Swann Dormitory

Electrical Building

Mechanical Engineering Buildings

Administration Building

Hospital

Textile Building

Carnegie Library

New Power Laboratory and Research Bureau

Chemical Building

Knowles Dormitory

Frame Dormitories

Concrete Grand Stand

Grant Field

President's Home

Y. M. C. A.

BULLETIN

OF

# The Georgia School of Technology

ORGANIZED 1888

12

A School of Mechanical, Electrical, Civil and Textile Engineering, Engineering Chemistry, Chemistry, Architecture, Commerce an Industrial Education

A Department of the University of Georgia

CATALOG NUMBER

1918-1919

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VOL. XVI. NO. II.

# CALENDAR • 1919

| JANUARY. | | | | | | |
|---|---|---|---|---|---|---|
| S | M | T | W | T | F | S |
| .. | .. | .. | 1 | 2 | 3 | 4 |
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| FEBRUARY. | | | | | | |
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| MARCH. | | | | | | |
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| SEPTEMBER. | | | | | | |
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# CALENDAR • 1920

| JANUARY. | | | | | | |
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| FEBRUARY. | | | | | | |
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| SEPTEMBER. | | | | | | |
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| OCTOBER. | | | | | | |
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| NOVEMBER. | | | | | | |
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| DECEMBER. | | | | | | |
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## CALENDAR, 1919-20.

### First Term.

Begins 8:00 A. M., September 17, 1919; ends 8 A. M., February 2, 1920.

Entrance Examinations and Re-examinations begin September 12, 1919. Schedule of these examinations will be mailed to applicants after August 1, 1919.

Christmas vacation begins at 11 A. M., December 23, 1919, ends 8:00 A. M., January 5, 1920.

### Second Term

Begins 8:00 A. M., February 2, 1920; ends June 9, 1920.

Commencement Day, Wednesday, June 9, 1920.

**By order of the Board of Trustees, the only Holidays to be observed are Thanksgiving Day and Memorial Day (April 26th.)**

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*Professor of Textile Engineering*

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---

*Absent on leave.

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*Associate Professor of Mathematics*

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*Instructor in English*

ANTHONY A. GAVEY*, B.S. ---------- Tech. Y. M. C. A.
*Instructor in Chemistry*

*Resigned.





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*Instructor in Commerce*

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*Instructor in Commerce*

FREDERICK L. A. EICHELBERGER, B.S. in Ec., L.L.B.
493 Courtland St.
*Instructor in Commerce*

ERNEST LINCOLN SCHWARTZ, S.B. ----------247 W. Peachtree
*Instructor in Electrical Engineering*

GEORGE ALTHOFF BINGLEY, A.M. ---------- 657 Ponce de Leon
*Instructor in Mathematics*

HUBERT DE GROFEUR SHAW, Ph.D. ---------- 75 Luckie St.
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*Instructor in Civil Engineering*

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*Instructor in Chemistry*

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*Instructor in Drawing*

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*Instructor in Chemistry*

**Georgia School of Technology**

MORRIS LUTHER SHADBURN, B.S. in C.E. ---------- Ga. Tech.
*Instructor in Highway Engineering*

DAVID ERNEST PHILPOT ---------- 2 Tifton St.
*Instructor in Textile Engineering*

JOHN ROY BRANDON ---------- Georgia Tech.
*Instructor in Textile Engineering*

EDWARD BENBOW MARTINDALE ---------- 374 Spring St.
*Principal Foreman; Foreman of Machine Shop*

HORACE ALONZA THOMPSON ---------- 9 Willard Ave.
*Foreman of Smith Shop*

WILLIAM VAN HOUTEN ---------- 185 Plum St.
*Foreman of Foundry*

JOHN HENRY HENIKA ---------- 110 Oak St.
*Foreman of Wood Shop*

WILLIAM FELDER GRIFFIN ---------- 48 Hemphill Ave.
*Instructor in Machine Shop; Chief Engineer*

HOMER HARLAN NORMAN ---------- 312 W. 4th St.
*Instructor in Wood Shop*

HENRY PRINTUP ---------- 10 Mell Ave.
*Instructor in Wood Shop*

JOSEPH WARREN PATILLO ---------- 140 Metropolitan Ave.
*Instructor in Wood Shop*

AUGUSTUS THEODORE PEACOCK ---------- 49 Pearce St.
*Instructor in Machine Shop*

---

## STUDENT ASSISTANTS.

C. L. ARMSBY ---------- *Architecture*

W. H. SAUNDERS ---------- *Experimental Engineering*

A. B. GREENE, Jr. ---------- *Experimental Engineering*

A. J. COLLINS ---------- *Experimental Engineering*

E. D. SLEDGE ---------- *Chemistry*

H. M. BURNHAM ---------- *Drawing*



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*Accredited Schools*—Professors Branch, Field, and Caldwell.

*Athletics.*—Professors Crenshaw, Wallace and Elliott.

*Buildings and Grounds.*—Professors Coon, Lowndes and F. P. Smith.

*Committee on Standing.*—Professors Emerson, Wallace, Skiles and Boggs.

*Courses of Study.*—Professors Emerson, Branch and Skiles.

*Honor System.*—Professors Emerson, Wallace and Crenshaw.

*Library.*—Professors Boggs, Perry and F. P. Smith.

*Rules and Regulations.*—Professors Emerson, Branch and Eldred.

*Schedule Committee.*—Professors Branch, King and Watters.

*Commencement Program.*—Professors Wallace, Crenshaw, Perry, Skiles, and Morton.

*Student Activities.*—Professors Emerson, Wallace, Field, F. P. Smith, and Perry.

# STUDENTS 1918-1919

## Senior Class.

| Name | County or State | Name | County or State |
|---|---|---|---|
| Adkins, T. B. | Dooly | King, G. D. | DeKalb |
| Alden, C. E. | DeKalb | Kreis, J. W., Jr. | Fulton |
| Baker, A. W. | Fulton | Kuniansky, M. | Fulton |
| Bergen, C. W. | Chatham | Lewin, H. H. | Fulton |
| Betterton, P. M. | Tennessee | Lewis, A. S. | Fulton |
| Biggers, R. H. | Newton | McEver, W. L. | Habersham |
| Blackwell, G. W. | Fulton | McMurry, J. A. | Fulton |
| Bohannon, J. N. | N. Carolina | MacKay, A. J. | Florida |
| Bradley, F. B. | Muscogee | Markert, W. L. | Crisp |
| Brewster, T. D. | Coweta | Merriam, F. F. | Fulton |
| Brittingham, T. H. | Richmond | Nichols, P. H. | Fulton |
| Bryan, F. S. | Greene | Owens, F. C. | Fulton |
| Burford, S. K. | Florida | † Paisley, J. K. | Fulton |
| † Carreker, J. F. | Pike | Parker, W. A., Jr. | Fulton |
| Cobb, H. N. | Fulton | Pattillo, L. B. | Gwinnett |
| Cole, T., Jr. | Coweta | Powell, H. J. | Jasper |
| † Cowan, F. A. | Fulton | Prather, P. | Pickens |
| † Crook, L. E., Jr. | Mississippi | Pugh, G. W., Jr. | Stewart |
| Crymble, A. C. | Virginia | Pund, E. E. | Richmond |
| Cutter, H. D. | Bibb | Richards, H. L. | Florida |
| Daniel, L. C. | Fulton | Robinson, W. W. | Alabama |
| Dickson, H. G. | Morgan | Rogers, J. C. | Tennessee |
| Dowman, A. E., Jr. | DeKalb | Ruggles, C. A. | DeKalb |
| Duson, W. W. | Louisiana | Sanders, R. G. | Texas |
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| Frasuer, F. H. | Crisp | † Scarbrough, H. E. | Clayton |
| Gill, L. M. | DeKalb | † Scharff, D. L. | Mississippi |
| Godard, W. W. | Pike | Scott, F. W. | Fulton |
| Grady, H. W., Jr. | Fulton | Semmes, T. J. | Tennessee |
| Griffith, R. S. | Kentucky | Simmons, J. H. | Fulton |
| Gross, W. E. | Muscogee | Simon, C. H. | Fulton |
| Hall, T. H. | Bleckley | Skeen, J. H. | Tift |
| Hanneman, J. F. | Fulton | Smith, C. P. | Newton |
| Herzog, M. A. | Fulton | Smith, W. D. | Fulton |
| † Hickenlooper, H. C. | Florida | Souza, F. X. | S. America |
| Hightower, J. T. | Upson | Strauss, B. | New York |
| Hill, A. B. | Wilkes | Thornton, G. | Virginia |
| Hirsch, H. I. | Muscogee | Wallis, L. E. | Elbert |
| Holliday, F. L. | Wilkes | White, D. A. | Butts |
| Holst, B. B. | Fulton | Wilcox, W. A. | Ben Hill |
| Houser, W. D. | Perry | Williams, B. B. | Jones |
| Howard, G. P., Jr. | Fulton | † Williams, T. B. | Sumter |
| Hucks, W. R. | Fulton | Wise, R. J. | Greene |
| Jackson, K. C. | Fulton | Young, W. G. | McIntosh |
| † Jones, G. L. | Kansas | Zacharias, E. G. | Decatur |





## Co-operatives.

| Name | County or State | Name | County or State |
|---|---|---|---|
| Hardin, R. W. | Fulton | Curtis, T. R. | Tennessee |
| Smith, W. E. | Pike | Davis, H. C., Jr. | Sumter |

## Junior Class.

| Name | County or State | Name | County or State |
|---|---|---|---|
| Ackley, F. R. | Fulton | Fincher, W. E. | Fulton |
| Adams, S. T. | Elbert | Fletcher, H. M. | Butts |
| Aichel, C. G. | S. Carolina | Fluker, W. T. | McDuffie |
| Anderson, L. E. | Tatnall | Frankum, J. B. | Franklin |
| Ansley, G. E. | Sumter | Fraser, G. R. | Fulton |
| Arnall, H. C. | Coweta | Garrett, H. O. | Muscogee |
| Arnold, S. R. | Fulton | Genovar, W. P. | Florida |
| Askew, B. S. | Coweta | Gessner, F. B. | Louisiana |
| Ballard, E. D. | Jasper | Gibson, G. H. | Richmond |
| Basarrate, O. | Cuba | Giddens, P. H. | Muscogee |
| Battle, W. W. | Muscogee | Girard, P. M. | Louisiana |
| Beall, R. A. | Richmond | Glisson, W. R. | Bibb |
| Bee, E. S. | Mississippi | Gooch, R. | Putnam |
| Betts, R. B. | Floyd | Gorham, J. M. | Pickens |
| Bewick, R. H. | Fulton | Guess, S. Y. | Fulton |
| Blair, A. | Bibb | Guy, E. H. | S. Carolina |
| Bobbitt, G. L. | N. Carolina | Havis, E. H. | Fulton |
| Bond, C. F. | Sumter | Hawes, W. L. | Fulton |
| Boughton, S. P. | Morgan | Haynsworth, H. J. | S. Carolina |
| Bowen, A. S. | Walker | Heath, J. M. | Talbot |
| Brennan, J. C. | Chatham | Hilley, R. D. | Cobb |
| Brimberry, W. H. | Jefferson | Hillhouse, R. M. | Worth |
| Brown, G. S. | DeKalb | Hinde, J. P. | Fulton |
| Brown, J. W. | Jefferson | Hitt, A. S. | Clayton |
| Brumby, L. R. | Cobb | Holleman, E. | DeKalb |
| Bucknell, W. H. | Fulton | Hudgins, B. B. | Fulton |
| Busch, L. R. | Laurens | Hughes, H. H. | DeKalb |
| Carr, J. L. | Alabama | Humphrey, D. G. | Fulton |
| Carter, J. H. | Florida | Ingram, L. C. | Coweta |
| Cockrill, S. B. | Tennessee | Jarrard, B. H. | Pickens |
| Colley, T. N. | Coweta | Jerger, W. D. | Thomas |
| Conoley, J. J. | Fulton | Jones, F. H. | Fulton |
| Crumley, H. L. | Fulton | Kaplan, B. W. | Fulton |
| Dawson, L. Y., Jr. | S. Carolina | Keen, J. V. | Florida |
| deNeergaard, C. G. | N. Carolina | Kent, L. F. | Cobb |
| Douglas, P. M. | Talbot | King, R. L. | Fulton |
| Dowling, J. H. | Fulton | LeCraw, R. V. | Fulton |
| Doyal, R. L. | Fulton | Lefkoff, I. | Fulton |
| Dunlap, E. F. | Fulton | Lester, G. N. | D. of C. |
| Elam, L. P. | Lincoln | Limbaugh, H. B. | Florida |
| Enloe, R. | Fulton | Link, E. C. | Fulton |
| Ferst, F. W. | Chatham | MacDonald, Jas. | Mississippi |

