
Prospectus: Kevin Street

Kevin Street College

1911-9

City of Dublin, Municipal Technical Schools, Kevin Street ; Prospectus, 1911 - 1912

City of Dublin Technical Schools

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City of Dublin
MUNICIPAL
Technical Schools



Offices—LOWER KEVIN STREET.

PROSPECTUS,

SESSION 1911-1912.

CITY OF DUBLIN
MUNICIPAL
Technical Schools.

LOWER KEVIN STREET.

Science, Art, and Technological Classes
Domestic Economy Classes.

BOLTON STREET.

Engineering Drawing Classes.
Building Drawing Classes.
Printing Classes.
Commercial Classes.

RUTLAND SQUARE (No. 12).

Domestic Economy Classes.

CHATHAM ROW.

Domestic Economy Classes.
School of Music.

OPENING PROCEDURE IN 1911.

The Session will commence on Monday, SEPTEMBER 25TH.

REGISTRATION WEEK.—September 26, 27, 28, and 29.

During these days, representative Teachers will be at Bolton Street to advise applicants, and to register as "Technical Students" all those who bring written evidence of their fitness to join any of the Technical Courses, and those who are on the Department Lists. Others will be registered on satisfactory evidence as "Introductory Students." Persons so registered *may* purchase their Tickets the same evening, and *should* purchase them before October 14th. All Teachers are to be in attendance.

Candidates for *Free Admission* must put in their claims during this week.

EXAMINATION WEEK.—October 2, 3, 4, 5, and 6.

In the week commencing Monday, October 2, the Entrance Examination will be held in the new Technical School at Bolton Street. All Students, New and Old, who have *not* been registered in the preceding week, and are not on the Department Lists, should sit for this Examination, which is a good test of Elementary School knowledge. The majority of Applicants cannot produce documentary proof of their educational standard, and for these the Examination affords a simple and easy way of establishing their fitness. The results of each Evening's Examination will be put up for inspection in the course of a few days, after which Tickets *may* be purchased at Bolton Street, and *should* be obtained before October 14th. A Student who fails to do himself justice on the first night, may sit again on October 6th, or October 12th. Teachers may be consulted on their special class nights.

TICKET WEEK.—October 9, 10, 11, 12, and 13.

During the week commencing October 9th, all those who have qualified, whether by evidence or by examination, should apply at Bolton Street for their Tickets, unless previously obtained. During this week, representative Teachers will be present at Bolton Street, to be consulted by Students, and to admit Students.

CLASS WEEK.—October 16, 17, 18, 19, and 20.

The Schools at Rutland Sq., Kevin St. and Chatham Row open. During this week all Teachers are to form their Classes.

On October 16th will commence the general issue of Tickets to all-comers, provided there be room in the Classes. None but Qualified Students will be eligible to take up the Courses, and they should purchase their Tickets before October 14th. Up to October 14th the issue of Tickets will take place at Bolton Street only, but from October 16th, Tickets will be obtainable at Kevin Street as well.

FREE ADMISSION.

Students who fulfil the following conditions will be entitled to Free Admission to any of the Courses marked "Privileged" :—

- (1) All Students who pass the Entrance Examination in the First Class in 1911, will be entitled to Free Admission to one "Privileged Course."
- (2) The same privilege will be extended to Students who propose to take up a "Privileged" Technical Course for the first time in 1911, having passed the Junior Intermediate Examination, or a University Matriculation Examination, or any higher grade of Intermediate or University Course.
- (3) The same privilege will be extended to those who have made two-thirds attendances in each subject of an Introductory Course during the Session 1910-11, having passed the Entrance Examination in the Second Class in 1910.
- (4) The same privilege will be extended to those who take up the second or a later year of a "Privileged" Course in 1911, having attended satisfactorily the previous grade of the same Course in 1910-11; and having been qualified by any of the means described above, or recognised by the Department before October, 1910.

Those who seek Free Admission must also comply with the following Conditions :—

- (1) They must secure recognition for their Claims and obtain their Course Tickets before October 10th.
- (2) They must attend their classes regularly and observe all rules, in order to preserve the privilege. If any Free Student is absent from three consecutive meetings of any class in his Course, his Course Ticket is liable to be forfeited, and will no longer be available after notice of forfeiture has been posted to his address.

If a Free Student attends irregularly during the first Term, October to January, he will not be entitled to Free Admission during the second Term, February to May.

The Courses referred to above as "Privileged" are those indicated by the following symbols :—

ENG.	ZPS.	TYP.	BKP.
EEG.	MAG.	MCH.	BST.
WIR.	CHM.	DM.	SHD.
BLG.	ZCS.	DR.	GCM.
ARC.	CHO.	DQ.	COR.
MAT.	ART.	BSN.	FRC.
PYS.	CFT.	BSH.	LG.

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TECHNICAL EDUCATION COMMITTEE

FOR THE

COUNTY BOROUGH OF DUBLIN.

Chairman Rev. T. A. FINLAY, S.J., M.A.

Deputy-Chairman .. Councillor LORCAN P. SHERLOCK.

The Right Hon. Alderman J. J. FARRELL, Lord Mayor.

Alderman DOYLE.

Councillor DICKSON.

.. HEALY, J.P.

.. MAHON.

.. KELLY.

.. MONKS.

.. Dr. McWALTER, M.A., B.L.

.. SCOTT.

Councillor BRADLEY, J.P.

.. SHORTALL.

.. COGAN, High Sheriff.

.. SWAINE.

.. DERWIN.

.. VAUGHAN.

(Representatives of the Municipal Council).

Mr. P. T. DALY, Mr. GEORGE LEAHY and Mr. HENRY ROCHFORD.

(Representatives of the Dublin Trades).

Mr. MICHAEL NUGENT and Mr. GEORGE PERRY, J.P.

(Representatives of the Founders and Subscribers).

Professor WILLIAM BROWN, B.Sc., A.M.I.E.E.

(Representative of the Royal College of Science, Ireland).

Mr. EDWARD GIBSON.

(Representative of the Dublin Guild of Master Painters).

Mr. HENRY McLAUGHLIN.

(Representative of the Master Builders' Association).

Director JOHN RYAN, M.A., LL.M., D.Sc.

Secretary LOUIS ELY O'CARROLL, B.A., B.L.

DRAFT SCHEME FOR TECHNICAL INSTRUCTION IN THE CITY OF DUBLIN.

(Proposed by the Committee for approval.)

Technical Instruction shall be given in the City of Dublin, under the Technical Instruction Acts of 1889 and 1899.

The local authority, which is the Municipal Council, shall govern the Schools through the agency of a Standing Committee, composed partly of members of the Council and partly of non-members who shall represent educational interests in the city.

This Technical Education Committee shall for the present consist of 26 members as follows:—

The Lord Mayor of Dublin for the time being.

Fifteen members of the Municipal Council selected by the Council.

Ten educational representatives appointed by the Council on the nomination of the following Public Bodies:—

The National University of Ireland (1).

Trinity College (1).

The Royal College of Science (1).

The Association of Master Builders (1),

The Guild of Master Painters (1).

Subscribers (2).

The Trades Council (3).

The Technical Education Committee shall make provision in the City of Dublin for the teaching in accordance with the spirit and letter of the Acts, of those branches of knowledge which seem most likely to develop the intelligence and ability of local artisans, and best calculated to promote the general interests of Industry and Commerce in the City.

In pursuance of this policy provision shall be made in the New Institute at Bolton Street for instruction in all branches of knowledge required by persons engaged in Building, in the Building Trades and the trades ancillary to Building: in Engineering of all kinds and the Engineering trades: in Printing, and in all trades concerned with the production of books, and other printed or illustrated publications. Provision shall be made at Kevin Street for instruction in Science and Art subjects of a general nature, such as are commonly taught in all Polytechnics and Technical Institutions, and in such special branches of Science and Art with their applications as may be required by any considerable body of artisans working in the City of Dublin, for whom such provision is not made elsewhere.

Provision shall be made for the teaching of Commercial subjects and such branches of knowledge as are required by students engaged in business in the City of Dublin.

For this purpose a special School shall be established in a convenient part of the City.

Provision shall be made for the teaching of Domestic Economy, both by means of Peripatetic Lecturers, who are to give such instruction in the poorer districts of the City, and by organised classes to be held in one of the buildings already possessed, or hereafter to be acquired, by the Committee.

The building at Chatham Row shall be utilised for the School of Music, and by practical classes in Instrument-making, in the manufacture and repair of clocks, watches, and kindred articles.

The Committee shall engage and appoint such officers as may seem necessary for the proper conduct of the foregoing work, and for the general government of the Schools. For these purposes an Educational Director shall be employed, with such subordinate officials as from time to time may be deemed to be necessary. The Committee shall conduct its business through, and be represented by, a Secretary, whose position, duties and responsibilities shall be similar to those of the Secretaries of other Standing Committees of the Corporation. He shall be provided with an adequate Staff. In each building a Head Teacher shall be placed in charge, and Heads of the Chief Departments shall be appointed.

For the foregoing purposes the Committee shall be supplied with Funds as follows:—

- (1.) The proceeds of a rate of a penny to be struck by the Corporation, under the Act of 1889.
- (2.) An annual subsidy to be provided by the Department under the Act of 1899, and in accordance with the provisions of that Act.
- (3.) The proceeds of an Attendance Grant to be earned and obtained from the Department.
- (4.) Fees, rents, and other payments received by the Committee for various services.
- (5.) Contributions from the public.

CALENDAR AND MEMORANDA.

1911.

Monday, September 25th	..	Opening of Bolton Street new Institute at Bolton Street.
Tuesday, September 26th	..	Enrolment of Students begins.
Monday, October 2nd	..	Entrance Examinations begin.
Monday, October 16th	..	Classes commence.
Monday, October 16th	..	School of Music opens.
Thursday, December 21st	..	Last Meeting of the Classes before Christmas.
Monday, December 25th	..	Christmas Day.

1912.

Wednesday, January 3rd	..	Classes resume after Christmas vacation.
Friday, February 16th	..	Applications for Society of Arts Examinations—Commercial—must be lodged in the Office by this date.
Wednesday, February 28th	..	Applications for Board of Education Examinations—Science and Art—must be lodged in the Office by this date.
Thursday, March 14th	..	Applications for the City and Guilds of London Examinations—Technology—must be lodged in the Office by this date.
Friday, March 15th	..	Art Works for the National Competition and Drawings in Building Construction and Machine Construction are to be lodged in the Office by this date.
Sunday, March 17th	..	St. Patrick's Day.
Wednesday, April 3rd	..	Last Meeting of Classes before Easter.
Thursday, April 11th	..	Classes resume after Easter Vacation.
Tuesday, March 26th	..	Last Day for Candidates in Painters' and Decorators' Work to forward their practical Work to the City and Guilds of London.
Monday, March 25th	..	Society of Arts Examinations begin.
Saturday, April 27th	..	City and Guilds of London Examinations begin.
Saturday, April 27th	..	Last Day for forwarding to the City and Guilds of London specimens of Practical Work or Designs.
Saturday, May 11th	..	Last day for Candidates in Carpentry and Joinery (Honours Grade) to forward specimens of their Practical Work to the City and Guilds of London.
Saturday, May 25th	..	Session Ends.
Saturday, May 25th	..	School of Music Closed.

USEFUL MEMORANDA.

1. Only Qualified Students can enter for Courses and gain the attendant advantages.—See pages iv, 13 and 17.

2. With a few exceptions, Half-a-Crown is the fee for a Course, and also for a Single Class.—See page 2. Classes in Theory and Practice, offered together, usually count as a single class. But extra nights at practical work involve an extra fee (see page 3) in all cases, except where they are offered in the Prospectus.

3. There are three kinds of Entrance Form, a *pink* one for Course Students, a *green* one for Free Students, and a *white* one for those who are entering for separate classes. In either case this Form is to be filled up in full detail, after the Simple Application Form has been presented to any Teacher.

4. The *Courses* are to be described by the Symbols attached to them. Thus ENG. 2 refers to the Second year of an Engineering Course, and MAT. 1 to the First year of a Mathematical Course. These symbols are not to be used of *Classes*, since they represent *Courses* only. The names of *Classes* are to be written out where referred to.

5. Read page iii. The procedure for enrolment is as follows: The Applicant fills up the small Application Form to commence with. He presents this to the Head Teacher of the Department he wishes to join.

(a) If the Teacher considers him eligible for Free Admission to a "Privileged" Course, he writes his reasons on the back of the Application Form: he directs the Student to fill up the *green* Entrance Form, and sends him to the Director or a Deputy to decide upon the case.

(b) If the Teacher considers him eligible for a Course, he writes on the back of the Form, the symbol of the Course and year, stating also the grounds of qualification (if not already entered by the Student), and adding his signature to accept responsibility for the judgment. He then directs the Student to fill up the *pink* Entrance Form in full detail, and to take it, together with the Application Form, to Room B. 3 for certification. After this the Student presents the certified Entrance Form at the Office, pays his fee, and secures his ticket.

(c) On the other hand, if the Teacher decides that he is not eligible for a Course, he directs the Applicant to fill up in full detail one of the *uncoloured* Entrance Forms, which every Teacher can sign for his own Classes. The Student can then proceed to the Office with this Form, and pay his fee or fees.

6. For methods of qualification, see pages 14, 15 and 18.

7. For dates of Examination, dates of Opening at the various Schools, &c., see page iii.

8. For particulars about FREE ADMISSION, see page iv.

Teaching Staff.

MATHEMATICS.

LECTURERS

P. A. E. DOWLING, B.A.
 R. VINCENT WALKER, B.A.
 M. A. HARTNETT, B.A.
 M. HANLY, B.A.
 A. J. DONNELLY, P.Sc., M.A.
 Math. Stud., R.U.I.

MECHANICAL ENGINEERING.

LECTURERS AND

DEMONSTRATORS

C. B. OUTON,
 Whitworth Scholar.
 JOHN TAYLOR, M.A.,
 Associate R.C.Sc.I.; Whitworth
 and Royal Exhibitioner.
 E. E. JOYNT.
 R. J. DOWLING.
 M. O'SULLIVAN.
 R. W. TAYLOR.

WORKSHOP INSTRUCTORS

P. PUZZAU.
 M. REILLY.
 H. TAYLOR.
 J. MANNING.

PHYSICS AND ELECTRICAL ENGINEERING.

LECTURERS AND

DEMONSTRATORS

THOMAS TOMLINSON,
 B.E.; A.M.I.E.E.
 WM. J. LYONS, B.A.,
 Associate R.C.Sc.L.
 CHARLES I. SANSOM,
 Associate R.C.Sc.L.
 EUGENE MOYNIHAN,
 Associate R.C.Sc.L.
 JOSEPH TIERNEY, A.M.I.E.E.
 J. ENRIGHT, B.A.

WORKSHOP INSTRUCTOR

JOHN ROTHWELL.

CHEMISTRY.

LECTURERS AND

DEMONSTRATORS

P. BERTRAM FOY, F.C.S. (Principal).
 J. J. HUTCHINSON.
 M. J. O'CONNOR.
 THOMAS NOLAN, B.A.
 J. CORCORAN.

BOTANY AND MATERIA MEDICA.**LECTURER**

J. ADAMS, M.A.

BUILDING TRADES.**LECTURERS AND
DEMONSTRATORS**RICHARD COULSON, F.S.I.,
L.R.I.B.A.M. J. BURKE,
Architect.**INSTRUCTORS**JOHN BOLTON,
W. F. NAGLE, R.H.A.,
Medallist.

THOMAS MARKEY.

JOSEPH KING.

JOSEPH CLARKE.

JAMES SAUNDERS.

GEORGE PAPPIN.

JAMES HICKS.

MISCELLANEOUS TRADES.**INSTRUCTORS**

EDWARD LEONARD.

JOHN BYRNE.

JOSEPH ADDISON.

JOHN LACY.

DOMESTIC ECONOMY SUBJECTS.**LECTURERS**Miss BELLINGHAM TODD,
Diplomé, Leeds, London and
Manchester Schools of Cookery
and Domestic Economy.Miss K. CLANCY,
First Class Diplomé, Cookery,
Laundry, Dressmaking, Irish
Training School of Domestic
Economy.

Miss K. DOYLE.

Miss K. M. MURPHY,
First Class (Special Distinction)
National Union of Teachers; ap-
proved by City and Guilds of
London.

Miss A. CLARKE.

PRINTING TRADES.**INSTRUCTORS**

P. P. CURTIS.
 B. GEOGHEGAN.
 PATRICK FOGARTY.
 R. A. LATCHFORD.

COMMERCIAL SUBJECTS.**TEACHERS**

MARTIN WHEELER, M.A. (Principal.)
 D. K. LEAHY, B.A.
 MICHAEL MORRISSEY.
 DENIS LYNCH.
 M. P. CRINION, B.A.
 F. C. WALLIS-HEALY, M.J.I.,
 Fellow of Institute of Shorthand
 Writers, Ireland.
 M. F. BOYLE, P.C.T.
 Pitman Silver Medallist; Gold
 Medallist, D.S.W.A.
 Miss C. MORAN.
 M. HANLY, B.A.
 A. MANLY.
 JAMES O'SHEA.
 M. F. FLOOD, M.A.
 MICHAEL HAYES, M.A.

ART AND ARTISTIC CRAFTS.**LECTURERS**

WILLIAM L. WHELAN,
 Art Master; Silver and Bronze
 Medallist, National Competition
 WILLIAM MILLARD.
 F. O'DONOHUE, A.R.H.A.
 W. T. O'SHEA.

INSTRUCTORS

JOHN MILLIGAN.
 THOMAS MATHERS.
 HENRY TAYLOR.

INSTRUCTORS**MUSIC.**

JAMES CONROY.
 W. H. NESBITT.
 THOMAS MITCHELL.
 MRS. H. ANNESLEY.
 A. B. CULLEN.
 Mrs. BLOOM POLLOCK.
 P. J. GRIFFITH.
 ALEX. BURKE.

EXAMINATIONS.

ENTRANCE EXAMINATIONS.

Before they are enrolled in Classes new applicants should be examined in English, Arithmetic and Drawing to test their general preliminary education. Satisfactory evidence of general education (*e.g.*, Certificates of Board of Intermediate Education or other examining bodies) may exempt from examination. See pages 14-15.

Entrance Examinations will be held each evening (Saturday excepted) in the week beginning 2nd October.

CLASS EXAMINATIONS.

Class Examinations will be held by each teacher towards the close of the Session. Prizes are given on the results. The enrolment of a Student will be considered as an undertaking to make a sufficiently good attendance and also to sit for the Class Examination. Only Qualified Technical Students taking Authorised Courses are eligible for the Prizes.

EXTERNAL EXAMINATIONS.

The dates of the various Examinations held by the City and Guilds of London Institute, and the Society of Arts are set forth in the Appendix. Only such Students as have made sufficiently good attendance are to be entered for these Examinations.

SPECIAL NOTICES.

PUBLIC LIBRARY, LOWER KEVIN STREET.

The Public Library adjoining the Schools is equipped largely with Books and periodicals of special value to Students.

CORPORATION APPOINTMENTS.

The Corporation of Dublin have two vacancies yearly in the Electric Lighting Works for Improvers who have received a sufficient preliminary training in the Technical Schools. Students who desire to apply for these positions should notify the Teacher of the Class in Electric Lighting.

FEES.

All Fees are payable in advance, and no Fee is returnable.

Fees are payable twice in the year, except in the case of the following

SESSIONAL FEES.

The Fee for a Preliminary or for an Introductory Course will be only 2s. 6d. for the entire Session, payable in full on entering.

The same Fee of 2s. 6d. for the whole Session will be charged to Hair-dressers for their Special Class only, but not for a Course.

HALF-SESSIONAL FEES.

The General Fee for the Half-Session, October to the end of January, is 2s. 6d. for a Single Class or a Single Course, and for the Half-Session, end of January to end of May, another 2s. 6d.

There are certain Special Fees, as follows:—

For Chemistry alone (Theoretical and Practical),	15s. for the Term.
For Theoretical Chemistry only,	5s. for the Term.
For any Course including Chemistry, Theoretical and Practical,	7s. 6d. for the Term.
For Practical Cookery (Kevin Street Afternoon Class),	5s. for the Term.
For Aeroplane work, Bolton Street,	5s. for the Term.

Persons, other than artisans or apprentices attending their own trade Class, are charged a quadruple Fee for any Trade Class or Course, and are admitted only if there be room.

FREE ADMISSION.

For particulars of Free Admission to certain Courses see page iv.

SESSION DIVIDED INTO TWO TERMS.

For all the Schools, including Music, the Session will be divided into two Terms:—

First Term—**October 16th to January 31st.**

Second Term—**February 1st to May 25th.**

A separate Fee will be charged for each of these two Terms, except in the case of Fees which do not exceed half-a-crown for the entire Session, which half-a-crown Fees must be paid in full at the commencement of the Session.

The Fee for a Sessional Class or Course will be payable in two parts, the first half in September, the second half in January. The Fee, with a few exceptions stated elsewhere, has been hitherto Five Shillings. During the present Session, half a crown will be paid at the commencement for the First Term, and half a crown in January for the Second Term. This is not a case of deferred payment, and it should be understood clearly that a Student who leaves at Christmas will not owe the second half of the Fee. It is a case of prepayment for each of two distinct Terms. In the same way all the Sessional Fees which exceed five shillings will be paid in two halves, one for the First Term, and one for the Second Term, the latter half being payable by those only who propose to continue their studies beyond January.

For any other single class, not mentioned on the preceding page, whether it be taken alone or additional to approved course, the fee will be *2s. 6d.* each term. The optional additions offered to Official Courses are not charged for, if the total number of Classes taken does not exceed three. In the case of Metal Plate work four is the limit.

It should be clearly understood that the admission of a Student for such small fees as above for the entire Session, involves an understanding on his part to attend with regularity and to observe the rules. Default in these matters will render him liable to forfeit his ticket; in particular, it may be cancelled if he absents himself from three consecutive meetings of any class whatever, without prior notification and urgent reason.

For Fees in School of Music, see page 175.

FEES ARE NOT RETURNABLE UNDER ANY CIRCUMSTANCES.

The Class Fee admits a Student to the Lecture and corresponding Laboratory or Workshop, if any, for the hours and days named in the publication called "List of Classes" under the respective index numbers of Lecture and Practical work. To quote an example, the one fee for Organic Chemistry admits the Student to Lecture Class 64 on Thursday evening, and to Laboratory Class 65 on Thursday and Friday evenings.

Similarly, the Course fee admits a Student to two or three classes as set forth in the Technical Course list, and each Class is to be interpreted as covering all that is described in the last paragraph even though each particular night is not actually mentioned in the Course list.

If any Class or Course Student wishes to work an extra night per week in Laboratory or Workshop, he must take out a special Class Ticket for this night, price *2s. 6d.* a Term, unless it be in the Chemical Laboratory when the fee will be *7s. 6d.* per Term.

The Trade Classes are intended for boys engaged in the actual Trades; outsiders are only admitted if there be room, and on payment of a quadruple fee.

PURCHASING OF TICKETS.

When a Student is about to enter a Class he should go to the Office at Bolton-street or at Kevin-street and purchase a half-a-crown red Admission Ticket. This Ticket should then be presented, together with his Application Form, to the Clerk authorised to issue Class Tickets, who will give him a Class Ticket in exchange for his Admission Ticket. Before parting with the Admission Ticket the Student should write his name on it, but this should not be done until he is quite sure of the exact amount of the Fee which he has to pay, because the Ticket once signed is not afterwards transferable.

The foregoing will be the simple course of procedure to be followed by a candidate who wishes to enter a single Class, but in the case of one who is about to enter a Course, he will need to consult the Teacher and go through preliminaries described on page 5. In certain instances, too, especially in the case of Practical Chemistry, the Fee is more than half-a-crown. In these cases it will be necessary for the student to provide himself with two or more of the red Admission Tickets, according to the amount of the Fee. The number of Special Fees are, however, very few, and they will be found described on page 10.

Where Fees are paid by Employers, white Admission Tickets, supplied to the Firms, are to be presented at the Office in exchange for green Class Tickets.

GENERAL NOTICES.

For particulars of the valuable Prizes and Certificates offered by the Committee to Students who attend the authorised Courses, see Appendix to Calendar.

For procedure at Opening, see Pages iii. and iv. of this Publication.

Every Student is required to fill up an Entrance Form stating his age, address, occupation, the Class or Course he wishes to join, and other particulars. The pink Form is for the use of Qualified Students entering Courses: the green Form for those to whom free admission has been granted; while the white Form is for those who are taking separate Classes and not Courses. For the procedure to be followed, see page iv.

Changes of address should always be promptly notified at the Office (Lower Kevin Street).

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 October 14th, 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 allowed 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.

Smoking, whistling, and loitering are not permitted in the passages or entrance. Newspapers are not allowed either in class-rooms or workshops: and Teachers are earnestly requested both to enforce and observe this prohibition.

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

A WORD TO STUDENTS.

It is a grave but common error of the Trade Student that the only class he should attend is that bearing the specific name of his trade. Underlying all industrial effort are certain principles of Science and Art. It is the aim and intent of Technical Instruction to impart a knowledge of principles and of their application, thus supplementing the experiences of the workshop.

A knowledge of Arithmetic and Elementary Mathematics is indispensable for almost all technical classes; while little can be done in Mechanical Engineering, Electrical Engineering, Building Construction, or any branch of these Subjects, without some preliminary knowledge of General Physics and also of Practical Geometry. Facility in Drawing should be cultivated, since it leads to a rapid grasp of ideas and to their clear expression, in addition to its practical utility.

Above all, the need, for some acquaintance with Mathematics must be borne in mind, by the Students who attend Trade or Science classes.

PRIVILEGES OF REGISTERED STUDENTS.

The duty of investigating the qualifications of intending Students by Examination or otherwise, has been put upon the School authorities by the Department of Technical Instruction. When a boy gets into a wrong class he is apt to waste his own time as well as that of his fellows, and any scheme which will insure a proper classification must be of great utility. But taking into consideration the natural reluctance of young people to sit for Examinations, certain advantages are offered which may induce them to conform with readiness. In the future, Students who get duly registered as described above, and continue to attend all their classes and to keep the rules, will profit in the following ways:—

1. They will be eligible for the many Prizes and Certificates offered by the Schools. Every Student duly entered in a Course may gain a Money Prize, by his own diligence, and without any competition with others.
2. They will get preference in the admission to any Classes which are likely to be crowded.
3. They will have the advantage of pursuing organised and progressive Courses of study, which should be of special value to them.
4. In certain cases they may obtain Free Admission. See page iv.

FREEDOM OF ENTRY.

At the same time the Committee is unwilling to resort to Coercion, even in the interests of the Students themselves, and so it will be left open for any one who desires to take a Class on his own responsibility, to enter without let or hindrance, on payment of the prescribed fee, which is generally *2s. 6d.* for a single class, apart from Chemistry and Afternoon Cookery.

But all such admissions will be subject to the following conditions:—

- (1.) The Teacher of every class must exclude from it any Student who turns out to be unfit for the class.
- (2.) The fee will not be recoverable.
- (3.) Students entering thus will not be eligible for the School Prizes and Certificates.
- (4.) Unqualified Students will not be admitted to Courses, at the Course fee.

FREE ADMISSION.

A Student who qualifies in one of the ways described on Page iv., may obtain Free Admission to any one of the Courses marked "Privileged" in this Publication.

ENTRANCE EXAMINATION.

The Department of Technical Instruction has taken steps to prevent the admission of Students to classes for which they are not fit, and in which they might become a hindrance to others. On this account some preliminary enquiry has to be made in each case, to ascertain the particular course for which each applicant is fitted. This precaution is obviously in the interests of the individual as well as in that of the general body of Students, and on every ground such enquiry should be welcomed.

For the majority of Students, this means an Entrance Examination, on the results of which the applicants are classified or graded. Students may obtain Second Class in the Entrance Examination, admitting to Introductory Course, on Arithmetic and English only, and may qualify for Specialised Courses (getting a First Class) by taking a third paper in either Drawing or Algebra or Geometry, whichever they choose.

In the present year the Entrance Examination will be held at the Bolton Street Schools, on the nights of October 2, 3, 4, 5, 6, and 12th. All new Students are earnestly advised to attend at 7.0 p.m., and prove their fitness by answering the simple questions set. Those who can produce evidence of having passed the Junior Intermediate or some equivalent Examination, and prefer to qualify by means of these records, are to attend at the Bolton Street Schools on September 26, 27, 28, or 29th.

DIRECTIONS.

To Old Students.

(a.) Old Students *recognised by the Department.*

The names of all Students on whom the Department of Technical Instruction has paid grants for the last three years are entered on printed lists, which are preserved. These are recognised as "Technical Students," who may continue their progressive courses of study, on getting their Entrance Forms signed by a responsible Teacher, and paying their fees. This they may do on Sept. 26th, or any subsequent day, and no time should be lost.

(b.) Old Students *not recognised by the Department.*

All Students, other than those whose names are on the lists mentioned under (a), should qualify, as if they were new Students. This they can do by getting a First Class in the Examination, on any night between Oct. 2nd and Oct. 6th; or by bringing precise written evidence between September 26th and 29th, which will warrant their admission into the group of Technical Students. [See directions to New Students, concerning the nature of the evidence required.] The fact that an individual may claim to have passed the Entrance Examination in 1909 or 1910, will not suffice, if he has not followed it up by regular attendance. The School Authorities do not undertake to preserve the papers of those who neglect to enter the Classes or of those who cease to attend, and as the Department requires the production of the papers, such applicants must sit again to secure the Examination qualification.

Apart from the question of general qualification it rests with the Student to satisfy the Teacher that he is fit for the Special Course on which he proposes to enter.

To New Students.

Any new-comer, who happens to have passed the Junior Grade Examination of the Intermediate Board, or any other Examination of equal or higher order, can be at once registered as a "Technical Student," and can, with the approval of an authorised Teacher, commence a suitable Technical Course of study. He should come to Bolton Street School between September 26 and 29, bringing evidence of his having passed the Examination; he should get his Entrance Form certified, and take out his Ticket.

Any one who gets a First Class in our Entrance Examination, October 2-6, will be in exactly the same position as the foregoing Junior Intermediate Student, and can be entered similarly on October 9th and following days.

Any one who gets only a Second Class in our Entrance Examination is to enter for the "Introductory Course," fee 2/6. If he attends this regularly, he becomes in the following Session, without further examination, a Technical Student *recognised by the Department*.

All the foregoing new Students will enjoy the privileges of Qualified Students, and be eligible for the Prizes and Certificates offered by the Committee which are not limited in number.

Those who fail to get a Second Class in our Entrance Examination, but nevertheless manage to get 20 per cent. marks, will be placed in the Third Class, and allowed to enter the Preliminary Course, fee 2/6. They too will be eligible for Prizes.

All responsible Teachers are of course exempt from the Examination, and New Students should clearly understand that definite evidence of any kind which will establish their educational standard, will enable them to be admitted into the foregoing groups without examination. For instance a note from a Head Master to say that an applicant has been working satisfactorily in the Sixth Standard in his School, will secure the admission of that person into the Introductory Course as a Qualified Student with the consequent privileges. But, after all, the easy Examination itself is the simplest and most satisfactory way of settling the question. Those, however, who prefer to come in on the strength of their previous records, should apply at Bolton Street between September 26 and 29.

Each one should fill in a simple Application Form, giving his name, address, and occupation, and stating the department in which he wishes to study, whether it be—Mechanical Engineering, Electrical Engineering, Building, Mathematics or Science, a Trade (saying which), Art, Domestic Economy, Printing, or Commerce. On the back of the Application Form should be written the grounds on which he claims admission to the class of Qualified Students *without* examination. He should then go to one of the chief Teachers appointed for the purpose, and submit to him his claim. If accepted he can fill in his Entrance Form, get it certified, and purchase his Ticket straightaway.

Music Students should apply at Chatham Row on October 16.

PREPARATORY COURSES.

Those who pass the ENTRANCE EXAMINATION in the FIRST CLASS may join any of the Technical Courses to be found on the succeeding pages. Those who pass in the SECOND CLASS are to enter one of the "Introductory" Courses below on this page. Those who pass in the Third Class are only at liberty to join one of the "Preliminary" Courses here set forth:—

PRELIMINARY COURSES.

KEVIN STREET. —Trades Group.				PRLt.	
Elementary Mathematics	..	..	..	Tuesday	7.30—8.30
English	..	..	..	"	8.35—9.35
Drawing	..	..	..	Friday	7.30—8.30
				<i>or,</i>	8.35—9.35

BOLTON STREET. —General Group.				PRLg.	
Elementary Mathematics	..	..	..	Tuesday	7.30—8.30
English	..	..	..	"	8.35—9.35
Drawing	..	..	..	Thursday	7.30—8.30
				<i>or,</i>	8.35—9.35

BOLTON STREET. —Commercial Group.				PRLc.	
Elementary Mathematics	..	..	..	Tuesday	7.30—8.30
English	..	..	..	"	8.35—9.35
Drawing	..	..	..	Thursday	7.30—8.30
				<i>or,</i>	8.35—9.35

INTRODUCTORY COURSES.

KEVIN STREET. —Trades Group.				INTt.	
Elementary Mathematics	..	..	..	Thursday	7.30—8.30
English	..	..	..	"	8.35—9.35
Drawing	..	..	..	Monday	7.30—8.30
				<i>or,</i>	8.35—9.35

BOLTON STREET. —General Group.				INTg.	
Elementary Mathematics	..	..	..	Thursday	7.30—8.30
English	..	..	..	"	8.35—9.35
Drawing	..	..	..	Tuesday	7.30—8.30
				<i>or,</i>	8.35—9.35

BOLTON STREET. —Commercial Group.				INTc.	
Elementary Mathematics	..	..	..	Thursday	7.30—8.30
English	..	..	..	"	8.35—9.35
Drawing	..	..	..	Tuesday	7.30—8.30
				<i>or,</i>	8.35—9.35

The FEE for each of the above Courses is *Half-a-Crown* for the whole Session. No additional Class is permitted for this Fee: but a Student may take up any additional single Class other than Chemistry or Cookery for *Half-a-Crown* a term. Any one who does not continue to attend all the Subjects of his Course with regularity risks the forfeiture of his Ticket, and if notice be sent to him by post of his Ticket being cancelled, he will not be able to make further use of it.

TECHNICAL COURSES.

It should be borne in mind that there are two distinct qualifications that require to be settled: firstly, fitness to take up a *specialised* Course of study, that is, to rank as a Technical Student; and secondly, fitness for the particular Course of study chosen. The latter question has to be settled by the responsible Teacher who initials the Entrance Form, after due enquiry.

In the following pages will be found the Official Technical Courses. These are open to all Students who pass the Entrance Examination in the First Class, or are otherwise qualified in one of the ways already explained. Each one is to take up, under advice or approval, the particular Course which most nearly meets his requirements, and is to adhere to this definite programme without any subsequent variation. If he ceases to attend any component subject of this Course, he must forfeit his entire Ticket. The inclusive fee is not applicable to any group whatever of three subjects which a Student may arrange at will for his own study, but is charged for the definite Courses here announced under—

**ENGINEERING, BUILDING, MATHEMATICS,
PHYSICS AND CHEMISTRY,
BUILDING TRADES, GENERAL TRADES,
ART, DOMESTIC ECONOMY,
PRINTING AND COMMERCE.**

A qualified Student who attends with regularity one of these Authorised Courses of study during the successive years, and makes satisfactory progress, will be entitled to a complete Technological Certificate at the end.

For one term's instruction in each of these Courses, the fee charged to a duly authorised Student is *Half-a-Crown*, except where the Course includes Practical Chemistry, in which case it is *Seven Shillings and Sixpence*. There are two Terms in the year. The inclusive fee will only admit to one of the definite Courses here offered, and is not applicable to any other scheme of study which a pupil may devise for himself. For a few exceptions, see Par. 4 on Page 18.

Where his year's Course does not consist of more than two subjects a Student will be permitted to add any one Class in Mathematics or Drawing without extra charge. Other possible variations will be found in Paragraphs 5 and 6 on Page 16. If he desires to add a Class he must name it definitely on his Application Form, and must not discontinue it without permission; otherwise he runs the risk of forfeiting his entire Ticket. All such additions or variations are subject to approval and sanction, and must be made at the time of entering, and duly recorded on the Entrance Form.

Before joining any Course, a Student should consult the Teacher of the leading or dominant subject, which is the one first mentioned in the list of component subjects. The Application Form should be signed by the Teacher of the dominant subject, and should show in conspicuous letters the short symbol for the Course, thus—**ENG. 3** for Mechanical Engineering, third year; and **EEG. 1** for Electrical Engineering, first year; as quoted in the succeeding pages.

If any former Student should find it at all difficult to pick up the thread of his work in the New Courses now offered, he is to consult the Teacher of his chief subject. It should be clearly understood that a Student who has already studied for two years in the School, does not necessarily join the *third* year of any Course. He is to be entered for that particular year of his Course which is determined by his attainments in his leading subject: so that there may be little or no break in the progressive character of his education.

MEMORANDA ABOUT TECHNICAL COURSES.

1. No variation whatever can be made in the Official Courses advertised in this publication ; except as explained herein.

2. No changes can be made in Tickets when once issued, except in urgent cases where the difficulty could not have been earlier foreseen by the Student. In dealing with the new Courses Students will be allowed to rectify mistakes for good reasons during October, but not later.

