THE

NORTH CAROLINA COLLEGE

OF

AGRICULTURE AND MECHANIC ARTS,

WEST RALEIGH.

1906-1907

RALEIGH:
E. M. UZZELL & CO., STATE PRINTERS AND BINDERS.
1907.

CALENDAR.

1907.

JANUARY.

S	M	T	W	T	F	S
—	—	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	—	—

FEBRUARY.

S	M	T	W	T	F	S
—	—	—	—	—	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	—	—

MARCH.

S	M	T	W	T	F	S
—	—	—	—	—	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	—	—	—	—	—	—

APRIL.

S	M	T	W	T	F	S
—	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	—	—	—	—

MAY.

S	M	T	W	T	F	S
—	—	—	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	—
—	—	—	—	—	—	—

JUNE.

S	M	T	W	T	F	S
—	—	—	—	—	—	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	—	—	—	—	—	—

JULY.

S	M	T	W	T	F	S
—	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	—	—	—

AUGUST.

S	M	T	W	T	F	S
—	—	—	—	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER.

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	—	—	—	—	—

OCTOBER.

S	M	T	W	T	F	S
—	—	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	—	—

NOVEMBER.

S	M	T	W	T	F	S
—	—	—	—	—	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER.

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	—	—	—	—

1908.

JANUARY.

S	M	T	W	T	F	S
—	—	—	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	—

FEBRUARY.

S	M	T	W	T	F	S
—	—	—	—	—	—	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

MARCH.

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	—	—	—	—

APRIL.

S	M	T	W	T	F	S
—	—	—	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	—	—

MAY.

S	M	T	W	T	F	S
—	—	—	—	—	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	—	—	—	—	—	—

JUNE.

S	M	T	W	T	F	S
—	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	—	—	—	—

TABLE OF CONTENTS.

COLLEGE CALENDAR.

1907.

Thursday,	July	11,	Entrance examination at each county court-house, 10 A. M.
Wednesday,	September	4,	Entrance examination at the College, 9 A. M.
Thursday,	September	5,	First Term begins; Registration Day.
Wednesday,	September	4,	Examinations to remove conditions. See page 22.
Thursday,	September	5,	
Friday,	September	6,	
Saturday,	September	7,	
Thursday,	November	28,	Thanksgiving Day.
Friday,	December	20,	First Term ends.

1908.

Tuesday,	January	7,	Second Term begins; Registration Day.
Saturday,	February	1,	Examinations to remove conditions. See page 22.
Saturday,	February	8,	
Saturday,	February	15,	
Saturday,	February	22,	
Saturday,	March	14,	Second Term ends.
Monday,	March	16,	Third Term begins; Registration Day.
Sunday,	May	24,	Baccalaureate Sermon.
Monday,	May	25,	Alumni Day.
Tuesday,	May	26,	Annual Oration.
Wednesday,	May	27,	Commencement Day.

BOARD OF TRUSTEES.

Name.	*Post-office.*	*Term Expires.*
R. H. RICKS	Rocky Mount	May 1, 1909.
W. D. TURNER	Statesville	May 1, 1909.
O. MAX GARDNER	Shelby	May 1, 1909.
LOCKE CRAIG	Asheville	May 1, 1909.
C. W. GOLD	Wilson	May 1, 1911.
E. M. KOONCE	Jacksonville	May 1, 1911.
T. W. BLOUNT	Roper	May 1, 1911.
D. A. TOMPKINS	Charlotte	May 1, 1911.
J. T. ELLINGTON	Smithfield	May 1, 1913.
W. E. DANIEL	Weldon	May 1, 1913.
W. H. RAGAN	High Point	May 1, 1913.
W. B. COOPER	Wilmington	May 1, 1913.
M. B. STICKLEY	Concord	May 1, 1915.
T. T. BALLINGER	Tryon	May 1, 1915.
N. B. BROUGHTON	Raleigh	May 1, 1915.
O. L. CLARK	Clarkton	May 1, 1915.

FACULTY.

GEORGE TAYLOE WINSTON, A.M., LL.D., President and Professor of Political Economy.

DANIEL HARVEY HILL, A.M., Lit.D., Professor of English, and Vice-President.

WILLIAM ALPHONSO WITHERS, A.M., Professor of Chemistry.

WALLACE CARL RIDDICK, A.B., C.E., Professor of Civil Engineering.

TAIT BUTLER, V.S., Professor of Veterinary Science and Zoology.

FRANK LINCOLN STEVENS, M.Sc., Ph.D., Professor of Botany and Vegetable Pathology.

ELLERY BURTON PAINE, M.S., E.E., Professor of Electrical Engineering and Physics.

CHARLES WALTER THOMAS, M.E., Professor of Mechanical Engineering.

ROBERT E. LEE YATES, A.M., Professor of Mathematics.

THOMAS NELSON, Professor of Textile Industry.

CHARLES M. CONNER, B.S.A., B.S., Professor of Agriculture.

JOHN SOMERVILLE EATON YOUNG, First Lieutenant U. S. A., Professor of Military Science and Tactics.

WILLIAM NICOL HUTT, B.S.A., Professor of Horticulture.

BENJAMIN WESLEY KILGORE, M.S., Lecturer on Soils and Fertilizers.

JOHN CHESTER KENDALL, B.S., Assistant Professor of Dairy Husbandry.

GUY ALEXANDER ROBERTS, B.S., D.V.S., Assistant Professor of Zoology and Physiology.

BARTHOLOMEW MOORE PARKER, B.S., Assistant Professor of Textile Industry.

FRANK REIMER, Assistant Professor of Horticulture.

ROBERT SETH CURTIS, B.S.A., Assistant Professor of Animal Husbandry.

CHARLES BENJAMIN PARK, Superintendent of Shops.

WILLIAM ANDERSON SYME, B.S., M.S., Ph.D., Instructor in Chemistry.

FRANKLIN SHERMAN, JR., B.S.A., Instructor in Entomology.

CARROLL LAMB MANN, B.S., C.E., Instructor in Mathematics.

PINCKNEY GUSTAVE DEAL, Instructor in Forge Shop.

THOMAS SIMEON LANG, B.S., C.E., Instructor in Civil Engineering.

GEORGE SUMMEY, JR., Ph.D., Instructor in English.

WINFRED MORSE ADAMS, B.S., Instructor in Electrical Engineering.

JOHN HOUSTON SHUFORD, B.S., Instructor in Dyeing.

ALFRED HENRY THIESSEN, B.S., Instructor in Meteorology.

RUSSELL SAGE WOGLUM, A.B., M.S.A., Instructor in Entomology.

WILEY THEODORE CLAY, B.E., Instructor in Wood-working and Pattern-making.

CHARLES HERBERT LAWRANCE, B.S., Instructor in Machine Design.

JOHN ALSEY PARK, B.E., Instructor in Mathematics.

MICHAEL RALPH RICHARDSON, A.M., Instructor in Mathematics.

ERNEST JENKINS HOFFMAN, Ph.D., Instructor in Chemistry.

LILLIAN LEE VAUGHAN, B.E., Instructor in Drawing.

CARL PHILIP BONN, B.A., Instructor in English.

CLARENCE WILSON HEWLETT, B.S., Instructor in Physics.

HERBERT NATHANIEL STEED, Instructor in Weaving and Designing.

JAMES CLARENCE TEMPLE, B.Agr., Assistant in Bacteriology.

ARTHUR JOHN WILSON, Assistant in Chemistry.

FRANK HAMILTON BROWN, Laboratory Assistant in Botany.

OTHER OFFICERS.

EDWIN BENTLEY OWEN, B.S., Registrar and Proctor.

ARTHUR FINN BOWEN, Bursar.

BENJAMIN SMITH SKINNER, Farm Superintendent.

JAMES OLIVER LOFTIN, Steward.

MISS ELSIE LANIER STOCKARD, Librarian.

MRS. DAISY LEWIS, Matron.

MISS KATHARINE FORT, Stenographer.

JAMES RUFUS ROGERS, A.B., M.D., Physician.

AGRICULTURAL EXPERIMENT STATION DEPARTMENT.

GEORGE TAYLOE WINSTON, A.M., LL.D., President.
BENJAMIN WESLEY KILGORE, M.S., Director.
WILLIAM ALPHONSO WITHERS, A.M., Chemist.
TAIT BUTLER, V.S., Veterinarian.
FRANK LINCOLN STEVENS, M.S., Ph.D., Vegetable Pathologist.
CHARLES M. CONNER, B.S.A., B.S., Agriculturist.
WILLIAM NICOL HUTT, B.S.A., Horticulturist.
FRANKLIN SHERMAN, JR., B.S.A., Entomologist.
CHARLES BURGESS WILLIAMS, M.S., Agronomist.
JOHN STRAUCHON JEFFREY, Poultryman.
WILLIAM ANDERSON SYME, B.S., M.S., Ph.D., Assistant Chemist.
JAMES CLARENCE TEMPLE, B.Agr., Assistant in Bacteriology.
JOHN CHESTER KENDALL, B.S., Assistant in Dairy Husbandry.
WILLIAM KERR, B.Agr., Assistant, Field Experiments.
JOHN GALENTINE HALL, A.M., Assistant in Plant Diseases.
FRANK REIMER, M.S., Assistant Horticulturist.
ARTHUR FINN BOWEN, Bursar.

MILITARY ORGANIZATION.

Commandant of Cadets.

FIRST LIEUTENANT JOHN S. E. YOUNG, U. S. Army.

Cadet Major.

W. B. TRUITT.

Battalion Staff.

L. F. CARLETON, First Lieutenant and Adjutant.
A. C. JONES, First Lieutenant and Quartermaster.

Non-Commissioned Staff.

R. R. EAGLE, Sergeant-Major.
S. M. GIBBS, Color Sergeant.

Band.

W. N. HOLT, Captain.
H. S. BATTIE, First Lieutenant.
T. F. PARKER, First Lieutenant.
W. G. FERGUSON, Drum-Major.
G. F. BASON, First Sergeant and Instructor.
R. R. FAISON, Corporal.

Company A.

P. W. HARDIE, Captain.
J. L. HEMPHILL, First Lieutenant.
C. B. WHITEHURST, Second Lieutenant.
L. J. HERRING, Second Lieutenant.
D. LINDSAY, First Sergeant.
T. M. POYNER, Sergeant.
G. L. LYERLY, Sergeant.
R. J. WYATT, Sergeant.
K. C. COUNCIL, Sergeant.
H. N. BLANCHARD, Corporal.
J. W. HARRELSON, Corporal.
W. M. MILLNER, Corporal.
W. B. ROSE, Corporal.
J. B. CRAVEN, Corporal.
A. P. RIGGS, Corporal.

Company B.

G. R. HARDESTY, Captain.
L. M. WEAVER, First Lieutenant.
J. M. MILLS, Second Lieutenant.
E. F. MEADOR, Second Lieutenant.
A. G. BOYNTON, First Sergeant.
L. H. COUCH, Sergeant.
H. A. POWELL, Sergeant.

R. E. WHITE, Sergeant.
F. H. BROWN, Sergeant.
G. HARRISON, Corporal.
B. F. MONTAGUE, Corporal.
R. A. SHOPE, Corporal.
C. D. BROTHERS, Corporal.
A. H. GREEN, Corporal.

Company C.

G. F. HINSHAW, Captain.
B. B. EVERETT, First Lieutenant.
L. J. SCHWAB, Second Lieutenant.
J. E. OVERTON, Second Lieutenant.
H. I. STANBACK, First Sergeant.
W. L. BLACK, Sergeant.
J. S. STROUD, Sergeant.
M. HENDRICK, Sergeant.
W. B. BURGESS, Sergeant.
T. M. CLARK, Corporal.
J. M. PARKER, Corporal.
H. S. STEELE, Corporal.
C. P. GRAY, Corporal.

Company D.

C. L. GARNER, Captain.
W. G. PITTMAN, First Lieutenant.
R. S. GRAVES, Second Lieutenant.
J. L. VON GLAHN, First Sergeant.
E. E. SMITH, Sergeant.
J. D. GRADY, Sergeant.
M. H. GOLD, Sergeant.
B. T. FERGUSON, Sergeant.
J. G. PASCHAL, Corporal.
S. F. STEPHENS, Corporal.

G. G. SIMPSON, Corporal.
W. A. HORNADAY, Corporal.
K. C. DENNY, Corporal.

Company E.

L. R. GILBERT, Captain.
H. K. McCONNELL, First Lieutenant.
J. L. FERGUSON, Second Lieutenant.
D. Y. HAGAN, First Sergeant.
E. W. GREGORY, Sergeant.
M. L. EARGLE, Sergeant.
T. D. GRIMSHAWE, Sergeant.
C. T. MARSH, Corporal.
S. R. IRELAND, Corporal.
J. M. PRICE, Corporal.
H. N. SUMNER, Corporal.
P. A. WITHERSPOON, Corporal.

NOTE.—On October 17, 1906, the battalion held a competitive drill on the Fair Grounds track, during Fair Week. Company C was selected as the best-drilled organization and awarded the College pennant.

GENERAL INFORMATION.

The North Carolina College of Agriculture and Mechanic Arts owes its existence to the combined liberality of the United States Government and of R. S. Pullen, of Raleigh, together with the patriotic efforts of a few far-sighted men who saw that in the industrial life of North Carolina the time had come when trained and educated leaders were necessary. The first act of the General Assembly of this State in relation to the College was ratified in 1885, the bill, which afterwards became a law, having been introduced by A. Leazar, Esq. The Congress of the United States in 1862 passed a bill, introduced by Senator Justin S. Morrill, of Vermont, giving to each State public lands "for the endowment, support, and maintenance of at least one college, whose leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The income from this grant, amounting to $7,500 annually, was appropriated in 1887 by the Legislature of the State for the establishment and yearly maintenance of this College. Sufficient land for the College site and farm was given by the late R. S. Pullen. The College was formally opened for students October 1, 1889.

Additional funds were provided afterwards by the National Congress by the "supplemental Morrill Act" of 1890, and the "Nelson Act" of 1907.

The College is beautifully located on the extension of Hillsboro Street in the western suburbs of Raleigh, a mile and a quarter from the State Capitol. The site is suitable in all respects.

There is an abundant supply of water from twelve deep wells. The water is analyzed, both chemically and bacteriologically, at regular periods.

The College now owns six hundred and twenty-five acres of land and sixteen buildings, and its teaching force consists of forty specialists. Its laboratories, drawing-rooms, and work-shops are well equipped. Its library contains four thousand six hundred volumes, and its reading-room is well supplied with literary and technical journals and newspapers.

BUILDINGS.

The Main Building is of brick, with brownstone trimmings, and is one hundred and seventy by sixty-four feet; part four stories in height and the remainder two. The lower floors contain the offices of the President, the Registrar, and the Bursar, several recitation-rooms and the chemical and physical laboratories. The upper stories are occupied by students.

In this, as in other buildings, every precaution has been taken to secure good sanitation. The rooms are well lighted, well ventilated and conveniently arranged.

The Mechanical Engineering Building is a plain, substantial two-story brick building, with large annex. It contains the drawing-rooms, recitation-rooms, and shops of the department.

Primrose Hall is a two-story brick building used for drawing-rooms and laboratories by the Department of Civil Engineering.

The Textile Building is a two-story brick building one hundred and twenty-five by seventy-five feet, with a basement. Its construction is similar to a cotton mill, being an illustration of standard construction in this class of buildings. The basement contains the dyeing department, the first floor the looms and warp preparation machinery, and the second floor the carding and spinning machinery.

Pullen Hall.—In honor of the late R. Stanhope Pullen, the greatest benefactor of the College, the large new building recently finished has been called Pullen Hall. The basement of this building is used as a dining-room and seats five hundred students. The first story is used for library, reading-room, and lecture-rooms. The second story serves as the College auditorium. This room is commodious, comfortable and well lighted.

The Agricultural Hall is a three-story buff press-brick building with granite trimmings and is 208 by 74 feet. The lower or basement floor contains the class-rooms and laboratories for work in the Department of Animal Husbandry and Dairying. Ample provision is made for butter-making, stock judging, farm butchering, and cold-storage accommodations for the products.

The second floor contains the offices of the department, class-rooms for animal husbandry and agronomy, and laboratories for soil physics and agricultural machinery.

On the top floor are the rooms devoted to botany and vegetable pathology, zoology, physiology, and veterinary medicine. There are well-equipped class-rooms and large, well-lighted laboratories.

The building affords the best accommodations for education in agriculture and allied subjects, and is especially adapted to its needs.

Watauga Hall is a three-story brick building, trimmed with brownstone and containing sixty rooms for dormitories. There is also a large dormitory in the attic, and in the basement are bath-rooms, which are free for students' use.

Dormitories.—In addition to Watauga Hall, one three-story and three two-story brick buildings are used exclusively for dormitories.

The Infirmary is a two-story brick building, containing a sitting-room, seven bed-rooms, three bath-rooms, a kitchen, linen-room, College Physician's office and medicine closet. The rooms are large, well ventilated, well lighted, and heated with open fire-places. Each room opens upon a large, pleasant portico. The furnishing and equipment of the rooms are such as are used in modern hospitals.

The Boiler-house is a single-story brick building, containing boilers, fire-pump, and the machinery connected with the steam-heating plant.

The Barn is a frame building of modern design and carefully planned for the purposes to which it is devoted. The barn is fifty by seventy-two feet and three stories high.

The Fire Protection of the College consists of the following equipment: An Underwriter fire pump, stand-pipe and reservoir, hose and hose reels. Hydrants are conveniently located about the grounds, with attached hose nozzles, etc. The buildings are supplied with extinguishers.

Heat and Light.—All the College buildings are lighted by electricity from a plant managed by the students, under the direction of the Professor of Electrical Engineering.

The third and fourth dormitories, Primrose Hall and the greenhouses attached are heated by hot water; the Textile Building is heated by the Sturtevant hot-air system, and the other College buildings are heated by the Warren-Webster vacuum system of building-heating.

THE AGRICULTURAL EXPERIMENT STATION.

The North Carolina Agricultural Experiment Station is a department of the College. It was established originally as a division of the State Department of Agriculture, in accordance with an act of the General Assembly ratified March 12, 1877. Its work was greatly promoted by act of Congress of March 2, 1887, which made a liberal donation to each State for the purpose of investigations in agriculture

and for publishing the same. The bill, which subsequently became a law, was introduced by Representative William H. Hatch of Missouri. The funds of the Experiment Station were supplemented by the act of Congress of March 16, 1906, known as the "Adams Act."

The Director's office is in the Agricultural Building in Raleigh and the laboratories are in the main building at the College. The experimental work in agriculture, horticulture, stock and poultry raising, and dairying is conducted on the College farm, and the investigations in plant diseases and chemistry in the College laboratories.

The Station is always glad to welcome visitors and to show them the work in progress. The Station conducts a large correspondence with farmers and others concerning agricultural matters. It takes pleasure in receiving and answering questions.

Publications relating to general farming matters and embodying the results of experiments are published and sent free to all citizens of the State who request them. A request addressed to the Agricultural Experiment Station, Raleigh, N. C., will bring these publications and answers to letters.

THE PURPOSE OF THE COLLEGE.

The College is an institution where young men of character, energy, and ambition may fit themselves for useful and honorable work in any line of industry in which training and skill are requisite to success. It is intended to train farmers, mechanics, engineers, architects, draughtsmen, machinists, electricians, miners, metallurgists, chemists, dyers, mill-workers, manufacturers, stock-raisers, fruit-growers, truckers, and dairymen, by giving them not only a liberal but also a special education with such manual and technical training as will qualify them for their future work.

It offers practical and technical education in Agriculture, Horticulture, Animal Industry, Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining Engineering, Metallurgy, Chemistry, Dyeing, Textile Industry, and Architecture. It also offers practical training in Carpentry, Wood-turning, Blacksmithing, Machinists' Work, Mill-work, Boiler-tending, Engine-tending, Dynamo-tending and Installation, Electric-light Wiring, Armature Winding and other subjects relating to practical electricity.

Although the leading purpose of the College is to furnish technical and practical instruction, yet other subjects essential to a liberal education are not omitted. Thorough instruction is given in English, Mathematics, History, Political Economy, Physics, Chemistry, Botany, Zoology, Physiology, and Geology.

The College is not a place for young men who desire merely a general education without manual or technical training, nor for lads lacking in physical development, mental capacity, or moral fiber, nor for those that are unable or unwilling to observe regularity, system, and order in their daily work.

PRIZES.

A first prize of ten dollars and a second prize of five dollars are awarded annually to the student in the Freshman Class who earns the largest and the next largest amount of money by labor on the College farm.

The Cole Manufacturing Company, of Charlotte, N. C., donated to the Biological Club a Cole Universal Planter No. 7, valued at $17.50, as a prize to be awarded to the student making the best personal observations during the year.

The North Carolina State Fair Association offers a prize of $5 to the student preparing the best essay on the Live-stock Exhibit at the State Fair.

MILITARY APPOINTMENTS.

Officers and non-commissioned officers, having accepted their commissions and appointments, and having entered upon the duties of their several offices, will not be permitted to give up military duty for other work, but will be required to perform such military duty throughout the entire session.

DISCIPLINE.

The College is under military discipline and the students are regularly organized into a battalion. A printed copy of rules and regulations is furnished each student on admission, and he is expected to conform to the same during his connection with the institution. The discipline is intended to secure studious and economical habits, with punctuality, system, and order in the performance of all duties. A durable uniform is required to be worn on drill; rooms plainly furnished and a mess-hall economically managed by the College prevents extravagance in living; regular study hours, day and night, with proper restrictions as to visiting Raleigh, check, or at least minimize, tendencies to idleness, vice, and rowdyism.

Every effort is made to develop strong, intelligent, high-toned men; and proper patience, forbearance, and sympathy are used in this great

work; but the College is in no sense a reform school, and its work must not be hindered by the presence of young men who are grossly vicious, idle, or incompetent.

REPORTS AND SCHOLARSHIP.

Regular reports of scholarship and conduct are sent to parents and guardians at the end of each term. Special reports are made whenever necessary. Students who are persistently neglectful of duty, or manifestly unable to do the work required, will be discharged at any time. The Faculty will require any student to withdraw whenever it is plain that his stay in the institution is not profitable to himself or to the College.

The scale of grading used is as follows:

90 per cent., or more.....grade 1
80 per cent., or more.....grade 2
70 per cent., or more.....grade 3
60 per cent., or more.....grade 4
50 per cent., or more.....grade 5
40 per cent., or more.....grade 6

The passing grade is 4. Conditions are assigned for grades 5 and 6. These must be removed at the regular condition examinations, or special examinations will be granted by the Faculty upon receipt of $1 for each.

RELIGIOUS INFLUENCES.

All students are required to attend chapel exercises in Pullen Auditorium each morning. These services are conducted by the President, by some member of the Faculty, or by some visiting minister.

Each student is expected to attend religious service in Raleigh on Sunday morning at the church of his choice.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association is a voluntary organization of the students, and is entirely under student management. A general secretary is employed by the association and devotes his entire time to the work. The members of the Faculty are interested in the work and give assistance when requested to do so. Any student who is a member of an evangelical church may become an active member. Any student of good moral character or who desires to improve his moral life may become an associate member.

The Association has secured a large room in Pullen Hall. Two regular meetings are held each week. The mid-week prayer service is conducted by students. The meetings on Sunday are conducted by members of the Faculty and others.

The leading part of Association work is Bible Study. About one hundred and seventy students are enrolled this session in Bible classes led by students. This work is under the supervision of the Bible Study Committee and the general secretary. This is the only course of Bible instruction in the College. Every student, whether a member of the Association or not, should be a member of some group. The following courses are offered:

Freshman Course.—"Studies in the Life of Jesus Christ." By Edward I. Bosworth. Based on the Gospels by Mark and John, with a comparative study of the last week as recorded by the four Gospels.

Sophomore Course.—"Studies in the Acts and Epistles." By Edward I. Bosworth. Based on "The Records and Letters of the Apostolic Age," by Ernest DeWitt Burton, and arranged for daily personal study.

Junior Course.—"Leaders of Israel." By G. L. Robinson. Portraying the character of Israel's leaders, and the history of the people from Abraham to Christ.

Senior Course.—"The Teachings of Jesus and His Apostles." By Edward I. Bosworth.

The following courses will be offered on missions:

1. The New Era in the Philippines. (Brown).
2. Effective Workers in Needy Fields.
3. The Call of the Home Land.
4. China and Her Problems.

ATHLETICS.

The College is provided with extensive grounds, which furnish ample facilities for military drill and athletic sports.

Outdoor sports are directly managed by the Athletic Association and are under the control of a committee of the Faculty.

The Faculty rules governing athletics are as follows:

1. Before any student can become a member or a substitute member of any athletic team in this College and take part in any intercollegiate contest, he must make application to the Committee on Athletics in the College and secure the endorsed approval of that committee to his application. It shall be the duty of the Athletic Committee to have the executive officers of the College endorse such appli-

cation to the effect that the applicant is a regular student of the College, registered within thirty days after the beginning of the fall session.

2. It shall be the duty of the Athletic Committee to inquire into and make a record of the athletic experiences of the applicant, and it shall be the duty of the applicant to appear before the committee and answer on his honor such questions as the committee may see fit to ask.

3. It shall be the duty of the Athletic Committee to require a pledge, in writing, of the applicant, certifying on his honor that he has never accepted, directly or indirectly, remuneration, compensatory gift, valuable consideration or promise thereof, for his athletic services, and that he is, in the proper and strict sense of the word, an amateur player in collegiate athletic sports, before the committee endorses his application.