| Name | County or State |
|---|---|
| Manget, H. F. | Fulton |
| Mann, R. A. | Ben Hill |
| Manning, G. E. | Richmond |
| Manning, L. J. | Florida |
| Mason, J. W. | Fulton |
| Mathewson, J. H. | Fulton |
| McCash, P. K. | Fulton |
| McCleskey, J. M. | Cobb |
| McIver, D. | Fulton |
| McMath, H. | Muscogee |
| McNeice, R. D. | Upson |
| McPherson, C. M. | Fulton |
| Mercer, W. G. | Terrell |
| Merry, E. R. | Fulton |
| Milner, S. W. | Fulton |
| Minyard, J. P. | Mississippi |
| Moise, H. | Fulton |
| Nelms, J. B. | Hart |
| Nesbit, M. M. | Gwinnett |
| Newton, R. B. | Bibb |
| Nowell, E. M. | Walton |
| Oldknow, O. S. | Fulton |
| Orlow, H. | Lowndes |
| Parramore, R. L. | Lowndes |
| Pearsall, L. M. | Ware |
| Phillips, G. D. | W. Virginia |
| Pittman, W. O. | Jackson |
| Pollard, L. W. | Fulton |
| Pollard, W. R. | Fulton |
| Powers, H. C. | Chatham |
| Pruitt, F. O. | Upson |
| Puckhaber, F. H. | S. Carolina |
| Pye, J. C. | Upson |
| Raine, G. B. | Fulton |
| Ramey, G. W., Jr. | Fulton |
| Reece, W. R. | Floyd |
| Reese, W. M., Jr. | Randolph |
| Roberts, M. L. | Emanuel |
| Robinson, J. M. | Macon |
| Rodgers, R. M. | Sumter |
| Rodriguez, B. | Mexico |
| Rowland, G. W. | Burke |
| Russell, F. L. | Fulton |
| Rutherford, W. A. | Tennessee |
| Ryan, R. R. | Kansas |
| Ryder, E. A. | Muscogee |
| Rylander, A. | Sumter |
| Sanford, D. B. | Baldwin |
| Schofield, C. H. | Bibb |
| Seanor, P. B. | Ben Hill |
| Sheffield, F. Jr. | Sumter |
| Sheffield, I. M., Jr. | Fulton |
| Shelverton, W. L. | Wilkes |
| Sherlock, C. J. | Sumter |
| Simpson, W. F. | Fulton |
| Sledge, E. D. | Clarke |
| Smith, B. F. | Elbert |
| Smith, I. H. | Newton |
| Smith, J. L. | Newton |
| Sommerfield, A. W. | Fulton |
| Stanfield, J. H. | Tennessee |
| Stearns, H. L. | Fulton |
| Stevens, L. T. | Fulton |
| Tanner, W. M. | Gwinnett |
| Thomason, G. A. | Clarke |
| Vickers, J. H. | Bibb |
| Wallace, S. S. Jr. | Fulton |
| Ward, C. M. | Wayne |
| Ward, J. A. | Wayne |
| Wayt, B. D. | Fulton |
| Wayt, J. A. | Fulton |
| Weaver, J. A. | Florida |
| Wells, W. S. | Walton |
| Wender, I. H. | Fulton |
| Wheeler, M. L. | Greene |
| White, C. H. | Fulton |
| White, D. H. | Fulton |
| Whitner, Jos. | Fulton |
| Whittenberg, J. W. | DeKalb |
| Wikle, J. R. | Fulton |
| Wilkinson, F. S. | Coweta |
| Willingham, P. B. | Stephens |
| Wilson, C. B. | Jackson |
| Wimberly, M. S. | Clay |
| Wood, T. L. | Washington |
| Woods, R. W. | Fulton |
| Zerbst, A. F. | Fulton |

## Sophomore Class.

| Name | County or State |
|---|---|
| Allen, T. J. | Fulton |
| Almand, J. H. | Rockdale |
| Almond, G. L. | Elbert |
| Alsup, R. W. | Tennessee |
| Amis, T. B. | Coweta |
| Anderson, A. S. | Wilkes |





| Name | County or State |
|---|---|
| Anderson, J. E. | Tennessee |
| Anderson, P. H. | S. Carolina |
| Ansley, E. P. | Fulton |
| Armbrecht, C. P. | Alabama |
| Armistead, J. W. | Fulton |
| Armstrong, R. H. | Fulton |
| Arnold, J. Y. | Elbert |
| Asbury, F. L. | Habersham |
| Atteberry, W. | Louisiana |
| Awtrey, B. S. | Cobb |
| Baker, P. W. | Kentucky |
| Barker, W. R. | Hall |
| Barnard, J. D. | Fulton |
| Barnes, M. | Fulton |
| Barry, A. F. | Fulton |
| Bell, H. I. | Fulton |
| Bell, R. P. | Virginia |
| Blate, M. V. | Dougherty |
| Bleckley, S. C. | Habersham |
| Boone, C. H. | Coweta |
| Booth, W. W. | Fulton |
| Bottorff, H. R. | Arkansas |
| Bradfield, J. R. | Telfair |
| Bradford, R. J. | Fulton |
| Branch, W. H. | Randolph |
| Brock, H. B. | Alabama |
| Brooks, W. P. | Chatham |
| Browne, G. Y. | Putnam |
| Bryan, E. W. | Mississippi |
| Bryan, J. E. | Butts |
| Burkhart, W. H. | Ben Hill |
| Burnham, H. M. | Chatham |
| Caffey, L. W., Jr. | Fulton |
| Calhoun, A. B. | Fulton |
| Carnes, E. M. | Cobb |
| Carson, C. C. | Jackson |
| Carson, H. D. | DeKalb |
| Cassady, E. V. | Fulton |
| Cate, H. C. | Texas |
| Cater, P. F. | Monroe |
| Cherry, C. W. | D. of C. |
| Childs, J. W. | Fulton |
| Clein, M. L. | Fulton |
| Clifton, W. L. | Polk |
| Colburn, W. C. | Thomas |
| Cole, I. M. | Coweta |
| Cole, J. H. | Fulton |
| Cook, C. E. | Fulton |
| Cook, J. V. | Kentucky |
| Cooper, J. M. | Fulton |
| Cordes, A. W., Jr. | Chatham |
| Cox, N. P. | Fulton |
| Cramer, S. | Carroll |
| Culler, F. I. | S. Carolina |
| Curry, W. H. | Mitchell |
| Daniel, H. N. | Evans |
| Darling, C. L. | Ware |
| Davis, V. L. | Jackson |
| Denton, D. W. | Fulton |
| DesPortes, C. J. | Muscogee |
| Dickens, G. F. | Hancock |
| Dillard, A. J. | S. Carolina |
| Dixon, L. M. | Fulton |
| Duggan, H. | Fulton |
| Dunbar, C. B. | Richmond |
| Duncan, J. R. | Dooly |
| Duncan, L. P. | Houston |
| Dunwody, R. G., Jr. | Fulton |
| DuPree, J. T. | Louisiana |
| Dyal, J. O. | Camden |
| Earnest, J. D. | Tennessee |
| Eastman, E. M. | Fulton |
| Edwards, J. T. | Fayette |
| Edwards, S. B. | Clarke |
| Evans, I. C. | Clayton |
| Fleming, J. T. | Richmond |
| Flinn, E. | Fulton |
| Fox, M. P. | Terrell |
| Fuller, W. M. | Cobb |
| Garlington, T. R. | Floyd |
| Garrison, S. W. | Coweta |
| George, W. E. | Tennessee |
| Gilbert, S. P. Jr. | Muscogee |
| Gordon, M. O. | Gordon |
| Gordon, W. H. | Fulton |
| Greene, A. D. | Thomas |
| Green, E. C. | Fulton |
| Greene, M. C. | Gordon |
| Grobli, W. G. | Fulton |
| Grossman, A. | Richmond |
| Guyon, J. N. | N. Mexico |
| Hall, J. L. | Fulton |
| Hall, M. S. | Fulton |
| Hamlett, J. E. | Fulton |
| Harbaugh, L. R. | Florida |
| Harris, S. H. | Carroll |
| Harty, A. | Chatham |
| Harwell, R. L. | Fulton |
| Haskell, A. W. | Alabama |
| Hassell, F. L. | Brooks |
| Hassler, F. K. | Whitfield |
| Hasson, J. W. | Cherokee |
| Hawes, A. L. | Elbert |
| Hawkins, H. M. | Fulton |
| Hays, C. S. | Bibb |
| Herbig, H. F. | Fulton |

| Name | County or State |
|---|---|
| Herndon, W. H. | S. Carolina |
| Herring, T. F. | Dooly |
| Hill, W. J. Jr. | Sumter |
| Hill, W. S. | Mitchell |
| Hirleman, G. W. | Fulton |
| Hite, H. H. | Kentucky |
| Holcomb, B. M. | Fulton |
| Hooker, S. D. | N. Carolina |
| Hopkins, F. J. | Butts |
| House, T. D. | Fulton |
| Howell, A. S. | Greene |
| Hoxsey, J. M. B., Jr. | Fulton |
| Hunt, W. W., Jr. | Muscogee |
| Hutcheson, R. H. | Douglas |
| Hyer, B. W. | Fulton |
| Hyers, W. K. | Florida |
| Jacobs, H. L. | Barrow |
| James, A. E. | N. Carolina |
| Johnson, J. M. | Sumter |
| Johnson, R. C. | Sumter |
| Jones, C. M. | Fulton |
| Jones, G. P. | Bibb |
| Jones, J. B. | Fulton |
| Kahrs, H. D. | Richmond |
| Kellam, J. F. | Fulton |
| Khoury, M. A. | Dodge |
| Kinnebrew, E. R. | N. Carolina |
| Kinnebrew, T. | Fulton |
| Knapp, W. A. | Thomas |
| Kollock, P. M. | Fulton |
| Kratzer, J. B. | Mississippi |
| Kruse, J. R. | Fulton |
| Leeper, R. F. | Arkansas |
| Lowndes, R. I., Jr. | N. Carolina |
| Lunsford, R. C | Cobb |
| Lynch, R. E. | Putnam |
| Lyndon, W. S. | Wilkes |
| Maddox, H. E. Jr. | DeKalb |
| Manget, V. | Fulton |
| Markert, A. P. | S. Carolina |
| Marsh, S. T. | S. Carolina |
| Mason, W. P. | Kansas |
| McCorkle, J. M. | Fulton |
| McCrory, H. S. | Schley |
| McCullough, J. W. | Arkansas |
| McDonald, J. H. | DeKalb |
| McGinnis, C. A., Jr. | Fulton |
| McNeill, W. A. | Sumter |
| Methvin, C. M., Jr. | Dodge |
| Miller, J. O. | Fulton |
| Mitchell, R. L. | N. Carolina |
| Moore, D. C. | Fulton |
| Moore, H. C., Jr. | DeKalb |
| Moss, T. S. | Clarke |
| Mullis, C. H. | Bleckley |
| Murray, S. E. | Spalding |
| Nicolas, A. R. | Chatham |
| Nuckolls, T. J. | Muscogee |
| Ortiz, S. F. | Brazil |
| Parsons, E. D. | Tennessee |
| Parsons, W. N. | Pulaski |
| Passmore, C. C. | Lowndes |
| Pate, R. C. | Fulton |
| Phillips, D. W. | Florida |
| Powell, J. R. | Lowndes |
| Prescott, T. S. | DeKalb |
| Prieto, F. G. | C. America |
| Ravenel, T. C. | Fulton |
| Reid, R. L. | Fulton |
| Rice, D. D. | Louisiana |
| Robinson, J. W. | Richmond |
| Robison, W. A. | Richmond |
| Rosolio, L. | Thomas |
| Sault, S. C. | Fulton |
| Schenck, J. W. | N. Carolina |
| Schley, H. M. | Chatham |
| Scott, R. H. | Fulton |
| Self, T. C. | Virginia |
| Settle, J. V. | Barrow |
| Shepherd, J. O. | DeKalb |
| Simpson, S. S. | Fulton |
| Smith, C. B. | Barrow |
| Smith, T. V., Jr. | Muscogee |
| Smith, W. T. | Washington |
| Spivey, J. G. | Putnam |
| Stakely, W. N. | Alabama |
| Stokes, H. G. | Texas |
| Taber, A. R. | S. Carolina |
| Taylor, E. L. | Pike |
| Tennent, T. H. | Fulton |
| Terrell, J. W. | Butts |
| Thomas, E. F. | Mississippi |
| Thomas, P. C. | S. Carolina |
| Thompson, F. W. | Newton |
| Tolbert, G. V. | Texas |
| Torrence, C. K. | Fulton |
| Trawick, G. T. | Hancock |
| Turner, G. B. | Fulton |
| Twitty, T. E. | Mitchell |
| Upshaw, H. T. | Douglas |
| Va degrift, J. H. | Florida |
| Viener, R. | Mississippi |





| Name | County or State |
|---|---|
| Walker, J. W., Jr. | Fulton |
| Wallis, L. D. | Sumter |
| Ward, T. H. | Virginia |
| Watkins, R. F. | DeKalb |
| Watson, R. O. | Randolph |
| Webb, B. F. | Sumter |
| Weiss, R. G. | Fulton |
| Weldon, F. Jr. | Fulton |
| Weston, C. W. | Mississippi |
| Weston, T. P. | Fulton |
| Wheelock, F. H. | Tennessee |
| Whelchel, C. C. | Madison |
| Whiteley, W. R. | Warren |
| Whittaker, A. D., Jr. | Fulton |
| Wilcox, H. T. | Elbert |
| Wilder, J. B. | Bibb |
| Willingham, R. T. | Cobb |
| Wilson, J. G. | Glynn |
| Wilson, M. P. | Fulton |
| Wooten, J. M. | Randolph |
| Yates, T. A. | Walker |
| Yorke, F. R. | N. Carolina |
| Young, C. C. | N. Carolina |
| Young, C. E., Jr. | Florida |