3. The Course represents each Student's scheme of work, and no one can enter for two Courses. All additional Classes, except those permitted, must be paid for separately. If a Student decides to change his Course he must forfeit the original Course Ticket, and if the change is not sanctioned in October, he must pay for the new Ticket independently.

4. Teachers recently engaged in teaching and second year Monitors may enter for special Courses that suit their needs, apart from the Official Courses. For such a Course, not exceeding three subjects altogether, the fee will be usually 2s. 6d. The same privilege and fee will apply to senior Students who are preparing for special Examinations, and to a few others who are exceptionally situated. If Practical Chemistry be included, the fee is 7s. 6d.

5. In the case of those Courses which include less than three subjects, Students will be permitted to add to the Official Courses, without extra charge, a single extra Class as follows :—They may add any class in Mathematics or Drawing, if they obtain sanction for it at the time of entering. Drawing includes not only Freehand and Technical Drawing, but Machine Drawing and Practical Geometry. Students in Engineering, Building, or their Allied Trades, may add a class in Physics. Commercial Students may add a Language. Ladies may add any class in Domestic Economy. These additions are subject to sanction : they will, however, be permitted wherever they are reasonable and likely to be of profit. But in no case will a Student be allowed to take more than three subjects for the inclusive Course fee. In interpreting this limitation, Theory and Practice count as but one Subject ; similarly Commercial Arithmetic and English.

6. The variations that are possible in the Courses during the present Session are as follows :—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, such as from Workshop Mathematics to Pure Mathematics. Any form of Mechanical Drawing (including Practical Geometry) may be substituted for any other, at Entrance, while in the Art Department a certain latitude must be allowed to the Art Master, who can, for reasons to be stated on the Entrance Form, interchange such subjects as Freehand, Model, and Geometrical Drawing which are included in the Primary Course or Group of the Board of Education : and also those that are included in the Secondary Course or Group, wherever this appears to be desirable for an individual Student. In the Commercial and Language Courses, any one Language may be substituted for any other. Any variation of this kind must be made at the time of entering ; and must be sanctioned and duly recorded on the Entrance Form.

7. Wherever a Course contains an Alternative, indicated by the word "or," the Student may be allowed to take up both the alternatives, if the total number of his Course Classes will not exceed three altogether.

8. Laboratory Classes described as "Additional" are in every case optional.

9. It should be remembered that if a Student neglects or ceases to attend any one Subject of his Course, he risks the loss of his entire ticket. The same risk is incurred by neglecting any additional subject covered by the inclusive fee, but in the case of Subjects separately paid for, the loss is limited to the fee paid for the particular Subject.

ENGINEERING.

MECHANICAL ENGINEERING. (Privileged Course).

FIRST YEAR.	ENG. 1.	Engineering (Junior) ..	Tuesday
		Engineering Drawing (Prelim.) ..	Monday
		Engineering Workshop ..	Friday
SECOND YEAR.	ENG. 2.	Engineering (Intermediate) ..	Tuesday
		Geometrical Drawing, Stage 1 ..	Friday
		Workshop Mathematics, 2 ..	Wednesday
THIRD YEAR.	ENG. 3.	Engineering (Senior A.) ..	Friday
		Engineering Drawing, Stage 1 ..	Thursday
		Practical Mathematics, 1 ..	Monday
FOURTH YEAR.	ENG. 4.	Engineering (Senior B.) ..	Wednesday
		Engineering Drawing, Stage 2, <i>or</i> ..	Thursday
		Geometrical Drawing, Stage 2, <i>or</i> ..	Friday
		Practical Mathematics, 2 ..	Friday
FIFTH YEAR.	ENG. 5.	Engineering Design and Laby. ..	Monday
		Structural Design, <i>or</i> ..	Thursday
		Practical Mathematics, 3 ..	Tuesday

MECHANICAL ENGINEERING. (Second Course),

FIRST YEAR.	ZEG. 1.	Engineering (Jun.) ..	Tuesday
		Engineering Drawing (Prelim.) ..	Wednesday
SECOND YEAR.	ZEG. 2.	Engineering (Inter.) ..	Tuesday
		Practical Geometry, Stage 1. ..	Friday
THIRD YEAR.	ZEG. 3.	Engineering (Sen. A.) ..	Friday
		Engineering Drawing, Stage 1 ..	Thursday
FOURTH YEAR.	ZEG. 4.	Engineering (Sen. B.) ..	Wednesday
		Practical Geometry, Stage 2 ..	Friday
FIFTH YEAR.	ZEG. 5.	Engineering Design and Laby. ..	Monday
		Structural Design, <i>or</i> ..	Thursday
		Engineering Drawing, Stage 2 ..	Thursday

MECHANICAL ENGINEERING. (Short Course).

FIRST YEAR.	ZMG. 1.	Engineering (Jun.) ..	Tuesday
		Engineering Drawing (Prelim.) ..	Wednesday
SECOND YEAR.	ZMG. 2.	Engineering (Inter.) ..	Tuesday
		Practical Geometry (Stage 1) ..	Friday
THIRD YEAR.	ZMG. 3.	Engineering (Senior A.) ..	Friday
		Engineering (Senior B.) ..	Wednesday
FOURTH YEAR.	ZMG. 4.	Engineering Design and Laby. ..	Monday
		Structural Design, <i>or</i> ..	Thursday
		Engineering Drawing ..	Thursday

[Students will not forfeit their Course tickets by omitting one of the two classes in Engineering (Inter.) in the above Courses, with the permission of the Teacher.]

ENGINEERING—continued.

ELECTRICAL ENGINEERING. (Privileged Course).

FIRST YEAR.	EEG. 1.	Electricity and Magnetism ..	Tuesday
		Physics ..	Monday
		Workshop Mathematics ..	Thursday
SECOND YEAR.	EEG. 2.	Electrical Engineering (2nd Year)	Wednesday
		Electrical Engineering, Laby. ..	Monday
		Machine Drawing, 2, ..	Thursday
THIRD YEAR.	EEG. 3.	Electrical Engineering (3rd Year)	Tuesday
		Electrical Engineering, Laby. ..	Tuesday
		Practical Mathematics, 1, ..	Monday
FOURTH YEAR.	EEG. 4.	Electrical Engineering (4th Year)	Tuesday
		Electrical Engineering, Laby. ..	Tuesday
		Practical Mathematics, 2, or ..	Friday
		Mechanics, or Electricity, ..	Wednesday

ELECTRICAL ENGINEERING. (Second Course).

FIRST YEAR.	ZEE. 1.	Electricity and Magnetism ..	Tuesday
		Workshop Mathematics ..	Thursday
SECOND YEAR.	ZEE. 2.	Electrical Engineering (2nd year)	Wednesday
		Electrical Engineering (Laby.) ..	Monday
THIRD YEAR.	ZEE. 3.	Electrical Engineering (3rd year) ..	Tuesday
		Electrical Engineering (Laby.) ..	Tuesday
FOURTH YEAR.]	ZEE. 4.	Electrical Engineering (4th year)	Tuesday
		Electrical Engineering (Laby.) ..	Tuesday

ELECTRICAL WIREMEN AND CABLE JOINTERS. (Privileged Course).

FIRST YEAR.	WIR. 1.	Electricity and Magnetism ..	Tuesday
		Electrical Wiring Lecture ..	Thursday
		Wiremen's Laboratory ..	Monday
SECOND YEAR.	WIR. 2.	Electrical Engineering ..	Wednesday
		Practical Jointing (1st Year) ..	Monday
THIRD YEAR.	WIR. 3.	Electrical Cable Jointing (Senior)	Monday
		Machine Drawing, or ..	Thursday
		Technical Drawing ..	Wednesday

ELECTRICAL WIREMEN AND CABLE JOINTERS. (Second Course).

FIRST YEAR.	ZWR. 1.	Electrical Cable Jointing (Jun.) ..	Monday
		Electrical Wiring Lecture ..	Thursday
		Electricity and Magnetism ..	Wednesday
SECOND YEAR	ZWR. 2.	Electrical Cable Jointing (Inter.)	Monday
		Electrical Engineering (2nd year)	Wednesday
THIRD YEAR	ZWR. 3.	Electrical Cable Jointing (Sen.) ..	Monday

Third Year Wiremen Students are at liberty to take Electrical Engineering (3rd year) during the first hour on Monday.

BUILDING.

FOR BUILDERS, CLERKS OF WORKS, &c.

A Two-Evening Course.

FIRST YEAR.	BL. 1.	Builders' Drawing	Wednesday
		Geometrical Drawing (Art) ..	Tuesday
SECOND YEAR.	BL. 2.	Building Construction, Stage 1 ..	Monday
		Practical Geometry, Stage 1 ..	Friday
THIRD YEAR.	BL. 3.	Building Construction, Stage 2 ..	Tuesday
		Builders' Quantities (Junior) ..	Wednesday
FOURTH YEAR.	BL. 4.	Building Construction, Stage 3 ..	Tuesday
		Builders' Quantities (Senior) ..	Wednesday
FIFTH YEAR.	BL. 5.	Building Construction, Honours ..	Tuesday
		Solid Geometry, or Mathematics ..	Friday

All Building Students are advised to take the above Course, to which they are recommended to add, if possible, one Class in Mathematics suited to their ability and progressive in gradation from year to year. But they may take instead the following :—

FOR BUILDERS, CLERKS OF WORKS, &c. (Privileged Course.)

A Three-Evening Course.

FIRST YEAR.	BLG. 1.	Builders' Drawing	Wednesday
		Geometrical Drawing	Tuesday
		Freehand Drawing	Thursday
SECOND YEAR.	BLG. 2.	Building Construction, Stage 1 ..	Monday.
		Practical Geometry, Stage 1 ..	Friday
		Applied Mechanics, Stage 1 ..	Tuesday
THIRD YEAR.	BLG. 3.	Building Construction, Stage 2 ..	Tuesday
		Builders' Quantities (Junior) ..	Wednesday
		Practical Geometry, Stage 2, <i>or</i> ..	Friday
		Applied Mechanics, Stage 2 ..	Friday
FOURTH YEAR.	BLG. 4.	Building Construction, Stage 3 ..	Tuesday
		Builders' Quantities (Senior) ..	Wednesday
		Design (Art), or Structural Design ..	Thursday
FIFTH YEAR.	BLG. 5	Building Construction, Honours ..	Tuesday
		Physics (optional)	Thursday
		Practical Geometry, Stage 3 ..	Friday

ARCHITECTURE.

FOR ARCHITECTS, &c.

A Two-Evening Course.

FIRST YEAR.	AR. 1.	Builders' Drawing	Wednesday
		Geometrical Drawing (Art) <i>or</i> ..	Tuesday
		Freehand Drawing	Thursday
SECOND YEAR.	AR. 2.	Building Construction, Stage 1 ..	Monday
		Model, Memory, and Plant Drawing ..	Wednesday
THIRD YEAR.	AR. 3.	Building Construction, Stage 2 ..	Tuesday
		Builders' Quantities (Junior) ..	Wednesday
FOURTH YEAR.	AR. 4.	Building Construction, Stage 3 ..	Tuesday
		Builders' Quantities (Senior) ..	Wednesday
FIFTH YEAR.	AR. 5.	Building Construction, Honours ..	Tuesday
		Light and Shade Drawing, <i>or</i> ..	Monday
		Design	Thursday

Candidates are recommended to take the above Course, and to add to it, if possible, progressive classes in Mathematics according to their ability.

ARCHITECTURE—continued.

FOR ARCHITECTS, &c. (Privileged Course).

A Three-Evening Course.

FIRST YEAR.	ARC. 1.	Builders' Drawing	Wednesday
		Geometrical Drawing (Art)	Tuesday
		Freehand Drawing	Thursday
SECOND YEAR.	ARC. 2.	Building Construction, Stage 1	Monday
		Practical Geometry	Friday
		Model, Memory, and Plant Drawing	Wednesday
		or, Applied Mechanics, Stage 1	Tuesday
THIRD YEAR.	ARC. 3.	Building Construction, Stage 2	Tuesday
		Builders' Quantities (Junior)	Wednesday
		Light and Shade Drawing, or	Monday
		Applied Mechanics, Stage 2	Friday
FOURTH YEAR.	ARC. 4.	Building Construction, Stage 3	Tuesday
		Builders' Quantities (Senior)	Wednesday
		Design (Art), or Structural Design	Thursday
FIFTH YEAR.	ARC. 5.	Building Construction, Honours	Tuesday
		Physics (optional)	Thursday
		Higher Art, or Mathematics	Monday

MATHEMATICS AND SCIENCE.

PURE MATHEMATICS COURSE. (Privileged Course.)

FIRST YEAR.	MAT. 1.	Pure Mathematics, Stage 1	Friday
		Theoretical Mechanics, Stage 1	Wednesday
SECOND YEAR.	MAT. 2.	Pure Mathematics, Stage 2	Monday
		Theoretical Mechanics, Stage 2	Wednesday
THIRD YEAR.	MAT. 3.	Pure Mathematics, Stage 3	Monday
		Pure Mathematics, Stage 3	Friday
FOURTH YEAR.	MAT. 4.	Pure Mathematics, Stage 5	Wednesday
		Pure Mathematics, Stage 5, or	Friday
		Pure Mathematics, Stage 4	Tuesday
FIFTH YEAR.	MAT. 5.	Pure Mathematics, Stage 5	Wednesday
		Pure Mathematics, Stage 5	Friday
		Pure Mathematics, Stage 6	Wednesday

APPLIED MATHEMATICS COURSE.

FIRST YEAR.	MAp. 1.	Workshop Mathematics, 1	Wednesday
		Freehand Drawing	Thursday
SECOND YEAR.	MAp. 2.	Workshop Mathematics, 2	Wednesday
		Technical Drawing	Monday
THIRD YEAR.	MAp. 3.	Practical Mathematics, Stage 1	Monday
		Theoretical Mechanics, Stage 1, or	Wednesday
		Mathematical Physics, or	Tuesday
FOURTH YEAR.	MAp. 4.	Practical Mathematics, Stage 2	Friday
		Theoretical Mechanics, Stage 2, or	Wednesday
		Mathematical Physics	Tuesday
FIFTH YEAR.	MAp. 5.	Pure Mathematics, Stage 5	Wednesday
		Pure Mathematics, Stage 5	Friday
		Mathematical Physics	Tuesday or Thursday

MATHEMATICS AND SCIENCE—continued.

EXPERIMENTAL PHYSICS COURSE. No. 1. (Privileged Course).

FIRST YEAR.	PYS. 1.	Physics (Jun.) Lecture ..	Monday
		Physics (Jun.) Laby. ..	Monday
		Inorg. Chemistry, Lecture ..	Wednesday
		Inorg. Chemistry Laby. ..	Tuesday
SECOND YEAR.	PYS. 2.	Physics (Inter.) Lecture ..	Thursday
THIRD YEAR.	PYS. 3.	Physics (Inter.) Laby. ..	Thursday
		Electricity and Magn., Lect. ..	Tuesday
		Electricity and Magn., Laby. ..	Tuesday
FOURTH YEAR.	PYS. 4.	Physics (Sen.) Lecture ..	Thursday
		Physics (Sen.) Laby. ..	Thursday

EXPERIMENTAL PHYSICS COURSE. No. 2. (Privileged Course).

FIRST YEAR.	ZPS. 1.	Physics (Jun.) Lecture ..	Monday
		Physics (Jun.) Laby. ..	Monday
		Mathematics ..	Friday
SECOND YEAR.	ZPS. 2.	Physics (Elec. & Magn.) Lect. ..	Tuesday
		Physics (Elec. & Magn.) Laby. ..	Tuesday
		Mathematics ..	Monday
THIRD YEAR.	ZPS. 3.	Physics (Inter.) Lecture ..	Thursday
		Physics (Inter.) Laby. ..	Thursday
		Mathematics ..	Monday and Friday
FOURTH YEAR.	ZPS. 4.	Physics (Senior) ..	Thursday
		Mathematics ..	Monday and Friday

ELECTRICITY AND MAGNETISM. (Privileged Course.)

FIRST YEAR.	MAG. 1.	Electricity and Magnetism (Jun.)	Tuesday
		Physics (Jun.), ..	Monday
SECOND YEAR.	MAG. 2.	Electricity and Magnetism (Inter.),	Wednesday
		Physics (Inter.), ..	Thursday
		or Mathematics ..	Friday
THIRD YEAR.	MAG. 3.	Electricity and Magnetism (Senior)	Friday
		Mathematics ..	Monday and Wednesday

Electricity and Magnetism may be substituted for Physics in any case.

MATHEMATICAL PHYSICS COURSE.

FIRST YEAR.	MPs. 1.	Mathematical Physics, Stage 1 ..	Wednesday
		Mathematics, Pure, Stage 1 ..	Friday
SECOND YEAR.	MPs. 2.	Mathematical Physics, Stage 2 ..	Wednesday
		or, ..	Tuesday
		Mathematics, Pure, Stage 2 ..	Monday
THIRD YEAR.	MPs. 3.	Mathematical Physics, Stage 3 ..	Tuesday
		or, ..	Thursday
		Mathematics, Pure, Stage 3 ..	Monday
		Mathematics, Pure, Stage 3 ..	Friday

CHEMISTRY.

INORGANIC CHEMISTRY COURSE. No. 1. (Privileged Course)

FIRST YEAR.	CHM. 1.	Chemistry (Inorganic), Stage 1, Lec. Wednesday Chemistry (Inorganic), Stage 1, Lab. Tuesday Physics, Lecture and Laby. .. Monday
SECOND YEAR.	CHM. 2.	Chemistry (Inorganic), Stage 2, Lect. Monday Chemistry (Inorganic) Stage 2, Lab. Tuesday Additional Laboratory Work .. Wednesday
THIRD YEAR.	CHM. 3.	Chemistry (Inorganic) Stage 3, Lect. Monday Chemistry (Inorganic) Stage 3, Lab. Tuesday Additional Laboratory Work .. Monday
FOURTH YEAR.	CHM. 4.	Chemistry (Inorganic), Honours Wednesday Chemistry (Inorganic). Laby. .. Wednesday Additional Laboratory Work .. Monday

INORGANIC CHEMISTRY COURSE. No. 2. (Privileged Course.)

FIRST YEAR.	ZCS. 1.	Chemistry (Inorg.), Stage 1, Lecture Wednesday Chemistry (Inorg.), Stage 1, Laby. Tuesday Mathematics, Stage 1 Friday
SECOND YEAR.	ZCS. 2.	Chemistry (Inorg.), Stage 2, Lect. Monday Chemistry (Inorg.), Stage 2, Laby. Tuesday Additional Laboratory (Optional) Wednesday
THIRD YEAR.	ZCS. 3.	Chemistry (Inorg.), Stage 3, Lect. Monday Chemistry (Inorg.), Stage 3, Laby. Tuesday Additional Laboratory (Optional) Wednesday

ORGANIC CHEMISTRY COURSE. (Privileged Course).

FIRST YEAR.	CHO. 1.	Chemistry (Inorganic) Stage 1, Lect. Wednesday Chemistry (Inorganic) Stage 1, Laby. Tuesday Physics, Lecture and Laboratory Monday
SECOND YEAR.	CHO. 2.	Chemistry (Organic), Stage 1, Lect. Thursday Chemistry (Organic), Stage 1, Laby. Thursday Additional Laboratory (optional) Friday
THIRD YEAR.	CHO. 3.	Chemistry (Organic), Stage 2, Lect. Friday Chemistry, Organic, Laboratory Friday Additional Laboratory (optional) Thursday

MEDICAL STUDENTS' COURSE.

FIRST YEAR.	MD. 1.	Chemistry (Inorganic) Lect. .. Wednesday Chemistry, Laboratory .. Thursday and Friday Physics, Lecture and Laby. .. Monday
SECOND YEAR.	MD. 2.	Chemistry (Inorganic) Lect. .. Monday Chemistry (Inorganic) Laby. .. Tuesday Botany and Materia Medica .. Friday
THIRD YEAR.	MD. 3.	Organic Chemistry, Lect. .. Thursday Organic Chemistry, Laby. Thursday and Friday

(The inclusive fee for each of these Chemical Courses is 15s.)

PHARMACY COURSE.

FIRST YEAR.	PHR. 1.	Chemistry (Inorganic), Stage 1, Lec.	Wednesday
		Chemistry (Inorganic), Stage 1, Lab.	Wednesday
		Additional Laboratory (optional)	Monday
		Botany and Materia Medica ..	Friday
		or, Pharmacy	Thursday
SECOND YEAR.	PHR. 2.	Chemistry (Organic) Stage 1, Lect.	Thursday
		Chemistry (Organic) Stage 1, Laby.	Thursday
		Additional Laboratory (Inorganic)	Monday.
THIRD YEAR.	PHR. 3.	Chemistry (Organic) Stage 2, Lect.	Friday
		Chemistry (Organic) Stage 2, Laby.	Friday

[Pharmaceutical Students may attend an additional Laboratory Class in their First Year, for the same fee. In order to get a Certificate of attendance for this Course, Students must attend at least 20 lectures in Chemistry, besides Laboratory work, and in addition 20 lectures in either Pharmacy, or in both Botany and Materia Medica.

The inclusive fee for the foregoing Chemical Courses is 7s. 6d. for the Term.

BUILDING TRADES.**CARPENTERS AND JOINERS.—Two-Evening Course.**

FIRST YEAR.	CJy. 1.	Carpentry and Joinery, (Junior)	Tuesday
		Technical Drawing	Wednesday
SECOND YEAR.	CJy. 2.	Carpentry and Joinery, (Inter.)	Thursday
		Building Construction, Stage 1	Monday
THIRD YEAR.	CJy. 3.	Carpentry and Joinery, (Senior)	Monday
		Building Construction, Stage 2	Tuesday

Students are at liberty to add to the above a Class in Mathematics suited to their needs, and they are recommended to do so. Builders' Quantities may be substituted for Building Construction in this Course only.

CARPENTERS AND JOINERS.—Three-Evening Course.

FIRST YEAR.	CRP. 1.	Carpentry and Joinery, (Junior)	Tuesday
		Technical Drawing	Wednesday
		Geometrical Drawing (Art) ..	Thursday
SECOND YEAR.	CRP. 2.	Carpentry and Joinery, (Inter.)	Thursday
		Building Construction, Stage 1	Monday
		Model Drawing	Wednesday
THIRD YEAR.	CRP. 3.	Carpentry and Joinery, (Senior)	Monday
		Building Construction, Stage 2	Tuesday
		Builders' Quantities	Wednesday

[Practical Plane and Solid Geometry may be taken in place of any one of the subsidiary subjects in Carpenters' and Joiners' Courses.]

PLUMBERS.—Two-Evening Course.

FIRST YEAR.	PB. 1.	Plumbing (Junior) Lecture	..	Tuesday
		Plumbing (Junior) Practice	..	Tuesday
		Technical Drawing.	..	Wednesday
SECOND YEAR.	PB. 2.	Plumbing (Inter.) Lecture	..	Thursday
		Plumbing (Inter.) Drawing	..	Thursday
		Plumbing (Inter.) Practice	..	Friday
THIRD YEAR.	PB. 3.	Plumbing (Senior) ..	..	Thursday
		Plumbing, (Sen.) Practical	..	Friday

Students are advised to add a Class in Mathematics or Drawing to the above.

BUILDING TRADES—continued.

PLASTERERS.—*Two-Evening Course.*

FIRST YEAR.	PL. 1.	Plasterers' Work (Junior)	..	Thursday
		Geometrical Drawing (Art)	..	Tuesday
SECOND YEAR.	PL. 2.	Plasterers' Work (Inter.)	..	Tuesday
		Modelling .. ..	..	Friday
THIRD YEAR.	PL. 3.	Plasterers' Work (Senior)	..	Tuesday
		Technical Drawing ..	..	Wednesday
		or Modelling .. ..	..	Monday

PAINTERS AND DECORATORS.—*Two-Evening Course.*

FIRST YEAR.	PN. 1.	Painters' Practical Work, Jun.	..	Thursday
		Theory for Painters .. ..	..	Wednesday
SECOND YEAR.	PN. 2.	Painters' Practical Work (Inter.)		Tuesday
		Design and Drawing for Painters		Friday
THIRD YEAR.	PN. 3.	Painters' Practical Work (Sen.)		Monday
		Painters' Practical Work (Sen.)		Wednesday

METAL PLATE WORKERS.

FIRST YEAR.	MPL. 1.	Technical Drawing, ..	..	Wednesday
		Geometrical Drawing (Art)	..	Tuesday
		Freehand Drawing .. ..	..	Thursday
SECOND YEAR.	MPL. 2.	Technical Work (Junior)	..	Thursday
		Technical Lecture and Drawing		Tuesday.
THIRD YEAR.	MPL. 3.	Technical Work (Senior)	..	Wednesday
		Technical Lecture and Drawing		Tuesday

Students may omit one of the Drawing Classes in First Year if sanctioned on Entrance Form. They are strongly advised to add a Class in Workshop Mathematics, in each year, which they may do without extra fee, in spite of the number of classes.

BUILDING TRADES—continued.

CABINET MAKERS.—*Two-Evening Course.*

FIRST YEAR.	CB. 1.	Cabinet-making (Jun.) ..	.. Tuesday
		Freehand Drawing ..	.. Thursday
SECOND YEAR.	CB. 2.	Cabinet-making (Int.) ..	.. Wednesday
		Geometrical Drawing ..	.. Tuesday
THIRD YEAR.	CB. 3.	Cabinet-making (Sen.) ..	.. Monday
		Design applied to Crafts ..	.. Thursday

WOOD-CARVING. *Two-Evening Course.*

FIRST YEAR.	WD. 1.	Wood-carving (Junior) ..	.. Thursday
		Freehand Drawing ..	.. Friday
SECOND YEAR.	WD. 2.	Wood-carving (Inter.) ..	.. Tuesday
		Design ..	.. Thursday
THIRD YEAR.	WD. 3.	Wood-carving (Senior) ..	.. Monday
		Modelling in Clay, or Design ..	.. Friday

TAILORS' CUTTING.

FIRST YEAR.	TC. 1.	Tailors' Cutting (Jun.) ..	.. Tuesday
		Freehand Drawing ..	.. Thursday
SECOND YEAR.	TC. 2.	Tailors' Cutting (Int.) ..	.. Friday
		Geometrical Drawing ..	.. Tuesday
THIRD YEAR.	TC. 3.	Tailors' Cutting (Sen.) ..	.. Thursday
		Workshop Mathematics ..	.. Wednesday

HAIRDRESSING.

FIRST YEAR.	HR. 1.	Hairdressers' Work (Jun.) ..	.. Monday
		Freehand Drawing ..	.. Thursday.
SECOND YEAR.	HR. 2.	Hairdressers' Work (Int.) ..	.. Wednesday
		Geometrical Drawing ..	.. Tuesday
THIRD YEAR.	HR. 3.	Hairdressers' Work (Sen.) ..	.. Wednesday

BOOT AND SHOE MAKING.

FIRST YEAR.	BT. 1.	Boot and Shoe Making (Jun.) ..	.. Tuesday
		Freehand Drawing ..	.. Thursday
SECOND YEAR.	BT. 2.	Boot and Shoe Making (Int.) ..	.. Thursday
		Geometrical Drawing ..	.. Tuesday
THIRD YEAR.	BT. 3.	Boot and Shoe Making (Sen.) ..	.. Monday
		Workshop Mathematics ..	.. Wednesday

ART.

The Art Department is open on every evening in the week, except on a Saturday, and Art Students in Courses above the First Year Grade may work on any evening in the week when there happens to be room. Students will work under the guidance of the Head Master, who may change the night of work, or otherwise vary the following Courses to meet particular needs.

ART COURSE NO. 1.—(Privileged Course).

FIRST YEAR.	ART. 1.	Freehand Drawing	Thursday
		Model Drawing	Wednesday
		Geometrical Drawing	Tuesday
SECOND YEAR.	ART. 2.	Light and Shade Drawing (Ely.)	Monday
		Plant and Memory Drawing ..	Wednesday
		Modelling in Clay (Jun.), <i>or</i> ..	Friday
		Design	Thursday
THIRD YEAR.	ART. 3.	Light and Shade Drawing (Adv.)	Wednesday
		Design	Friday
		Modelling in Clay, <i>or</i>	Monday
		Brushwork and Painting	Monday
FOURTH YEAR.	ART. 4.	Specialisation in any one branch of the Art Department.	

For those who can only come on two evenings per week, the following is suggested as an alternative:—

ART COURSE NO. 2.

FIRST YEAR	AT. 1.	Freehand Drawing	Thursday
		Geometrical Drawing	Tuesday
SECOND YEAR.	AT. 2.	Light and Shade Drawing (Ely.)	Monday
		Modelling in Clay (Jun.), <i>or</i> ..	Friday
		Design (Ely.)	Thursday
THIRD YEAR.	AT. 3.	Plant and Memory Drawing ..	Wednesday
		Modelling in Clay (Int.), <i>or</i> ..	Monday
		Design (Adv.)	Friday
FOURTH YEAR.	AT. 4.	Brushwork and Painting	Monday
		Modelling in Clay (Sen.), <i>or</i> ..	Wednesday
		Light and Shade Drawing (Adv.)	Wednesday
FIFTH YEAR.	AT. 5.	Specialisation in any one branch of the Art Department.	

ARTS CRAFTS COURSE NO. 1.—(Privileged Course).

FIRST YEAR.	CFT. 1.	Modelling in Clay (Jun.) ..	Friday
		Freehand Drawing	Thursday
		Geometrical Drawing	Tuesday
SECOND YEAR.	CFT. 2.	Modelling in Clay (Int.) ..	Monday
		Model Drawing	Wednesday
		Design	Thursday <i>or</i> Friday
THIRD YEAR.	CFT. 3.	Modelling in Clay (Sen.) ..	Wednesday
		Design applied to Crafts	Thursday
Technical work in one of the following:—			
		Wood-carving	Monday
		Enamelling on Metal	Friday
		Stone and Marble Carving ..	Friday
		Ornamental Iron Work	Tuesday
FOURTH YEAR.	CFT. 4.	Specialisation in one of the foregoing Crafts.	

ART—continued.

To those who come on but two evenings in the week, there is offered the following alternative :—

ARTS CRAFTS COURSE, No. 2.

FIRST YEAR.	CF. 1.	Freehand Drawing	Thursday
		Geometrical Drawing	Tuesday
SECOND YEAR.	CF. 2.	Design (Ely.)	Thursday
		Model Drawing	Wednesday
THIRD YEAR.	CF. 3.	Light and Shade Drawing	Monday
		Design (Adv.)	Friday
FOURTH YEAR.	CF. 4.	Modelling in Clay	Wednesday
		Technical work in one of the following :—	
		Wood-carving	Monday
		Enamelling on Metal	Friday
		Stone and Marble Carving	Friday
		Ornamental Iron Work	Friday
FIFTH YEAR.	CF. 5.	Design applied to Crafts	Thursday
		Specialisation in one of the foregoing Crafts.	

ART IRONWORK.

FIRST YEAR.	ZRN. 1.	Ornamental Ironwork (Jun.)	Tuesday
		Design (Elementary)	Thursday
SECOND YEAR.	ZRN. 2.	Ornamental Ironwork (Inter.)	Tuesday
		Design (Intermediate)	Friday
THIRD YEAR.	ZRN. 3.	Ornamental Ironwork (Sen.)	Tuesday
		Design applied to Crafts	Thursday

PRINTING COURSES.

In this and the following Printing Courses, all Students will be at liberty to take Drawing instead of English, or in place of Technical Calculations, such change to be made and sanctioned at the time of entering.

COMPOSITORS—(Privileged Course).

FIRST YEAR.	TYP. 1.	Typography, Lect. and Practice	Monday
		English	Thursday
		Technical Calculations, <i>or</i>	Thursday
		Drawing	Friday.
SECOND YEAR.	TYP. 2.	Typography—Lect. and Practice	Thursday
		English	Tuesday
		Technical Calculations, <i>or</i>	Tuesday
		Drawing	Wednesday
THIRD YEAR.	TYP. 3.	Typography	Wednesday
		Typography (Optional)	Thursday

PRINTING COURSES—continued.

MACHINE WORK—(Privileged Course).

FIRST YEAR.	MCH. 1.	Machine Work	Tuesday
		English	Thursday
		Technical Calculations, <i>or</i>	Thursday
		Drawing	Friday
SECOND YEAR.	MCH. 2.	Machine Work	Thursday
		English	Tuesday
		Technical Calculations, <i>or</i>	Tuesday
		Drawing	Wednesday
THIRD YEAR.	MCH. 3.	Machine Work	Wednesday
		Machine Work (Optional)	Thursday
		Technical Drawing (Optional)	Friday

LINOTYPE OPERATORS.

FIRST YEAR.	LIN. 1.	Practical Demonstration	Tuesday
		Practical Work	Monday
		English, <i>or</i>	Thursday
		Technical Calculations	Thursday
SECOND YEAR.	LIN. 2.	Practical Demonstration	Thursday
		Practical Work	Wednesday
THIRD YEAR.	LIN. 3.	Practical Demonstration	Thursday
		Practical Work	Wednesday

DOMESTIC ECONOMY

Students who are about to enter for the following Evening Courses, held at Kevin Street and Chatham Row, should consult one of the Teachers, and obtain her signature to the Application Forms.

DOMESTIC ECONOMY, (Privileged Course.)

FIRST YEAR.	DM. 1.	Freehand Drawing	Thursday
		Needlework (Junior)	Tuesday
SECOND YEAR.	DM. 2.	Cookery Lecture (Kevin Street)	Tuesday
		Cookery Practice	Wednesday
		Needlework (Senior)	Thursday
THIRD YEAR.	DM. 3.	Cookery Lecture	Tuesday
		Cookery Practice	Thursday
		Dressmaking	Monday

(NOTE.—Students are strongly advised to take both Freehand Drawing and Needlework in their First Year, though they are only required to take one of the two to fulfil the Course. The days for Cookery Practice may be varied in all the Domestic Economy Courses.)

DOMESTIC ECONOMY—continued.

COOKERY COURSE. No. 1.

FIRST YEAR.	CK. 1.	Freehand Drawing ..	Thursday
		Cookery Lecture (Rutland Square)	Monday
SECOND YEAR.	CK. 2.	Cookery Lecture (Kevin Street)	Tuesday
		Cookery Practice	Wednesday
THIRD YEAR.	CK. 3.	Cookery Lecture (Kevin Street)	Tuesday
		Cookery Practice	Thursday

COOKERY COURSE. No. 2.

ZCK Course is the same as CK. Course, except that it adds Needlework in the Second and Third Years.

DRESSMAKING COURSE. (Privileged Course.)

FIRST YEAR.	DR. 1.	Freehand Drawing ..	Thursday
		Needlework (Junior) ..	Tuesday
SECOND YEAR.	DR. 2.	Dressmaking (Junior) ..	Monday
		Needlework (Senior) ..	Thursday
THIRD YEAR.	DR. 3.	Dressmaking (Senior) ..	Friday

RUTLAND SQUARE.

Students who are about to enter for the following Evening Courses in Domestic Economy, held at 12 Rutland Square, should consult one of the Teachers, and obtain her signature to their Application Forms.

DOMESTIC ECONOMY. (Privileged Course.)

FIRST YEAR.	DQ. 1.	Needlework (Junior) ..	Friday
		Cookery Lecture and Demonstration	Monday
SECOND YEAR.	DQ. 2.	Dressmaking (Junior) ..	Wednesday
		Needlework (Senior) ..	Monday
THIRD YEAR.	DQ. 3.	Dressmaking (Senior)	Thursday

COOKERY COURSE.

FIRST YEAR.	CQ. 1.	Cookery Lecture (Junior).	Monday.
		Cookery Practical (Junior)	Tuesday
		Dressmaking (Junior) ..	Wednesday
SECOND YEAR.	CQ. 2.	Cookery Lecture (Senior)	Wednesday
		Cookery Practical (Senior)	Thursday
		Needlework (Junior) ..	Friday
THIRD YEAR.	CQ. 3.	Dressmaking (Senior) ..	Thursday

COMMERCIAL COURSES.

Former Students who have worked at Rutland Square for a year or more, may find it difficult to pick up the thread of their work in the New Courses. They should in all cases, therefore, consult the Teacher of their chief subject or the Teacher of Business Methods. The first subject mentioned in each Course is the dominant subject of that Course, which is continuous and progressive from year to year. Every Student should be entered for the particular year of a Course that is determined by his attainments in the leading subject: so that there may be no break in the progressive character of his education. On all points he should consult the Teacher of this subject, who should moreover sign his Application Form before the Entrance Form is presented. It should be clearly understood that a Student who has been in the school for two years will not necessarily be entered in the *third* year of any one of the new Courses. The year of gradation is to be fixed by his attainments in the leading subject.

Unless there be reason to the contrary, permission will be given to make additions as follows to any course consisting of two subjects, but in no case will the fee of 2s. 6d. admit to more than three subjects altogether:—Any Student in the Commercial Department may add one Language to his Course without extra payment. All Students of the Schools in any Department are at liberty to add a Mathematical Class or a Drawing Class to their respective Courses. Women Students may also add a Class in Domestic Economy. These privileges must be claimed at the time of purchasing the Ticket, and be duly entered and sanctioned on the Entrance Form. Every Student must continue to attend his proper Course subjects with regularity, but he may be released from attendance at an additional voluntary subject by the Teacher. Should he cease to attend even an additional subject without the sanction of his Teacher, he risks the forfeiture of his Course ticket.