4. No student of the College who has been a member or a substitute member of a base-ball or a foot-ball team at another college or university shall be permitted to become a member of either base-ball or foot-ball team at this College, unless and until he shall have been a student in residence at this College for at least five months.

5. No person whose name is in the Faculty list or appears in the catalogue list of officers of instruction and administration of the College, and who receives a remuneration therefrom, shall be a member of any athletic team representing the College.

6. Whereas, a member of an athletic team of this College is a representative student and enjoys special honor in thus representing the College, this privilege shall be withheld from any student whose scholastic standing is discreditable.

7. Any student who has participated as a player on a college team, in either base-ball or foot-ball, or both, for a period of four years, shall thereafter be ineligible for such athletic contests of the College.

The Athletic Association is organized by the student body to promote physical health and manly spirit through athletic sports. Under the direction of the Athletic Committee of the Faculty it promotes practise in base-ball, foot-ball, track athletics, etc.

LIBRARY AND READING-ROOMS.

The College Library occupies the first story of Pullen Hall. The reading-room is supplied regularly with about one hundred and fifty magazines and journals of various kinds, and yearly additions are being made to this number. The library contains about four thousand

volumes. There are also reference libraries in the different departments. The library is kept open from 9 A. M. to 6 P. M. The Librarian is always present to assist students in finding desired information.

The Olivia Raney Library in Raleigh, containing now about seven thousand volumes, is free to the students and they have the privilege of borrowing books from it. Students also have the privilege of consulting books in the State Library.

STATE MUSEUM.

Students have free access to the large collections of the State Museum. These collections furnish most excellent opportunities for studies in Geology, Mineralogy, Mining, Forestry, and Natural History.

COLLEGE SOCIETIES.

Such college organizations are encouraged as tend to form good character, to develop manly physical vigor, and to promote literary, scientific, and technical research and training.

Farmers' Institute.—The students in the Winter Course in Dairying and Agriculture meet every Wednesday night during the winter term for a discussion of practical agricultural problems. The meetings are conducted in the manner of a Farmers' Institute and give training in conducting farmers' meetings, *extempore* speaking on agricultural questions, and writing and reading of reports on various farm operations.

The Rural Science Club meets semi-monthly for the discussion of agricultural subjects, review of current agricultural publications, and reports on personal experiments and the work of the College farm and Experiment Station.

The Biological Club meets semi-monthly for the discussion of biological subjects in their relation to practical agriculture. Students here present results of their own investigations and observations and reviews of the more important current publications, particularly those from the United States Department of Agriculture and the State Experiment Stations.

The Biag Society is composed of those students who have made the best record in biological and agricultural subjects. The membership is limited to ten. The Society meets monthly for the discussion of biological and agricultural questions.

The Berzelius Chemical Society meets weekly for the discussion of chemical subjects and for review of the current chemical literature with which the College is well supplied.

The Merriman Society of Civil Engineering meets fortnightly for the purpose of reading and discussing papers of interest to civil engineers.

The Pullen, Leazar, and Tenerian Literary Societies afford excellent opportunities for practise in declamation, debate, composition, and parliamentary law, as well as opportunities for social pleasure and recreation.

The Glee Club is composed of about twenty young men, embracing the best musical talent of the College. It aims to give one concert each year, and afterwards to sing at various College entertainments and functions during the year.

The Alumni Association meets on Monday of each year preceding Commencement day, transacts its annual business, hears the Alumni oration and attends the annual Alumni banquet. This Association purposes raising funds to erect an Alumni building at the College.

REQUISITES FOR ADMISSION.

Each applicant for admission must be at least sixteen years of age and must bring a certificate of good moral character from the school last attended.

To the Four-year Courses.—Applicants for admission to the Freshman Class of all four-year courses will be examined on the following subjects: Arithmetic (complete), Algebra (through simple equations), English Grammar, Analysis and Composition, and American History. No student will be admitted to the Freshman Class whose examination papers are seriously faulty in spelling, grammar, punctuation, or division into paragraphs.

To the Two-year Courses.—Applicants for admission to the two-year courses will be examined on Arithmetic (through decimal fractions), English Grammar and Composition, and American History.

Applicants for admission to the two-year course in Textile Industry, if they are eighteen years of age, or over, will not be required to take the entrance examinations.

To the One-year Course in Agriculture.—Applicants for admission to the one-year course in agriculture, if they are eighteen years of age, will be admitted without examination. Those under eighteen will be required to pass the examination for entrance to the Freshman Class.

To the Winter Courses.—No entrance examination is required of candidates for admission to the winter courses. No one under eighteen years of age will be admitted to a winter course.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held by the County Superintendents of Instruction in each court-house in the State at 10 o'clock A. M. the second Thursday in July of each year. The date for 1907 is July 11th. These examinations will save the expense of a trip to Raleigh in case the candidate should fail or if there should not be room enough for him in the College. Entrance examinations will be held also at the College at 9 o'clock A. M. on Wednesday preceding the opening day. The examinations begin with English at 9 A. M., in Room 21, Main Building, followed by Mathematics at 11, and History at 2 in the same room. The date for 1907 is September 4th.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, over eighteen years of age.
2. Applicants for admission to the one-year course in Agriculture, and two-year course in Textile Industry, if they are over eighteen years of age.
3. School teachers holding teachers' certificates.
4. Graduates of those high schools and academies whose certificates are accepted by the Faculty of this College.

CONDITION EXAMINATIONS.

Examinations will be held during September and February for the removal of conditions. Students will be admitted to these examinations without charge.

During 1907-1908 these examinations will be held on the following days beginning at 9 o'clock A. M.:

Wednesday, September 4th, and Saturday, February 1st—Agriculture, Horticulture, Civil Engineering, Architecture, Mechanical Engineering, Electrical Engineering, Mining, Metallurgy, and Textile Industry.

Thursday, September 5th, and Saturday, February 8th—Chemistry, Dyeing, Physics, Geology, Mineralogy, Botany and Vegetable Pathology, Zoology, Entomology, Veterinary Science, History, Political Economy, Military Science.

Friday, September 6th, and Saturday, February 15th—English.

Saturday, September 7th, and Saturday, February 22d—Mathematics.

Special examinations for the removal of conditions may be held at other times only upon petition to the head of the department in which the examination is to be held, said petition to be accompanied by a receipt from the Bursar for one dollar for each special examination. All moneys collected as fees for special examinations will be turned over to the loan fund for needy students.

Conditions not removed within a year can be removed only by taking the subject again in class, except that a student who enters college with conditions in practice work may be allowed to carry half of his conditions in practice work to the second year if he remove half of these conditions during his first year.

In order to be graduated, a student must be clear of all conditions before beginning the March examinations of the Senior Year.

A student who fails in three studies for any term will be dropped to a lower class or from the College rolls.

The Registrar will include in the report of each student for each term a list of conditions against the student and a notice of the time at which condition examinations will be held.

SESSION.

The College session lasts nine months, and opens annually the first Thursday in September and closes the last Wednesday in May, with a vacation of about two weeks at Christmas.

EXPENSE.

The total average college expense of a Freshman student is $225.00.

The total average college expense of a Freshman student having a scholarship is $180.00.

These amounts include cost of board, tuition, lodging, fuel and lights, fees and deposits, books, uniform and cap, drawing instruments, and laundry. They do not include allowance for clothing, other than for uniform and cap, nor for spending money and contingencies.

The largest payment is made in September. A student on entering college should bring about $80.00 to meet his various payments for the first months, or $57.50, if he has a scholarship.

Students withdrawing from college within two weeks from date of entrance will be refunded all moneys paid by them to the College

Bursar, except charges for board during the time here. Students withdrawing later than two weeks from date of entrance will be refunded no moneys except for board.

Board is $10.00 per month and is payable on the first day of each month from September to May inclusive; board for less time than one month is charged for at the rate of fifty cents a day or $3.00 per week.

The College Bursar is forbidden by the Trustees to give credit, and there is no deviation from this rule.

A more detailed statement of college fees is as follows:

Tuition	$ 45.00
Room rent, fuel and lights	27.50
Library, lecture, and physical culture	4.00
Incidental	5.00
Medical attention and medicine	6.00
Registration	2.00
Board	90.00
Shop and Drawing (material and use of tools) or Botany	2.00
Uniform and cap	14.30
Books and drawing instruments (estimate)	15.00
Laundry (estimated cost)	10.00

Drawing instruments are not required in the Freshman Class nor in the first-year Mechanic Arts course until the beginning of the second term. These instruments are furnished by the College at cost to all students requiring them. New students are advised not to purchase instruments before consulting the drawing instructors.

The College rooms are supplied with necessary furniture. Each student should bring with him two pairs of blankets, two pairs of sheets, two pillow-cases, one pillow and two bed-spreads for single bed.

In addition to the fees enumerated above, students are required to pay fees as follows: A fee of $1 from students taking work in biological (except bacteriological), physical, or electrical laboratory, for material furnished. The deposits for the Chemistry Department are as follows: Inorganic laboratory, $3; analytical laboratory, $6; organic laboratory, $4; determinative mineralogy and assaying, $3. A deposit of $3 from Juniors and $4 from Seniors taking dyeing or bacteriology, to cover cost of breakages. A deposit of $5 from textile students, to cover cost of designing, supplies, tools, etc. Any unused portion

of deposits to chemical, bacteriological or dyeing laboratories or to the Textile Department will be returned at the end of the year. If the deposit made is not sufficient to cover breakages and cost of material furnished, the students are required to make good the deficiency.

UNIFORM.

The College uniform must be worn by all students ~~except winter course students~~. It must be purchased at the College from the contractor. The uniform is of a strong gray cloth, and with care it will last a year. Each student is required to wear an overcoat during cold weather. Overcoats may be brought from home or purchased in the city. In order to secure uniformity, dark colors (black or dark gray) are required.

FREE TUITION.

Scholarships, one hundred and twenty in number, conferring free tuition, are given to needy boys of talent and character. As far as possible, these scholarships are distributed among the counties of the State. Appointments are made only by the President of the College upon written recommendation of members of the Legislature. The scholarships are not intended for people who have property. Certificates of inability of pay must be made by the applicant and endorsed by the person recommending him.

SELF-HELP.

Many students pay their own expenses, either wholly or partly, by doing various kinds of work. There is regular employment for a limited number, enabling them to earn from $4 to $10 a month. There is also occasional employment, paying from $2.50 to $5 a month. The work offered is mainly on the farm, in the barn, milking and feeding cattle, etc., and is for agricultural students only. There is very little work available for others, except serving in the dining-room. Young men should not rely upon material help from work the first year, as most of the work is given to students who have had a year's experience at the College. Application for work should be made before the student comes to college.

STUDENT LOAN FUND.

The Alumni Association of the College has established a small fund to be lent to needy students of talent and character. The loans are made at six per cent., and good security is required. Sufficient time

is given for repayment to enable the student to earn the money himself. The amount lent to each student is limited. The purpose is to help young men who are willing to help themselves and who cannot find sufficient employment while in college to meet all their necessary expenses.

Contributions are solicited for this fund from students, Alumni, and friends of education generally. The fund is administered by the College Bursar, under the direction of the President. At present the fund amounts to $1,562.68.

BOARD AND LODGING.

All students are expected to board in the College mess-hall and to room in the College dormitories. An abundant supply of plain, nourishing food, with as large a variety as possible, is furnished absolutely at cost. The charge at present is $10 per month, payable in advance.

Rooms in the College dormitories are supplied with electric lights, steam heat, and all necessary furniture, except sheets, blankets, pillow-cases, pillows, bed-spreads, and towels, which each student must furnish for himself. The charge for lodging is by the month, and there is no reduction in case of withdrawal.

CARE OF THE SICK.

Every effort is made to protect the health of young men in the College. Regular inspections of the entire institution are made once a year, or oftener, by the State Board of Health. Similar inspections, at frequent intervals, are made by the College physician. There is an abundant supply of pure water from twelve deep wells. Each student has a regular routine of daily life, including abundant physical exercise in the shops and on the drill grounds.

In case of sickness a student is taken immediately to the College Infirmary, where he receives medical attention and careful nursing.

The College Physician visits the Infirmary daily at 10 o'clock, and in cases of serious illness as frequently as may be required.

A trained nurse has charge of the Infirmary at all times.

COURSES OF INSTRUCTION.

The College offers the following Courses of Instruction:

I. Four-year Courses:

1st. Agriculture (including Agriculture, Horticulture, Veterinary Science, Biology, and Agricultural Chemistry).

2d. Engineering (including Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining Engineering, and Industrial Chemistry).

3d. Textile Industry or Cotton Manufacturing (including Carding, Spinning, Weaving, Designing, and Dyeing).

These courses offer a combination of practical and theoretical work, about half of the time being devoted to lectures and recitations and the other half to work in the shops, laboratories, drawing-rooms, greenhouses, dairies, fields, and mills. They are intended to furnish both technical and liberal education. The degree of Bachelor of Agriculture is conferred upon a graduate in the Four-year Course in Agriculture. The degree of Bachelor of Science is conferred upon a graduate of the Four-year Course in Chemistry or Dyeing, and the degree of Bachelor of Engineering upon a graduate of either of the other Four-year Courses.

II. Short Course of one year in Agriculture, and of two years in Textile Industry, in the Mechanic Arts (including Carpentry, Woodturning, Blacksmithing, Machine-shop Work, Drawing, and Dynamos and Engine Tending, and in Applied Electricity).

The Short Courses include nearly all the practical work of the Four-year Courses, with less theoretical instruction. They are intended for students who desire chiefly manual training, and do not lead to a degree.

III. Winter Courses in Agriculture and Dairying and in Textile Industry, beginning at the opening of College in January and extending to the close of the term ending in March.

IV. Normal Courses for the training of teachers along industrial lines.

V. Graduate Courses, extending over two years and leading to advanced degrees, are intended for students who have completed the Four-year Courses and who desire further instruction and training along special lines.

AGRICULTURAL COURSES.

I. The Four-year Course in Agriculture.
Ia. The One-year Course in Agriculture.
Ib. The Winter Course in Agriculture and Dairying.

Aim and Scope.—The aim of the Agricultural Courses is to train young men in both the science and the practice of their vocation. It is believed that every young man preparing to farm needs a double education—one that is practical, to fit him for his profession; another that is cultural, to fit him to live.

In order to meet the necessities of all young men who desire instruction in Agriculture, the College offers four distinct courses:

The four-year course aims to give a training that is thoroughly practical as well as scientific in Agriculture and its various branches, such as Stock-raising, Dairying, and Horticulture. The strictly technical portion constitutes about one-third of the work. Of the remaining two-thirds of the course more than one-half is prescribed in the sciences. This is done for the training and information they give, and to prepare for the technical work of the course. Because of this, and because the subject-matter and the methods of the technical portion lie so fully within the domains of science, the course is essentially scientific rather than literary. Yet the College is mindful of the fundamental character of English Literature and of Political Economy as training studies, and reasonable attention to these studies is required.

The one-year course in Agriculture is designed to meet the needs of young men who are ambitious to excel in the vocation of farming, and who feel the need of better preparation for their life-work. The time which can be devoted to study is often limited, hence the topics in this course have been arranged in such a manner that the student is enabled to get the greatest amount of practical information in the time at his disposal.

Education and training pays on the farm as elsewhere. The young man who prepares himself for his life's work will make more rapid strides and will gain success much quicker than the one who does not.

The College has numerous calls for young men to manage farms and estates. It is able to fill only a limited number of them. Young

men who have any talent along this line can fit themselves for this work by taking this course.

The ten-weeks winter course in Agriculture is established to meet the needs of those who can spend only the winter at the College. The important and practical subjects of Agriculture and Horticulture and Stock-raising receive principal attention.

The ten-weeks dairy course is a course in practical butter-making in accordance with the most approved methods of the modern creamery.

Methods of Instruction.—Instruction is by laboratory work, supplemented by text-books, lectures, and reference readings, which are almost constantly assigned from standard volumes and periodicals.

The equipment for the technical work of the course is rapidly increasing. The Department of Agriculture is fitting up laboratories for investigation in Soil Physics and in the mechanical analysis of soils. The Dairy Department is equipped with a modern creamery for pasteurizing, separating, creaming and churning, and for investigation in dairy bacteriology.

The department makes free use of the fields, orchards and gardens, in which the Agricultural Experiment Station conducts experiments in methods of culture, in effects of several practices upon yield and upon fertility, in varieties of fruit, of vegetables and of forage crops. The methods employed and the results obtained are freely used for instruction.

Self-support while a Student.—The Board of Agriculture, in the interest of young men who are unable to meet necessary college expenses, has appropriated $2,500 annually for student labor. This generosity on the part of the Board enables every student to pay a good part of his college expenses; some are able to meet the entire expense this way. This sum appropriated is intended solely to pay for farm work. The work is precisely the sort of work that is done on the farm—plowing, hauling, tile-laying, feeding beef cattle, feeding dairy cattle, feeding and grooming horses, running ditches and terraces, repairing machinery and tools, harvesting crops, the care of hogs, poultry, etc.

This feature in the course of Agriculture is helpful not only in defraying college expenses, but serves as a training and education as well.

Requisites for Admission.—Applicants for admission to the four-year course in Agriculture must be at least sixteen years of age. They are examined in the following subjects: Arithmetic (complete),

Algebra (through simple equations), English Grammar, and American History.

For the one-year course in Agriculture no entrance examinations are required if the applicant is at least eighteen years old. Applicants not eighteen years old desiring to enter the one-year course will be required to stand the examination for entrance to the Freshman Class.

For the winter courses in Agriculture and Dairying no entrance examination is required, but applicants must be over eighteen years of age.

I. Four-year Course in Agriculture, leading to the Degree of Bachelor of Agriculture.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.*		
	1st Term.	2d Term.	3d Term.
Botany, Elementary, 35†	3	3	3
Zoology, 4	4	--	--
Physiology, 4	--	4	4
Fruit Culture, 26	5	--	--
Vegetable Gardening, 27	--	5	--
Dairying, 17	--	--	5
Algebra, 84	5	2	--
Geometry, 85	--	3	5
English, 8	3	3	3
Military Drill, 99	3	2	2

*The lecture and recitation periods are one hour; the laboratory, shop, and other practise periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Sophomore Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Breeds of Live-stock, 8	2	--	--
Stock-judging, 9	2	--	--
Animal-breeding, 10	--	3	--
Herd Books, 11	--	1	--
Stock-feeding, 13	--	--	4
Plant Diseases, 34	3	--	--
Economic Entomology, 51	--	3	--
Systematic Botany, 32	--	--	3
Inorganic Chemistry, 61	3	3	3
Inorganic Chemistry (laboratory), 62	2	2	2
Physics, 71	2	2	2
Free-hand Drawing, 76	2	--	--
Farm Crops, 3	--	2	2
English, 89 and 91	3	3	3
Poultry Husbandry, 22	--	--	3
Military Drill, 99	3	2	2

Junior Year.

Farm Equipment, 1	4	--	--
Soils, 2	--	4	4
Veterinary Anatomy, 41	4	--	--
Veterinary Medicine, 42	--	4	--
Veterinary Practice, 43	--	--	4
Agricultural Chemistry, 66	2	2	2
Bacteriology, 36	2	2	2
Wood-work, 78	2	2	--
Forge-work, 79	1	1	--
Landscape Gardening, 28	--	--	3
English and History, 93 and 92	2	2	2
Political Economy, 97	1	1	1
Military Tactics, 100	1	1	1
Military Drill, 99	3	2	2

Senior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Geology, 58	2	2	2
English, 92 and 90	2	2	2
Business Law, 95	1	1	1
Elect thirteen periods of the following:			
Live-stock Management (horses), 14	2	--	--
Live-stock Management (beef and dairy cattle), 12	--	2	--
Live-stock Management (sheep and swine), 15	--	--	2
Farm Management	--	2	2
Special Crops, 4	5	3	--
Soil Physics, 5	--	--	3
Dairy Bacteriology, 18	3	--	--
Cheese-making, 19	--	3	--
Experimental Dairying, 20	--	--	3
Poultry Husbandry, 23	--	--	3
Veterinary Medicine, 44	3	3	3
Harvesting and Marketing Fruits, 29	3	--	--
Forestry, 30	3	--	--
Floriculture, 31	--	3	--
Plant-breeding, 32	--	3	--
Horticultural Research, 33	--	--	6
Plant Diseases (advanced), 35	2	--	--
Bacteriology (advanced), 37	2	2	2
Systematic Entomology, 52	--	2	2
Economic Botany, 33	--	--	2
Industrial Chemistry, 68	2	2	2
Organic Chemistry, 63	2	2	2
Analytical Chemistry (laboratory), 64 and 65	9	9	9
Meteorology	--	2	--
Military Drill, 99	3	2	2

One-year Course in Agriculture.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Agriculture (Elementary), 6	5	5	5
Horticulture, 34	3	3	3
Animal Husbandry, 16	3	3	3
Dairying, 21	5	--	--
Diseases of Live-stock, 47	--	5	--
Botany, 35	3	--	--
Poultry, 22	--	3	3
Entomology, 51	--	--	3
Diseases of Plants, 38	--	--	2

WINTER COURSE IN AGRICULTURE.

BEGINS JANUARY 6, 1908.

This course is designed to meet the needs of those who desire a knowledge of the practical side of farming, dairying, and poultry-raising, but who have not time to take the regular course in College. Our experience in the Institute work of this State leads us to believe that the farmers are demanding more definite knowledge of their business. Since this can be acquired more easily and at less expense at an Agricultural College than by long experience on a farm, this course is offered.

Young men who have a desire to become farm managers can partially fit themselves for such work by taking this course. The College is called upon frequently to supply farm managers, which it is unable to do because the supply is not equal to the demand. There is a chance for any bright young man who has not money enough to equip a farm of his own to better his condition by fitting himself to accept a position as farm manager.

Instruction in this course is given in such a manner that the students learn by actual contact and original investigation. Practical exercises in identifying varieties of farm crops, fruits, judging farm animals, butter-making, propagation of plants, and making and applying spraying mixtures are the means employed in illustrating and fixing in the minds of the students the instruction given in the classroom.

EQUIPMENT.

All laboratories and equipment used in the regular course are availble for instruction in this course.

EXPENSES.

No tuition will be charged, but there will be a laboratory fee of $5 to cover incidental expenses, cost of material, and breakage. There will also be a small medical fee of $1.25. Board may be had in the mess-hall at $2.50 per week. Students who expect to room in dormitories should come provided with covers, sheets, pillow-cases, and towels.

Students will be required to wear white suits in the dairy laboratory. These suits can be had at $1 each.

Books, paper, etc., need not cost over two or three dollars.

The total expense of the course need not exceed $35 over and above railroad fare.

ADMISSION.

No examination is required for entrance to the eight-weeks course. Any person over sixteen years of age may enter and enjoy the full privileges of the instruction. Since the greater part of the instruction is given in the form of lectures and laboratory work, the full time of the student is provided for. Some of the evenings will be taken up by lectures on important subjects. Meetings of the students will be held from time to time for their mutual improvement.

OUTLINE OF WINTER COURSE.

GENERAL AGRICULTURE. *24 periods.*

Professor Conner.

Farm Crops.—Condition of generation and growth of plants; seed selection; preparation and cultivation; studies of varieties of corn, cotton, and other crops; judging corn and cotton.

Soils.—Study of origin, formation, and distribution of soils, their physical properties as related to tillage and fertility; laboratory practice with different types of soils.

Farm Equipment.—Construction of farm buildings; the silo and its use; farm machinery; principles of draft, etc.

Fertilizers.—Kinds for different crops; home-mixing; time and method of application; value of stable manure and leguminous crops.

The department is well equipped with various makes of farm machinery for laboratory work. A large room in the Agricultural Building is used for this purpose.

AGRICULTURAL BOTANY. *24 periods.*

Professor Conner.

This course consists of lectures and laboratory work. Such subjects as the following will be considered: Cross-breeding of plants; The flower and its structure; Pollen and its use; Improvement of plants by seed selection; The diseases of plants, how to recognize them and how to prevent them; Bacteria in the home and on the farm, their rôle as disease producers in man, domestic animals and plants, their

function in the dairy, in the making of butter and cheese, in the soil, in rendering plant-food available, and in leguminous roots as nitrogen-gatherers.

HORTICULTURE. *24 periods.*

Assistant Professor Reimer.

This course in Horticulture consists of both lectures and laboratory work. It is made especially applicable to North Carolina conditions. The work includes the following subjects:

Fruit Culture.—This course includes a discussion of the fruit sections of this State, and a discussion of the possibilities of fruit-growing in each section. This is followed by lectures on the culture of the leading fruits. This deals with the kind of soil; preparation of soils for fruits; varieties; planting; cultivation; fertilizing; pruning; harvesting, and marketing. Emphasis is laid on the home fruit-garden.

Vegetable Gardening.—The possibilities of vegetable-growing in this State are discussed. This is followed by a discussion of the great trucking industry in this State, and the best methods of growing the various vegetables.

A few lectures are also given in the improvement of home grounds.

Laboratory Work.—This includes practices in seed testing; all the different methods of plant propagation, as grafting, budding, cuttings, and also pruning of fruit and ornamental plants; fruit-bud studies; and a systematic study of different varieties of fruits.

DAIRY FARMING. *24 periods.*

Assistant Professor Curtis.