## Freshman Class.

| | |
|---|---|
| Abreu, D. | Brazil |
| Acheson, S. | Texas |
| Adair, P. | Fulton |
| Adams, B. R. | Fulton |
| Adams, C. C. | Fulton |
| Adams, E. F. | Newton |
| Adams, J. Q. | Oklahoma |
| Aiken, K. L. | Fulton |
| Akers, F. M., Jr. | Fulton |
| Albea, A. M. | S. Carolina |
| Allen, E. W. | Hancock |
| Allen, H. B. | Clinch |
| Allen, H. T. | Florida |
| Alling, R. W. | Fulton |
| Allman, F. L. | Stephens |
| Allman, R. M. | Stephens |
| Almond, E. P. | Elbert |
| Alsobrook, G. D. | Fulton |
| Anderson, G. D. | Cobb |
| Anderson, N. | Texas |
| Arant, C. G. | DeKalb |
| Argo, H. B. | Richmond |
| Arnold, S. E. | Fulton |
| Arnold, W. C. | Fulton |
| Asbury, J. W. | Habersham |
| Ashby, H. K. | Fulton |
| Ashby, J. L. | N. Carolina |
| Astin, J. W. | Fulton |
| Atteberry, J. G. | Louisiana |
| Auld, G. D. | Elbert |
| Aycock, J. A. | Meriwether |
| Bailey, E. O. | Tennessee |
| Bailey, N. H. | Spalding |
| Baker, E. M., Jr. | Chatham |
| Baker, F. W. | N. Carolina |
| Baker, J. T. | Pike |
| Baker, W. A. | Mississippi |
| Bales, H. O. | Arkansas |
| Barge, R. H. | Coweta |
| Barkdull, T. H. | Florida |
| Barker, J. H. | Fulton |
| Barnett, J. H. | Jackson |
| Barnett, P. G. | Wilkes |
| Barnett, S. F. | Carroll |
| Barnhardt, T. M., Jr. | N. Carolina |
| Barnum, W. B. | Stewart |
| Barron, D. I. | Habersham |
| Basarrate, A. | Cuba |
| Baskin, J. P. | Carroll |
| Baumgardner, H. L. | Washington |
| Baxley, A. W. | Chatham |
| Baynard, J. S. | Bibb |
| Beall, D. | N. Carolina |
| Bearden, C. B., Jr. | Fulton |
| Beasley, A. E. | Florida |
| Bell, J. M. | Colquitt |
| Bell, S. J., Jr. | Fulton |
| Bennet, L. J. | Glynn |
| Berry, C. R. | Mississippi |
| Berry, M. O., Jr. | Muscogee |
| Berry, W. F. | Arkansas |
| Berryhill, W. R. | N. Carolina |
| Bethea, J. P. | S. Carolina |
| Beverly, W. | Virginia |
| Billings, N. A. | Louisiana |
| Blanton, C. S. | Tennessee |
| Bohannon, W. H. | Coweta |
| Booker, A. J. | Troup |
| Bowles, J. F., Jr. | N. Carolina |

| Name | County or State |
|---|---|
| Bowyer, F. L. | Florida |
| Bozarth, W. F. | Virginia |
| Bozeman, F. B. | S. Carolina |
| Bradley, H. G. | Fulton |
| Brandon, H. J. | Hall |
| Brantley, G. W. | Brooks |
| Brash, J. E. | Florida |
| Bratton, A. | Nebraska |
| Brazelton, C. M. | Texas |
| Brenizer, L. C. | Texas |
| Brewton, B. H. | Tattnall |
| Bricken, W. W. | Fulton |
| Brock, O. S. | Polk |
| Brock, W. P. | Meriwether |
| Brogdon, G. L. | Gwinnett |
| Brooks, H. O. | Colquitt |
| Brooks, J. W. | DeKalb |
| Brooks, W. A. | Dooly |
| Brown, A. P., Jr. | Fulton |
| Brown, G. R. | Texas |
| Brown, J. D. | Bleckley |
| Brown, R. W. | Baldwin |
| Brown, W. W. | Morgan |
| Browne, T. H. | Texas |
| Broyles, C. J., Jr. | Tennessee |
| Bruce, W. M., Jr. | Arkansas |
| Brunson, L. L. | S. Carolina |
| Bullock, E. W. | Dodge |
| Burkhalter, R. G. | Floyd |
| Burns, W. C. | Florida |
| Butler, C. B. | Muscogee |
| Butler, W. W. J. | Fulton |
| Butt, C. H. | Fulton |
| Butterworth, E. F. | Bibb |
| Byrd, J. E. | Bullock |
| Camp, L. K. | Muscogee |
| Camp, R. C. | Stephens |
| Campbell, W. W. | Fulton |
| Cannon, G. M. | Whitfield |
| Canova, F. A. | Florida |
| Carpenter, H. O. | N. Carolina |
| Carriere, J. G., Jr. | Louisiana |
| Carter, O. H. | Sumter |
| Carter, T. F. | Stewart |
| Cary, C. W. | Hancock |
| Chastain, R. A. | Meriwether |
| Cheves, R. B. | Bibb |
| Clark, C. J. | Sumter |
| Clegg, P. C., Jr. | Crisp |
| Clements, D. M. | Dodge |
| Cleveland, L. O. | Elbert |
| Cobb, F. R. | Texas |
| Cochran, A. B. | Mitchell |
| Cochran, W. B., Jr. | Thomas |
| Cohen, L. | Newton |
| Cole, R. D., III | Coweta |
| Coleman, C. S. | Tennessee |
| Coleman, F. B. | Fulton |
| Collat, E. | Chatham |
| Collins, J. J. | Chatham |
| Cone, B. | N. Carolina |
| Comfort, D. | Cobb |
| Conrad, J. E. | N. Carolina |
| Contois, R. M. | Louisiana |
| Connally, L. P. M. | Fulton |
| Cooper, L. J. | Jackson |
| Cornwell, J. I. | Texas |
| Covington, G. C., Jr. | Kentucky |
| Cox, J. C. | Hall |
| Cox, W. F. | Meriwether |
| Cox, W. M. | Texas |
| Cox, Wm. T. | Oklahoma |
| Cox, Willoughby T. | Florida |
| Craig, A. B. | Dougherty |
| Creighton, G. J. | Sumter |
| Cronk, J. A. | Chatham |
| Currie, W. D. | Montgom'y |
| Dahnke, H. | Tennessee |
| Darsey, A. L. | Decatur |
| Daugherty, L. L., Jr. | Lowndes |
| Davidson, C. L. | Tennessee |
| Davidson, J. M. | Mississippi |
| Davidson, S. | Troup |
| Davis, F. C. | Tift |
| Davis, F. E. | Fulton |
| Davis, G. A. | Kansas |
| Davis, H. G. | Tift |
| Davis, O. G. | Fulton |
| Day, A. M. | Coffee |
| Deadwyler, C. L. | Elbert |
| Dearing, J. P. | Mississippi |
| deDiego, A. | Cuba |
| Deihl, C. A. | Fulton |
| Denmark, E. R. | Brooks |
| Dennis, R. N. | Fulton |
| Dillard, J. P. | Texas |
| Dismuke, W. H. | Muscogee |
| Dobbins, W. E., Jr. | Fulton |
| Dobbs, S. C. | DeKalb |
| Dodenhoff, W. | N. Carolina |
| Dorr, F. J. | Richmond |
| Dozier, W. E. | McDuffie |





| Name | County or State |
|---|---|
| Dubose, H. I. | Fulton |
| Dudley, C. H., Jr. | Glynn |
| Dunlap, J. C. | Fulton |
| Duson, H. T. | Louisiana |
| Egbert, W. D. | Kansas |
| Ehrlick, B. M. | Emanuel |
| Ehrlick, L. | Emanuel |
| Elder, M. H. | Fulton |
| Elkan, S. A. | Bibb |
| Elliott, J. M. | S. Carolina |
| Elliott, R. H. | Rockdale |
| Elyea, C. D. | Fulton |
| Engel, A. B. | Tennessee |
| Erickson, J. E. | Louisiana |
| Estes, W. E., Jr. | Alabama |
| Eubanks, G. F. Jr., | Fulton |
| Evans, C. A. | Richmond |
| Ewing, L. D. | Gwinnett |
| Fahnestock, T. V. | S. Carolina |
| Fenner, R. J. | Tennessee |
| Field, W. U. | New Jersey |
| Fielden, W. C. | Polk |
| Fincher, J. T. | Fulton |
| Fisher, S. W. | Texas |
| Fite, R. V. | Texas |
| Fitts, L. D. | Whitfield |
| Flowers, A. R., Jr. | S. Carolina |
| Fordham, J. A. | Laurens |
| Fort, J. A., Jr. | Early |
| Foster, J. F. | Louisiana |
| Fouche, D. D. | Crisp |
| Francis, J. S., Jr. | Rockdale |
| Frankum, J. L. | Franklin |
| Frazer, R. L. | Ben Hill |
| Freeman, J. R. | Texas |
| Funderburk, C. B. | Florida |
| Gaboury, M. N. | Alabama |
| Gaines, H. L. | Hall |
| George, J. M. | S. Carolina |
| George, R. L. | Araknsas |
| Getzen, J. E. | Jackson |
| Gibson, C. E. | Thomas |
| Gilbert, J. H. | Tennessee |
| Gillespie, C. R. | Alabama |
| Gleckler, J. D. | Texas |
| Goldman, Jos. | Stephens |
| Gorrill, G. A. | Kansas |
| Granger, H., Jr. | Chatham |
| Granger, H. G., Jr. | Fulton |
| Granger, W. B. | Fulton |
| Grant, E. E. | Bibb |
| Gray, H. H. | Carroll |
| Graydon, E. L., Jr. | Fulton |
| Greene, A. E. | Jones |
| Greene, D., Jr. | Alabama |
| Greene, G. M. | Texas |
| Greer, W. E. | Gwinnett |
| Gregory, L. O. | N. Carolina |
| Griffin, B. E. | Coffee |
| Griffin, N. L. | Whitfield |
| Gruber, A. M. | Chatham |
| Guill, R. A. | Hancock |
| Gunnels, W. W. | Dougherty |
| Hailey, N. L. | Hart |
| Hamilton, L. E. | Texas |
| Hamrick, R. M. | Bartow |
| Hancock, H. D. | Chatham |
| Hancock, J. M. | Texas |
| Hardeman, F. S. | Bibb |
| Harland, J. W., Jr. | Fulton |
| Harris, R. D. | Crisp |
| Harrison, F. | Florida |
| Harrison, R. L. | Fulton |
| Haulbrook, K. S. | Banks |
| Havis, H. C. | Mississippi |
| Hayes, T. S. | Elbert |
| Hendrick, C. F. | N. Carolina |
| Henry, J. S. | Tennessee |
| Herin, T. D. | Florida |
| Herman, H. L. | Richmond |
| Heyward, E. B. | Habersham |
| Hickenlooper, H. T. | Florida |
| Hill, B. H., Jr. | Fulton |
| Hill, B. J. | Dougherty |
| Hill, J. McC., Jr. | Muscogee |
| Hills, H. A. | Cobb |
| Hines, E. W. | Baldwin |
| Hodges, A. F. | Sumter |
| Hodgson, R. P. | DeKalb |
| Hodnett, H. J. | Troup |
| Hoffman, G. F. | Chatham |
| Holbert, H. G. | Cherokee |
| Hollingsworth, E. L. | Rockdale |
| Holmes, J. C. | Meriwether |
| Holmes, S. G. | Hancock |
| Holt, W. K. | Gwinnett |
| Holton, R. B. | Mitchell |
| Horan, J. E. | Whitfield |
| Hornady, J. M. | Virginia |
| Horne, J. E. | Pike |
| Horne, T. E. | Sumter |
| Horsley, J. C. | Troup |
| House, W. L. | Douglas |

