1927

Architecture, Building and Furniture Trades: Time Table and Prospectus of Courses 1927-28

City of Dublin Vocational Education Committee

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1927-28.

Clár na 3cúrsaí.

Sráid Boltún.

Architecture, Building, and Furniture Trades.

Time Table and Prospectus of Courses.

Bolton Street.
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## SCHOOL OF ARCHITECTURE, BUILDING, AND FURNITURE TRADES

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CITY OF DUBLIN MUNICIPAL TECHNICAL SCHOOLS

LOUIS ELY O'CARROLL, B.A., B.L.,
Principal Executive Officer.

EDWARD MORTON, A.R.C.S.C.I., A.I.C.,
Head Teacher of the School of
Physics, Electrical Engineering and
Chemistry.

JOHN C. MACGUIGAN, B. COMM,
(N.U.I.); Headmaster of the Parnell
Square Technical Institute, and Head
of the School of Commerce.

WILLIAM DAVIDSON, F.R.I.C.C.,
Head Teacher of the School of
Architecture, Building and
Furnishing Trades.

WILLIAM H. JOHNSON,
Acting Head Teacher of the School
of Book Production and Printing
Trades.

W. L. WHELAN, Headmaster of Art and Crafts.

ERNEST E. JOYNT, M.I.M.B.,
Head Teacher of the School of
Mechanical and Motor Car
Engineering.

MISS KATHLEEN O'SULLIVAN,
Head Teacher of the School of
Domestic Science.

COUNCIL OF STUDIES.

The Council of Studies will consist of the Principal Executive Officer
and the Heads of the several departments. For examinations, representatives
of the part-time Teaching Staff, Employers' Associations and Trade Unions
will be included.

All enquiries or communications should be addressed to the Principal
Executive Officer.

OFFICES: TECHNICAL INSTITUTE, BOLTON STREET.
PREFACE.

The City of Dublin Municipal Technical Schools were founded in October, 1887, as an outcome of the Artizans' Exhibition held in the City in 1885. The Schools were originally housed in an historic but unpretentious building in Kevin Street. From the foundation, and practically without interruption, the record of progress and expansion has been continuous, and now the Schools occupy three large Technical Institutes at Bolton Street, Kevin Street and Parnell Square, and several classes are accommodated in other buildings throughout the City, affording in all accommodation for upwards of 5,000 students.

CURRICULUM.

The present curriculum of the Schools provides complete Courses of Instruction in

- Mechanical Engineering and Allied Trades.
- Motor Car Engineering.
- Locomotive Engineering.
- Naval Architecture.
- Electrical Engineering and Allied Trades.
- Radio Communication.
- Architecture, Building Trades and Furniture Trades.
- Book Production and Printing Trades.
- Applied Chemistry.
- Botany, Materia Medica and Pharmacy.
- Art and Art Crafts.
- Music.
- Commerce.
- Domestic Science,
- and numerous Miscellaneous Trades.

EVENING COURSES.

Evening Courses are provided in all the subjects above outlined, and enable those engaged in the day-time to acquire an intimate knowledge of the principles that underlie the processes carried out in their daily work.

DAY COURSES.

Day Courses and Classes are arranged in most of the Departments of the Schools. The Day Apprentice School provides whole-time two years' Courses in selected trades for boys who have just left school. The Day Trade Dressmaking Course provides similar training for girls, and the Day School of Commerce a whole-time training to boys and girls.
Special Day Courses are provided for those actually engaged in trades—arrangements being made with employers whereby their apprentices can attend the Schools during part of several days each week. At present it has only been possible to arrange such Courses in a few cases—notably Painters and Decorators, Drapery and the Printing Trades—but it is hoped, with the co-operation of the employers, to gradually extend this system to all Trades.

ARRANGEMENT OF COURSES.

The Courses in all Departments, both Evening and Day, are arranged progressively to cover from two to five Sessions, according to the nature of the subject. The Courses in general include two or more subjects bearing on the main subject, and the instruction is given in such a manner as to illustrate the application of the principles of Science and Art to the daily work of the students.

ADVANCED WORK.

The Laboratories and Workshops of the Schools are very completely equipped with the best and latest apparatus and machinery, and senior students are given every facility for advanced or research work.

NEW CLASSES.

If it can be shown that there is a demand for a new class, the teacher and any necessary equipment will be provided.

LECTURES.

Special lectures of a popular nature will be given during the Session.

ENTRANCE EXAMINATIONS.

In the present year Entrance Examinations will be held at the Bolton Street, Kevin Street, and Parnell Square Technical Institutes every evening during the week commencing 26th September, and on as many evenings afterwards as may be necessary. All new Students are advised to attend at 7.0 p.m. Those who can produce the Junior or any Higher Grade Certificate of the Intermediate Education Board, or the Higher Grade Certificate of the National Board, or some equivalent Certificate, need not sit for the Entrance Examination, and should make application for admission early in the Session.

The Entrance Examination consists of easy papers in English, Arithmetic, and Elementary Drawing, and First and Second Class Passes will be awarded. Those who pass in the First Class are eligible to take any Specialised Course. These Examinations are not obligatory for trades’ students.

SPECIALISED COURSES.

The Official Specialised Technical Courses are open to all Students who pass the Entrance Examination in the First Class, or are otherwise qualified. Each one is to take up, under advice or approval, the particular Course which most nearly meets his requirements, and to adhere to this definite programme without any subsequent variation. If he ceases to attend any component subject of this Course he is liable to forfeit his entire Ticket.

No Student may attend for more than two Sessions in any one stage of the same subject.

Teachers, Pupil Teachers, and Monitors may enter for Special Courses that suit their needs, apart from the Official Courses. Such a Course will be regarded as an Official Technical Course.

The same privileges will apply to Students whose needs are not met by the Official Courses. In their case the Course Subjects must be arranged and sanctioned by the Head Teacher.

The stage of any subsidiary subject may be changed to fit the Student’s particular grade of knowledge, the special evening allotted to Laboratory or other work may be altered, and a Student may be drafted from one class to an equivalent one. Any such changes must be sanctioned by the Head Teacher.

PREPARATORY COURSES.

Those who pass the Entrance Examination in the Second Class, or who have spent one year in the Sixth Standard of a National or Secondary School, may enter one of the ‘Introductory’ Courses. Those who pass in the Third Class, or have not passed the Sixth Standard, are only at liberty to join one of the ‘Preliminary’ Courses.

The Introductory Course Classes are of such a nature as to fit students to take up a Specialised Course of Technical Instruction in the following School Session. The subjects of instruction are:

(a) English.
(b) Elementary Mathematics and Arithmetic.
(c) Drawing or Elementary Science or Elementary Domestic Economy.

The Preliminary Courses are similar to the Introductory, but of a more elementary character.

Any Trade Student who is taking an Introductory Course may attend the First Year Practical Class in his particular trade.

A class in Irish may be added to the Introductory or Preliminary Courses, if desired, without extra fee.
FEES.

The fee for a full Course or for a single class is usually 7s. 6d.

Special fees are Wireless Telegraphy, £3 for Day Course; £2 for Evening Course; Day Commercial Course, 30s.; Practical Chemistry Course, 16s.; Pharmaceutical Chemistry, 30s.; Materia Medica, 7s. 6d.; Botany, 7s. 6d.; Practical Pharmacy, 7s. 6d.; Motor Car Driving, 30s.

Holders of the Higher Grade Certificate will be admitted free on production of the Certificate.

If a student wishes to take up a class in addition to those of the Course, an extra fee must be paid except in the case of Irish.

All fees are payable in advance and cover the full Session or Term. Fees are not returnable.

GENERAL NOTICES.

The general enrolment of Students commences on Monday, 26th September, 1927.

Applicants for admission to Courses or Classes must be at least fourteen years of age.

Pupils actually in attendance at a Day National School or Day Secondary School are not eligible for admission to Evening Courses or Classes.

Teachers may be consulted on their class nights as shown in the Time Tables.

If any Student is absent from three consecutive meetings of any Class, unless for valid cause shown before the third meeting, his Ticket for the Class, or for the whole Course of which it is a part, is liable to be cancelled without further warning.

The Trade classes are intended for those engaged in the several trades. Others will not be admitted before November 7th, and then only if there be room, and on payment of a quadruple fee.

A laboratory or workshop class can only be taken in conjunction with an approved lecture or drawing class. No Student will be admitted to remain in a laboratory or workshop class if his attendance at the lecture or drawing class proves unsatisfactory.

A class may be discontinued in the event of an insufficient number of Students joining or attending; and the number of evenings allotted weekly to any class may be reduced if there be a falling off in the attendance of Students. The right is reserved to close classes for any other reason whatever.