Lectures are given on this subject relating to the origin, history, and characteristics of the different breeds of dairy cattle. The feeding, care, and management are also taken up in this course, with a consideration of the available feeds, their relation to the animal and the proportion of feed-stuffs best adapted to milk production.

The practical part of the work will be given in the judging room, where the student is required to score the animal, after which a comparative study will be taken up relative to the merits of each animal in the class.

FEEDS AND FEEDING AND STOCK-RAISING. *24 periods.*

Assistant Professor Curtis.

Lectures on this study will consist of an elementary study of the digestive systems of the various classes of farm animals indicative of

the kinds of foods adapted to their particular digestive apparatus. This will be followed by the food constituents, the kind, amount, and proportions best adapted to the various classes of live-stock. The student will be required to make tables of digestibility, calculate nutritive ratios, and arrange feeding rations for the several classes of stock relative to the work which they are to perform.

An outline will also be given on the origin, history, characteristics, feed, care, and management of the most prominent breeds of live-stock.

FARM DAIRYING.
Assistant Professor Kendall.
Lectures, 12 periods.
Laboratory, 24 periods.

Lectures are given on the nature, composition, and secretion of milk, its uses and value as a food, the production and care of sanitary milk, details in the production of high-grade cream and butter, the marketing of dairy products, and their value when sold as milk, cream, butter, and cheese.

The dairy laboratory course given in connection with the farm dairy lecture course consists of twenty-four periods of two hours each and comprises every detail of dairy work, butter-making, cheese-making, retailing milk, pasteurizing milk and cream, making and using starters, and making tests of all sorts of dairy products, and standardizing milk and cream.

COMMERCIAL DAIRYING.
Assistant Professor Kendall.
Lectures, 12 periods.
Laboratory, 24 periods.

Three hours a week during last half of course will be devoted to lectures and text-book work on creamery butter-making, manufacturing cheese, and operating milk depots. Lectures are given on the construction, cost, equipment, and operation of farm dairies, creameries, cheese factories, and milk depots. Students are required to draw plans, equip, and make estimates of the entire cost of such plants.

In laboratory practice, which is a part of this course, the students become familiar with the power dairy machinery. The laboratories are equipped with power dairy machinery of sufficient capacity to handle two thousand pounds of milk per hour with the least labor and in the most improved manner.

Milk testing, which plays such an important part in all phases of dairy work, receives a great deal of attention. Several sizes of hand machines, and a twenty-four bottle power tester is used in this work, together with all equipment necessary for testing milk, cream, butter,

cheese, skim-milk, buttermilk, whey, and composite samples, and also the use of the lactometer.

The cheese laboratory is 21 by 30 feet and is fitted out with a 200-gallon cheese vat, a family cheese-making outfit, curd milk, gang press, and a large curing and cold-storage room.

DISEASES OF LIVE-STOCK. *24 periods.*

Dr. Butler.

The lectures on this subject will deal principally with the care and management of farm live-stock with a view to the prevention of diseases; but the nature, causes, and treatment of some of the more common diseases and injuries will also be given attention.

ENTOMOLOGY. *24 periods.*

Mr. Sherman.

This is a short course in which the more important noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course.

FARM CHEMISTRY. *24 periods.*

Mr. Sherman.

Lectures on air, water, and chemistry of plants and animal-feeding will be given.

POULTRY-RAISING. *24 periods.*

Mr. Jeffrey.

In this subject is included a study of farm poultry; their breeding and feeding; use of incubators; raising of eggs, broilers and roasters; and fowls for farm use. The department is equipped with incubators, brooders, and several breeds of fowls. This course will be made as practical as it is possible to make it.

AGRICULTURE.

Equipment.

The College possesses the following equipment for instruction in Agriculture:

The farm includes six hundred and twenty-five acres, with two hundred and fifty acres under cultivation; a large three-story basement barn, 50 by 72 feet. The first floor is occupied by farm implements and machinery; the second story is occupied by horses, grain-

bins, cutting implements, etc.; the third story, by hay, which is elevated by a Ricker and Montgomery hay-carrier. Just outside the barn are two 70-ton silos and one 125-ton silo. These are connected with a No. 18 Ohio feed and ensilage cutter. Power for cutting is supplied by an eight-horse power Skinner engine. The farm is supplied with all necessary machinery for the most successful and up-to-date farming.

The live-stock consists of necessary horses and mules, a herd of dairy cattle, and a herd of swine. The Poland China and Berkshire swine are pure bred, and from high-class specimens. Breeding-stock is sold as a part of the farm products.

The poultry-yard is divided into sixteen lots. The buildings consist of incubator cellar, brooder-house, and hen-houses. Several different incubators are used. The poultry-yards contain the following breeds: White Wyandotte, White and Barred Plymouth Rock, Black Minorca, Brown Leghorn, Light Brahmas, and Pekin Ducks.

Subjects of Instruction.

Economic Entomology.—This is a short course in which the more important noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Mr. WOGLUM.

Diseases of Live-stock.—The lectures on this subject treat of elementary veterinary anatomy and physiology, the care of live-stock to prevent diseases and the treatment of some of the most common diseases. Professor BUTLER.

AGRONOMY.

Subjects of Instruction.

1. Farm Equipment.—Lectures and recitations upon selecting, planning, and equipping farms; planning and erecting farm buildings, farm vehicles and machinery; power, water, and drainage; practical exercises in drawing plans of farms and farm buildings; leveling and laying drains, dynamometer tests of wagons and farm implements, etc. Four periods, first term. For Juniors. Professor CONNER.

2. Soils.—Lectures and recitations upon composition, formation, kinds and physical properties of soils and their improvement by cultivation, natural and artificial fertilizers, drainage and irrigation. Practical exercises in testing physical properties of several soils, determining the relation of soils to heat, moisture, air, fertilizers,

and mechanical analysis. Four periods, second and third terms. For Juniors. Professor CONNER.

3. **Farm Crops.**—Lectures and recitations upon the history, production, harvesting and marketing of farm crops. Practical exercises with growing and dried specimens of farm crops. Two periods, second and third terms. Sophomores. Professor CONNER.

4. **Special Crops.**—This course is designed for advanced work in farm crops. Corn and cotton are taken up in detail and studied in all their relation to farm economy. Other crops of importance are taken up as time permits. Five periods, first term; three periods, second term. For Seniors. Professor CONNER.

5. **Soil Physics.**—This course is for more advanced work in soils, and consists of laboratory practice and lectures on origin, formation, and classification of soils; soil moisture and methods of conserving it; soil temperature; soil texture; mechanical analysis of soils, etc. The soils of the State will be studied. Free use of soil maps will be made. Three periods, third term. For Seniors. Professor CONNER.

The course in Elementary Agriculture will consist of lecture and recitation from text-book on soils, crops, fertilizers, farm equipment, and farm machinery. One period per week will be devoted to practical exercises, taking up the analysis and classifications of soils; identification and habit of growth of farm crops; drawing plans of farms and farm buildings. The work will be made practical and will be suited to the needs of the student.

ANIMAL HUSBANDRY.

8. **Breeds of Live-stock.**—The origin, history, and characteristics of the several breeds of live-stock are studied by the students. Where possible actual specimens are used to show the breed characteristics, and where representative animals can be found within a reasonable distance, the student is permitted to visit such places. This enables the student to determine the breeds best adapted to the different conditions and environments. Two periods, first term. Required of Sophomores. Assistant Professor CURTIS.

9. **Stock Judging.**—Practical exercises are given in live-stock judging. The student is required after familiarizing himself with the points of the score-card to study the various classes of farm animals in relation to the purposes for which they are designed. The animals are compared and placed according to their relative merits, after which the reasons for so doing are written on blank forms furnished the student. Two periods, first term. Required of Sophomores. Assistant Professor CURTIS.

10. Animal Breeding.—Upon the proper methods of breeding and management depends the success or failure in raising improved types of farm animals. To this end the student is taught the underlying principles or laws which govern the successful breeding and improvement of the various classes of live-stock. The experience and observation of our more successful husbandmen will constitute the foundation of this work. Lectures and recitations. Three periods, second term. Required of Sophomores. Assistant Professor CURTIS.

11. Herd Books.—In the study of herd books the student is taught the essential things which constitute a good pedigree. The breeding of pure-bred live-stock has advanced to such a degree that a record of the ancestry must be kept to preserve the purity and trace the performance of the breed. The foundation of the work will be based on the laws which govern breeding, together with the records issued by the various live-stock associations. The student is required to trace the ancestry of animals in their respective herd books. One period, second term. Required of Sophomores. Assistant Professor CURTIS.

12. Live-stock Management, Beef and Dairy Cattle.—In this course the student will be taught the proper care and management of beef and dairy cattle. Lectures on the results obtained from the most prominent breeders and fitters of beef and dairy cattle will be given. Two periods, second term. Required of Seniors. Assistant Professor CURTIS.

13. Stock Feeding.—The course in stock feeding includes a study of the anatomy and physiology of the digestive system, also the best methods involved in raising and maturing farm animals for their respective uses. The feeding of the various classes of animals will be studied, and most profitable methods of feeding and management during the different periods of growth. The chief object of the course is to acquaint the student with the fundamental principles of stock feeding, after which the practical side of the question will be considered, enabling him to compound rations and calculate the nutritive ratios of same. Lectures and recitations from Smith's *Practical Stock Feeding*. Four periods, third term. Required of Sophomores. Assistant Professor CURTIS.

14. Live-stock Management, Horses.—Lectures and recitations on the proper care and management of the horse will be given. The important phases of the subject considered will be adaptation, feeding, training, regulation of work, exercise, and grooming. Two periods, first term. Required of Seniors. Assistant Professor CURTIS.

15. Live-stock Management, Sheep and Swine.—This course includes lectures and recitations on the feed, care and management of sheep and swine in relation to the respective uses for which they are grown, whether for breeding or market purposes. Three periods, third term. Required of Seniors. Assistant Professor CURTIS.

16. Animal Husbandry.—Study of breeds, live-stock judging and their management, animal breeding, herd books, and stock feeding. Lectures will begin on all the above subjects, which will be supplemented with practical work as far as possible. Three periods. Required of one-year students. Assistant Professor CURTIS.

DAIRYING.

Dairy Equipment.—The dairy laboratory occupies about four thousand square feet of floor space on the floor of the new Agricultural Building, besides the locker-rooms and the toilet and bath rooms on the same floor and the dairy lecture-room on the second floor used by the dairy students.

The main dairy laboratory is 36 by 57 feet and is fitted throughout with modern equipment suited to giving up-to-date instruction in farm dairying, retailing milk, and creamery practice. The equipment for the farm dairying consists, in the main, of DeLaval, Sharples, Empire, National, and Simplex hand separators, swing and barrel hand churns of different sizes; cream vats; hand and power butter-workers; aerators and coolers; milk testers; and other articles useful in doing farm dairy work.

Milk testing, which plays such an important part in all phases of dairy work, receives a great deal of attention. Several sizes of hand machines and a twenty-four bottle power tester are used in this work, together with all equipment necessary for testing milk, cream, butter, cheese, skim-milk, buttermilk, whey, and also the use of the lactometer.

The equipment for giving instruction in commercial dairying consists of milk pump, receiving vat, tempering vat, turbine separator, continuous pasteurizer, combined churn and butter-worker, bottling outfit, and bottle washing and sterilizing outfit.

Subjects of Instruction.

17. Dairying.—Text-book and lecture course covering the fundamental principles of modern dairying. Two periods, third term. For Freshmen.

Laboratory course consists of practise in the use of modern dairy equipment. Each student is required to become familiar with the

construction and operation of the leading makes of separators. Proficiency is required of the students in milk testing, standardizing milk and cream, cream ripening, churning, working, packing and scoring butter. Three periods, third term. For Freshmen. Assistant Professor KENDALL.

18. Dairy Bacteriology.—Lecture and text-book course covering the more important facts in the relation of bacteria to dairying. Two periods, first term. For Seniors.

Laboratory course consists in demonstrating and supplementing the lecture course. Practise is given in pasteurizing milk and cream for market; making and using starters in butter and cheese-making. One period. For Seniors. Assistant Professor KENDALL.

19. Cheese-making.—This is a lecture and laboratory course on the manufacture of the leading brands of cheese. Three periods, second term. For Seniors. Assistant Professor KENDALL.

20. Experimental Dairying.—Lecture and laboratory practice in making butter and cheese of special commercial importance, and a critical study of dairy literature. Three periods, third term. For Seniors. Assistant Professor KENDALL.

21. Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he is familiar with their construction and until he becomes proficient in operating them.

The laboratory course is supplemented with lectures of a practical nature covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Assistant Professor KENDALL.

22. Poultry Husbandry.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; capons and caponizing; incubation and brooding. Three periods, third term. For Sophomores and one-year students. Mr. JEFFREY.

23. Poultry Husbandry.—Theory and practice of judging fowls by comparison and score-card; special poultry keeping for special markets; comparison of different systems of poultry keeping; a discussion of articles by best writers in poultry press. Three periods, third term election. Mr. JEFFREY.

Poultry Equipment.—The poultry plant has nineteen breeding pens with necessary yards, the houses being of several different types best suited to poultry keeping in North Carolina, an incubator cellar with several different makes of incubators and a brooder-house being heated by hot water. Both indoor and outdoor brooders of several different makes are used.

There is also a feed-room equipped with steam engine, grist and bone mills.

The following varieties of poultry are kept: Barred, Buff and White Plymouth Rock; White and Buff Wyandotte; White and Brown Leghorn; Buff Dopington, Light Brahma, Black Minorca, and Pekin Ducks.

HORTICULTURE.

The Horticultural Department occupies rooms in the Agricultural Building, including class-rooms, laboratory, vegetable and fruit cold-storage rooms. It also has a large laboratory connected with the greenhouses. The laboratories are used for such work as seed selection, bud studies, propagation work, budding, grafting, transplanting, study of varieties of fruits, nuts, and vegetable seeds.

The greenhouses consist of three glass structures heated by hot water. They are used for the growing of ornamentals, vegetables and many exotic plants; a large amount of laboratory work is also carried on in these houses. The student learns the use, importance, and culture of these plants. Many of them are also used to illustrate interesting and instructive characteristics of plant life.

The department is well supplied with apparatus for laboratory work, such as apparatus for seed testing, budding knives, grafting tools, pruning shears and saws, spray pumps, seed drills, and wheel hoes.

The College campus is used in teaching ornamental gardening and a study of economic trees and shrubs. The experimental orchards are freely used for illustrative purposes.

Laboratory work accompanies every subject, always supplementing the class work given at the same time.

Subjects of Instruction.

26. **Fruit Culture.**—A course treating of the location and soil for fruits, varieties, planting, cultivation, fertilizing, pruning, harvesting, and marketing for North Carolina fruits. Five periods, first term. Required of Freshmen. Assistant Professor REIMER.

27. Vegetable Gardening.—This course deals with the selection and preparation of soil for vegetables, construction of hot-beds and cold frames, fertilizing, handling of seeds, irrigation, transplanting, storing, and culture of all important vegetables. Special stress is laid on the trucking industry in North Carolina. Five periods, second term. Required of Freshmen.

28. Landscape Gardening.—This course deals with the planning, arrangement and care of home grounds, parks and cemeteries. Special stress is laid on home grounds. It treats especially of lawns, trees and shrubs, flowers and flower-beds, and the grouping of these. The campus, city parks, and many beautiful home grounds give exceptional opportunities for this. Three periods, third term. Required of Juniors. Assistant Professor REIMER.

29. Harvesting and Marketing Fruits.—This course deals with picking, grading, packing, and transportation of products. Also selling, fruit unions, and markets. Text-book and lectures. Three periods, first term. Elective for Seniors. Assistant Professor REIMER.

30. Forestry.—This course consists of a thorough study of the fundamentals of forestry. It deals especially with the need, influence, formation, care, and improvement of forests. Also the cutting, use and handling of forest products. A study is made of the forest trees of greatest importance in America. Three periods, first term. Elective for Seniors. Assistant Professor REIMER.

31. Floriculture.—In this course the important subject of forcing flowers and vegetables is taken up. It deals with the construction, heating, and ventilation of forcing-houses. Also the culture of the leading flowers and vegetables in such houses. Lectures and text-book. Three periods, second term. Elective for Seniors. Assistant Professor REIMER.

32. Plant Breeding.—This course gives a brief review of what has been accomplished in plant breeding and a discussion of the most important problems at the present time. It deals with the principles of plant breeding as laws of breeding, crossing, selection and origination and improvement of varieties. The subject is treated from the horticulturist's viewpoint, dealing with fruits, vegetables, and flowers. Lectures, text-book and laboratory work. Three periods, second term. Elective for Seniors. Assistant Professor REIMER.

33. Horticultural Research.—The last term of the Senior year the student makes a thorough study of modern experimental horticulture. The leading horticultural investigations of the past and present are studied. A study is also made of all important literature of some horticultural subject. The latter will be chosen with reference

to the student's future work. Six periods, third term. Elective for Seniors. Assistant Professor REIMER.

34. Horticulture.—The course in Horticulture will be just as practical as it is possible to make it. The fall term will be devoted to fruit culture. Instruction will be given in budding, grafting, planting, varieties, preparation of soil, best methods of cultivation, cover crops, fertilizers, manures, pruning, and methods of harvesting and marketing. The instruction will apply especially to North Carolina.

During the winter term the subject of vegetable gardening will be taken up. This includes a discussion of the great trucking industry in North Carolina, possibilities in trucking in the State; soil for vegetables and how best to prepare different soils for vegetables; fertilizers and manures for vegetables; the home fruit and vegetable garden, how to get early and late crops; planting and transplanting; hot-beds and cold frames; best methods of cultivating these crops; varieties, harvesting, and marketing.

The work during the spring term will be a continuation of the work given during the winter term. A few lectures will also be given on the improvement of home grounds and on forestry. Third period. Required of one-year students. Assistant Professor REIMER.

BOTANY AND VEGETABLE PATHOLOGY.

Equipment.

Three commodious laboratories and a large recitation and lecture-room are devoted to Botany, Bacteriology, and Vegetable Pathology. A research-room is provided for the use of advanced students. There are also offices for the professor and instructors; a store-room, a dark-room, an incubator-room, and a cold-room. All rooms are supplied with electricity, gas, hot and cold water, and the bacteriological laboratory is, in addition, provided with steam under 80 pounds pressure for purposes of sterilizing. The laboratories are supplied with wall-cases, shelves, herbarium cases, specimen boxes, sterilizers, incubators, microscopes, microtomes, a liberal supply of glassware, and such small utensils as are needed in the prosecution of the work. The incubator-room is fire-proof and is provided with a Weisnegg regulator capable of keeping the temperature of the room practically invariable. The excellent herbarium has been mounted and is now accessible for class use. There is an extensive collection of seeds, both of weeds and cultivated plants, and the most important plant diseases are represented by herbarium and alcoholic specimens. The

greenhouse is of great utility as a source of material for seed-testing and for conducting experiments in plant physiology and pathology.

Subjects of Instruction.

35. Elementary Botany.—Weekly lectures, accompanied by laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed-plants. The principles of plant-breeding, crossing, pollination, budding, and grafting are taught. The student's knowledge is made his own through field-work and simple independent investigations. Three periods. Required of Freshmen and one-year students. Professor STEVENS.

36. Systematic Botany.—The student becomes acquainted with the principal orders and families of plants of North Carolina, as well as with the general problems of plant classification. Attention is given to the grouping of plants into societies and to the study of plant variation and adaptation. Three periods, third term. Required of Sophomores. Professor STEVENS.

37. Economic Botany.—A study of the more important groups of economic plants, weeds, and medicinal plants; seed-testing, nitrification, denitrification, and nitrogen fixation; origin of cultivated plants; bacteria and fungi in their relation to Agriculture. Two periods, third term. Elective for Seniors. Professor STEVENS.

38. Plant Diseases.—Lectures and laboratory study of the principal types of plant diseases produced by bacteria, fungi, or physiological derangement, with specific consideration of the methods of treatment. This course emphasizes the principles of plant disease and places the student in a position to employ prophylactic and remedial methods rationally. Three periods, first term. Required of Sophomores and one-year students. Professor STEVENS.

39. Plant Disease (Advanced).—Methods of culture and investigation of plant disease. This course is intended to prepare the student for original investigation in plant diseases. Two periods, first term. Elective for Seniors. Professor STEVENS.

40. General Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation, disinfection, and to the relation of bacteria to disease in plants and animals. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology.

Two periods. Required of Juniors. Professor STEVENS and Mr. TEMPLE.

41. Bacteriology (Advanced).—A course designed to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil, or air. The course is flexible and will be made to fit the requirements of those students electing it. Two periods. For Seniors. Professor STEVENS.

VETERINARY SCIENCE.

The object of the teaching in this department is not to turn out veterinarians, but to more thoroughly equip the agricultural student for the breeding and management of live-stock. In addition to the work required of all students in the Agricultural courses, as outlined below, the Senior students in the four-year course in Agriculture may elect to do three periods a week during the entire year. When so elected, this work will be of a more advanced nature, but supplementary to that required of all students in the Agricultural courses.

43. Veterinary Anatomy.—Lectures, illustrated by charts, models, skeletons, sketches, and by dissections.

Special attention will be given to the organs of digestion and locomotion and such other parts as are of particular interest to the stock farmer. Four periods, first term. Required of Juniors. Doctor ROBERTS.

44. Veterinary Medicine.—Lectures on the actions, uses, and doses of the most common veterinary medicines, and the nature and cause of disease, with special reference to its prevention. Four periods, second term. Required of Juniors. Professor BUTLER and Doctor ROBERTS.

45. Veterinary Practice.—Lectures on the most common diseases and injuries of domestic animals, with appropriate treatment for the same. When practicable, these lectures will be illustrated by clinics, which will enable the student to become more familiar with the different diseases and perform minor surgical operations under the direction of the instructor. Four periods, third term. Required of Juniors. Professor BUTLER and Doctor ROBERTS.

46. Veterinary Medicine.—Advanced course in veterinary medicine and surgery. Three periods. For Seniors. Professor BUTLER.

ZOOLOGY.

(Diseases of Live-stock).

48. Elementary Zoology.—The fundamental principles of animal life, together with a knowledge of the structure and classification of animals, are developed by lectures, laboratory work, and reading. One term is devoted to vertebrates and invertebrates, exclusive of insects, but including some of the common parasites infesting man and the domestic animals. This course is intended to present a general view of the animal kingdom and to lay a foundation for the more special subjects that are to follow. Four periods, first term. Required of Freshmen. Doctor ROBERTS.

49. Animal Physiology.—A comparative study of the bodily functions of man and of the domestic animals. The subject will be covered by lectures and recitations, with laboratory experiments to illustrate principles of physiology. Four periods, second and third terms. Required of Freshmen. Doctor ROBERTS.

ENTOMOLOGY.

51. Elementary Economic Entomology.—Elements of insect structure and classification. Injurious insects and remedies: *a*, of orchards; *b*, of small fruits; *c*, of truck and garden crops; *d*, of cotton, corn, tobacco, grains, and grasses; *e*, of forest, shade, and ornamental plants; *f*, of barn, mill, and household. Lectures and demonstrations. Three periods, second term. Required of Sophomores. Mr. SHERMAN and Mr. WOGLUM.

52. Systematic Entomology.—Systematic study of orders and families of insects, with special reference to structure, classification, life-history and habits. Lecture and laboratory practice. Two periods, second and third terms. For Seniors and Juniors. Mr. SHERMAN and Mr. WOGLUM.

GEOLOGY.

58. Geology.—Scott's *Introduction to Geology*. In the first part of the course the principles of Dynamical Geology, the forces which have modified and are still modifying the earth, are considered. The results of those forces are seen and studied in the structure of the earth and in the phenomena of volcanoes, earthquakes, faults and folds, crust movements, etc. In the latter part of the course the life-history of the earth as recorded in the rocks is studied. Special attention is given to the commonly occurring rocks and ores, and the main fea-

tures of the geology of North Carolina form an integral part of the course. The text is supplemented by lectures. Two periods. Required of Seniors.

CHEMISTRY.*

61. Inorganic Chemistry.—Remsen's *Introduction to the Study of Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated with experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS and Doctor HOFFMAN.

62. Inorganic Chemistry.—Laboratory work. Remsen and Randall's *Chemical Experiments.* The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the class-room. He records in a note-book his observations and the conclusions drawn from them. Two periods. Required of Sophomores. Mr. WILSON.

63. Organic Chemistry.—Remsen's *Introduction to the Study of the Compounds of Carbon.* The fundamental principles of organic chemistry and the more important compounds are studied. Two periods. Elective for Seniors. Professor WITHERS.

64. Analytical Chemistry.—Treadwell's *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work in qualitative analysis. The student is taught to detect the presence of the common metallic elements, as well as of the acids in unknown substances. A considerable portion of the time is given to lectures and recitations upon the principles involved in the different tests, writing reactions, etc. Eight periods, first term. Elective for Seniors. Doctor HOFFMAN.

65. Analytical Chemistry.—Treadwell's *Quantitative Analysis.* Introductory work in gravimetric and volumetric analysis, followed by analyses of the substances most closely related to agriculture, as fertilizers, feeding stuffs, milk, butter, etc. A considerable portion of the time is given to the discussion of the principles involved in the different analytical methods. Eight periods, second and third terms. Elective for Seniors who have taken Course 64. Doctor HOFFMAN.