Qualified Students may enter for any one of the following Courses on payment of an inclusive fee of 2s. 6d. for the year, after obtaining the requisite sanction. If any one finds it hard to select the Course which most nearly meets his requirements, or has any other preliminary difficulty, he should consult the Principal of the Department, Mr. Wheeler.

FOR BUSINESS PURPOSES. No. 1. (Privileged Course.)

FIRST YEAR.	BS. 1.	Business Methods (Jun.) ..	Wednesday
		Book-keeping (Jun. A.) ..	Monday
SECOND YEAR.	BS. 2.	Business Methods (Inter.) ..	Tuesday
		Book-keeping (Inter.) ..	Thursday
		Commercial Geography ..	Friday
THIRD YEAR.	BS. 3.	Business Methods (Sen.) ..	Thursday
		Book-keeping (Sen.) ..	Tuesday
FOURTH YEAR.	BS. 4.	Accountancy ..	Thursday

COMMERCIAL COURSES—continued.

FOR BUSINESS PURPOSES. No. 2. (Privileged Course.)

FIRST YEAR.	BSN. 1.	Business Methods (Jun.) ..	Wednesday
		Book-keeping (Jun. A.) ..	Monday
		Commercial Correspondence, &c. ..	Tuesday
SECOND YEAR.	BSN. 2.	Business Methods (Inter.) ..	Tuesday
		Book-keeping (Inter.) ..	Thursday
		Commercial Correspond., &c. (Sen.) ..	Friday
THIRD YEAR.	BSN. 3.	Business Methods (Sen.) ..	Thursday
		Book-keeping (Sen.) <i>or</i> , ..	Tuesday
		Commercial Geography ..	Friday
FOURTH YEAR.	BSN. 4.	Accountancy	Thursday

FOR BUSINESS PURPOSES. No. 3. (Privileged Course.)

FIRST YEAR.	BSH. 1.	Business Methods (Jun.) ..	Monday
		(Men and Boys.) Shorthand (Jun. A.) ..	Wednesday
		Typewriting (Jun.) ..	Friday
		(Women and Girls.) Business Methods ..	Wednesday
		Shorthand (Jun. B.) ..	Monday
		Typewriting (Jun.) ..	Friday
SECOND YEAR.	BSH. 2.	Business Methods (Inter.) ..	Tuesday
		Shorthand (Inter.) ..	Friday
		Typewriting	Thursday
THIRD YEAR.	BSH. 3.	Business Methods (Sen.) ..	Thursday
		Shorthand (Sen.) ..	Tuesday

FOR FOREIGN BUSINESS PURPOSES.

FIRST YEAR.	FB. 1.	Business Methods (Jun.) ..	Wednesday
		French (Jun. B.) ..	Tuesday
SECOND YEAR.	FB. 2.	Business Methods (Inter.) ..	Tuesday
		German (Jun.) ..	Friday
THIRD YEAR.	FB. 3.	Business Methods (Sen.) ..	Thursday
		Commercial Geography, <i>or</i> ..	Friday
		German (Sen.)	Wednesday

COMMERCIAL COURSES—continued.

BOOK-KEEPERS AND CASH CLERKS. No. 1. (Privileged Course.)

FIRST YEAR.	BKP. 1.	Book-keeping (Jun. A.) ..	Monday
		Business Methods (Jun.) ..	Wednesday
		Commercial Correspondence, &c.	Tuesday
SECOND YEAR.	BKP. 2.	Book-keeping (Inter.) ..	Thursday
		Shorthand (Junior) ..	Wednesday
		(Women) on ..	Monday
		Commercial Correspond., &c. (Sen.)	Friday
THIRD YEAR.	BKP. 3.	Book-keeping (Sen.) ..	Tuesday
		Shorthand (Inter.) ..	Friday
		Business Methods ..	Thursday
FOURTH YEAR.	BKP. 4.	Accountancy ..	Thursday

BOOK-KEEPERS. NO. 2. (Privileged Course.)

FIRST YEAR.	BST. 1.	Book-keeping (Jun. B.) ..	Tuesday
		Shorthand (Jun. B.) ..	Thursday
		Typewriting ..	Friday
SECOND YEAR.	BST. 2.	Book-keeping (Inter.) ..	Thursday
		Shorthand (Inter.) ..	Friday
		Typewriting (Inter.) ..	Tuesday
THIRD YEAR.	BST. 3.	Book-keeping (Sen.) ..	Tuesday
		Shorthand (Speed) ..	Wednesday
		Typewriting (Sen.) ..	Thursday
FOURTH YEAR.	BST. 4.	Accountancy ..	Thursday
		Shorthand (Sen.) ..	Tuesday
		Shorthand (Speed) ..	Monday

BOOK-KEEPERS. No. 3.

FIRST YEAR.	ZBK. 1.	Book-keeping (Jun. B.) ..	Tuesday
		(Men and Boys.) Shorthand (Jun. B.) ..	Thursday
		(Women and Girls.) Book-keeping (Jun. B.) ..	Tuesday
		Shorthand (Jun. C.) ..	Monday
SECOND YEAR.	ZBK. 2.	Book-keeping (Inter.) ..	Thursday
		Shorthand (Inter.) ..	Friday
THIRD YEAR.	ZBK. 3.	Book-keeping (Sen.) ..	Tuesday
		Shorthand (Speed) ..	Monday

Students are advised to add one Language to this Course.

COMMERCIAL COURSES—continued.

BOOK-KEEPERS. No. 4.

FIRST YEAR.	ZBP. 1.	Book-keeping (Jun. B.) ..	Tuesday
		Business Methods (Jun.) ..	Monday
SECOND YEAR	ZBP. 2.	Book-keeping (Inter.) ..	Thursday
		Business Methods (Inter.) ..	Tuesday
THIRD YEAR.	ZBP. 3.	Book-keeping (Sen.) ..	Tuesday
		Business Methods (Sen.) ..	Thursday
FOURTH YEAR.	ZBP. 4.	Accountancy ..	Thursday

Students are advised to add one Language to this Course.

SHORTHAND CLERKS. No. 1. (Privileged Course.)

FIRST YEAR.	SHD. 1.	Shorthand (Jun. A.) ..	Wednesday
(Men and Boys.)		Typewriting (Jun.) ..	Monday
		Commercial Correspondence, &c.	Tuesday
(Women and Girls.)		Shorthand (Jun. C.) ..	Monday
		Typewriting (Jun.) ..	Friday
		Commercial Correspondence, &c.	Tuesday
SECOND YEAR.	SHD. 2.	Shorthand (Inter.) ..	Friday
		Typewriting ..	Tuesday
		(A Language may be added).	
THIRD YEAR.	SHD. 3.	Shorthand (Sen.) ..	Tuesday
		Shorthand (Speed) ..	Monday
		Typewriting ..	Thursday

In Shorthand Courses, Men and Boys may attend either Jun. A. Class on Wednesday, or Jun. B. on Thursday, and in Typewriting (Jun.) they may attend either the Monday or Wednesday class. In no case can any one attend both.

TYPEWRITERS' COURSE. No. 1.

FIRST YEAR.	ZTP. 1.	Typewriting (Jun.) ..	Wednesday
		(Women) on ..	Friday
		Commercial Correspondence, etc.	Tuesday
SECOND YEAR.	ZTP. 2.	Typewriting (Inter.) ..	Tuesday
		Commercial Correspondence, etc.	Friday
THIRD YEAR.	ZTP. 3.	Typewriting (Sen.) ..	Thursday
		Commercial Geography ..	Friday

One language may be added in each year, if duly authorised at entrance.

N.B.—The Typewriting Classes are open to Qualified Students only who are entered for Courses.

COMMERCIAL COURSES—continued.

GENERAL COMMERCIAL COURSE. (Privileged Course.)

FIRST YEAR.	GCM. 1.	Commercial Correspondence, &c.	Tuesday
		(Men and Boys.) Shorthand (Jun. B.)	Thursday
		Book-keeping (Jun. A.)	Monday
(Women and Girls.)		Commercial Correspondence, &c.	Wednesday
		Shorthand (Jun. C.)	Monday
		Book-keeping (Jun. B.)	Tuesday
SECOND YEAR.	GCM. 2.	Commercial Correspond., &c. (Sen.)	Friday
		Business Methods (Jun.)	Wednesday
		Book-keeping (Inter.)	Thursday
THIRD YEAR.	GCM. 3.	Commercial Geography	Friday
		Business Methods	Thursday
		Book-keeping (Sen.)	Tuesday
FOURTH YEAR.	GCM. 4.	Accountancy	Thursday

FOR CORRESPONDENCE CLERKS. (Privileged Course.)

FIRST YEAR.	COR. 1.	Commercial Correspondence, &c.	Tuesday
		Business Methods (Jun.)	Wednesday
		French	Friday
SECOND YEAR.	COR. 2.	Commercial Correspond., &c. (Sen.)	Friday
		Business Methods (Inter.)	Tuesday
		French (Sen.)	Monday
THIRD YEAR.	COR. 3.	Business Methods (Sen.)	Thursday
		German (Jun.)	Friday

FOR FOREIGN CORRESPONDENCE CLERKS. (Privileged Course.)

FIRST YEAR.	FRC. 1.	French (Jun. A.)	Monday
		(Men and Boys.) Shorthand (Jun. A.)	Wednesday
		Commercial Correspondence, &c.	Tuesday
(Women and Girls.)		French (Jun. B.)	Tuesday
		Shorthand (Jun. C.)	Monday
		Commercial Correspondence, &c.	Wednesday
SECOND YEAR.	FRC. 2.	French (Inter.)	Monday
		Shorthand (Inter.)	Friday
		Commercial Correspondence	Wednesday
THIRD YEAR.	FRC. 3.	French (Sen.)	Monday
		Shorthand (Sen.)	Tuesday
		Shorthand, Speed	Wednesday

Irish or German may be substituted for French.

LANGUAGES.

LANGUAGE COURSE. (Privileged Course).

FIRST YEAR,	LG. 1.	Irish (Jun.) <i>or</i> German (Jun.) ..	Friday
		French (Jun.) ..	Tuesday
SECOND YEAR.	LG. 2.	Irish (Sen.) <i>or</i> German (Sen.) ..	Wednesday
		French (Inter.) ..	Thursday
THIRD YEAR.	LG. 3.	French (Sen.) ..	Monday
		Commercial Geography ..	Friday

LANGUAGE COURSE. No. 2.

FIRST YEAR.	ZLG. 1.	Irish (Jun.) ..	Friday
		French (Jun.) ..	Tuesday
SECOND YEAR.	ZLG. 2.	French (Inter.) ..	Thursday
		German (Jun.) ..	Friday
THIRD YEAR.	ZLG. 3.	French (Sen.) ..	Monday
		Irish (Sen.) <i>or</i> German (Sen.) ..	Wednesday

LANGUAGE COURSE FOR CLERKS.

FIRST YEAR.	LNG. 1.	French (Jun. A.) ..	Monday
(Men and Boys)		Shorthand (Jun. A.) ..	Wednesday
		Typewriting (Jun.) ..	Monday
SECOND YEAR.	LNG. 2.	French (Inter.) ..	Thursday
		Shorthand (Inter.) ..	Friday
		Typewriting (Inter.) ..	Tuesday
THIRD YEAR.	LNG. 3.	German (Jun.) ..	Friday
		Shorthand (Speed) ..	Monday
		Typewriting (Sen.) ..	Thursday
FOURTH YEAR.	LNG. 4.	German (Sen.) ..	Wednesday
		French (Sen.) ..	Monday

Throughout the foregoing Courses, any one Language may be substituted for any other.

TIME TABLE—KEVIN STREET.

No. of Class.		No. of Room.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
PRELIMINARY COURSE—							
Trades Group A.							
1	Elementary Mathematics,	16	..	7.30—8.30	..	..	..
2	English, ..	16	..	8.35—9.35	..	..	..
3	Drawing, ..	14	..	..	..	..	7.30—8.30
4	..	or, 14	..	..	..	..	8.35—9.35
INTRODUCTORY COURSE—							
Trades Group D.							
13	Elementary Mathematics,	16	..	..	..	7.30—8.30	..
14	English, ..	16	..	..	..	8.35—9.35	..
15	Drawing, ..	14	7.30—8.30	..	..	..	..
16	..	or, 14	8.35—9.35	..	..	..	..
MATHEMATICS—							
Workshop Mathematics,							
25	Stage 1.—Class A.	16	..	..	7.30—8.30	..	..
26	Stage 1.—Class B.	28	..	..	..	7.30—8.30	..
27	Stage 2.—Class A.	16	..	..	8.35—9.35	..	..
28	Stage 2.—Class B.	28	..	..	..	8.35—9.35	..
29	Practical Mathematics, Stage 1	16	7.30—9.35	..	..	..	..
30	Practical Mathematics, Stage 2	18	..	..	..	..	7.30—9.35
31	Practical Mathematics, Stage 3	28	..	7.30—9.35	..	..	..
32	Pure Mathematics, Stage 1	28	..	..	..	..	7.30—9.35
33	Pure Mathematics, Stage 2	28	7.30—9.35	..	..	..	..
35	Pure Mathematics, Stage 4	24	..	7.30—9.35	..	..	..
37	Theoretical Mechanics, Stage 1	28	..	..	7.30—8.30	..	..
38	Theoretical Mechanics, Stage 2	28	8.35—9.35
39	Mathematical Physics, Stage 3	24	..	7.30—9.35

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PHYSICS—							
45	Physics (Junior)— Lecture	12	7.30—8.30
46	Laboratory	10.8	8.35—10.5
47	Physics (Inter.)— Lecture ..	12	7.30—8.30	..
48	Laboratory	10.8	..	..	..	8.35—10.5	..
49	Physics (Sen.)— Lecture ..	12	..	..	..	7.30—8.30	..
50	Laboratory	10.8	..	..	..	8.35—10.5	..
Electricity and Magnetism—							
51	(Junior)—Lecture ..	12	..	7.30—8.30	..	..	..
52	Laboratory	10.8	..	8.35—10.5	..	..	..
53	(Inter.)— Lecture ..	12	..	..	7.30—8.30	..	..
54	Laboratory	10.8	8.35—10.5
55	(Senior)—Lecture ..	12	7.30—8.30
56	Laboratory	10.8	8.35—10.5

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TIME TABLE—continued.

No. of Class.		No. of Room.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
CHEMISTRY—							
60	Inorganic Chemistry, Elementary—Lecture ..	25	..	..	7.30—8.30	..	..
61	Elementary—Laboratory	22	..	7.30—10.5	..	..	..
62	Inorganic Chemistry, Advanced—Lecture ..	25	7.30—8.30	..	..	..	..
63	Advanced—Laboratory	21	8.35—10.5	7.30—10.5	7.30—10.5	..	..
64	Organic Chemistry, Elementary—Lecture ..	25	..	..	..	7.30—8.30	..
65	Elementary—Laboratory	21	..	..	..	8.35—10.5	7.30—10.5
66	Organic Chemistry, Advanced—Lecture ..	25	..	..	..	..	7.30—8.30
67	Advanced—Laboratory	21	..	..	..	7.30—10.5	8.35—10.5
69	Chemistry for Pharmaceutical Students—Lecture ..	25	..	..	7.30—8.30	..	..
	Laboratory	22	7.30—10.5	..	8.35—10.5	..	..
68	Chemistry for Medical Students Lecture ..	25	..	..	7.30—8.30	..	..
	Laboratory	22	8.35—10.5	8.35—10.5
70	BOTANY ..	23	7.30—8.30
72	MATERIA MEDICA ..	23	8.35—9.35
73	PHARMACY ..	23	7.30—9.35	..

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MECHANICAL ENGINEERING—							
83	Applied Mechanics, Senior A. Advanced	24	7.30—9.35
84	Heat Engines, Senior B. Advanced	24	..	..	7.30—9.35	..	..
85	Engine and Boiler Design ..	24	7.30—9.35	..	..	..	..
86	Structural Design ..	24	..	..	..	7.30—9.35	..
89	Mechanical Engineering (Workshop) ..	6	7.30—9.35	..	7.30—9.35	..	7.30—9.35
ELECTRICAL ENGINEERING—							
95	Electrical Engineering, Junior Lecture ..	11	..	..	7.30—9.35	..	..
96	Laboratory ..	7	7.30—9.35	..	..	..	..
97	Electrical Engineering, Senior Lecture A. (Morning) ..	11	..	10.0—11.0	..	..	..
99	Lecture B. (Evening)	11	..	7.30—8.30	..	..	..
98	Laboratory (Morning)	7	..	11.5—12.5	..	..	..
100	(Evening)	7	..	8.35—9.35	..	..	..
92	Electrical Wiring—Lecture	11	..	..	..	7.30—9.35	..
93	Electrical Wiring and Fitting,	5	7.30—9.35
94	Electrical Cable Jointing ..	5	7.30—9.35

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pt Day Class to be held for Shift Engineers, DUTC + D. Corp.

TIME TABLE—*continued.*

No. of Class		No. of Room.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
BUILDING AND BUILDING TRADES— <i>continued.</i>							
112	Carpentry and Joinery, Junr.	3	..	7.30—9.35	..	7.30—9.35	..
113	Carpentry and Joinery, Inter.	3	..	..	..	..	..
114	Carpentry and Joinery, Senior	3	7.30—9.35	..	..	..	..
115	Plumbing, Junior, Lecture	5	..	7.30—8.30	..	..	..
116	Practical	5	..	8.35—10.5	..	7.30—8.30	..
117	Plumbing, Senior, Lecture	18	..	..	..	8.30—9.35	..
118	Drawing	18	..	..	..	..	7.30—10.5
119	Plumbing, Senior, Practical	5	..	..	..	7.30—9.35	..
120	Plasterers' Work, Junior ..	1	..	..	..	..	..
121	Plasterers' Work, Senior ..	1	..	7.30—9.35	..	..	..
122	Painters and Decorators' Work, Junior ..	30	..	..	..	7.30—9.35	..
123	Painters and Decorators' Work, Intermediate ..	30	..	7.30—9.35	..	..	..
124	Painters and Decorators' Work, Senior ..	30	7.30—9.35	..	7.30—9.35	..	..
126	Drawing for Painters, Intermediate and Senior ..	30	..	..	..	..	7.30—9.35
127	Theory for Painters, Junior Metal Plate Work—	30	..	..	7.30—9.35	..	..
128	Junior Lecture	18	..	7.30—8.30	..	..	..
129	Junior Drawing	18	..	8.35—9.35
130	Senior Lecture	18	..	8.35—9.35
131	Senior Drawing	18	..	7.30—8.30

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BUILDING AND BUILDING TRADES— <i>continued.</i>							
132	Metal Plate Work, Practical Junior Class ..	5	7.30—9.35	..
133	Senior Class ..	5	..	..	7.30—9.35	..	..
134	Cabinetmakers' Work, Junior	9	..	7.30—9.35	..	..	..
135	Cabinetmakers' Work, Inter.	9	..	..	7.30—9.35	..	..
136	Cabinetmakers' Work, Senior	9	7.30—9.35	..	..	..	..
MISCELLANEOUS TRADES, ETC.—							
137	Tailors' Cutting, Junior ..	15	..	7.30—9.35	..	..	..
138	Tailors' Cutting, Intermediate	15	..	..	..	..	7.30—9.35
139	Tailors' Cutting, Senior ..	15	..	..	..	7.30—9.35	..
140	Hairdressers' Work, Junior	15	8.35—10.5	..	..	..	..
141	Hairdressers' Work, Senior	15	..	..	8.35—10.5	..	..
142	Boot and Shoe Making, Junior	4	..	7.30—9.35	..	..	..
143	Boot and Shoe Making, Intermediate ..	4	..	..	..	7.30—9.35	..
144	Boot and Shoe Making, Senior	4	7.30—9.35
F 145	Manual Instruction, Wood-work.	3	7.30—9.35

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TIME TABLE—*continued.*

No. of Class.		No. of Room.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
ART AND ARTISTIC CRAFTS—							
150	Freehand Drawing ..	14	..	..	..	7.30—9.35	7.30—9.35
151	Model Drawing ..	14	..	..	7.30—9.35	..	..
152	Geometrical Drawing ..	14	..	7.30—9.35	..	..	..
153	Light and Shade Drawing (Jun.)	14	7.30—9.35	..	..	..	..
154	" " " " (Sen.)	14	..	..	7.30—9.35	..	..
155	Plant and Memory Drawing	14	..	..	7.30—9.35	..	..
156	Brushwork and Painting of Ornament ..	14	7.30—9.35	..	..	..	..
157	Design (Ely. and Adv.) ..	14	..	..	..	7.30—9.35	7.30—9.35
159	Design applied to Crafts ..	14	..	..	..	7.30—9.35	..
160	Modelling (Int.) (Sen.) (Jun.)	2	7.30—9.35	..	7.30—9.35	..	7.30—9.35
163	Stone and Marble Carving ..	2	..	..	..	..	7.30—9.35
164	Woodcarving (Sen.) (Int.) (Jun.)	29	7.30—9.35	7.30—9.35	..	7.30—9.35	..
167	Enamelling on Metal ..	17	7.30—9.35
168	Decorative and Ornamental Iron Work ..	6	..	7.30—9.35

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KEVIN STREET.

DOMESTIC ECONOMY.							
<i>Afternoon Classes.</i>							
230	Cookery	20	..	3.0—5.5
<i>Evening Classes.</i>							
231	Cookery—Lecture ..	25	..	7.30—9.35	..	..	..
232	Cookery—Practical, Junior A.	20	7.30—9.35	..	..	..	..
233	Cookery—Practical, Junior B.	20	..	..	7.30—9.35	..	..
234	Cookery—Practical, Senior	20	..	..	..	7.30—9.35	..

CHATHAM ROW.

DOMESTIC ECONOMY.							
<i>Afternoon Classes.</i>							
244	Dressmaking—Junior ..	4	3.0—5.5	..	..	..	..
245	Dressmaking—Senior ..	4	..	..	..	..	3.0—5.5
<i>Evening Classes.</i>							
246	Dressmaking—Junior ..	4	7.30—9.35	..	..	..	..
247	Dressmaking—Senior ..	4	7.30—9.35
253	Needlework—Junior ..	4	..	7.30—9.35
254	Needlework—Senior ..	4	7.30—9.35	..

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TIME TABLE—RUTLAND SQUARE.

No. of Classes.		No. of Rooms.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
DOMESTIC ECONOMY.							
<i>Afternoon Classes.</i>							
236	Cookery—Junior	3	3.0—5.5	..	..	..	..
237	Cookery—Senior	3	..	..	3.0—5.5	..	..
252	Needlework	4	3.0—5.5	..	..	..	..
248	Dressmaking	5	..	..	..	3.0—5.5	..
<i>Evening Classes.</i>							
238	Cookery—Junior, Lecture ..	3	7.30—9.35	..	..	..	..
240	Cookery—Junior, Practical	3	..	7.30—9.35	..	..	..
239	Cookery—Senior, Lecture ..	3	..	..	7.30—9.35	..	..
241	Cookery—Senior, Practical	3	..	..	..	7.30—9.35	..
255	Needlework—Junior	4	..	..	..	..	7.30—9.35
256	Needlework—Senior	4	7.30—9.35	..	..	..	..
249	Dressmaking—Junior	5	..	..	7.30—9.35	..	..
250	Dressmaking—Senior	5	7.30—9.35	..
259	Millinery—Junior	4	7.30—9.35	..
260	Millinery—Senior	4	..	7.30—9.35

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TIME TABLE—BOLTON STREET.

PRELIMINARY COURSE—							
General Group B.							
5	Elementary Mathematics,	D 7	..	7.30—8.30
6	English,	D 7	..	8.35—9.35	..	..	..
7	Drawing,	or, D 10	..	..	..	7.30—8.30	..
8	Drawing	D 10	..	..	..	8.35—9.35	..
Commercial, Group C.							
9	Elementary Mathematics,	D 6	..	7.30—8.30	..	..	..
10	English,	D 6	..	8.35—9.35	..	..	..
11	Drawing,	or, D 10	..	..	..	7.30—8.30	..
12	Drawing	D 10	..	..	..	8.35—9.35	..
INTRODUCTORY COURSE—							
General, Group E.							
17	Elementary Mathematics,	C 8	..	..	..	7.30—8.30	..
18	English,	C 8	..	..	..	8.35—9.35	..
19	Drawing,	or, D 10	..	7.30—8.30	..	..	..
20	Drawing,	D 10	..	8.35—9.35	..	..	..
Commercial, Group F.							
21	Elementary Mathematics,	D 6	7.30—8.30	..
22	English	D 6	8.35—9.35	..
23	Drawing,	or, D 10	..	7.30—8.30
24	Drawing	D 10	..	8.35—9.35

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TIME TABLE—continued.

No. of Class.		No. of Room.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
MATHEMATICS.							
34	Mathematics, Stage 3	B 4	7.30—9.35	..	..	..	7.30—8.30
36	Mathematics, Stage 5	B 4	..	..	7.30—9.35	..	8.35—9.35
Mathematical Physics,							
41	Elementary	B 3	..	7.30—9.35	..	..	..
42	Advanced	B 3	..	..	..	7.30—9.35	..
MECHANICAL ENGINEERING.							
74	Engineering, Junior ..	A 3	..	7.30—9.35	..	..	..
75	Technical Drawing, Class A.	A 3	7.30—9.35	..	..	..	..
76	Technical Drawing, Class B.	A 3	..	..	7.30—9.35	..	..
77	Practical Geometry, ..	A 3	..	..	..	..	7.30—9.35
79	Machine Drawing, ..	A 3	..	..	..	7.30—9.35	..
81	Applied Mechanics, Elem.	B 4	..	7.30—8.30	..	..	..
82	Heat Engines, Elem.	B 4	..	8.35—9.35	..	..	..
87	Surveying ..	C 10	..	8.30—9.35	..	..	..
88	Aeroplane Modelling ..	C 10	7.30—9.35	..	7.30—9.35	..	7.30—9.35
BUILDING AND BUILDING TRADES—							
103	Technical Drawing for Building Trades ..	B 12	..	..	7.30—9.35	..	..
104	Building Construction, Stage 1	B 10	7.30—9.35	..	..	..	..
105	Building Construction, Stages 2 and 3 ..	B 10	..	7.30—9.35	..	..	..
Builders' Quantities—							
107	Ordinary	B 10	7.30—9.35
108	Honours	B 10	7.30—9.35	..	Saturday
109	Perspective Drawing ..	B 12	2.30—4.30

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COMMERCIAL CLASSES—							
180	Irish, Junior ..	C 1	7.30—9.35
181	Irish, Senior ..	C 1	7.30—9.35
182	French, Junior A. ..	C 2	7.30—9.35	..	..	..	..
183	French, Junior B. ..	C 1	..	7.30—9.35	..	..	..
184	French, Junior C. ..	C 1	..	..	..	..	4.0—6.5
185	French, Intermediate ..	C 1	..	..	..	7.30—9.35	..
186	French, Senior ..	C 1	7.30—9.35	..	..	..	..
187	German, Junior ..	C 2	..	..	..	..	7.30—9.35
188	German, Senior ..	C 2	..	..	7.30—9.35	..	..
193	Commercial Correspondence and Arithmetic, Junior A.	C 8	7.30—9.35	..	..	..	..
194	Commercial Correspondence and Arithmetic, Junior B.	C 8	..	7.30—9.35	..	..	..
195	Commercial Correspondence and Arithmetic Junior C.	C 8	..	..	7.30—9.35	..	..
196	Commercial Correspondence and Arithmetic, Senior	C 8	..	..	..	..	7.30—9.35
197	Commercial Geography ..	C 6	..	..	..	..	8.35—9.35
198	Book-keeping, Junior A. ..	A 5	7.30—9.35	..	..	..	..
199	Book-keeping, Junior B. ..	A 5	..	7.30—9.35	..	..	..
200	Book-keeping, Intermediate	A 5	7.30—9.35	..
201	Book-keeping, Senior ..	C 2	..	7.30—9.35
202	Accountancy, Junior ..	C 2	7.30—9.35	..

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TIME TABLE—*continued.*

No. of Class.		No. of Room.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
COMMERCIAL CLASSES— <i>continued.</i>							
204	Business Methods, Junior A.,	C 6	8.35—9.35	..	..	..	..
205	Business Methods, Junior B.,	C 6	..	..	8.35—9.35	..	..
206	Business Methods, Intermed.	C 6	..	8.35—9.35	..	..	..
207	Business Methods, Senior ..	C 6	..	..	..	8.35—9.35	..
208	Shorthand, Junior A., Men and Boys	A 10	..	..	7.30—9.35	..	..
209	Shorthand, Junior B., Men and Boys	A 10	..	..	..	7.30—9.35	..
210	Shorthand, Junior C., Girls ..	A 10	7.30—9.35	..	..	..	..
212	Shorthand, Intermediate ..	A 10	..	..	..	..	7.30—9.35
213	Shorthand, Senior ..	C 5	..	7.30—9.35	..	..	..
214	Shorthand, Junior Speed ..	C 5	..	..	..	..	7.30—9.35
215	Shorthand, Inter. Speed, ..	C 5	..	..	7.30—9.35	..	..
216	Shorthand, Senior Speed ..	C 5	7.30—9.35	..	..	..	..
220	Typewriting, Junior ..	C 3	7.0—10.5	..	7.0—10.5	..	7.0—10.5
223	Typewriting, Intermediate	C 3	..	7.0—10.5
224	Typewriting, Senior ..	C 3	7.0—10.5	..

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TIME TABLE OF PRINTING SCHOOL, BOLTON STREET.

PRINTING SCHOOL.							
PRACTICAL TYPOGRAPHY.							
270	Compositors—	Elementary	8.0—10.5	..	..	..	..
272		Extra Practical	..	8.0—10.5	..	..	..
273		Intermediate	..	..	..	8.0—10.5	..
275		Extra Practical	..	..	8.0—10.5	..	..
276		Advanced	..	..	8.0—10.5	..	..
277		Extra Practical	..	..	..	8.0—10.5	..
280	Machinists—	Elementary	..	8.0—10.5	..	..	..
282		Intermediate	..	..	..	8.0—10.5	..
283		Extra Practical	..	..	8.0—10.5	..	..
284		Advanced	..	..	8.0—10.5	..	..
285		Extra Practical	..	..	..	8.0—10.5	..
287	Linotype, Demonstration, Elem.	..	..	8.0—10.5	..	..	..
289		Advan.	..	..	..	8.0—10.5	..
288	Linotype, Practice—	Elem.	8.0—10.5	..	..	..	..
290		Advan.	..	..	8.0—10.5	..	..
292	Technical Calculations,	Elem.	..	..	..	8.0—9.0	..
293	English,	Elem.	..	..	..	9.5—10.5	..
294	Technical Calculations,	Inter.	..	8.0—9.0	..	..	..
295	English,	Inter.	..	9.5—10.5	..	..	..
296	Technical Calculations	Advan.	8.0—9.0	..	..	..	..
297	English	Advan.	9.5—10.5	..	..	..	..
298	Drawing—	Elem.	..	..	9.5—10.5	..	9.5—10.5
300		Advan.	..	..	8.0—9.0	..	8.0—9.0
PRINTING CLASSES.							
AFTERNOON.							
306	Compositors' Practical Work	..	4.0—6.0	..	..	..	..
307	Linotype	4.0—6.0
308	English,	4.0—5.0
309	Technical Calculations	5.0—6.0
310	Drawing	5.0—6.0

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LIST OF CLASSES.

NO. OF CLASS	SUBJECT.	ROOM.	TEACHER.	DAY.	HOUR.	BUILDING.
1	Preliminary Course—A— Elementary Mathematics	16	Mr. M. A. Hartnett	Tuesday ..	7.30—8.30	Kevin Street
2	English	16	Mr. M. A. Hartnett	Tuesday ..	8.35—9.35	do.
3	Drawing	14	Mr. W. L. Whelan	Friday ..	7.30—8.30	do.
4		14	Mr. W. Millard ..	Friday ..	^{or} 8.35—9.35	do.
5	Preliminary Course—B— Elementary Mathematics	D. 7	Mr. A. Manly ..	Tuesday ..	7.30—8.30	Bolton Street
6	English	D. 7	Mr. A. Manly ..	Tuesday ..	8.35—9.35	do.
7	Drawing	D. 10	Mr. W. Millard ..	Thursday	7.30—8.30	do.
8		D. 10	Mr. W. T. O'Shea	Thursday	^{or} 8.35—9.35	do.
9	Preliminary Course—C— Elementary Mathematics	D. 6	Mr. Michael Hayes	Tuesday ..	7.30—8.30	Bolton Street
10	English	D. 6	Mr. Michael Hayes	Tuesday ..	8.35—9.35	do.
11	Drawing	D. 10	Mr. W. Millard ..	Thursday	7.30—8.30	do.
12		D. 10	Mr. W. T. O'Shea	Thursday	^{or} 8.35—9.35	do.
13	Introductory Course—D.— Elementary Mathematics	16	Mr. M. A. Hartnett	Thursday	7.30—8.30	Kevin Street
14	English	16	Mr. M. A. Hartnett	Thursday	8.35—9.35	do.
15	Drawing	14	Mr. W. L. Whelan	Monday ..	7.30—8.30	do.
16		14	Mr. W. Millard ..	Monday ..	^{or} 8.35—9.35	do.

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17	Introductory Course—E.— Elementary Mathematics	C. 8	Mr. D. K. Leahy	Thursday	7.30—8.30	Bolton Street
18	English	C. 8	Mr. D. K. Leahy	Thursday	8.35—9.35	do.
19	Drawing	D. 10	Mr. W. Millard ..	Tuesday ..	7.30—8.30	do.
20		D. 10	Mr. W. T. O'Shea	Tuesday	^{or} 8.35—9.35	do.
21	Introductory Course—F— Elementary Mathematics	D. 6	Mr. Michael Hayes	Thursday	7.30—8.30	Bolton Street
22	English	D. 6	Mr. Michael Hayes	Thursday	8.35—9.35	do.
23	Drawing	D. 10	Mr. W. Millard ..	Tuesday ..	7.30—8.30	do.
24		D. 10	Mr. W. T. O'Shea	Tuesday ..	^{or} 8.35—9.35	do.
25	Workshop Mathematics— Stage I., Class A. ..	16	Mr. R. V. Walker	Wednesday	7.30—8.30	Kevin Street
26	Stage I., Class B. ..	28	Mr. R. V. Walker	Thursday	7.30—8.30	do.
27	Stage II., Class A. ..	16	Mr. R. V. Walker	Wednesday	8.35—9.35	do.
28	Stage II., Class B. ..	28	Mr. R. V. Walker	Thursday	8.35—9.35	do.
29	Practical Mathematics— Stage I.	16	Mr. R. V. Walker	Monday ..	7.30—9.35	Kevin Street
30	Stage II.	18	Mr. R. V. Walker	Friday ..	7.30—9.35	do.
31	Stage III.	28	Mr. R. V. Walker	Tuesday ..	7.30—9.35	do.
32	Pure Mathematics— Stage I.	28	Mr. M. A. Hartnett	Friday ..	7.30—9.35	Kevin Street
33	Stage II.	28	Mr. M. A. Hartnett	Monday ..	7.30—9.35	do.
34	Stage III.	B. 4	Mr. P. A. E. Dowling	Monday ..	7.30—9.35	Bolton Street
34	Stage III.	B. 4	Mr. P. A. E. Dowling	Friday ..	7.30—8.30	do.
35	Stage IV.	24	Mr. M. A. Hartnett	Tuesday ..	7.30—9.35	Kevin Street
36	Stage V.	B. 4	Mr. P. A. E. Dowling	Wednesday	7.30—9.35	Bolton Street
36	Stage V.	B. 4	Mr. P. A. E. Dowling	Friday ..	8.35—9.35	do.

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LIST OF CLASSES—continued.

NO. OF CLASS.	SUBJECT.	ROOM.	TEACHER.	DAY.	HOUR.	BUILDING.
37	Theoretical Mechanics— Stage I.	28	Mr. M. A. Hartnett	Wednesday	7.30—8.30	Kevin Street
38	Stage II.	28	Mr. M. A. Hartnett	Wednesday	8.35—9.35	do.
39	Mathematical Physics— Stage III.	24	Mr. M. A. Hartnett	Tuesday ..	7.30—9.35	do.
41	Elementary	B. 3	Mr. A. Donnelly ..	Tuesday ..	7.30—9.35	Bolton Street
42	Advanced	B. 3	Mr. A. Donnelly ..	Thursday	7.30—9.35	do.
45	Physics, Junior— Lecture	12	Mr. J. Enright ..	Monday ..	7.30—8.30	Kevin Street
46	Laboratory	8-10	Mr. W. J. Lyons Mr. C. J. Sansom Mr. J. Enright	Monday ..	8.35—10.5	do.
47	Physics, Intermediate— Lecture	12	Mr. W. J. Lyons	Thursday	7.30—8.30	do.
48	Laboratory	8-10	Mr. W. J. Lyons Mr. C. J. Sansom Mr. E. Moynihan	Thursday	8.35—10.5	do.
49	Physics, Senior— Lecture	12	Mr. W. J. Lyons	Thursday	7.30—8.30	do.
50	Laboratory	8-10	Mr. W. J. Lyons .. Mr. E. Moynihan	Thursday	8.35—10.5	do.

