statistics on Forms 3 and 4, and the cost sheet: use of graphs. Relationship between costing and estimating; the necessity for comparison by departments as well as by total of estimated cost with actual cost. Office and factory organisation and terms in use.

32—DRAWING FOR BOOKBINDERS.

Freehand drawing, use of instruments. Geometrical patterns and designs to fill given spaces; circle, square, triangle, border, spandrel, lunette, panel. Repeating patterns composed of straight lines, geometric, interlacing, scroll work and floral ornament. Designs in the Celtic style. Simple arrangements of tools for backs and sides of full- and half-bound books.

33—DRAWING FOR LITHOGRAPHERS AND COMPOSITORS.

Training hand and eye to measure proportion and space without mechanical means. Symmetry, proportion, simple designs. Freehand, model and memory drawing. Lettering and spacing. Layout of cards, tickets, labels, handbills, single and double column advertisements, title pages and book covers.

34—ADVERTISING AND PRINTING DESIGN.

Explanation of reproduction methods. Colour and its uses, harmony and contrast. Key drawings for colour work. Retouching photos. Making of composites. Commercial and stationery headings, envelopes, labels, post cards, etc. Value of standard design. Trade marks and devices.

Drawing for bookwork, illustrations in line and colour, chapter heads, initials, running heads, head and tail pieces. Brasses and zincos for cover blocking or printing. Book jackets and show cards. Cut-outs for display. Advertising; its importance in the promotion of trade and industry. Various kinds of advertising; their application and value. Copy writing, selling points, head line, catch line, slogans.

Design and lay-out, type characteristics, paper characteristics. Suiting type to class of goods and method of printing. Complete campaigns or advertisements in series. Co-operation of printer and advertising man.

35—LETTERING AND SCRIBE WORK.

Alphabets; their origin; Roman, Gothic, Gaelic and Italic script. Proportion and balance in alphabet design; weight and colour of lettering, design of hand-lettered pages. Use of initials, outline letters and special shapes. Ornament and its relation to lettering. Lettering as the basis of typographical design.

The scribe, ancient and modern, his materials, use of quill, reed and modern steel pens. Ink and colour, harmony and contrast. Papers, vellum and other fabrics. Advertising alphabets. Handwriting in advertisements, show cards, window bills, posters, etc.

36—BOOKCRAFTS.

A one year's Course for Second Year Apprentices and others.

Introductory, the craft of Printing. Evolution of the Roman alphabet. The scribes and their work. The dawn of printing. The Plantin Museum. Three centuries of progress and one of decay. Introduction of printing to Ireland, the Gaelic language in type. Modern typography, bookwork and display. The technique of printing, handwork and machine.

Methods of ornament and illustration, wood-cuts, lino-cuts, line blocks and stereotypes. Intaglio printing from copperplate, pewter, steel, etc. Photographic methods of preparing printing surfaces in line and half-tone. Three-colour process and its development. Lithography, its principles, offset and photo-litho. Photogravure and collogtype. Workshop demonstrations, line and half-tone processes, three-colour processes. Paper making by hand and machine.

Handling the printed sheets. Bookbinding technique, forwarding and finishing. Ancient methods, Ireland's wonder books. Styles of binding for various classes of work, pamphlet, quarter cloth, full cloth, publishers' casing. Leather bindings, quarter, half and full. Vellum work. Binding for library use, flexible bindings. The perfect book and its component parts.

37—IRISH.

Conversation lessons on familiar everyday subjects, objects in the classroom and neighbourhood, the giving and carrying out of directions, etc. Study of *is*, *tá* and simple verb forms. Irish salutations, phrases and idioms. Repetition of simple rhymes, stories and songs as an aid to memorising and pronunciation.

DAY APPRENTICE SCHOOL OF PRINTING.

In co-operation with the Dublin Master Printers' Association and the Dublin Typographical Provident Society, the Vocational Education Committee have arranged for the technical instruction of all First and Second Year Apprentices in Compositors' Work and in Letterpress Printing to be carried out in Daytime Classes.

The classes, dealing with the theory and practice of the respective subjects occupy some twenty-five hours each week. On completion of the Day Course, Apprentices continue their instruction in the Third and Fourth Year Evening Classes.

GENERAL CURRICULUM OF THE SCHOOLS

UNDER THE CONTROL OF

THE CITY OF DUBLIN VOCATIONAL EDUCATION COMMITTEE.

BOLTON STREET TECHNICAL SCHOOL

Mechanical Engineering.	Building Science.
Motor Car Engineering.	Building and Allied Trades.
Gas Engineering.	Printing and Book Production.
Metal Plate Work.	Watchmaking.
Brass Finishing.	Art and Art Crafts.
Day Apprentice and specialised Daytime Technical Courses.	
Day Junior Technical School.	

KEVIN STREET TECHNICAL INSTITUTE

Pure and Applied Mathematics.	Radio-Telegraphy.
Pure and Applied Physics.	Art and Art Crafts.
Pure and Applied Chemistry.	Domestic Science and Housecraft.
Bacteriology.	Bakery Science and Practice.
Pharmacy.	Bootmaking.
Electrical Engineering and Allied Trades.	Hairdressing.
	Tailoring.

PARNELL SQUARE TECHNICAL INSTITUTE

General Commercial Subjects.	Transport.
Accountancy and Allied Subjects.	Day Trade Classes:—
Local Government.	Dressmaking.
Domestic Science and Housecraft.	Shirtmaking (Power).
Languages.	Clothing Manufacture (Power).
Retail Distribution.	Chef's Training Course.
Physical Training.	

Day School of Commerce.
Day Trades Preparatory Course (Girls).

GENERAL CURRICULUM OF THE SCHOOLS

UNDER THE CONTROL OF

THE CITY OF DUBLIN VOCATIONAL EDUCATION COMMITTEE.

PEMBROKE TECHNICAL INSTITUTE (Ringsend and Ballsbridge)

General Commercial Subjects. Mechanical Engineering.
Retail Distribution. Motor Car Engineering.
Languages. Oxy-Acetylene Welding.
Domestic Science and Housecraft. Building Trades.
Art and Art Crafts.

Day School of Commerce.
Day Junior Technical School.

RATHMINES TECHNICAL INSTITUTE

General Commercial Subjects. Banking, Finance and Foreign Ex-
Accountancy, Auditing and Allied change.
Subjects. Company Secretaries.
Insurance. Government Accountancy and
Advertising and Publicity. Finance.
Physical Training. Languages.

Domestic Science and Housecraft.
Day School of Commerce.
Day Trades Preparatory Course (Girls).

MARINO TECHNICAL INSTITUTE

General Commercial Subjects. Metalwork.
Languages. Science.
Domestic Science and Housecraft. Woodwork.
Physical Training.

Day Junior Technical School.
Day School of Commerce.
Day Trades Preparatory Course (Girls).

CHATHAM ROW SCHOOL OF MUSIC (Day and Evening Classes)

Pianoforte. Wind Instruments (Wood & Brass)
Violoncello. Fifes.
Uilleann and Irish War Pipes. Viola.
Elocution. Orchestra.
Violin. Drums and Flute.
Singing and Choir. Traditional Music.
Organ. Irish Harp.

Offices—

TECHNICAL INSTITUTE,
BOLTON STREET,
DUBLIN.

L. E. O'CARROLL, B.A., B.L.,
Chief Executive Officer.