66. Agricultural Chemistry.—Ingle's *Agricultural Chemistry.* A study of the facts obtained by the application of chemistry and chemical methods of investigation to agriculture. The laws of plant and animal nutrition, the economical feeding of plants and animals, and the maintenance of the fertility of the soil are considered from the

* For further information, see course in Chemistry.

chemical standpoint. Two periods. Required of Juniors. Professor WITHERS.

68. Industrial Chemistry.—Thorpe's *Outlines of Industrial Chemistry.* A discussion of the processes and principles involved in the more important chemical industries, particularly those whose raw materials are supplied by agriculture or whose products are utilized in agriculture. Two periods. Elective for Seniors. Professor WITHERS.

PHYSICS.*

71. Elementary Physics.—Properties of matter; fundamental units. British and metric standard measures; definitions of force, work, and power; laws of motion; principles of machines; mechanics of fluids; heat; sound; introduction to the study of light. Two periods. Required of Sophomores. Mr. HEWLETT.

DRAWING.†

76. Free-hand Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Two periods, first term. Required of Sophomores. Mr. VAUGHAN.

77. Elementary Mechanical Drawing.—Use of instruments; geometric drawing; elementary projection; isometric and cabinet drawing; drawings made to scale from working sketches of pieces of a machine. Two periods, second and third terms. Required of Sophomores. Mr. VAUGHAN.

SHOP-WORK.†

78. Wood-work.—Use of bench tools; working from drawings, lining, sawing, planing; practise in making simple exercises in wood; elementary exercises in wood-turning. Two periods, first and second terms. Required of Juniors. Required of second-year students. Mr. CLAY.

79. Forge-work.—Exercises in forging and welding; making exercises of iron; care of forge tools and fires. One period, first and second terms. For Juniors. One period, third term. Mr. DEAL.

MATHEMATICS.

81. Algebra.—Wells' *Higher Algebra.* Begin with quadratic equations and complete logarithms, embracing ratio and proportion, variation, the progressions, the binomial theorem, series and partial frac-

* For full information in regard to the Department of Physics, see course in Electrical Engineering.

† For full information in regard to shop-work, drawing, and other Mechanical Engineering subjects, see course in Mechanical Engineering.

tions. Five periods, first term; two periods, second term. Required of Freshmen. Mr. RICHARDSON and Mr. J. A. PARK.

82. Geometry.—Wentworth's *Plane and Solid Geometry. Plane Geometry.* Three periods, second term; five periods, third term. Required of Freshmen. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

ENGLISH.

87. English Composition.—A drill on the forms of the language, the correct relation of words, the sentence, and the paragraph. Daily written exercises. Three periods. Required of first-year students. Doctor SUMMEY and Mr. BONN.

88. Introductory Composition and Rhetoric.—This course in the fundamentals of rhetoric is made thoroughly practical. Students write instead of studying about how to write. The written work is accompanied by a steady drill on grammatical forms, accuracy, and ease of expression. The student is taught to plan all work, and then to develop his plan in simple, idiomatic English. Three periods. Required of Freshmen. Professor HILL, Doctor SUMMEY, and Mr. BONN.

89. Rhetoric, Criticism, Essays.—The student is taught the essentials of a good style by constant practise. Themes in narration, description, and exposition receive in this course especial attention. Required of Sophomores. Three periods, first term. Professor HILL, Doctor SUMMEY, and Mr. BONN.

90. Argumentation.—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of many exercises. Required of Seniors. Two periods, third term. Professor HILL.

91. American Literature.—By means of an introductory text and by much reading, students are introduced to what is best in the literature of their own country. Books are studied at first hand. Synopses, paraphrases, and critiques required. Three periods, second and third terms. Required of Sophomores. Professor HILL, Doctor SUMMEY, and Mr. BONN.

92. English Literature.—The development of English literature through its great periods and through its representative men. Much parallel reading is required. In a general way Minto's plan of study is followed. Two hours, second and third terms. Required of Juniors. Two periods, first and second terms. Required of Seniors. Professor HILL.

HISTORY.

93. English History.—The text is supplemented by lectures on important periods. Two periods, first term. Required of Juniors. Professor HILL.

BUSINESS LAW AND CIVICS.

95. Business Law.—This course includes such subjects as contracts, agency, sales, negotiable paper, insurance, patent rights, etc. The purpose of the course is to teach the general principles of business law. Text-book, Parsons' *Laws of Business*. One period. Required of Seniors. President WINSTON.

POLITICAL ECONOMY AND GOVERNMENT.

97. Political Economy.—This course deals with public problems relating to the production, distribution, and exchange of wealth. The leading topics discussed are capital, wages, money, transportation, and taxation. Instruction is given by lectures and text-books. One period. Required of Juniors. President WINSTON.

98. Advanced Political Economy and Government.—Two periods. Elective for Seniors. President WINSTON.

MILITARY SCIENCE.

99. Drill.—School of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Marches and Minor Tactics. United States Infantry Drill Regulations. Three periods, first term. Two periods, second and third terms. Required of all classes except Seniors. Seniors are to either take drill or two extra hours in some other subject instead. Commandant and Officers of the Battalion.

100. Tactics.—Theoretical instruction in Infantry Drill, Field Service, Army Regulations, Guard Duty, and Target Practice. One period. Required of Juniors. Lieutenant YOUNG.

ENGINEERING COURSES.

Four-year Courses in

II. Civil Engineering.
III. Mechanical Engineering.
IV. Electrical Engineering.
V. Mining Engineering.
VI. Industrial Chemistry.

Two-year Courses in

IIIa. Mechanic Arts.
IVa. Applied Electricity.

COURSE IN CIVIL ENGINEERING.

The aim of the course in Civil Engineering is to give such training as will enable our young men to take an active part in the work of advancing our State along material lines—developing its water-power, building railroads and public highways, constructing water supply and sewerage systems for our towns, etc. The student is given a large amount of practical work in the field and drafting-room, and acquires a fair degree of efficiency in the use of the various surveying instruments, and in drafting. At the same time it is recognized that a successful engineer requires a well-trained mind—one that reasons logically, accurately, and quickly. Therefore a thorough course is given in all those branches of Applied Mathematics which are involved in the solution of engineering problems.

The aim has been to make this pre-eminently a technical course, yet subjects of general culture are included in order to give the student a broader mental training and better preparation for social and business life.

II. The Four-year Course in Civil Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.*		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135 †	2	--	--
Mechanical Drawing, 136	--	2	--
Descriptive Geometry, 137	--	--	2
Wood-work, 146	2	2	2
Forge-work, 147	2	2	2
Algebra, 263	5	2	--
Geometry, 264	--	3	5
Physics, 176	4	4	4
Physical Laboratory, 178	1	1	1
English, 272	3	3	3
Military Drill, 299	3	2	2

Sophomore Year.

Architecture, 115	2	--	--
Architectural Drawing, 116	2	2	2
Geometry, 265	5	--	--
Advanced Algebra	--	3	--
Trigonometry, 267	--	2	5
Descriptive Geometry, 105	--	2	2
Electricity and Magnetism, 177	2	2	2
Inorganic Chemistry, 216	3	3	3
Inorganic Chemistry (laboratory), 217	2	2	2
English, 273 and 275	3	3	3
Military Drill, 299	3	2	2

* The lecture and recitation periods are one hour; the laboratory, shop, and other practise periods, two hours.

† The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Junior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Surveying, 102 and 103	2	2	2
Surveying (field-work), 104	2	2	2
Construction, 111	2	--	--
Drawing, 105	2	2	2
Graphic Statics, 101	--	2	2
Mechanics, 128	3	3	3
Analytical Geometry, 268	4	4	--
Calculus, 269	--	--	4
English and History, 283 and 276	2	2	2
Political Economy, 297	1	1	1
Military Tactics, 300	1	1	1
Military Drill, 299	3	2	2

Senior Year.

Mechanics of Materials, 112	3	--	--
Construction, 111	--	2	2
Road-building, 113	2	--	--
Roofs and Bridges, 109	3	--	--
Bridge Design, 106	--	4	4
Municipal Engineering, 107	--	2	2
Surveying (field-work), 103	2	--	--
Hydraulics, 110	--	3	3
Calculus, 269	3	--	--
Geology, 211	2	2	2
Astronomy, 114	--	2	2
English, 276 and 274	2	2	2
Business Law, 295	1	1	1
Military Drill, 299	3	2	2

CIVIL ENGINEERING.

Equipment.

There is a complete equipment of all instruments necessary to civil engineering field-work.

Subjects of Instruction.

101. Graphic Statics.—Determination of stresses in frame structures by graphical methods. Lectures and original problems. Two periods, second and third terms. Required of Juniors in Civil and in Mining Engineering. Professor RIDDICK.

102. Surveying.—Land surveying, leveling, elements of triangulation, topographical surveying, road-making. Merriman's *Land Surveying*. Two periods, first term. Required of Juniors in Civil and in Mining Engineering and of Seniors in Mechanical Engineering. Mr. LANG.

103. Railroad Engineering.—Reconnaissance, preliminary and location surveys, cross-sections, etc. Searles' *Field Engineering*. Two periods, second and third terms. Required of Juniors in Civil and in Mining Engineering. MR. LANG.

104. Surveying.—Field-work. Use of instruments, compass, level, transit and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes and platting. Two periods. Required of Juniors in Civil and in Mining Engineering. Two periods, second and third terms. Required of Seniors in Mechanical Engineering.

105. Drawing.—Descriptive Geometry, Stereotomy. Text-book, lectures, problems, and completed drawings. Two periods, second and third terms. Required of Sophomores in Civil Engineering. Two periods. Required of Juniors in Civil Engineering. Mr. LANG.

106. Bridge Design.—Calculation of stresses, design, specifications, and estimate of cost of a wooden roof truss and a steel highway bridge. Four periods, second and third terms. Required of Seniors in Civil Engineering. Professor RIDDICK.

107. Municipal Engineering.—Text-books, lectures. Two periods, second and third terms. Required of Seniors in Civil Engineering. Professor RIDDICK.

108. Surveying.—Field-work. Triangulation and topography, surveys for sewers, water-works, etc. Two periods, first term. Required of Seniors in Civil Engineering. Mr. MANN.

109. Roofs and Bridges.—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and*

Bridges. Original problems. Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

110. Hydraulics.—Methods of measuring flow of streams, laws governing flow in pipes and conduits, determination of water-power in streams, testing of hydraulic motors. Text-book, Merriman's *Hydraulics.* Three periods, second and third terms. Required of Seniors in Engineering. Professor RIDDICK.

111. Construction.—Masonry, foundations, railroads, dams, retaining walls, arches, etc. Baker's *Masonry Construction.* Lectures. Two periods, first term. Required of Juniors in Civil and in Mining Engineering. Two periods, second and third terms. Required of Seniors in Civil and Mining Engineering. Professor RIDDICK.

112. Mechanics of Materials.—Study of stresses in beams, columns, etc. Merriman's *Mechanics of Materials.* Three periods, first term. Required of Seniors in Civil and in Mechanical Engineering. Professor RIDDICK.

113. Road-building.—Text-book on construction of roads, streets, and pavements. Lectures on practical road-making in North Carolina. Two periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

114. Astronomy.—Determination of Azimuth, Latitude and Longitude, Time. Comstock's *Astronomy for Civil Engineers.* Two periods, second and third terms. Required of Seniors in Civil Engineering. Professor RIDDICK.

ARCHITECTURE.

115. Architecture.—Building materials, methods of constructing buildings, plans, specifications, bill of materials, estimate of cost, design of buildings. Lectures. Two periods, first term. Required of Sophomores in Civil Engineering. Professor RIDDICK.

116. Architectural Drawing.—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Two periods. Required of Sophomores in Civil Engineering. Mr. MANN.

128. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a rigid body, momentum and impact, work, power, friction, application of principles to various engineering problems. Three periods. Required of Juniors in Civil and Mining Engineering. Mr. LANG and Mr. MANN.

COURSES IN MECHANICAL ENGINEERING AND MECHANIC ARTS.

The regular Four-year Course in Mechanical Engineering is intended to fit the student for positions of responsibility in engineering work, and also to furnish him with a basis to carry on more advanced engineering studies. It treats of the development and transmission of power, the design and construction of machines, and the calibration and efficiency tests of machinery, boilers, and engines.

The Two-year Course is offered to students who wish to become machinists, draughtsmen, stationary engineers, or dynamo tenders.

The courses follow closely the methods adopted by the large manufacturing companies, both in drawing-room system and shop methods.

III. The Four-year Course in Mechanical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135	2	--	--
Mechanical Drawing, 136	--	2	--
Descriptive Geometry, 137	--	--	2
Wood-work, 146	2	2	2
Forge-work, 147	2	2	2
Algebra, 263	5	2	--
Geometry, 264	--	3	5
Physics, 176	4	4	4
Physical Laboratory, 178	1	1	1
English, 272	3	3	3
Military Drill, 299	3	2	2

Sophomore Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Mechanical Drawing, 139	2	2	2
Forge-work, 148	2	--	--
Pattern-making, 149	--	2	2
Geometry, 265	5	--	--
Advanced Algebra, 266	--	3	--
Trigonometry, 267	--	2	5
Electricity and Magnetism, 177	2	2	2
Physical Laboratory, 179	1	1	1
Inorganic Chemistry, 216	3	3	3
Inorganic Chemistry (laboratory), 217	2	2	2
English, 273 and 275	3	3	3
Military Drill, 299	3	2	2

Junior Year.

Boilers, 157	2	--	--
Steam Engines, 158	--	2	--
Valve Gears, 159	--	--	2
Applied Mechanics, 169	3	3	3
Machine Design, 140	2	2	2
Machine-shop Work, 150	2	2	2
Dynamo Machinery, 183	2	2	2
Analytical Geometry, 268	4	4	--
Calculus, 269	--	--	4
English and History, 283 and 276	2	2	2
Political Economy, 297	1	1	1
Military Tactics, 300	1	1	1
Military Drill, 299	3	2	2

Senior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Machine Design, 141	2	3	3
Machine-shop Work, 151	3	3	3
Power Plants, 161	--	--	4
Gas Engines, 162	5	--	--
Refrigeration, 163	--	3	--
Heating and Ventilation, 166	--	1	1
Pumping Machinery, 165	--	1	--
Structural Engineering, 167	--	2	2
Mechanics of Materials, 112	3	--	--
Steam Engineering Laboratory, 168	2	2	2
Calculus, 269	3	--	--
Hydraulics, 110	--	3	3
English, 276 and 274	2	2	2
Business Law, 295	1	1	1
Military Drill, 299	3	2	2

IIIa. The Two-year Course in Mechanic Arts.

First Year.

Free-hand Drawing, 135	4	--	--
Mechanical Drawing, 136	--	4	--
Descriptive Geometry, 137	--	--	4
Wood-work, 146	3	3	3
Forge-work, 147	3	3	3
Mechanical Technology, 152	1	1	1
Arithmetic, 261	5	--	--
Algebra, 262	--	5	5
English, 271	3	3	3
Military Drill, 299	3	2	2

Second Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Mechanical Drawing, 171	2	2	2
Machine-shop Work, 150	3	3	3
Drawing, 171, or Machine-shop Work, 150	3	3	3
Mechanical Technology, 172	1	1	1
Steam and Steam Machinery, 173	2	2	2
Physics, 195, Drawing, 171, or Shop-work, 150*	5	--	--
Electricity, 196, Drawing, 171, or Shop-work, 150*	--	5	--
Electrical Laboratory, 197, Drawing, 171, or Shop-work, 150*	--	--	5
Algebra, 263, Drawing, 171, or Shop-work, 150*	5	2	--
Geometry, 264, Drawing, 171, or Shop-work, 150*	--	3	5
Military Drill, 299	3	2	2

* Shop-work to be either wood-working or machine-shop.

MECHANICAL ENGINEERING.

Equipment.

The drawing and recitation rooms and shops of the Department of Mechanical Engineering are in the Engineering Building. They are of ample size and well lighted, and are arranged to be heated either by the exhaust steam from the engine or by live steam. On the first floor are the steam laboratory, machine shop, forge shop, wood-turning and carpenter shop, office, and library. On the second floor are the recitation-room, two drawing-rooms, and a wood-finishing room. In the office are kept on file various scientific and technical journals, the trade circulars of prominent engineering firms, drawings and photographs of machinery, and tabulated data, as well as a large number of engineering books, the use of which is required.

The department is provided with the necessary apparatus for making boiler and engine tests and for other work of an experimental character. The equipment consists of a two-horse-power engine, a ten-horse-power engine, a one-horse-power gasoline engine (all of which were built by students), a twenty-five-horse-power Woodbury engine, a Wheeler surface condenser, connected with a 4½ x 6x6 Blake air-pump, an Ericsson hot-air pumping engine, apparatus for

making analyses of flue gases, a fuel calorimeter, a water-motor, a Worthington water-meter, a complete Westinghouse air-brake equipment, a New York air-brake equipment in section, friction brakes, weirs, indicators, planimeters, slide rules, thermometers, calorimeters, gauges, tanks, scales, a Crosby gauge tester, two hydraulic rams, a 15,000-pound Olsen testing machine, and other apparatus for making tests.

The boiler-house is equipped with one thirty-horse-power and two forty-horse-power horizontal return tubular boilers and two seventy-five-horse-power Babcock and Wilcox boilers and several pumps, all of which are available for experimental purposes.

The shops are equipped as follows:

The wood-working equipment consists of fifteen double carpenters' benches, which accommodate thirty students, and all necessary tools for each bench; thirty 12-inch turning lathes, each lathe being fully equipped with turning tools; a rip and a cut-off saw bench, foot-feed, with dado attachment; a double revolving rip and cut-off saw bench, with dado attachment; a 20-inch surface planer; a 12-inch hand-jointer or buzz planer; a universal boring machine; a 6½-inch tenoning machine with cope heads; a 6-inch sash and blind sticker; a 30-inch band-saw; a jig-saw; a shaper or edge-moulding machine, with a very complete set of moulding cutters; a 38-inch grindstone; a wood trimmer; an adjustable miter-box; a steam glue-heater, and a large assortment of screw and bar clamps, both iron and wooden.

The forge shop is a well-lighted and ventilated, neatly-paved room, 30 x 40 feet. It is equipped with twenty-eight forges, blast being furnished from a Sturtevant blower; two emery and two buffing wheels; a Buffalo Forge Company's hand drill; an overhead exhaust system, operated by a 60-inch Sturtevant exhaust fan, for removing smoke from the fires; anvils and all necessary hand tools.

The machine shop contains a 16-inch Davis and Eagan lathe with 10-foot bed, a 14-inch Windsor lathe with 5-foot bed, a 13-inch Barnes lathe with 5-foot bed, a 14-inch Putnam lathe with a 4-foot bed, a 14-inch Flather lathe with 6-foot bed, three 14-inch lathes with 6-foot bed (built in the College shops by students), an 18-inch Prentiss shaper, a 24-inch upright Bickford drill press, a 32-inch American drill press, a Brown & Sharp universal milling machine with all attachments, a 20-inch by 5-foot Pease planer, one large and one small emery tool-grinding machine, a 6-inch Curtis & Curtis pipe-threading and cutting machine, a Greenwich arbor press and an electric center grinder. The machines have full equipment of chucks, rests, and tools. The benches are well provided with vises.

The tool-room is well equipped with the necessary hand and pipe tools.

The power for the shops is furnished by a twenty-five-horse-power Woodbury engine. When the shops are running one of the students has charge of the engine.

Subjects of Instruction.

135. Free-hand Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine; use of instruments, and tracing. Two periods, first term. Required of Freshmen. Four periods, first term. Required of first-year students. Mr. VAUGHAN.

136. Elementary Mechanical Drawing.—Geometric drawing, isometric and cabinet drawing, elementary projections, drawings made to scale from working sketches of pieces of a machine. Two periods, second term. Required of Freshmen. Four periods, second term. Required of first-year students. Mr. VAUGHAN.

137. Descriptive Geometry Drawing.—Elementary principles; cylinders, cones, and prisms, intersections, development of surfaces. Miscellaneous problems. Two periods, third term. Required of Freshmen. Four periods, third term. Required of first-year students. Mr. VAUGHAN.

139. Mechanical Drawing.—Working sketches and drawings of machine parts from the model. Tracing and blue-printing. Elementary machine design. Two periods. Required of Sophomores in Mechanical, Electrical, and Mining Engineering, Chemistry and Dyeing. Mr. LAWRANCE.

140. Machine Design.—Study of the communication of motion by gear wheels, cams, belts, and link-work; automatic feed, parallel and quick motions. Epicylic trains. Calculations and working drawings of machine parts, such as fastenings, hangers, couplings, and bearings. Estimating and checking of working drawings. Two periods. Required of Juniors in Mechanical Engineering. Mr. LAWRANCE.

141. Machine Design.—Estimating, checking of working drawing, original design. Calculations and working drawings of types of engines, boilers, pumps, condensers, shafting, etc. Two periods, first term. Three periods, second and third terms. Required of Seniors in Mechanical Engineering. Mr. LAWRANCE.

Students are required to stamp their drawings with the College stamp, similar to the practice in the drawing-rooms of the large manufacturing companies. Encouragement is given to original design, especially when carried through the shops to a complete working machine.

146. Wood-work.—Use of bench tools, working from drawings, lining, sawing, planing. Practise in making simple exercises in wood. Elementary exercises in wood-turning. Two periods. Required of Freshmen. Two periods. Required of first-year students. Mr. CLAY.

147. Forge-work.—Exercises in working with iron. Welding. Uses and care of forge tools and fires. Two periods. Required of Freshmen and first-year students. Mr. DEAL.

148. Forge-work.—Exercises in working with steel. Tempering. Case-hardening. Two periods, first term. Required of Sophomores in Mechanical, Electrical, and Mining Engineering. Mr. DEAL.

149. Pattern-making.—Exercises in making patterns and moulds of machine parts. Two periods, second and third terms. Required of Sophomores in Mechanical, Electrical, and Mining Engineering. Mr. CLAY.

150. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe-work, boring, reaming, drilling, planing, milling, and shaper-work. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Three periods. Required of second-year students in Mechanic Arts. Mr. PARK.

151. Machine-shop Work.—Making the parts of some machine, or of an engine. Making tools, such as taps and reamers. Laying out work. Working from drawings, duplicate and interchangeable parts. Working to standard gauges. Three periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

In all practical courses the student's attention is directed to cost of production and its principal elements—time and method.

152. Mechanical Technology.—Classification and uses of wood-working and forging tools and machines. Methods of wood-working and forging. Care of belting and shafting. One period. Required of first-year students in Mechanic Arts. Mr. CLAY.

157. Boilers.—Steam generation; types, care and management; fittings and appliances, corrosion and incrustation; combustion of fuel. Boiler power. Two periods, first term. Required of Juniors in Mechanical Engineering, and of Seniors in Electrical and in Mining Engineering. Professor THOMAS.

158. Steam Engines.—Types—simple and compound, and triple expansion, automatic, Corliss, rotary, turbines. Care and management. Indicators, indicated and brake horse-power. Condensers. Two periods, second term. Required of Juniors in Mechanical Engineering, and of Seniors in Electrical and Mining Engineering. Professor THOMAS.

159. Valve Gears.—Plain slide valve, balance valve, Corliss and other form valve gears, link and radial reversing gears. Shaft governors. Bilgram and Zeuner valve diagrams. Two periods, third term. Required of Juniors in Mechanical Engineering, and of Seniors in Mining Engineering. Professor THOMAS.

161. Power Plants.—Mechanical Engineering of power plants. Selection and arrangement of machinery, appliances, piping. Four periods, third term. Required of Seniors in Mechanical Engineering. Professor THOMAS.

162. Gas Engines.—Theory of the gas engine. Various types of gas, gasoline, and oil engines. Brake and indicated horse-power; efficiency. Gas producers. Five periods, first term. Required of Seniors in Mechanical Engineering. Professor THOMAS.

163. Refrigeration.—Various types of ice-making machinery. Compression and absorption systems. Carbon dioxide and compressed-air machines. Three periods, second term. Required of Seniors in Mechanical Engineering. Professor THOMAS.

165. Pumping Machinery.—Direct acting, fly-wheel and duplex and centrifugal pumps. Pumping engines. Water-works machinery. Duty and efficiency. Hydraulic engines. One period, second term. Required of Seniors in Mechanical Engineering. Professor THOMAS.

166. Heating and Ventilation.—Steam, hot water, furnace and blower systems of heating. Heating boilers. Ventilation. Design of heating and ventilating system. One period, second and third terms. Required of Seniors in Mechanical Engineering. Professor THOMAS.

167. Structural Engineering.—The manufacture and uses of different metals—rolled sections used in bridge, structural work, and general engineering. Two periods, second and third terms. Required of Seniors in Mechanical Engineering. Mr. LAWRANCE.

168. Steam Engineering Laboratory.—Practise in engine running; valve-setting; calibration of instruments; testing gauges and lubricants. Use of indicators and calorimeters. Boiler tests; engine tests. Two periods; required of Seniors in Mechanical Engineering. One period; required of Seniors in Electrical Engineering. A brief course in surveying is given, so as to enable a student to locate buildings, foundations, line up shafting, engines, and machinery by the use of transit and level. Professor THOMAS and Mr. LAWRANCE.

169. Applied Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a right body, momentum and impact, work, power, friction, application of principles

to various engineering problems. Three periods. Required of Juniors in Mechanical and Electrical Engineering. Mr. LAWRANCE.