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51	Magnetism and Electricity— Junior— Lecture	12	Mr. W. J. Lyons	Tuesday ..	7.30—8.30	Kevin Street
52	Laboratory	8-10	Mr. W. J. Lyons Mr. C. J. Sansom Mr. E. Moynihan	Tuesday	8.35—10.5	do.
53	Magnetism and Electricity, Intermediate— Lecture	12	Mr. W. J. Lyons	Wednesday	7.30—8.30	do.
54	Laboratory	8-10	Mr. W. J. Lyons Mr. C. J. Sansom Mr. E. Moynihan	Wednesday	8.35—10.5	do.
55	Magnetism and Electricity, Senior— Lecture	12	Mr. W. J. Lyons	Friday ..	7.30—8.30	do.
56	Laboratory	8-10	Mr. W. J. Lyons Mr. E. Moynihan	Friday ..	8.35—10.5	do.
60	Inorganic Chemistry, Ele- mentary— Lecture	25	Mr. M. J. O'Connor	Wednesday	7.30—8.30	do.
61	Laboratory	22	Mr. M. J. O'Connor	Tuesday	7.30—10.5	do.
62	Inorganic Chemistry, Ad- vanced— Lecture	25	Mr. P. B. Foy ..	Monday ..	7.30—8.30	do.
63	Laboratory	21	Mr. P. B. Foy .. Mr. J. J. Hutchinson	Monday ..	8.35—10.5	do.
63	Inorganic Chemistry, Ad- vanced— Laboratory	21	Mr. P. B. Foy .. Mr. J. J. Hutchinson	Tuesday ..	7.30—10.5	do.
63	Laboratory	21	Mr. P. B. Foy .. Mr. T. Nolan ..	Wednesday	7.30—10.5	do.

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LIST OF CLASSES—continued.

NO. OF CLASS.	SUBJECT.	ROOM.	TEACHER.	DAY.	HOOR.	BUILDING.
64	Organic Chemistry, Elementary— Lecture	25	Mr. J. J. Hutchinson	Thursday	7.30—8.30	Kevin Street
65	Laboratory	21	Mr. J. J. Hutchinson	Thursday	8.35—10.5	do.
65	Laboratory	21	Mr. J. J. Hutchinson	Friday ..	8.35—10.5	do.
			Mr. M. J. O'Connor	Friday ..	7.30—8.30	
66	Organic Chemistry, Advanced— Lecture	25	Mr. J. J. Hutchinson	Friday ..	7.30—8.30	do.
67	Laboratory	21	Mr. J. J. Hutchinson	Thursday	8.35—10.5	do.
67	Laboratory	21	Mr. M. J. O'Connor	Thursday	7.30—8.30	
67	Laboratory	21	Mr. J. J. Hutchinson	Friday ..	8.35—10.5	do.
	Chemistry for Medical Students—					
	Lecture	25	Mr. M. J. O'Connor	Wednesday	7.30—8.30	do.
68	Laboratory	22	Mr. M. J. O'Connor	Thursday	8.35—10.5	do.
68	Laboratory	22	Mr. M. J. O'Connor	Friday ..	8.35—10.5	do.]
	Pharmaceutical Chemistry—					
	Lecture	25	Mr. M. J. O'Connor	Wednesday	7.30—8.30	do.
69	Laboratory	22	Mr. M. J. O'Connor	Monday ..	7.30—10.5	do.
69	Laboratory	22	Mr. M. J. O'Connor	Wednesday	8.35—10.5	do.
70	Botany—Lecture	23	Mr. J. Adams ..	Friday ..	7.30—8.30	do.
72	Materia Medica—Lecture ..	23	Mr. J. Adams ..	Friday ..	8.35—9.35	do.
73	Pharmacy—Lecture	23	Mr. J. Corcoran ..	Thursday	7.30—9.35	do.

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74	Engineering—Junior	A. 3	Mr. E. E. Joynt ..	Tuesday ..	7.30—9.35	Bolton Street
	Technical Drawing—					
75	Class A.	A. 3	Mr. E. E. Joynt ..	Monday ..	7.30—9.35	do.
76	Class B.	A. 3	Mr. E. E. Joynt ..	Wednesday	7.30—9.35	do.
	Practical Geometry—					
77	Elementary	A. 3	Mr. C. B. Outon	Friday ..	7.30—9.35	do.
78	Advanced	A. 3	Mr. R. J. Dowling	Friday ..	7.30—9.35	do.
			Mr. C. B. Outon			
			Mr. R. J. Dowling			
79	Machine Drawing—					
	Elementary	A. 3	Mr. C. B. Outon ..	Thursday	7.30—9.35	do.
80	Advanced	A. 3	Mr. R. J. Dowling	Thursday	7.30—9.35	do.
			Mr. C. B. Outon ..			
			Mr. R. J. Dowling			
81	Applied Mechanics—					
	Elementary	B. 5	Mr. C. B. Outon ..	Tuesday ..	7.30—8.30	do.
82	Heat Engines—					
	Elementary	B. 5	Mr. C. B. Outon ..	Tuesday ..	8.35—9.35	do.
83	Applied Mechanics—					
	Advanced	24	Mr. John Taylor ..	Friday ..	7.30—9.35	Kevin Street
84	Heat Engines—					
	Advanced	24	Mr. John Taylor ..	Wednesday	7.30—9.35	do.
85	Engine and Boiler Design	24	Mr. John Taylor ..	Monday ..	7.30—9.35	do.
86	Structural Design	24	Mr. John Taylor ..	Thursday	7.30—9.35	do.
87	Surveying	C. 10	Mr. M. O'Sullivan	Tuesday	8.30—9.35	do.
88	Aeroplane Modelling	C. 10	Mr. R. W. Taylor	M. W. F.	7.30—9.35	Bolton Street
						do.

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LIST OF CLASSES—continued.

NO. OF CLASS.	SUBJECT.	ROOM.	TEACHER.	DAY.	HOUR.	BUILDING.
89	Mechanical Engineering— Workshop	6	Mr. R. J. Dowling	Monday ..	7.30—9.35	Kevin Street
90	Workshop	6	Mr. R. J. Dowling	Wednesday	7.30—9.35	do.
91	Workshop	6	Mr. E. E. Joynt .. <i>Assistants :</i> Mr. P. Puzzau Mr. M. Reilly, Mr. H. Taylor, Mr. J. Manning	Friday ..	7.30—9.35	do.
92	Electrical Wiring and Fitting— Lecture	11	Mr. J. P. Tierney	Thursday	7.30—9.35	Kevin Street
93	Laboratory	5	Mr. J. P. Tierney Mr. John Rothwell	Monday	7.30—9.35	do.
95	Electrical Cable Jointing— Lecture	11	Mr. T. Tomlinson ..	Wednesday	7.30—9.35	do.
94	Laboratory	5	Mr. J. P. Tierney Mr. John Rothwell	Monday ..	7.30—9.35	do.
95	Electrical Engineering, Junior— Lecture	11	Mr. T. Tomlinson ..	Wednesday	7.30—9.35	do.
96	Laboratory	7	Mr. T. Tomlinson ..	Monday ..	7.30—9.35	do.

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97	Electrical Engineering, Senior— Lecture—A.	11	Mr. T. Tomlinson ..	Tuesday ..	A.M. 10.0—11.0	Kevin Street
98	Laboratory—A.	7	Mr. T. Tomlinson .. Mr. J. P. Tierney	Tuesday ..	11.5—12.5	do.
99	Lecture—B.	11	Mr. T. Tomlinson ..	Tuesday ..	P.M. 7.30—8.30	do.
100	Laboratory—B.	7	Mr. T. Tomlinson .. Mr. J. P. Tierney	Tuesday ..	8.35—9.35	do.
103	Technical Drawing for Building Trades.	B.12	Mr. M. J. Burke ..	Wednesday	7.30—9.35	Bolton Street
104	Building Construction— Stage I.	B. 10	Mr. R. Coulson .. Mr. M. J. Burke	Monday ..	7.30—9.35	do.
105	Stages II. and III. ..	B. 10	Mr. R. Coulson .. Mr. M. J. Burke	Tuesday ..	7.30—9.35	do.
107	Builders' Quantities— Ordinary	B. 10	Mr. R. Coulson ..	Wednesday	7.30—9.35	do.
108	Honours	B. 10	Mr. R. Coulson ..	Wednesday	7.30—9.35	do.
109	Perspective Drawing for Builders.	B. 12	Mr. M. J. Burke ..	Saturday ..	2.30—4.30	do.
112	Carpentry and Joinery— Junior	3	—————	Tuesday ..	7.30—9.35	Kevin Street
113	Intermediate	3	—————	Thursday	7.30—9.35	do.
114	Senior	3	—————	Monday ..	7.30—9.35	do.

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LIST OF CLASSES—*continued.*

NO. OF CLASSES.	SUBJECT.	ROOM.	TEACHER.	DAY.	HOUR.	BUILDING.
115	Plumbing— Junior—Lecture ..	5	Mr. John Bolton ..	Tuesday ..	7.30—8.30	Kevin Street
116	Practical ..	5	Mr. John Bolton ..	Tuesday ..	8.35—10.5	do.
117	Senior—Lecture ..	18	Mr. John Bolton ..	Thursday	7.30—8.30	do.
118	Drawing ..	18	Mr. John Bolton ..	Thursday	8.35—9.35	do.
119	Practical ..	5	Mr. John Bolton ..	Friday ..	7.30—10.5	do.
120	Plasterers' Work— Junior	1	Mr. James Saunders	Thursday	7.30—9.35	do.
121	Senior	1	Mr. James Saunders	Tuesday ..	7.30—9.35	do.
122	Painters' and Decorators' Work— Junior	30	Mr. Thomas Markey	Thursday	7.30—9.35	do.
123	Intermediate	30	Mr. Thomas Markey	Tuesday ..	7.30—9.35	do.
124	Senior—Lecture	30	Mr. W. F. Nagle ..	Monday ..	7.30—8.30	do.
125	Practical	30	Mr. W. F. Nagle ..	Monday ..	8.35—9.35	do.
125	Practical	30	Mr. W. F. Nagle ..	Wednesday	7.30—9.35	do.
126	Drawing for Painters— Advanced	30	Mr. W. F. Nagle ..	Friday ..	7.30—9.35	do.
127	Theory for Painters— Junior	30	Mr. Joseph King ..	Wednesday	7.30—9.35	do.

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128	Metal Plate Work— Junior—Lecture ..	18	Mr. George Pappin	Tuesday ..	7.30—8.30	Kevin Street
129	Drawing	18	Mr. George Pappin	Tuesday ..	8.35—9.35	do.
132	Practical	5	Mr. George Pappin	Thursday	7.30—9.35	do.
130	Senior—Lecture ..	18	Mr. George Pappin	Tuesday ..	8.35—9.35	do.
131	Drawing	18	Mr. George Pappin	Tuesday ..	7.30—8.30	do.
133	Practical	5	Mr. George Pappin	Wednesday	7.30—9.35	do.
134	Cabinetmakers' Work— Junior	9	Mr. James Hicks ..	Tuesday ..	7.30—9.35	do.
135	Intermediate	9	Mr. James Hicks ..	Wednesday	7.30—9.35	do.
136	Senior	9	Mr. James Hicks ..	Monday ..	7.30—9.35	do.
137	Tailors' Cutting— Junior	15	Mr. John Byrne ..	Tuesday ..	7.30—9.35	do.
138	Intermediate	15	Mr. John Byrne ..	Friday ..	7.30—9.35	do.
139	Senior	15	Mr. John Byrne ..	Thursday	7.30—9.35	do.
140	Hairdressers' Work— Junior	15	Mr. Joseph Addison Mr. John Lacy ..	Monday ..	8.35—10.5	do.
141	Senior	15	Mr. Joseph Addison Mr. John Lacy ..	Wednesday	8.35—10.5	do.
142	Boot and Shoemaking— Junior	4	Mr. Edward Leonard	Tuesday ..	7.30—9.35	do.
143	Intermediate	4	Mr. Edward Leonard	Thursday	7.30—9.35	do.
144	Senior	4	Mr. Edward Leonard	Monday ..	7.30—9.35	do.
145	Manual Instruction ..	3	—	Wednesday	7.30—9.35	do.

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LIST OF CLASSES—continued.

NO. OF CLASS.	SUBJECT.	ROOM.	TEACHER.	DAY.	HOUR.	BUILDING.
150	Freehand Drawing ..	14	Mr. William Millard	Thursday	7.30—9.35	Kevin Street
			Mr. William Millard	Friday ..	7.30—9.35	do.
151	Model Drawing ..	14	Mr. William Millard	Wednesday	7.30—9.35	do.
152	Geometrical Drawing ..	14	Mr. W. L. Whelan	Tuesday ..	7.30—9.35	do.
153	Light and Shade Drawing— Junior	14	Mr. F. O'Donohue	Monday ..	7.30—9.35	do.
154	Senior	14	Mr. F. O'Donohue	Wednesday	7.30—9.35	do.
155	Plant and Memory Drawing	14	Mr. W. L. Whelan	Wednesday	7.30—9.35	do.
156	Brushwork and Painting of Ornament.	14	Mr. W. L. Whelan	Monday ..	7.30—9.35	do.
157	Design— Elementary	14	Mr. W. L. Whelan	Thursday	7.30—9.35	do.
158	Advanced	14	Mr. W. L. Whelan	Friday ..	7.30—9.35	do.
159	Design applied to Crafts ..	14	Mr. W. L. Whelan	Thursday	7.30—9.35	do.
160	Modelling— Junior	2	Mr. T. J. Mathers	Friday ..	7.30—9.35	do.
161	Intermediate	2	Mr. T. J. Mathers	Monday ..	7.30—9.35	do.
162	Senior	2	Mr. T. J. Mathers	Wednesday	7.30—9.35	do.
163	Stone and Marble Carving	2	Mr. T. J. Mathers	Friday ..	7.30—9.35	do.

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164	Woodcarving— Junior	29	Mr. John Milligan	Thursday	7.30—9.35	Kevin Street
165	Intermediate	29	Mr. John Milligan	Tuesday ..	7.30—9.35	do.
166	Senior	29	Mr. John Milligan	Monday ..	7.30—9.35	do.
167	Enamelling on Metal ..	17	Mr. W. L. Whelan	Friday ..	7.30—9.35	do.
168	Decorative and Ornamental Ironwork.	6	Mr. H. Taylor ..	Tuesday ..	7.30—9.35	do.
230	Cookery— Afternoon	20	Miss M. B. Todd	Tuesday ..	3.0—5.5	Kevin Street
231	Lecture	25	Miss M. B. Todd	Tuesday ..	7.30—9.35	do.
232	Junior—Practical—A. ..	20	Miss M. B. Todd	Monday ..	7.30—9.35	do.
233	Practical—B.	20	Miss M. B. Todd	Wednesday	7.30—9.35	do.
234	Senior—Practical	20	Miss M. B. Todd	Thursday	7.30—9.35	do.
236	Junior—Afternoon	3	Miss K. Clancy ..	Monday ..	3.0—5.5	Rutland Sq.
237	Senior—Afternoon	3	Miss K. Clancy ..	Wednesday	3.0—5.5	do.
238	Junior—Lecture	3	Miss K. Clancy ..	Monday ..	7.30—9.35	do.
239	Senior—Lecture	3	Miss K. Clancy ..	Wednesday	7.30—9.35	do.
240	Junior—Practical	3	Miss K. Clancy ..	Tuesday ..	7.30—9.35	do.
241	Senior—Practical	3	Miss K. Clancy ..	Thursday	7.30—9.35	do.
244	Dressmaking— Junior—Afternoon	4	Miss K. M. Murphy	Monday ..	3.0—5.5	Chatham Row
245	Senior—Afternoon	4	Miss K. M. Murphy	Friday ..	3.0—5.5	do.
246	Junior	4	Miss K. M. Murphy	Monday ..	7.30—9.35	do.
247	Senior	4	Miss A. Clarke ..	Friday ..	7.30—9.35	do.
248	Afternoon	5	Miss K. M. Murphy	Thursday	3.0—5.5	Rutland Sq.
249	Junior	5	Miss K. M. Murphy	Wednesday	7.30—9.35	do.
250	Senior	5	Miss K. M. Murphy	Thursday	7.30—9.35	do.

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LIST OF CLASSES—continued.

NO. OF CLASS.	SUBJECT.	ROOM.	TEACHER.	DAY.	HOOR.	BUILDING.
252	Needlework— Afternoon	4	Miss K. Doyle ..	Monday ..	3.0—5.5	Rutland Square
253	Junior	4	Miss K. Doyle ..	Tuesday ..	7.30—9.35	Chatham Row
254	Senior	4	Miss K. Doyle ..	Thursday ..	7.30—9.35	do.
255	Junior	4	Miss K. Doyle ..	Friday ..	7.30—9.35	Rutland Sq.
256	Senior	4	Miss K. Doyle ..	Monday ..	7.30—9.35	do.
259	Millinery— Junior	4	—	Thursday ..	7.30—9.35	do.
260	Senior	4	—	Tuesday ..	7.30—9.35	do.
180	Irish— Junior	C. 1.	Mr. Denis Lynch ..	Friday ..	7.30—9.35	Bolton Street
181	Senior	C. 1	Mr. Denis Lynch ..	Wednesday ..	7.30—9.35	do.
182	French— Junior—A.	C. 2	Mr. Michael Hayes	Monday ..	7.30—9.35	do.
183	Junior—B.	C. 1	Mr. Denis Lynch ..	Tuesday ..	7.30—9.35	do.
184	Junior—C.	C. 1	Mr. Denis Lynch ..	Friday ..	4.0—6.5	do.
185	Intermediate	C. 1	Mr. Denis Lynch ..	Thursday ..	7.30—9.35	do.
186	Senior	C. 1	Mr. Denis Lynch ..	Monday ..	7.30—9.35	do.
187	German— Junior	C. 2	Mr. M. P. Crinion	Friday ..	7.30—9.35	do.
188	Senior	C. 2	Mr. M. P. Crinion	Wednesday ..	7.30—9.35	do.

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189	Commercial Arithmetic— Junior—A.	C. 8	Mr. D. K. Leahy	Monday ..	7.30—8.30	Bolton Street
190	Junior—B.	C. 8	Mr. D. K. Leahy	Tuesday ..	7.30—8.30	do.
191	Junior—C.	C. 8	Mr. D. K. Leahy	Wednesday ..	7.30—8.30	do.
192	Senior	C. 8	Mr. D. K. Leahy	Friday ..	7.30—8.30	do.
193	Commercial Correspondence, Junior—A.	C. 8	Mr. D. K. Leahy	Monday ..	8.35—9.35	do.
194	Junior—B.	C. 8	Mr. D. K. Leahy	Tuesday ..	8.35—9.35	do.
195	Junior—C.	C. 8	Mr. D. K. Leahy	Wednesday ..	8.35—9.35	do.
196	Senior	C. 8	Mr. D. K. Leahy	Friday ..	8.35—9.35	do.
197	Commercial Geography ..	C. 6	Mr. Martin Wheeler	Friday ..	8.35—9.35	do.
198	Book-keeping— Junior—A.	A. 5	Mr. Michael Morrissey	Monday ..	7.30—9.35	do.
199	Junior—B.	A. 5	Mr. Michael Morrissey	Tuesday ..	7.30—9.35	do.
200	Intermediate	A. 5	Mr. Michael Morrissey	Thursday ..	7.30—9.35	do.
201	Senior	C. 2	Mr. M. F. Flood ..	Tuesday ..	7.30—9.35	do.
202	Accountancy—Junior ..	C. 2	Mr. M. F. Flood ..	Thursday ..	7.30—9.35	do.
204	Business Methods— Junior—A.	C. 6	Mr. Martin Wheeler	Monday ..	8.35—9.35	do.
205	Junior—B.	C. 6	Mr. Martin Wheeler	Wednesday ..	8.35—9.35	do.
206	Intermediate	C. 6	Mr. Martin Wheeler	Tuesday ..	8.35—9.35	do.
207	Senior	C. 6	Mr. Martin Wheeler	Thursday ..	8.35—9.35	do.
208	Shorthand— Junior—A.	A. 10	Mr. F. C. Wallis-Healy	Wednesday ..	7.30—9.35	do.
209	Junior—B.	A. 10	Mr. A. Manly Mr. F. C. Wallis-Healy	Thursday ..	7.30—9.35	do.

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LIST OF CLASSES—*continued.*

NO. OF CLASS.	SUBJECT,	ROOM,	TEACHER,	DAY,	HOUR,	BUILDING,
210	Shorthand— Junior—C.	A. 10	Mr. F. C. Wallis-Healy	Monday ..	7.30—9.35	Bolton Street
212	Intermediate	A. 10	Mr. F. C. Wallis-Healy Mr. A. Manly	Friday ..	7.30—9.35	do.
213	Senior	A. 10	Mr. F. C. Wallis-Healy Mr. M. F. Boyle ..	Tuesday ..	7.30—9.35	do.
214	Junior—Speed	A. 5	Mr. M. F. Boyle ..	Friday ..	7.30—9.35	do.
215	Intermediate—Speed	A. 5	Mr. M. F. Boyle ..	Wednesday	7.30—9.35	do.
216	Senior—Speed	B. 3	Mr. M. F. Boyle ..	Monday ..	7.30—9.35	do.
Typewriting—						
220	Junior—A.	C. 3	Miss C. Moran ..	Monday ..	7.0—10.5	Bolton Street
221	Junior—B.	C. 3	Miss C. Moran ..	Wednesday	7.0—10.5	do.
222	Junior—C.	C. 3	Miss C. Moran ..	Friday ..	7.0—10.5	do.
223	Intermediate	C. 3	Mr. James O'Shea	Tuesday ..	7.0—10.5	do.
224	Senior	C. 3	Mr. James O'Shea	Thursday	7.0—10.5	do.
PRINTING.						
<i>Compositors :</i>						
Elementary—						
270	Lecture and Practical	D. 4	Mr. P. P. Curtis ..	Monday ..	8.0—10.5	Bolton Street
272	Extra Practical	D. 8	Mr. B. Geoghegan	Tuesday ..	8.0—10.5	do.
			Mr. P. P. Curtis .. Mr. B. Geoghegan			

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273	Intermediate— Lecture and Practical	D. 4	Mr. P. P. Curtis ..	Thursday ..	8.0—10.5	Bolton Street
275	Extra Practical	D. 8	Mr. B. Geoghegan	Wednesday	8.0—10.5	do.
			Mr. P. P. Curtis .. Mr. B. Geoghegan			
Advanced—						
276	Practical	D. 8	Mr. P. P. Curtis .. Mr. B. Geoghegan	Wednesday	8.0—10.5	do.
277	Extra Practical	D. 8	Mr. P. P. Curtis .. Mr. B. Geoghegan	Thursday	8.0—10.5	do.
<i>Machinists.</i>						
Elementary—						
280	Lecture and Practical	D. 8	Mr. P. P. Curtis .. Mr. P. Fogarty	Tuesday ..	8.0—10.5	do.
Intermediate—						
282	Practical	D. 8	Mr. P. Fogarty ..	Thursday	8.0—10.5	do.
283	Extra Practical	D. 8	Mr. P. Fogarty ..	Wednesday	8.0—10.5	do.
Advanced—						
284	Practical	D. 8	Mr. P. Fogarty ..	Wednesday	8.0—10.5	do.
285	Extra Practical	D. 8	Mr. P. Fogarty ..	Thursday	8.0—10.5	do.
<i>Linotype.</i>						
Elementary—						
287	Demonstration	D. 8	Mr. R. A. Latchford	Tuesday ..	8.0—10.5	do.
288	Practical	D. 8	Mr. R. A. Latchford	Monday ..	8.0—10.5	do.

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LIST OF CLASSES—*continued.*

NO. OF CLASS.	SUBJECT.	ROOM.	TEACHER.	DAY.	HOUR.	BUILDING.
<i>Linotype.</i>						
289	Advanced— Demonstration ..	D. 8	Mr. R. A. Latchford	Thursday	8.0—10.5	Bolton Street
290	Practical ..	D. 8	Mr. R. A. Latchford	Wednesday	8.0—10.5	do.
292	Technical Calculations— Elementary ..	D. 9	Mr. M. Hanly ..	Thursday	8.0—9.0	do.
293	English—Elementary ..	D. 9	Mr. M. Hanly ..	Thursday	9.5—10.5	do.
294	Technical Calculations— Intermediate ..	D. 9	Mr. M. Hanly ..	Tuesday ..	8.0—9.0	do.
295	English—Intermediate ..	D. 9	Mr. M. Hanly ..	Tuesday ..	9.5—10.5	do.
296	Technical Calculations— Advanced ..	D. 9	Mr. M. Hanly ..	Monday ..	8.0—9.0	do.
297	English—Advanced ..	D. 9	Mr. M. Hanly ..	Monday ..	9.5—10.5	do.
298	Drawing for Printers— Elementary—A. ..	D. 10	Mr. T. O'Shea ..	Wednesday	9.5—10.5	do.
299	Elementary—B. ..	D. 10	Mr. T. O'Shea ..	Friday ..	9.5—10.5	do.
300	Advanced—A. ..	D. 10	Mr. T. O'Shea ..	Wednesday	8.0—9.0	do.
301	Advanced—B. ..	D. 10	Mr. T. O'Shea ..	Friday ..	8.0—9.0	do.
<i>Afternoon.</i>						
306	Compositors' Practical Work	D. 9, 8	Mr. P. P. Curtis ..	Monday ..	4.0—6.0	Bolton Street
307	Linotype ..	D. 8	Mr. R. A. Latchford	Monday ..	4.0—6.0	do.
308	English ..	D. 9	Mr. M. Hanly ..	Wednesday	4.0—5.0	do.
309	Technical Calculations	D. 9	Mr. M. Hanly ..	Wednesday	5.0—6.0	do.
310	Drawing ..	D. 9	Mr. T. O'Shea ..	Wednesday	5.0—6.0	do.

The Afternoon Classes will not be started unless sufficient Students enter before November 1st.

The Fee for a Course in Printing is 2s. 6d. a term, the first term ending on January 31st. Only Qualified Students are admitted to the Courses, but any Printer whatever may join his Trade Class at the same Fee.

A Student may obtain *free admission* to certain of the Courses under conditions explained in the Prospectus and in the Calendar.

Preparatory Section.

PRELIMINARY.

ENGLISH.

ELEMENTARY MATHEMATICS.

DRAWING.

Classes will be held both at Kevin Street and at Bolton Street.

INTRODUCTORY.

ENGLISH.

ELEMENTARY MATHEMATICS.

DRAWING.

Classes will be held both at Kevin Street and at Bolton Street.

PRELIMINARY COURSE.

This course is arranged with the object of giving students a sound basis of education preliminary to their entering the Introductory Course.

Each student must attend the three subjects of the group—Elementary Mathematics, English, and Drawing.

Any student who follows the course satisfactorily may be admitted to the Introductory Course, or, if he passes the qualifying examination, to a Specialised Course.

ELEMENTARY MATHEMATICS.

Teachers :

M. A. HARTNETT.

M. HAYES.

A. MANLY.

Tuesday, 7.30 to 8.30—Bolton Street (General).

Tuesday, 7.30 to 8.30—Kevin Street (Trades).

Tuesday, 7.30 to 8.30—Bolton Street (Commercial).

ARITHMETIC.—Mental arithmetic; compound rules; reduction of money, also weights and measures in common use; G.C.M. and L.C.M.; vulgar and decimal fractions; ratio; simple and compound proportion by the unitary method; simple interest; averages and percentages; square root; the metric system.

MENSURATION.—Geometrical definitions; measurements of length; rectangular areas and volumes in the principal English and French units; area of parallelogram, triangle, trapezoid, rhombus and circle; use of squared paper; exercises on practical measurements.

GEOMETRY.—Angles, triangles, polygons. The measuring and setting out of angles; sum of angles of a triangle, of angles of a polygon; angle in a semi-circle; angles in same segment; sum of angles of a quadrilateral inscribed in a circle. Set squares, protractor and compass to be used in demonstrating the foregoing.

ENGLISH.

Teachers :

M. A. HARTNETT.
M. HAYES.
A. MANLY.

Tuesday, 8.35 to 9.35—Bolton Street (General).

Tuesday, 8.35 to 9.35—Kevin Street (Trades).

Tuesday, 8.35 to 9.35—Bolton Street (Commercial).

GRAMMAR.—The structure of the English sentence.—Parts of a simple sentence ; kind of sentences ; the subordinate sentence and its functions ; analysis of sentences ; the uses and inflections of the parts of speech ; correction of grammatical errors.

COMPOSITION AND SPELLING.—Punctuation and the use of capitals ; specimen essays and outlines ; essays on given subjects ; paraphrasing selected passages ; letters : their heading, arrangement and complimentary close ; dictation of passages previously prepared by students ; transcription.

Students will be required to read aloud in class from a selected reader, with a view to extending their vocabulary and improving their method of speaking.

DRAWING.

Teachers :

W. L. WHELAN.
WILLIAM MILLARD.
W. T. O'SHEA.

Friday, 7.30 to 8.30, or 8.35 to 9.35—Kevin Street.

Thursday, 7.30 to 8.30, or 8.35 to 9.35—Bolton Street.

The correct use of drawing instruments ; the construction and use of ruler, compasses, set squares, and T squares. Simple geometrical problems on straight lines and angles ; simple scales and their construction ; circles and polygons, geometrical patterns. Simple plans and elevations ; how to read and work from plan and elevation. Freehand to a large scale in order to acquire facility in making rapid workmanlike sketches, and working drawings. Simple model drawing ; the application of the principles of model drawing in drawing pieces of furniture, tools and simple common objects. Drawing from dimensioned sketches (panelled door and frame, window, press, desk, girders, bolt head and nuts, etc.). Occasional practice on blackboard and memory drawing.

INTRODUCTORY COURSE.

This course forms an introduction to the Specialised Courses, and is open to students who show by examination or otherwise that they possess sufficient preliminary knowledge.

To qualify for subsequent admission to a special course a student must make satisfactory attendance and progress in the three subjects, viz. :—Elementary Mathematics, English, and Drawing.

ELEMENTARY MATHEMATICS.

Teachers :

M. A. HARTNETT.

D. K. LEAHY.

M. HAYES.

Thursday, 7.30 to 8.30—Bolton Street (General).

Thursday, 7.30 to 8.30—Kevin Street (Trades).

Thursday, 7.30 to 8.30—Bolton Street (Commercial).

ARITHMETIC.—Mental arithmetic ; reduction and conversion of weights and measures ; addition ; subtraction ; multiplication and division of vulgar and decimal fractions ; simplification of fractional expressions ; contracted multiplication and division of decimals ; ratio ; simple and compound proportion by the unitary method ; simple interest ; averages ; percentages ; square root ; the metric system.

MENSURATION.—Elementary mensuration of the rectangle, triangle, circle, rectangular solids, cylinder, pyramid, cone and sphere. Practical applications, such as cost of papering rooms, carpeting floors, calculating surface, area, weight and capacity of pipes, cylindrical tanks, etc.

GEOMETRY.—Angles, triangles, polygons. The measuring and setting out of angles ; sum of angles of a triangle, of angles of a polygon ; angles in semicircle ; angles in same segment ; sum of angles of a quadrilateral inscribed in a circle. Ratio :—Division of lines in given ratios ; mean proportional ; use of set squares, protractor and compass.

ENGLISH.

Teachers :

M. A. HARTNETT.
D. K. LEAHY.
A. MANLY.

Thursday, 8.35 to 9.35—Bolton Street (General).
Thursday, 8.35 to 9.35—Kevin Street (Trades).
Thursday, 8.35 to 9.35—Bolton Street (Commercial).

GRAMMAR.—The construction of sentences; the connection of sentences and sequence of tenses; correction of grammatical errors; prefixes and affixes, their use and meaning; elementary etymology.

COMPOSITION AND SPELLING.—Specimen letters and essays; letters and essays on given subjects, generally of technical or commercial interest; correction of faulty sentences; paraphrasing short passages in prose or verse; summarising a lesson of the reading book; instruction and exercise in taking notes; dictation and transcription of passages.

Students may be required to read aloud in class from a selected reader, with a view to extending their vocabulary and improving their method of speaking.

DRAWING.

Teachers :

W. L. WHELAN.
WILLIAM MILLARD.
W. T. O'SHEA.

Monday, 7.30 to 8.30, or 8.35 to 9.35—Kevin Street.
Tuesday, 7.30 to 8.30, or 8.35 to 9.35—Bolton Street.

For Syllabus, see Page 72.

Mathematics.

WORKSHOP MATHEMATICS.

PRACTICAL MATHEMATICS.

Stages 1, 2, and 3.

PURE MATHEMATICS.

Stages 1, 2, 3, 4, and 5.

THEORETICAL MECHANICS (Solids).

THEORETICAL MECHANICS (Fluids).

MATHEMATICAL PHYSICS.

MATHEMATICAL PHYSICS.

Elementary and Advanced.

} KEVIN STREET.

} BOLTON STREET.

WORKSHOP MATHEMATICS.**STAGE 1.**

Lecturer :

R. VINGENT WALKER.**Class A—Wednesday, 7.30 to 8.30.****Class B—Thursday, 7.30 to 8.30.**

ARITHMETIC.—Factors, abbreviations in multiplication and division, measures and multiples, fractions (vulgar and decimal), and contracted methods, square root, ratio, proportion and unitary method, proportional parts, averages and percentages ; Metric and British systems of units, simple technical calculations ; meaning and use of formulæ.

MEASUREMENTS AND MENSURATION.—Simple geometrical ideas use of protractors and compasses. areas of triangles and rectangles, cost of papering walls, etc.

STAGE 2.**Class A—Wednesday, 8.35 to 9.35.****Class B—Thursday, 8.35 to 9.35.**

ARITHMETIC.—Decimals by contracted methods, square and cube root, proportion and ratio, variation, rate of loss and gain, simple interest, compound interest law, technical calculations.

GEOMETRY AND MENSURATION.—Simple practical geometry, mensuration of plane figures and of the circle, volumes and surfaces of Cylinder and Cone.

LOGARITHMS.—Elementary applications, and use of tables.

ALGEBRA AND GRAPHS.—Use of a curve to show varying quantities, barometric charts ; substitution of values, interpretation of formulæ, the four rules, H.C.F. and L.C.M., fractions, simple and simultaneous equations, simple problems.

PRACTICAL MATHEMATICS.**STAGE 1.**

Lecturer :

R. VINCENT WALKER.**Monday, 7.30 to 9.35.**

ARITHMETIC.—Contracted multiplication and division of decimals, square and cube root, ratio, variation and rate of gain or loss, simple and compound interest.

GEOMETRY AND MENSURATION.—Geometry of the line and circle, geometrical proportion, areas of plane figures, approximations to areas, Simpson's rules, volumes and surfaces of cone, cylinder and sphere.

ALGEBRA AND GRAPHS.—Fractions and partial fractions, simple and simultaneous equations, problems, simple quadratics, indices, logarithms, use of tables, calculations by logarithms, conversion of Common to Naperian logs and *vice versa*. Plotting equations, the line, determination of mean lines, analysis of quadratic functions, solution and determination of max. and min. values, plotting exponential and trigonometric functions, meaning of "rate of increase" and "slope of curve."

TRIGONOMETRY.—Radian measurement, the functions of an angle less than 90° , simple formulæ, reading the tables, solution of right-angled triangles.

GENERAL.—Mass, force, weight, velocity and acceleration, vectors and vector laws, centre of gravity, Guldin's theorems, specific gravity.

STAGE 2.**Friday, 7.30 to 9.35.**

ARITHMETIC.—The more advanced parts of Stage 1.

ALGEBRA AND GRAPHS.—Formulæ, quadratic equations and problems solvable by them, the theory of indices and surd quantities, use of the Binomial Theorem, especially in approximations, solution

of quadratics and cubics graphically, maxima and minima, rate of increase, slope of curve, plotting logarithmic curves, approximate formulæ, simple differentiation with application to maxima and minima.

GEOMETRY.—Theory of proportion, projection, trace of a line, trace of a plane, mensuration of solids, Simpson's rules, Guldin's theorems.

TRIGONOMETRY.—Functions of a simple angle, solution of right-angled triangles, heights and distances.

GENERAL.—Force, mass, weight, velocity and acceleration, momentum and energy, centre of gravity.

STAGE 3.

Tuesday, 7.30 to 9.35.

ALGEBRA AND GRAPHS.—Use of Binomial Theorem in approximations, harder logarithmic and exponential formulæ, solution of quadratics and cubics, plotting exponential functions, maxima and minima.

GEOMETRY.—Co-ordinates of a point in three dimensions, direction cosines, traces of a plane, the angle between two lines or planes, areas and volumes of surfaces of revolution, segments and sectors of circles, centres of gravity and moments of inertia.

TRIGONOMETRY.—Sums and differences, relations between sides and angles of a triangle, areas of triangles, limits of triangles.

DIFFERENTIAL AND INTEGRAL CALCULUS.—Rate of increase, simple differentiation, explicit and implicit functions, maxima and minima, integration, simpler formulæ, finding areas and length of curves, harmonic motion, Fourier's series, simple differential equations. Vectors and vector Algebra.

PURE MATHEMATICS.**STAGE 1.**

Lecturer :

M. A. HARTNETT.**Friday, 7.30 to 9.35.**

ARITHMETIC.—Principles of arithmetical operations, and their application to simple questions. The fundamental rules applied to whole numbers and to vulgar and decimal fractions.

PROPORTION.—Extraction of the square root of numerical quantities—Arithmetic as applied to ordinary questions of commerce and trade, including such questions as arise out of Bills, Interest, Percentages, Purchase and Sale of Stocks and Shares—Division of profit and loss—Estimates—Weights and measures—The metrical system.