Students are to make good any damage done by them.

Strict order must be observed at all times within the precincts of the Schools.

DAY APPRENTICE SCHOOL.

The Scheme for a Day Apprentice School was adopted by the Conference on the Industrial Training of Apprentices, by the Technical Education Committee, by the Department of Agriculture and Technical Instruction, and by the Corporation of Dublin.

The object of the Scheme is to link technical education closely with industry by giving a specialised training from the outset of a boy's industrial career.

Apprenticeship Scholarships—approximately one hundred—may be awarded annually, on the results of examinations, to boys of not less than fourteen, and not more than sixteen years of age. The Scholarships entitle the holders to a free training for two years in the Apprentice School, together with a payment of £15 12s. for the first year, and £20 16s. for the second year; books and instruments will be supplied.

The Scholarships and Free Places are strictly confined to boys whose parents or guardians are resident in rate-paying houses within the boundaries either of the City of Dublin or the Urban Districts of Rathmines and Rathgar.

The course of instruction is altogether in the daytime; it covers 30 hours weekly for 46 weeks in each year; approximately one-third of the time in the first year and two-thirds in the second year are devoted to a thoroughly practical and theoretical training in the trade for which the boy is preparing.

Pupils are allowed to select as far as possible the trades they desire to follow, and on the conclusion of the two years' course the Employers' and Trades' Associations will allocate the boys to existing vacancies for apprentices.

An attendance of not less than eight hours weekly at the Technical School will be required during the terms of apprenticeship (i.e., after the boy has left the Apprentice School).

The courses at present in operation are:—(1) Plumbers; (2) Carpenters; (3) Printers; (4) Mechanical Engineering; (5) Electrical Engineering; (6) Sheet Metal Plate Work; (7) Cabinetmaking; and (8) Painting and Decorating. The date and full particulars of Entrance Examinations will be duly announced in the Schools and in the Dublin Press from time to time.

Shorter Courses varying slightly from the above terms are conducted for the Catering Industry (training of Chefs, Waiters, and Waitresses).
SCHOLARSHIPS.

UNIVERSITY SCHOLARSHIPS.

The Corporation of Dublin provide Sixteen Scholarships, and reserve four of these "for Students who have attended the City of Dublin Technical Schools," each of the annual value of £60, tenable for three years. Candidates must have attended the City of Dublin Technical Schools during at least one Session as a condition of eligibility for admission to the Scholarship Examination, and such candidates must have been in (bona fide) regular daily employment.

THE FOY SCHOLARSHIP.

A former student of the City of Dublin Municipal Technical Schools, Mr. W. P. Armstrong, has established a Scholarship in Chemistry, to be called the "Foy Scholarship." The annual value of the Scholarship is about £20, being the proceeds of an investment of £500 in Dublin Corporation Stock.

The Scholarship is awarded each session on the result of an examination in Chemistry, usually held in May. All students who have attended regularly during two sessions in the Chemistry Department are eligible to compete, and the student to whom the Scholarship is awarded must pursue his studies in the Chemistry Department during the following session.

THE DUBLIN MECHANICS’ INSTITUTE SCHOLARSHIPS.

The Residuary Fund of the Dublin Mechanics’ Institute has been made available for Industrial Scholarships under the management of the Technical Education Committee.

Three Scholarships will be awarded annually—one in the Mechanical Engineering Group, one in the Electrical Engineering and Physics Group, and one in the Building Trades Group. The Scholarships are tenable for three years, and are value about £3 each per year.

Candidates must be engaged in an Operative Trade as Apprentices or Learners. They must be between the ages of 16 and 19, and must have attended a Technical Course during the preceding School Session and made 80 per cent. of the possible attendances in two of the subjects of the Course in which they are entered.

THE MULLIGAN SCHOLARSHIPS.

As a result of a bequest, Sixteen Scholarships of £1 each will be awarded on the results of the second year examination of the Department of Education.

DAY APPRENTICE SCHOOL SCHOLARSHIPS.

(See page 11.)

PRIZES.

SCHOOL PRIZES.

First and Second Prizes are awarded in each year of each subject on the results of the Sessional Examination to Students who have obtained not less than 70 per cent. marks and have at least 60 per cent. attendance of the actual class meetings.

SPECIAL PRIZES.

Numerous prizes are offered by Employers and Trade Unions; chiefly the Dublin Building Trade Employers’ Association, the Irish Quantity Surveyors’ Association, the Dublin Guild of Building Workers’ Union, the United Operative Plumbers’ Association, Dublin Brick and Stonelayers’ Trade Union, Operative Plasterers’ Society, Master Drapers’ Association, Armstrong Siddeley Motors, Ltd., etc.
School of Architecture, Building, and Furniture Trades.

STAFF.

WILLIAM DAVIDSON, F.R.I.C.C. .... Head of Department.
ALOYSIUS HANWAY .... Building Construction, Carpentry, etc.
WILLIAM D. HORGAN, B.A. .... Physics, etc.
HENRY C. CLIFTON, B.A. .... Mathematics.
JAMES J. McCORMICK, B.A. .... English, etc.
W. L. Whelan .... Art.

PART-TIME LECTURERS AND DEMONSTRATORS.

JOHN O'CALLAGHAN .... Carpentry and Joinery.
JAMES F. CLEARY .... Carpentry and Joinery (Asst.)
JAMES HICKS .... Geom. Building, Drawing, etc.
HENRY HICKS .... Cabinet-making.
JOSEPH F. MATHEWS .... Cabinet-making (Asst.)
P. O'NEILL .... French Polishing.
THOMAS ROCHE .... Upholstery.
JAMES J. BURKE .... Drawing for Cabinet-making.
JAMES SANDERS .... Plasterers' Work.
JOHN CRAWFORD .... Plasterers' Work (Asst.)
THOMAS KELLY .... Coach and Motor Body Building and Railway Carriage Building.
RICHARD MCNAMARA .... Coach Painting.
GEORGE O'KEEFE .... Coach Trimming.
JOHN BOLTON .... Plumbing.
THOMAS RYAN .... Acetylene Welding, etc.
EDWARD BYRNE .... Brickwork.
CHARLES O'BYRNE .... Painting and Decorating.
THOMAS L. BYRNE .... Geometry and Mechanics.
JOHN MILLIGAN .... Wood Cutting Machinery.
JAMES MCNAMEE .... Woodcarving.
DAVID S. MACGIN .... English and Mathematics.
MARTIN BURNS .... Irish.

EXPLANATORY STATEMENT.

The programme of this Department includes Architecture, Building in all its branches, Furnishing and Coach-building Trades.

EQUIPMENT.

The Architecture and Building Trades Department occupies a number of rooms on each of the floors A, B, C and D of the Bolton Street Technical Institute. The drawing offices and workshops are very fully equipped for conducting the instruction in a thoroughly practical manner.

Courses.

A complete course of study in any section generally occupies about three years.

Where possible, separate classes for journeymen will be arranged in trades subjects.

Special Work.

Arrangements will, as far as possible, be made to enable highly qualified students to carry on drawing or practical work of a special nature. Students who desire to take advantage of this privilege should make application to the Head of the Department.
# COURSES AND TIME TABLES.

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## DAY APPRENTICE SCHOOL. COURSES IN:—

PLUMBING 
CARPENTRY 
PAINTING 
PAPER MAKING 
QUANTITY SURVEYING

| 30 hours weekly. |
---|---|

Special Day Classes for Apprentice Painters—Mon., Tues., Wed., Thurs., 2 to 5 p.m.

## INTRODUCTORY COURSE—Fee, 7s. 6d. for Session.

### 100B English—C 
Workshop Arithmetic—C
Building Drawing—A

**Tues. 7.30-9.30 B3**

**J. F. Cleary.**

## GENERAL BUILDING CONSTRUCTION COURSE.

For Architects, Builders, Clerks of Works, and Others—Fee, 7s. 6d. for each Year of Course.