171. Mechanical Drawing.—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blueprinting. Two periods. Required of second-year Mechanic Arts students. Two periods, first term. Required of second-year students in Applied Electricity. Mr. LAWRANCE.

172. Mechanical Technology.—Classification and use of hand-tools and machines usually found in the pattern shop, foundry, and machine shop. Materials used and methods of carrying on work in these shops. Practical problems in estimating cost and material required to complete a piece of work; arrangement and sizes of belting, pulleys, and shafting. One period. Required of second-year students in Mechanic Arts and Applied Electricity. Professor THOMAS.

173. Steam and Steam Machinery.—Descriptive study of the machinery of steam power plants—engines, boilers, condensers, pumps, piping. Care and management. Combustion of fuels. Indicators; indicated, brake and boiler horse-power problems. Two periods. Required of second-year students in Mechanic Arts and Applied Electricity. Professor THOMAS.

COURSE IN ELECTRICAL ENGINEERING.

Object.—The four-year course is designed for those who wish a thorough and practical training in Electrical Engineering. Only a most thorough training in the fundamental facts and principles of the science of electricity and magnetism will be satisfactory for a branch of engineering which is advancing so rapidly. A great deal of attention is, therefore, paid to good text-book work, and as soon as the first principles of the science are mastered by the student, he is given a series of experiments in which careful measurements with exact instruments are made.

The department, as can be seen from the list of apparatus, is well equipped with dynamos, electric motors, and testing instruments for experimental work and for investigation of problems in electrotechnics. During the Senior year a course in designing the various electrical machines is given.

A two-year course in Applied Electricity is offered to those who wish to fit themselves for positions as dynamo tender, motorman, or electrician.

IV. The Four-year Course in Electrical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Elementary Physics, 176	4	4	4
Physical Laboratory, 178	1	1	1
Free-hand Drawing, 135	2	--	--
Mechanical Drawing, 136	--	2	--
Descriptive Geometry, 137	--	--	2
Wood-work, 146	2	2	2
Forge-work, 147	2	2	2
Algebra, 263	5	2	--
Geometry, 264	--	3	5
English, 272	3	3	3
Military Drill, 299	3	2	2

Sophomore Year.

Electricity and Magnetism, 177	2	2	2
Physical Laboratory, 179	1	1	1
Mechanical Drawing, 139	2	2	2
Geometry, 265	5	--	--
Advanced Algebra, 266	--	3	--
Trigonometry, 267	--	2	5
Inorganic Chemistry, 216	3	3	3
Inorganic Chemistry (laboratory), 217	2	2	2
Forge-work, 148	2	--	--
Pattern-making, 149	--	2	2
English, 273 and 275	3	3	3
Military Drill, 299	3	2	2

Junior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Dynamo Machinery, 183	2	2	2
Electrical Laboratory, 180	2	2	2
Machine-shop Work, 150	2	2	2
Machine Design, 140	2	2	2
Applied Mechanics, 169	3	3	3
Analytical Geometry, 268	4	4	--
Calculus, 269	--	--	4
English and History, 283 and 276	2	2	2
Political Economy, 297	1	1	1
Military Tactics, 300	1	1	1
Military Drill, 299	3	2	2

Senior Year.

Alternating Currents, 184	3	--	--
Electric Power Transmission, 185	--	3	--
Electric Light and Railway Systems, 186	--	--	3
Electrical Engineering (laboratory), 189	4	--	--
Electrical Engineering (laboratory), 190	--	4	4
Electrical Design, 191	2	2	2
Electrical Engineering, 192	--	--	2
Boilers, 157	2	--	--
Steam Engines, 158	--	2	--
Steam Engineering (laboratory), 168	1	1	1
Calculus, 269	3	--	--
Hydraulics, 110	--	3	3
Business Law, 295	1	1	1
English Literature, 276 and 274	2	2	2
Military Drill, 299	3	2	2

IVa. The Two-year Course in Applied Electricity.

First Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135	4	--	--
Mechanical Drawing, 136	--	4	--
Descriptive Geometry, 137	--	--	4
Wood-work, 146	3	3	3
Forge-work, 147	3	3	3
Mechanical Technology, 152	1	1	1
Arithmetic, 261	5	--	--
Algebra, 262	--	5	5
English, 271	3	3	3
Military Drill, 299	3	2	2

Second Year.

Physics, 195	5	--	--
Electricity, 196	--	5	--
Electrical Laboratory, 197	--	--	5
Electrical Construction, 198	--	2	2
Mechanical Drawing, 171	2	--	--
Machine-shop Work, 150	2	2	2
Mechanical Technology, 172	1	1	1
Steam Engineering Machinery, 173	2	2	2
Algebra, 263	5	2	--
Geometry, 264	--	3	5
Military Drill, 299	3	2	2

PHYSICS.

Equipment.

The recitation-rooms and laboratories of the Department of Physics are situated in the basement of the principal building. They are spacious and well lighted.

The equipment consists of apparatus for illustrating the principles of physical science and for instruction and practice in experiments, measurements, and tests.

Subjects of Instruction.

176. Elementary Physics.—Properties of matter; fundamental units; British and metric standard measures; definitions of force, work, and power; laws of motion; principles of machines; mechanics of fluids; heat; sound; introduction to the study of light. Four periods. Required of Freshmen. Professor PAINE.

177. Elementary Lessons in Electricity and Magnetism.—Two periods. Required of Sophomores. Professor PAINE.

178. Physical Laboratory.—Fundamental measurements of length, mass, and time. Determination of laws and forces, velocities, friction and periodic motion. Study of mechanical advantage and efficiency of simple machines. The strength of various metals and wood. One period. Required of Freshmen. Mr. HEWLETT.

179. Physical Laboratory.—Continuation of Course 178. Elementary experiments in magnetism. The electric circuit. Primary batteries. Measurement of electro-motive force, current, and resistance. Telegraph and telephone circuits. Required of Sophomores in Electrical and Mechanical Engineering. Mr. ADAMS.

180. Electrical Laboratory.—Use of laboratory instruments. Advanced measurement of resistance, current, and electro-motive force. Use of condensers. Electrical testing of lines for insulation and grounds. Magnetic properties of iron. Two periods. Required of Juniors in Electrical Engineering. Mr. ADAMS.

ELECTRICAL ENGINEERING.

Equipment.

The electrical engineering laboratory is a small brick building 30 by 50. It contains the electric light plant, consisting of a 35-horse-power automatic Skinner engine, an 11.5 K. W. 110-volt Westinghouse dynamo, a 30 K. W. 3-phase 550-volt Westinghouse alternator, and a 20 K. W. 2-phase 110-volt Lincoln alternator. The laboratory

contains in addition to this one 6-light T. H. arc machine, one 1-horse-power Sprague motor, one 8 K. W. 110-volt Siemens & Halske dynamo, connected in such a way as to give 3-phase currents, one 2-horse-power 3-phase 110-volt Gen. Elect. Co. motor, one 2 K. W. 110-volt LaRoche alternator. Two 25-horse-power Gen. Elect. Co. 500-volt railway motors. One 10-horse-power Stanly induction motor. It also contains transformers, condensers, arc lamps, circuit breakers, etc.

The department possesses a small library of standard books on all branches of physics and electrical engineering.

183. Dynamo Machinery.—A study of direct current dynamos and motors. Efficiency. Characteristic curves. Required of Juniors in Mechanical and Electrical Engineering. Two periods. Professor PAINE.

184. Alternating Currents of Electricity.—Principles of alternating currents. Alternating current generators and motors. Static and rotary transformers. Three periods, first term. Required of Seniors in Electrical Engineering. Professor PAINE.

185. Electric Power Transmission.—Direct current systems. Power transmission by single and polyphase alternating currents. Long distance, high potential lines. Three periods, second term. Required of Seniors in Electrical Engineering. Professor PAINE.

186. Electric Light and Railway Systems.—The design and operation of lighting and railway plants. Estimates of costs. Three hours, third term. Required of Seniors in Electrical Engineering. Professor PAINE.

189. Electrical Engineering Laboratory.—Laboratory methods. Calibration of electrical measuring instruments. Study of direct current apparatus. Characteristic curves. Photometry. Efficiency of direct current generators and motors. Four periods, first term. Required of Seniors in Electrical Engineering. Mr. ADAMS.

190. Electrical Engineering Laboratory.—Characteristic curves of alternating current generators. Study of inductance and capacity. Efficiency of alternating current apparatus, including motors, generators, and transformers. Four periods, second and third terms. Required of Seniors in Electrical Engineering. Mr. ADAMS.

191. Electrical Design.—The design of magnets, rheostats, dynamos, and transformers. Two periods. Required of Seniors in Electrical Engineering. Mr. ADAMS.

192. Electrical Engineering Practice.—The application of electricity for lighting and power. Electricity in cotton mills and machine shops. Two periods, third term. Required of Seniors in Electrical Engineering. Professor PAINE.

195. Physics.—The properties of matter. Mechanics. The principles of the simple machines. Five periods. Required of second-year students in Applied Electricity and in Mechanic Arts. Mr. HEWLETT.

196. Electricity.—Principles of the electric circuit. Batteries. Electro-magnets. Dynamos. Motors. Electric bell, telephone, and telegraph systems. Five periods, second term. Required of second-year students in Applied Electricity and in Mechanic Arts. Mr. HEWLETT.

197. Electrical Laboratory.—Management of dynamos and motors. Care of station equipment. Study of arc lamps. Transformers. Five periods, third term. Required of second-year students in Applied Electricity and in Mechanic Arts. Mr. HEWLETT.

198. Electrical Construction.—Bell wiring. Electric light wiring. Coil winding for dynamo and motor fields. Armature winding. Repair of electrical apparatus. Two periods, second and third terms. Required of second-year students in Applied Electricity. Mr. ADAMS.

COURSE IN MINING ENGINEERING.

The course in Mining Engineering is intended to give the student the preliminary training necessary to enable him to enter upon a career in mining. To this end he is given instruction in English, History, Political Economy, and Mathematics, which are fundamental to the more technical studies and to the greatest usefulness as a citizen. Instruction in Physics and Chemistry, Mineralogy and Geology, Surveying, Shop-work, Drawing, Machinery, and Steam affords the scientific and engineering knowledge upon which the successful work of the miner must depend. The more technical portion of the instruction includes ore dressing, metal-working, ventilation, drainage, and illumination of mines.

V. The Four-year Course in Mining Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135	2	--	--
Mechanical Drawing, 136	--	2	--
Descriptive Geometry, 137	--	--	2
Wood-work, 146	2	2	2
Forge-work, 147	2	2	2
Algebra, 263	5	2	--
Geometry, 264	--	3	5
Physics, 176	4	4	4
Physical Laboratory, 178	1	1	1
English, 272	3	3	3
Military Drill, 299	3	2	2

Sophomore Year.

Mechanical Drawing, 139	2	2	2
Forge-work, 148	1	--	--
Pattern-making, 149	--	1	1
Geometry, 265	5	--	--
Advanced Algebra, 266	--	3	--
Trigonometry, 267	--	2	5
Electricity and Magnetism, 177	2	2	2
Physical Laboratory, 179	1	1	1
Inorganic Chemistry, 216	3	3	3
Inorganic Chemistry (laboratory), 217	2	2	2
English, 273 and 275	3	3	3
Military Drill, 299	3	2	2

Junior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Construction, 111	1	--	--
Graphic Statics, 101	--	1	1
Surveying, 102 and 103	2	2	2
Surveying (field-work), 104	2	2	2
Drawing, 105	2	2	2
Mechanics, 128	3	3	3
Analytical Geometry, 268	4	4	--
Calculus, 269	--	--	4
English and History, 283 and 276	2	2	2
Political Economy, 297	1	1	1
Military Tactics, 300	1	1	1
Military Drill, 299	3	2	2

Senior Year.

Mining, 296	--	4	4
Ore Dressing, 207	4	--	--
Geology, 211	2	2	2
Metallurgy, 208	--	2	2
Mineralogy, 212	4	--	--
Assaying, 209	--	2	2
Boilers, 157	2	--	--
Steam Engines, 158	--	2	--
Valve Gears, 159	--	--	2
Hydraulics, 110	--	3	3
Calculus, 269	3	--	--
English, 276 and 274	2	2	2
Business Law, 295	1	1	1
Military Drill, 299	3	2	2

MINING AND METALLURGY.

206. Mining.—Lectures on methods of mining, including prospecting, sinking, sloping, hoisting, pumping, and ventilating; the location of mining claims, mine fires, fire-damp and dust explosions; inundations; rescue and relief of men. Four periods, second and third terms. Required of Seniors in Mining.

207. Ore Dressing.—Furnishing products for metallurgical treatment. Lectures on concentrating machinery and concentrating and enriching ores by mechanical means. Four periods, first term. Required of Seniors in Mining.

208. Metallurgy.—Introductory: combustion, calorific calculations, fuels, refractory materials, furnaces, etc. Iron and steel: the various iron and steel processes, metallography, heat treatment, mechanical treatment, chemistry. Copper: roasting, smelting, refining, wet and electrolytic processes. Gold: stamp milling, amalgamation, cyanide and chlorination processes. The metallurgy of lead and the lesser metals. Two periods, second and third terms. Required of Seniors in Mining.

209. Assaying.—Ricketts & Miller's *Notes on Assaying*. Lectures and laboratory practice in the crushing and sampling of ores; the assaying of gold, silver, lead, and other ores; corrected assays; bullion assays; extraction tests. Two periods, second and third terms. Required of Seniors in Mining.

GEOLOGY AND MINERALOGY.

211. Geology.—Scott's *Introduction to Geology*. In the first part of the course the principles of Dynamical Geology, the forces which have modified and are still modifying the earth, are considered. The results of these forces are seen and studied in the structure of the earth and in the phenomena of volcanoes, earthquakes, faults and folds, crust movements, etc. In the latter part of the course the life-history of the earth as recorded in the rocks is studied. Special attention is given to the commonly occurring rocks and ores, and the main features of the geology of North Carolina form an integral part of the course. The text is supplemented by lectures. Two periods. Required of Seniors in Civil Engineering, in Mining, and in Chemistry.

212. Mineralogy.—Moses & Parsons' *Mineralogy*. Descriptive and determinative mineralogy; blowpipe analysis and the study of the more important minerals, their properties, uses, and methods of determination. Recitations and laboratory practice. Four periods, first term. Required of Seniors in Mining.

COURSES IN INDUSTRIAL CHEMISTRY.

In harmony with the general purposes for which the College was founded, the course in chemistry is arranged to prepare young men for careers in the analytical or the operating departments of the various chemical industries. To this end the training given in general, organic, and analytical chemistry is supplemented by instruction in technical chemical analysis and in the applied chemical subjects bearing more directly on the course the student has selected. The fundamental principles of engineering, machinery, etc., which are almost indispensable to the successful management of chemical plants, are taught, together with the cultural studies included in the other courses.

Raleigh as a Chemical Center.

There are in the city of Raleigh and its vicinity several manufacturing plants to which, through the courtesy of the owners, the students in chemistry, in company with the teaching staff of the department, make visits each year. These include plants for the manufacture of illuminating gas, sulphuric acid, fertilizers, and ice; for the extraction of cotton-seed oil; and for the dyeing of cotton goods.

The chemical laboratories of the North Carolina Department of Agriculture and of the North Carolina Agricultural Experiment Station are located in Raleigh, and through the courtesy of the officials in charge of these departments our students are welcomed whenever they desire to visit them.

The State Museum is open to the public each day, and among other things contains a very excellent collection of the State's minerals, ores, and building stones.

Chemical Equipment.

The laboratories of general and analytical chemistry are located in the main building of the College, and are well furnished. The tables are of yellow heart-pine with oak tops. Each student is provided with water, gas, all necessary reagents, ample working space, together with lockers for the storage of apparatus, etc. The quantitative laboratory is located on the first floor and will accommodate thirty-two students. The laboratory for introductory chemical work is in the basement and will accommodate one hundred and eighteen students.

The chemical library is well supplied with reference books. It receives the leading chemical journals and owns complete sets of many of the most important of them.

Graduates in Chemistry.

The chemical graduates of the College are engaged in the following lines of chemical work: Manufacture of illuminating gas, manufacture of sulphuric acid, manufacture of fertilizers, manufacture of tobacco products, refining and testing oils, metallurgy of iron, metallurgy of copper, dyeing of cotton goods, in agricultural experiment stations, in State departments of agriculture, and in teaching chemistry. These are employed in North Carolina and eleven other States.

VI. The Four-year Course in Industrial Chemistry, leading to the degree of Bachelor of Science.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135	2	--	--
Mechanical Drawing, 136	--	2	--
Descriptive Geometry, 137	--	--	2
Wood-work, 146	2	2	2
Forge-work, 147	2	2	2
Physics, 176	4	4	4
Physical Laboratory, 178	1	1	1
Algebra, 263	5	2	--
Geometry, 264	--	3	5
English, 272	3	3	3
Military Drill, 299	3	2	2

Sophomore Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Inorganic Chemistry, 216	3	3	3
Inorganic Chemistry (laboratory), 217	2	2	2
Electricity and Magnetism, 177	2	2	2
Physical Laboratory, 179	1	1	1
Elementary Botany, 241	3	3	3
Geometry, 265	5	--	--
Advanced Algebra, 266	--	3	--
Trigonometry, 267	--	2	5
English, 273 and 275	3	3	3
Military Drill, 299	3	2	2

Junior Year.

Agricultural Chemistry, 232	3	3	3
Organic Chemistry, 218	3	3	3
Analytical Chemistry, 220 and 226	3	3	3
Chemical Seminary	1	1	1
Bacteriology, 251	2	2	2
English and History, 283 and 276	2	2	2
Political Economy, 297	1	1	1
Military Tactics, 300	1	1	1
Military Drill, 299	3	2	2

Senior Year.

Industrial Chemistry, 233	3	2	2
Analytical Chemistry, 226	7	7	7
Organic Chemistry (laboratory), 219	4	4	4
Chemical Seminary	1	1	1
Bacteriology, 252	2	2	2
English, 276 and 274	2	2	2
Business Law, 295	1	1	1
Military Drill, 299	3	2	2

CHEMISTRY.

216. Inorganic Chemistry.—Remsen's *Introduction to the Study of Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS and Doctor HOFFMAN.

217. Inorganic Chemistry.—Laboratory work. Remsen and Randall's *Chemical Experiments.* The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the class-room. He records in a note-book his observations and the conclusions drawn from them. Two periods. Required of Sophomores. Mr. WILSON.

218. Organic Chemistry.—Remsen's *Introduction to the Study of the Compounds of Carbon.* The fundamental principles of organic chemistry and the more important compounds are studied. Two periods. Required of Juniors in Chemistry. Professor WITHERS.

220. Analytical Chemistry.—Treadwell's *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common metallic elements, as well as that of the acids, in unknown substances. Eight periods, first term. Required of Juniors in Chemistry. Doctor HOFFMAN.

226. Analytical Chemistry.—Treadwell's *Quantitative Analysis.* Gravimetric and volumetric analysis, special attention being given to the analysis of substances of technical importance. Eight periods, second and third terms. Required of Juniors in Chemistry. Seven periods. Required of Seniors in Chemistry. Doctor HOFFMAN.

228. Organic Chemistry.—Laboratory work. Gattermann's *Practical Methods of Organic Chemistry,* translated by Shober. The typical transformations and syntheses of the aliphatic and aromatic groups are taken up. The student thus becomes familiar with the reactions and properties of the more important organic compounds. One of each of the more important classes of dye-stuffs is prepared and the properties studied. Four periods. Required of Seniors in Chemistry. Doctor SYME.

232. Agricultural Chemistry.—Ingle's *Agricultural Chemistry.* A study of the facts obtained by the application of chemistry and chemical methods of investigation to agriculture. The laws of plant and animal nutrition, the economical feeding of plants and animals, and the maintenance of the fertility of the soil are considered from

the chemical standpoint. Two periods. Required of Juniors in Chemistry. Professor WITHERS.

233. **Industrial Chemistry.**—Thorpe's *Outlines of Industrial Chemistry.* A discussion of the processes and principles involved in the more important chemical industries. A discussion of the materials of engineering. Two periods. Required of Seniors in Chemistry. Professor WITHERS.

BOTANY.

241. **Elementary Botany.**—Weekly lectures, accompanied by laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed-plants. The principles of plant-breeding, crossing, pollination, budding, and grafting are taught. The student's knowledge is made his own through field-work and simple independent investigations. Three periods. Required of Sophomores in Chemistry. Professor STEVENS.

BACTERIOLOGY.

251. **General Bacteriology.**—Lectures and laboratory work on the nature, physiology, morphology, and economy of bacteria, with especial reference to home sanitation, disinfection, and to the relation of bacteria to disease in plants and animals. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Two periods. Required of Juniors in Chemistry. Professor STEVENS and Mr. TEMPLE.

252. **Bacteriology Advanced.**—A course designed to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil, or air. The course is flexible and will be made flexible to fit the requirements of those students taking it. Two periods. Required of Seniors in Chemistry. Professor STEVENS.

MATHEMATICS.

While the subject of Mathematics is presented in such a manner that the student obtains a thorough working knowledge of those principles which he needs in his Engineering Courses, yet, at the same time, it is not the purpose to subordinate the general theory of Mathematics to the practical side. The work consists of recitations,

written exercises and lectures, the scope being quite sufficient for the needs of the institution.

261. Arithmetic.—Milne's *Standard Arithmetic.* Begin with decimal fractions and complete the subject. Five periods, first term. Required of first-year students. Mr. J. A. PARK and Mr. RICHARDSON.

262. Algebra.—Wells's *Higher Algebra* up to quadratic equations. Five periods, second and third terms. Required of first-year students. Mr. J. A. PARK and Mr. RICHARDSON.

263. Algebra.—Wells's *Higher Algebra.* Begin with quadratic equations and complete logarithms, embracing ratio and proportion, variation, the progressions, the binomial theorem, series and partial fractions. Five periods, first term; two periods, second term. Required of Freshmen and second-year students in Mechanic Arts. Mr. RICHARDSON and Mr. J. A. PARK.

264. Geometry.—Wentworth's *Plane and Solid Geometry.* Plane Geometry. Three periods, second term; five periods, third term. Required of all Freshmen and second-year students in Mechanic Arts. Professor YATES, Mr. RICHARDSON, and Mr. J. A. PARK.

265. Solid Geometry.—Required of Sophomores. Five periods, first term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

266. Advanced Algebra.—Wells's *Higher Algebra.* Compound interest and annuities, permutations, combinations, continued fractions, general theory of equations, and the solution of higher equations, etc. Required of Sophomores. Three periods, second term. Professor YATES and Mr. J. A. PARK.

267. Trigonometry.—Phillips & Strong's *Plane and Spherical Trigonometry.* Plane Trigonometry. Solution of plane triangles, triangulation, etc. Spherical Trigonometry. Solution of spherical triangles. Required of Sophomores. Two periods, second term; five periods, third term. Professor YATES and Mr. J. A. PARK.

268. Analytical Geometry.—Nichols's *Analytical Geometry.* Loci of equations, straight line, circle, parabola, ellipse, hyperbola, a discussion of the general equation of the second degree, higher plane curves and geometry of three dimensions. Four periods, first and second terms. Required of Juniors in Engineering. Professor YATES.

269. Differential and Integral Calculus.—Osborne's *Elements of Calculus.* A thorough treatment of the fundamental principles and derivation of formulæ; applications to various problems, such as expansion into series, evaluation of undeterminate forms, maxima and minima, radius of curvature, lengths of curves, areas, volumes, etc. Required of Juniors. Four periods, third term. Required of Seniors, three periods, first term. Professor YATES.

ENGLISH.

271. English Composition.—A drill on the forms of the language, the correct relation of words, the sentence, the paragraph. Daily written exercises. Three periods. Required of first-year students. Doctor SUMMEY and Mr. BONN.

272. Introductory Composition and Rhetoric.—This course in the fundamentals of Rhetoric is made thoroughly practical. Students write instead of studying about how to write. The written work is accompanied by a steady drill on grammatical forms, accuracy, and ease of expression. The student is taught to plan all work, and then to develop his plan in simple, idiomatic English. Three periods a week. Required of Freshmen. Professor HILL, Doctor SUMMEY, and Mr. BONN.

273. Rhetoric, Criticisms, Essays.—The student is taught the essentials of a good style by constant practise. Themes in narration, description, and exposition receive in this course especial attention. Required of Sophomores. Three periods, first term. Professor HILL, Doctor SUMMEY, and Mr. BONN.

274. Argumentation.—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of many exercises. Required of Seniors. Two periods, third term. Professor HILL.

275. American Literature.—By means of an introductory text and by much reading, students are introduced to what is best in the literature of their own country. Books are studied at first hand. Synopses, paraphrases, and critiques required. Three periods, second and third terms. Required of Sophomores. Professor HILL, Doctor SUMMEY, and Mr. BONN.

276. English Literature.—The development of English Literature through its great periods and through its representative men. Much parallel reading is required. In a general way Minto's plan of study is followed. Two periods, third term. Required of Juniors. Two periods, first and second terms. Required of all Seniors. Professor HILL.

HISTORY.

281. American History.—By means of a text-book, supplemented by lectures and frequent assignment of topics for special study, students are in this course familiarized with the leading facts in the history of the United States. Two periods. Required of first-year students. Doctor SUMMEY.

283. English History.—The first term of the Junior year is devoted to a study of English history. The text is supplemented by lectures on important periods. Two periods, first and second terms. Required of Juniors. Professor HILL.