GEOMETRY.—The properties of lines, triangles, and rectilinear figures, so far as they are treated in the 1st Book of Euclid.

ALGEBRA.—Definitions and explanations of algebraical signs and terms—Numerical substitutions—Integral indices—Addition, subtraction, multiplication, and division of algebraical expressions and fractions—Factors, greatest common measure and least common multiple—Reduction of fractional expressions—Simple equations and problems producing them.

STAGE 2.**Monday, 7.30 to 9.35.**

GEOMETRY.—Properties of rectangles, circles, and polygons, as they are treated in the 2nd, 3rd, and 4th Books of Euclid.

ALGEBRA.—Involution and evolution—Surds—Quadratic equations, and problems producing them—Ratio, proportion, and variation.

PLANE TRIGONOMETRY.—Definitions—Measurement of angles by degrees and radians—The trigonometrical functions, and the conversion of one into another—Use of the positive and negative

signs to denote contrariety of direction.—Tracing of the trigonometrical functions in magnitude and algebraical sign through the four quadrants—The arithmetical values of the trigonometrical functions of 30° , 45° , 60° , 75° , and 90° .

LOGARITHMS.—Definition—Multiplication, Division, Involution and Evolution by logarithms—The use of tables of logarithms of numbers, and of sines, cosines, etc., of angles—Tables of proportional parts for numbers and angles.

TRIANGLES.—Solution of all cases of right-angled and oblique triangles, and proofs of the requisite formulæ—Heights and distances—Area of a triangle.

STAGE 3.

Lecturer :

P. A. E. DOWLING.

Monday, 7.30 to 9.35.

Friday, 7.30 to 8.30.

Required
R.C. Sec. I

GEOMETRY.—Ratio and proportion with applications to Geometry, so far as the subject is treated in the definitions of Euclid's 5th Book, and in his 6th Book.

ALGEBRA.—Permutations and Combinations—Progressions—Complete theory of indices—The Binomial theorem.

PLANE TRIGONOMETRY.—Formulæ for finding the sine, cosine, etc., of the sum and difference of two angles, and of the multiples and sub-multiples of an angle—Diameters of circles inscribed in and circumscribed about a given triangle—Areas of regular polygons inscribed in and circumscribed about a given circle—Area of a circle—Description and use of the vernier, theodolite, and sextant.

STAGE 4.

Lecturer :

M. A. HARTNETT.**Monday, 7.30 to 9.35.**

Students taking Stages 4 and 5 should also attend the Class in Practical Geometry.

SOLID GEOMETRY.—Properties of straight lines and planes ; their intersections, inclinations, parallelism, perpendicularity.

Properties of the sphere, and of cylinders and cones with circular bases ; their plane section, tangent planes, surfaces and volumes.

Trihedral and polyhedral angles. Prisms and pyramids ; their definitions, plane sections, similitude, their surfaces and volumes.

SPHERICAL TRIGONOMETRY.—Definitions, great and small circles, angles and sides of spherical triangles. Relation between the angles and sides of supplemental triangles. The fundamental relations between the trigonometrical ratios of the sides and angles of spherical triangles, including the analogies of Napier and the formulæ of Gauss. Solution of right-angled, quadrantal, and other spherical triangles. Areas of spherical triangles, and the radii of their *en-* and *circum-* circles.

GEOMETRICAL CONICS.—Properties of the parabola, ellipse, and hyperbola deduced by pure geometry from definition *in plano*.

STAGE 5.

Lecturer :

P. A. E. DOWLING.**Wednesday, 7.30 to 9.35.****Friday, 8.35 to 9.35.**

CO-ORDINATE GEOMETRY.—Rectangular, oblique, and polar co-ordinates of a point ; transformation of co-ordinates.

Equations of straight lines, and the treatment of equations relative to their intersection, concurrence, inclination, parallelism, perpendicularity ; equations of circles, their tangents and normals.

Properties of poles and polars. Questions concerning the intersection of circles, and the determination of circles satisfying given conditions.

Forms of the equations of the parabola, ellipse, and hyperbola ; the equations of their tangents and normals ; properties of their diameters, axes, foci, conjugate diameters, asymptotes, poles and polars.

Discussion of the general equation of the second degree.

DIFFERENTIAL CALCULUS.—Limits, differential co-efficients, differentiation, simple and inverse functions, and a function of a function, successive differentiation. Taylor's Theorem and MacLaurin's Theorem, with simple applications. Easy indeterminate forces. Maxima and minima of functions of one variable. Equations of tangents and normals to plane curves.

INTEGRAL CALCULUS.—Forms of integration ; rational fractions ; integration by parts ; definite integrals, with easy applications to areas of curves, volumes of solids of revolution, centres of gravity, and moments of inertia.

MATHEMATICAL PHYSICS.

THEORETICAL MECHANICS.

SOLIDS AND FLUIDS—STAGE 1.

Lecturer :

M. A. HARTNETT.

Wednesday, 7.30 to 8.30.

The principles of Mechanics, Hydrostatics, and Pneumatics.

Units of length, mass, and time ; velocity, acceleration uniform and variable ; gravity ; laws of motion, momentum, inertia ; units of force—poundal, dyne ; mass and weight ; Atwood's machine ; work, energy, power, horse-power ; parallelogram of forces, and forces in equilibrium ; parallel forces and centre of a system ; couples ; moment of a force ; centre of gravity, its position in symmetrical bodies ; machines and mechanical advantage ; levers, balance, pulleys ; the inclined plane ; elasticity ; uniform motion in a circle ; pendulum ; laws of friction.

Fluid pressure on surfaces in fluids ; Bramah press ; water level ; equilibrium of fluids which do not mix ; centre of pressure ; floating

bodies, meta-centre ; specific gravity of bodies, and the methods by which it is determined ; the atmosphere, barometers, syphon, water pumps ; Boyle's law, and applications, pressure gauges.

This Class is suitable for Candidates preparing for the Matriculation Examination of the National University of Ireland, and for Trinity College, Dublin ; also for the Preliminary Examination of the College of Surgeons and for the Board of Education Examination in Theoretical Mechanics.

THEORETICAL MECHANICS.
SOLIDS AND FLUIDS—STAGE 2.

Lecturer :

M. A. HARTNETT.

Wednesday, 8.35 to 9.35.

Mechanics and Hydrostatics treated by Mathematical methods, not involving the Integral Calculus.

The theory of the composition and resolution of uniplanar forces ; centre of gravity of bodies ; statics of simple mechanisms, including pulleys, screws, inclined plane, etc. Friction, the simpler linkages, Hook's law, Young's modulus, the bending moment of a beam ; velocities and accelerations, including their resolutions and composition. Mass, momentum, force, energy and power. Motion under the action of a force which is constant in direction and magnitude. Projectiles, circular motion, simple harmonic motion. The simple pendulum. Simple cases of direct and oblique impact.

Determination of specific gravity ; fluid pressure, centres of pressure, buoyancy and metacentre ; equilibrium and stability of floating bodies ; machines depending on fluid pressure ; atmospheric pressure, Boyle's law, Charles' law ; air pumps, water pumps, and syphons ; simple cases of surface tension, efflux and rotation of liquids.

This Class is suitable for Second Arts candidates for the first Professional Engineering Examination of the National University, and for Theoretical Mechanics, Stage 2, of the Board of Education.

MATHEMATICAL PHYSICS.**STAGE 3.**

Lecturer :

M. A. HARTNETT.**Tuesday, 7.30 to 9.35, at Kevin Street.**

STATICS.—General theory of forces, and determination of centre of gravity by means of the calculus.

DYNAMICS.—The laws of motion, momentum and energy. Motion of a particle describing a curve.

HYDROSTATICS, GEOMETRICAL OPTICS, AND ASTRONOMY, with use of the calculus.

This Course is suitable for Candidates preparing for the B.A. Examination in the National University of Ireland ; and for the Second Professional Engineering Examination of the National University of Ireland.

ELEMENTARY.

Lecturer :

A. T. DONNELLY,**Tuesday, 7.30 to 9.35, at Bolton Street.**

STATICS.—Forces. Centre of gravity and graphical methods. Applications.

DYNAMICS.—Laws of motion. Simple harmonic motion.

FLUIDS.—Pressure. Floating bodies. Rotating liquid.

GASES.—Pressure : properties and simple problems.

ADVANCED.

Lecturer :

A. T. DONNELLY.**Thursday, 7.30 to 9.35, at Bolton Street.**

STATICS.—General theory of forces. Attraction, &c.

DYNAMICS.—Elements of dynamics of a particle.

HYDROSTATICS, GEOMETRICAL OPTICS, and ASTRONOMY.

Physics.

PHYSICS, JUNIOR—Lecture.

Laboratory.

PHYSICS, INTERMEDIATE—Lecture.

Laboratory.

PHYSICS, SENIOR—Lecture.

Laboratory.

ELECTRICITY AND MAGNETISM, JUNIOR—Lecture.

Laboratory.

ELECTRICITY AND MAGNETISM, INTERMEDIATE—Lecture.

Laboratory

ELECTRICITY AND MAGNETISM, SENIOR—Lecture.

Laboratory.

EXPERIMENTAL PHYSICS.**JUNIOR.**

Lecturer :

J. ENRIGHT.**Monday—Lecture .. 7.30 to 8.30.****Laboratory 8.35 to 10.5.**

This course is intended for Students commencing the study of Physics. The lectures will be fully illustrated by experiments, and will be followed by practical lessons in which the students will take part. These will form a Laboratory Class which will be held after each Lecture.

Elementary principles and methods of measurement. Inertia, mass, force, weight, gravitation. General principles of force action. Study of elementary machines. Vibratory motion. Elasticity and general properties of matter. Friction. Work, general principles of energy. Properties of liquids and gases, principles of fluid pressure. Atmospheric pressure. Study of chemical change in burning and rusting—General chemistry of oxygen, carbon, hydrogen, nitrogen, water, carbon dioxide, air, chalk, etc. Chemistry of metals, acids, alkalies. Processes of solution, distillation, crystallisation and filtration.

Heat and temperature—thermometry. Thermal expansion of solids, liquids, and gases. Measurement of quantities of heat, and of specific heats. Change of physical state on heating—fusion, vaporisation—latent heat. Properties of vapours. Study of clouds, dew, mist, rain, snow, hail, and general weather phenomena. Processes of transference of heat—convection, conduction, radiation. Application in ventilation, heating of houses, etc. Function of clothing.

Elementary study of Light—including photometry, reflection, refraction, and principles of lenses and of simple optical instruments. Analysis and absorption of light; elementary principles of colour phenomena.

Elementary study of Sound, and various problems in Physics.

EXPERIMENTAL PHYSICS.**INTERMEDIATE.**

Lecturer :
W. J. LYONS.

Thursday, Lecture, 7.30 to 8.30.
Laboratory, 8.35 to 10.5.

This Class will be adapted to the requirements of those taking Physics as a subsidiary subject, *e.g.*, students in Mechanical and Electrical Engineering, Chemistry, etc. Special attention will be given to the applications of principles.

GENERAL PHYSICS.—Principles and methods of measurement of lines, areas and volumes—Laws of motion and measurement of mass and force—Principles of force action, including elements of statics and dynamics.—Gravitation—Elasticity—Principles of Energy—Elementary machines—Friction and Viscosity—Simple periodic motion—General principles of fluid pressure and of properties of liquids and gases. Principle of Archimedes—flotation—Atmospheric pressure and Boyle's law—study of pumps. Principles and methods of density determination.

HEAT.—Thermometry—study of thermal expansion of solids, liquids, and gases—Calorimetry: its principles and methods. Change of state—fusion—melting points and latent heat—vaporisation—boiling points and latent heat—general study of vapours and vapour pressure. Transference of heat—Convection: its applications—Conduction—Radiation—Mechanical theory of Heat, and elementary principles of Thermo-dynamics.

LIGHT.—Photometry—Reflection from plane and from curved surfaces—Refraction and determination of refractive indices—principles of lenses, microscopes and telescopes, and optical lantern and camera. The eye and vision—dispersion and theory of colour. Spectroscopy.

SOUND.—Study of vibration in general and of wave motion. General application of principles. Interference. Resonance. Velocity of sound. Elements of the physical theory of music.

EXPERIMENTAL PHYSICS.**JUNIOR COURSE.**

Monday, 8.35 to 10.5.

Demonstrators :

W. J. LYONS.**C. I. SANSOM.****E. MOYNIHAN.****LABORATORY.**

Measurement of straight and curved lines. Use of graduated rules, calipers, verniers, micrometer screw gauge, spherometer. Determination of internal and external diameters of cylinders. Measurement of areas by squared paper, etc.

Use of the balance. Use of burette, pipette, graduated vessels. The parallelogram of forces. The Lever. Extension of springs and rubber ; Elasticity. Graphical representation of results.

Exercises on the simple pendulum. Vibration of springs.

Determination of densities of solids and of liquids.

Application of principles of Archimedes. Determination of the density of air. Construction of simple barometer. Verification of Boyle's law. Centre of Gravity. Experiments on friction.

Construction of thermometer bulbs and simple operations in glass blowing. Testing thermometers and comparison of scales.

Simple determinations of co-efficients of expansion of rods, liquids, and gases at constant pressure. Determination of specific heat and latent heat.

Determination of melting points and boiling points.

Cooling curves and experiments on radiation.

Experiments on vapour pressure. The use of hygrometers to find dew point and humidity.

Comparison of thermal conductivities.

Determination of velocity of sound by resonance. Use of monochord ; vibration of strings and rods.

Comparison of intensities of light sources. Simple experiments with pins on laws of reflection and of refraction of light ; refractive indices.

Determination of focal lengths for mirrors and lenses ; fitting up lenses for microscope and telescope systems.

Use of Spectrometer.

EXPERIMENTAL PHYSICS.**SENIOR.**

Lecturer :

W. J. LYONS.

Demonstrators :

W. J. LYONS.**C. I. SANSOM.****E. MOYNIHAN.****Thursday—Lecture, .. 7.30 to 8.30.****Laboratory, 8.35 to 10.5.**

The course of instruction will be arranged to suit the requirements of teachers and of such students as are desirous of getting a comprehensive and somewhat advanced treatment of the subject. The lectures and laboratory work will be decided largely by the needs of the students in attendance, and will cover such syllabuses as that of the Conjoint Board of the College of Surgeons and College of Physicians of Ireland.

The course will follow the lines indicated in the Syllabus of Physics (p. 87), with a more theoretical treatment, and the following additions will be made :—

GENERAL PHYSICS.—Diffusion, osmosis, viscosity, capillarity.

HEAT.—Kinetic theory of gases, vapour pressure and vapour density, thermo-dynamics, radiation, elements of meteorology.

LIGHT.—Wave-theory — Interference — Diffraction — Double refraction and polarisation.

RADIO-ACTIVITY.—Kathode Rays; Röntgen Rays, etc.

SOUND.—Theoretical treatment of vibration and wave-motion.

MAGNETISM AND ELECTRICITY, as outlined in the Syllabus on (pp. 90-92), the treatment being more theoretical and condensed.

ELECTRICITY AND MAGNETISM.

Lecturer :

W. J. LYONS.

Demonstrators :

W. J. LYONS.**G. I. SANSOM.****E. MOYNIHAN.****JUNIOR—Lecture, .. Tuesday 7.30 to 8.30.****Laboratory, Tuesday 8.35 to 10.5.****INTERMEDIATE—Lecture, Wednesday 7.30 to 8.30.****Laboratory, Wednesday 8.35 to 10.5.****SENIOR—Lecture, .. Friday 7.30 to 8.30.****Laboratory,.. Friday, 8.35 to 10.5.**

In this Subject a graduated course of Lectures and Laboratory instruction will be offered as shewn ; the Students of each year doing their Laboratory work immediately after their Lecture.

MAGNETISM.

Fundamental properties of magnets ; elementary hypothesis and laws of magnetism. Magnetic induction in iron and in other metals.

Methods of magnetisation ; distribution of magnetism in a magnet ; the molecular theory of magnetism.

Terrestrial magnetism, declination and dip ; direction and intensity of the earth's magnetic field ; horizontal and vertical components.

ELECTRICITY AND MAGNETISM—continued.**STATICAL ELECTRICITY.**

Electrification—Fundamental facts and elementary hypothesis ; conductors and non-conductors ; quantity of electricity. Coulomb's law.

Electric potential and its principles ; potential difference ; analogies ; distribution of charge over various conductors.

Electrostatic induction ; relations between charge, potential and capacity. Principles of the condenser ; electrical machines, the electric spark and discharge through gases.

CURRENT ELECTRICITY.

The magnetic, thermal, and chemical phenomena associated with a wire in which a difference of potential is sustained. Methods of sustaining the potential difference.

Study of the magnetic field due to a current ; Oersted's experiment ; Ampère's rule ; Maxwell's rule ; Laplace's formula ; forms of lines of force. Definition of unit of current in C.G.S. system. The ampère. Study of tangent galvanometer, of astatic galvanometer, and other types of galvanometers. Their use and adjustment. Statement of Ohm's law ; its discussion. Resistance defined ; specific resistance ; Wheatstone's bridge and the determination of resistance. The ohm. The volt. Law of simple circuit. External and internal resistance. Combination of cells.

The heating effect of a current. Joule's law. Electric lighting. Electrolysis—Faraday's laws.

Thermo-electricity. Thermopiles. Thermo-electric diagram.

Study of the simple primary and secondary cells.

Practical applications of Accumulators.

Facts and principles of Electro-dynamics and Electro-magnetic induction.

Simple theory of the Dynamo and Electric Motors. Direct and Alternating Current.

Telegraphy and telephony.

Practical applications of Electricity and Magnetism.

ELECTRICITY AND MAGNETISM—continued.**LABORATORY.**

Manufacture of magnets and testing of polarity and position of poles; distribution of magnetism in a bar magnet; mapping fields of force.

Comparison of magnetic moments and of intensities of magnetic fields by deflection methods; vibration methods.

Determination of H.—horizontal component of Earth's field; determination of the magnetic moment of a magnet.

Electrical machines, voltaic cells and polarisation.

Principles of tangent and other galvanometers.

Comparison of E.M.F.'s by tangent galvanometer; calibration by tangent galvanometer.

Wheatstone's Bridge—Post Office Box.

Variation of resistance with temperature.

Use of potentiometer.

Determination of internal resistance of cells.

Use of copper and gas voltmeters. Heating effect of a current—Joule's law.

Resistance of electrolytes. Thermo-electricity. Use of ballistic galvanometer.

Use of earth inductor to find H. and "angle of dip."

Testing intensity of magnetic fields and distribution of magnetism with a small coil; distribution in a solenoid.

Hysteresis and Magnetic Curves.

Comparison of capacities of two condensers; comparison of E.M.F.'s by means of condenser.

Self and Mutual Induction,

Calibration of Instruments.

Chemistry, Materia Medica and Botany.

HEAD OF DEPARTMENT—P. BERTRAM FOY, F.C.S.

CHEMISTRY—THEORETICAL INORGANIC.

CHEMISTRY—PRACTICAL INORGANIC.

CHEMISTRY—APPLIED.

CHEMISTRY—ORGANIC, THEORETICAL.

CHEMISTRY—ORGANIC, PRACTICAL.

CHEMISTRY—PRACTICAL FOR PHARMACEUTICAL STUDENTS.

CHEMISTRY—PRACTICAL FOR MEDICAL STUDENTS.

MATERIA MEDICA.

BOTANY.

PHARMACY.

INORGANIC CHEMISTRY, THEORETICAL.**ELEMENTARY.**Lecturer :
M. J. O'CONNOR.**Wednesday, 7.30 to 8.30.**

The instruction in this class is intended to give students a sound knowledge of the fundamental principles on which the science is based. Though the lectures will be fully illustrated by experiments, students are advised to join the Laboratory class in this subject.

Definition of the Science. The general properties of matter ; its existence in three states—solid, liquid, and gaseous. How quantity is determined in each state. Comparison of the English and Metric systems of weights and measures. Difference between physical and chemical change. Elements and compounds. Difference between a mechanical mixture and a chemical compound. Analysis and synthesis. Laws of constant composition, of definite and multiple proportions. Equivalents, and how they may be experimentally determined. Symbols, formulæ, equations, and nomenclature. Atoms and molecules ; atomic and molecular weights.

Preparation and properties of Hydrogen and Oxygen.

Water—Its chemical composition and physical properties. Other Oxides, their classification. Acids, Alkalies, and Salts.

The Atmosphere—Its composition. Nitrogen, Ammonia, Nitric Acid and Oxides of Nitrogen, their preparation and properties.

Chlorine, Bromine, and Iodine, and their uses in the Arts. Carbon and its Oxides. Carbonates.

Sulphur and its allotropic forms. Preparation and properties of sulphuretted hydrogen and its uses in the Laboratory. Oxides and acids of sulphur ; Sulphuric Acid.

INORGANIC CHEMISTRY, THEORETICAL.**ADVANCED.**

Lecturer :

P. BERTRAM FOY.**Monday, 7.30 to 8.30.**

The instruction in this class covers the general principles of Theoretical and Physical Chemistry, with special stress on the practical applications of Chemistry to various industries.

Atoms and molecules, atomic and molecular weights. Law of Avogadro. Atomic and molecular formulæ and equations. Specific heat and atomic heat of the elements. Atomic value or valency of the elements. Phenomena of dissociation. Classification of the elements (Periodic). Solution, Osmotic pressure, electrolytic dissociation.

The experimental methods by which the composition of the following compounds has been accurately determined:—water, atmospheric air, hydrochloric acid, ammonia, the gaseous oxides of nitrogen, the oxides of carbon, sulphuretted hydrogen.

Laws of gaseous combination of elements and compounds. Reduction of gaseous volumes to standard pressure and temperature. Calculation of quantities by volume and by weight.

Water.—Causes of permanent and temporary hardness in water. Methods of softening. Suitability for domestic purposes. Determination of composition of water by weight and by volume. Ozone, atmospheric air. Hydrogen Dioxide.

The Halogen Elements and their more important compounds.

The Nitrogen Group and compounds. Silicon.

Chief methods for the isolation, and properties of the following, with those of their more important compounds:—Potassium, sodium, ammonium, silver, mercury, copper, zinc, magnesium, barium, strontium, calcium, tin, aluminium, platinum, lead, chromium, manganese, and iron.

Manufacturing processes for the production of:—Oxygen, chlorine, bromine, iodine, bleaching powder, sulphuric acid, hydrochloric acid, nitric acid, sodium carbonate and caustic soda, lime, and coal gas.

INORGANIC CHEMISTRY, PRACTICAL.**ELEMENTARY.**

Demonstrator :

M. J. O'CONNOR.**Tuesday, 7.30 to 10.5.**

In this class, during the first term, students are instructed in various manipulative operations (such as the bending of glass tubing, fitting-up apparatus, etc.), and they perform experiments illustrative of some of the more important facts upon which the science of Chemistry rests. They are trained to use a balance and to estimate the volume of bodies, and required to carry out several experiments in which alteration in weight, due to chemical action, has to be estimated; or the volume of gas, produced from or with a weighed portion of substance, has to be determined. During the remainder of the Session students receive instruction in elementary qualitative analysis, including the detection and separation of the commoner metals and acids from their combinations in simple salts.

ADVANCED AND HONOURS.

Demonstrators :

P. BERTRAM FOY.**J. J. HUTCHINSON.****T. NOLAN (Wednesday).****Monday 8.35 to 9.35.****Tuesday, 7.30 to 10.5.****Wednesday, 7.30 to 10.5.**

In this class, during the first term, students perform a series of experiments, illustrating the chief properties and tests of the elements not dealt with in the first year's course, and are instructed in volumetric analysis and the preparation and use of standard solutions. During the remainder of the session instruction will be given in advanced qualitative analysis, including the identification and separation of the constituents of mixtures of two or more simple salts, gravimetric estimations.

Each one working in the laboratory is supplied with apparatus and reagents, but is required to pay a deposit fee of 5s. to cover breakages, the balance of which will be returned, on application, at the end of the Session. Students are to provide themselves with gramme weights, also platinum wire and foil.

APPLIED CHEMISTRY.

A Class will be formed in this Subject if twelve Students make application before Nov. 1.

Lecturer and Demonstrator :

J. J. HUTCHINSON.

Wednesday, 7.30 to 10.5.

The Class would be for students engaged in Chemical Industries ; the work being arranged to suit the requirements of the particular students attending, and the demonstrations, as far as possible, would be arranged to meet their special needs. They should, of course, possess sufficient Chemical knowledge to readily follow the instruction.

Alcohols.—Qualitative tests. Determination of the alcoholic strength of beer, of wines, and of spirits. Determination of original gravity, acidity, etc.

Starch and the Sugars.—Qualitative tests. Fermentation. Yeast Use of the Microscope. Diastatic activity of malt. Estimation of Cane Sugar in Syrups, etc. Invert Sugar. The Polariscope and its uses. Fehling's solution, its preparation and its use.

Albumenoids.—Determination of Nitrogen by Kjeldhal's method.

Soaps.—Proximate analysis of soaps.

Fats and the Fatty Acids.—Use of the various solvents. Determination of the Physical and Chemical constants of Fats and Oils.

ORGANIC CHEMISTRY, THEORETICAL.

Lecturer :

J. J. HUTCHINSON.

Elementary—Thursday, 7.30 to 8.30.

Advanced —Friday, 7.30 to 8.30.

Paraffin or $C_n H_{2n+2}$ Series. Marsh gas or methane, ethane, propane, butane, pentane.

Modes of occurrence, preparation and general characters of Paraffins. Homology and isomerism. Bonds.

Ethylene or Olefine Series, $C_n H_{2n}$.

Modes of occurrence, preparation and general characters of ethylene, propylene, etc.

Acetylene Series $C_n H_{2n-2}$.

Preparation and distinctive characters of acetylene.

Paraffins.—Haloid derivatives; methyl chloride, methylene chlor-olefines. Distinction between saturated and unsaturated hydrocarbide, chloroform, carbon tetrachloride, iodoform, ethyl chloride, bromide and iodide, ethylene dichloride and dibromide.

Alcohols.—Methyl, ethyl, propyl, butyl, and amyl alcohols; primary, secondary, and tertiary alcohols. Methyl alcohol.—Destructive distillation of wood. Purification and properties of methyl alcohol. Ethyl alcohol.—Modes of occurrence. Industrial preparation of spirituous liquids. Rectified, proof, and methylated spirits. Alcoholometry. Preparation of pure alcohol, derivatives and chief reactions of alcohol, constitution of alcohol. Fusel oils. Properties of propyl, isopropyl, isobutyl, and isoamyl alcohols.

Ethereal Salts or Esters.—Ethyl acetate, ethyl sulphate, ethyl hydrogen, sulphate, ethylsulphide, and mercaptan.

Ethers.—Manufacture of ethyl oxide.

Aldehydes.—General methods of preparation. Properties of formaldehyde and acetaldehyde. **Ketones.**—Preparation and properties of acetone, and methyl ethyl ketone. Comparison with aldehydes.

Acids.—Series of fatty acids. General methods of preparation. Formic acid, occurrence, preparation and properties. Acetic acid manufacture. Vinegar, chief acetates. Discussion of the constitution of acetic acid, propionic acid, normal and isobutyric acids. Acetic anhydride and acetyl chloride, and their use as reagents for the recognition of hydroxyl. Palmitic and stearic acids. Nature of common fats, process of saponification. Hard and soft soaps.

Amines.—Preparation and properties of the primary, secondary, and tertiary ethylamines. Preparation and properties of methyl and ethyl-ammonium salts. **Amides.**—Distinguished from amines. Preparation and properties of acetamide.

Nitriles.—Preparation and properties of acetonitrile.

Compounds of alcohol radicles with phosphorus, arsenic, silicon, and the metals, especially zinc and mercury. Preparation and properties of zinc ethyl. Cacodyl and its chief derivatives.

Amido Acids.—Glycine (glycocoll). Lactic Acids.

Olefines.—Haloid additive compounds of olefines, especially ethylene, dichloride, and dibromide.

Glycols.—Preparation and properties of glycol, acids from glycol, glycollic and oxalic acids.

Succinic, malic and tartaric acids and citric acid. Their modes of occurrence, preparation and properties.

Synthesis of succinic, malic, and tartaric acids.

Acrolein, acrylic acid. Oils of mustard and garlic. Preparation and characteristic reactions of allyl alcohol.

Glycerin, and its chlorohydrins and nitrate (nitro-glycerin).

Mannitol and the Carbohydrates.—Cane sugar, dextrose (glucose) and levulose (fructose), maltose, milk sugar. Their occurrence in nature, manufacture, properties and distinctive tests.

Starch and the dextrins. Cellulose and gun-cotton.

Cyanogen.—Its preparation and properties.

Cyanogen Compounds.—Synthetical formation of cyanides.

Manufacture and properties of potassium ferrocyanide and ferricyanide. Prussian blue. Preparation of hydrocyanic acid, the cyanides of potassium, silver and mercury.

Cyanic and cyanuric acids. Urea; preparation, constitution, and quantitative estimation.

ORGANIC CHEMISTRY, PRACTICAL.

Thursday, 7.30 to 10.5.

Friday 7.30 to 10.5.

Demonstrator :

J. J. HUTCHINSON.

The preparation of compounds enumerated in Stage I (Theoretical), and the demonstration of their properties.

A practical acquaintance with the reactions of, and tests for the following substances :—Ethyl alcohol, glycerin, formic acid, acetic acid, oxalic acid, tartaric acid, citric acid, hydrocyanic acid and urea.

The taking of specific gravities, as in alcoholometry, and the determination of melting and boiling points. Vapour densities.

PRACTICAL CHEMISTRY FOR PHARMACEUTICAL STUDENTS.

Monday, 7.30 to 10.5.

Wednesday, 8.35 to 10.5.

Demonstrator :

M. J. O'CONNOR.

The fitting up of apparatus, and exercises on filtration, solution, distillation, evaporation, crystallisation, and the use of the balance.

Practical study of the properties of the non-metallic elements and of their oxides ; combination of their oxides with water, acids, and alkalis. Action of acids on metals and metallic oxides ; formation of salts ; double salts and their preparation ; identification of the inorganic acids, and of the more commonly occurring acids and their salts.

Metals.—Action of heat on the metals and their compounds ; use of blowpipe ; oxidising and reducing agents ; classification of the metals into groups and systematic identification of the ordinary metals ; qualitative analysis of simple and double salts, and of mixtures of two or more simple salts.

Volumetric Analysis.—Acidimetry and alkalimetry ; preparation and use of normal and standard solutions.

Preparation of typical organic substances, and their identification; detection of poisons; identification of alkaloids.

Each Student working in the Laboratory, is supplied with apparatus and reagents, but is required to pay a deposit fee of 5s. to cover breakages, which will be returned, less amount deducted for breakages, on demand at the end of the Session.

Students are to provide themselves with gramme weights, also platinum wire and foil.

Students who attend for a minimum period of one hundred hours are given recognised Certificates of Attendance in connection with the Pharmaceutical Society, provided that they comply with the rules of the class, and pass the examination in Practical Chemistry held at the close of the Session. The qualifying attendance may be spread over two Sessions. In order to secure the Certificate, Students must attend the Lectures with fair regularity, and if they are taking the Pharmacy Course (Page 25) they must also attend well at Botany and Materia Medica or at Pharmacy. See Note, Page 25.

PRACTICAL CHEMISTRY FOR MEDICAL STUDENTS.

Demonstrator :

M. J. O'CONNOR.

Thursday, 8.35 to 10.5.

Friday, 8.35 to 10.5.

Identification of three Salts.

The Salts may be of the following Metals :—Potassium, Sodium, Ammonium, Lithium, Magnesium, Calcium, Barium, Strontium, Zinc, Cadmium, Manganese, Iron, Aluminium, Silver, Mercury, Lead, Copper, Bismuth, Arsenic, Antimony, or Tin, combined with one or other of the following Acids :—Hydrochloric, Hypochlorous, Hydrobromic, Hydriodic, Nitric, Nitrous, Sulphuric, Sulphurous, Thiosulphuric, Sulphydric, Boric, Phosphoric, Carbonic, Hydrocyanic, Acetic, Oxalic, Citric, or Tartaric Acid.

Separate identification of any one of the following substances in the form of powder :—Urea, Uric Acid, Cane Sugar, Grape Sugar, Starch, Strychnine, Morphine, and Quinine.

Those who wish to obtain Certificates of Attendance must attend at least ten lectures and thirty practical demonstrations.

PHARMACY.**Thursday, 7.30 to 9.35.**Lecturer :
J. CORCORAN.

Lectures will be given in this Subject if sufficient students apply before Nov. 1.

MATERIA MEDICA.**Friday, 8.35 to 9.35.**Lecturer :
J. ADAMS.

Parts of plants used in medicine :—herbs, roots, rhizomes, corms, bulbs, barks, woods, stems, leaves, flowers, fruits, seeds, fixed and volatile oils, resins, oleo-resins, gum-resins, gums, balsams, juices, and miscellaneous products.

Drugs of animal origin.

Description, active principles, action, name, and habitat of species yielding the drug ; methods of collection, adulterations, impurities, and chief preparations of the drugs of animal and vegetable origin.

BOTANY.**Friday, 7.30 to 8.30.**Lecturer :
J. ADAMS.

Cells, tissues, and organs of plants—their structure and function.

Seeds, germination, roots, shoots, stems, leaves, inflorescences, flowers, pollination, fertilisation, fruits, distribution of fruits and seeds, hairs, emergences, spines, tendrils, and nectaries.

Manner of life of plants, their relation to each other and to their surroundings.

Classification of Flowering Plants. Characters of the more important families found in Ireland. Outline of the Classification of Flowerless Plants. Life History of the Fern.

Mechanical Engineering.

HEAD OF DEPARTMENT—JOHN TAYLOR, M.A.

Lecturing Teacher R C So I

ENGINEERING.

TECHNICAL DRAWING.

MACHINE DRAWING.

PRACTICAL GEOMETRY.

APPLIED MECHANICS.

HEAT ENGINES.

ENGINE AND BOILER DESIGN.

STRUCTURAL DESIGN.

SURVEYING.

AEROPLANE MODELLING.

ENGINEERING WORKSHOP INSTRUCTION :

Turners' Work.

Fitters' Work.

Smiths' Work.

Pattern Makers' Work.

Moulders' Work.

ENGINEERING (Junior).**MECHANICS.**

Lecturer :

E. E. JOYNT.*Chief Draughtsman***Tuesday, 7.30 to 9.35.**

This class is introductory to the study of Applied Mechanics and Heat Engines. It will consist partly of lectures and partly of exercises. Simple calculations bearing on practical matters will be made by the Students.

TECHNICAL DRAWING.

Lecturer :

E. E. JOYNT.*Chief Draughtsman*
G.S.R.**Class A.—Monday, 7.30 to 9.35.****Class B.—Wednesday, 7.30 to 9.35.**

This class forms an introduction to Machine Drawing, and will be found most useful to students of Mechanical and Electrical Engineering.

Use of instruments, compasses, tee squares, set squares and scales.

Simple geometrical figures, square, hexagon, etc. Bisection of lines and angles. Construction of regular polygons. Divisions and properties of the circle. Tangents to circles. Cycloidal and involute curves. The numbers $3\cdot1416$ and $\cdot7854$. The ellipse and its properties.

Simple drawings to scale of elementary machine details as below, particular attention being directed to the geometrical principles involved :—

Hexagon nuts. Bolts. Round and oval flanges. Screw threads, vee and square. Double threads. Setting out tapers. Gib and cotter, keys and keyways. Shaft couplings. Pedestals for shafting. Toothed gearing, spur and bevel.

Elementary engine details, such as—Overhung crank with pin. Crank shaft. Piston and rod. Crosshead. Gun-metal stopcock. Simple stop valve.

The above will be illustrated in every case by means of models, or by the actual details themselves.

Students joining this class will be required to come provided with pencil, compass, set squares, rule, india-rubber and class note-book.

MACHINE CONSTRUCTION AND DRAWING.Lecturer : **C. B. OUTON.**Demonstrator : **R. J. DOWLING.****STAGE 1.****Thursday—Lecture, 7.30 to 8.30.****Drawing, 8.35 to 9.35.**

RIVETED JOINTS.—Forms of rivets and arrangements of rivets in lap and butt joints with single and double riveting. Junction of plates by angle and **T**-irons.

BOLTS, STUDS AND SET SCREWS.—Forms of these fastenings. Forms and proportions of nuts and bolt-heads; arrangements of flanges for bolting.

PINS, KEYS AND COTTERS.—Forms of ordinary knuckle joint. Use of split pins. Connection of parts by a key. Connection of parts by a cotter. Gib and cotter.

PIPES AND CYLINDERS.—Forms of ordinary pipes and cylinder^s with their flanges and covers.

SHAFTING.—Forms of shafts, axles, journals and pivots. Use of collars and bosses. Half-lap coupling. Box coupling. Flange coupling.

PEDESTALS AND PLUMMER BLOCKS.—Simplest forms of pedestals and hangers for shafts. Form and arrangement of brass steps. Arrangements for fixing pedestals and for neutralising the effects of wear.

TOOTHED GEARING.—Forms of ordinary spur and bevel wheels. Meaning of the terms pitch, breadth of face, thickness of tooth, pitch line, nave and arm. Method of drawing bevel wheels in section.

BELT PULLEYS.—Forms of belt pulleys for flat and round belts. Stepped speed cones. Drawing of pulleys with curved arms.