### FIRST YEAR.

- **Building Construction—I.** Wed. 7.30-9.30 B10
- **Practical Mathematics—I.** Thurs. 7.30-9.30 C4
- **Practical Geometry—I.** Tues. 7.30-9.30 B10
  
  **A. Hanway.**

### SECOND YEAR.

- **Building Construction—I.** Wed. 7.30-9.30 B2
- **Geometry and Mechanics—I.** Thurs. 7.30-9.30 B2
  
  **M. Burns.**

### THIRD YEAR.

- **Building Construction—I.** Thurs. 7.30-9.30 B10
- **Applied Mechanics—II.** Wed. 7.30-9.30 B9
  
  **W. Davidson.**

### FOURTH YEAR.

- **Building Construction—I.** Thurs. 7.30-9.30 B10
- **Applied Mechanics—I.** Wed. 7.30-9.30 C6
  
  **M. Burns.**

## ARCHITECTURE COURSE—Fee, 7s. 6d. for each Year of Course.

### FIRST YEAR.

- **Building Construction—I.** Wed. 7.30-9.30 B10
- **Practical Mathematics—I.** Thurs. 7.30-9.30 C4
- **Practical Geometry—I.** Tues. 7.30-9.30 B10
  
  **W. Davidson.**

### SECOND YEAR.

- **Building Construction—I.** Wed. 7.30-9.30 B2
- **Geometry and Mechanics—I.** Thurs. 7.30-9.30 B2
  
  **W. Davidson.**

### THIRD YEAR.

- **Building Construction—I.** Thurs. 7.30-9.30 B10
- **Perspective and Drawing from Antiquities, History of Architecture—II.** Fri. 7.30-9.30 B9
  
  **W. Davidson.**

### FOURTH YEAR.

- **Building Construction—I.** Thurs. 7.30-9.30 B10
- **Perspective and Drawing from Antiquities, History of Architecture—II.** Fri. 7.30-9.30 B9

The Fourth and Fifth Year Subjects will be included in the Time Table later. For Special Building Classes, see Builders' Quantities, Geometrical Handrailing, Land Surveying and Levelling (p. 89).

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## BUILDING TRADES' COURSES.

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## CARPENTERS' AND JOINERS' COURSE—Fee, 7s. 6d. for each Year of Course.

### FIRST YEAR.

- **Carpentry and Joinery—I.** Tues. 7.30-9.30 C8
- **Carpentry and Joinery—II.** Tues. 7.30-9.30 C8
- **Carpentry and Joinery—III.** Tues. 7.30-9.30 C8
  
  **J. O'Callaghan.**

### SECOND YEAR.

- **Carpentry and Joinery—I.** Tues. 7.30-9.30 C8
- **Carpentry and Joinery—II.** Tues. 7.30-9.30 C8
  
  **J. O'Callaghan.**

### THIRD YEAR.

- **Carpentry and Joinery—I.** Tues. 7.30-9.30 C8
- **Carpentry and Joinery—II.** Tues. 7.30-9.30 C8
  
  **J. O'Callaghan.**

## PLUMBERS' COURSE—Fee, 7s. 6d. for each Year of Course.

### FIRST YEAR.

- **Plumbers' Work, Lecture and Drawing—I.** Tues. 7.30-9.30 D10
- **Plumbers' Work, Lecture and Drawing—II.** Tues. 7.30-9.30 D10
  
  **J. T. Bolton.**

### SECOND YEAR.

- **Plumbers' Work, Lecture and Drawing—I.** Tues. 7.30-9.30 D10
- **Plumbers' Work, Lecture and Drawing—II.** Tues. 7.30-9.30 D10
  
  **J. T. Bolton.**

### THIRD YEAR.

- **Plumbers' Work, Lecture and Drawing—I.** Tues. 7.30-9.30 D10
- **Plumbers' Work, Lecture and Drawing—II.** Tues. 7.30-9.30 D10
  
  **J. T. Bolton.**

## PLASTERERS' COURSE—Fee, 7s. 6d. for each Year of Course.

### FIRST YEAR.

- **Plasterers' Work, Lecture and Drawing—I.** Tues. 7.30-9.30 D10
- **Plasterers' Work, Lecture and Drawing—II.** Tues. 7.30-9.30 D10
  
  **J. T. Bolton.**

### SECOND YEAR.

- **Plasterers' Work, Lecture and Drawing—I.** Tues. 7.30-9.30 D10
- **Plasterers' Work, Lecture and Drawing—II.** Tues. 7.30-9.30 D10
  
  **J. T. Bolton.**

### THIRD YEAR.

- **Plasterers' Work, Lecture and Drawing—I.** Tues. 7.30-9.30 D10
- **Plasterers' Work, Lecture and Drawing—II.** Tues. 7.30-9.30 D10
  
  **J. T. Bolton.**

---

## PLASTERERS' COURSE—Fee, 7s. 6d. for each Year of Course.

### FIRST YEAR.

- **Plasterers' Work, Lecture and Drawing—I.** Tues. 7.30-9.30 D10
  
  **W. L. Whelan.**

### SECOND YEAR.

- **Plasterers' Work, Lecture and Theory—I.** Tues. 7.30-9.30 D10
  
  **J. Saunders.**

### THIRD YEAR.

- **Plasterers' Work, Lecture and Theory—I.** Tues. 7.30-9.30 D10
  
  **J. Saunders.**

---

## PLASTERERS' COURSE—Fee, 7s. 6d. for each Year of Course.

### FIRST YEAR.

- **Plasterers' Work, Lecture and Theory—I.** Tues. 7.30-9.30 D10
  
  **J. Saunders.**

### SECOND YEAR.

- **Plasterers' Work, Lecture and Theory—I.** Tues. 7.30-9.30 D10
  
  **J. Saunders.**

### THIRD YEAR.

- **Plasterers' Work, Lecture and Theory—I.** Tues. 7.30-9.30 D10
  
  **J. Saunders.**
### Painter and Decorators' Course—Fee, 7s. 6d. for each Year of Course.

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>125</td>
<td>First Year</td>
<td>Tues.</td>
<td>7:30-9:30</td>
<td>C10</td>
<td>C. O'Byrne</td>
</tr>
<tr>
<td></td>
<td>Cabinet-making</td>
<td>Wed.</td>
<td>7:30-9:30</td>
<td>B5</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
<tr>
<td>126</td>
<td>Second Year</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>C11</td>
<td>C. O'Byrne</td>
</tr>
<tr>
<td></td>
<td>Work (Seniors and Journeymen)</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B6</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
<tr>
<td>127</td>
<td>Third Year</td>
<td>Fri.</td>
<td>7:30-9:30</td>
<td>C11</td>
<td>C. O'Byrne</td>
</tr>
</tbody>
</table>

### Cabinet-Makers' Course—Fee, 7s. 6d. for each Year of Course.

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Day</th>
<th>Hour</th>
<th>Room</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>129</td>
<td>First Year</td>
<td>Wed.</td>
<td>7:30-9:30</td>
<td>B6</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
<tr>
<td></td>
<td>Wood-carving, Lecture and Drawing—L</td>
<td>Wed.</td>
<td>7:30-9:30</td>
<td>B6</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
<tr>
<td>130</td>
<td>Second Year</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B6</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
<tr>
<td></td>
<td>Wood-carving, Lecture and Drawing—II</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B6</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
<tr>
<td>131</td>
<td>Third Year</td>
<td>Wed.</td>
<td>7:30-9:30</td>
<td>B6</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
<tr>
<td></td>
<td>Wood-carving, Lecture and Drawing—III</td>
<td>Wed.</td>
<td>7:30-9:30</td>
<td>B6</td>
<td>J. Hicks, J. J. Burke</td>
</tr>
</tbody>
</table>

### Upholstery, Theory and Practice—Fee, 7s. 6d. for each Year of Course.

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Day</th>
<th>Hour</th>
<th>Room</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>132</td>
<td>First Year</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B3</td>
<td>T. Roche</td>
</tr>
<tr>
<td></td>
<td>Upholstery</td>
<td>Wed.</td>
<td>7:30-9:30</td>
<td>B3</td>
<td>T. Roche</td>
</tr>
<tr>
<td>133</td>
<td>Second Year</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B3</td>
<td>T. Roche</td>
</tr>
</tbody>
</table>

### Wood-carving—Fee, 7s. 6d. for each Year of Course.

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Day</th>
<th>Hour</th>
<th>Room</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>134</td>
<td>First Year</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. Milligan</td>
</tr>
<tr>
<td></td>
<td>Wood-carving, Lecture and Drawing—L</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. Milligan</td>
</tr>
<tr>
<td></td>
<td>Mechanical Drawing and Design—L</td>
<td>Tues.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. J. Burke</td>
</tr>
<tr>
<td>135</td>
<td>Second Year</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. Milligan</td>
</tr>
<tr>
<td></td>
<td>Wood-carving, Lecture and Drawing—II</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. Milligan</td>
</tr>
<tr>
<td></td>
<td>Mechanical Drawing and Design—II</td>
<td>Tues.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. J. Burke</td>
</tr>
<tr>
<td>136</td>
<td>Third Year</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. Milligan</td>
</tr>
<tr>
<td></td>
<td>Wood-carving, Lecture and Drawing—III</td>
<td>Mon.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. Milligan</td>
</tr>
<tr>
<td></td>
<td>Mechanical Drawing and Design—III</td>
<td>Tues.</td>
<td>7:30-9:30</td>
<td>B7</td>
<td>J. J. Burke</td>
</tr>
</tbody>
</table>

### French Polishing—Fee, 7s. 6d. for each Year of Course.

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Day</th>
<th>Hour</th>
<th>Room</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>137</td>
<td>First Year</td>
<td>Fri.</td>
<td>7:30-9:30</td>
<td>B3</td>
<td>J. Collins</td>
</tr>
<tr>
<td>138</td>
<td>Second Year</td>
<td>Fri.</td>
<td>7:30-9:30</td>
<td>B3</td>
<td>J. Collins</td>
</tr>
</tbody>
</table>
ARCHITECTURE AND BUILDING TRADES.

