Machinery and Motors .- Hand Machinery. Water-wheels. Boilers. Steam-en gines Building Materials .--- Stones, Bricks, Mortars, and Cements.

Descriptive Geometry .- Applications to Masonry and Carpentry.

Drawing .-- Plans, Profiles, Elevations, Sections, etc.

Political Economy.

Natural History .--- Zoölogy and Physiology.

French.--(Italian may be substituted.) German.

## ,III-COURSE IN CHEMISTRY.

Chemistry .- Pure and Applied. Quantitative Analysis. Preparation of Chemical. Products. Special Researches.

Building Materials .- Stones, Bricks, Mortars, and Cements.

Drawing .- Apparatus. Machinery and Plans of Works.

Political Economy.

Natural History .- Zoölogy and Physiology.

French.- (Italian may be substituted.)

German.

## IV .-- COURSE IN MINING ENGINEERING.

Mining .- The Useful Minerals. Modes of occurrence. Prospecting. Boring. Blasting. Sinking Shafts, - Timbering, Walling, and Tubbing. Driving Levels. Methods of Mining. Ventilation. Lighting. Winding Machinery. Ladders and Man-Engines. Underground Transportation. Fumps. Dressing and Concentration of Ores .---

Crushers, Stamps, Washers, Amalgamators, etc. Details of American Mining. Machinery and Motors.—Hand Machinery. Water-wheels. Boilers. Steam-engines. Engineering.—Structures of Wood, Stone, and Iron. Foundations, Walls, Arches, Domes, Beams, Trusses, Girders, Roofs.

Chemistry .- Quantitative Analysis. Laboratory Practice.

Geology .- Historical Geology. Palzontology. Detailed study of American Geology. Building Materials .- Stones, Bricks, Mortars, and Cements.

Drawing .-- Geological Maps and Sections. Plans and Sections of Mines, Quarries and other open Workings. Mining Machinery and Implements.

Political Economy.

Natural History .--- Zoölogy and Physiology.

French .-- (Italian may be substituted.)

German.

## V. -- COURSE IN BUILDING AND ARCHITECTURE.

Architectural Design .- Exercises in Composition. History of Architecture. The other Arts of Design.

Professional Practice .- Specifications. Contracts. Estimating and Measuring. Superintendence.

Drawing .- Architecture, Landscape, and the Human Figure. Lithography and

Etching. Modelling. Drawing from Memory. Engineering.—Structures of Wood, Stone, and Iron. Foundations, Walls, Arches, Domes, Beams, Trusses, Girders, Roofs.

Descriptive Geometry. — Applications to Masonry and Carpentry. Warming, Lighting, Ventilating, Acoustics. Lectures.

Building Materials .--- Stones, Bricks, Mortars and Cements.

Political Economy.

Natural History .--- Zoology and Physiology.

French.-(Italian may be substituted.)

German.

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