| Name | County or State |
|---|---|
| Houser, R. P. | Houston |
| Howard, L. M. | Screven |
| Howard, O. T. | Muscogee |
| Howden, F. D. | Chatham |
| Howell, E. H. | Fulton |
| Hubert, H. B. | Warren |
| Hudgens, J. N., Jr. | S. Carolina |
| Hudgins, H. C., Jr. | Cobb |
| Hudson, W. | McDuffie |
| Huffaker, B. E. | Florida |
| Huffines, R. D. | Texas |
| Hughens, J. | Fulton |
| Hughes, J. W. | Fulton |
| Hughlett, J. M. | Newton |
| Huguley, G. A., Jr. | Troup |
| Hunt, E. E. | Penn. |
| Husband, E. W. | Kansas |
| Inglis, J. L. | Alabama |
| Ingram, J. W. | Coweta |
| Isbell, G. R. | Alabama |
| Isbell, J. H. | Alabama |
| Jackson, G. A. | Bibb |
| Jackson, T. H. | Clarke |
| Jackson, W. H. | N. Carolina |
| Jamison, R. P. | N. Carolina |
| Janes, B. C. | Texas |
| Janson, J. H. | Fulton |
| Jernigan, W. M. | Hancock |
| Jervis, J. R. | Florida |
| Johnson, Francis C. | Fulton |
| Johnson, Frank C., Jr. | Tennessee |
| Johnson, H. R. | Tennessee |
| Johnson, K. G. | Haralson |
| Johnson, T. C. | Coweta |
| Johnson, T. L. | DeKalb |
| Johnston, R. A. | N. Carolina |
| Jones, C. E. | Alabama |
| Jones, C. L. | Kansas |
| Jones, C. P., Jr. | Texas |
| Jones, G. W. | Missouri |
| Jones, J. C. | Tennessee |
| Jones, J. P. | Florida |
| Jones, R. T. | DeKalb |
| Jones, W. H. | S. Carolina |
| Jordan, C. D. | Muscogee |
| Justus, H. D. | Rabun |
| Kalish, D. M. | Fulton |
| Keeton, R. C. | Fulton |
| Keller, H. K. | Florida |
| Kelly, R. J. | Jackson |
| Kenney, A. S. M. | N. Carolina |
| Kerr, D. S. | N. Carolina |
| Kessler, D. M. | Bibb |
| Khoury, G. R. | Dodge |
| Kibler, D. D. | Florida |
| Kickliter, J. F., Jr. | Florida |
| Kidd, J. P. | Coweta |
| Kight, T. | Bibb |
| Killen, J. R., Jr. | Bibb |
| Kimbrough, H. S. | Mississippi |
| King, H. A. | Jefferson |
| King, L. J. | Carroll |
| Kinnebrew, W. O. | Fulton |
| Kinney, W. O., Jr. | Bibb |
| Kirby, M. L. | Troup |
| Kirkwood, T. A. | S. Carolina |
| Knighton, J. H. | Randolph |
| Kohlruss, C. F., Jr. | Richmond |
| Kyle, B. E. | Texas |
| Kyle, W. W. | Texas |
| Lamar, L. H. | Richmond |
| Lankeman, M. J. | Chatham |
| Lasseter, K. C. | Florida |
| Lathem, L. P. | Hall |
| Lathem, O. P. | Hall |
| Law, F. | Fulton |
| Lawrence, C. E. | Upson |
| Leas, W. M. | Fulton |
| Lee, R. I. | Richmond |
| Lengnick, E. E., Jr. | S. Carolina |
| Lester, C. H. | Texas |
| Levey, H. N. | Florida |
| Levi, J. S. | Chatham |
| Levy, L. R. | Chatham |
| Lewis, J. O., Jr. | Brooks |
| Lillard, W. P. | Kentucky |
| Lilliott, R. B., Jr. | Telfair |
| Linch, W. E. | Butts |
| Lineberger, A. G., Jr. | N. Carolina |
| Lipman, R. M. | Fulton |
| Little, A. P. | Fulton |
| Little, F. Q. | Jackson |
| Littlefield, W. L. | Kentucky |
| Locke, J. P. | Virginia |
| Longino, T. C. | Fulton |
| Looper, G. L. | Whitfield |
| Lord, A. | N. Carolina |
| Lowe, F. E. | Bibb |
| Lowry, A. B. | Fulton |
| Lyle, L. H. | Fulton |
| Lyle, M. P. | Fulton |
| Lyles, C. T. | Florida |





| Name | County or State |
|---|---|
| Maddox, N. B. | Fulton |
| Marchman, R. L. | Cobb |
| Marrow, F. M., Jr. | Chatham |
| Martin, A. S. | Fulton |
| Martin, B. H. | Muscogee |
| Martin, F. B. | Tennessee |
| Martin, B. M. | Fulton |
| Matheson, D. J. | S. Carolina |
| Mayer, G. | Florida |
| Maynard, R. L. | Fulton |
| McAfee, R. E. | Texas |
| McBride, L. C., Jr. | Texas |
| McCall, R. L. | Screven |
| McCarty, W. D. | Whitfield |
| McCaw, W. E., Jr. | Ohio |
| McConnell, H. S. | Franklin |
| McCullough, J. E. | Jasper |
| McCutcheon, C. R. | Fulton |
| McElroy, F. | Fulton |
| McGarry, J. | Alabama |
| McGuire, R. | Tennessee |
| McKenzie, E. F. | Alabama |
| McKey, T. H., Jr. | Lowndes |
| McKillop, I. H. | Florida |
| McLain, C. E. | Florida |
| McLane, A. G. | Florida |
| McLaurin, T. C. | S. Carolina |
| McManmon, J. J. | Fulton |
| McMaster, W. J. | Texas |
| McMurry, C. P. | Fulton |
| McNeel, F. F. | Cobb |
| McPheren, G. A. | Ware |
| Mealor, W. T. | Hall |
| Melanson, R. B. | Louisiana |
| Mendel, S. I. | Fulton |
| Menger, E. R. | Texas |
| Merritt, E. H. | Bibb |
| Merritt, H. E. | Hall |
| Miles, F. G. | N. Carolina |
| Miller, E. D. | Texas |
| Miller, G. M., Jr. | Chatham |
| Miller, L. S. | Glynn |
| Milner, T. C. | Bartow |
| Mingledorff, L. P. | Kentucky |
| Mobley, J. H. | Telfair |
| Montgomery, T. B. | Meriwether |
| Moore, C. J. | Florida |
| Moore, J. L. | Butts |
| Moore, L. G. | Berrien |
| Moore, R. T. | Hancock |
| Moran, L. E. | Hancock |
| Morris, J. E. | Pulaski |
| Moses, Wm. J. | Tenn. |
| Moughon, W. S. | Alabama |
| Mundy, I. L. | Polk |
| Murrah, E. P. | Muscogee |
| Murray, A. | New York |
| Nash, C. M. | Florida |
| Neal, W. S. | Meriwether |
| Nevitt, J. H. | Kansas |
| Newman, G. | Alabama |
| Newton, C. S. | Mississippi |
| Nichols, P. | N. Carolina |
| Nicolas, T. C. | Chatham |
| Norman, R. I. | Elbert |
| Norment, F. G. | Tennessee |
| Norris, J. G. | Coweta |
| Oattis, P. N. | Muscogee |
| Oberly, J. L. | Connecticut |
| Ogram, A. | Florida |
| O'Leary, D. J. | Chatham |
| O'Neal, J. W. | Butts |
| O'Neal, W. H. | Butts |
| Oosterhoudt, O. J. | Florida |
| Osborne, D. W. | Cobb |
| Osborne, H. P., Jr. | Franklin |
| Owens, C. B. | Coweta |
| Paden, C. H. | DeKalb |
| Palin, A. W. | Dougherty |
| Park, M. B. | Fulton |
| Parker, F. W. | Stewart |
| Parker, P. N., Jr. | Hall |
| Parks, J. T. | Hancock |
| Parks, W. V. | Baldwin |
| Parrot, L. B. | Ben Hill |
| Partridge, A. D. | Walker |
| Paschal, R. S. | Bulloch |
| Patterson, C. B., Jr. | Colquitt |
| Patterson, K. M. | Virginia |
| Patton, J. E., Jr. | Tennessee |
| Patton, R. | Tennessee |
| Peabody, T. F. | Fulton |
| Pearce, J. W. | DeKalb |
| Peek, E. L. | Rockdale |
| Pendergrass, J. N. | Texas |
| Pent, J. F. | Fulton |
| Perryman, A. W. | Fulton |
| Peteet, W. D. | Mississippi |
| Phillips, G. A. | Fulton |
| Phillips, T. H. | Fulton |
| Pickens, H. A. | Texas |
| Pickett, J. C. | Fulton |
| Pierce, W. | Tennessee |

| Name | County or State |
|---|---|
| Pittman, J. G., Jr. | Spalding |
| Pitts, R. | Elbert |
| Poe, L. E. | Louisiana |
| Pool, W. H. | Barrow |
| Porro, F. W. | Florida |
| Putnam, E. H. | Fulton |
| Pylatt, F. E. | Texas |
| Pyle, H. T. | Polk |
| Quinn, T. W. | Fulton |
| Radford, E. D. | Jefferson |
| Radford, R. A. | Walton |
| Radford, R. P. | Kentucky |
| Ragsdale, W. B. | Paulding |
| Ransford, H. E. | Chatham |
| Reams, S. H. | N. Carolina |
| Reed, T. R. | Early |
| Rees, G. H. | Muscogee |
| Reeves, J. E., Jr. | Bleckley |
| Register, O. P. | Laurens |
| Reiff, C. O. | Florida |
| Reynolds, J. H. F. | Tennessee |
| Rice, W. C. | Johnson |
| Richardson, J. H. | Mississippi |
| Roberts, C. R. | Muscogee |
| Roberts, D. N. | Dodge |
| Robertson, E. M. | Fulton |
| Robinson, J. A. | Fulton |
| Robinson, S. | Chatham |
| Roddenbery, W. B., Jr. | Grady |
| Roebuck, F. N. | Fulton |
| Rohlin, E. C. | Alabama |
| Rohlin, E. W. | Alabama |
| Rose, A. W. | Telfair |
| Rosenberg, M. F. | Muscogee |
| Rudicil, D. H. | N. Carolina |
| Russell, F. D. | Arkansas |
| Russell, J. W. | Florida |
| Rutland, H. E. | Worth |
| Salisbury, T. M. | Muscogee |
| Sanders, T. F. | Emanuel |
| Sanders, W. J. | Bibb |
| Sappington, H. A. | Fulton |
| Sargent, I. W. | Fulton |
| Saunders, N. H. | Fulton |
| Sawilowski, B. | Chatham |
| Sawyer, L. B. | Tennessee |
| Scarboro, D. D. | Colquitt |
| Scheuer, J. B. | Bartow |
| Schiffers, J. K. | Tennessee |
| Schnedl, C. F. | Floyd |
| Schoen, E. H. | Fulton |
| Schofield, J. E., Jr. | Bibb |
| Seale, F. B. | Texas |
| Sessions, A. D. | Cobb |
| Sheats, I. H. | Bartow |
| Shelor, J. C. | Fulton |
| Sherman, E. | Glynn |
| Sherrill, F. A. | N. Carolina |
| Shoemaker, G. W. | Chatham |
| Shulman, H. | Tennessee |
| Shumate, J. R. | Thomas |
| Simmons, T. A. | Chatham |
| Simonds, A. | S. Carolina |
| Sims, M. M. | Wilkes |
| Sinclair, D. | Colquitt |
| Skannal, H. L. | Louisiana |
| Slager, J. H. | Fulton |
| Slaughter, J. M. | Mississippi |
| Slotin, L. | Chatham |
| Smalley, F. W. | Chatham |
| Smedley, M. E. | Fulton |
| Smith, B. W. | Elbert |
| Smith, J. W. | Bibb |
| Smith, M. W., Jr. | Pike |
| Snoots, W. M. | Chattooga |
| Southwell, B. L. | Tattnall |
| Souton, A. C. | Mexico |
| Spear, E. W. | Baldwin |
| Spears, L. B. | Cherokee |
| Speer, A. D. E. | Greene |
| Speight, M. C. | N. Carolina |
| Spinks, W. F. | Paulding |
| Spivey, E. H. | Talbot |
| Springfield, W. B. | Whitfield |
| Sprunt, D. H. | N. Carolina |
| Standard, W. T., Jr. | Wilkes |
| Stanton, W. A. | Mississippi |
| Stapleton, J. J. | Chatham |
| Starbird, H. V. | Florida |
| Staton, A. H. | Fulton |
| Steinhauser, E. W. | Fulton |
| Stelling, S. M. | Richmond |
| Stephens, C. F. | Stewart |
| Stephens, J. H. | Morgan |
| Stephenson, W. C. | Newton |
| Stevens, C. H. | Madison |
| Stokes, R. H. | Fulton |
| Stone, J. H. | Carroll |
| Stovall, S. C., Jr. | Fulton |
| Strong, P. N., Jr. | Chatham |
| Stroup, C. R. | S. Carolina |
| Strozier, W. T., Jr. | Meriwether |
| Sturgis, W. M. | Richmond |
| Sullins, D. | Tennessee |





| Name | County or State |
|---|---|
| Summers, W. C. | Coweta |
| Sumter, W. D. | Dougherty |
| Swain, J. E. | Bartow |
| Tabor, J. M. | Bibb |
| Tappan, L. M. | Fulton |
| Taylor, C. A., Jr. | Glynn |
| Teague, P. T. | Richmond |
| Temple, W. S., Jr. | Mississippi |
| Thomas, J. A. | Bibb |
| Thomas, W. B. | Stephens |
| Thomas, W. W. | Fulton |
| Thomason, C. Y. | Clarke |
| Thompson, R. L. | Butts |
| Thomson, M. V. | Louisiana |
| Tinsley, A. M. | Fulton |
| Todd, R. L. | Warren |
| Trammell, L. N. | Whitfield |
| Treusch, H. L. | Michigan |
| Trippe, P. E. | Dooly |
| Troncale, F. J. | Alabama |
| Tucker, T. T. | N. Carolina |
| Tunkle, E. | Richmond |
| Turnipseed, R. F. | Henry |
| Tyler, J. M. | Virginia |
| Udy, J. F. | W. Virginia |
| Upshaw, C. L. | Meriwether |
| Vance, E. A. | Gwinnett |
| VanDevander, C. W. | Polk |
| Vaughan, W. H. | Mississippi |
| Vogt, A. G. | Fulton |
| Wade, J. M. | Arkansas |
| Waite, A. H., Jr. | Chatham |
| Waldrop, G. | Early |
| Waldrop, J. E. | Clayton |
| Walker, H. S., Jr. | Sumter |
| Walker, W. R. | Fulton |
| Wallace, E. V. | Fulton |
| Walraven, D. E. | Gordon |
| Walstrum, J. N. | Alabama |
| Walthour, C. H. | Fulton |
| Walton, F. W. | Harris |
| Walton, W. B. | Mississippi |
| Warner, B. H. | Louisiana |
| Watkins, L., Jr. | Mississippi |
| Weaver, P. H. | Butts |
| Webb, A. B. | Mississippi |
| Webb, R. F. | Chatham |
| Webb, W. I. | Monroe |
| Weil, A. S. | Florida |
| Weinkle, I. | Fulton |
| Welch, H. L. | Mississippi |
| Welker, H. E. | Texas |
| Wells, C. D. | Texas |
| Wengrow, H. | Glynn |
| Weston, F. W. | Fulton |
| White, B. D. | Whitfield |
| White, J. J. | Mississippi |
| Whitehurst, D. A., Jr. | Chatham |
| Whitelaw, F. E., Jr. | S. Carolina |
| Whiteley, J. W. | Warren |
| Whiteley, R. R. | Fulton |
| Whitten, F. G. | Evans |
| Wikle, H. W. | DeKalb |
| Wilbanks, R. C. | Gwinnett |
| Wilbourne, J. G. | Bibb |
| Wilcox, G. H. | Texas |
| Wilensky, W. T. | Chatham |
| Wilkinson, J. M. C. | Fulton |
| Williams, E. L. | Kansas |
| Williams, H. A. | Colquitt |
| Williams, H. F. | Walton |
| Williams, J. F., Jr. | Texas |
| Williams, J. O. | Polk |
| Williams, W. L. | Dooly |
| Willis, E. F. | Lowndes |
| Wilson, D. W. | Florida |
| Wilson, G. D. | Fulton |
| Wilson, H. R. | Fulton |
| Wilson, W. R. | Thomas |
| Winfrey, M. B. | Texas |
| Wolff, W. M. | Fulton |
| Wood, B. P. | Fulton |
| Wood, W. E. | Whitfield |
| Worthington, J. E. | Texas |
| Wren, L. S. | Jefferson |
| Wright, A. P., Jr. | Chatham |
| Wright, G. D. | Whitfield |
| Wrigley, E. F. | Fulton |
| Wynne, J. M. | Bleckley |
| Young, R. C. | Fulton |
| Zelmenovitz, C. | Glynn |
| Zoll, M. B. | DeKalb |