CRANKS AND LEVERS.—Forms of ordinary cast-iron and wrought-iron cranks and levers. Modes of fixing crank pin. Various methods of fixing crank shafts. Double cranks. Forms of eccentrics.

Links. Pistons. Stuffing Boxes.

Chief Gas
Engineer
R.S.B.

Engineer
Port & Dock

STAGE 2.**Thursday—Lecture, 8.35 to 9.35.****Drawing, 7.30 to 8.30.**

Ordinary proportions of rivets and riveted joints in boiler, bridge, and roof work; of nuts and bolt-heads; and of pins, keys, and cotters; Whitworth and other screw threads.

Bearings constructed with complete provision against wear in any direction; swivel bearings; high-speed bearings; thrust bearings; ball bearings; provision against axial and lateral wear in footstep bearings; bearings which work under water; lubrication of bearings.

Construction of wheels and pulleys in parts; disengaging clutches; use of guide pulleys; rope gearing; chain gearing; ordinary proportions of wheels and wheel teeth. Fixings for carrying shafts connected by gearing. Simple forms of cams and ratchets.

Forms of pistons and piston packings; metallic packings for stuffing boxes. Forms of connecting rod ends. Piston valves; expansion or cut-off valves; the common boiler fittings; use of bridge and girder stays in boilers; hydraulic valves. The centrifugal pump. The Thomson turbine; inward and downward flow turbines.

Simple details of construction of railway girders. Connection of cross girders to main girders; building up of platform. Details of simple roofs in iron and steel. Details of electrical generators and motors.

STAGE 3.**Thursday, 7.30 to 9.35.**

In this stage more advanced examples will be dealt with, such as:—

The design of cycloidal and involute wheel teeth for spur and bevel gearing. Strength of wheel teeth.

Details of gas and petrol engines.

Electrical generators and other dynamo machines and motors; motor generators and rotary converters.

PRACTICAL PLANE AND SOLID GEOMETRY.**STAGE 1.**

Friday—Lecture, 7.30 to 8.30.
Drawing, 8.35 to 9.35.

Lecturer :
C. B. OUTON.
 Demonstrator :
R. J. DOWLING.

PLANE GEOMETRY.

Construction and use of plain scales and scales of chords.

Proportional division of lines.

Mean third and fourth proportional to given lines.

Reduction of irregular figures to triangles or squares.

Elementary constructions relating to ellipses, circles and tangents, areas, general problems on loci, paths of points in link work, construction of cams, spirals, parabola, and hyperbola. The cycloidal curves and involutes and their application to the construction of curves for wheel teeth. Use of squared paper. Plotting lines, vectors.

SOLID GEOMETRY.

The principles of projection. Definition of terms in general use, such as projector, plan, elevation, section, and trace.

Simple problems relating to lines.

Simple problems relating to planes.

Plan and elevation of simple solids resting on the horizontal plane.

Plan and elevation of plane figures having given inclination of two sides or of plane and one side.

Plan and elevation of simple solids, having one edge in the horizontal plane, and adjacent face inclined at a given angle ; or given the inclination of one face and one edge.

Sections of such solids by vertical and horizontal planes.

True shapes of sections. Simple cases of interpenetration and development. Special cases of intersection as met with in machine drawing details, Helices and screw threads.

STAGE 2.

Friday—Lecture, 8.35 to 9.35.

Drawing, 7.30 to 8.30.

Lecturer:

C. B. OUTON.

PLANE GEOMETRY.

Constructions relating to simple harmonic motions or harmonic functions. What is meant by periodic time, frequency, amplitude, phase, epoch, representative, crank, advance, lap, lead. Plotting the curve of sines from given data.

Vectors.—Meaning of the scalar product of two vectors, with illustration. Momentum and change of momentum, with applications.

Force in a plane defined by the statement of a length, a magnitude, and an angle.

The link polygon. Experimental illustration by means of pulleys, cords, and weights. Conditions of equilibrium of a set of forces in one plane. Applications.

Moments of forces. Couples. Experimental verification of the principle of moments.

SOLID GEOMETRY.

General problems on lines and planes, with applications. Their intersections; the angles between them; parallel and perpendicular lines and planes. Auxiliary plans and elevations.

Problems on trihedral angles and spherical triangles, with applications.

Prisms and pyramids, the regular tetrahedron and octahedron, the sphere, the right circular cylinder and cone. Plans, elevations, and sections of these solids, singly or in combination. Interpenetrations and developments.

ENGINEERING (Intermediate.)

APPLIED MECHANICS.—STAGE 1.

Lecturer :

G. B. OUTON.

Tuesday, 7.30 to 8.30.

Unit of force ; representation of forces ; resultant and components ; units of work and power.

The moment of a force. The principle of work.

Pulleys ; snatch block ; theoretical advantage ; velocity ratio ; efficiency ; percentage efficiency.

Graphic demonstration of three forces in equilibrium ; parallelogram of forces ; triangle of forces ; resolution of a force into two components at right angles ; resultant of any number of forces acting at a point.

Applications of the foregoing to cranes and other structures ; jib-cranes.

Inclined planes. Screws.

Friction : laws of friction.

Difference of tension in the leading and following parts of a driving belt ; brake horse-power transmitted by belts ; velocity ratio in belt gearing.

Velocity ratio of two friction circular discs ; pitch surfaces and pitch circles ; pitch of teeth in wheel gearing.

Efficiency of combined lever, screw and pulley gear ; endless screw and worm wheel.

General idea of the mechanism in a screw-cutting lathe ; velocity ratio of the change wheels ; rules for calculating the required number of teeth in change wheels.

Hydraulics ; " head," or pressure of a liquid at different depths ; total pressure on any surface immersed in a liquid.

Hydraulic machines ; the common suction pump ; double-acting force pump.

Bramah's hydraulic press and packing ; large hydraulic press for flanging boiler plates ; the hydraulic jack ; the hydraulic bear ; the hydraulic accumulator.

Uniform, variable, linear and circular velocity ; centrifugal force ; centrifugal stress on the arms of a fly-wheel ; potential energy ; kinetic energy.

Some properties of materials employed by Mechanics ; ductility ; elasticity ; load, stress, and strain.

Beams ; pressures on and reactions from the supports of beams ; bending moment of beams.

HEAT ENGINES.—STAGE 1.

Lecturer :

C. B. OUTON.

Tuesday, 8.35 to 9.35.

Temperature ; specific heat ; absolute temperatures.

Transfer of heat ; unit of heat and unit of work ; horse-power ; mechanical equivalent of heat.

Combustion of fuel ; heat of combustion ; evaporative power of fuel. Latent heat. Total heat of evaporation.

III

Saturated steam ; table of properties ; water heated in a closed vessel ; temperature of mixtures ; condensing water.

Relation between the pressure and volume of gases ; the hyperbolic curve ; expansive working.

Indicated horse-power.

Brief history of the development of the steam engine.

The steam engine ; engine details.

Non-condensing engines ; condensing engines.

The slide valve ; lap, lead, angular advance ; piston valves ; the double-ported slide valve ; the setting of a slide valve ; eccentrics ; reversing gear ; the link motion.

Cranks and crank shafts ; tangential pressure on crank pin.

Governors ; fly-wheels.

Compound engines ; the two-cylinder compound engine.

The locomotive engine, its arrangement and construction.

Compound locomotives.

Boilers ; resistance of cylindrical vessels ; roof stays ; heating surface of tubes ; safety valves ; Bourdon's pressure gauge ; boiler performance and efficiency.

Gas and Oil Engines.

Home exercises will be set weekly, and the answers will be carefully examined and corrected.

ENGINEERING (Senior A.).**APPLIED MECHANICS.—STAGE 2.**Lecturer :
J. TAYLOR.Friday—Lecture, 7.30 to 8.30.
Experimental Work, 8.35 to 9.35.

Elasticity and strength of materials ; diagram of bending moment and of shearing force ; graphic statics ; conditions of equilibrium ; strength of beams and girders ; torsion of shafts ; strength of columns ; deflection.

Calculations required for design of couplings, keys, and cottered joints.

Work and energy ; friction ; efficiency of machines ; transmission of power ; dynamometers.

Relative velocity ; epicyclic motion ; differential axle.

Hydraulics ; flow of water ; centrifugal pumps ; turbines.

ENGINEERING (Senior B.).**HEAT ENGINES.—STAGE 2.**Lecturer :
J. TAYLOR.Wednesday—Lecture, 7.30 to 8.30.
Experimental Work, 8.35 to 9.35.

Properties of steam ; fundamental laws of thermodynamics ; compound expansion ; indicator diagrams ; steam engine tests ; efficiencies ; crank effort diagrams ; effect of the reciprocating parts and of the obliquity of the connecting rod ; valves and valve gear diagrams.

Link motion ; equivalent eccentric ; governors ; fly-wheel ; the construction of various types of engines.

Strength of boilers ; calorific value of fuel.

Theory of gas and oil engines ; refrigerators ; suction and pressure producers.

Theory and construction of petrol motors and steam cars.

Theory and construction of steam turbines.

ENGINEERING DESIGN.**ENGINES AND BOILERS.**

Lecturer :

J. TAYLOR.**Monday—Lecture, 7.30 to 8.30.****Design, 8.35 to 9.35.**

Design of cylinders for a simple engine of given horse-power ; calculation of size of parts, size of crank pins and crank shaft for strength and bearing pressure ; flywheel ; setting of valves and eccentrics.

Design of compound expansion engines ; calculation of cylinders for equal work and initial pressures ; engine tests ; balancing ; application of the principles of thermodynamics.

Design of boilers of given evaporative capacity. Steam and turbine design.

Gas Engine design. Oil Engines.

STRUCTURAL DESIGN.

Lecturer :

J. TAYLOR.**Thursday—Lecture, 7.30 to 8.30.****Design, 8.35 to 9.35.**

Strength of materials ; graphic statics ; design of joists and pillars.

Rolling loads ; equivalent distributed dead load.

Compound stress in web of plate girders ; Rankin's ellipse of stress and its application to Machine design ; roofs.

Roof design ; Machine design.

*late prof
of me Eng. VCD*

MECHANICAL ENGINEERING.

(For Students taking the Examinations of the City and Guilds of London Institute).

LECTURE CLASSES.

For Ordinary Grade, see Classes in Applied Mechanics on Wednesday, 7.30 to 9.35, and in Heat Engines on Friday, 7.30 to 9.35.

For Honours Grade, see Classes in Engine and Boiler Design on Monday, 7.30 to 9.35, and in Structural Design on Thursday, 7.30 to 9.35.

WORKSHOP INSTRUCTION.

Demonstrators :
JOHN TAYLOR.
E. E. JOYNT.
R. J. DOWLING.

TURNERS' WORK.

Monday, Wednesday, or Friday, 7.30 to 9.35.

Instructor :
P. PUZZAU.

HAND LATHES.—Use of the hand lathe ; the different forms of tools required in working upon various metals ; striking and chasing threads in the hand lathe ; chucking work in the hand lathe.

SLIDE AND SCREW-CUTTING LATHES.—Use of the slide lathe in turning, boring, and surfacing different kinds of work ; the method of finding the wheels required in order to cut screws of various pitches ; the cutting of single, double, and treble threads, both external and internal ; cutting speeds for various metals ; correct forms of tools required in lathe work ; various methods of chucking work in the lathe ; the use of outside and inside laps, and the precautions necessary in order to produce accurate cylindrical work, such as plug and ring gauges.

MACHINE TOOLS.—Use of the planing, shaping, slotting, and drilling machines, and the best methods of fixing work to be operated upon by these machines ; forms of the tools required, and the manner of grinding the same.

CUTTING TOOLS.—Special attention will be given to the proper formation of cutting tools and their edges.

The construction and working of the various machines in the school workshop will be thoroughly explained, and short lectures on practical work will be given each class evening.

In all the Workshop Classes, Students are entitled to work on one evening only.

FITTERS' WORK.

Instructor :

J. MANNING.**Monday, Wednesday, or Friday, 7.30 to 9.35.**

Use of the hammer, chisel, and file in the preparation of flat and other surfaces ; the making of keys and keyways for shafts and pulleys ; use of gauges and templets in fitting work ; use of the file and scraper in the preparation of plane surfaces, such as straight edges and surface plates ; use of compasses, scribing blocks, square, etc., in marking out work preparatory to its being machined ; the use of drifts in finishing square and other shaped tools.

SMITHS' WORK.

Instructor :

H. TAYLOR.*art iron work***Monday, Wednesday, or Friday, 7.30 to 9.35.**

The care of the fire.

Articles will be made illustrative of the characteristics of wrought iron as to its fibre and contraction, and the various methods of work.

Steel.—Its uses in the making of machine and hand tools, springs, etc. ; also in conjunction with iron as in tools for wood-working.

Brazing will also be introduced as a useful auxiliary to smiths' work.

Short discourses on the production and properties of metals, and on their treatment.

PATTERNMAKERS' AND MOULDERS' WORK.

Instructor :

M. REILLY.**Monday, Wednesday, or Friday, 7.30 to 9.35.**

Instruction will be given in the practice of patternmaking and in the moulding of brass and iron.

The castings made by this class will be utilised by those in the fitting and turning course.

SURVEYING.

Teacher :

Tuesday, 8.30 to 9.35.**M. O'SULLIVAN.**

Arrangements for practical work are to be made at suitable times.

CHAIN SURVEYING.—Setting out eight angles with the chain, and the Optical Square. The chaining of lines on sloping ground by stepping, and by aid of the Abney level. Keeping the Field Book. Plotting the Survey. Area from plan and from Field Book notes.

COPYING PLANS.—Enlarging and reducing.

COMPASS SURVEYING.—Traversing with the Compass and Chain. Closing the Traverse by distributing the error. Use of the Circumferentor.

BOX-SEXTANT:—Construction and adjustment of the horizon glass. How to use the Box Sextant in Traversing and in Triangulation.

THEODOLITE SURVEYING.—The construction: the adjustment, temporary and permanent of the Theodolite. How to use the Theodolite in traversing, and to make a Theodolite survey from a given base line. Measuring base line accurately. Plotting of Theodolite Survey.

LEVELLING.—The Dumpy Level. Its construction. The adjustment, temporary and permanent of the Dumpy Level. Method of keeping the Level Book. Setting out of drains at definite slopes. Construction of Contour Maps. Curve Ranging.

AEROPLANE MODELLING.

Teacher :

Monday, Wednesday and Friday, 7.30 to 9.35.**R. W. TAYLOR.**

This Class is intended to teach the construction of Model Aeroplanes, and for experimental work in connection with the same. Students will be assisted to construct Models in the Practical Class, and the instruction will be supplemented by occasional lectures. The fee will be *five shillings* per term, giving admission to three classes per week.

Electrical Engineering.

ELECTRICAL ENGINEERING, Lectures.

ELECTRICAL ENGINEERING, Laboratory.

WIREMEN'S WORK.

CABLE JOINTING.

ELECTRICAL ENGINEERING.**LECTURES (Junior).**

Lecturer :

THOMAS TOMLINSON.**Wednesday, 7.30 to 9.35.**

ELECTRICAL MEASUREMENTS.—Applications of Ohm's law. Simple methods of measuring resistance, E.M.F. and current. Chief types of ammeters, voltmeters, wattmeters, and supply meters.

ELECTRICAL PROPERTIES OF MATERIALS.—Conductors and insulators. The effects of commonly occurring conditions, such as moisture, heat, etc. Conditions which hasten deterioration.

MAGNETIC PROPERTIES OF MATERIALS.—The magnetisation of iron by electric currents ; permeability ; the law of ampère turns ; electro-magnets and simple applications of the principle of the magnetic circuit.

SECONDARY BATTERIES.—The various types ; their installation and practical treatment. Precautions in charging and discharging. Testing state of cell by hydrometer and voltmeter.

ELECTRIC LIGHTING.—Carbon and metal filament lamps. Nernst lamps. Arc lamps. Current and voltages required by the more commonly used of the glow lamps. Methods of testing. Photometry and illumination.

ELECTRICAL MACHINERY.—C.C. and A.C. motors ; general principles of action ; the practical importance of the back E.M.F. and conditions of producing it ; field windings and their connections with the armature and the supply circuit ; the more commonly occurring causes of breakdowns and their remedies ; care of commutators. Starting switches ; no voltage and overhead release devices ; principles involved. Field breaking switches. C.C. and A.C. dynamos : their installation and running ; regulation by resistance in field circuit ; principles involved. Testing of motors and dynamos for insulation ; temperature tests under load ; testing for faults.

LABORATORY (Junior).

Demonstrators :

THOMAS TOMLINSON.**J. P. TIERNEY.****Monday, 7.30 to 9.35.**

Testing and measurement of magnets—Illustrations of Ohm's law—Use of tangent galvanometers—Calibration of galvanometers and voltmeters and of various galvanometers and voltmeters used commercially—Measurement of resistances by (1) The metre bridge—(2) The Post Office box—(3) The Dial bridge—(4) The potential method—Use of various testing sets—Resistance of batteries and cells—Resistance of glow lamps, hot and cold—Measurement of E.M.F. by various methods—Laws of shunted circuits—The electro-dynamometer—Testing of currents required to fuse wires, and of the temperature of wires carrying currents—Testing the candle-power and efficiency of glow lamps—Experiments with small dynamos and motors.

LECTURES (Senior).

Lecturer :

THOMAS TOMLINSON.**Tuesday, Lecture A—10.0 to 11.0 a.m.****Lecture B—7.30 to 8.30 p.m.**

CONTINUOUS CURRENT.—Scientific and commercial units and measurements. Measuring instruments and testing.

The electric and mechanical properties of materials ; conductors, insulators.

The magnetic properties of materials ; laws of the magnetic circuit and calculations thereon.

C.C. generators and motors, principles of and essential parts ; elements of design and simple calculations connected therewith ; calculations of and tests for losses and efficiencies.

Secondary batteries, principles, usual forms, testing, setting up and maintenance.

Electric lamps and lighting ; glow, arc, mercury, vapour, and other lamps, principles involved, use and testing.

Power transmission and distribution by continuous currents.

Electric traction by continuous currents

LABORATORY (Senior).

Demonstrators :

THOMAS TOMLINSON.**J. P. TIERNEY.****Tuesday, Class A—11.5 to 12.5.****Class B—8.35 to 9.35.**

Measurement of the magnetic field by various methods.

Calibration of ammeters and voltmeters by means of the potentiometer.

Measurement of conductivity and of low and high resistance ; testing insulation resistance by Kelvin's testing set, and method of leakage ; testing by dielectrics.

Calibration of ammeters by the copper voltameter, and by the Kelvin standard electric balance.

Testing the efficiency of storage cells.

Tests of arc lamps and glow lamps of various types.

Testing and working of electric meters.

The testing and comparison of condensers ; determination of the hysteresis and permeability of samples of iron by means of the magnetometer method.

Ewing's hysteresis tester and the permeability bridge.

Measurement of armature resistance by various methods.

Measurement of the characteristic curves of series, shunt, and compound dynamos, and motors.

Brake tests for direct current motors.

LECTURES (Fourth Year).

Lecturer :

THOMAS TOMLINSON.**Tuesday, 8.35 to 9.35.***These lectures will not be given unless sufficient Students apply before Nov. 1.*

Principles of alternate current working ; elementary mathematical theory ; units and simple measurements.

Alternate current power ; principles and details of measurement of.

A.C. generators and motors ; principles of and essential parts, elements of design and simple calculations connected therewith ; various types of motors ; circle diagrams ; testing.

Transformers and converters ; necessity for ; various types ; elements of design ; simple calculations concerning ; testing.

Power transmission and distribution by alternate currents.

Electric traction by alternate currents.

*Inventor of
 Consulting
 Engineer*
*Inventor of
 Patent
 Bomb*

LABORATORY (Fourth Year).

Demonstrators :

THOMAS TOMLINSON.**J. P. TIERNEY.****Tuesday, 7.30 to 9.35 p.m.**

Measurement of two alternating E.M.F.'s in parallel.

The three voltmeter method of measuring the angle of lag.

Relation between impedance and resistance, impedance and frequency, impedance and self-induction; measurement of impedance.

Determination of power factor of circuit.

Measurement of the power lost and saved in a choking coil, measurement of currents in main and branch circuits, and of the energy and idle currents in a circuit.

Measurement of power by the three ammeter method, and by the three voltmeter method.

Determination of the wave form of alternator, curves of current and voltage in a circuit.

Testing the effects of capacity in the circuit.

Testing transformers, efficiency and regulation, characteristic curves of alternators.

Measurement of power in a three-phase circuit.

Testing a rotary converter.

ELECTRIC WIREMEN'S WORK.**First Year.**

Lecturer :

J. P. TIERNEY.**Thursday, 7.30 to 9.35.**

PRIMARY CELLS.—Positive and negative pole; the use of cells; proper connecting up; injurious connections; partial and dead short circuit; common leclanche form; difference between leclanche and bichromate or similar batteries; why leclanche cell is used for bell work; voltage of leclanche cell; appearance of worked out porous pots and zinc rods; time a leclanche cell ought to last without recharging; total useful life.

THE ELECTRIC BELL.—Its construction; use of wire wound on iron cores; use of armature; use of contact breaker; why platinum points are necessary; adjustment of spring and hammer; causes of failure in working of bell and the remedy; residual magnetism.

BELL PUSHES.—Their construction and use; difference between water-tight and ordinary pushes; the reasons for the use of water-tight pushes; platinum contacts.

THE SINGLE BELL CIRCUIT.—The wire, and how to run same; the different kinds of insulation; staples; faults at staples; where tubing is necessary; single and twin lead covered wire and its use; faults on bell circuits and how to locate them; simple efficient testing for leak on house bells; dampness to be avoided, and the reason.

INDICATOR SYSTEM.—Indicators, drop and pendulum; their special uses; connections; faults and adjustments; house wiring for same.

TELEPHONES.—In connection with house bells; separate telephones; morse key; automatic switches; induction coil; transmitter; receiver; internal and external connections.

DETECTOR GALVANOMETERS.—Their use and construction.

RELAYS.—Their use on long lines; connections and adjustments.

ELECTRIC LIGHT WIRES.—Difference between electric light wires and bell wires; insulation and its protection; carrying capacity of single and stranded wires; why stranded cables are used; the effect of extra long lines on the lighting of the lamps, and how to minimise the effect; handling of wires; general arrangement of wiring in an ordinary private house from entry of supply mains to lamp points; size of wires and circuits; the best systems of protecting the wires in damp, ordinary, and extra dry situations; conduits; split and screwed; casings; solid screwed conduits; galvanised conduits; paper-lined conduits.

LAMPS AND VOLTAGE.—The current in ampères, the different candle-power lamps take at different voltages, and the necessity of arranging the wiring to suit the current on the branch and main wires.

FUSES.—The need of fuses; percentage of overload allowed before fusing; why one side is usually blanked on city supply; advantage of having D.P. distribution boards.

JOINTING.—Construction and use of the blow lamp and soldering iron; mode of making various joints on conductors up to 19-16 size or its equivalent; sweating of joints, thimbles, and connectors, without burning the metal or leaving the joints rough.

INSULATORS.—Porcelain, pure and vulcanised rubber, paper, slate, marble, fibre, etc.; insulation of single and twin wires on rubber and paper cables up to $\frac{1}{2}$ square inch size, or its equivalent.

HANDLING CASINGS AND CONDUITS.—Treatment of casings, split tube, solid tube, paper lined tube, lead pipe; methods of and necessity for, earthing metallic conduits; care to be observed in wiring on the threading on or draw in systems; looping in.

TESTING.—Use of the test lamp, and detector for sorting out circuits; pole finding.

CONNECTIONS to distribution boards, cut-outs, ceiling roses, lamp holders, switches (including two-way switches), fuses, wiring of electroliers, brackets and other fittings; connecting up and finishing off connections for incandescent lamps, nernst lamps, arc lamps, and motors.

LECTURE (Second Year).

Wednesday, 7.30 to 8.30.

The Second Year Wiremen take the lectures in the Junior Electrical Engineering. They must also take the Class in Technical Drawing.

ELECTRICAL JOINTING.**PRACTICAL (First Year).**

Instructors :

J. P. TIERNEY.**J. ROTHWELL.****Monday, 7.30 to 9.35.**

Methods of handling wire and cable.

The soldering iron. Methods of thinning and heating fluxes. Solder making and testing, sweating and preparing thimbles and lugs, making the following joints :—Running, end to end, T and Y in 1/18, 3/22, 7/16, 19/16. Connecting to ceiling roses, switches, plugs, holders and distribution boards. Methods of connecting flexibles. Wiring of three-light ball fittings and electroliers, insulating joints. The connecting up of simple bell and lighting circuits. Looping and strapping.

Running of wires on cleats and insulators. Running of wood casing and capping ; mitre cutting.

Cutting, screwing, and bending metal pipes and conduits.

Sorting out circuits by means of the test lamp and detector.

PRACTICAL (Second Year).**Monday, 7.30 to 9.35.**

Joints on cables up to $\frac{1}{2}$ square inch sectional area. Jointing and connecting of lead-covered cables. Making and installing fuses of various capacities. Installation of conduit and conduit fittings. Repair and adjustment of open and enclosed arc lamps. Nernst lamps : connections and renewal of parts. Installation testing with Ohmmeter and generator. Overhaul of motor starters. Brush adjustment on motors and generators. The making of vulcanised joints. Drawing diagrams of switchboard connections, motor circuits, etc. Erection of accumulators. Measuring up work. Estimating.

Building and Allied Trades.

HEAD OF DEPARTMENT—RICHARD COULSON, F.S.I.

*Guinness. Chief
architect*

TECHNICAL DRAWING.

BUILDING CONSTRUCTION.

BUILDERS' QUANTITIES.

PERSPECTIVE DRAWING.

CARPENTRY AND JOINERY.

DRAWING FOR BRICKLAYERS AND MASONS.

PLUMBING.

PLASTERERS' WORK.

PAINTERS' AND DECORATORS' WORK.

DRAWING FOR PAINTERS AND DECORATORS.

METAL PLATE WORK.

CABINETMAKERS' WORK.

STONE AND MARBLE CARVING.

WOOD CARVING.

ORNAMENTAL IRON WORK.

} See pp. 151-153.

TECHNICAL DRAWING.**Wednesday, 7.30 to 9.35.**

The Construction and use of Scales ; the methods of describing various geometrical figures and their practical application to building and drawing ; plans, elevations and sections of simple solids ; isometric projection ; sketching on squared paper ; freehand drawing of tools used in the Building Trades.

Lecturer :

M. J. BURKE.*Labri became Chief architect*
*Insident Architect B.O.W***BUILDING CONSTRUCTION AND DRAWING.**

Lecturers :

RICHARD COULSON.**M. J. BURKE.****STAGE 1.****Monday—Lecture, 7.30 to 8.30.****Drawing, 8.35 to 9.35.**

Short Lectures, illustrated by Large Diagrams, Models, and Blackboard Sketches, will be given on the surveying of site, planning, designing, setting out, and erection of a small Building ; excavation and concrete ; brick bonds and arches ; masonry walls and cut stonework ; timber beams, floors, partitions and roofs ; doors, windows, and trimmings ; iron and steel work ; slating, plumbing, and drainage ; plastering, glazing, and painting ; with a brief description of the origin or manufacture of the chief materials used in building work. Concurrently with the progress of the above lectures individual instruction will be given in Drawing.

PERSPECTIVE DRAWING.**Saturday, 2.30 to 4.30.**

Lecturer :

M. J. BURKE.

A Class in this Subject will be held if twelve Students make application before Nov. 1.

STAGES 2, 3 AND HONOURS.

Tuesday—Lecture, 7.30 to 8.30.

Drawing, 8.35 to 9.35.

Lectures will be given on the following :—

BUILDING MATERIALS : their characteristics, qualities, processes of manufacture, strength, and application in building.

THEORY OF CONSTRUCTION.—Stresses and strains in roofs, girders, and other framed structures under varying loads and conditions ; stability of retaining or revetment walls and chimneys.

CONSTRUCTIVE DETAILS for excavations, sewers, scaffolding, and general building work ; fireproof floors ; stairs ; roof and wall coverings ; hot and cold water supply ; and the latest sanitary appliances ; advanced planning, designing, and specification writing ; carrying on of building operations.

Homework will be given in every stage, and answers must be regularly returned on the following class night, or students will be ineligible for prizes, and also be liable to suspension from the class.

DEMONSTRATION CLASS.

Demonstrator :

RICHARD COULSON.

Saturday Afternoon, 3 to 5 (or as may be arranged).

Visits will be paid to quarries, works, and manufactories connected with the building trade, so that the methods or processes of obtaining or producing, or manufacturing the various materials may be seen and explained in actual working. Arrangements will also be made, where possible, to inspect important buildings or other works in course of erection or construction in or near the city.

Students must pay their own travelling or other expenses.

BUILDERS' QUANTITIES.

Lecturer :
RICHARD COULSON.

Wednesday—Lecture, 7.30 to 8.30
Practice, 8.35 to 9.35.

Students taking this subject must have a good knowledge of Building construction and drawing.

ORDINARY STAGE.

Lectures will be given on the taking off ; squaring and reducing dimensions ; abstracting and billing, from easy blackboard examples of excavation, concrete and drainage ; brickwork and masonry ; carpentry and joinery ; slating and tiling ; ironwork and plumbing ; plastering ; glazing and painting.

Home work will also be given, strict attention to which is absolutely essential to satisfactory progress in the subject.

HONOURS STAGE.

Wednesday, 7.30 to 9.35.

Facilities will be provided, under the supervision of the Lecturer, for practice in taking off and billing from drawings and specifications of executed works, enabling students to acquire knowledge of the measuring and pricing, in accordance with local rates, of all the branches of work in connection with ordinary buildings of the domestic or commercial type.

BUILDING TRADES.**CARPENTRY AND JOINERY.**

Instructor :

Junior Class— Tuesday, 7.30 to 9.35.**Intermediate Class—Thursday, 7.30 to 9.35.**

Nature and properties of the various kinds of wood used in Carpentry and Joinery, with the parts or places from which they are obtained ; methods of seasoning and preservation, conversion and strength of timber.

Tools, their names, shapes, uses, etc. ; working drawings and setting-out rods ; proportion of different members in framed work, doors and windows ; newel and geometrical stairs. Bevel for raking or oblique work. Mechanical principles involved in trussed or braced framing.

SENIOR CLASS.**Monday, 7.30 to 9.35.**

The various methods of constructing centres for arches ; fixing and striking large centres ; different forms of scaffolding, staging, and gantries.

Circular Work.—Method employed to bend boards or mouldings, by kerfing, grooving, steaming, etc. Moulds and bevels required for soffits, ribs in groins, domes, and niches.

Handrailing.—Method of describing scrolls ; the tangent system ; face and falling moulds, bevels, length of balusters, etc.

Construction of fittings for churches, shops, and domestic work.

Labour-saving Machinery.—Its uses and management.

PLUMBING.**JUNIOR LECTURE AND PRACTICE.**

Instructor :
JOHN BOLTON.

Tuesday, 7.30 to 10.5.

Drawing and mensuration.

Elementary science, with especial reference to heat, and the pressure of gases and fluids.

The properties of materials employed.

Workshop appliances, and the tools used by plumbers.

Composition and uses of solders, melting points of solders and metals, fluxes, methods of soldering.

The manufacture of pipes for various purposes, and the making of joints and connections.

SENIOR LECTURE AND DRAWING.

Instructor :
JOHN BOLTON.

Thursday, 7.30 to 9.35.

Advanced mensuration and drawing applicable to plumbing. In drawing, the student will be required to sketch dimensioned drawings, reduce them to scale, and work from them.

Advanced science; principles of hot-water circulation; hydraulics; pumps, rams, etc.; the effect of various waters on lead.

Materials generally, including manufacture of lead and other metals; solders and fluxes; external plumbing work, including covering of flats, gutters, dormers, etc.

Lead Burning.

Water supply; pipes, cocks, valves, and cisterns; sources of supply; storage of rain water; theory of filtration.

W.C. apparatus, baths, lavatories, sinks, urinals and general sanitary arrangements; heating and hot water supply.

DRAINAGE—The proper way to plan, lay, disconnect and ventilate house drains; the sizes of pipes for various purposes; grease traps and gully traps; the testing of drains.

WORKSHOP INSTRUCTION.

SENIOR CLASS.

Instructor :
JOHN BOLTON.

Friday, 7.30 to 10.5.

PRACTICAL INSTRUCTION will be given in bossing lead for gutters, flats, roof-cesspool, including the bossing of angles and breaks, without reducing the thickness; also setting out from drawings, and bossing special forms of lead work.

BOSSING LEAD to fit projections and depressions of walls and chimneys for flats, and inclined roofs.

Lead Burning.

PLASTERERS' WORK.

*Monday 1st place in final
year, 1919, nearly every year*

Instructor :
JAMES SAUNDERS.

JUNIOR CLASS.

Great Craftsman

Thursday, 7.30 to 9.35.

LIMES.—Names and qualities of the various limes in use; distinction between rich or fat limes, and poor or lean limes; distinction between hydraulic and non-hydraulic lime. Testing mortars. Method of slaking various limes; methods of making lime mortar.

SAND.—Proportions of admixture for various limes and cements; substitutes for sand; aggregates for Portland cement and artificial stone.

HAIR.—Use of, and method of preparing wet and dry hair. Antiseptic plaster fibre.

STUCCO.—Mixing, tempering, and manipulating; common, rough, bastard, trowelled, and coloured stuccos.

ROUGH CAST.—Materials and quantities for plain and coloured rough cast; distinction between rough cast and depeter.

LIME PLASTER SUBSTITUTES.—Mode of gauging and using Adamant, Asbestic, Granite, Keen's, Martin's, Parian, Robinson's Selenitic, Sirapite Express plaster.

PLASTER OF PARIS.—Mineralogical nature and how prepared; distinction between coarse, fine, and superfine; its influence on lime, stucco, and mortar by admixture.

MOULDING AND CASTING.—Moulding in plaster, wax, gelatine, sulphur, and Phelp's metal. Trimming, keying, and jointing cast work. Fibrous plaster; its preparation and uses.

LATHING.—Size and quality of wood lath, and lath nails. Metal lathing for fire-proof construction.

CEMENTS.—Natural and artificial; mode of testing, gauging and using Portland, Roman, Medina, Sheppy, Waterproof, and Slag cements.

PLASTERING.—Running and mitring mouldings and fixing ornament; fixing fibrous plaster; preparing brick and stone walls for plaster work; concrete paving, and constructing concrete steps by the cast process and *in situ*.

TOOLS AND APPLIANCES.—Tools used for shop work, modelling, building work, and concrete.

SENIOR CLASS.

Tuesday, 7.30 to 9.35.

PLASTERING.—Tests and analyses for limes, plaster and cements. Causes of hydraulicity of certain limes, and methods of imparting hydraulicity to limes not possessing it. Setting out panelled ceilings and walls for solid and fibrous plaster, and cement work. Plastering plain and fluted columns and pilasters with an entasis on brick or lath core. Running oval moulding to a given size. Forming oval mouldings. Method of forming returned and break mitres. Laying plugging. Forming pediments. Measuring plaster work.

SHOP WORK.—Waste moulding in plaster and wax; piece moulding from high relief and from the round; running plaster piece moulds; piece-moulding in plaster, wax and sulphur. Moulding from life. Scagliola making and polishing. Gesso, composition, carton-pierre, fibrous plaster, plain face, and fibrous slabs.

MODELLING.—Modelling in clay, plaster, stucco, gesso, and cement.

'SGRAFFITO.—Description of materials, with proportion of quantities, and method of manipulation. Pouncing, cutting, and clearing out. Methods employed for work done *in situ* and on slabs.

Description and drawings of observed examples of work in Dublin or elsewhere.

PAINTER AND DECORATORS' WORK.

Instructor :

THOMAS MARKEY.

Junior Class, Thursday, 7.30 to 9.35.
Intermediate Class, Tuesday, 7.30 to 9.35.

Forreman Dickrell.

BRUSHES, TOOLS, PLANT, AND APPLIANCES.—The names, description and use of brushes and other tools; the care and preservation of brushes, tools, and appliances.

MATERIALS.—The principal pigments, thinners, driers, used in painting; their uses and distinctive qualities; pigments adapted for use in oil or water.

PREPARATION.—The preparation of ceilings, walls, and wood-work; the methods of filling or otherwise producing a smooth surface for painting.

PAINTING.—The mixing and application of paints; methods of finishing work.

ENAMELLING.—The various enamels in use; the use of clear oil varnishes.

DISTEMPERING.—Methods of using different water paints; pigments which are specially adapted for tinting various distemper bodies.

PAPER HANGING.—The preparation of pastes and adhesives ; necessity for interlining ; methods of trimming and hanging paper and relief materials.

IRONWORK.—The preparation of ironwork ; paints and vehicles required for ironwork ; mordants.

SIGN WRITING AND LETTERING.—The different styles of lettering ; setting out of signs ; lettering on different surfaces.

GRAINING.—The grounds for the various woods, the pigments used in graining, glazing ; combing, stippling, veining, pencilling, overgraining ; brushed and fumed oak effects ; methods of inlaying by grounding and brushing out process.

MARBLING.—Terminology of marbles, granites ; their suitability ; colours used in marbling ; glazes ; granites ; prophyrries, grounds and how imitated ; methods of inlaying marbles for dadoes, bands.

VARNISHING.—The application of varnish, felting down and polishing.

SENIOR CLASS.

Monday Lecture,	7.30 to 8.30.
Monday, Workshop Instruction,	8.35 to 9.35.
Wednesday, Workshop Instruction,	7.30 to 9.35.

