

For the Junior Year.—General triangulation and field surveying.

For the two Senior Years.—(1) The running of trial Levels, and making of preliminary surveys between fixed points for a proposed line of Railway, incidentally illustrating the system of location from contours, and the method of road traversing. (2) The setting out and levelling of the line previously selected.

II. Geometrical Drawing.

Junior Year.—The course of instruction comprises, (1) the Elementary parts of the Geometrical construction of plane figures, and the principles of the Ellipse, Cycloids, Involutives and such other curves as occur in the Mechanical Arts;—in Gearing, Arches and the like:—(2) Similar constructions in Solid Geometry, or the projections in plan and elevation of various objects, and their developments. The Interpenetration of Solids, and the delineation of objects in Isometrical Projection.

Middle Year.—Perspective Projection, based upon its geometrical principles, as far as the elements of Angular Perspective.

Senior Year.—The more advanced parts of Perspective Projection and Descriptive Geometry.

III. Construction.

The subjects of the Lectures may be summed up as follows:—The strength and fitness of materials; the Engineering of Earth-work, Masonry, Carpentry, Structures in Iron, Common-Roads, Railways, Bridges and Viaducts, Tunnels, Canals, Works of Drainage, Irrigation and Water supply, Lighthouses, River, Harbour and Sea Works.

IV. Practical Mechanics.

In this course of study the analytical principles of Statics and Dynamics are applied to the determination of the conditions of the equilibrium and stability of structures in general, and to the investigation of the motion of rigid bodies; particular attention being paid to the estimation of stress in roofs and bridges, the resistance of dams and retaining walls, and to the theory of work and the motion of machines.

V. Principles of Mechanism.

The Lectures in this subject are designed to afford the Student an insight, (1) into the principles of the various elementary contrivances employed by mechanicians to communicate and convert motion of one kind into another, apart from the consideration of *force*; and (2) into the mode of combining such simple forms in the construction of different machines, as exemplified in the Steam Engine, Lathe, Drill, Planing Machines, &c.

The Lectures are illustrated by means of a collection of working models.

VI. Designing and Estimates.

The instruction given under this head is intended to enable the Student to apply practically such knowledge as has been obtained from the different Courses of Lectures; and consists in the design, specification, and estimating for such works as are usually undertaken by the Engineer.

Each Student works independently under the personal supervision of the Professor, and makes such drawings and calculations as would be needed were the structure designed to be actually carried out.