## Special Textile No. 1.

| Name | County or State | Name | County or State |
|---|---|---|---|
| Battson, J. M. | Chattooga | Murphy, N. B. | Fulton |
| Combs, E. T. | Chambers | Murrah, W. N. | Muscogee |
| Evins, J. G., Jr. | Fulton | Oates, E. J. | Texas |
| Harvey, R. D. | Floyd | Turner, C. F. | Whitfield |
| Hodgson, C. W. | Clarke | Welch, P. P. | Texas |
| Koplin, H. | Fulton | Wilson, D. H. | Florida |

## Special Textile No. 2.

| | | | |
|---|---|---|---|
| Hulsey, W. N. | Fulton | Murphey, A. H. | Coweta |
| McLellan, A. | Louisiana | Ragan, C. | N. Carolina |
| Rudicil, R. K. | Walker | | |

## Special Architecture No. 1.

Somers, E. H. ---------Virginia

## Special Architecture No. 2.

Armsby, C. L. ---------Penn.
Tucker, M. A. ---------Florida

## Specials.

| | | | |
|---|---|---|---|
| Brandenburg, J. D. | Coweta | Knight, P. D. L. | Troup |
| Brown, A. E. | Texas | Leasman, C. F. | Minnesota |
| Burgin, V. H. | Fulton | Lovelace, F. M. | DeKalb |
| Clark, J. J. | Tennessee | McKibben, F. J. | Fulton |
| Dunn, Wm. R. | Tennessee | Nix, W. C. | Fulton |
| Earnest, Wm. | Fulton | Shafer, J. E. | Gwinnett |
| Gray, V. | Carroll | Slaughter, S. M. | S. Carolina |
| Jones, Wm. H. | Tennessee | Tompkins, A. H. | Coweta |

# EVENING SCHOOL OF COMMERCE.

## Freshmen Class.

| | | |
|---|---|---|
| Acton, J. C. | Brown, W. Salem | Cline, Wm. M. |
| Arnold, J. F. | Brown, Joe | Crutchfield, Paul W. |
| Asher, Willie | Browne, McH. | Coleman, Onnie |
| Baker, Elizabeth | Bruce, James C. | Coleman, H. M. |
| Beck, Will R. | Cason, W. F. | Coleman, M. D. |
| Bloodworth, T. P. | Chapman, Grady H. | Coleman, Mrs. W. G. |
| Brisbane, Austin F. | Chew, Virgil G. | Corrigan, Robert O. |
| Brockman, Martin | Clark, Colton R. | Corum, Alta Wade |





| | | |
|---|---|---|
| Costley, Lonnie S. | Hyer, Ben. W. | Pounds, C. A. |
| Courson, J. R. | Jewett, Martha | Pratt, H. J. |
| Deal, Dan. T. | Johnson, Frank C. | Ramey, H. G. |
| Davidson, M. M. | Johnson, J. R. | Randall, R. E. |
| Dodge, W. A., Jr. | Jones, Geo. O. Jr. | Rice, Chas. W. |
| Dooley, Louise | Jones, Page H. | Richards, Eva |
| Dozier, L. G. | Kelley, T. C. | Robinson, Edwin W. |
| Dunn, Margaret | Kendrick, A. F. | Saperstein, Leon J. |
| Durdon, D. F. | King, Geo. O. | See, Howard |
| Edwards, Geo. R. | Low, Flemming | Shamsy, Mrs. C. W. |
| Eberhardt, Gussie L. | Langford, L. E. | Shaver, H. C. |
| Feagan, Jno. F. | Lester, C. L. | Shores, J. B. |
| Fields, W. H. | Lemke, Mrs. C. B. | Skinner, Orgia P. |
| Flournoy, L. J. | Lewis, R. L. | Smith, James W. |
| Goldberg, S. A. | Little, A. W. | Smith, C. D. |
| Graham, Mrs. Mary | Little, Joe W. | Smoot, Thos. H. |
| Green, Ward | Little, J. W. | Snyder, Geo. F. |
| Greene, W. F. | Longino, T. M. | Stanley, Walter P. |
| Haines, Marie | Lyon, R. G. | Stanley, Elmer L. |
| Hall, Ruby | Melton, G. E. | Stell, H. M. |
| Hand, W. G. | Meyer, Henry | Stell, G. M. |
| Hanley, Margaret T. | Merck, Charles O. | Stephens, R. J. |
| Harris, C. E. | Morrow, Fred R. | Stewart, O. E. |
| Harrison, C. E. | Morton, Myrtle | Thomas, W. B. |
| Harrison, Ruth G. | Moss R. W. | Thompson, Ruth |
| Hatcher, Frances B. | Moss, I. S. | Toole, W. H., Jr. |
| Helton, G. R. | Moye, Thos. A. | Torpby, J. B. |
| Hewitt, Pauline P. | McFarland, R. M., Jr. | Weinstock, Celia |
| Hill, C. A. | McCowen, Harry S. | Webb, L. B. |
| Hodges, J. V. | McGouirk, W. S. | Williams, John C. |
| Holbrook, Jennie Belle | Orr, P. J. | Wilson, Sidney M., Jr. |
| Holbrook, Vivian | Pace, Charlotte | Wooton, L. I. |
| Hudson, Wm. C. | Patrick, Noble M. | Works, Ruth T. |
| Hull, E. B. | Perkins, Mrs. Mary H. | Young, Hallie |
| Hunnicutt, J. E., Jr. | Phelps, Mary E. | |
| Hunt, H. H. | Pittman, J. S. | |

## Junior Class.

| | | |
|---|---|---|
| Albea, A. M. | Grobli, W. G. | Swann, J. P. |
| Binford, H. A. | Jones, C. T. | Tennebaum, A. B. |
| Clower, W. T. | Parker, W. H. | Thrower, R. K. |
| Cox, J. L. | Sater, S. L. | Welch, L. A. |

## Senior Class.

| | | |
|---|---|---|
| Daniell, H. L. | Frasier, J. M. | Russell, J. C. |
| Evans, I. C. | Gordon, C. H. | Setze, J. W., Jr. |
| | Wise, Mrs. Annie T. | |

## Summary of Registration.

| | | | |
|---|---|---|---|
| Senior Class | 94 | Total Collegiate Students | 1365 |
| Junior Class | 171 | Night School | 468 |
| Sophomore Class | 238 | Summer School | 100 |
| Freshman Class | 676 | | |
| Special Architects | 3 | | 1933 |
| Special T. E. | 17 | Deduct names counted twice | 80 |
| Special Unclassified | 16 | | |
| | | Net enrollment | 1853 |
| Day Courses | 1215 | Government Vocational Students | 1164 |
| School of Commerce | 150 | | |
| Total | 1365 | GRAND TOTAL | 3017 |

## Occupation or Profession of Parents or Guardians of Regular Students.

| | | | |
|---|---|---|---|
| Merchants | 242 | Real Estate | 28 |
| Farmers | 178 | Ry. & Tel. Employees | 47 |
| Manufacturers | 47 | Cotton Merchants | 19 |
| Workmen | 15 | Contractors | 25 |
| Salesmen | 49 | Ministers | 26 |
| Physicians | 41 | Teachers | 17 |
| Engineers and Architects | 60 | Accountants | 9 |
| State and City Officers | 71 | Dentists | 13 |
| Insurance Agents | 39 | Miscellaneous | 210 |
| Bankers | 31 | | |
| Lawyers | 37 | Total | 1215 |

## Graduates by Departments

| | |
|---|---|
| Graduates in Mechanical Engineering | 389 |
| Graduates in Electrical Engineering | 321 |
| Graduates in Textile Engineering | 103 |
| Graduates in Civil Engineering | 95 |
| Graduates in Engineering Chemistry | 33 |
| Graduates in Chemistry | 12 |
| Graduates in Architecture | 39 |
| Graduates in Commerce | 21 |
| Bachelor of Science | 4 |
| Total | 1017 |

## Profession or Occupation of Graduates.

| | |
|---|---|
| Commissioned Officers in Army or Navy | 330 |
| Non-Commissioned Officers and others | 130 |
| Engineers and Chemists | 406 |
| Architects | 15 |
| Sales Agents and Merchants | 51 |
| Teachers | 24 |
| Physicians | 5 |
| Farmers | 5 |
| Ministers | 3 |
| Deceased | 35 |
| Miscellaneous | 10 |
| Total | 1017 |





# GENERAL INFORMATION.

## Histcrical Sketch

On November 24, 1882, Hon. N. E. Harris, of Macon, afterwards Governor of the State, prepared and introduced in the Georgia Legislature a resolution authorizing the creation of a committee to investigate the advisability of establishing a technical school in Georgia. The committee of ten, appointed, visited the leading engineering institutions of the North, and in the summer session of the Legislature of 1883, presented a report recommending the establishment of such an institution, accompanied with a bill for that purpose. The measure was overwhelmingly defeated, receiving only sixty-five votes. The people of the State were appealed to; it was the issue in many counties in the election of members to the next Legislature; the State Agricultural Society and other prominent State organizations pressed the matter upon the attention of the people, and finally, in 1885, fathered by Governor Harris, a bill was passed appropriating $65,000 to found the school.

Early in January, 1886, Governor McDaniel appointed the first Commission, consisting of Messrs. N. E. Harris, of Bibb; S. M. Inman, of Fulton; O. S. Porter, of Newton; E. R. Hodgson, of Clarke, and Columbus Heard, of Greene. This Commission organized by electing Governor Harris chairman, which position he has occupied from that time to the present. Mr. E. R. Hodgson was made secretary, which position he occupied to the time of his resignation, in 1912; and Mr. S. M. Inman was elected treasurer, and held this position until he resigned on account of his removal from the State, in 1897, at which time he was succeeded by Mr. J. S. Akers, who holds the office at the present time.

By Act of the Legislature, December 9, 1890, two other trustees were added to the Local Board, and on January 7, 1891, Messrs. D. N. Speer and W. B. Miles were duly elected. Mr. D. N. Speer resigned in 1893, and was succeeded by Mr. George Winship, of Atlanta. Mr. S. M.

Inman resigned October, 1897, and was succeeded by Mr George W. Parrott, of Atlanta, who served until June, 1899, and was in turn succeeded by Mr. Walter M. Kelly, of Atlanta. Due to removal from the city, Mr. Kelly resigned March, 1907, and was succeeded by Mr. N. P. Pratt, of Atlanta, who was elected July, 1907. In April, 1911, Col. O. S. Porter resigned, and was succeeded by Mr. Hal G. Nowell, of Monroe, Ga. October 4, 1912, Mr. E. R. Hodgson resigned, and was succeeded by his son, Mr. E. R. Hodgson, Jr., on the same date. Judge Columbus Heard died October 23, 1912, and was succeeded by Mr. George J. Baldwin, of Savannah, who was elected Janury 10, 1913. Mr. George Winship resigned October 14, 1914, and was succeeded by Mr. J. S. Akers, who was elected on the same date. Mr. W. B. Miles died March 18, 1918, and was succeeded by Mr. John W. Grant, who was elected April 3, 1918.

By Act of the Legislature, August 5, 1910, the Chairman of the Board of Trustees of the University of Georgia was authorized to appoint biennially not exceeding three members of his Board, to act, ex-officio, as members of the Board of Trustees of each of the branch colleges of the University. In accordance with the provisions of this Act, the following three members of the University Board are at present members of the Board of Trustees of the Georgia School of Technology: Mr. W. E. Simmons, of Lawrenceville; Hon. Clark Howell, of Atlanta, and Hon. Joseph E. Brown, of Marietta.