BUSINESS LAW AND CIVICS.

295. Business Law.—This course includes such subjects as contracts, agency, sales, negotiable paper, insurance, patent rights, etc. The purpose of the course is to teach the general principles of business law. Text-book: Parson's *Laws of Business*. One period, Seniors. Required of Seniors. President WINSTON.

POLITICAL ECONOMY AND GOVERNMENT.

297. Political Economy.—This course deals with public problems relating to the production, distribution, and exchange of wealth. The leading topics discussed are capital, wages, money, transportation, and taxation. Instruction is given by lectures and text-books. Required of Juniors. One period. President WINSTON.

298. Advanced Political Economy and Government.—Two periods. Elective for Seniors. President WINSTON.

MILITARY SCIENCE.

299. Drill.—Schools of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Marches and Minor Tactics. United States Infantry Drill Regulations. Three hours. Required of all classes except Seniors. Seniors are to either take drill or two extra hours in some other subject instead. Commandant and Officers of the Battalion.

300. Tactics.—Theoretical instruction in Infantry Drill, Field Service, Army Regulations, and Guard Duty. One period. Required of Juniors. Lieutenant YOUNG.

TEXTILE COURSES.

VIII. The Four-year Course in Textile Industry.
VIIIa. The Two-year Course in Textile Industry.
VIIIb. Special Ten-weeks Course in Carding and Spinning.
VIIIc. Special Ten-weeks Course in Weaving and Designing.

THE TEXTILE DEPARTMENT.

The Textile Department is located in a new building recently erected for its use. The instruction given in this department is in the theory and practice of cotton manufacturing. The building, which is a typical cotton mill, is fully equipped with all the necessary machinery for manufacturing cotton yarns and fabrics from the bale to the finished product. The student is taught the theory of cotton spinning, weaving, designing, and dyeing. In connection with the theory, he learns the practical operation of the cotton machinery used in carrying on the different processes. Further, he learns such essential practical details as enable him to adjust and fix the machinery so as to produce the proper results. As a result of this training, each student produces for himself cotton yarns of different numbers, cotton fabrics of different kinds from his own designs and choice of colors.

TEXTILE INSTRUCTION.

In this department three courses of instruction are offered, the Four-year Course leading to the degree of Bachelor of Engineering, the Two-year Course and the Ten-weeks Winter Course in carding and spinning, weaving, and designing.

Four-year Course.

The Four-year Course offers complete facilities for full instruction in all branches of cotton-mill work. Practical training in textile work begins in the Freshman year and forms a part of the work in each of the following years. The combination of practical with theoretical training is begun in the Sophomore year and continues in the Junior and Senior years. The theoretical work is directly related to the practical work going on, and this combination offers the best means for studying cotton-mill work and its operations.

Two-year Course.

The Two-year Course is offered to mature students who cannot spend the time required for the Four-year Course, or who have had considerable practical experience in the mill and wish to avail themselves of our facilities for giving special instruction in textile work. Students eighteen years of age or over are admitted to this course without examination.

Special Ten-weeks Courses.

Special Ten-weeks Courses are offered to practical mill men in carding and spinning, weaving and designing. These courses are given during the winter of each year, beginning with the opening of College in January and lasting until the middle of March. They aim to meet a demand from cotton-mill superintendents, overseers, and practical men for special instruction in the subjects named.

The textile instruction given is of a practical nature and covers the entire ground of cotton manufacturing. Its object is to prepare the student for a useful career in this industry. There is a demand from the mills in this and other States for young men technically trained in the manufacture of cotton goods, especially of the finer grades. That the graduates are meeting with success in this industry is shown by the positions held by them. Among these are president, secretary and treasurer, manager, superintendent, designer, overseer of weaving, mill architect, machinery salesman. In fact, the graduates have gone into almost every branch of cotton manufacturing and have met with success. All have received the same training. The point to which each has advanced has depended upon the ability to deal with the general problems of manufacturing.

TEXTILE BUILDING AND EQUIPMENT.

The Textile Building is located on the west campus. It is a two-story brick building 125 x 75 feet, with a basement. Throughout, its construction is similar to a cotton mill, being an illustration of standard construction in this class of buildings. The basement is fitted up with a laboratory and class-room for instruction in dyeing and with dyeing machinery. On the first floor are located the hand and power looms and the necessary warp-preparation machinery. The carding and spinning machinery is located on the second floor. Electricity is used as motive power, the machinery of each department in the building being driven by a separate motor. The machinery

equipment consists of the latest types of cotton-mill machinery manufactured by American builders. The following is a list of the machines and their makers:

Carding Department.

Opening-room.—One combination opener and breaker lapper, made by Kitson Machine Co., Lowell, Mass. One 40-inch single beater finisher lapper, with patent carding beater, made by Kitson Machine Co., Lowell, Mass.

Carding-room.—One 40-inch revolving flat card, 112 flats, with coiler, made by Mason Machine Works, Taunton, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Whitin Machine Works; Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Saco and Pettee Machine Shops, Newton Upper Falls, Mass. One single railway head, with coiler, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One drawing frame, four deliveries, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One railway head, with coiler, metallic rolls, and improved evener motion, made by Saco and Pettee Machine Shops, Newton Upper Falls, Mass. One drawing frame, four deliveries, metallic rolls, made by Saco and Pettee Machine Shops, Newton Upper Falls, Mass. One sliver lap machine, one ribbon lap machine and one six-head combing machine, made by Whitin Machine Works, Whitinsville, Mass. One 36-spindle slubber for 11 x 5½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Co., Woonsocket, R. I. One 48-spindle intermediate roving frame for 9 x 4½-inch bobbin, made by Saco and Pettee Machine Shops, Biddeford, Me. One 64-spindle fine roving frame for 7 x 3½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Co., Woonsocket, R. I. One 80-spindle jack roving frame for 6 x 2½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Co., Woonsocket, R. I.

Spinning Department.

Spinning-room.—One 64-spindle spinning frame for warp; one 80-spindle spinning frame for filling, made by Whitin Machine Works, Whitinsville, Mass. One 80-spindle spinning frame for warp, one 80-spindle spinning frame for filling, made by Mason Machine Works, Taunton, Mass. One 80-spindle spinning frame for warp, one 80-spindle spinning frame for filling, made by Fales & Jenks Machine Co., Pawtucket, R. I. One 64-spindle spinning frame for warp, one 64-spindle spinning frame for filling, made by Saco and Pettee Ma-

chine Shops, Biddeford, Me. One 48-spindle spinning frame, combination build, made by D. A. Tompkins Co., Charlotte, N. C. One 240-spindle mule spinning frame, 1½-inch gauge, made by Asa Lees & Co., Oldham, England.

Spooling, Twisting, and Winding.—One 40-spindle spooler, made by Draper Company, Hopedale, Mass. One 40-spindle spooler, made by Whitin Machine Works, Whitinsville, Mass. One 32-spindle spooler, made by Easton & Burnham, Pawtucket, R. I. One 40-spindle spooler, made by D. A. Tompkins Co., Charlotte, N. C. One 48-spindle twister, made by Whitin Machine Works, Whitinsville, Mass. One 100-spindle wet twister, made by Draper Company, Hopedale, Mass. One 48-spindle twister, one-half for wet, one-half for dry twisting, made by Fales & Jenks Machine Co., Pawtucket, R. I. One 50-spindle reel, one-half live, one-half dead spindles, made by D. A. Tompkins Co., Charlotte, N. C. One 40-spindle reel, made by Draper Company, Hopedale, Mass. One 6-spindle universal winding machine, made by Universal Winding Co., Boston, Mass. One section warper, 400 ends, made by Draper Company, Hopedale, Mass.

Weaving Department.

Warp Preparation.—One 12-spindle bobbin-winding machine, made by Jacob K. Altemus, Philadelphia, Pa. One beaming machine, made by Lewiston Machine Co., Lewiston, Me. One beaming machine, complete, made by The T. C. Entwistle Co., Lowell, Mass.

Looms.—One Northrop-Draper print-cloth loom; one Northrop-Draper sateen loom; one Northrop-Draper loom with 20-harness dobby, made by Draper Company, Hopedale, Mass. Three high-speed sheeting looms, made by Kilburn & Lincoln, Fall River, Mass. One sheeting loom, one 12-harness dobby loom and one 24-harness dobby loom, made by Whitin Machine Works, Whitinsville, Mass. One print-cloth loom, one 2 x 1 box loom, one 24-harness dobby loom, made by Mason Machine Works, Taunton, Mass. One Crompton 4 x 1 box gingham loom, one Crompton 4 x 1 box loom with 20-harness dobby, one Crompton single-box loom with 400-hook Jacquard machine, one Knowles Gem loom with 4 x 4 box, one Stafford single-box loom with 20-harness dobby, made by Crompton & Knowles Loom Works, Worcester, Mass. One 2 x 1 box loom with 600-hook Jacquard machine, made by Joseph Battles Manufacturing Co., Lawrence, Mass. One 4 x 1 box table-cover loom with 624-hook Halton Jacquard machine, made by Crompton-Thayer Loom Co., Worcester, Mass. Ten 4 x 4 box hand looms with 30-harness witch-heads for narrow fabrics. Two 4 x 4 box hand looms with 400-hook and 600-hook Jacquard machines, from Thos. Halton's Sons, Philadelphia, Pa.

Dyeing Department.

The Dyeing Department is located in the basement of the Textile building, and consists of an experimental dyeing laboratory with desk room sufficient for thirty students, a lecture-room, a stock-room, an office, and a room 70 x 50 feet which is fitted up to give instruction in practical dye-house work.

The dyeing laboratory is well fitted up with appropriate work tables, and all the necessary apparatus for doing experimental dyeing, dye-testing, color-matching, the testing of dyed samples to light, acids, and alkalies, etc., as well as carrying out the various chemical operations necessary in dyeing. The dye-house is equipped with the proper dyeing machinery needed in the dyeing of larger quantities of material, and the giving of practical instruction in boiling out, bleaching, dyeing of raw stock, cops, skeins, warps, and piece goods.

The department has a large collection of dyestuffs and color cards. Through the kindness of the various dyestuff dealers and manufacturers the department is regularly supplied with all new dyestuffs and color cards as soon as they are put on the market, thus affording the student ample opportunity to become familiar with the latest methods and products for commercial work. The department is indebted to the following firms for donations of dyestuffs and chemicals:

Cassela Color Co., N. Y.
Continental Color and Chemical Co., N. Y.
H. A. Metz & Co., N. Y. (successors to Victor Koechl & Co.).
Berlin Aniline Works, N. Y.
A. Klipstein & Co., N. Y.
C. Bischoff & Co., N. Y.
Kuttroff, Pickhardt & Co., N. Y.
New York and Boston Dyewood Co., N. Y.
Schoelkoff, Hartford & Hanna Co., Buffalo, N. Y.
F. E. Atteaux & Co., Boston, Mass.
Read, Holliday & Sons, Ltd., N. Y.
Société Anonyne des Matiéres Colorantes, Paris.
O. S. Janney & Co., Philadelphia.
Geisenheimer & Co., N. Y.
Roessler and Hasslacher Chemical Co., N. Y.
Jas. S. and Thos. Elkington, Philadelphia, Pa.
Arabol Mfg. Co., N. Y.
Kalle & Co., N. Y.
Geigy Aniline and Extract Co., N. Y.

Power and Power Transmission.

One 30-horse-power 3-phase 550-volt motor, made by General Electric Co., for driving carding and spinning machinery.

One 15-horse-power 3-phase 550-volt motor, made by General Electric Co., for driving weaving machinery.

Pulleys, shaftings, hangers, and couplings, made by Jones & Laughlin Co., Ltd., Pittsburg, Pa.

Belting, made by Fayerweather & Ladew, New York City, and Maloney-Bennett Belting Co., Chicago, Ill.

Heating Plant.

Steam Coils and Blowing Fan, made by B. F. Sturtevant Co., Boston, Mass.

VIII. The Four-year Course in Textile Industry, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.*		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301†	1	1	1
Weaving, 302	2	2	2
Free-hand Drawing, 316	2	--	--
Mechanical Drawing, 317	--	2	--
Descriptive Geometry, 137	--	--	2
Wood-work, 320	2	2	2
Forge-work, 321	2	2	2
Algebra, 335	5	2	--
Geometry, 336	--	3	5
Elementary Physics, 331	2	2	2
English, 341	3	3	3
Military Drill, 359	3	2	2

*The lecture and recitation periods are one hour; the laboratory, shop, and other practise periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Sophomore Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301	2	2	2
Weaving, 302	2	2	2
Textile Designing, 303	2	1	1
Cloth Analysis, 304	--	1	1
Inorganic Chemistry, 309	3	3	3
Inorganic Chemistry (laboratory), 310	2	2	2
Geometry, 337	5	--	--
Advanced Algebra, 338	--	3	--
Trigonometry, 339	--	2	5
English, 342 and 344	3	3	3
Military Drill, 359	3	2	2

Junior Year.

Carding and Spinning, 301	4	4	4
Weaving, 302	3	3	3
Textile Designing, 303	2	1	1
Cloth Analysis, 304	--	1	1
Dyeing, 306	2	2	2
Dyeing (laboratory), 307	2	2	2
Machine-shop Work, 324	2	2	2
English and History, 347 and 345	2	2	2
Political Economy	1	1	1
Military Tactics, 360	1	1	1
Military Drill, 359	3	2	2

Senior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301	4	4	4
Weaving, 302	4	4	4
Textile Designing, 303	2	2	2
Cloth Analysis, 304	1	1	1
Warp Preparation (special), 302	--	--	2
Dyeing, 306	2	2	2
Boilers, 326‡	2	2	--
Engines, 227‡	--	2	--
English, 345 and 343	2	2	2
Business Law, 348	1	1	1
Military Drill, 359	3	2	2
May substitute Organic Chemistry, 311‡	2	2	2

VIIIa. The Two-year Course in Textile Industry.

First Year.

Carding and Spinning, 301	2	2	2
Weaving, 302	3	2	2
Textile Designing, 303	2	1	1
Cloth Analysis, 304	--	1	1
Free-hand Drawing, 316	2	--	--
Mechanical Drawing, 317	--	2	--
Descriptive Geometry, 318	--	--	2
Wood-work, 320	2	2	2
Forge-work, 321	2	2	2
Arithmetic, 333	5	--	--
Algebra, 334	--	5	5
English, 341	3	3	3
Military Drill, 359	3	2	2

Second Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301	5	5	5
Weaving, 302	5	6	6
Textile Designing, 303	2	1	1
Cloth Analysis, 304	--	1	1
Machine-shop, 324	2	2	2
Forge-work, 322	1	--	--
Pattern-making, 323	--	1	1
English, 342 and 344	3	3	3
Military Drill, 359	3	3	3

Description of Subjects.

301. Carding and Spinning.—Lectures and recitations; practise in operating card and spinning room machinery. Cotton: classifying the plant, its growth; varieties; ginning; baling and marketing the raw staple. Cotton at the mill: selecting and mixing. Openers and lappers: card; sliver lap machines; ribbon lap machines; combers; railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts; speed of parts; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: Cotton Mill Processes and Calculations, by Tompkins; Cotton Spinning, by Nasmith. Required of Freshmen and Sophomores, Juniors and Seniors in the Four-year Course and of first and second year students in the Two-year Course. Assistant Professor PARKER.

302. Weaving.—Lectures and practice in warp preparation, operating and fixing looms, cloth-finishing machinery. Warp preparation: pin frame warper; section warper; beam warper; construction of beam warper, stop motion, measuring motion, creel; pattern warp making; long and short chain beamers. Slashing: steam cylinder slasher; hot-air slasher; construction of slasher; creel; cylinders; immersion roll; squeeze rolls; drying fan; separator rolls; winding yarn on beam; cone drive; slow motion; measuring and cut marking

motion. Sizing: construction of size kettle; size mixing and boiling; division of sizing; ingredients; value of ingredients; sizing receipts for light, medium, and heavy sizing. Loom-mounting: reeds and harnesses; drawing in, and putting warps in loom. Looms: hand looms and power looms; construction of plain loom; principal movements in weaving; let-off and take-up motions; filling stop motion; warp stop motion. Cams and their construction. Magazine looms, construction and advantages. Drop box looms: chain building for box looms; changing boxes to have easy-running looms; construction and value of multipliers; timing and fixing box motions. Pick and pick-looms. Box-chain, and multiplier-chain building, arrangement of colors in boxes to give easy-running loom. Ball and shoe-pick motion. Construction and fixing of head motion. Dobby, single and double index; construction and fixing of dobby; extra appliances necessary for weaving leno, towel, and other pile fabrics. Value of easers; half motion; and jumper attachment for leno. Springs and spring-boxes. Pattern chain building. Jacquard: single and double lift; construction and tie-up. Weave-room calculations; speed and production calculations; relative speed of looms; counts of cotton harness. Finishing: inspection of cloth; singeing and brushing; calendering, tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: Weaving, Plain and Fancy, by Nelson. Required of Freshmen, Sophomores, Juniors, and Seniors in the Four-year Course and of first and second year students in the Short Course. Professor NELSON and Mr. STEED.

303. Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves: plain; twill; satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves; plain and fancy basket weaves; warp and filling rib weaves. Broken twills; curved twills; corkscrew twills; entwining twills. Granite weaves; satin shading. Combination of weaves; figured weaving on plain ground. Fancy satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno; honey-comb weaves. Bedford cords and combination with other weaves. Wave designs; pointed twills; diamond effects. Plain and fancy piqués. Double plain; figured double plain. Double cloths. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp; cloths ornamented with extra filling. Cotton velvet. Corduroy. Matelasse. Leno weaves with one, two, and more sets of doups. Principles of working both top and bottom doups. Combination of

plain and fancy weaves with leno. Methods of obtaining leno patterns. Jacquards. Distribution and setting out of figures for geometrical and floral effects. Distributing figures to prevent lines. Areas of patterns. Preparation of sketches. Transfer of sketches to design paper. Painting in the design with different weaves according to sketch. Shading of patterns. Card cutting and lacing. Required of Sophomores, Juniors, and Seniors in the Four-year Course, and of first and second year students in the Short Course. Professor NELSON, Mr. SHUFORD, and Mr. STEED.

304. Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yards. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of Sophomores, Juniors, and Seniors in the Four-year Course and of first and second year students in the Short Course. Professor NELSON, Mr. SHUFORD, and Mr. STEED.

DYEING COURSE.

As the textile industries of the State increase, the need of young men who have been trained in the principles as well as the practice of the different factory operations becomes apparent. In the course in dyeing the student is taught the different practical methods of the dye-house; the chemistry of the dyestuffs, some of each class of which he actually makes; the chemical changes brought about by mordants, assistants, etc. He also learns color matching, dye testing, and the methods for the analysis of the different chemicals used in the dye-house. He carries on the study of carding, spinning, weaving, designing, cloth analysis, etc., to the end of the Sophomore year, with the other textile students, and with them devotes attention to shop-work, drawing, engines, boilers, etc., together with the general studies of English, history, mathematics, physics, and general chemistry, which are required in all the Four-year Courses.

VII. The Four-year Course in Dyeing, leading to the degree of Bachelor of Science.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301	1	1	1
Weaving, 302	2	2	2
Free-hand Drawing, 316	2	--	--
Mechanical Drawing, 317	--	2	--
Descriptive Geometry, 137	--	--	2
Wood-work, 320	2	2	2
Forge-work, 321	2	2	2
Algebra, 335	5	2	--
Geometry, 336	--	3	5
Elementary Physics, 331	2	2	2
English, 341	3	3	3
Military Drill, 359	3	2	2

Sophomore Year.

Carding and Spinning, 301	2	2	2
Weaving, 302	2	2	2
Textile Designing, 303	2	1	1
Cloth Analysis, 304	--	1	1
Inorganic Chemistry, 309	3	3	3
Inorganic Chemistry (laboratory), 310	2	2	2
Geometry, 337	5	--	--
Advanced Algebra, 338	--	3	--
Trigonometry, 339	--	2	5
English, 342 and 344	3	3	3
Military Drill, 299	3	3	3

Junior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Dyeing, 306	2	2	2
Dyeing (laboratory), 307	2	2	2
Organic Chemistry, 311	2	2	2
Analytical Chemistry, 312 and 313	8	8	8
Chemical Summary	1	1	1
English and History, 345 and 347	2	2	2
Business Law and Civics, 348 and 349	1	1	1
Military Tactics, 360	1	1	1
Military Drill, 359	3	2	2

Senior Year.

Dyeing, 306	2	2	2
Industrial Chemistry, 315	2	2	2
Analytical Chemistry, 313	7	7	7
Organic Chemistry (laboratory), 314	4	4	4
Chemical Summary	1	1	1
English, 345 and 343	2	2	2
Political Economy, 351 and 352	1	1	1
Military Drill, 359	3	2	2

Description of Subject.

306. With the microscope and other testing apparatus the student makes a careful study of the various fibers used in the textile industry. He also studies the chemical and physical properties of these fibers; the action of acids, alkalies, heat, moisture, and the various other agencies to which fibers are liable to be subjected. He next takes up the study of the fundamental principles which underlie the arts of bleaching and dyeing, such as the boiling out and bleaching of cotton, and the chemical reactions involving each step. The adaptability of water for bleaching and dyeing, followed by the theories of dyeing. Substantive dyes and their application to cotton. After-treatment of direct colors, including diazotising and developing

and the topping with basic colors. The application to cotton of basic colors, acid colors, mordant colors, including a study of the various mordants and their fixation with metallic salts. Dyeing with sulphur colors, indigo, natural and artificial, aniline black, turkey red, and other insoluble azo colors developed on the fiber. The methods of bleaching and dyeing of linen, jute, ramie, and other vegetable fibers. The scouring and bleaching of wool. The carbonization and chlorination of wool. The application of basic, acid, chrome, eosine, and direct colors to wool. Dyeing wool with logwood, fustic, and other natural dyewoods. Methods of the making and dyeing of artificial silk. The boiling off, bleaching and dyeing of natural silk. Study of the chemical and physical changes which take place during mercerization; also the methods of dyeing mercerized goods. The use of the various kinds of machines used in bleaching and dyeing. The dyeing of raw-stock, skeins, cops, warps, piece goods, hosiery, underwear, and unions. The science of color-mixing. Color-matching on textiles. The use of the tintometer and colorimeter. Calico printing, including the various methods of preparing the various pastes, thickening agents, mordants and assistants used in printing. Quantitative analysis of mixed yarns, and fabric composed of cotton, wool, and silk. The testing of dyestuffs for their shade, tinctorial power, and leveling properties. Comparative dye trials to determine money value. Testing for mixtures. The reactions of acids, alkalies and reducing agents on several samples taken from the different classes of dyestuffs. The use of hyraldite and other stripping agents.

Olney's Textile Chemistry and Dyeing is used as a text in connection with a course of lectures which will include the consideration of many difficult problems that arise in the dye-house. Required of Juniors and Seniors in Textile Industry. Mr. SHUFORD.

307. Dyeing Laboratory.—A series of experiments are performed which cover all the subjects taken up in the lecture course, and includes a large amount of work done in the laboratory and dye-house. Special stress is put on the matching of colors, and the dyeing of sulphur colors. Each student is required to bleach and dye a large number of samples of yarn and cloth on a small scale, and is required to mount specimens of his work in a scrap-book. At the discretion of the instructor in charge, the class bleaches and dyes larger quantities of raw-stock, cloth, and yarn in the dye-house, as well as the printing of samples on the laboratory printing machine. This work, will be supplemented by visits to the mills which do dyeing in the city of Raleigh. Required of Juniors and Seniors in Textile Industry. Mr. SHUFORD.

CHEMISTRY.*

309. Inorganic Chemistry.—Remsen's *Introduction to the Study of Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS and Doctor HOFFMAN.

310. Inorganic Chemistry.—Laboratory work. Remsen and Randall's *Chemical Experiments.* The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the class-room. He records in a note-book his observations and the conclusions drawn from them. Two periods. Required of Sophomores. Mr. WILSON.

311. Organic Chemistry.—Remsen's *Introduction to the Study of the Compounds of Carbon.* The fundamental principles of organic chemistry and the more important compounds are studied. Two periods. Required of Juniors in Dyeing and elective for Seniors in Textile Industry. Professor WITHERS.

312. Analytical Chemistry.—Treadwell's *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common metallic elements, as well as that of the acids, in unknown substances. Eight periods, first term. Required of Juniors in Dyeing. Doctor HOFFMAN.

313. Analytical Chemistry.—Treadwell's *Quantitative Analysis.* Gravimetric and volumetric analysis, special attention being given to the analysis of substances of technical importance. Nine periods, second and third terms. Required of Juniors in Chemistry and Dyeing. Seven periods. Required of Seniors in Dyeing. Doctor HOFFMAN.

314. Organic Chemistry.—Laboratory work. Gattermann's *Practical Methods of Organic Chemistry,* translated by Shober. The typical transformations and syntheses of the aliphatic and aromatic groups are taken up. The student thus becomes familiar with the reactions and properties of the more important organic compounds. One of each of the more important classes of dye-stuffs is prepared and the properties studied. Four periods. Required of Seniors in Dyeing. Doctor SYME.

315. Industrial Chemistry.—Thorpe's *Outlines of Industrial Chemistry.* A discussion of the processes and principles involved in the

*For further information, see course in Chemistry.

more important chemical industries. A discussion of the materials of engineering. Two periods. Required of Seniors in Dyeing. Professor WITHERS.