COURSES AND SYLLABUSES.

DAY SCHOOL OF BUILDING.

DAY APPRENTICE SCHOOL.

Scholarship Courses for Carpenters, Plumbers, Painters, Cabinetmakers, and others, 30 hours' instruction weekly. (See separate Timetable and other Syllabuses.)

COURSE FOR PAINTER'S APPRENTICES, six hours weekly:

Mondays, Tuesdays, Wednesdays, Thursdays, 2 to 5 p.m. (Syllabus as set out for Evening Classes in Painters' and Decorators' Work.)

N.B.—Other Day Courses are now under consideration.

INTRODUCTORY BUILDING COURSE.

Subjects:

1. ENGLISH.
2. WORKSHOP ARITHMETIC.
3. BUILDING DRAWING.

ENGLISH.

Reading: Reading from a text book on building subjects—correct meanings of words—correct spelling. Letter Writing: The essentials of good letter writing—forms of address in business letters—the beginning and ending of a letter. Writing Reports and Descriptions: Preparing the outline of a report on building work—matters with which the report should deal; progress, causes of delay, difficulties of obtaining materials, delay in transit of materials, trouble in obtaining suitable local labour, and other likely matters—how to describe simply and tersely any building process points in such a description—outstanding features—more particular descriptions of selected portions.

WORKSHOP ARITHMETIC.

Arithmetic signs: Units—units of area—simple fractions—decimals—area of triangle, rectangle, irregular quadrilaterals, walls of room, sides of tank, etc.—the circle, circumference, area, etc.—volumes and weights of rectangular solids, cylinders, etc.—capacity of tanks, cylindrical pipes—surface area of cone, pyramid and cylinder—proportions by unitary method—percentages—square root—calculating costs from areas and volumes.

BUILDING DRAWING.

Drawing instruments—general setting out and arrangement—plain scales—scale drawing—the protractor—decimal scale—drawing quadrilateral figures, cutting out in paper and finding area—square root and its graphical representation—relation diameter of circle to circumference—area of circle—comparison of areas of similar figures—elliptic and segmental curves—drawing in three dimensions—plans, elevations, and sections—simple development of surfaces—isometrical representation of solids.
FIRST YEAR COURSE IN GENERAL BUILDING CONSTRUCTION.

Subjects:
1. BUILDING CONSTRUCTION.
2. PRACTICAL MATHEMATICS.
3. PRACTICAL GEOMETRY.

BUILDING CONSTRUCTION.

In this class the student will be familiarised with the more common building materials. Practice in freehand pictorial sketching of building details will be given, and students will be required to make therefrom proper working details to scale.

During the session occasional visits will be paid to buildings in course of erection for the purpose of examining and sketching details of construction.

FIRST YEAR.


FIRST YEAR.
PRACTICAL MATHEMATICS.
Approximate calculations—fractions—areas of triangle, rectangle, parallelogram, trapezium, irregular quadrilateral, etc.—evaluation of formulae—algebraic symbols—rules as algebraic formulae—mensuration of the circle, prism, cone, cylinder, pyramid—easy simple equations—transposing formulae—square root—the right-angled triangle, sine, cosine, and tangent of an angle and use of tables—percentages—averages—graphs—areas of irregular curved figures and average values by mid-ordinate rule.

FIRST YEAR.
PRACTICAL GEOMETRY.
Construction and use of scales—plotting of angles by protractor, or trigonometric tables—division of lines in given proportions—measurement of angles in degrees—sine, cosine, and tangent of an angle—their values by graphical methods—construction of a triangle from given data—location of points by rectangular co-ordinates—construction of polygons—similar figures—enlarging and reducing figures by radial projection—areas of triangles, polygons, and curved figures—construction of circles from specified data—tangents—angles in a segment—methods of defining positions in space, of points, lines, and planes—horizontal and vertical traces—inclinations of lines and planes to planes of projection—prisms and pyramids—the regular tetrahedron—the sphere—the right circular cylinder and cone—plans, elevations, and sections of these solids.
SECOND YEAR COURSE IN GENERAL BUILDING CONSTRUCTION.

Subjects:
2. Geometry and Mechanics.

BUILDING CONSTRUCTION.

The instruction in the second year will give a more extended knowledge of the subjects dealt with in the first year syllabus, including the following:

SECOND YEAR.


GEOMETRY AND MECHANICS.

Second Year.

Areas of irregular plane figures by squared paper—mid-ordinate rule and Simpson's rule—measurement of geometrical solids—volumes and weights of girders, floors, roofcoverings—amount of excavation in trenches for walls—volume of concrete in foundations, etc.—more difficult examples in plane geometry—construction and chief characteristics of the ellipse—further examples of planes, elevations, and sections of solids—development and interpenetration—general problems on lines and planes—intersecting planes and the angle between them, with practical applications—parallel and perpendicular lines and planes—dihedral angle.

Graphical studies—the triangle and polygon of forces—stresses in frames—parallel forces—reactions of supports—unit of force—measurement of force—composition and resolution of forces—moments of complexes—centre of gravity and stability—efficiency of machines, lifting tackle—friction—stress, strain and elasticity.
FOURTH YEAR COURSE IN GENERAL BUILDING CONSTRUCTION.

Subjects:

BUILDING CONSTRUCTION.

Fourth Year.
House planning—production of complete drawings of a small building with simple specifications and such working drawings as are usually supplied to a builder—heating systems—ventilation—methods of house sewage disposal in town and country—gas and electric lighting in their relation to building work—fireproof floors—steelwork generally—the manufacture, characteristics, and general uses of all classes of building materials, and the tests applied to ascertain their behaviour under various conditions.

APPLIED MECHANICS.

Fourth Year.
Various types of roof trusses and spans for which they are suitable—determination of stresses by the method of sections—design of roof truss members—outline of design of plate or braced girder of uniform depth—calculations for deflection of a beam under specified conditions of loading— permissible deflection—camber—columns under eccentric and central loads— design of long struts in braced structures—simple calculations relating to masonry dams, retaining walls, piers and buttresses, foundations, small span arches, chimney—safe pressure on foundations in different classes of earth— distribution of pressure—resultant pressure in retaining walls—the importance of wind pressure in lofty structures—fluid pressure—chances of velocity and pressure along the stream lines in fluids—friction in pipes—simple hydraulic machines.

HONOURS COURSE IN GENERAL BUILDING CONSTRUCTION.

Subject:

Fifth Year.
Ferro-concrete beams and floors, roofs, columns, chimneys, retaining walls, tanks, conduits, bridges, piles, etc., and calculations thereon—various well-known systems of ferro-concrete construction and their relative advantages—practical details concerning ferro-concrete work—materials and specifications.

FIRST YEAR COURSE IN ARCHITECTURE.

Subjects:

BUILDING CONSTRUCTION AND PRACTICAL MATHEMATICS AND PRACTICAL GEOMETRY.

(Syllabuses as for First Year General Building Construction Course.)

HISTORY OF ARCHITECTURE.

First Year.
Egyptian, Greek and Roman Architecture—free sketching and drawing of typical mouldings and examples of construction. This work may be supplemented by modelling and casting by the preparation of templets and the running of mouldings in plaster.

SECOND YEAR COURSE IN ARCHITECTURE.

Subjects:
2. Geometry and Mechanics.
3. History of Architecture, Planning and Design.

BUILDING CONSTRUCTION AND GEOMETRY AND MECHANICS.

(Syllabuses as for Second Year Course in General Building Construction.)

HISTORY OF ARCHITECTURE, PLANNING AND DESIGN.

Second Year.
Romanesque and Byzantine Architecture—characteristic mouldings and examples of construction. This work may be supplemented by modelling, drawing from the antique, etc. Attention will be given to the planning and design of simple structures.

THIRD YEAR COURSE IN ARCHITECTURE.

Subjects:
2. Perspective and Drawing from the Antique.

BUILDING CONSTRUCTION.

(Syllabus as for Third Year Course in General Building Construction.)