The Act establishing a technical school in Georgia provided for competitive bids from various sections of the State for the location of the school. The cities of Athens, Atlanta, Macon, Milledgeville and Penfield submitted such bids. That of Atlanta was accepted, this action based upon the following superior inducements offered by Atlanta: $50,000 in cash donated by the city; $2,500 annuity for twenty years; a citizens' subscription of $20,000, headed by Mr. S. M. Inman with a donation of $5,000. A campus of nearly five acres was purchased on North Avenue from the Peters Park Company. The Commission having decided that the campus was too small for the purposes of the school, Mr. Richard Peters, president of the Company, donated four additional adjoining acres. During the summer of 1888, the buildings and part of the equipment be-





ing ready, a faculty and president were elected, and on October 7, the institution was turned over by the Local Commission to the Trustees of the University. The Georgia School of Technology was formally opened.

Dr. Isaac S. Hopkins had been called to serve as first president of the new institution, and occupied this position until 1896. These eight years of beginnings were difficult ones. There was no general understanding or appreciation of the significance of technical education. As a consequence, the school made small progress. During the early morning of April 21, 1891, the school shops were totally destroyed by fire. With the insurance, supplemented by an additional appropriation from the Legislature, the loss was replaced by a building and equipment much superior to the original plant.

During the spring of 1896, Doctor Lyman Hall, a graduate of West Point, and then Professor of Mathematics at the Georgia School of Technology, was elected to succeed Dr. Hopkins, first as chairman of the faculty, and, in June, as president of the institution. The presidency of Dr. Hall, extending from this date until his death, August 16, 1905, was a period of steady expansion. In December, 1896, the Legislature appropriated $20,000; of this amount, $5,000 was for the equipment of a Department of Electrical Science, and $15,000 for building a dormitory. The Knowles Dormitory was duly erected, and was first occupied by students at the opening of the fall session of 1897. The Local Board of Trustees, at its meeting in December, 1896, established the Degrees of Electrical Engineering and Civil Engineering.

In December, 1897, the Legislature appropriated $10,000 for the establishment of a Textile Department, provided that the friends of the school contribute $10,000 additional in money and machinery. During the year 1898 nearly $20,000 worth of machinery and about $13,500 in cash were donated to the school for this purpose. Experienced mill architects were employed to make plans for a Textile building; and, in the fall of 1899, a regular course in Textiles, leading to the Degree of Bachelor of Science in Textile Engineering, was opened to students. The successful creating of this Textile course was largely due to the friendly interest of Mr. Aaron French, of Pittsburgh, Pa. He became interested in the school during the sum-

mer of 1897, and co-operated liberally in enabling the school to meet the conditions imposed by the Legislature in making its appropriation for the course in Textiles. His first donation, of $2,600, was given without condition. A second gift, of $3,000, was made, provided other friends of the school raise an equivalent amount; the city of Atlanta promptly met this condition by appropriating the necessary $3,000 in July, 1898. During the same year Mr. French made a third gift to the Textile Department amounting to $3,000. Besides these donations toward textile engineering, Mr. French showed his warm friendship for the school by gifts for maintenance, in June, 1899, of $3,000, and in January, 1900, of $3,500, and of three self-perpetuating scholarships of $500 each, in July, 1898; December, 1899, and in 1901, respectively. In commemoration of his generosity, the Textile Department is known as the A. French Textile School.

The creating of the Departments of Electrical, Civil, and Textile Engineering was the beginning of an era of rapid and steady expansion—in buildings and equipment, in size of faculty and student body, in curriculum and standard of work, and in prestige; the Legislature, also, began gradually to become aware of the needs of the school and of its value as an upbuilding power in the industrial life of the State.

In December, 1900, the Legislature appropriated $10,000 for an Electrical building and $6,000 for additional textile equipment, with the proviso that these amounts should not be available until the friends of the school should furnish $25,000 in cash donations, a condition that was promptly met. In June, 1902, the General Educational Board offered to give the school $5,000 for equipment and $2,500 two successive years for maintenance, provided friends of the school would donate $10,000 additional. These friends responded by giving $12,910 in cash, as listed in the 1903-4 catalogue. In 1903, the will of Mr. James Swann provided that the school should receive $10,000 in cash upon the settlement of his estate. This amount, properly supplemented, was spent in the purchase of nearly two acres of land adjoining the campus and in the erection on a portion thereof of a president's residence. Mr. Swann had previously in 1900, given the school $21,500 for the erection of the Janie Swann Dormitory, a memorial to his wife.





The next considerable addition to the school plant was the Lyman Hall Laboratory of Chemistry. In June, 1904, the Legislature appropriated $10,000 for the erection of a chemical laboratory, provided friends of the school would give an equal amount. The conditional amount was raised by the mid-summer of 1905, and in October of the following year the building, completed and fully equipped, was occupied by the Department of Chemistry. Dr. Hall had been enabled to meet the provision of the Legislature only with heroic sacrifice and at enormous cost to his health; the amount was completed only a few weeks before his death. It was in connection with memorial exercises in his honor that the corner-stone of the Laboratory was laid with imposing ceremony November 25, 1905. It is eminently fitting that his name is perpetuated in the structure. Dr. Hall's connection with the Georgia School of Technology was in every way a notable one. During the nine years of his presidency, he succeeded, largely through his own efficiency and devotion, in raising the school from an insignificant and struggling existence to a position of proud equality with the great engineering institutions of the country.

As successor to Dr. Hall, the Board of Trustees elected Dr. K. G. Matheson, professor of English at the Georgia School of Technology, to the chairmanship of the faculty and installed him as president the following year, 1906. The period since this date has been characterized by a continuous growth. Not merely has the school experienced an enlargement in its material equipment and its patronage, but its name has yearly become more widely and more favorably known, and its resources have been applied continually toward a more extensive satisfying of the needs of its State and its community.

Meanwhile, the Legislature had shown a desire to meet the growing needs of the institution. The first appropriation, made December 26, 1888, was $18,000. The second appropriation, made December 26, 1890, was $22,500. The maintenance fund was continued at this rate until 1898, when it was cut $2,500, making $20,000, while $10,000 was added for two years for the maintenance of the Textile Department, making $30,000 per annum in all. In 1896, the Legislature had made an appropriation of $10,000 for dormitories for each of the two following years. In 1900,

the appropriation for maintenance was raised to $40,000; in 1902, to $45,000; in 1906, to $55,000; in 1907, to $60,000; in 1909, to $70,000; in 1911, to $75,000; in 1912, to $80,000; in 1913, to $90,000; and in 1915, to $100,000. The city of Atlanta has shown a like increasing interest in the needs of the school by increasing the annual appropriations for the general maintenance fund and for the Night School.

The Class of 1903 was the first to erect a memorial to itself on the campus. A beautiful marble drinking fountain was placed on the campus in March, 1911, and was formally presented to the institution at the following commencement. On the same occasion, the Electrical Seniors of the Class of 1911 presented the school with handsome electric light standards, placed in front of the entrance of the Electrical Building. The Electrical Seniors of the Class of 1912 continued the tradition created by their immediate predecessors by erecting memorial electric light standards in front of the entrance of the Library. The classes of 1914 and 1915 erected the handsome light standards and concrete steps in front of the main building.

Considerable additions of land have also been made to the eleven acres that the school possessed in 1905. In August, 1906, the Legislature appropriated $17,500 for the purpose of enlarging the campus. Four acres east of the present campus and fronting on North Avenue were purchased for $16,000, and the remaining $1,500, increased by friends to $3,500, was invested in a lot fronting 180 feet on Cherry street and 150 feet on Kimball street. Purchase has also been made of a lot fronting 156 feet on North Avenue and 150 feet on Fowler Street, and of two additional lots on Cherry street. In December, 1911, the school purchased from the Peters Land Company nearly three acres of land adjoining the northern limits of the campus. With characteristic generosity, the Peters Land Company presented to the school an intervening street, 50 feet wide and 500 feet long. The latest addition to the school property, January 29, 1913, is about four acres of land north of and adjoining the present athletic field. The County Commissioners of Fulton County agreed to grade both fields; and the work, now completed, represents an outlay of approximately $30,000, had it been let to private contract. In April, 1913, Mr. John W. Grant, of Atlanta, gave $15,000 for the equipment of the field, and the Board





of Trustees, in appreciation of the gift, named the field "The Hugh Inman Grant Field," in memory of Mr. Grant's deceased son. This dual athletic field is unequalled in the South. In 1915, through the further liberality of Mr. Grant and the Board of Trustees, the concrete grand stand was completed at an additional cost of $20,000, making it the largest and most modern of its kind in the South.

The most important additions to the school equipment, however, have been the several handsome buildings that have been added to the plant since 1905.

On March 12, 1906, Mr. Andrew Carnegie donated $20,000 for a Library building, on condition that the school appropriate a minimum of $2,000 annually for the support of the Library. The Board of Trustees accepted the condition, and the building was secured.

In November, 1909, through the initiative of the Women's Federation of Clubs, Mrs. Joseph B. Whitehead gave $5,000 towards the erection of a Hospital, to be called the Joseph Brown Whitehead Memorial Hospital, in memory of her husband. This donation was increased by various gifts in cash and materials; and the Hospital, costing about $15,000, was erected during the summer of 1910 and the succeeding session.

In February, 1910, Mr. John D. Rockefeller gave $50,000 toward the erection of a Y. M. C. A. building, provided the school would raise $25,000. This pro rata was secured; and the erection of the building was begun in May, 1911, and was completed in the summer of 1912.

In August, 1910, the Legislature appropriated $35,000 to be applied toward the erection of a new Shop building, on condition that friends of the school raise $15,000. Through the agency of the Atlanta Chamber of Commerce, considerably more than this amount—$22,000 in all—was subscribed in November, 1910; the fund was secured in February, 1911, and the erection of the building was begun. Ultimately the building will consist of five units, three of which are now completed and occupied.

On probating the will of the late Mr. Julius L. Brown, who died September 4, 1910, it was found that he had left two-thirds of his valuable estate to the Georgia School

of Technology. The school has come into possession of its proportionate share of the estate, and according to the terms of the will, the income from the property will be used to equip and maintain the Departments of Chemistry and Electrical Engineering.

One of the most important movements in the history of the school was inaugurated in the Greater Tech Campaign in the summer of 1914. Prior to this time certain large manufacturers of machinery had been induced, through the efforts of friends of the school, to donate $100,000 worth of power machinery, conditioned on the erection by the school of a suitable building. As a result of the campaign, the Greater Tech Fund was raised, largely by the subscriptions of business men of Atlanta, and the new Power Station building is completed, and the machinery is being installed.

This building is the beginning of a plan to establish complete equipment for all kinds of engineering research work in the school, and it will open unlimited opportunities for the graduates of the school in original and scientific investigation as well as in the regular field of engineering work.

One of the most significant illustrations of the growth of the school appears in the record of yearly attendance. Keeping pace with the advance in Legislative favor and in material equipment, the school shows a steady increase in the number of the student body. Nor have there been merely numerical additions; the character of the attendance has improved year by year, the class standing has risen, the curriculum has been broadened and elevated, and the finished product has increased in number.

The following list, showing the number of students registered at the school from the opening of the school to the close of session of 1918-19, furnishes an interesting record of these facts:

| | | |
|---|---|---|
| 1888-89 ..... 130 | 1894-95 ..... 125 | 1900-01 ..... 463 |
| 1889-90 ..... 145 | 1895-96 ..... 154 | 1901-02 ..... 431 |
| 1890-91 ..... 169 | 1896-97 ..... 180 | 1902-03 ..... 483 |
| 1891-92 ..... 205 | 1897-98 ..... 267 | 1903-04 ..... 510 |
| 1892-93 ..... 138 | 1898-99 ..... 332 | 1904-05 ..... 511 |
| 1893-94 ..... 121 | 1899-1900 ..... 459 | 1905-06 ..... 501 |
| | | 1906-07 ..... 562 |
| 908 | 1,517 | 3,461 |





| | Regular Students | School of Com. | Night School | Summer School | Duplicate | Total |
|---|---|---|---|---|---|---|
| 1907-08 | 562 | -- | 135 | --- | --- | 697 |
| 1908-09 | 565 | -- | 72 | 44 | 31 | 650 |
| 1909-10 | 593 | -- | 153 | 54 | 45 | 755 |
| 1910-11 | 667 | -- | 94 | 141 | 84 | 818 |
| 1911-12 | 689 | -- | 154 | 105 | 90 | 858 |
| 1912-13 | 660 | -- | 132 | 113 | 100 | 805 |
| 1913-14 | 712 | 44 | 243 | 142 | 139 | 1,002 |
| 1914-15 | 724 | 86 | 181 | 110 | 95 | 1,006 |
| 1915-16 | 724 | -- | 380 | 100 | 87 | 1,117 |
| 1916-17 | 843 | -- | 273 | 106 | 93 | 1,129 |
| 1917-18 | 945 | -- | 334 | 112 | 100 | 1,291 |
| 1918-19 | 1365 | -- | 468 | 100 | 80 | 1,853 |
| Total | | | | | | 11,981 |

From this it will be seen that a total of 17,867 young men, estimated by yearly enrollment, have enjoyed the benefits of the institution. While many of these did not graduate, in almost every instance these young men will be found engaged in industrial pursuits, using the lessons which they learned at the school, putting into operation in their work the skill derived from contact with the great machines forming part of the equipment of the institution, and adding to the industrial values of the State and of the nation wherever they are found.

## Purpose

The chief aim and purpose of the Georgia School of Technology is to give to its students such a combination of general, scientific, and professional training as will fit them for lives of higher usefulness and success, especially as engineers, in the industrial development of the State of Georgia and of the South.