MECHANICAL ENGINEERING.†

316. Free-hand Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Two periods, first term. Required of Freshmen and first-year students. Mr. VAUGHAN.

317. Elementary Mechanical Drawing.—Use of instruments; geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine. Two periods, second term. Required of Freshmen and first-year students. Mr. VAUGHAN.

318. Descriptive Geometry Drawing.—Elementary principles; cylinders, cones, and prisms; intersection development of surfaces, miscellaneous problems. Two periods, third term. Required of Sophomores. Mr. VAUGHAN.

320. Wood-work.—Use of bench tools; working from drawings, lining, sawing, planing; practise in making simple exercises in wood-turning. Two periods. Required of Freshmen. Mr. CLAY.

321. Forge-work.—Exercises in working with iron, welding; uses and care of forge-tools and fires. Two periods. Required of Freshmen. Mr. DEAL.

324. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of Textile Juniors. Mr. PARK.

322. Forge-work.—Exercises in working with steel; tempering; case-hardening. One period, first term. Required of second-year students. Mr. DEAL.

323. Pattern-making.—Exercises in making patterns, generally of machine parts. One period, second and third terms. Required of second-year students. Mr. CLAY.

326. Boilers.—Steam generation; types, care and management; fittings and appliances; corrosion and incrustation; combustion of fuel; boiler power. Two periods, first term. Required of Seniors. Professor THOMAS.

327. Steam-engines.—Types—simple and compound and triple expansion, automatic, Corliss, rotary. Care and management. Indicators, indicated and brake horse-power, condensers. Two periods, second term. Required of Seniors. Professor THOMAS.

†For full information, see course in Mechanical Engineering.

328. Valve Gears.—Plain slide valve, balanced valves, Corliss and other form valve gears. Link and radial reversing gears. Shaft governors. Bilgram and Zeuner valve diagrams. Two periods, third term. Required of Seniors. Professor THOMAS.

PHYSICS.*

331. Elementary Physics.—Properties of matter; fundamental units; British and metric standard measures; definitions of force, work, and power; laws of motion; principles of machines; mechanics of fluids; heat; sound; introduction to the study of light. Two periods. Required of Freshmen. Mr. HEWLETT.

MATHEMATICS.†

333. Arithmetic.—Milne's *Standard Arithmetic.* Begin with decimal fractions and complete the subject. Five periods, first term. Required of first-year students. Mr. J. A. PARK and Mr. RICHARDSON.

334. Algebra.—Wells's *Higher Algebra.* Up to quadratic equations. Five periods, second and third terms. Required of first-year students. Mr. J. A. PARK and Mr. RICHARDSON.

335. Algebra (Continued).—Wells's *Higher Algebra.* Begin with quadratic equations and complete logarithms, embracing ratio and proportion, variation, the progressions, the binomial theorem, series and partial fractions. Five periods, first term; two periods, second term. Required of Freshmen. Mr. RICHARDSON and Mr. J. A. PARK.

336. Geometry.—Wentworth's *Plane and Solid Geometry.* Plane Geometry. Three periods, second term; five periods, third term. Required of Freshmen. Professor YATES, Mr. RICHARDSON, and Mr. J. A. PARK.

337. Solid Geometry.—Required of Sophomores. Five periods, first term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

338. Advanced Algebra.—Wells's *Higher Algebra.* Compound interest and annuities, permutations, combinations, continued fractions, general theory of equations, and the solution of higher equations, etc. Required of Sophomores. Three periods, second term. Professor YATES and Mr. J. A. PARK.

339. Trigonometry.—Phillips and Strong's *Plane and Spherical Trigonometry.* Plane Trigonometry. Solution of plane triangles, triangulation, etc. Spherical Trigonometry. Solution of spherical triangles. Required of Sophomores. Two periods, second term; five periods, third term. Professor YATES and Mr. J. A. PARK.

*For full information, see course in Electrical Engineering.

†For full information, see course in Engineering.

ENGLISH.

341. Introductory Composition and Rhetoric.—This course in the fundamentals of Rhetoric is made thoroughly practical. Students write instead of studying about how to write. The written work is accompanied by a steady drill on grammatical forms, accuracy, and ease of expression. The student is taught to plan all work, and then to develop his plan in simple, idiomatic English. Three periods a week. Required of Freshmen. Professor HILL, Doctor SUMMEY, and Mr. BONN.

342. Rhetoric, Criticisms, Essays.—The student is taught the essentials of good style by constant practise. Themes in narration, description, and exposition receive in this course especial attention. Required of Sophomores. Three periods, second term. Professor HILL, Doctor SUMMEY, and Mr. BONN.

343. Argumentation.—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of many exercises. Required of Seniors. Two periods, third term. Professor HILL.

344. American Literature.—By means of an introductory text and by much reading, students are introduced to what is best in the literature of their own country. Books are studied at first hand. Synopses, paraphrases, and critiques required. Three periods, second and third terms. Required of Sophomores. Professor HILL, Doctor SUMMEY, and Mr. BONN.

345. English Literature.—The development of English Literature through its great periods and through its representative men. Much parallel reading is required. In a general way Minto's plan of study is followed. Two periods, third term. Required of Juniors. Two periods, first and second terms. Required of Seniors. Professor HILL.

347. English History.—The first term of the Junior year is devoted to a study of English history. The text is supplemented by lectures on important periods. Two periods, first and second terms. Required of all Juniors. Professor HILL.

BUSINESS LAW AND CIVICS.

348. Business Law.—Parson's *Laws of Business*. This course includes such subjects as contracts, agency, sales, negotiable paper, insurance, patent rights, etc. The purpose of the course is to teach the general principles of business law. Text-book: Parson's *Laws of Business*. One period. Required of Seniors. President WINSTON.

POLITICAL ECONOMY AND GOVERNMENT.

351. Political Economy.—This course deals with public problems relating to the production, distribution, and exchange of wealth. The leading topics discussed are capital, wages, money, transportation, and taxation. Instruction is given by lectures and text-books. One period. Required of Juniors. President WINSTON.

352. Advanced Political Economy and Government.—Two periods. Elective for Seniors. President WINSTON.

MILITARY SCIENCE.

359. Drill.—Schools of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Marches and Minor Tactics. United States Infantry Drill Regulations. Three hours first term, two periods, second and third terms. Required of all classes except Seniors. Seniors are to either take drill or two extra hours in some other subject instead. Commandant and Officers of the Battalion.

360. Tactics.—Theoretical instruction in Infantry Drill, Field Service, Army Regulations, Guard Duty, and Target Practice. One period. Required of Juniors. Lieutenant YOUNG.

NORMAL COURSES.

I. For Rural Teachers:
   (a) Two-year Course.
   (b) One-year Course.
   (c) Summer Course.

II. For City Teachers:
   (a) Two-year Course.
   (b) One-year Course.
   (c) Summer Course.

The Normal Courses are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education is being introduced into our public schools, and the College has a constant demand for well-trained industrial teachers. It is hoped by means of the Normal Courses to help supply this demand. Our School Law already requires agriculture to be taught in the public schools, and manual work will doubtless be added.

The Courses for Rural Teachers are devoted largely to agriculture and nature study; the Courses for City Teachers, to drawing and manual training. Each of these courses also includes a review of other public-school studies.

Persons already engaged in teaching may, at slight expense of time and money, by means of the short courses or the Summer Courses, make themselves proficient in one or more industrial lines. Persons preparing to teach may take the full courses, and thus become proficient not only along industrial lines, but also in the other public-school branches and in one or more sciences, or in higher mathematics and English. The industrial training given is both practical and theoretical, and is arranged with reference to the present needs of the public schools in North Carolina. The exercises in the Normal Courses are the same as in the other courses of the colleges, except in the Summer Courses.

The Normal Courses are as follows:

I. Courses for Rural Teachers.

(*a*) TWO-YEAR COURSE.

First Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Agriculture	3	3	3
Nature Study { Plants	3	3	3
Nature Study { Animals	3	3	3
English	3	3	3
Mathematics	5	5	5
Military Drill	3	2	2

Second Year.

Farm Equipment	4	--	--
Soils	--	4	--
Crops	--	--	4
Plant Diseases	3	--	--
Physics	--	3	--
Botany	--	--	3
Mathematics	4	4	4
English	3	3	3
Drawing	2	2	2
History	2	2	2
Military Drill	3	2	2

(*b*) ONE-YEAR COURSE.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Agriculture	3	3	3
Farm Equipment, Soils, and Crops	4	4	4
Nature Study	3	3	3
Mathematics	4	4	4
English	3	3	3
Military Drill	3	3	3

II. Courses for City Teachers.

(*a*) TWO-YEAR COURSE.

First Year.

Drawing	2	2	2
Wood-work	1	1	1
Forge-work	1	1	1
Mechanical Technology	1	1	1
Algebra and Geometry	5	5	5
English	3	3	3
History	2	2	2
Drill	3	3	3

Elective, 3 periods required: Physics 2, Nature Study (Plants) 3, Nature Study (Animals) 3.

Second Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Drawing	2	2	2
Wood-work	4	4	4
Forge-work	1	1	1
English	2	2	2
Architecture and Descriptive Geometry	2	2	2
Architectural Drawing	2	2	2
Geometry and Trigonometry	4	4	4
Military Drill	3	2	2

Elective, at least 2 periods required: Chemistry 3, Chemical Laboratory 2, Electricity and Magnetism 2, Descriptive Geometry 2, Plant Diseases, Human Physiology, Physiological Botany 3.

(*b*) ONE-YEAR COURSE.

Drawing	3	4	4
Wood-work	4	5	5
Forge-work	2	2	2
Architecture	2	--	--
Architectural Drawing	2	2	2
Algebra and Geometry	5	5	5
Military Drill	3	2	2

Elective: Physics 2, English (132) 3, English (133 and 135) 2, History 2, Nature Study (Plants) 3, Nature Study (Animals) 3, Chemistry 3, Chemical Laboratory 2, Electricity and Magnetism 2, Plant Diseases 3, Human Physiology 3, Physiological Botany 3, Geometry and Trigonometry 4, Descriptive Geometry 2.

DONATIONS.

The College makes thankful acknowledgment of the receipt of the following gifts during the year:

To the Agricultural Department.

The A. C. Cole Company of Charlotte, N. C.—One Cole Universal Planter to the Biological Club.

John Deer Plow Company, Baltimore, Md.—On 13-inch plow to the Rural Science Club.

Chattanooga Plow Company, Chattanooga, Tenn.—One 7-inch plow to the Rural Science Club.

D. H. Burrill Company, Little Falls, N. Y.—One 4-bottle "Facile, Jr." Tester, complete, to the Rural Science Club.

T. W. Wood & Sons, Richmond, Va.—One book, "Southern Gardener's Practical Manual," to the Rural Science Club.

The American Jersey Cattle Club, New York City.—Sixty-five volumes Herd-book.

German Hanoverian and Oldenburg Coach Horse Association, Lafayette, Ind.—Two volumes.

National Register Belgium Draft Horse, Wabash, Ind.—Two volumes.

American Yorkshire Association, White Bear Lake, Wis.—Three volumes.

Red Polled Cattle Club of America, Dayton, Ohio.—Two volumes.

American Pole Durham Breeders' Association, Indianapolis, Ind.—Two volumes.

American Devon Cattle Club, Newark, Ohio.—Seven volumes.

National French Draft Horse Association, Fairfield, Iowa.—Four volumes.

Continental Horsett Club, Mechanicsburg, Ohio.—Three volumes.

American Percheron Horse Breeders' and Importers' Association, Chicago, Ill.—Two volumes.

Southwestern Poland China Association, Gadson, Tenn.—Two volumes.

Hampshire Down Sheep Breeders' Association, Nottawa, Mich.—Four volumes.

Browns Swiss Cattle Breeders' Association, Oswego, N. Y.—Seven volumes.

American Shropshire Registry Association, Lafayette, Ind.—Nineteen volumes.

American Rambouillet Sheep Breeders' Association, Millford Center, Ohio.—Seven volumes.

To the Textile Department.

Draper Company, Hopedale, Mass.—One 100-spindle twister, loom and reel supplies.

D. A. Tompkins Company, Charlotte, N. C.—One spinning-frame, one spooler, one reel, one slasher beam.

Kilburn-Lincoln Co., Fall River, Mass.—One high-speed sheeting-loom.

Universal Winding Company, Boston, Mass.—Old cone-winder replaced by latest cone-winding machine.

Whitin Machine Works, Whitinsville, Mass.—Loom supplies.

Mason Machine Works, Taunton, Mass.—Spinning-frame supplies.

DeHaven Manufacturing Company, Brooklyn, N. Y.—Spinning-frame travelers.

National Ring Traveler Company, Providence, R. I.—Twister travelers.

Steel Heddle Company, Philadelphia, Pa.—Set of heddles and harness shafts, two knot tyers.

Emmons Loom Harness Company, Lawrence, Mass.—Loom reed.

Carruthers Company, Lowell, Mass.—Loom reed and slasher combs.

Hampton Company, Easthampton, Mass.—Mercerized yarns.

Department of Commerce and Labor.—Complete set of samples of cotton goods imported into China.

Cheney Brothers, South Manchester, Conn.—Silk samples, showing processes from cocoon to finished fabric.

P. H. Hanes Underwear Company, Winston, N. C.—Several pounds of knit goods.

Berlin Aniline Works, New York.—Fifty copies of "Textile Dyeing."

Cassella Color Company, New York.—Fifteen pounds sulphide of sodium, one book, "Wool Dyeing," and one book, "Dyeing of Mixed Fabrics."

Royal Chemical Company, Phenix, R. I.—One gallon turkey red oil.

Roessler C. Hasslacher Chemical Company.—One vat for bleaching with peroxide of sodium.

Universal Dye Tub Company, Atlanta, Ga.—One Lightfoot raw stock dyeing machine.

Courtesies Extended to Textile Department.

Textile Excelsior, Charlotte, N. C.
Textile Manufacturers' Journal, New York.
Fiber and Fabric, Boston, Mass.
Manufacturers' Record, Baltimore, Md.
Textile World Record, Boston, Mass.
Textile American, Boston, Mass.
The Manufacturer, Philadelphia, Pa.
The Tradesman, Chattanooga, Tenn.
American Industries, New York City.
Cotton, Atlanta, Ga.
American Cotton and Wood Reporter, Boston, Mass.
Mill News, Charlotte, N. C.
The Dyer and Calico Printer, London, Eng.
Cassella Color Company, New York City.
Pilot Cotton Mills, Raleigh, N. C.
Caraleigh Cotton Mills, Raleigh, N. C.
Raleigh Cotton Mills, Raleigh, N. C.

To the Chemistry Department.

The Southern Cotton Oil Company, Charlotte, N. C. (through E. W. Thompson, District Manager).—Sample jars of cotton seed and cotton-seed products.

The Union Carbide Company, Niagara Falls, N. Y. (through E. F. Price, General Manager).—Sample jars containing specimens of calcium carbide.

Virginia-Carolina Chemical Company (through F. B. Carpenter, Chief Chemist).—Samples of the different materials used in the manufacture of fertilizers.

To the Library.

William Boylan, Raleigh, N. C.—Copy of a *facsimile* reproduction of a portion of *The Minerva* of August 10, 1809, containing an address delivered on June 1, 1809, in which mention was made of the Mecklenburg Declaration of Independence.

CATALOGUE OF STUDENTS.

GRADUATES. 7

Name.	*Post-office.*	*Course.*
WILEY THEODORE CLAY, B.E.,	Hickory,	M. E.
CLARENCE WILSON HEWLETT, B.E.,	Wilson,	E. E.
WILLIAM KERR, B.S.,	Bryson City,	Agr.
JOHN ALSEY PARK, B.E.,	Raleigh,	C. E.
SAMUEL OSCAR PERKINS, B.S.,	Muttenz,	Chem.
JAMES CLARENCE TEMPLE, B.AGR.,	Sanford,	Chem.
LILLIAN LEE VAUGHAN, B.E.,	Franklin, Va.,	M. E.

SENIOR CLASS. 57

HERBERT SCANDLIN BATTIE,	Greensboro,	C. E.
JOE PITTMAN BIVENS,	Cottonville,	E. E.
CARNEY JOHN BRYAN,	Washington,	E. E.
LINDSAY FERGUSON CARLETON,	Boomer,	E. E.
ROBERT HILL CARTER,	King's Creek,	E. E.
JOHN WASHINGTON CLARK,	Raleigh,	Tex.
CLAUD COUNCIL DAWSON,	Grifton,	Tex,
JACOB TATUM EATON,	Farmington,	Agr,
SEBA ELDRIDGE,	Dunn,	C. E.
BENJAMIN BRYAN EVERETT,	Palmyra,	Agr.
JOHN LINDSAY FERGUSON,	Kendal,	E. E.
ELIAS VANBUREN FOWLER,	Glenville,	E. E.
CLEMENT LEINSTER GARNER,	Beaufort,	C. E.
LOVIC ROGERS GILBERT,	Potecasi,	Tex.
ROY JOSEPH GILL,	Raleigh,	C. E.
ROBERT STRICKLER GRAVES,	Syria, Va.,	E. E.
GEORGE ROM HARDESTY,	Raleigh,	E. E.
PHILIP WILLIAM HARDIE,	Brown Summit,	C. E.
JOKTAN LAFAYETTE HEMPHILL,	Morganton,	E. E.
LAWRENCE JAMES HERRING,	Clinton,	Agr.
GUY FRANCIS HINSHAW,	Winston-Salem,	C. E.
WILLIAM NORMAN HOLT,	Smithfield,	Tex.
ALBERT CARL JONES,	Trinity,	Agr.

5

Name.	*Post-office.*	*Course.*
WILLIAM WHITMORE JONES,	Franklin,	E. E.
LAFAYETTE FRANCK KOONCE,	Richlands,	Agr.
CHARLES EDWARD LATTA,	Raleigh,	Tex.
LEWIS EDGAR LOUGEE,	Raleigh,	Chem.
HENRY KREIGER MCCONNELL,	Louisville, Ky.,	Chem.
OSCAR FRANKLIN MCNAIRY,	Greensboro,	C. E.
EUGENE FRANKLIN MEADOR,	Reidsville,	M. E.
BENNETT TAYLOR MIAL,	Raleigh,	M. E.
FRANK CURTIS MICHAEL,	Gibsonville,	E. E.
JOHN MAPLE MILLS,	Raleigh,	M. E.
HENRY STARBUCK MONTAGUE,	Winston-Salem,	Chem.
JOHN LIGHTFOOT MORSON,	Raleigh,	C. E.
JAMES ELWOOD OVERTON,	Ahoskie,	Agr.
JAMES CALEB PARKER,	Elizabeth City,	Agr.
THOMAS FRANKLIN PARKER,	Raleigh,	E. E.
FRED. MAYNARD PARKS,	Morganton,	E. E.
ARTHUR LEE PASCHALL,	Vaughan,	Agr.
GUY PINNER,	Elizabeth City,	C. E.
WINSLOW GERALD PITMAN,	Lumberton,	M. E.
JAMES KEMP PLUMMER,	Middleburg,	Chem.
LEON JACOB SCHWAB,	Goldsboro,	C. E.
JOHN OSCAR SHUFORD,	Gastonia,	E. E.
WILLIAM CRAWFORD STAPLES,	Reidsville,	Tex.
VANCE SYKES,	Efland, R. 2,	C. E.
NELSON HALL TATE,	Littleton,	M. E.
LUTHER RUSSELL TILLETT,	Carolla,	C. E.
WILLIAM BROOKS TRUITT,	Greensboro,	M. E.
JOHN EDWIN TURLINGTON,	Clinton, R. 1,	Agr.
EDMUND FARRISS WARD,	Lumberton,	Agr.
LINDSAY MARADE WEAVER,	Lexington,	M. E.
JOHN JACKSON WELLS,	Elm City,	C. E.
DAVID LYNDON WHITE,	Trinity,	Agr.
CECIL BERNARD WHITEHURST,	Beaufort,	E. E.
ARTHUR JOHN WILSON,	Knoxville, Ill.,	Chem.

JUNIOR CLASS.

ALBERT EDWIN ABERNETHY,,	Hickory,	Agr.
FRANK OSCAR BALDWIN,	Raleigh,	Chem.
GEORGE FRANCIS BASON,	Charlotte,	E. E.

Name.	*Post-office.*	*Course.*
JOHN LELAND BECTON,	Goldsboro,	C. E
HARWOOD BEEBE,	Baltimore, Md.,	C. E.
WILLIAM LAMAR BLACK,	Mooresville,	E. E.
ASA GRAY BOYNTON,	Biltmore,	C. E.
FRANK HAMILTON BROWN,	Cullowhee,	Agr.
JOHN HARVEY BRYAN,	Goldsboro,	M. E.
WILLIAM BRYANT BURGESS,	Rocky Mount,	E. E.
LEWELLYN HILL COUCH,	Lexington,	E. E.
WILLIAM OSBORNE CRUMP,	Polkton,	E. E.
TYLER BENNETT DUNLAP,	Cedar Hill,	E. E.
ALVIN DEANS DUPREE,	Greenville,	C. E.
RAYMOND ROWE EAGLE,	Statesville,	C. E.
MINNIC LUTHER EARGLE,	Delmar, S. C.,	Agr.
WILLIAM HENRY ESKRIDGE,	Shelby,	C. E.
ISAAC HERBERT FARMER,	Wilson,	C. E.
BENJAMIN TROY FERGUSON,	Kimbolton,	Agr.
WARREN GROSS FERGUSON,	Southern Pines,	E. E.
PERCY LEIGH GAINEY,	Fayetteville, R. 7,	Agr.
JUNIUS TALMAGE GARDNER,	Shelby,	C. E.
SETH MANN GIBBS,	Middletown,	C. E.
MOSES HENRY GOLD,	Beaufort,	C. E.
JOHN DAVID GRADY,	Albertson,	Agr.
EDWARD WILLIAM GREGORY,	Elizabeth City,	E. E.
THOMAS DELAWARE GRIMSHAWE,	Montvale,	C. E.
DORSEY YATES HAGAN,	Greensboro,	C. E.
MAURICE HENDRICK,	Shelby,	Tex.
JOHN MCLAURIN JONES,	Durham,	E. E.
HERBERT WILLIAM KUEFFNER,	Durham,	C. E.
CLAUDE MILTON LAMBE,	Durham,	C. E.
BENJAMIN BUSSEY LATTIMORE,	Shelby,	C. E.
DAVID LINDSAY,	Stoneville, R. 1,	Tex.
GEORGE LAFAYETTE LYERLY,	Hickory,	E. E.
WILLIAM GARLAND MCBRAYER,	Shelby,	C. E.
CLARENCE TALMAGE MARSH,	Aulander,	C. E.
DAVID JOHN MIDDLETON,	Warsaw, R. 2,	Agr.
JOHN SHAW PESCUD,	Raleigh,	C. E.
BENJAMIN FRANKLIN PITTMAN,	Tarboro,	E. E.
LAWRENCE LYON PITTMAN,	Whitakers,	C. E.
RUBLE POOLE,	Randleman, R. 3,	C. E.

Name.	*Post-office.*	*Course.*
HARRY ALEXANDER POWELL,	Fair Bluff,	Tex.
JAMES ALEXANDER POWELL,	Raleigh,	M. E.
THOMAS MILTON POYNER,	Poplar Branch,	C. E.
EDGAR ENGLISH SMITH,	Greensboro,	~~Agr.~~ C E
JAMES LAWRENCE SMITH, JR.,	Duke,	C. E.
JESSE PAGE SPOON,	Hartshorn,	~~C. E.~~ Agr
HARRIS INGRAM STANBACK,	Mt. Gilead,	E. E.
JOHN SNIPES STROUD,	Bynum,	Tex.
WILLIAM THADDEUS TEMPLE,	Sanford,	M. E.
JAMES FENTON TOWE,	Chapanoke,	E. E.
JOHN LAWRENCE VON GLAHN,	Wilmington,	C. E.
ROYALL EDWARD WHITE,	Aulander,	C. E.
JOHN C. WILLIAMS,	Duke, R. 1,	C. E.
ROBERT JOB WYATT,	Raleigh,	M. E.
WOODFIN BRADSHER YARBOROUGH,	Locust Hill,	E. E.
JOHN FRANKLIN ZIGLAR,	Winston-Salem,	C. E.

SOPHOMORE CLASS. 85

JOHN ALLEN AREY,	Elmwood,	Agr.
ARTHUR NORMAN ARMSTRONG,	Creswell,	Tex.
JOHN WILLIAM BARRETT, JR.,	Rocky Mount,	Agr.
HENRY NATHAN BLANCHARD,	Greensboro,	E. E.
CECIL DEWITT BROTHERS,	Conetoe,	C. E.
THOMAS KINCAID BRUNER, JR.,	Raleigh,	Tex.
EARLE J. CARPENTER,	Gaffney, S. C.,	Chem.
THORNE MCKINZIE CLARK,	Raleigh,	C. E.
WALTER MILLER COWLES,	Charlotte,	M. E.
JOHN BENNETT CRAVEN,	Charlotte,	M. E.
JOSEPH FRANK DAVIDSON,	Statesville,	E. E.
WILLIAM SAMUEL DEAN,	Oxford,	Tex.
KENNETH CRAIG DENNY,	Cromartie,	E. E.
CARLTON O'NEAL DOUGHERTY,	North, S. C.,	Tex.
LOUIS C. DRAKE,	McAdensville,	Tex.
FRED ATHA DUKE,	Raleigh,	C. E.
WILLIAM HUNT EATON,	Cleveland,	Agr.
RALPH RINGGOLD FAISON,	Goldsboro,	Agr.
FRANK LINDSAY FOARD,	Winston-Salem,	Agr.
ROSCOE LOOMIS FOX,	Waynesboro,	Tex.
LEWIS PRICE GATTIS,	Raleigh,	C. E.