PERSPECTIVE AND DRAWING FROM THE ANTIQUE.

Third Year.
In perspective, architectural examples will be chosen. These will be carefully graded to suit the ability of the individual. In drawing from the antique the examples will be chosen in the same way.

THIRD YEAR.


NOTE.—An extension of this Course will be considered.
FIRST YEAR COURSE IN CARPENTRY AND JOINERY.

Subjects:
1. Carpenter and Joinery (Practical).
2. Practical Geometry and Calculations.

Carpentry and Joinery (Practical). 
First Year.
Examples to suit students' ability will be chosen. The necessary tools and timber will be provided by the Schools.

Practical Geometry and Calculations. 
First Year.
See Syllabus for Practical Geometry and Practical Mathematics of First Year Course in General Building Construction.

SECOND YEAR COURSE IN CARPENTRY AND JOINERY. 

Subjects:
1. Carpenter and Joinery (Practical).
2. Carpenter and Joinery (Drawing and Lecture). 

Carpentry and Joinery (Practical). 
Second Year.
Examples to suit the students' ability will be chosen.

Carpentry and Joinery (Drawing and Lecture). 
Second Year.
Choice and preparation of scales—plans and elevations, including sections—examples of joints and fastenings—oblique and isometric projection of common joints—simple forms of centres, turning pieces, rib centres; segmental and elliptical—common floor joistings; common floor coverings—trimming around chimney breasts and well-holes; couple roof—collar brace roof—king post truss—setting out the commoner forms of mouldings—door frames and jamb linings—doors: braced and sheeted, four paneled—case ment frame—sash frame and sashes—skirtings, grounds, and fixing—growth and structure of timber, conversion, seasoning, etc.—tools, mechanical principles involved.

Text Book: Carpenter and Joinery.

THIRD YEAR COURSE IN CARPENTRY AND JOINERY. 

Subjects:
1. Carpenter and Joinery (Practical).
2. Carpenter and Joinery (Drawing and Lecture). 

Third Year.
Examples to suit the students' ability will be chosen.

Carpentry and Joinery (Drawing and Lecture). 
Third Year.
Examples to suit the students' ability will be chosen. The necessary tools and timber will be provided by the Schools.

Text Book: Carpenter and Joinery.


FOURTH YEAR COURSE IN CARPENTRY AND JOINERY. 

Subjects:
1. Carpenter and Joinery (Practical).
2. Carpenter and Joinery (Drawing and Lecture). 

Carpentry and Joinery (Drawing and Lecture). 
Fourth Year.
Roofing of difficult plans, cuts and bevels for members—open timber roofs; hammer-beam and collar-beam—trusses of special form, groin roofs; turret roofs, circular and polygonal—niches—lantern lights—centres for large spans; elliptical, segmental, etc.—raking, horizontal and shore for shop fronts—timber bridges—platform gantry and scaffolding—traveller gantry—derrick—tower gantry—geometrical staircase—staircase details and ornamental finishings—wraith for quarter circle stairs—wraith for half-turn stair—wraith for quarter space of winders—wraith for scroll—solid moulded, single and double boxed, vesuvian sash frames—balancing shutters—boxing shutters—various joinery fittings, cupboards, enclosures, etc.—circle-on-circle; door frames, with radiating and with parallel jamb—circle-on-circle; cased frames and sashes—shop fronts, with roller shutters and sun-blind—air-tight show cases; floor cases and wall cases—counter cases, square and round-ended—exercises in the use of the steel square—working machinery, planer, spindle, circular saw and band saw.

Text Book: Carpenter and Joinery.

Books of Reference—Modern Practical Carpenter and Joinery, by George Ellis.
FIRST YEAR COURSE IN PLUMBERS' WORK.

Subjects:
1. Plumbers' Work (Lecture and Drawing).
2. Plumbers' Work (Practical).

PLUMBERS' WORK (LECTURE AND DRAWING).

**First Year.**

*Elementary Science:* effect of heat on solids, liquids and gases—cause of frost burst, and methods of preventing it—effect of heat in causing motion in liquids and gases—its application to hot water circulation and the ventilation of pipes—thermometers—measurement of quantity of heat—relation of quantity of heat applied to rise of temperature in air, water, lead, zinc, and other substances used in plumbers' work—properties and composition of air and water. *Alloys, Solders, etc.*: various alloys used for valves and cocks—solders, their composition, preparation, and uses—fluxes, their action and uses—methods of soldering—blowpipe, copper bit, wiping, etc.—special advantages of lead burning. *Workshop Appliances:* the lever, pulley block screws—behaviour of lead under great pressure—pressure due to action of liquids and gases—head of water—nature of a water seal—action of the syphon—principles and construction of traps and valves. *Tools:* their forms, uses, etc.—fitting up and equipment of workshop—varieties of pipes used in plumbing. *Calculations:* duodecimals—measurement of plane figures—areas of sloping and curved roof surfaces—pyramidal, conical and spherical roof coverings—estimating quantity and cost of materials—calculating capacities of pipes, tanks, boilers, cylinders, etc. *Geometry:* application of geometrical construction to cutting out sheet metals for covering dormers, gutters, lantern lights, etc.—development and interpenetration as applied to pipes, ventilators, roofs, vessels, etc.—projection—plans, elevation, sections, and details of pieces of work in plumbing, sheet metal work, etc.

In the subsequent years of the Course the Calculations and Geometry will be of the same practical nature, but of a more advanced type.

**Text Book.**—Bennett: Technical Plumbing.

PLUMBERS' WORK (PRACTICAL).

*First Year.*

*See Syllabus under Third Year Course.*

PHYSICS AND CHEMISTRY.

*See Syllabus under Third Year Course.*
SECOND YEAR COURSE IN PLUMBERS' WORK.

Subjects:

1. Plumbers' Work (Lecture and Drawing).
2. Plumbers' Work (Practical).

This Course will be found suitable for those applying for Certificate of Registration.

PLUMBERS' WORK (LECTURE AND DRAWING).

Second Year.

Properties and Uses of Materials: relative strengths, under various pressures, of lead, cast iron, wrought iron, and copper tubes—nature and uses of seamless lead pipes, tin and tin-lined pipes, sheet lead pipes, and method of joining. External Roof Work: covering of flats, gutters, cesspools, dormers, skylights, etc.—principles of joining sheet lead by rolls, welts, drips, and passings—development of surfaces—making of working drawings. Hot Water Apparatus: principles of hot water circulation for domestic and other purposes—cylinder and tank systems—boilers and taps—material used in valve seatings, packing, etc., systems in use for prevention of furring of pipes and boilers. Sanitary Appliances: water-closets, their fittings and supply—water-waste preventers—baths, lavatories, sinks, etc.—traps—momentum, waving out, and syphonage of traps and methods of preventing same—house cisterns, their construction and fitting—traps, pipes, fittings, and other materials used in house drain construction. Mechanical Appliances: the multiplication of power by water pressure, as illustrated by hydraulic press—pumps—construction and uses of different kinds of pumps—hydraulic ram, etc.


Book of Reference.—W. R. Maguire: Domestic Sanitary Drainage and Plumbing.

PLUMBERS' WORK (PRACTICAL).

Second Year.

See Syllabus under Third Year Course.

THIRD YEAR COURSE IN PLUMBERS' WORK.

Subjects:

1. Plumbers' Work (Lecture and Drawing).
2. Plumbers' Work (Practical).

Students will find the instruction given in this Course suitable for the Final Examination of the City and Guilds of London Institute, and for the Examination of the Royal Sanitary Institute.

PLUMBERS' WORK (LECTURE AND DRAWING).

Third Year.


Text Book.—S. S. Hellyer: Principles and Practice of Plumbing.

Books of Reference.—As for Second Year Course.

PLUMBERS' WORK (PRACTICAL).

First, Second and Third Years.

Straightening sheet lead and tin, lead pipes, etc.—preparation of seams for soldering sheet lead and tin—soldering sheet lead with fine, tinman's, and plumbing solder—preparation of solder, soil, etc.—preparation of joints for soldering with iron, blowpipe, and plumbing metal—joint making (copper bit, blowpipe, plumbing)—caulking joints with lead and rust cement—joints of earthenware and stoneware pipes—lead working into various forms—pipe fixing—pipe bending—lead burning.

An exhibition of students' practical work will be held at the close of the Session.

PHYSICS AND CHEMISTRY FOR PLUMBERS.

This subject is of the greatest importance to Plumbers, and forms part of the First Year Course.