## Degrees Conferred

The degrees conferred are as follows: Bachelor of Science in Mechanical Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Textile Engineering, Bachelor of Science in Engineering Chemistry, Bachelor of Science in Chemistry, Bachelor of Science in Architecture, and Bachelor of Science in Commerce, Bachelor of Commercial Science, and Bachelor of Science in Industrial Education.

## Buildings

The School occupies a desirable site in a campus of some twenty-five acres, lying at the junction of North Avenue and Cherry Streets, easily accessible by street-car lines on Marietta, West Peachtree and Luckie Streets. The Academic building is a handsome edifice of brick, trimmed with granite and terra-cotta and roofed with slate. It has one hundred and thirty feet front, is one hundred and twenty feet deep, and four stories above the basement story. It contains ample accommodations in halls, offices, apparatus-rooms, recitation and lecture-rooms.

The workshops are also of brick, the main shop building being two hundred and fifty feet long by eighty wide, and two stories, with large basements. It is designed with reference to its use, and affords space for the machine and wood-shops. The smith-shop and foundry, are located in new shop building which has recently been erected, and which ranks among the best in the country in appearance, utility and equipment.

The Textile building was completed in 1898, and is 150 by 70 feet, with three floors for the accommodation of machinery, class rooms, etc. It was designed by Lockwood, Greene & Co., of Boston, and fulfills every requirement of a modern cotton mill.

The Dormitory buildings consist of the Janie Austell Swann Dormitory, containing fifty rooms for students; the Knowles Dormitory, containing thirty-six rooms for students, gymnasium, shower-baths, and dining room; and two smaller dormitories of eight rooms each.

The Electrical building is three stories in height, 90 by 82 feet in plan, and contains the Experimental Laboratory, the Electrical Laboratory, Drawing-rooms, Blue-print room, and class-room.

The Lyman Hall Laboratory of Chemistry is two stories in height, with basement. Each floor has an approximate area of 5,600 square feet. The lecture-rooms, stock-rooms, library, offices, gas analysis laboratory, photographic and spectroscope rooms occupy the front, and the laboratories the rear wing.

The beautiful new Carnegie Library building has been fully equipped with the most modern library appliances. The building is constructed of pressed brick with ornate limestone trimmings, and is a model of beauty and con-





venience. In the basement are binding, storage and janitor's rooms, with assembly and club-rooms to be completed later. The first story contains the handsome reading-rooms, librarian's office, stack and seminar rooms. The building is seventy-five and one-half feet front by fifty-eight feet deep.

The Joseph Brown Whitehead Memorial Hospital, erected during the summer of 1910 and the following session, is a completely equipped modern hospital, devoted to the needs of the student body. It is erected on the east side of Cherry Street, and covers approximately 4,000 square feet, with a capacity of twenty-seven patients. On the first floor is the office and private laboratory of the School Physician, a room for minor surgical operations, sterilizing room, suite of three rooms for the resident nurse, a kitchen, besides a ward to accommodate ten beds, with necessary service and clothes rooms, diet kitchen and solarium. Private rooms for seven patients are located on the second floor, where are also a nurse's room, ward for ten beds, solarium and service room. The building is constructed of brick and marble, is heated with steam from the central heating plant of the School, and is equipped with a special system of ventilation.

### Young Men's Christian Association Building

In 1910 Mr. John D. Rockefeller made a very generous proposition to all colleges of the South, in which he agreed to give to any institution, under specified conditions, two dollars for every one it would raise locally for the erection of a Y. M. C. A. Building. The Georgia School of Technology was among the very first to take advantage of this offer. The sum of $25,000.00 was raised among the friends of the School in the City of Atlanta and parts of the State, and immediately Mr. Rockefeller added $50,000.00 to it. The School appropriated a most desirable lot, and now we have one of the handsomest student buildings in the country.

Everything that makes for the betterment of the man physically, socially, mentally and spiritually, and everything that can add to the pleasure and comfort of the student has found, as far as practicable, a home in the building. It contains a large and comfortably furnished lobby and reading rooms, offices for the Secretary and assistants, auditorium, rooms for various clubs and socie-

ties, athletic headquarters, 12 dormitory rooms, game room, grill room, barber shop , student post office, bowling alleys, locker room, and shower baths.

## Power Station and Engineering Laboratory

### General Description.

The new Power Station building is completed, a part of the equipment installed, and the remainder will be installed as fast as funds become available. The value of this Station and equipment including the accompanying campus improvement will be about $300,000. It has been made possible through the generous co-operation of both Northern and Southern manufacturers, the alumni, our students, and friends of the School in Georgia. Considered both from a practical and an educational standpoint, it will give to the Georgia School of Technology advantages which are enjoyed by few institutions anywhere.

This plant will supply the entire school with light, power, heat, refrigeration, compressed air, and high-pressue water service for fire and laboratory purposes. It will supply the engineering laboratories and shops with alternating and direct current, both high and low tension; steam, high and low pressure, both saturated and superheated. The Station and equipment have been designed not only for practical use, but also as a power and research laboratory, and for the purpose of instruction in engineering. The new plant will not only provide many new facilities for instruction and research, but will also materially expand the usefulness and opportunities of all the other departments in the school.

As the Power Plant is designed along the lines of modern central station practice, the School will be unusually well equipped for training engineers who will be thoroughly fitted to undertake large power and industrial plant problems, using steam, oil, gas, or hydro-electric power. The large amount of undeveloped water power in the South, and our vast resources in coal, oil, and natural gas, make it vitally important that engineers receive thorough instruction in a power laboratory of this kind. Students entering Tech will receive their finishing work in engineering in this new Power Laboratory, and it will also afford excellent opportunities for post-graduate work and original investigations by the faculty and students.





### Equipment of the New Station.

The major portion of the power equipment has been selected, and consists of the most modern power plant machinery, combining also many features for research and instruction purposes. An appropriation of $30,000 was made by the State Legislature at its last session, for the installation of this machinery, and a considerable part of it has already been placed in the building.

## New Research Bureau

The erection of the new Power Laboratory marks the beginning of a new era in the history of the School. It makes possible the establishing of a State Research Bureau at Georgia Tech which has long been needed in the manufacturing and industrial development of Georgia. Not only the new Power Laboratory equipment, but the major portion of the facilities of the School, will in various ways become available for industrial research and testing. This new system will be developed as rapidly as funds become available, and by means of a general State Campaign. By suitable publicity, the manufacturers, engineers and officials throughout the State will be kept informed of this progressive work. The special aim of the Research Bureau will be to afford opportunities for the study and development of the natural resources of Georgia together with by-products, new processes and machinery. Plans are being prepared for the new Research Building.

## Bureau of Standards

It is proposed in connection with the new Power Laboratory and Research Bureau to establish a Bureau of Standards for the benefit of the Government of the State and also that of cities, towns and counties. All materials relating to sanitation, sewerage, ventilation, heating, highways, paving materials, chemicals, machinery and other supplies and equipment used by the above mentioned Government may be purchased and used according to well established standards, and as fast as new materials and equipment are developed, their true value can be ascertained by means of this State Bureau of Standards. This Department will also have represented in it various United States Government Standards.

## Equipment of Laboratories and Shops

The Mechanical, Electrical, Chemical, Experimental and Physical laboratories have been fitted up with reference to practical work, and such additions will be made from time to time as may be required for experimental research. The apparatus and appliances are of the newest and best forms, and will be increased as occasion may demand.

The workshops have been equipped with machinery and tools from the best makers, and of the latest pattern, at a cost of over fifty thousand dollars. In pursuance of the fundamental idea of giving the student access to the best machinery, and experimental knowledge of the best methods of mechanical work, the Trustees have put the Mechanical Department on a footing with the most improved and complete shops in the country, and scarcely any process requiring fine material and accurate workmanship is beyond its capacity.

The Textile building has an unsurpassed equipment of cotton manufacturing machinery, listed elsewhere.

Valuable additions have recently been made to the equipment of the Departments of Architecture, Electrical Engineering, Experimental Engineering and Physics.





# DEPARTMENTS

## DEPARTMENT OF ARCHITECTURE

PROFESSORS SMITH AND GAILEY, AND MR. ARMSBY.

### General Statement

The Course in Architecture was opened to the students in the autumn of 1908 as one of the full professional courses in the Georgia School of Technology. The regular course extends over four years, leading to the degree of Bachelor of Science in Architecture.

It is the purpose of the Department to offer the necessary training in Design, Construction, and the allied subjects that will eventually fit the student for the practice of Architecture, and will also enable him upon graduation to be of immediate value as a draughtsman.

With this end in view, the course of study combines with the strictly professional work, the essentials of a liberal education, aiming to give the student as broad a foundation as possible for his future work. The number and scope of the subjects to be covered during the course make it necessary that the student start his architectural work at the beginning of the Freshman year.

Architecture is regarded primarily as a Fine Art and the aesthetic side of the profession is emphasized throughout the course. Design, consequently, with the subjects closely allied to it, is given the most important place in the curriculum.

The work in Design is started after the courses in Descriptive Geometry, Shades and Shadows, Perspective and the Elements of Architecture have given the student a good foundation. During the Sophomore year simple problems in Design are taken, involving the use of the Orders and other elements and training in the sense of correct form and proportion. In the Junior and Senior years plan problems are given and the entire composition of building is

studied. A series of lectures on the Elements and Theory of Architecture accompanies this work and frequent sketch problems are given to develop rapidity of thought and presentation. During the second term of the Senior year, Thesis Designs are presented, the subjects for which are selected by the students with the approval of the head of the Department.

Whenever possible, the problems given out by the Society of Beaux Arts Architects are taken. These designs are judged in New York in competition with the work of other Schools of Architecture through the country. Problems that are not sent to New York for judgment are passed upon by a jury of practicing architects in Atlanta, and "Mentions" are awarded to the best designs.

In the study of the History of Architecture, the student is encouraged to regard the buildings not merely as remarkable monuments of great artistic value, but also as links in the chain of architectural development, and as being truly representative of the civilization and epoch to which they belong. The social and political aspects of the various periods and their effects upon the historic styles are studied, as well as the architectural characteristics of the building.

Draughtsmanship receives constant attention throughout the four years, not only in the courses in pure Drawing and Water Color, but also in the work in Design and Ornament. The importance of the study of Drawing can scarcely be over-estimated, it being the architect's principal medium of expression.

The nature and use of Building Materials are studied, as well as the principles involved in General Construction and Sanitation, while the studies of Graphic Statics and Structural Mechanics familiarize the student with these branches of Architectural Engineering. Inspection trips are made to buildings in course of erection and to certain manufacturing plants.

Throughout the work the student is urged to make adequate and intelligent use of the Library, a comprehensive knowledge of the best work of all periods being essential to success.

## Equipment

The Department of Architecture occupies the entire third floor of the new Engineering Building, there being two





large Draughting Rooms, a Free Hand Studio, Lecture Room, Office, etc. All of these rooms are well furnished and have excellent light, both natural and artificial.

The School possesses a good working Library of Architural books and periodicals, to which additions are constantly being made, as well as collections of photographs, drawings, stereopticon slides and plaster casts.

## Scholarship

The Georgia Chapter of the American Institute of Architects has established a self-perpetuating scholarship open to students in the two upper classes who may be in need of financial assistance. The beneficiary refunds the money after graduation in payments of small monthly notes without interest.

## Two-Year Special Course

A Special Course of two years' duration is also offered to qualified men, who must have had at least one year's experience in the office of a practicing architect. In addition to this, fourteen units are required for entrance. Exceptions to this may be made by the head of the department with approval of the faculty in the cases of mature candidates who have had at least two year's experience in the office of a practicing architect. In this course Architectural studies only are pursued. Upon completion of the required work a Certificate of Proficiency is given.

## The Regular Course in Architecture

### FRESHMAN YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 1 | Architectural Drawing | | 6 | 6. |
| Chem. 1 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 5 | Chemical Laboratory | | 2 | 2. |
| Draw. 2a | Descriptive Geometry Recitation | 3 | | 7.5 |
| Draw. 4a | Descriptive Geometry Drawing | | 3 | 3. |
| Eng. 11 | Rhetoric | 3 | | 7 5 |
| Eng. 15 | Theme Writing | 1 | | 1. |
| Math. 11 | Algebra | 3 | | 6. |
| Math. 15 | Trigonometry | 3 | | 7.5 |
| M. E. 3c | Wood Shop | | 3 | 3. |
| Mil. 1 | Military Instruction | | 5 | 5. |
| | Total.. | 16 | 19 | 56. |

*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 3a | Shades and Shadows | 1 | 6 | 7. |
| Arch. 7a | Elements of Architecture | 1 | 6 | 8. |
| Arch. 8 | Pencil Drawing | | 2 | 2. |
| Chem. 2 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 6 | Chemical Laboratory | | 2 | 2. |
| Eng. 12 | Rhetoric | 3 | | 7.5 |
| Eng. 16 | Theme Writing | 1 | | 1. |
| Math. 16 | Slide Rule | | 1 | 1. |
| Math. 18 | Analytic Geometry | 5 | | 12.5 |
| Mil. 2 | Military Instruction | | 5 | 5. |
| | Total.. | 14 | 22 | 53.5 |

## SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 5 | Perspective | 1 | 3 | 4. |
| Arch. 11 | Architectural Design | | 12 | 12. |
| Arch. 15 | History of Architecture, Ancient | 2 | 1 | 5. |
| Arch. 19 | Charcoal Drawing | | 2 | 2. |
| Eng. 21 | American Literature } | 3 | | 7.5 |
| Eng. 27 | Parallel Reading } | | | |
| Math. 21 | Analytic Geometry | 2 | | 5. |
| Math. 25 | Calculus | 3 | | 7.5 |
| Phys. 5 | Physics | 3 | | 7.5 |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | 14 | 23 | 55.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Arch. 12 | Architectural Design | | 12 | 16. |
| Arch. 16 | History of Architecture, Mediaeval | 2 | 1 | 5. |
| Arch. 20 | Charcoal Drawing | | 2 | 2. |
| Eng. 24 | Political Economy | 3 | | 7.5 |
| Eng. 28 | Parallel Reading | | | |
| Math. 28 | Calculus | 5 | | 12.5 |
| Phys. 6 | Physics | 3 | | 7.5 |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | 13 | 20 | 55.5 |

## JUNIOR YEAR

Military Instruction elective for equivalent of work shown below.