Instructor :

W. F. NAGLE.

*Head of Paints
Dept. Dobbins*

DECORATION.—Laws in decoration and ornament ; decorative schemes ; adapting, enlarging and reducing ornament to suit technical requirement of spaces, walls, ceilings, friezes, panels, dadoes ; adapting ornament to suit expression of materials. The characteristic styles of architecture, distinctive features, names and descriptions ; constructive and ornamental details ; decoration of existing relief ornament.

COLOUR.—Theory of colour; harmony and contrast; colour combinations; colour schemes; colour mixing.

SCALE DRAWING.—Making sketches and coloured scale drawings for scheme of decoration, with full size details for craftsmen to work from.

STENCILS.—Preparing and cutting stencils for one or more colours; application of stencils in decoration; care of stencils.

OUTLINING.—Painting ornament in flat with outline; preparing pounces and method of using same; transfers and their uses.

LIGHT AND SHADE.—Painting ornament in monochrome, light and shade; painting ornament in colour.

GILDING.—Method of using gold, silver and other metals; preparing different grounds for gilding; water gilding, matt and burnish; gilding on glass, plain and embossed.

Instruction will be given in the selection, care and manipulation of the brushes, instruments and materials required by the decorator.

DRAWING FOR PAINTERS AND DECORATORS.

Instructor :

W. F. NAGLE.

Friday, 7.30 to 9.35.

Making bold drawings from blackboard of stencil designs, ornamental lettering, and heraldic devices.

Making suitable drawings for imitation of inlaid woods, marbles, etc. Making scales and working drawings for schemes of decoration.

Working out sketches with measurements previously taken from existing buildings, to set out same to given scale, and to show schemes for colour and decoration.

THEORY FOR PAINTERS.

Instructor :
JOSEPH KING.

Wednesday, 7.30 to 9.35.

In this Class all Students should attend for more particular instruction in the Subject Matters required for the City and Guilds Examination.

METAL PLATE WORK.

Instructor :
GEORGE PAPPIN.

LECTURE AND DRAWING.

Junior Lecture—Tuesday, 7.30 to 8.30.

Senior Lecture—Tuesday, 8.35 to 9.35.

Calculation of dimensions of vessels to hold given quantities ; sizes of main and branch pipes for stoves and ventilating purposes. Weights, sizes, and gauges of sheets, wire rivets.

The setting-out of patterns for elbows formed by circular, oval and oblong pipes meeting at any angle ; **T**-elbows, tapering **Y**-pieces, bends. Patterns for round, oval, oblong, and other simple forms of equal and unequal tapering bodies used by boilermakers, copper-smiths, iron, zinc, and tinplate workers.

Patterns for sponge, hip, sitting, and reclining baths ; boxes ; chimney cowls ; ventilators ; weather vanes ; finials ; in copper and zinc.

The covering of roofs with galvanised iron, copper, and zinc.

Shape of notches and allowances for lap, wire, for seams of various kinds. Methods of joining sheet metal by soldering, rivetting, and grooving.

Solders and soldering. Composition and uses of hard and soft solders. Theory and practice of soldering, brazing, autogenous soldering, fluxes, useful alloys.

Annealing, stretching, raising, planishing, and general principles of working up sheet copper, brass, zinc, iron.

The various hand and machine tools used in metal plate work. Comparison of hand and machine tools for special work.

The physical and chemical properties of iron, lead, antimony, aluminium, bismuth, mercury, tin, zinc, copper, nickel, and silver
TEXT BOOK.—“Metal Plate Work,” by C. T. Millis.

WORKSHOP INSTRUCTION.

Junior Class.—Thursday, 7.30 to 9.35.

Senior Class.—Wednesday, 7.30 to 9.35.

Practical exercises in sheet metal working, cutting, bending, raising, hollowing, planishing, etc ; joining sheet metal by seaming, rivetting, grooving, soldering, brazing, tinning.

CABINETMAKERS' WORK.

Instructor :

JAMES HICKS.

Junior Class.— Tuesday, . 7.30 to 9.35.

Intermediate Class.—Wednesday, 7.30 to 9.35.

Senior Class.— Monday, . 7.30 to 9.35.

*Worcester
craftsman*

Instruction will be given in practical work to apprentices and those engaged in the trade, and will be mainly in branches which students have not generally the opportunity of practising.

THE VARIOUS PARTS OF CABINET WORK.—Their construction and decoration.

MOULDINGS.—Their setting out, shaping and combination. The various styles, their characteristic features, and their practical treatment.

INLAY AND VENEERS FOR CABINET WORK.—The best methods of preparing veneers, laying, routing, shading veneers, making stringing for inlays, inlaying with various materials, such as metal, ivory, bone, pearl, and tortoiseshell.

Students should attend the Class in Design and Drawing for Cabinetmakers.

Miscellaneous Trades.

TAILORS' CUTTING.

Instructor :
JOHN BYRNE.

ELEMENTARY.

Junior Class— Tuesday, 7.30 to 9.35.

Intermediate Class—Friday, 7.30 to 9.35.

THE PRINCIPLES OF MEASUREMENT.—Record of measurements, study of the male figure ; normal and abnormal figures. Stooping, erect, and corpulent figures. High, low, round and square shoulders. Enlarged scyes and large shoulders. Long and short necks. Prominent calves. Knock-knees. Bow-legs. The principles of scale drawing and drafting ; construction lines. Drawing of diagrams and drafting of patterns. Marking position of pockets. Block patterns ; their use and adaptation. Materials ; influence of the nature of the material on the allowances for making-up ; allowances for paddings.

TROUSERS.—The principles of trouser cutting. How to lay patterns with a view to economy, and to suit various designs of material. Trousers for normal and abnormal figures. Narrow, wide and straight legs. Riding trousers. Peg tops. Bell bottoms.

VESTS.—The principles of vest cutting. How to lay patterns with a view to economy, and to suit various designs of material. Single and double-breasted ordinary vests. Single and double-breasted dress vests, sleeved vests.

COATS.—The principles of coat cutting. How to lay patterns with a view to economy, and to suit various designs of material. Coats for normal and abnormal figures. Frock, morning, dress, lounge, Norfolk, and reefer coats.

OVERCOATS.—Frock, Chesterfield, Sac, Inverness, Ulster and Covert coats.

ADVANCED.

Senior Class—Thursday, 7.30 to 9.35.

Materials as affecting fit and cutting. Linings most suitable for various materials and styles. Trimming ; materials and quantities required. Trying on ; how to prepare the garment ;

the process of fitting on. Making up, shaping, staying, putting in pockets, sleeves. Making collars. Examination of finished garments. Alterations.

TROUSERS.—Military and naval.

BREECHES.—Livery, riding, dress, cycling, and clerical breeches. Knickerbockers and knicker-breeches. Pantaloons.

GAITERS AND LEGGINGS.—Spats, riding leggings, livery and clerical gaiters.

VESTS.—Military and naval vests, clerical vests, cassock vests, dress vest and livery vest.

COATS.—Military and naval coats, tunic, patrol, full dress, undress, monkey, mess and frock coats. Clerical coats. Frock and dress coats. Double and single-breasted cassocks. Hunting and livery coats.

OVERCOATS.—Military, naval, and livery overcoats.

LADIES' GARMENTS.—Ladies' costume skirts; close and loose-fitting jackets.

Students must provide themselves with a tape measure and pipeclay, and will be expected to take notes and make sketches at each of the lessons.

HAIRDRESSERS' WORK.

Instructors :

JOSEPH ADDISON.

JAMES LACY.

ELEMENTARY.

Junior—Monday, 8.35 to 10.5.

Preparation of combings; methods of separating roots from points; weaving; making of frizzettes; preparation and mixing of hair; utilising long and short combings; making of tails, switches. Brushing and combing ladies' hair; ladies' hair, cutting and singeing; curling and plain hairdressing.

Lectures and demonstrations on how to finish work.

ADVANCED.

Intermediate—Wednesday, 8.35 to 10.5.

Senior— Wednesday, 8.35 to 10.5.

Making of puffs and marteaux curls; knotting pin curls; foundation for fringes, transformations, scalps, wigs; different foundations and nets for same; springs; water weaving; fringe and transformation dressing; marcel weaving; modern and historic dressing.

Lectures and demonstrations on various styles of hairdressing.

BOOT AND SHOE MANUFACTURE.

Instructor :

EDWARD LEONARD.**Junior Class— Tuesday, 7.30 to 9.35.****Intermediate Class—Thursday, 7.30 to 9.35.****Senior Class— Monday, 7.30 to 9.35.**

The aim of this class is to give a knowledge of the various branches of the trade to apprentices and improvers, who, owing to the increased use of machinery, are usually confined to one of the many branches of the Boot Trade.

Instruction will be given in the following subjects :—

Determination of simple areas, as of skins ; definition of terms ; the action of water upon leather ; metric system of measurement ; differences between the bones of the infant and adult ; how muscles act, effect of friction and pressure ; the formation of the foot and leg, with their characteristics and functions ; methods of obtaining the shape and dimensions of the foot and leg ; measuring apparatus ; methods of recording measurements ; fitting up lasts for bespoke. Pattern-cutting—standards ; men and boys' ; ladies' and girls' ; drafting standard pattern ; grading patterns into sets ; cutting patterns into working sets. Clicking ; selection and description of various hides and skins and their adaptability ; economy in cutting up skins for men's and ladies' boots ; upper fitting. Closing ; action of parts of simple machines for uppers ; rough stuff cutting ; the hide and its divisions ; cutting and sorting bottom stuff ; lasting ; hand-lasting for machine-sewn work ; machine-lasting for machine-sewn work, with reference to various machines used ; methods of attaching soles to uppers ; boots for malformed feet. Finishing ; hand-finishing ; description of tools ; machine-finishing ; acids, stains, colouring substances, dyes, and paints used in finishing boots and shoes ; hand-sewn method ; preparing insole ; welt and lasting ; attaching welt and sole ; raw materials ; tanning.

MANUAL INSTRUCTION (Woodwork).

Teacher :

Wednesday, 7.30 to 9.35.

The object of the instruction is to train the hand and eye by accurate measurement and by the use of tools, and to impart a knowledge of the principles of simple construction.

TIMBER—Its nature, growth, and description, qualities seasoning, uses. Countries and ports from which we receive our supplies, the forms in which it is brought into the market. Description of the more common kinds of woods, and the purposes for which they are best adapted.

TOOLS.—Their names, proper uses, correct handling, principles of construction, and the modes of hardening sharpening and using them; the varieties and uses of the various accessories required in construction, such as nails, screws, glue.

EXERCISES IN JOINT WORK.—Housing joint, cross-halving joint, **T**-halving joint, notched **T**-joint, notched cross joint, mortice and tenon joint, bridle joint, tongue and groove joint. Cogging joint, mortice bridle joint, oblique halving joints. Tredgold's notched halving joints. Common box dovetailing.

MODELS.—Bench hook, pen-tray, flower-pot stand, flat ruler, flower stick, key label, string winder, round ruler, flower-pot cross, nailed box, finger plate, bracket, set squares, **T**-square, try square, towel roller and rests, drawing board, soap-box, scoop mirror frame, knife-box, organ-pipe and other examples.

Art and Artistic Crafts.

Art Master—WILLIAM L. WHELAN.

FREEHAND DRAWING.

MODEL DRAWING.

GEOMETRICAL DRAWING.

LIGHT AND SHADE DRAWING.

PLANT AND MEMORY DRAWING.

BRUSHWORK AND PAINTING OF ORNAMENT.

DESIGN.

DESIGN APPLIED TO CRAFTS.

MODELLING.

STONE AND MARBLE CARVING.

WOOD CARVING.

ENAMELLING ON METAL

DECORATIVE AND ORNAMENTAL IRON WORK.

ART AND ARTISTIC CRAFTS.

The instruction in Art will comprise a thorough and practical knowledge of Drawing, Design and Modelling, more especially in their applications to Industry and Trade. It is also intended for those who desire to make Art their profession or a part of their general education.

The School is equipped with a varied collection of plaster casts, antique and modern figures, busts, architectural ornaments, examples of ornament of all periods, diagrams, photographs and books, which are available for study and reference.

Students of the Design Class who can produce suitable designs on paper, in clay, or other medium, will have every opportunity of working out their own designs in the woodcarving, metal-work, enamelling, or other craft classes. Designs for gesso-work, leather-work, stencil-making, or other handicraft requiring no special apparatus, may be carried out in the class.

FREEHAND DRAWING.

Lecturer :

WILLIAM MILLARD.

Thursday, 7.30 to 9.35.

Friday, 7.30 to 9.35.

METHODS OF CONSTRUCTION.—Setting out structural and leading lines, planning, controlling and guide lines, boundaries and spaces. Proportion; beauty of form.

METHODS OF DRAWING IN LINE.—Quality of line, choice of line, the expression of relief in line drawing.

The exercises will include practice in the use of the pencil, pen or charcoal.

Drawing direct with the brush, and the representation of form by means of flat washes of colour.

Drawing (free-arm) on brown paper or blackboards, the fundamental forms, such as circles, ellipses, ovals, examples from the flat and the round, so as to cultivate a free and accurate style of drawing.

Simple memory drawing.

Drawing from photographic representations or diagrams of flat ornament, such as inlay patterns on pottery, mosaic and textiles ; drawing from photographs of natural foliage, flowers, and fruit, and from casts of ornament.

The examples selected will illustrate the development of good ornament at different periods, and will be suitable for wood and stone carving, plaster and metal work.

MODEL DRAWING AND THE DRAWING OF COMMON OBJECTS FROM MEMORY.

Lecturer :

WILLIAM MILLARD.

Wednesday, 7.30 to 9.35.

The course of lectures given during the first term will deal with the methods of drawing models or common objects, as they appear from the point of view at which the student may be placed. The effect of Perspective in modifying the appearance of objects—difference between the actual and apparent.

Method of placing the drawing on the paper. Measuring and testing.

Exercises will be arranged in drawing representations of the simple geometric models, such as the cube, cone, pyramid, and their counterparts in nature and art.

Drawing articles of ordinary use, such as jugs, cans, clocks, lamps, chairs, and tools. Singly and in groups.

Exercises in drawing from memory the models and objects used in class.

The drawings may be executed in line, flat-washes or water-colour, or lightly shaded with pencil or chalk.

The application of principles in drawing architectural or natural objects.

GEOMETRICAL DRAWING.

Lecturer :

WILLIAM L. WHELAN.**Tuesday, 7.30 to 9.35.**

The object of the lectures will be to explain drawing instruments. The use of compasses, T-square, set squares, protractor and scales, in constructing ordinary geometrical figures, such as triangles, quadrilaterals, and polygons, from given data.

The power of applying these figures as bases for ornamental and decorative work, both by freehand drawing and by means of instruments.

Describing circles to satisfy given conditions—passing through given points, touching lines and circles. Drawing straight lines touching circles.

Construction of figures similar to given figures.

Proportional division of lines, including third, fourth, and mean proportionals, extreme and mean ratio. Plain and diagonal scales. Scale of chords.

Construction of the ellipse ; drawing its tangents and normals.

Drawing curves defined by simple conditions.

Inscribing and describing rectilinear figures and circles within and about others.

Plans, elevations, and sections of simple geometrical solids, singly, or in combination ; arranged in simple positions ; side views of various solids.

The application of Geometrical Drawing to the setting out of ornamental patterns, construction of units of patterns, spacing of wall and other surfaces for decorative purposes, and construction of arch-forms, tracery and mouldings.

The application of Geometry to Industrial Art.

After the lectures a course of practical work will be arranged, meeting, if possible, the actual requirements of individual students.

LIGHT AND SHADE DRAWING.**Junior—Monday, 7.30 to 9.35.****Senior—Wednesday, 7.30 to 9.35.**

Shading from simple models and common objects ; from casts of fruit, foliage and ornament in relief, on flat or curved surfaces.

Lectures will be given to explain the meaning of the terms light, half-tones, shade, line of transition, shadow and contrast, tone and effect. Demonstrations will be given during the course on the methods of rendering light and shade by means of the pencil, charcoal, or chalk.

The application of the principles of light and shade to the drawing of architectural or natural forms.

PLANT DRAWING. MEMORY DRAWING OF PLANT FORM. PLANT FORM IN DESIGN.**Wednesday, 7.30 to 9.35.**

Methods of drawing and colouring ; pictorial and decorative treatments.

Plants used in ornament ; the lotus, acanthus, vine, and honeysuckle. Stems, erect, climbing, and twisting. Leaves, simple and compound ; palmate and pinnate. Flowers, the calyx, corolla, and stamens. Fruits ; seed vessels, seeds. Roots, bulbs.

Drawing from memory in pencil, chalk, or with brush, in monochrome, such plants and leaf forms as—

The wild rose, the bay, the white lily, the laurel, the field daisy, the oleander and others, giving a simple analysis from artistic rather than from a botanical point of view.

Sketches illustrating the chief structural characteristics, the general character and growth of the plant, the plan and profile of a flower, and the arrangement of its petals. Sketches of the form of its calyx, pistil, and stamens, the various shapes which a leaf takes in its growth, the junctions of leaves on the stem buds and seed vessels.

The decorative application of these structural and characteristic organic forms to given geometrical spaces.

Lecturer :

F. O'DONOHUE.

Lecturer :

WILLIAM L. WHELAN.

BRUSHWORK AND PAINTING ORNAMENT.

Lecturer :

WILLIAM L. WHELAN.**Monday, 7.30 to 9.35.**

The language of the brush ; brush forms resulting from single brush impressions, combined brush marks, brush marks of different tones.

The rendering of ornamental forms by means of brushstrokes.

Expressing form and mass with the brush.

Direct expression of plant and animal life by means of brushwork.

Painting ornament from the cast, or photographs in oil or tempera.

DESIGN.—Junior and Senior.

Lecturer :

WILLIAM L. WHELAN.**Thursday, 7.30 to 9.35.—Junior.****Friday, 7.30 to 9.35.—Senior.**

The decoration of flat surfaces with coloured ornament. Methods of drawing, tracing, and transferring. The use of charcoal, chalk colour, tempera, and water-colours.

Geometrical design. Geometry as the basis of surface pattern.

Designs to fit given spaces, such as a square, a triangle, a spandril, a lunette, a pilaster, or a panel.

Such designs may consist of—

Ornament composed of straight lines only.

Geometrical ornament (not confined to straight lines).

Interlacing ornament (not strictly geometrical).

Scroll work.

Foliated or floral ornament.

Designs for borders, corners and enclosed spaces.

Designs for repeating patterns, such as the "drop," "trellis," "sprig," or "diapers."

Adaptation of natural forms to decoration ; the various ways in which natural forms have been treated.

Designs for panels, pilasters, friezes, borders, spandrils, dadoes and fillings, in which some well-known plant has been taken as a starting point.

Designing in given historic styles—Greek, Roman, Celtic, Early, Gothic, Renaissance and Moresque.

Design for heraldic ornament and lettering.

Design and decoration of simple objects.

Designing for common articles of manufacture, wall papers, printed goods, textiles, furniture, metal and woodwork. Tiles. Inlay.

DESIGN APPLIED TO CRAFTS.

Lecturer :

WILLIAM L. WHELAN.

Thursday—Lecture, 7.30 to 8.30.

Drawing, 8.35 to 9.35.

Instruction will be given in drawing and design applicable to various trades.

CABINET MAKERS.—Freehand sketching. Use of instruments. Drawing to scale. Simple problems in plane and solid geometry, and their application to Cabinet work. Historic ornament and study of different styles of furniture. Design for Cabinet work and simple furniture.

WOOD CARVERS.—Drawing and shading from the cast. Drawing of carving from photographs and casts of different periods. Study of plant forms suitable for wood carving. Study of design. Study of ornament ; designs suitable for enrichment of mouldings.

Study and preparation of working drawings, and drawings of an architectural character.

PAINTERS AND DECORATORS.—Geometrical design and pattern drawing. Drawing and shading from casts of ornaments, with pencil, pen and brush, or monochrome.

Study of plant form, with use of pencil, pen and brush, in monochrome and colour. Application of animal, bird, and plant forms to design. Study of design and colour.

STONE AND MARBLE CARVERS.—Freehand drawing from casts of carving taken from examples of classic, mediæval and modern architecture. Study of plant form. Design. Working drawings.

PLASTERERS.—Freehand drawing of ornament from photographs and casts.

Geometrical design and pattern drawing. Freehand drawing. Methods of drawing and spacing out walls, ceilings, cornices, mouldings, pilasters, and caps. Study of ornamental styles. Study of architectural ornament. Plant form.

Design. Preparation of working drawings. Full size and to scale sketches.

ORNAMENTAL METAL WORK.—Drawing of ornamental metal work, various styles. Drawing to scale and preparation of sketches, and working drawings. Drawing and designing for electric, gas, or lamp fittings. Design for iron work, grilles, gates, screens, stands, and railings.

ENGRAVERS AND ENAMELLERS.—The study of lettering, plain and ornamental monograms; heraldic ornament, plant form ornamental design; preparation of drawings and sketches; colour.

SILVERSMITHS.—Drawing of shapes used in silversmiths' work. Working drawings. Design and its application. Study of different styles from drawings, photographs, and casts.

CHASERS AND EMBOSSERS.—DRAWING FROM CASTS AND PHOTOGRAPHS.

Plant forms and their adaptation to design. Working drawings for chasers in pencil, pen and ink, and monochrome.

MODELLING.

Instructor :

THOMAS J. MATHERS.**Junior— Friday, 7.30 to 9.35.****Intermediate—Monday, 7.30 to 9.35.****Senior— Wednesday, 7.30 to 9.35.**

*One of best stone
carvers in Brit B. + Ireland
Cape Cathedral*

A graduated course of instruction in Clay Modelling.

Instruction will be given in the modelling of styles of architectural and decorative ornament. Marble, stone and wood carvers, plasterers, architects, designers, and decorators will have opportunities of acquiring a practical knowledge of relief ornament, applicable to the particular work in which they may be engaged.

Modelling ornament from casts of simple forms and from photographs of architectural details. Modelling flowers, fruit and foliage, from nature, and adapting natural forms for architectural and decorative purposes.

Making of models in plasticine, clay, and wax for reproduction in bronze, silver, and gold.

Designing and modelling for reproduction in solid and fibrous plaster for ceilings, cornices, friezes, enriched mouldings, capitals, and wall decoration.

The mechanical process employed in casting and the making of moulds.

During the Session lectures and demonstrations will be given on the application of designs to various materials, according to the technical wants of the individual students.

STONE AND MARBLE CARVING.

Instructor :

THOMAS J. MATHERS.**Friday, 7.30 to 9.35.**

A knowledge of drawing and modelling being essential to those who wish to benefit by the teaching, students will be required to give some time each week to attain this.

The nature of the material. The tools used in carving. The decorative treatment of stone and marble; mouldings and enrichments; ornament. Methods of pointing. Processes of reproduction in stone or marble from plaster models. Monumental work. Architectural work,

WOOD CARVING.

Lecturer :

JOHN MILLIGAN.

Junior—	Thursday, 7.30 to 9.35.
Intermediate—	Tuesday, 7.30 to 9.35.
Senior—	Monday, 7.30 to 9.35.
Special—	Tuesday, 7.30 to 9.35.

Oneybest - Bristol Isle
Cove Cathedral

Students cannot be entered for the classes in wood carving unless they are able to satisfy the Art-master of their competence in freehand drawing or modelling; and in the absence of this, must take up classes in these subjects along with the course in wood carving. A knowledge of freehand drawing and modelling is indispensable to success in wood carving.

The instruction will be of a progressive nature.

The qualities of the various woods employed in carving. The use of tools and methods of sharpening. The setting-out of work, and the laying down of outline for relief carving and grounding out. Modelling of the ground-out surface.

Carving in low relief, with broad treatment, in pine or other soft wood requiring the use of a few tools. Carving ornament of a more complex character.

Practice in work of different styles. The carving of patterns illustrating simple principles of design.

The treatment of architectural work in high relief.

The adaptation of plant, foliage and other natural forms, and their modification to the technical requirements of woodwork and furniture; conventional foliage.

Example of work showing how a design may be worked from a mere surface carving to complete relief of any depth.

Influence of individuality in style and variable treatment of design.

ENAMELLING ON METAL.

Instructor :

WILLIAM L. WHELAN.**Friday, 7.30 to 9.35.**

Enamel—Its nature and qualities. The practical application of enamel. Metals to which it is applied.

Methods of enamelling—Cloisonné. Plique à Jour. Champlevé. Baisse Taille. Painted or Limoges.

The selection and treatment of the enamels employed. Firing and finishing.

Students attending the class will design the work they are to carry out, and arrangements will be made to enable them to study design and prepare the necessary drawings.

DECORATIVE AND ORNAMENTAL IRONWORK.

Instructor :

H. TAYLOR.**Tuesday, 7.30 to 9.35.**

The class is intended for those who have some practical knowledge of general smiths' work, but who are desirous of practising the more decorative sections of their trade.

Iron, its nature and properties.

The various kinds of iron used in trade by art-iron workers.

Tools, their various applications and uses.

The treatment and manipulation of wrought-iron.

Methods of joining iron-work. Details used in art-smithing.

Twisting.—Spindle-shaped spiral twists. Scrolls. Volutes.
Slitting.

Interlacings. Plaiting. Hammering.

Beating scroll ends into forged or embossed leaves.

The construction of husks, flowers, rosettes, leaves and sprays, garlands and festoons.

The making of panels, grilles, balustrades, gates, hinges, hanging-signs, brackets, chandeliers, electroliers, lanterns, stands, and other objects in iron.

Special attention will be given to the treatment of metal work for use in electric light, gas and lamp fittings.

Printing.

MUNICIPAL SCHOOL OF PRINTING, BOLTON STREET.

EVENING CLASSES.

TYPOGRAPHY, PRACTICAL :

Compositors' Work	..	First Year.
" "	..	Second Year.
" "	..	Third Year.

Press and Machine Work	First Year.
" " "	Second Year.
" " "	Third Year.

Linotype Work	..	Elementary.
" "	..	Advanced.

Classes in Technical Arithmetic.

Classes in English.

Classes in Drawing.

LITHOGRAPHY,—Drawing Class.

AFTERNOON CLASSES.

TYPOGRAPHY, PRACTICAL :

Classes in Technical Arithmetic.

Classes in English.

Classes in Drawing.

TYPOGRAPHY, THEORETICAL.

Chief Lecturer:

P. P. CURTIS.**COMPOSING—FIRST YEAR.****Monday, 8.0.**

In addition to Practical Demonstrations the Junior Students will be instructed in the following matters:—

Spelling; Punctuation; and Grammatical Construction. Type: dimensions and proportions of body and face. Various faces and founts. Characters in a fount. Lays of the Case. Type metal. Implements in use, and how to use them. Distribution and composing. Spacing and justifying. The Linotype Machine. The Monotype.

COMPOSING—SECOND YEAR.**Thursday, 8.0.**

The subject matters of the Junior Class dealt with more fully. The Point system. Its features and advantages. The composition of Type Metal, of Stereo and Lino Metal. Bookwork; casting off MSS.—the treatment of preliminary matter and notes. Measures for book-work. Margin. Methods of imposition. Proof correction. The reading of proofs; correction marks. Display work. The use of ornament. Borders, ornaments, and rules. Tint blocks. Combinations of type. Tabular work: details and precautions. The setting of headings. Display work. The principles and methods involved.

PRESS AND MACHINE WORK—FIRST YEAR.**Tuesday, 8.0.**

The Junior Machine Students will receive instruction in the following matters:—

PAPER.—Its nature and sources. Methods of manufacture. Standard sizes. Folding and cutting. Qualities: treatment for special purposes.

INK.—Nature and composition. Properties and treatment in use. Methods of Manufacture. Black and coloured inks. The inking table.

Simple schemes of imposition. Chases and furniture. Locking-up formes. The common appliances of the Printing Shop.

ROLLERS.—Their composition and treatment. The Albion Press. Platen Machines. Cylinder Machines.

TYPOGRAPHY, PRACTICAL.

Instructors :

P. P. CURTIS.**BERNARD GEOGHEGAN.****COMPOSITORS' WORK—FIRST YEAR.****Practical— Monday, 8.0 to 10.5.****Additional—Tuesday, 8.0 to 10.5.**

The lay of the Case. Preliminary exercises in the setting-up of type according to the most approved methods, special attention being paid to style. Spacing and justifying. The division of words. Insetting.

The use of leads and rules. Cutting to standard sizes.

The handling of type when set up. Locking up. The distribution of type. The pulling of proofs. Proof correction : reader's marks : manipulation. The treatment of ink.

Display work : Simple examples.

COMPOSITORS' WORK—Second Year.**Practical —Thursday, 8.0 to 10.5.****Additional—Wednesday, 8.0 to 10.5.**

Setting-up from difficult MSS. Correcting to worked proofs. Display work. The use and manipulation of borders, ornaments and rules. Construction of type. Attention to fundamental principles. The use of colour.

Pamphlet work : suitable measures : margin : schemes of imposition.

Tabular work : simple examples and exercises.

COMPOSITORS' WORK—THIRD YEAR.**Practical— Wednesday, 8.0 to 10.5.****Additional—Thursday, 8.0 to 10.5.**

In this class the students will take up more difficult tasks, and will be encouraged to turn out individual work of an artistic nature.

In all the above cases, the additional night is offered free to those only who are taking Courses, and are attending regularly all the Classes of their Courses. Others are required to pay an additional fee for the additional night, if they make use of it.

TYPOGRAPHY, PRACTICAL.

Instructor :

PATRICK FOGARTY.**PRESS AND MACHINE WORK—FIRST YEAR.**

Tuesday, 8.0 to 10.5.

In this class students will be taken through graduated exercises, and will be familiarised with the manipulation of Ink and of Paper ; with the pulling of proofs, and with the single Presses. In particular they will have practice with the Hand and with the Phoenix Platen Press, and gain some experience of the Miehle Machine.

PRESS AND MACHINE WORK—SECOND YEAR.

General— Thursday, 8.0 to 10.5.

Additional—Wednesday 8.0 to 10.5.

In this class the students will carry out work on a Quad Crown Miehle Machine. Particular attention will be paid to "making-ready" and to "register." Simple exercises in colour printing and in the turning-out of artistic samples of Display work.

PRESS AND MACHINE WORK—THIRD YEAR.

General— Wednesday, 8.0 to 10.5.

Additional—Thursday, 8.0 to 10.5.

Special work of an advanced nature, carried out by the students themselves.

See Note at foot of preceding page for meaning of "additional" night.

LINOTYPE MACHINE WORK.

Instructor :

R. A. LATCHFORD,

Junior Demonstration—Tuesday, .. 8.0 to 10.5.

Senior Demonstration—Thursday, .. 8.0 to 10.5.

Junior Practice— Monday, .. 8.0 to 10.5.

Senior Practice— Wednesday, 8.0 to 10.5.

In these classes students will be taken in small groups for individual instruction in the use, manipulation, management, and adjustment of the Machine. On Monday nights lectures and demonstrations will be given to the Junior students ; and on Friday nights to the Senior students.

MONOTYPE.

It is hoped that instruction in Monotype work will soon be added.

LITHOGRAPHY.

Monday, 8.0 to 10.5.

Instructor :

W. T. O'SHEA.

A class in Drawing for Lithographers will be held if students apply. If the class is well attended, the purchase of a Lithographic Machine and Stones will be made by the Committee.

TECHNICAL CALCULATIONS AND WORKSHOP MATHEMATICS.

Lecturer :

MICHAEL HANLY.

First Year— Thursday, 8.0 to 9.0.

Second Year—Tuesday, 8.0 to 9.0.

Third Year— Monday, 8.0 to 9.0.

In these classes a graduated course of instruction will be given in Arithmetical Calculations, with special regard to the needs of Printers. A little elementary Algebra will be introduced in the Second Year.

FIRST YEAR.

ARITHMETIC.—Measures and Multiples ; fractions (vulgar and decimal) ; simple and compound proportion by unitary method ; simple interest ; averages and percentages ; the metric system ; technical calculations.

GEOMETRY AND MENSURATION.—Simple geometrical ideas ; use of protractors and compasses ; areas of triangles and rectangles ; cost of papering walls, &c.

SECOND YEAR.

ARITHMETIC.—Contracted multiplication and division of decimals ; square and cube root ; variation and rate of gain or loss ; simple and compound interest ; Metric and British systems of units ; technical calculations.

GEOMETRY AND MENSURATION.—Simple, practical geometry ; mensuration of plane figures and of the circle ; volumes and surfaces of Cylinder and Cone.

ALGEBRA.—Simple rules and exercises.

THIRD YEAR.

Further developments of the foregoing, for more advanced Students.

ENGLISH.

Lecturer :

MICHAEL HANLY.

First Year— Thursday, 9.5 to 10.5.

Second Year—Tuesday, 9.5 to 10.5.

Third Year— Monday, 9.5 to 10.5.

In these classes will be given a graduated course of instruction in English.

Spelling. Punctuation. Grammatical construction. The formation and nature of phrase, clause, and sentence. The parts of speech. Moods and tenses. The sequence of tenses. Correction of errors. Prefixes and affixes: their use and meaning. The writing of Letters and Essays. Paraphrasing and Summarising, etc.

FIRST YEAR.

GRAMMAR.—The uses and inflections of the parts of speech; parts of a simple sentence; the subordinate sentence and its functions; analysis of sentences; correction of grammatical errors.

COMPOSITION AND SPELLING.—Letters and essays on given subjects; paraphrasing; summarising; dictation of passages previously prepared by Students.

Students will be required to read aloud in class from a selected reader, with a view to extending their vocabulary, and improving their method of speaking.

SECOND YEAR.

GRAMMAR.—The construction of sentences; the connection of sentences and sequence of tenses; correction of faulty sentences; prefixes and affixes; their use and meaning; syntax.

COMPOSITION AND SPELLING.—The writing of letters and reports. Essays on given subjects; paraphrasing, summarising; dictation of passages previously prepared by Students. Students will be required to read aloud in class from standard authors.

TECHNICAL DRAWING.

Elementary—Wednesday and Friday, 9.5 to 10.5.

Advanced—Wednesday and Friday, 8.0 to 9.0.

Instructor :
W. T. O'SHEA.

A graduated course of instruction is offered in Drawing at the above times. The exercises will be such as to lead practical Printers up to the kind of designing work which will be useful to them in their business. Each Student attends on one night only.

AFTERNOON CLASSES.**TYPOGRAPHY.**

Lecturer :
P. P. CURTIS.

The afternoon classes are intended for newspaper hands.

COMPOSITORS' WORK—ELEMENTARY.

Monday, 4.0 to 6.0.

The instruction will be of a practical nature, but a portion of the time will be occupied by a general demonstration to the Students. For subject matter see page 156, First Year.

COMPOSITORS' WORK—ADVANCED.

Monday, 4.0 to 6.0.

For subject matter of demonstration and work, see page 156.

LINOTYPE.

Instructor ;
R. A. LATCHFORD.

Monday, 4.0 to 6.0.

Practical instruction in the use of the Linotype Machine.

**TECHNICAL CALCULATIONS AND
WORKSHOP ARITHMETIC.**

Lecturer :
MICHAEL HANLY.

Wednesday, 5.0 to 6.0.

Students will be shown how to make the calculations that are needed in their Trade, and will work out exercises under the direction of the teacher.

ENGLISH.

Lecturer :
MICHAEL HANLY.

Wednesday, 4.0 to 5.0.

For subject matter see page 159.

TECHNICAL DRAWING.

Instructor :
W. T. O'SHEA.

Wednesday, 5.0 to 6.0.

Exercises of a practical nature, such as should be serviceable to Compositors, will be done under the guidance and instruction of the Teacher.

Commercial Subjects.

HEAD OF DEPARTMENT AND PRINCIPAL—

MARTIN R. WHEELER, M.A.

IRISH.

FRENCH.

GERMAN.

COMMERCIAL ENGLISH.

COMMERCIAL ARITHMETIC.

COMMERCIAL GEOGRAPHY.

BOOK-KEEPING.

ACCOUNTANCY.

SHORTHAND.

BUSINESS METHODS.

TYPEWRITING.

IRISH.

Teacher :

DENIS LYNCH.**Junior Class—Friday, 7.30 to 9.35.****Senior Class—Wednesday, 7.30 to 9.35.**

These classes are divided into Junior and Senior, and are intended for those who desire to acquire a useful knowledge of the language, more especially with a view to occupying positions in districts where such knowledge is essential. The instruction will include pronunciation, reading, grammar, translation, composition, commercial, and technical terms.

FRENCH.

The method chiefly followed in teaching is that known as the direct or new method, which is now being introduced from the continent.

The aim is to give the learner a ready command over the sounds, words and phrases of the language. To secure this result use is made of object and picture lessons, which proceed on definite lines and where subject-matter may be mastered by adequate repetition.

JUNIOR.

Teachers ;

Monday, 7.30 to 9.35.—Class A.**MICHAEL HAYES.****Tuesday, 7.30 to 9.35.—Class B.****DENIS LYNCH.****Friday, 4.0 to 6.5.—Class C.****DENIS LYNCH.**

The instruction will comprise pronunciation, reading, and translation into English, Elementary Grammar, exercises, and conversation on familiar subjects.

INTERMEDIATE.

Teacher ;

Thursday, 7.30 to 9.35.**DENIS LYNCH.**

The instruction will aim at progressive development of the foregoing, and special attention will be given to conversational exercise,

SENIOR.