General Properties of Matter: measurement of length, area and volume—determination of density—measurement of force—centres of gravity—the lever—the principle of work. Fluid Pressure: nature and modes of measure-
ment of pressure of liquids and gases—variation of pressure with depth in liquids—atmospheric pressure—the barometer—Boyle’s Law—the principles of physics in connection with water supply, pumps and syphonic action. Heat: expansion of solids, liquids and gases—temperature and thermometers—heat as a quantity—the caloric and the thermal—thermal capacity and specific heat—change of state—melting and boiling points—latent heats of fusion and vaporisation—change of volume resulting from change of state—the spheroidal condition and the physics of fluxes—convection, conduction and radiation. Chemistry: oxidation—reduction—composition of water and its action on metals—acids and salts—hydrochloric acid and “killed spirit”—elementary chemistry of lead, iron, zinc, tin and copper—composition and properties of red lead, litharge, white lead, etc., and cements made from them.

OXY-ACETYLENE WELDING AND CUTTING.

THEORETICAL INSTRUCTION.


PRACTICAL WORK.

Examination and setting up of high-pressure welding plant and cutting plant—testing for leaks—regulation of pressure and manipulation of valves—measurement of contents of cylinders—preparation of materials—precautions against the effects of expansion—welding of various metals—treatment of work after welding—testing welds. Cutting sheets, plates, and sectional iron.
COURSE IN PLASTERERS' WORK.

Subjects:
1. Plasterers' Work (Lecture and Drawing).
2. Plasterers' Work (Practical and Theoretical).

PLASTERERS' WORK.

General Syllabus of full Course.

First, Second and Third Years.

Arithmetic: A working knowledge of the four rules—simple and compound proportion, percentages, averages—measurements of simple rectilinear figures and circles—areas of figures expressed by means of symbols—surface areas and volumes of cubes and rectangular prisms—measurement of cylinders, cones, and spheres, all similarly expressed by symbols—exercises on wages, income and expenditure, simple trade accounts, rates, insurance, methods of measuring plastering trade quantities. Elementary Drawing: Freehand sketches from models—making dimensioned sketches of simple objects and details of plaster work—preparing working drawings from such sketches from sketches supplied—simple problems in plane and solid geometry, with applications to plasterers' work. Science and Materials: Simple mechanics, with illustrations on stability and on use of hoisting appliances—materials used in plastering, their properties and uses—simple experiments to illustrate the chemical changes which take place during the manufacture and use of plastering materials—the various limes used in candidate's neighbourhood and elsewhere—rich and poor limes, hydraulic and non-hydraulic limes—methods of making, slaking, and testing limes and of making mortar for various purposes—plaster of Paris, its nature, origin, preparation, and methods of use—nature of plaster substitutes, Keen's, Parian, Sirapite, and asbestic plasters, and the special purposes for which each is used—reasons for the defects which arise when these plasters are improperly used—natural and artificial cements, their properties and use for external and internal purposes—gauging, testing, and using Portland, Roman, Medina, white and slag cements—mixtures of limes, plaster and cements—the purposes and methods of such admixtures with the dangers arising therefrom—other materials used in plastering, sands, hair, laths, oil mastic, and waterproofing compounds.

Tools used—various limes and suitability for different work—sands: preparation and admixture with limes and cements—substitutes for sands—lathing internal walls, ceilings and partitions—preparation of bracketing for plasterers' work—preparing brick and stone walls for plaster—fibrous plaster—Portland cement—Keen's, Parian, Almanti, Marblite, Sirapite and other cements—cast concrete work—mixing, tempering and manipulating—cutting moulds—moulding and casting in plaster wax, gelatine, sulphur and Phelp's metal—piece moulding—moulding from life—moulding from high relief and the round—Sgraffito work—pouncing, cutting andclearing out—gesso, composition, carton-pierre, fibrous plaster, plain face and fibrous slabs—modelling in clay, plaster stucco, gesso and cement—description and drawing of observed examples of work.
FIRST YEAR COURSE IN PAINTERS' AND DECORATORS' WORK

Subjects:
1. Painters' and Decorators' Work.
2. Drawing and Design.

PAINTERS' AND DECORATORS' WORK.

First Year.

Object in painting surfaces—principles underlying the use of paints—names, description and uses of brushes and other tools—care and preservation of these—the principal pigments, thinners and driers used in painting.

Preparation of Grounds for Painting: stopping, filling up, and surfacing.

Plain Painting: simple mixing and application.

Distemper: composition, application and preparation of grounds—graining and the preparation of grounds.

Sign Writing and Lettering: principal styles of lettering and their forms and names—setting out of simple signs—dimensions of paper—hanging of paper—preparation of paste—the preparation of walls—stripping and hanging of ordinary papers.

Text Book.—Ellis Davidson: House Painting, Graining, Marbling, and Sign Writing for all Classes.

DRAWING AND DESIGN.

First Year.

See Syllabus under Third Year Course.

SECOND YEAR COURSE IN PAINTERS' AND DECORATORS' WORK.

Subjects:
1. Painters' and Decorators' Work.
2. Drawing and Design.

PAINTERS' AND DECORATORS' WORK.

Second Year.

Faults in painting and their avoidance—preservative and decorative aspects of painters' work—economy in working—cleanliness in working—composition of, and the material used in, painters' brushes—use of plant and animal—oils and diluents: their properties, qualities and uses—driers: their composition, nature and action—permanence and fugacity of pigments—washable and firm distempers—water paints: limitations—selection of papers for walls and ceilings—setting out for and hanging relievo materials—artistic use of graining and marbling—grounds and methods of working—graining of different woods: oak, walnut, etc.—notice and advertising lettering—elaboration and emphasising of lettering, flating, enamelling, etc.—woods suitable for staining—preparation and application of stains—faults in varnishing and their cure—mixed tints and colours—general hints on paint mixing.

DRAWING AND DESIGN.

Second Year.

See Syllabus under Third Year Course.
THIRD YEAR COURSE IN PAINTERS' AND DECORATORS' WORK.

Subjects:
1. Painters' and Decorators' Work.
2. Drawing and Design.

PAINTERS' AND DECORATORS' WORK.

Third Year.
Selection of plant and tools for jobs, the testing of steps, ladders, etc.—arrangement of scaffolding for painters—testing colours, pigments, oils, turpentine and driers—quantities for given work—action of successive coats of paint upon preceding coats—arrangements of men when painting large surfaces—painting ornament, and gilding on distemper—use of distemper on other than plaster grounds—stencilling—punctuation, gilding and preparation of grounds, etc., for sign-writing and lettering—use of imitative effects of material and texture such as bronze, ivory, etc.—representation of inlays, marqueterie, etc.—polychromatic stencilling—matt and burnish gilding, etc.—chemical staining—preparation of stain—comparative value of water, oil and spirit staining—colour values and qualities—how to decide a colour scheme—selection and hanging of special papers, such as textile fabrics, imitation leather, Japanese grass cloth and relief materials—measurement of painter's work, quantities and pricing.

DRAWING AND DESIGN.

First, Second and Third Years.
Designs for friezes, dado borders, string courses, plasters, panels, corner pieces, breaks, centres, diapers—heraldic devices—ornamental lettering, short texts to scale—drawings for imitation of inlaid woods and marbles—rough sketches for schemes of decoration—scales and working drawings for schemes of decoration—working out sketches with measurements taken from existing buildings, and setting to given scale—drawing of historic ornament—sketches of Lunette, Cartouche.
FIRST YEAR COURSE IN CABINET-MAKERS’ WORK.

Subjects:
1. Cabinet-making (Drawing and Lecture).
2. Cabinet-making (Practical).

CABINET-MAKING (DRAWING AND LECTURE).

First Year.

Nature and properties of various kinds of wood used in cabinet-making, with ports or places from which they are obtained—most suitable woods for construction—groundwork and veneers—best methods of seasoning and preparing for use—cabinet-making tools—names and uses—plain joints: dowelling, tongueing, dovetailing—methods of setting out and constructing mouldings; different names—preparation of working drawings—veneering surfaces—proper use of veneer—preparation of grounds and veneers, with methods of making work stand after veneering—cabinet brass-work: hinges, joint stays, bolts and locks—methods of fixing and their different advantages—methods of measuring and setting out shaped window seats, cornice poles and drapery laths—hints with regard to the fitting up and completion of furniture for the showroom.

Text Book.—Bitmead: Cabinet-making.

CABINET-MAKING (PRACTICAL).

This Class forms part of the Course and must be taken in conjunction with the Drawing and Lecture Class in Cabinet-making.

The object of this Class is to afford the Student an opportunity of applying in a practical manner the knowledge gained at the theoretical and drawing lessons.

First Year.

