(b) Those who have obtained a senior free place by recommendation, having reached the pass standard in freehand and instrumental drawing, trade drawing, woodwork, and mathematics or alternative mathematics.

The syllabus is intended to occupy, for the average student, six years for the first three examination courses, and two years for the final course in building-construction.

The examination in building-construction will be open to all students whether apprentices or not.

SYLLABUS OF COURSES.
PRELIMINARY EXAMINATION.

The first examination will include questions founded on the following subjects, divided into three sections, and candidates will be required to show some knowledge of the subjects under each section ; the subjects of Section I and II should be taught, as far as possible, in connection with the subject of Section III :—

Section I.

1. Calculation of areas of rectilineal plane figures.

2. The triangle, its construction and simple practical properties; division of straight line into parts, and the construction and use of scales ; construction of regular rectilineal plane figures, and of irregular rectilineal figures from given data.

3. The geometry and mensuration of the circle and parts of the circle.

4. The construction of the ellipse with its tangents, parallels, and normals.

5. Calculation of the cubic contents of simple solids, such as cube, prism, pyramid, cone, and sphere.

6. The setting-out of mouldings, using the straight line, the circle, and the ellipse ; tangential arcs.

Section II.

1. The parallelogram and triangle of forces and their application to the forces acting at single joints in simple framed structures.

2. Simple mechanical contrivances, such as lever, pulley, and wedge, and their applications.

3. Methods of finding the pressures on walls produced by supported beams carrying concentrated or uniformly distributed loads.

Section III.

1. The principal hand-tools used in carpentry and joinery, their names and uses.

2. The names and brief descriptions of the more common woods used in carpentry and joinery.

3. The names and shapes of the commoner forms of mouldings.

4. Projections of plans, elevations, and sections of simple solids.

5. The drawing to a large scale of the principal joints used in carpentry and joinery. Freehand sketching, and the representation in isometric and oblique projections of the above.

6. The preparation and use of glue and other adhesives.

7. The uses of various kinds of woods ; methods of seasoning and preserving wood. Market forms of timber. The conversion of timber into boards so as to obtain minimum shrinkage and warping. Measurement of timber.

INTERMEDIATE EXAMINATION.
Section I.

Development and measurement of surfaces of simple solids such as arise in carpentry and joinery.

Intersection of mouldings at different angles, also of straight and circular mouldings lying in one plane, enlarging and diminishing mouldings and stair brackets, determining the true section of vertical angle-bars and raking mouldings over square plans.

The graphical determination of the forces in framed girders and roof-trusses up to and including the king-post roof-truss.

The mechanical principles involved in roof-constructions up to and including the queen-post roof, trussed partitions, and framed girders. Design of roof-joints.

Section II.

How to take levels on irregular ground, to plot sections, obtain contour lines, show accurately length of piles, and dimensions of dwarf or basement walls. Concrete boxing for foundations.

Methods of spacing, handling, and fixing timbers, faults to be avoided, and desirable qualities to be attained in framed buildings ; methods of