Name.	Post-office.	Course.
ALBERT SIDNEY JOHNSTON GOSS,	Union, S. C.,	C. E.
CHARLIE POOL GRAY,	Buxton,	C. E.
ANDREW HEARTSFIELD GREEN,	Raleigh,	Agr.
CECIL LINWOOD GRIFFIN,	Manteo,	C. E.
WILLIAM ROY HAMPTON,	Plymouth,	Chem.
JOHN WILLIAM HARRELSON,	Lawndale,	M. E.
GEORGE HARRISON,	Enfield,	C. E.
EDMOND BURKE HAYWOOD,	Raleigh,	E. E.
THOMAS FREDERIC HAYWOOD,	Trenton,	C. E.
LEONARD HENDERSON,	Salisbury,	M. E.
MARTIN ROBERT HERRING,	Winton,	E. E.
BASCOMBE BRITT HIGGINS,	Leicester, R. 2,	Agr.
DANIEL HARVEY HILL, JR.,	West Raleigh,	E. E.
WAYNE ARINGTON HORNADY,	Burlington,	Agr.
RALPH CLEVELAND HUNTER,	East Laporte,	Agr.
SAMUEL ROSS IRELAND,	Faison, R. 2,	Agr.
DONALD BARRETT ISELEY,	Burlington,	C. E.
WILLIAM FLADGER R. JOHNSON,	Marion, S. C.,	C. E.
FREDERICK JOHN JONES,	New Bern,	C. E.
RALPH LONG,	Graham,	Agr.
SAMUEL MACON MALLISON,	Washington,	C. E.
WILLIAM ROYDAN MARSHALL,	Rocky Mount,	M. E.
RALPH CECIL MASON,	Edenton,	Agr.
ARTHUR BALLARD MASSEY,	Philadelphia, Pa.,	Agr.
CHARLES CLARENCE MAYO,	Washington,	Agr.
WALKER MOREHEAD MILLNER,	Leaksville,	Tex.
BENJAMIN FRANKLIN MONTAGUE,	Winston-Salem,	C. E.
OWEN MOORE,	Asheville,	E. E.
HARRY MOTT,	Mooresville,	Agr.
HENRY ROTHROCK NOOE,	Pittsboro,	C. E.
JAMES FRANCIS OLIVER,	Mt. Olive,	C. E.
SAMUEL LOFTIN OLIVER,	Mt. Olive, R. 2,	E. E.
JULIUS MONROE PARKER,	Hunting Creek,	C. E.
JOHN GILBERT PASCHAL,	Goldston,	E. E.
WILLIAM MURDOCK PECK,	Wilmington,	C. E.
ISHAM ROLAND PEIRCE,	Warsaw,	Agr.
PETER PENICK PIERCE,	Pelham,	E. E.
PAUL MILLER PITTS,	Concord,	M. E.
JOHN ALEXANDER PORTER, JR.,	Biltmore,	C. E.

Name.	*Post-office.*	*Course.*
JOHN MOIR PRICE,	Leaksville,	M. E.
ROBERT RICHARD REINHARDT,	Stanley Creek,	Agr.
ALFRED PRATTE RIGGS,	Wanchese,	C. E.
THOMAS WOOD ROBBINS,	Durham,	E. E.
JOSEPH HENRY ROBERTSON,	Burlington,	E. E.
WILLIAM BARRETT ROSE,	Wadesboro,	E. E.
JAMES OLIN SADLER,	Charlotte, R. 12,	C. E.
FRANCIS WEBBER SHERWOOD,	Raleigh,	Chem.
ROBERT ARNOLD SHOPE,	Weaverville,	C. E.
LOUIS HARRELL SIAU,	Georgetown, S. C.,	Agr.
GEORGE GRAY SIMPSON,	Richmond, Va.,	Tex.
WILLIAM NEVILLE SLOAN,	Franklin,	C. E.
HUGH STUART STEELE,	Yadkin Valley,	C. E.
SAMUEL FATIO STEPHENS,	Norfolk, Va.,	C. E.
HENRY NEWBOLD SUMNER,	Hertford,	C. E.
JOHN DICK THOMASON,	Hickory,	M. E.
JAMES EDWIN TOOMER,	Wilmington,	Chem.
EDGAR RAYMOND UNDERWOOD,	Huntersville,	C. E.
THOMAS RUFFIN WARREN,	Durham,	Tex.
JOHN PIPER WATTERS,	Charlotte,	E. E.
WILLIAM WATTERS,	Wilmington,	C. E.
JOSEPH SLAUGHTER WHITEHURST,	Elizabeth City,	C. E.
OLIVER GAINES WHITLEY,	Albemarle,	C. E.
ROBERT BEVERLY WHITTINGTON,	Asheville,	E. E.
PAUL ADAMS WITHERSPOON,	Mooresville,	C. E.

FRESHMAN CLASS. 97

HAL CLIFFORD ALBRIGHT,	Charlotte,	Min.
JAMES CICERO ALBRIGHT,	Rock Creek,	M. E.
ALFRED ARMFIELD,	Statesville,	Tex.
CHARLES GRAY ARMFIELD,	Statesville,	C. E.
ROBERT ATKINSON,	Lenoir,	E. E.
ROBERT KENNETH BABINGTON,	Gastonia,	E. E.
THOMAS ROPER BALDWIN, JR.,	Mt. Gilead,	Tex.
ANDREW JACKSON BEALL,	Charlotte,	E. E.
JOHN BURGESS BERRIER,	Lexington, R. 3,	E. E.
FRED MCCOLOUGH BLACK,	Mooresville,	M. E.
ROBERT DANIEL BLAND,	Currie,	E. E.
THOMAS SAWYER BOND,	Windsor,	C. E.

Name.	Post-office.	Course.
GEORGE WASHINGTON BRADDY,	Westbrook,	E. E.
CARL RAY BRADLEY,	Old Fort,	E. E.
JAMES SEXTON BRAY,	Elkin,	Agr.
ELTON ELROY BUCK,	Hampton, Va.,	C. E.
VON PORTER BYRUM,	Charlotte, R. 3,	M. E.
HENRY ROY CATES,	Swepsonville,	Agr.
JOSEPH BLOUNT CHERRY,	Windsor,	E. E.
HERBERT GEORGE COUGHENOUR,	Scotland Neck,	E. E.
JOHN MONROE COUNCIL,	Wananish,	E. E.
ROBERT HENRY COWAN,	Durham,	Tex.
JAQUELIN DANIEL CROSSWELL,	Fayetteville,	E. E.
WILLIAM HENRY CROW,	Monroe,	E. E.
WILLIAM EARLE DAVIS,	Hiddenite,	M. E.
THOMAS THEODORE DAWSON,	Grifton,	C. E.
EDWIN GRAY DEANS,	Wilson,	C. E.
BENJAMIN FRANKLIN DUNCAN, JR.,	Columbia,	C. E.
ROBERT ORLANDO EDWARDS,	Fremont,	C. E.
WILLIAM HERBERT ELLIS,	Wilson,	Agr.
RISDEN BENNETT GADDY,	Monroe,	E. E.
LEVI CONWAY GARDNER,	Grifton,	C. E.
RANSOM EATON GILL,	Raleigh,	C. E.
WILLIAM THOMAS GRIMES, JR.,	Hamilton,	Chem.
WALTER PIRSON HARDEE,	Stem,	Agr.
THOMAS DEVIN HARRIS,	Oxford,	C. E.
LAWRENCE JEFFRIES HAYES,	Burlington,	C. E.
ALBERT ROLAND HICKS,	Faison,	E. E.
LYDA ALEXANDER HIGGINS,	Leicester,	Agr.
GEORGE WASHINGTON HILL,	Trinity,	Agr.
CLINTON WHITE HINSHAW,	Winston-Salem,	M. E.
LOUIE LEE HOOD,	Asheville,	C. E.
CYRUS MURRAY JOHNSON,	Goldsboro,	Agr.
FRED PARKER JOHNSON,	Raeford,	E. E.
CLAUDE HUNTER JONES,	Reidsville,	M. E.
ROBERT FRANK JONES,	Washington,	C. E.
GILMER ANDREW JONES,	Franklin,	C. E.
CLYDE RAYMOND JORDAN,	Gulf,	E. E.
LINWOOD A. JOYNER,	Jackson,	E. E.
MARK CLINTON LASITTER,	Snow Hill,	C. E.
EDWARD HUGH LEE, JR.,	Raleigh,	C. E.

Name.	Post-office.	Course.
ASHE LOCKHART,	Wadesboro,	Agr.
ULPHIAN CARR LOFTIN,	West Raleigh,	Agr.
FRANK NEELEY MCDOWELL,	Charlotte,	Agr.
LENNOX POLK MCLENDON,	Wadesboro,	Agr.
SAMUEL HUXLEY MCNEELY,	Waxhaw,	E. E.
WILLIAM LEAKE MANNING,	Henderson,	E. E.
MELVYN SOLOMON MAYES,	Stem,	M. E.
GEORGE FOLGER MEARES,	Wilmington,	M. E.
LEON DAVIS MOODY,	East Laporte,	M. E.
EUGENE BOISE MOORE,	Morven,	E. E.
ROBERT LEE MORGAN,	Wilson,	M. E.
HERBERT PENNELL MOSELEY,	Kinston,	C. E.
LOUIS ALBERT NOOE,	Pittsboro,	Tex.
RAYMOND OTTERBURG,	Charlotte,	M. E.
JOE BAXTER PARKS,	Concord,	E. E.
WILLIAM CASPER PENNINGTON,	Thomasville,	M. E.
WILLIAM RANSOM PHILLIPS,	Dunn,	E. E.
WILLIAM ROY PLOTT,	Plott,	E. E.
FRANK TOWNLEY REDFEARN,	Monroe,	E. E.
JEROME LYDA REEVES,	Leicester,	Tex.
ARCHIE KNIGHT ROBERTSON,	Rowland,	Agr.
JAY FREDERICK ROBINSON,	Hampton, Va.,	C. E.
CARL COLLINS SADLER,	Charlotte,	C. E.
JOHN WALDORF SEXTON,	Salem Church,	C. E.
EDWIN COMER SMITH,	Guilford,	E. E.
EDWIN HARRISON SMITH,	Weldon,	Chem.
JOHN FRANCIS SPEIGHT,	Whitakers,	C. E.
SAMUEL ADISON SPENCER,	Ashboro,	M. E.
ST. JULIAN LACHICOTTE SPRINGS,	Georgetown, S. C.,	Agr.
CHARLES BURT STAINBACK,	Henderson,	E. E.
WILLIAM CLARK STYRON,	Washington,	M. E.
THOMAS BRYAN SUMMERLIN,	Mt. Olive,	E. E.
WARREN HASTINGS SUMMERS,	Davidson,	C. E.
LLOYD HURST SWINDELL,	Raleigh,	E. E.
WALTER CLYBURN TAYLOR,	Rhodhiss,	Tex.
THOMAS HAMPTON THOMPSON,	Thomasville,	M. E.
WILLIAM PUTNAM THOMPSON,	Falls,	M. E.
ISAAC NORRIS TULL,	Kinston,	E. E.
ROBERT ERVIN TUTTLE,	Lenoir,	C. E.
CHARLES EMMETTE WALTON,	Hamilton, Ga.,	E. E.

Name.	Post-office.	Course.
HOWARD W. WELLES, JR.,	Poughkeepsie, N. Y.,	E. E.
DAVID RAND WELLONS,	Smithfield,	C. E.
EDGAR GUY WILSON,	Raleigh,	E. E.
JOHN STAFFORD WILSON,	Charlotte,	Tex.
EDWARD LEIGH WINSLOW,	Winfall,	C. E.
DANIEL CUTTS YOUNG,	Cary,	M. E.

SHORT COURSE.

FIRST YEAR.

FRED HARGRAVE ALLEN,	Wadesboro,	M. A.
PLOTT BOYD,	Plott,	M. A.
WILLIAM COUNCILL BOYDEN,	Boone,	M. A.
JAMES THOMAS BRASINGTON,	Wadesboro,	M. A.
SAMUEL ASHE BROWN,	Davidson,	Tex.
WM. SUMNER RIDDICK BURWELL,	Kittrell,	Tex.
JAMES WALTER CALL,	Mocksville,	M. A.
HENRY CALEB CLAY,	Hickory,	M. A.
JESSE FRANK CLEMENT,	Mocksville,	M. A.
FREDERICK WOODARD CONNOR,	Wilson,	Agr.
CHARLES LEE CRUSE,	Spencer,	Agr.
CHARLES BRITTIAN DRAKE,	McAdensville,	App. E.
CLARENCE OSCAR EIDSON,	Asheville,	App. E.
ARCHER PLEASANT FARMER,	Fuquay Springs,	App. E.
JUNIUS BENTON FUQUAY,	Jonesboro,	M. A.
JOSEPH GEORGE GODARD,	Williamston,	M. A.
JAMES MILLER GRAY,	Cullasaja,	Agr.
THOMAS JEFFERSON HARDISON,	Morven,	Agr.
MARMADUKE JAMES HAWKINS,	Ridgeway,	M. A.
JAMES HILLIARD,	High Point,	App. E.
ROBERT LAWFORD HOLDER,	Durham,	M. E.
JAMES BAKER HUSKE, JR.,	Fayetteville,	Agr.
ZOLLIE OSCAR INGRAM,	Little Mills,	Agr.
ROBERT JACKSON JORDAN,	Winston-Salem,	M. A.
JONES RUSSELL KLAPP,	Virgilina, Va.,	App. E.
WINGATE AGUSTA LAMBERTSON,	Rich Square,	E. E.
GEORGE LINN,	Charleston, W. Va.,	Agr.
THOMAS SEIGLE LINTON,	Raleigh,	E. E.
JOE BENNETT MCCOY,	Huntersville,	Agr.

Name.	*Post-office.*	*Course.*
HAL CLARKE MARTIN,	Lenoir,	App. E.
ELMO MICHAEL,	Cid,	App. E.
THOMAS LAPSLEY MORROW,	Saxapahaw,	Agr.
ROBERT ANDREW PATTON,	Franklin,	Agr.
EDMUND LILLY PEMBERTON,	Fayetteville,	M. A.
ROBERT GRAHAM PERSON,	Laurel,	M. A.
HILLARY DOWDY POTTER,	Cash Corner,	M. A.
THOMAS BEN PRITCHARD,	Chapel Hill,	Agr.
JOE HENRY RHYNE,	Charlotte, R. 5,	Agr.
CHARLES EDWARD ROSEMOND,	Hillsboro,	M. E.
CARL AUGUSTUS RUDISILL,	Cherryville,	Tex.
DEBERNIERE HOOPER SANDERS,	Smithfield,	M. A.
ORUS SEAGROVES,	Method,	Agr.
IRA SHORT,	Boardman,	M. A.
CARL SILER SLAGLE,	Franklin,	Agr.
EDMUND SPENCER SMITH,	Autryville,	Agr.
JOHN ANDREW SNYDER,	Rocky Mount,	Agr.
MILTON D. STEAGALL,	McFarlan,	Agr.
CORNELIUS HARNETT STALLINGS,	Spring Hope,	App. E.
JAMES RICHARD SUGG,	Wilson,	E. E.
FRED TEAGUE,	Whittier,	M. A.
CLAUDE WOOD THOMPSON,	Elmwood,	Agr.
FRANKLIN WOOD THORP,	Rocky Mount,	Agr.
JOSEPH TYSON WARD,	Wilson,	Agr.
FRED BARNETT WHEELER,	Archdale,	M. A.
JOEL WILLIAMS,	Fayetteville,	Agr.
SION D. WILLIAMS,	Raleigh,	Agr.

SHORT COURSE.

SECOND YEAR.

EVERETT STUART DURHAM,	Snow Camp,	Agr.
ADAM DUNCAN HERREN,	Waynesville,	M. A.
WILLIAM MOORE HOLLINGSWORTH,	Mt. Airy,	App. E.
WALTER MERRITT KENLY,	Lake Waccamaw,	Agr.
WILLIAM WORTH MORRISON,	Morven,	Agr.
WALTER NEWTON SHINE,	Kenansville,	M. A.
DUGALD STEWART, JR.,	Laurinburg,	Agr.
AZARIAH GRAVES THOMPSON,	Leasburg,	Agr.
LAWRENCE JAMES WELCH,	Carlisle, S. C.,	M. A.

IRREGULAR STUDENTS.

Name.	*Post-office.*	*Course.*
CLINTON CRESS ALLISON,	Concord,	Agr.
WM. HERBERT DOUGHTY BANCK,	Wilmington,	C. E.
JAMES LAMAR BEALL,	Linwood,	Agr.
JOHN BENJAMIN BRAY,	Sligo,	C. E.
DA COSTA MOORE CLARKE,	Old Fort,	E. E.
KINCHEN CLYDE COUNCIL,	Wananish,	M. E.
HILSMON CLELLAN DAVIS,	Youngsville,	Agr.
HENRY ROE FIELD,	Memphis, Tenn.,	E. E.
ROBERT LEE FOY,	Scotts Hill,	C. E.
FRED LARDNER GIBBON,	Charlotte,	Agr.
GLENN IRVING GIBBS,	Asheville,	Agr.
FRANCIS MARION GILBERT,	Grifton,	M. E.
CHARLES WALTER HACKETT,	North Wilkesboro,	C. E.
GORDON HARRIS,	Raleigh,	E. E.
FRANK HAWKS,	Kinston,	M. E.
ERNEST ALBERT HAYNES,	Raleigh,	C. E.
JAMES HOOPER HENLY,	Sanford,	Agr.
MURPHY MCNEILL HOLLOWAY,	Cardenas,	M. E.
JESSE GLENN HOLT,	Greensboro,	M. A.
WILBON OISA HUNTLEY,	Wadesboro,	Agr.
EDGAR WINFIELD ISELEY,	Gibsonville,	Agr.
JOHN WILLIAM IVEY,	La Grange,	M. A.
EDWARD TURNER JORDAN,	Siler City,	E. E.
WALTER MERRITT KENLY,	Wilmington,	Agr.
JAMES FRANK LA ROQUE,	Kinston,	C. E.
JAMES EDWARD LATHAM,	Washington,	Agr.
GEORGE WASHINGTON LITTLE,	Wadesboro,	M. A.
JOHN HENRY LITTLE,	Pinetops,	E. E.
JAMES NEWTON LOWRANCE,	Mooresville,	Agr.
LARRY LEONIDAS MCLENDON,	Wadesboro,	Agr.
CLAUDE LENOIR MAST,	Valle Cruces,	Agr.
GEORGE LEWIS MILLER,	Laurel Springs,	M. A.
WILLIAM FLAUD MORRIS,	Ashboro,	M. E.
ROBERT LIVINGSTON MURPHY,	Morganton,	M. E.
JOHN THOMAS O'BERRY,	Dudley,	Agr.
LOUIS SMITH OSBURN,	Sebree, Ky.,	Agr.
WILLIAM JESSE PICKETT,	Kenansville,	Agr.
JAMES BRUCE PRICE,	Leaksville,	E. E.

Name.	*Post-office.*	*Course.*
JESSE LINDSAY PRIMROSE,	Raleigh,	Tex.
JOHN WILLIAM SHELBURN,	Greenville,	Chem.
CECIL ERNEST SPRUILL,	Creswell,	E. E.
ALEXANDER STEWART,	Maxton,	Agr.
VICTOR VAN SYKES,	Efland,	M. E.
MALVERN HILL TERRELL,	Old Fort,	E. E.
FRANK MARTIN THOMPSON,	Raleigh,	Tex.
ADOLPHUS MANGUM WEBB,	Winston-Salem,	M. E.
ROBERT MARSHALL WHITLEY,	Charlotte,	Agr.
JOHN SPICER WILSON,	Winston,	M. E.
DAVID ROY WINSTEAD,	Wilson,	Tex.

SPECIAL STUDENTS. 5

JOHN CAMILLUS APP,	Charleston, W. Va.,	Chem.
ROBERT JAMES EDENS,	Holly Ridge,	M. A.
AUGUSTUS ALEXANDER MCLEAN,	Gastonia,	E. E.
IVAN CHARLES MOORE,	Raleigh,	Tex.
LAWRENCE ALFRED THOMPSON,	Haw River,	Tex.

WINTER COURSES. 13

DEWITT BRADFORD,	Huntersville,	Dairying.
PRICE CALDWELL,	Huntersville,	Dairying.
PAUL COBLE,	Greensboro,	Dairying.
HUFHAM WATSON EARLY,	Aulander,	Dairying.
WILLIAM HENRY FROTHINGHAM,	Brooklyn, N. Y.,	Dairying.
WAITE CARLISLE HAMRICK,	Shelby,	Dairying.
RALPH M. HUTCHISON,	Charlotte,	Dairying.
WILLIAM WALLACE LOWRANCE,	Mooresville,	Dairying.
JOE CARROLL MAST,	Valle Cruces,	Dairying.
CLAUDE BERNARD MCBRAYER,	Shelby,	Dairying.
ANDREW WESLEY OLDHAM,	West Durham,	Textile.
MANLY PEARCE,	Edenton,	Dairying.
JOHN TURNER WALKER,	Concord,	Dairying.

SEVENTEENTH ANNUAL COMMENCEMENT.

MAY 30, 1906.

Degrees Conferred.

BACHELORS OF AGRICULTURE.

JAMES CLAUDIUS BEAVERS,
MARK HOPKINS CHESBRO,
ALEXANDER DOANE CROMARTIE,
WILLIAM CARLYLE ETHERIDGE,
SHIRLY WATSON FOSTER,
HORACE SMITH MCLENDON,
JOSEPH GRAHAM MORRISON,
CHARLES FRANKLIN NIVEN,
LOLA ALEXANDER NIVEN,
LEWIS MILTON ODEN,
FREDDIE JACKSON TALTON,
ROBERT PEEL UZZELL,
LEWIS TAYLOE WINSTON.

BACHELORS OF ENGINEERING.

In Civil Engineering.

DURANT STEWART ABERNETHY,
GEORGE PAGE ASBURY,
KENNETH LEON BLACK,
WILLIAM ANDREWS BUYS,
SAMUEL HERBERT CLARKE,
LATTA VANDERION EDWARDS,
JAMES ALLEN HIGGS, JR.,
JOE POINDEXTER LOVILL,
THOMPSON MAYO LYKES,
RAYMOND MAXWELL,
LACY MOORE,
ANGELO BETTLENA PIVER,
WILLIAM SIDNEY TOMLINSON,
REID TULL.

In Electrical Engineering.

CONNOR CALHOUN CLARDY,
JAMES BECKETT EWART,
HORACE LESTER HAMILTON,
CLARENCE WILSON HEWLETT,
JESSE CLARENCE MYRICK,
RICHARD HENRY TILLMAN,
JACKSON CORPENING TUTTLE.

In Mechanical Engineering.

JOHN WASHINGTON CLARK,
WILEY THEODORE CLAY,
WELDON THOMPSON ELLIS,
JOHN FREDERICK HANSELMAN,
THOMAS JEFFERSON OGBURN,
LILLIAN LEE VAUGHAN.

In Textile Industry.

GEORGE GILDEROY ALLEN,
ALBERT EDWARD ESCOTT,
DURANT WAITE ROBERTSON,
JAMES HARLEIGH WILLIAMS.

BACHELORS OF SCIENCE.

In Industrial Chemistry.

NEEDHAM ERIC BELL,
JAMES DUNCAN CLARKE, JR.,
DUNCAN ARCHIBALD COX,
ARTHUR WYNNS GREGORY,
WILLIAM GRAHAM KNOX,
CLYDE ESTER PARKER,
SAMUEL OSCAR PERKINS,
WILLIAM CRAWFORD PIVER,
PETER VALAER, JR.

CIVIL ENGINEER.

CARROLL LAMB MANN, B.S.

ANNOUNCEMENT OF HONORS.

HONORS IN SCHOLARSHIP FOR 1905-6.

Post-Graduate.

J. C. TEMPLE.

Senior Class.

G. P. ASBURY,
A. E. ESCOTT,
C. W. HEWLETT,
J. P. LOVILL,
R. MAXWELL,
L. L. VAUGHAN.

Junior Class.

S. ELDRIDGE,
C. L. GARNER,
L. R. GILBERT,
H. K. MCCONNELL,
W. B. TRUITT.

Sophomore Class.

F. H. BROWN,
R. R. EAGLE,
P. L. GAINEY,
D. Y. HAGAN,
H. W. KUEFFNER,
E. E. SMITH,
J. L. VON GLAHN.

Freshman Class.

J. W. HABRELSON,
R. C. MASON,
W. B. ROSE.

Second-year Short-course Class.

K. C. COUNCIL.

HONORS FOR PUNCTUALITY.

C. L. GARNER, '07,
J. G. HOLT, Short Course.

FRESHMAN PRIZES FOR AGRICULTURAL LABOR.

First Prize, $10.00, - C. C. ALLISON,
Second Prize, $5.00, - J. A. AREY.