Tools: principles underlying their construction—proper method of sharpening and using—making of joints as used in cabinet work, including dowelling, tongueing, dovetailing—construction of simple mouldings by hand—preparation of machine-made mouldings for the polisher. Veneering: preparation of groundwork—veneering with caul and hammer, including rails and panels in straight and curved work, crossbanding circular rims, cleaning up veneered surfaces—proper methods of affixing hinges, joint stays, bolts and locks—fitting up furniture for the showroom, including proper methods of fastening glass—proper methods of affixing cornice poles, window seats, and cosy corners.

The necessary tools and timber will be provided by the Schools.
SECOND AND THIRD YEAR COURSE IN CABINET-MAKERS' WORK.

Subjects:
1. Cabinet-making (Drawing and Lecture).
2. Cabinet-making (Practical).

CABINET-MAKING (DRAWING AND LECTURE).

Second and Third Years.
Nature and properties of the various kinds of wood used in cabinet-making, their suitability for decorative work, their diseases and how to minimise their effect before and after being converted into furniture—mechanical actions, such as are used in cylinder fall desks, writing tables, dumb waiters, etc.—different methods of expanding dining tables—cabinet brass work: hinges, joint stays, bolts and locks—best methods of fixing—lining and veneering with tortoishell, ivory, mother-of-pearl, and metals—preparation and methods of applying veneers to flat and sweep work—styles of furniture and the periods to which they belong—joints: plain copper, dovelling, tonguelling, and dovetailing, secret lap and secret mitre dovetailing—methods of setting out—construction of working drawings from student's own designs.

Text Book.—Bitmead: Cabinet-making.

CABINET-MAKING (PRACTICAL).

In this Class difficult pieces of Cabinet work will be undertaken, and the complete setting out and working of pieces of furniture.

Second and Third Years.
More advanced work on the First Year Course, and, in addition:—
Inlaying and veneering with tortoishell, ivory, mother-of-pearl, and metals—preparation of groundwork and veneering of difficult pieces of cabinet work—making of joints, such as secret lap and secret mitre dovetail, knuckle rule, and finger—construction of difficult Roman and Grecian mouldings by hand.

Students taking the City and Guilds Final Examination in Cabinet-making will find this Class suitable for the construction of the specimen of practical work to be submitted to the Examiners.

The necessary tools and a supply of ordinary timber will be provided by the Schools.

Text Book.—Bitmead: Cabinet-making.

COURSE IN UPHOLSTERY.

The Course will occupy two Sessions.

General Syllabus—Lecture and Practical Work.

First and Second Years.
Proper preparation of framework for upholstering. Materials used: Leather, leather-cloth, velvet, saddle-bags, tapestry, rexine, lace, etc.—use of springs—upholstering to suit various styles of furniture—treatment of couches, sofas, settees, and chairs of various kinds—re-upholstering old work—re-conditioning of old materials—canvelling old frames for necessary repairs—tools and appliances used in upholstery.

WOOD-CARVING.

The course of instruction in Wood-carving includes a lecture and drawing class on one evening, practical work on one or two evenings, and a suitable Art class in drawing and design on another evening. The practical work will be of a progressive nature and selected in each case to suit the skill of the individual student.

First Year.
The use and names of tools used in wood-carving—sharpening of tools—stones employed—various woods made use of—treatment of the different classes of wood—the influence and effect of grain—setting out and starting a piece of work—first stage in the working of a pattern—second stage in the working of a pattern—modelling the work—finishing the work—simple patterns of carving with one or two tools—ornamental forms in soft and hard timber—carving in flat and broad treatment in yellow pine—carving in hard timber and how to treat same—simple panels from casts—conventional foliage in different styles from casts—natural forms of foliage—how to treat practically in wood—geometrical patterns and freehand ornament contrasted in their application to furniture and architectural work.

Second and Higher Years.
The work of the Italian Renaissance explained and examples given—the French Renaissance explained—natural foliage and geometrical treatment—the Gothic periods—Norman periods—early English period—decorated period—perpendicular styles—examples of architectural treatment—carvings as applied to furniture—individuality of style explained and examples given.
COURSE IN COACH AND MOTOR-CAR BODY BUILDING.

The Course will occupy two Sessions.

GENERAL SYLLABUS—LECTURE, DRAWING AND PRACTICAL WORK.

FIRST AND SECOND YEARS.

Construction of scales and their use—timber used in Coach Building and Motor Body work—measuring and valuing—natural and artificial seasoning, and the use of bent timber—iron and steel: process of forging and welding—how to tell the quality of steel and iron—precautions when forging or tempering various kinds of iron and steel—aluminium and other metals used for panels, wings, etc.—designing and drawing side view, plan and back view of carts, waggonettes, landaus, victorias, broughams and other carriages, open or closed, and motor bodies—designing, drawing and making joints in coach-building—sizes of poles, bars and shafts for various horses or ponies—position of tugs, and staples, etc.—varieties of under-carriages—wheels with wooden spokes, including artillery patterns—sections of hubs, spokes and tyres, channels, pneumatic tyres, etc.—sizes and shapes of axles and springs and motor axles—spring making and methods of testing springs and axles; setting them true and fixing—shock absorbers—ironwork on bodies and carriages—lever brakes—foot brakes—wind screen—ironwork for luggage, carriage, and wagon component parts—block plans with seating accommodation of various types of carriage—characteristics, seasoning, shrinkage, and defects of timber. Explanation of hand tools and simple machines used in saw mill, body and finishing shops. Description of timbers used in carriage and wagon construction—characteristics, seasoning, shrinkage, and defects of timber. Explanation of loading gauge, as regards limitation to size of rolling stock. Working drawings of wagon underframes—study of carriage and wagon component parts—block plans with seating accommodation of various types of carriage—different types of wagon stock in common use. Elementary treatment of trimming, painting, and finishing.

COURSE IN RAILWAY CARRIAGE AND WAGON BUILDING.

The Course will occupy two Sessions.

GENERAL SYLLABUS—LECTURE, DRAWING AND PRACTICAL WORK.

FIRST AND SECOND YEARS.

Construction and use of scales—principles of projection—making detail drawings of standard wagons—freehand sketching of details—proper proportioning and dimensioning. Drawing and specifications of open goods wagon. Description and properties of cast iron, wrought iron, mild steel, cast steel, malleable cast iron—manufacture and machining qualities—suitability of these materials for various purposes. Explanation of hand tools and simple machines used in saw mill, body and finishing shops. Description of timbers used in carriage and wagon construction—characteristics, seasoning, shrinkage, and defects of timber. Explanation of loading gauge, as regards limitation to size of rolling stock. Working drawings of wagon underframes—study of carriage and wagon component parts—block plans with seating accommodation of various types of carriage—different types of wagon stock in common use. Elementary treatment of trimming, painting, and finishing.

COURSE IN WOODCUTTING MACHINERY.

Subjects:

1. WOODCUTTING MACHINERY (THEORY AND PRACTICE).
2. PRACTICAL GEOMETRY AND CALCULATIONS.

The Course will occupy two Sessions.

WOODCUTTING MACHINERY (THEORY AND PRACTICE).

FIRST AND SECOND YEARS.

General Woodworking Machinery covering the following branches:

Saw Mill Work: circular sawing (feed and hand)—deal frame sawing—log frame sawing—four cutter moulding machine.

Joinery, Machine Work: planing machines—bandsawing machines—three cutter moulding machines—spindle moulding machines (French and English)—tenoning and shaping machines.

Shop Fitting and Cabinet Machine Work: spindle moulding (French and English)—bandsawing—fret sawing—circular sawing—milling.

GENERAL.

Making cutters for specific purposes—bandsaw brazing, jointing and sharpening—brazing and tempering—circular saw sharpening and setting—belt stitching and lacing—belt jointing—machining of doors—drawing—economical conversion of timber—cutters balance and setting up of machines—preparation of cutters and running of mouldings of all kinds—grooving, tenoning and mortising.
FIRST YEAR COURSE IN BRICKLAYING.

Subjects:

1. Bricklaying (Drawing and Theory).
2. Bricklaying (Practical).

BRICKLAYING (DRAWING AND THEORY).

First Year.


BRICKLAYING (PRACTICAL).

First Year.

Methods of bonding in walls of various thicknesses—preparation of foundation and footings—position of damp-proof courses—position of vents—laying and jointing of drain pipes—pointing a piece of brickwork in various ways—cutting of simple arches—cutting the skew-back—simple weathering to buttresses—corbelling—junctures of walls—plain tiling.

SECOND YEAR COURSE IN BRICKLAYING.

Subjects:

1. Bricklaying (Drawing and Theory).
2. Bricklaying (Practical).

BRICKLAYING (DRAWING AND THEORY).

Second Year.

