66. Gas Engineering.—Gas machinery; ovens and appliances for calcination; recovery of by-products. II; (1).

Prerequisite: Chemistry 65. Registration in 65 is advisable.

Core course in Gas Manufacturing.—Standardization methods and apparatus. II; (1).

Professor PARRELL

89. Metallurgical Laboratory and Assaying.—The fire assay of gold, silver, lead, and copper ores; steels, and bolting; special experiments illustrating the underlying metallurgical principles: furnace, stoves, and charge calculations: practice in the use of coal, oil, and gas furnaces, and in the measurement of high temperatures. II; (2).

Associate Professor McFARLAND

Prerequisite: Chemistry 5a; Geology 20.

12. Paints, Oils, Turpentine, Varnishes, and Protective Coatings for Wood and Metals.—Lectures and laboratory. II; (2).

Professor PARK, Dr. LATING

Prerequisite: Chemistry 5a and 14a-14b.

73. Asphalt, Tar, and Distillation Products.—Sources, characteristics, composition, and examination; binder and frost preventing used in road construction. (For students in highway engineering). II; (2).

Professor PARK, Dr. LATING

Prerequisite: Chemistry 1a or 4.

76. Mineral Oils.—Fractionation, analysis, evaluation for fuel, lubrication, and gas manufacture. II; (2).

Professor PARK, Dr. LATING

Prerequisite: Chemistry 9a and 14a.

77. Composition and Classification of Coal.—Classification, changes in composition, weathering, spontaneous combustion, formation of mine gases. Lectures; assigned reading. II; (1).

Professor PARK

Prerequisite: Chemistry 65.

78. Petrography.—Composition, and microstructure of rocks and clays and the relations between their properties, chemical, and mechanical treatment, and structure. Lectures, reading, laboratory. II; (2).

Associate Professor McFARLAND

Prerequisite: Chemistry 9.

80. Essentials of Gas Heating.—A laboratory course in the construction and repair of gas apparatus. II; (1).

Mr. ANDERS

Prerequisite: Two years work in chemistry.

86. Chemistry of the Higher Organic Compounds.—Complex compounds from the standpoint of the Valence Theory as developed by Weiss. II; (2).

Dr. SYRRA

Prerequisite: Chemistry 9, 14a-14b.

90-91. Chemical Inspection Trips.—Required for juniors and seniors in the courses in chemistry and chemical engineering. For the year 1919-20 the trips took place on March 29 to April 3, 1920. The expenses involved were approximately fifteen to twenty-five dollars for each student. II; (2; credit).

Associate Professor McFARLAND in charge.

92a-92h. Chemical Literature and Reference Work.—Periodicals, books, journals, Experimental laboratory in Chemistry and chemical engineering; required also of juniors who are majoring in chemistry. II, III; (1).

Miss SPARKS

94-95h. Journal Meeting.—Required of seniors and all graduate students in chemistry. All members of the staff of the department of chemistry are expected to attend. II, III; (1).

Dr. BRADLE

95. History of Chemistry.—Lectures and assigned readings. II; (1).

Professor Notes