Teacher ;

Monday, 7.30 to 9.35.**DENIS LYNCH.**

The instruction will comprise more difficult exercises in grammar and translation, conversation on commercial subjects ; the terms used in commerce and industry, banking operations, railways, steam boats, shipping, manufactures, exhibits, market reports, circulars ; commercial letter-writing.

GERMAN.**JUNIOR.**

Teacher :

M. P. CRINION.**Friday, 7.30 to 9.35.**

The instruction will comprise pronunciation, reading, translation into English, Elementary Grammar, simple object lessons and conversation in German.

SENIOR.**Wednesday, 7.30 to 9.35.**

The instruction will include more difficult exercises in Grammar and translation, commercial letter-writing, and conversation on general and commercial subjects in German.

See introductory note *supra* French.

COMMERCIAL CORRESPONDENCE AND CALCULATIONS.

ARITHMETIC—JUNIOR.**Monday, 7.30 to 8.30.—Class A.**

Teacher :

Tuesday, 7.30 to 8.30.—Class B.**D. K. LEAHY.****Wednesday, 7.30 to 8.30.—Class C.**

Short methods of multiplication and division of decimals to a small number of places, together with a knowledge of the degree of approximation possible; long and cross tots, simple and compound; practice, interest and discount. Short methods in mental arithmetic, more particularly in multiplication, division, prices of articles, interest and discount. Percentages and averages, commission and brokerage, areas and quantities.

Profit and loss ; bills receivable and bills payable, with interest ; true discount and banker's discount. The more important European weights and measures, the coinage of France, Germany, the United States and India ; conversion of foreign currencies into English equivalents and *vice versa* ; the metric system:

ARITHMETIC—SENIOR.

Friday, 7.30 to 8.30.

Rates of exchange, and transactions with home and foreign bills. Stocks and shares. Debentures, preference and ordinary stock, profits and dividends ; liabilities, solvency and liquidation ; banker's interest. Insurance and annuities ; compound interest. Equation of payments ; partnerships. Prices of mixtures and blends. Calculation of areas and volumes. Evolution.

ENGLISH—JUNIOR.

Monday, 8.35 to 9.35.—Class A.

Tuesday, 8.35 to 9.35.—Class B.

Wednesday, 8.35 to 9.35.—Class C.

Teacher :

D. K. LEAHY.

COMPOSITION.—Construction of sentences, punctuation, synonyms, essay-writing, paraphrasing, letter-writing, the various kinds of letters—the proper form of each, the body of the letter, and the logical arrangement of its parts—the principles that make for a good business style in the drawing up of letters and circulars. Précis-writing as used in Commerce ; drafting of telegrams and memoranda. Direct and indirect narration.

ENGLISH—SENIOR.

Friday, 8.35 to 9.35.

A detailed course of Accidence and Syntax. Outlines of the history of the language. Business correspondence of a more advanced character ; *e.g.*, letters relating to commissions and consignments, insurance, shipping, the forwarding and clearing of goods, market reports, travellers' letters, &c., essay-writing, paraphrasing, epitomising, indexing and précis-writing. Digesting returns into summaries.

COMMERCIAL GEOGRAPHY.

Teacher :

M. R. WHEELER.**Friday, 8.35 to 9.35.**

The geographical distribution of commercial commodities—chiefly food products, raw products, and manufactured products. A knowledge of (1) the localities where, and the geographical and local conditions under which these are produced; quantities available for export; colonisation and the conditions of successful industry in the British possessions generally. (2) Various facilities and hindrances to trade—as languages, tariffs, currencies, weights and measures; communications by land and sea, *i.e.*, transports, telegraphs, postal arrangements; the distances, trade routes, and ordinary modes of conveyance to important markets; ports, harbours, coaling stations, harbours of refuge. Special attention will be given to the geography of Ireland, Great Britain, the British Colonies, and the United States of America.

BOOK-KEEPING.

Teacher :

MICHAEL MORRISSEY.**JUNIOR.****Junior Class A.—Monday, 7.30 to 9.35.****Junior Class B.—Tuesday, 7.30 to 9.35.**

Explanation of simple commercial terms, cheques and receipts; petty cash book; accounts—real, personal, and nominal; balancing these accounts; book-keeping by double entry, its meaning and advantages.

The form and uses of the cash book, sales book, purchases book, journal; posting from these books to the ledger; balancing and closing the ledger; and the preparation from the ledger of profit and loss account and balance-sheet.

BOOK-KEEPING—continued.Teacher :
M. MORRISSEY.**INTERMEDIATE.****Thursday, 7.30 to 9.35.**

Explanation of the more difficult commercial terms ; bills of exchange and transactions relating to them ; consignment, joint, partnership, trading, profit and loss accounts and balance-sheet ; more advanced book-keeping by double entry, involving the use of journal, cash book, purchases book, sales book, returns book and bill book, posting from these books to ledger ; and preparing from ledger, trial balance, profit and loss account and balance sheet.

SENIOR.Teacher :
M. F. FLOOD.**Tuesday, 7.30 to 9.35.**

Instruction will be given on the principal books employed in business ; private and limited partnership accounts ; company accounts ; public companies, how formed ; private companies, the manner of their formation ; different kinds of shares ; books to be kept by public companies ; income and expenditure accounts ; bankruptcy accounts ; reserve accounts ; depreciation accounts ; cost accounts, trading accounts, profit and loss accounts ; and balance-sheets, including those of railway, banking and other public companies.

ACCOUNTANCY.Teacher :
M. F. FLOOD.**Thursday, 7.30 to 9.35.**

General principles, and their practical application to adjustments between capital and revenue, valuation of assets, provision for depreciation, &c. ; stock, share, and loan accounts ; reserve, provision and sinking fund accounts, and investments connected therewith.

Adaptation of Book-keeping systems and methods to the requirements of industrial and financial undertakings, with special regard to those of public and private companies, limited and private partnerships and public bodies.

SHORTHAND (Pitman's System).

Teachers :

F. C. WALLIS-HEALY.**M. F. BOYLE.****A. MANLY.**

Junior Class A.—	Wednesday, 7.30 to 9.35.—Men and Boys.
Junior Class B.—	Thursday, 7.30 to 9.35.—Men and Boys.
Junior Class C.—	Monday, .. 7.30 to 9.35.—Women and Girls.
Intermediate Class—	Friday, .. 7.30 to 9.35.
Senior Class.—	Tuesday, .. 7.30 to 9.35.
Speed Class, Junior.—	Friday, .. 7.30 to 9.35.
Speed Class, Intermediate.—	Wednesday, 7.30 to 9.35.
Speed Class, Senior.—	Monday, .. 7.30 to 9.35.

In the Theory Classes each student will receive individual instruction, and commencement can, accordingly, be made at the stage to which progress has been attained. The speed classes are arranged to meet individual requirements, and are graded as follows :—Junior Class (40 to 60 words per minute); and Senior Class (70 to 100 words per minute, and higher rates if desired). Illustrations of standard outlines, contractions, phrases, and other abbreviating devices, are displayed on the blackboard and explained, and practical advice and suggestions are offered. Special attention is given to dictation of commercial correspondence, reports of company meetings, and a certain amount of time will be devoted by students to reading or transcribing their notes.

Students should be presented for Theory and Speed Certificate Examinations towards the close of the Session.

BUSINESS METHODS.

Teacher :

M. R. WHEELER.**JUNIOR.****Junior A.—Monday, 8.35 to 9.35.****Junior B.—Wednesday, 8.35 to 9.35.**

The object of this class is to give an intelligent idea of the elementary details of office and business routine, so as to acquaint the student with the nature of the work that will be required of him when he enters a merchant's or other office.

How to answer advertisements and to write letters of application for situations.

OUTGOING LETTERS.—Press copying ; methods of obtaining multiplex copies of letters, documents, and accounts ; making up letters for post ; addressing envelopes ; postal rates ; registration and insurance of letters ; indexing ; the keeping of a postage book.

INCOMING LETTERS.—Letter and telegram register ; letter files ; pigeon-holing and docketing of letters.

TELEGRAMS.—Writing out and sending telegrams.

TELEPHONE.—Sending, receiving and recording messages.

The copying of common business forms, such as lists of prices, order notes, invoices, statements of account. The setting out and copying of letters, commencing and ending letters ; composing short business letters. The making out of simple invoices of accounts. The petty cash book. Receipts of various kinds.

INTERMEDIATE.

Tuesday, 8.35 to 9.35.

Teacher :

M. R. WHEELER.

The copying from abbreviated matter or carelessly written manuscript of business letters, advertisements, and circulars. The essentials of a good business letter ; general business correspondence ; composing business letter. Précis-writing as used in commerce.

THE ORDINARY POSTAL REGULATIONS.—Inland and foreign telegrams ; the writing of a telegram from a rough draft.

FINANCE.—Postal orders ; post office orders ; cheques ; promissory notes ; bills of exchange ; bank deposit and current accounts and simple mercantile banking generally ; routine of buying and selling goods ; invoicing ; furnishing accounts ; account sales ; discounts ; advice notes ; market reports and how to read money and other market reports in the daily papers.

DESPATCHING.—Forwarding goods by carrier, canal, or railway ; consignment notes ; railway and canal systems (more especially those of Ireland) ; the use of railway guides,

BUSINESS METHODS—continued.**SENIOR.**

Teacher :

Thursday, 8.35 to 9.35.**M. R. WHEELER.**

Business correspondence of a more advanced character ; the drafting of business circulars, pamphlets, and advertisements ; catalogues ; the routine of getting matter printed.

DESPATCHING.—Shipment of goods ; duties ; exports ; imports ; consignments ; consular invoices ; advice notes ; bills of lading ; manifests ; chartering and charter parties ; freights and freight reports ; cubic and superficial measurement of packages ; trade routes.

FINANCE.—Commercial terms and abbreviations used in banking, insurance, shipping, joint stock companies, and on the stock exchange ; accounts current ; consignment and other invoices ; account sales ; credit notes ; statements of receipts and payments ; bills of exchange (inland and foreign bills) ; acceptance ; currency ; days of grace ; endorsement ; discounting ; renewing ; dishonour ; liabilities of parties ; promissory notes ; banks and banking ; deposit and current accounts ; pass books ; drafts ; cheques and the crossing and endorsement of same ; not negotiable cheques ; stopping payment ; negotiable instruments ; joint stock companies ; share and loan capital ; prospectuses ; limited liability ; dealings on the stock exchange ; the leading markets for our goods ; customs tariffs ; metric system ; foreign currencies ; commissions ; discounts ; interest ; percentages ; fire, life, marine, and other forms of insurance ; cable systems ; telegraph codes ; cypher telegrams.

TYPEWRITING.

Teachers :

JAMES O'SHEA.**MISS C. MORAN.****Junior Classes—Monday, Wednesday, and Friday—7.0 to 10.5.****Intermediate Class—Tuesday, 7.0 to 10.5.****Senior Class—Thursday, 7.0 to 10.5.**

The various type-writers and their keyboards ; arrangement of letters, figures, stops ; general structure of the machines, and their essential parts ; ribbons and pads ; fingering exercises ; copying of easy matter, and graduated writing.

Practical exercises.

The machines used are the "Remington," "Yost," "Williams," "Empire," "Smith Premier," "Densmore," and "Oliver."

The Classes are held from 7.0 to 8.0, 8.5 to 9.5, and 9.5 to 10.5, each Student working for one hour.

Domestic Economy.

Qualified Students in this section are expected to follow courses of at least two subjects rather than a single class. These courses should be selected from page 32. The Lectures in Junior Physics (page 86,) should be of special value to students in the Cookery classes.

AFTERNOON CLASSES.

HOUSEHOLD COOKERY.

Teacher :
MISS M. BELLINGHAM TODD.

Tuesday, 3 to 5.5 p.m. (Kevin Street).

This course will be arranged to meet the requirements of heads of households, and the class will open on Tuesday, 17th October. Instruction will be given on kitchen management; keeping of stores; cleaning, etc.; the preparation of food for the sick, with reference to special diet for young children and adults; new and varied dishes for dinner, luncheon, breakfast, supper and tea.

DRESSMAKING.

Teacher :
MISS K. M. MURPHY.

Class E, Junior—Monday, 3 to 5.5 p.m. (Chatham Row).

Class F, Senior—Friday, 3 to 5.5 p.m.

See page 172 for subject matter.

COOKERY.

Teacher :
MISS K. CLANCY.

Monday, Junior— 3 to 5.5 p.m. (Rutland Square).

Wednesday, Senior—3 to 5.5 p.m.

This Class will open on Wednesday, 18th October. See page 174 for subject matter.

DRESSMAKING.

Teacher :
MISS K. M. MURPHY.

Class G—Thursday, 3 to 5.5 p.m. (Rutland Square).

This Class will open on Thursday, 19th October. See "Home Dressmaking," page 174.

COOKERY.

(KEVIN STREET).‡

Teacher :

MISS M. BELLINGHAM TODD.**Lecture : Tuesday, 7.30 to 9.35.****Practical Work :****Class A.—Monday, 7.30 to 9.35.****Class B.—Wednesday, 7.30 to 9.35.****Class C.—Thursday, 7.30 to 9.35.—for Senior Students.**

The instruction during the Session is progressive, consisting of Demonstration and Practice lessons, and includes lectures on Theoretical Domestic Economy.

SOUPS.—Vegetable, lentil, tomato, bone, kidney, potato, pea, brown and maigret, Scotch broth, etc.; and fish soup.

FISH.—Boiled, broiled, fried in batter, in egg and bread crumbs, scoloped, and baked. Fish cakes, puddings, kedgerree; sauces.

MEAT.—Roast; stewed beef (leg); fried liver and bacon; stewed beef and rice; beefsteak pudding; sausage rolls; broiled chops and steak; shepherd's pie; sea pie; stewed rabbit; haricot mutton; veal cake; boiled meat; Irish stew; tripe (stewed); tripe fried in batter; beefsteak pie; Cornish pasties; fried sausages; savoury mince; savoury hash; rissoles; also pot-au-feu; pork pie; pressed beef; casserole of potatoes; toad-in-a-hole, etc.

VEGETABLES.—Potatoes—boiled, steamed, fried, baked and mashed; boiled greens, cauliflowers, carrots, and turnips; spinach, stewed; lentils, stewed; onions, stewed and baked; tomatoes, baked; haricot beans, boiled.

PUDDINGS AND PASTRIES.—Puddings—bread, baked and steamed; Yorkshire, Christmas, Swiss, and batter, suet—plain, roly-poly, apple dumplings, gingerbread and fig, tapioca, sago, and rice; fruit pies, jam tartlets, mince pies, pancakes, boiled rice, stewed fruit, cornflour mould, etc.

MISCELLANEOUS.—Eggs—boiled, fried, buttered, poached, etc.; omelettes, sweet and savoury; salads, dressing, etc.; curry of meat, eggs, etc.; Macaroni cheese; Scotch eggs; croutes of haddock; tea, coffee, cocoa; porridge; clarified fat, toast, etc.

SAUCES—Fish, onion, caper, parsley, tomato, sweet, melted butter, etc.

BREAD AND CAKES.—Yeast bread, brown and white ; soda bread, scones ; baking powder ; milk rolls ; gingerbread ; shortbread ; rock buns, cocoanut buns, French buns, rice and oatmeal buns ; dough nuts, Swiss roll, etc. Cakes.—Rock, seed, currant, sultana, lemon, Shrewsbury, Christmas, Queen, Motor, etc.

SICK ROOM COOKERY.—Beef teas, mutton tea, gruel, sheep's head ; custard, apple and hasty puddings ; sago, Irish moss and orange jellies ; stewed celery ; egg flip ; mutton chops ; baked fish ; black currant tea ; lemon—apple, barley, toast and water, linseed, etc., drinks. Poultices, linseed, mustard and bran ; fomentations, etc.

SCULLERY WORK.—To clean a range, open and closed ; gas stove ; kitchen sink ; saucepans, iron, tin, enamelled, steel and copper ; kitchen tables, pastry boards, and all wooden goods, tins, etc.

Students will be required to supply themselves with a large bib-apron, sleeves and kitchen cloth, marked with their names.

DRESSMAKING.

(CHATHAM ROW).

Class A, Junior—Monday, 7.30 to 9.35.

Class B, Senior—Friday, 7.30 to 9.35.

Class E, Junior—Monday, 3.0 to 5.5.

Class F, Senior—Friday, 3.0 to 5.5.

Teacher :

Miss K. M. MURPHY.

Assistant :

Miss A. CLARKE.

DRESS CUTTING.

Drafting patterns of ladies' dress bodices, fashionable sleeves, children's frocks.

Drafting patterns of bodices ; altering the same to suit peculiarities of figure ; cutting out of patterns ; method of placing the several portions of bodice on lining so as to ensure economy of material.

Taking measures, and a reliable mode of fitting on, including putting in sleeves and attachment of collar, tacking up bodices and the manner of holding seams correctly.

The cutting out of walking skirts in accordance with prevailing fashions ; also trained evening skirts, with draperies.

The use of the double tracing wheel for transferring the drafted pattern to the lining.

PRACTICAL DRESSMAKING.

Measuring for costumes; the most economical plan of cutting out garments; estimating cost of materials required for dresses, jackets, and paletots.

Transferring of patterns to lining; placing the several portions of bodices together; tacking together, sewing, finishing. The various stitches used in dressmaking and their application; fastening dress bodices, making buttonholes, and eyelets.

Fitting on bodices; collar fittings, and finishing; matching patterned materials; selection of suitable linings for such materials.

Making up trimmings; simple manner of cutting bias folds, flounces and pipings when used; identification of materials generally used for dresses, jackets, and cloaks; usual widths of fabrics, such as cashmere, tweed, homespun, prints, serges, and grenadine.

Skirt making; drafting diagrams of walking skirts; method of draping, trimming, facing, braiding, mounting and finishing; trained skirts: the making up of children's frocks.

The use of the sewing-machine; the selection of suitable threads silks and needles, for different materials.

Each student will require a tailor's square, tape measure, and double tracing wheel.

NEEDLEWORK.

(CHATHAM ROW.)

Teacher :

MISS K. DOYLE.

Class A, Junior—Tuesday, 7.30 to 9.35.

Class B, Senior—Thursday, 7.30 to 9.35.

The points to be observed in cutting out calico and flannel.

The most suitable materials to be used for different undergarments. Different systems of cutting out, and reasons of preference for any one system adopted.

Drawing a diagram of any garment of underlinen.

The cutting out of garments and their construction.

The various stitches used in plain needlework, and their application to garments.

Methods of patching and darning.

MILLINERY.

(RUTLAND SQUARE.)

Teacher :

Thursday—Junior, 7.30 to 9.35.

Tuesday—Senior, 7.30 to 9.35.

Classes in Millinery will be held at the above times in Rutland Square.

RUTLAND SQUARE SCHOOL.**COOKERY.**

Teacher :

MISS K. CLANCY.**Monday, Junior Lecture— 7.30 to 9.35.****Tuesday, Junior Practical—7.30 to 9.35.****Wednesday, Senior Lecture— 7.30 to 9.35.****Thursday, Senior Practical—7.30 to 9.35.****Monday and Wednesday— (3.0 to 5.5.)**

The instruction will include the following :—Baked, boiled, fried, or stewed meat or fish ; steamed, baked or boiled puddings ; cookery of vegetables ; choice and price of food ; expenditure of wages on food ; menus of simple dinners, and price ; management of coal, gas or oil stoves. Students will have opportunities of practising.

NEEDLEWORK.

Teacher :

MISS K. DOYLE.**Class C, Junior—Friday, 7.30 to 9.35.****Class D, Senior—Monday, 7.30 to 9.35.****Class E, Aft.— Monday, 3.0 to 5.5.**

The points to be observed in cutting out calico and flannel.

The most suitable materials to be used for different undergarments.

Different systems of cutting out, and reasons for preference for any one system adopted. Drawing a diagram of any garment of underlinen. The cutting out of garments and their construction.

The various stitches used in plain needlework, and their application to garments.

Methods of patching and darning.

HOME DRESSMAKING.

Teacher :

Miss K. M. MURPHY.**Class C, Junior.—Wednesday, 7.30 to 9.35.****Class D, Senior.—Thursday, 7.30 to 9.35.****Class G, Aft.— Thursday, 3.0 to 5.5.**

The principles and rules followed in the cutting out of closely fitting garments ; application of these rules to the cutting out of garments according to individual measurements.

The application of general rules of proportion to the cutting out of loosely fitting garments, such as children's smocks, girls' blouses, outdoor jackets. The stitches and processes required in making up simple dresses and children's outdoor garments.

Music.

*Previously
Held in Court of
Conscience
St Wm St.*

Municipal School of Music, Chatham Row.

PIANOFORTE,
VIOLIN,
CLARINET,
OBOE,
BASSOON,
TROMBONE,
IRISH PIPES,
FLUTE,

PICCOLO,
FIFE,
CORNET,
BOMBARDON,
HORN,
EUPHONIUM,
DRUMS,
SINGING (TONIC SOL-FA).

*↓ Primary School
Here.*

First Term will begin on Monday, 16th October, 1911, and end on Saturday, 27th January, 1912. Second Term will begin on Monday, 29th January, 1912, and end on Saturday, 25th May, 1912.

In the instrumental classes each hour will be divided among four students, all of whom should be present during the whole hour. The time at which each Student is to attend will be arranged in consultation with the Teacher; as a rule each pupil may come on two days in the week so long as the numbers permit.

Special efforts will be made to encourage Irish Music.

Fee for a single Class :—
2s. 6d. for each Term.

PIANOFORTE.**LADIES' CLASSES.**

Teacher :
MRS. H. ANNESLEY

Monday and Friday, 5.25 to 9.40.

MEN'S CLASSES.

Teacher :
A. T. CULLEN.

Wednesday, 6.30 to 9.40.

Saturday, 4.0 to 7.10.

VIOLIN.**LADIES' CLASSES.**

Teacher :
Mrs. BLOOM POLLOCK.

Monday and Friday, 6.30 to 9.40.

MEN'S CLASSES.

Teacher :
P. J. GRIFFITH.

Tuesday, 6.30 to 9.40.

Wednesday, 6.30 to 9.40.

Thursday, 6.30 to 9.40.

Saturday, 4.0 to 7.10.

TONIC SOL-FA (SINGING.)

Teacher :
W. H. NESBITT.

Tuesday and Thursday, 8.0 to 9.5.

IRISH PIPES.

Teacher :

Tuesday and Thursday, 7.15 to 8.15.

A class for this instrument will be formed if there be a sufficient number of applicants.

CLARINET.

Teacher :

JAMES CONROY.

Monday and Friday, 6.30 to 8.35.

OBOE, BASSOON.

Teacher :

JAMES CONROY.

Monday and Wednesday, 8.40 to 9.40,

TROMBONE.

Teacher :

JAMES CONROY.

Wednesday, 7.30 to 8.30.

Friday, 8.40 to 9.40,

CORNET AND HORN.

Teacher :

ALEX. BURKE.

Thursday, 6.30 to 8.35.

Saturday, 4.0 to 6.5.

BOMBARDON AND EUPHONIUM.

Teacher :

ALEX. BURKE.

Thursday, 8.40 to 9.40.

Saturday, 6.10 to 7.10.

DRUMS.

Teacher :

THOMAS MITCHELL.

Tuesday and Friday, 6.30 to 7.30,

FLUTES.

Teacher :

THOMAS MITCHELL.

Monday and Wednesday, 7.35 to 9.40.

Tuesday and Friday, 7.35 to 8.35.

TIME TABLE FOR SCHOOL OF MUSIC.

No. of Class	NAME OF CLASS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Pianoforte, Ladies—							
330	Class 1 ...	5.25-6.25	...	...	...	5.25-6.25	...
331	Class 2 ...	6.30-7.30	...	...	...	6.30-7.30	...
332	Class 3 ...	7.35-8.35	...	...	...	7.35-8.35	...
333	Class 4 ...	8.40-9.40	...	...	...	8.40-9.40	...
Pianoforte, Men—							
336	Class 1 ...	...	...	6.30-7.30	...	...	4.0-5.0
337	Class 2 ...	...	...	7.35-8.35	...	...	5.5-6.5
338	Class 3 ...	...	...	8.40-9.40	...	...	6.10-7.10
Violin, Ladies—							
340	Class 1 ...	6.30-7.30	...	...	...	6.30-7.30	...
341	Class 2 ...	7.35-8.35	...	...	...	7.35-8.35	...
342	Class 3 ...	8.40-9.40	...	...	...	8.40-9.40	...
Violin, Men—							
343	Class 1 and 2 ...	...	6.30-7.30	6.30-7.30	6.30-7.30	...	4.0-5.0
344	Class 3 and 4 ...	...	7.35-8.35	7.35-8.35	7.35-8.35	...	5.5-6.5
345	Class 5 and 6 ...	...	8.40 9.40	8.40-9.40	8.40-9.40	...	6.10-7.10
348	Tonic Sol-fa ...	...	8.0-9.5	...	8.0-9.5	...	...
350	Irish Pipes ...	...	7.15-8.15	...	7.15-8.15	...	...
351	Clarinet, Class 1 ...	6.30-7.30	...	...	...	6.30-7.30	...
352	Class 2 ...	7.35-8.35	...	...	...	7.35-8.35	...
353	Oboe } Bassoon }	8.40-9.40	...	8.40-9.40	...	...	...
354	Trombone ...	...	...	7.30-8.30	...	8.40-9.40	...
Cornet and Horn—							
356	Class 1 ...	...	...	...	6.30-7.30	...	4.0-5.0
357	Class 2 ...	...	...	...	7.35-8.35	...	5.5-6.5
360	Bombardon and Euphonium ...	...	...	...	8.40-9.40	...	6.10-7.10
362	Drums ...	...	6.30-7.30	...	...	6.30-7.30	...
363	Flutes, Class 1 ...	7.35-8.35	...	7.35-8.35	...	...	...
364	Class 2 ...	8.40-9.40	...	8.40-9.40	...	...	...
365	Class 3 ...	...	7.35-8.35	...	...	7.35-8.35	...

Appendix.

PRIZES AND CERTIFICATES.

FOR COURSES OF STUDY.

On the completion of the period of the Course, a full Technological Certificate will be awarded to every qualified and Certified Student who attends during the successive years any of the Technical Courses offered in this Calendar, and passes with credit the Examinations held at the end of each year.

To induce attendance at Courses of Study the Committee will award prizes varying in value from 5/- to 10/- to all students who obtain 66 per cent. marks in the Sessional examinations. The amount will depend on whether the student makes 40, 60, or 80 attendances in the two or three subjects of a Course as set out in the Prospectus.

A prize, value 2/6, will be given to every Preparatory year student who makes three-fourths attendances in each subject and gets at least 66 per cent. marks in the final Examination in each subject.

PRIZES IN INDIVIDUAL SUBJECTS.

Prizes and certificates will also be awarded to students who obtain the following successes in the examinations held by the Board of Education, by the City and Guilds of London Institute, or by the Society of Arts, and who make at least three-fourths of the possible number of attendances in Class. These awards are restricted to Qualified "Technical Students" who have attended regularly one of the Authorised Courses of study.

SCIENCE.

(Examinations under Board of Education.)

1st Honours	£1	5	0
2nd Honours	0	17	6
1st Stage III.	0	15	0
2nd Stage III.	0	12	0
1st Stage II.	0	10	0
2nd Stage II.	0	7	0
1st Stage I.	0	5	0

ART.

(Examinations under Board of Education).

Group IV., 1st Class	£1 5 0
Group IV., 2nd Class	0 17 6
Group III., 1st Class	0 15 0
Group III., 2nd Class	0 12 0
Group II., 1st Class	0 10 0
Group II., 2nd Class	0 7 0
Group I., 1st Class	0 5 0

TECHNOLOGY.

(Examinations under City and Guilds of London).

1st Honours	£1 5 0
2nd Honours	0 15 0
1st Ordinary	0 10 6
2nd Ordinary	0 6 0
Pass Practical	0 6 0

COMMERCIAL CLASSES.

(Examinations under Society of Arts).

Stage III., 1st Class	£0 12 6
Stage III., 2nd Class	0 7 6
Stage II., 1st Class	0 6 0
Stage II., 2nd Class	0 3 6

A student having taken or shared a prize cannot compete again for such prize, or for one in a lower stage of the same subject.

NOTE.—No student is eligible for any of the following prizes who obtains less than 50 per cent. marks in examination, or has made less than 75 per cent. of the possible attendances.

BUILDING CONSTRUCTION AND DRAWING.

The Master Builders' Association offers prizes of £3 3s. and £1 1s. for the Senior and Junior Classes in Building Construction and Drawing; the awards to be made on the answering at an Examination held by the Association.

BUILDERS' QUANTITIES (BUILDING SURVEYING).

The Master Builders' Association offers prizes of £3 3s. and £1 1s. for the Senior and Junior Classes, respectively, the particulars of which are still unsettled.

PAINTERS' AND DECORATORS' WORK.

The Dublin Guild of Master Painters have given prizes value £4 on the results of an examination conducted by the Guild at the close of the session. Prizes were awarded both in Practical Work and in Theory.

These Competitions are limited to *bonâ fide* apprentices.

MACHINE CONSTRUCTION AND DRAWING.

Messrs. Kennan and Son offer a prize value 10s. to the student who makes the most improvement and the best attendance during the session in Machine Construction and Drawing Classes. Competition is limited to *bonâ fide* artisans or apprentices under 21 years of age.

BOOT AND SHOEMAKING.

Messrs. Manfield and Sons offer a prize value £1, Mr. E. J. Long offers a prize value 10s., and Messrs. E. Lenehan and Son also offer a prize value 10s. to the students who make great progress during the session.

HAIRDRESSERS' WORK.

Prizes are offered for competition amongst the students of the class by Mr. Austin Kane, M. Prost, Madam Drago, Messrs. R. Hovenden and Son (London), and Messrs. Russell and Sons.

METAL PLATE WORK.

The City of Dublin Tinsmiths and Sheet Metal Plate Workers' Society offer a prize of £1 1s. to be given on the results of the City and Guilds of London Institute's examinations for the pupils of the Metal Plate Class.

DRESSMAKING.

The Dublin Master Drapers' Association offer prizes value £3 to *bonâ fide* Dressmakers.

The Board of Education Examinations are undergoing so much change in the present year that the Time Table must be omitted, and it would not be safe to quote even the Awards.

It may be noted, however, that the Whitworth Exhibitions and Scholarships have been awarded in competition at the Evening Science Examinations. These consist of thirty £50 Exhibitions tenable for one year, and four Scholarships of £125 a year, tenable for three years.

CITY AND GUILDS OF LONDON INSTITUTE.

Prizes are offered for competition at the Examinations held in April and May. The Institute also offers silver and bronze medals in each subject contained in their programme.

THE ROYAL COLLEGE OF SCIENCE FOR IRELAND.

Copies of the Programme and Scholarship Scheme of the Royal College of Science will be posted in the Hall of the Schools for the information of the Students.

THE NATIONAL ASSOCIATION OF MASTER PAINTERS.

The Association, at the annual convention, holds examinations for apprentices, and offers numerous medals and money prizes. Travelling Scholarships value £50 are offered annually, and are open to all *bona-fide* apprentices.

ROYAL DUBLIN SOCIETY.

The Society, at the Art Industries Exhibition in connection with the Horse Show, offers many prizes for Craft Work, such as Wood Carving, Enamelling, Leather Work, Artistic Metal Work, Modelling for Ornamental Plaster Work.

IRISH TRAINING SCHOOL OF COOKERY AND DOMESTIC ECONOMY.

Certain Scholarships, consisting of free training, are offered annually by the Department in connection with this School.

TECHNOLOGY.

Boot and Shoe Manufacture ..	April 29th	.. 7 to 10 p.m.
Do. First Year (Written)	April 29th	.. 7 to 10 p.m.
Do. Second Year and Honours	May 1st	.. 7 to 10 p.m.
Telephony—Ordinary Grade ..	May 1st	.. 7 to 10 p.m.
Do. Honours Grade ..	May 2nd	.. 7 to 10 p.m.
Telegraphy—Ordinary Grade ..	April 29th	.. 7 to 10 p.m.
Do. Honours Grade ..	May 2nd	.. 7 to 10 p.m.
Electrical Engineering—Elementary	April 29th	.. 7 to 10 p.m.
Do. 1st Paper, Ordinary ..	April 29th	.. 7 to 10 p.m.
Do. 2nd Paper, Ordinary ..	May 1st	.. 7 to 10 p.m.
Do. 1st Paper, Honours ..	April 29th	.. 7 to 10 p.m.
Do. 2nd Paper, Honours ..	May 1st	.. 7 to 10 p.m.
Wiremen's Work (Written) ..	April 30th	.. 7 to 10 p.m.
Do. (Practical) ..	May 4th	.. 3 to 6 p.m.
Metal Plate Work ..	May 2nd	.. 7 to 10 p.m.
Plumbers' Work (First Year) ..	April 29th	.. 7 to 10 p.m.
Do. Ord. and Hons. (Written)	May 2nd	.. 7 to 10 p.m.
Do. Ordinary (Practical) ..	May 11th	.. 2.30 to 8 p.m.
Do. Honours (Practical) ..	May 18th	.. 2.30 to 8 p.m.
Mechanical Engineering—		
Do. Ord. Grade, Part I. ..	April 30th	.. 7 to 10 p.m.
Do. Ord. Grade, Part II. }	May 2nd	.. 7 to 10 p.m.
Do. Honours (Written) }		
Typography, Preliminary ..	April 29th	.. 7 to 10 p.m.
Do. Ord. and Hons. (Written)	April 30th	.. 7 to 10 p.m.
Do. Ordinary (Practical for Compositors)	April 27th	.. 2.30 to 7 p.m.
Lithography, First Year ..	April 29th	.. 7 to 10 p.m.
Do. Ord. and Hons. ..	May 1st	.. 7 to 10 p.m.
Carpentry and Joinery, Preliminary	April 29th	.. 7 to 10 p.m.
Do. Ord. and Hons. (Written)	April 27th	.. 2.30 to 6.30 p.m.
Do. Honours (Practical) ..	May 18th	.. 2.30 to 6.30 p.m.
Boilermakers' Work ..	May 2nd	.. 7 to 10 p.m.
Brickwork (Written) ..	May 1st	.. 7 to 10 p.m.
Do. (Practical, in London) ..	May 18th	.. 1 to 8.30 p.m.
Masonry (Written) ..	April 29th	.. 7 to 10 p.m.
Do. (Practical, in London) ..	May 11th	.. 1 to 8.30 p.m.
Plasterers' Work ..	April 30th	.. 7 to 10 p.m.
Painters' and Decorators' Work—		
Do. Preliminary (Written) ..	April 29th	.. 7 to 10 p.m.
Do. Ordinary and Honours ..	April 30th	.. 7 to 10 p.m.
Cabinet-making ..	April 30th	.. 7 to 10 p.m.
Builders' Quantities ..	April 30th	.. 7 to 10 p.m.
Tailors' Cutting (Written) ..	April 29th	.. 7 to 10 p.m.
Do. Ord. Grade (Practical) ..	May 11th	.. 2.30 to 5.30 p.m.
Do. Hons. Grade (Practical) ..	May 18th	.. 2.30 to 7 p.m.
Dressmaking (Written) ..	May 2nd	.. 7 to 10 p.m.
Do. (Practical) ..	May 11th	.. 2.30 to 7 p.m.
Millinery (Written) ..	April 30th	.. 7 to 10 p.m.
Do. (Practical) ..	May 18th	.. 2.30 to 6.30 p.m.
Plain Needlework (Written) ..	May 1st	.. 7 to 10 p.m.
Do. (Practical) ..	May 4th	.. 2.30 to 6.30 p.m.
Plain Cookery (Written) ..	April 29th	.. 7 to 10 p.m.
Do. (Practical) ..	April 27th	.. 4 to 7 p.m.

ROYAL SOCIETY OF ARTS EXAMINATIONS, 1912.

TIME TABLE.

	Monday, March 25. (7—10 p.m.)	Tuesday, March 26. (7—10 p.m.)	Wednesday, March 27. (7—10 p.m.)	Thursday, March 28. (7—10 p.m.)	Friday, March 29. (7—10 p.m.)
Advanced Stage.	Book-keeping. Précis-writing. Economics. Danish and Norwegian.	Arithmetic. Commercial Law. German. Italian. Spanish.	French. Commercial History and Geography. Typewriting. (7.30 to 10 p.m.).	Accounting and Banking. Shorthand (140 and 120 words per minute.) (7.15 to 10. p.m.)	English Portuguese. Russian. Swedish. Chinese. Japanese. Hindustani.
Intermediate Stage.	Typewriting (7.30 to 10 p.m.). French. Danish and Norwegian. Commercial History and Geography.	Book-keeping. Précis-writing.	English. Economics. Spanish. Commercial Correspondence and Business Training.	Arithmetic. German. Portuguese. Italian. Russian. Chinese. Japanese. Hindustani.	Swedish. Shorthand (100 and 80 words per minute), (7.15 to 10 p.m.).
Elementary Stage.	Handwriting and Correspondence. French.	Commercial Geography. Typewriting, (7.30 to 10 p.m.).	Book-keeping. Spanish.	Shorthand (50 words per minute), (7.15 to 10 p.m.).	Arithmetic. German. Italian.
Music.		Harmony.	Rudiments of Music, (7 to 9 p.m.).		

The last day for receiving entries at Kevin Street is February 16th. The special subject for Commercial History and Geography is:—"South America and the surrounding ocean." The special subject in Commercial Law is "The Law of Partnership."