Bricks: essentials of facing bricks—method of testing—hand-made and machine-made bricks—well-known varieties, local and other. Mortars and Concrete: more intimate knowledge of these materials—effect of frost and

BRICKLAYING (PRACTICAL).

SECOND YEAR.


Practice will be afforded in setting out pieces of brickwork from architectural drawings.

COURSE IN MASONRY AND STONECUTTING.

FIRST AND SECOND YEARS.


The accommodation available for this course being limited, preference will be given to applicants who are past students of the Schools. Those who wish to secure a place should make early application.

SYLLABUS.

Setting out wreath for quarter circle plan—method of obtaining the face mould and bevel—practical work—cutting wreath from the plank, beveling, squaring, and moulding—setting out wreath for semi-circular plan—arrangement of risers—how to obtain the face moulds and bevels for equal and unequal pitches—cutting wreath from the plank, beveling and squaring, joining to straight rail, etc.—setting out terminal scroll and wreath—method of obtaining bevels, face moulds and half lines, jointing and moulding complete—setting out wreath over quarter space of winders; obtaining face mould and bevels; working and moulding wreath—setting out wreath for ship’s stair, with quadrant well and level landing, the wreath being in two pieces.

Students will require to provide themselves with the ordinary drawing instruments and drawing paper. The Schools will supply the necessary woodworking tools and timber.
COURSE IN BUILDERS' QUANTITIES.

The Class is intended to supply a course of elementary instruction in Quantity Surveying, as practised in Dublin and District, to Architects', Surveyors', and Builders' pupils and assistants, and others engaged in the building trade. Intending students should have a practical knowledge of Building Construction and Drawing, and be versed in the elements of mensuration. Instruction will be given in the usual methods of taking off, abstracting, and putting into estimating form, the materials and labour required in the various trades.

The instruction will be given mainly by lectures illustrated by blackboard sketches; in addition, questions for homework will be set weekly.

Students will be required to provide themselves with a set of paper scales.

SYLLABUS.

Quantities and Specifications: general explanation of both, with their essential differences. Taking-off: explanation and description of various methods of taking-off, with simple examples: squaring dimensions.

Abstracting: explanation; general hints and simple examples reducing the alternative estimates. Billing and Pricing: explanation; general hints and simple examples.

The mode of measurement and description of the following:—Excavator and Drainer: excavations over surface, and for basements and trenches; disposal of material; strutting and planking—drains, pipes, bends, junctions, traps, inspection chambers, connections to sewers. Bricklayer: concrete in foundations; floors and walls; common brickwork, including party walls; chimney breasts; boundary walls; openings; battered and circular work; work in cement; damp courses; painting; cuttings; beam filling; trimmer and relieving arches; facings; moulded courses, etc. Mason: rubble walling; wallstone and ashlar facing; dressings, including plinths, sills, strings, cornices, copings, heads, templates; flagging steps, square and spandril; hearths; landings. Carpenter and Joiner:centring; floors; roofs; partitions; windows; doors, staircases, etc.

Ironfounder and Smith: cast-iron work in pillars; pipes; beams and gutters; rolled and built steel girders: and iron roofing. Slater and Tiler: straight; circular and vertical; eaves course; cuttings; ridges; hips and valleys. Plumber and Zinc Work: flats; gutters; cisterns; flashings; bends; stock gutters and pipes in cast-iron; bath and lavatory fittings, etc. Glazier: sheet, ground, rolled, and polished plate and lead lights. Painter: Painting on walls, wood and iron, external or internal; graining, staining, varnishing, and lettering.


COURSE IN LAND SURVEYING AND LEVELLING.

The Course is intended to give a sound theoretical and practical knowledge of Surveying, to give facility in the use of the various instruments, in plotting surveys, and in making finished plans. It will be found of service to Engineers' and Architects' Assistants, Auctioneers, Land Agents, and others, as well as for the examinations of the Surveyors' Institute, the Institution of Civil Engineers, the Auctioneers' Institute, etc. It also covers much of the work required for the various foreign examinations for surveyors.

The Course will comprise eighteen lectures and ten practical demonstrations—some devoted to field work, and some to office work. The dates and places for the field work will be announced in class as the course proceeds.

All apparatus and instruments for field work are provided by the Schools, but students must provide their own plotting scales, survey book, level book, drawing instruments, and materials.

SYLLABUS.


An examination in the theory and practice of surveying will be held at the close of the course, and certificates will be awarded to successful students.
COURSE IN MANUAL INSTRUCTION (WOODWORK).

The main objects of the Class are to afford a training in the proper use of woodworking tools, to give a knowledge of the proper proportion and suitability of joints for different purposes, to enable students to make articles of domestic, personal, or other use, and to provide a medium for the learning of mechanical drawing and sketching.

FIRST YEAR.

Drawing: Simple projection, as required for the working drawing of each model. Woodwork: Exercises in planing, sawing, and chiselling—making of woodworking joints—models of a useful nature, involving the use of these joints. Theory: Construction of the various tools, grinding and sharpening of edged tools. Timber: Woods in common use, growth, sources of supply, nature and properties; seasoning of timber.

SECOND YEAR.

In this year of the course the work will be chiefly the making of models of a utilitarian nature, and students will be allowed some freedom in their choice of models.

The necessary tools and timber are provided by the School.

MECHANICAL DRAWING, PATTERN CONSTRUCTION AND GEOMETRICAL DESIGN.

The course is arranged so that students may become acquainted with the use of instruments, T square, set squares, compass, scales, etc., and the principles of construction of ordinary geometrical figures—special reference will continually be made to the application of geometry to the different branches of industrial art, such as designing, etc. The exercises worked in class will include the drawing of geometrical patterns—spacing of wall and other surfaces for decorative purposes—bands and borders—units of pattern—diapers—the construction of arch-forms—tracery and mouldings. In addition, exercises will be given in the projection of simple solids.

FRENCH POLISHING.

FIRST AND SECOND YEARS.

The art of French polishing—manufacture and use of various stains and polishes—colouring and lacquering—varnishing and glazing—gums and their use—colours and their use—aniline dyes and chemicals used in stains—methods of polishing different woods, wooden carvings and statues—imitations, inlay transfers, papers, various methods of polishing: German, Scotch, English, American, Swedish and French.

IRISH LANGUAGE.

All Students of the Schools are entitled to attend a class in Irish if they so desire, without extra charge. Classes in the First Year only are held in the Bolton Street Institute, but more advanced students will be provided with instruction in any stage at the Technical Institute, Parnell Square, or Kevin Street.

IRISH.

FIRST YEAR.

Oral: Conversation lessons (questions, answers and general remarks) to afford each student the necessary practice to attain reasonable facility in conversing on simple matters such as the following:—Name and home or residence—salutations or meeting and parting—the clock—days of the week—months and seasons—the weather—money—easy counting—colours and other ordinary properties of common objects—location of objects in the classroom and immediate neighbourhood—parts of the body and clothing—giving and carrying out simple orders. With the conversational lessons, the student will be familiarised with the ordinary constructions in regard to the use of is, seadh, ni headh, an eadh, nach eadh, gurb eadh, sé, ni hé, an é, nach é, gurb é, cad é, an bhusú, nil, td, go bhfúi, nach bhfúil, an raibh, ni raibh, bhí, go raibh, nach raibh; and of some of the more commonly used verbal nouns, such as suide, seasúnt, teacht, stiúbal, etc.

Written Work: Each student will keep a note-book to record salutations, simple phrases, his own name and address, etc., in correct Irish. Rough notes may also be written according to English phonetics or otherwise to aid in the memorising and pronunciation of words and phrases.

Cultural: Students will be taught to memorise simple songs, rhymes, stories, recitations, etc., so as to be able to repeat them with correct blas. Verses, etc., will be according to Gaelic metres, and stories or recitations by Gaelic authors.

TEXT BOOK: An Tarbh Ùbreac. Dr. Hyde.
PRELIMINARY COURSE.

Subjects:

ENGLISH.

ARITHMETIC.

DRAWING.

This Course is arranged for junior trade students who have had to leave school while still in the lower standards, in order to provide them with the opportunity of qualifying for the Introductory and Specialised Courses. Students are permitted to take a practical class in their trade subject by payment of an extra fee, provided there is room for their admission.

ENGLISH.

Spelling, correct pronunciation and grammar—formation of sentences—use of verbs, adverbs, prepositions, etc.—simple descriptive compositions.

ARITHMETIC.

Multiplication tables—simple multiplication and division—easy compound addition, subtraction, multiplication and division—simple mental arithmetic.

DRAWING.

Simple freehand sketches from blackboard, familiar objects and from memory—geometrical exercises with compass and set squares—angles, squares, rectangles, circles, etc.