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 23 | Architectural Design | | 14 | 17. |
| Arch. 27 | History of Architecture, Modern | 2 | 1 | 5. |
| Arch. 31 | Building Construction, Masonry | 1 | 1 | 3.5 |
| Arch. 35 | Sanitation of Buildings | 1 | | 2.5 |
| Arch. 39 | Cast Drawing | | 2 | 2. |
| Arch. 43 | Pen and Ink Drawing | | 2 | 2. |
| C. E. 31 | Graphic Statics | 2 | 3 | 8. |
| Eng. 31 | English Literature } | 3 | | 7.5 |
| Eng. 35 | Literary Thesis } | | | |
| M. L. 7 | French | 3 | | 7.5 |
| | Total.. | 12 | 23 | 55. |





*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 24 | Architectural Design | | 16 | 21. |
| Arch. 32 | Building Construction, Masonry | 1 | 1 | 3.5 |
| Arch. 40 | Cast Drawing | | 2 | 2. |
| Arch. 44 | Pen and Ink Drawing | | 2 | 2. |
| Arch. 48 | Historic Ornament | | 4 | 4. |
| Arch. 52 | Water Color Drawing | | 3 | 3. |
| Eng. 32 | English Literature } | 3 | | 7.5 |
| Eng. 36 | Literary Thesis } | | | |
| Ex. E. 11a | Structural Mechanics | 2 | | 5. |
| M. L. 8 | French | 3 | | 7.5 |
| | Total.. | 9 | 28 | 55.5 |

## SENIOR YEAR

Military Instruction elective for equivalent of work shown below.

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 55 | Architectural Design | | 18 | 22. |
| Arch. 59 | Archaeology | | 4 | 5. |
| Arch. 63 | Building Construction, Carpentry | 1 | 1 | 3.5 |
| Arch. 67 | Professional Practice | 1 | | 2.5 |
| Arch. 71 | History of Art | 1 | | 2.5 |
| Arch. 75 | Antique Drawing | | 2 | 2. |
| Arch. 79 | Pen and Pencil Rendering | | 2 | 2. |
| Arch. 83 | Water Color Drawing | | 3 | 3. |
| M. L. 9 | French | 3 | | 7.5 |
| | Total.. | 6 | 30 | 50. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Arch. 56 | Architectural Design | | 20 | 28. |
| Arch. 64 | Building Construction, Carpentry | 1 | 1 | 3.5 |
| Arch. 68 | Professional Practice | 1 | | 2.5 |
| Arch. 72 | History of Art | 1 | | 2.5 |
| Arch. 76 | Antique Drawing | | 2 | 2. |
| Arch. 80 | Pen and Pencil Rendering | | 2 | 2. |
| Arch. 84 | Water Color Rendering | | 3 | 3. |
| M. L. 10 | French | 3 | | 7.5 |
| | Total.. | 6 | 28 | 51. |

# Special Course in Architecture

## FIRST YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 3 | Shades and Shadows | 1 | 6 | 7. |
| Arch. 7 | Elements of Architecture | 1 | 8 | 9. |
| Arch. 11 | Architectural Design | | 6 | 10. |
| Arch. 15 | History of Architecture, Ancient | 2 | | 5. |
| Arch. 19 | Charcoal Drawing | | 2 | 2. |
| Arch. 31 | Building Construction, Masonry | 1 | | 3.5 |
| Arch. 35 | Sanitation of Buildings | 1 | | 2.5 |
| Arch. 43 | Pen and Ink Drawing | | 2 | 2. |
| Mil. 1 | Military Instruction | | 5 | 5. |
| | Total.. | 6 | 29 | 46. |

*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 5a | Perspective | 1 | 3 | 4. |
| Arch. 12 | Architectural Design | | 16 | 25. |
| Arch. 16 | History of Architecture, Mediaeval | 2 | | 5. |
| Arch. 20 | Charcoal Drawing | | 2 | 2. |
| Arch. 32 | Building Construction, Masonry | 1 | | 3.5 |
| Arch. 39a | Cast Drawing | | 2 | 2. |
| Arch. 44 | Pen and Ink Drawing | | 2 | 2. |
| Arch. 52 | Water Color Drawing | | 3 | 3. |
| Mil. 2 | Military Instruction | | 5 | 5. |
| | Total.. | 4 | 33 | 51.5 |

SECOND YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Arch. 23 | Architectural Design | | 14 | 17. |
| Arch. 27 | History of Architecture, Modern | 2 | | 5. |
| Arch. 40 | Cast Drawing | | 2 | 2. |
| Arch. 59 | Archaeology | | 4 | 5. |
| Arch. 63 | Building Construction, Carpentry | 1 | | 3.5 |
| Arch. 67 | Professional Practice | 1 | | 2.5 |
| Arch. 71 | History of Art | 1 | | 2.5 |
| Arch. 79 | Pen and Pencil Rendering | | 2 | 2. |
| Arch. 83 | Water Color Drawing | | 3 | 3. |
| C. E. 31 | Graphic Statics | 2 | 3 | 8. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | 9 | 33 | 55.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Arch. 24 | Architectural Design | | 16 | 25. |
| Arch. 48 | Historic Ornament | | 4 | 4. |
| Arch. 64 | Building Construction, Carpentry | 1 | | 3.5 |
| Arch. 68 | Professional Practice | 1 | | 2.5 |
| Arch. 72 | History of Art | 1 | | 2.5 |
| Arch. 75a | Antique Drawing | | 2 | 2. |
| Arch. 76 | Antique Drawing | | 2 | 2. |
| Arch. 80 | Pen and Pencil Rendering | | 2 | 2. |
| Arch. 84 | Water Color Rendering | | 3 | 3. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | 3 | 34 | 51.5 |

## Courses of Instruction

### Arch. 1. Architectural Drawing.

*Mr. Armsby.*

Freshman, first term, six hours.

An introductory course in free-hand and mechanical lettering, instrumental drawing of architectural forms, and India ink wash-drawing.





### Arch. 3 and 3a. Shades and Shadows.

*Professor Gailey.*

Arch. 3, First Year Special, first term, seven hours.
Arch. 3a, Freshman, second term, seven hours.

This course consists of lectures and draughting room work in the theory and methods of determining the shades and shadows on architectural forms.

Text: *McGoodwin,* "Architectural Shades and Shadows."

### Arch. 5 and 5a. Perspective.

*Professor Gailey.*

Arch. 5. Sophomore, first term, 4 hours.
Arch. 5a. First Year Special, second term, 4 hours.

This course consists of lectures and draughting room work in the theory of Perspective, the use of Vanishing Points, the Perspective Plan method, etc.

Text: *Lubschez,* "Perspective."

### Arch. 7 and 7a. Elements of Architecture.

*Professor Smith and Mr. Armsby.*

Arch. 7. First Year Special, first term, nine hours.
Arch. 7a. Freshman, second term, seven hours.

Illustrated lectures on the simple elements of Architectural Design, such as walls, doors, cornices and mouldings. This is followed by a careful consideration of the classical orders and the principles involved in their use. Stress is laid on their character and general proportions rather than upon mathematical rules for drawing them. Carefully rendered drawings of the orders and other simple Elements of Design are made in the draughting room.

Text: *Ware;* "American-Vignola." Part I.

### Arch. 8. Pencil Drawing.

*Prof. Gailey.*

Freshman, second term, two hours.

Elementary work in free-hand pencil drawing from blocks and simple forms, studying the mass and proportions.

**Arch. 9. Shadows and Perspective.**

*Mr. Armsby.*

Sophomore, C. E.. First term, three hours.

Principles of shades and shadows and perspective. Lectures and drafting room work.

**Arch. 11. Architectural Design.**

*Professor Smith.*

Prerequisites, Arch. 3, 5 and 7.

Sophomore, first term, twelve hours.

First Year Special, first term, six hours.

Simple problems in composition and design involving the Orders, are studied, especial attention being given to the design and drawing of details at a large scale. Individual criticism is given as the work progresses, and at the completion of the problems, the rendered drawings are judged by a jury of practicing architects.

**Arch. 12. Architectural Design.**

*Professor Smith.*

Prerequisite, Arch 11.

Sophomore, second term, twelve hours.

First Year Special, second term, sixteen hours.

A continuation of Arch. 11.

**Arch. 15. History of Architecture, Ancient.**

*Professor Smith.*

Prerequisite, Arch. 7.

Sophomore and First Year Special, first term, two hours.

Two lectures a week are given with the aid of the stereopticon. Architectural development is studied from the dawn of civilization to the fall of Rome. Research work is done in the Library by each student and written quizzes are held.

Text: *Kimball and Edgell,* "History of Architecture."

**Arch. 16. History of Architecture, Mediaeval.**

*Professor Smith.*

Prerequisite, Arch. 15.

Sophomore and First Year Special, second term, two hours.





A continuation of Arch. 15, in which the various mediaeval styles of European architecture are studied. Individual reports are prepared by the students on special topics.

Text: *Kimball and Edgell.*

**Arch. 19. Charcoal Drawing.**

*Professor Gailey.*

Prerequisite, Arch. 8.

Sophomore and First Year Special, first term, two hours.

Charcoal work from simple plaster casts. Monthly tests without criticism are given.

**Arch. 20. Charcoal Drawing.**

*Professor Gailey.*

Prerequisite, Arch. 19.

Sophomore and First Year Special, second term, two hours.

A continuation of Arch. 19.

**Arch. 22. Elementary Design.**

*Mr. Armsby.*

Prerequisites, Drawing 2a and 4a.

Senior, C. E., second term, three hours.

An elementary course in the classical Orders and their application to Doorways, small Power Houses, etc.

**Arch. 23. Architectural Design.**

*Professor Smith.*

Prerequisite, Arch. 12.

Junior and Second Year Special, first term, fourteen hours.

This course succeeds Arch. 12. Problems in planning are taken up and buildings are designed in plan, section and elevation. Carefully rendered drawings are made, and short sketch problems are given at stated periods.

**Arch. 24. Architectural Design.**

*Professor Smith.*

Prerequisite, Arch. 23.

Junior and second year special, second term, sixteen hours.

A continuation of Arch. 23.

**Arch. 27. History of Architecture, Modern.**

*Professor Smith.*

Prerequisite, Arch. 16.

Junior and second year special, first term, two hours. This concluding course in the subject is devoted to a consideration of Renaissance and Modern Architecture, beginning with the work of Brunelleschi.

Text: *Kimball and Edgell,* "History of Architecture."

**Arch. 31. Building Construction. Masonry.**

*Professor Smith.*

Junior and First Year Special, first term, one hour. Recitations and quizzes in the materials and processes of masonry construction as applied to buildings. Foundations, footings, brick work, stone masonry, systems of reinforced concrete, etc., are studied.

Text: *Kidder;* "Building Construction and Superintendence, Masonry."

**Arch. 32. Building Construction. Masonry.**

*Professor Smith.*

Prerequisite, Arch. 31.

Junior and First Year Special, second term, one hour. A continuation of Arch. 31.

**Arch. 35. Sanitation of Buildings.**

*Professor Smith.*

Prerequisite, Arch. 12.

Junior and Second Year Special, first term, one hour. A study of the principles of Heating, Ventilating and Plumbing. Lectures and recitations.

Text: *Allen,* "Notes on Heating and Ventilating."

**Arch. 39 and 39a. Cast Drawing.**

*Professor Gailey.*

Prerequisite, Arch. 20.

Junior, First Term and First Year Special, second term, two hours.

Drawing from casts of architectural features and sculpture.





**Arch. 40. Cast Drawing.**

*Professor Gailey.*

Prerequisite, Arch. 39.

Junior and Second Year Special, second term, two hours. A continuation of Arch. 39.

**Arch. 43. Pen and Ink Drawing.**

*Professor Smith.*

Prerequisite, Arch. 20.

Junior and First Year Special, first term, two hours. The drawing and rendering in pen and ink of architectural subjects. Stress is laid upon the composition of the sketch as well as its presentation. Drawings by recognized masters are studied and copied to familiarize the student with good technique and style.

Text: *Maginnis;* "Pen Drawing."

**Arch. 44. Pen and Ink Drawing.**

*Professor Smith.*

Prerequisite, Arch. 43.

Junior and First Year Special, second term, two hours. A continuation of Arch 43, in which the student works from photographs.

**Arch. 48. Historic Ornament.**

*Professor Gailey.*

Prerequisite, Arch. 39.

Junior and Second Year Special, second term, four hours.

A course in the design of Architectural ornament in various historic styles. The best examples from the period are studied and used as inspiration for the work.

**Arch. 52. Water Color Drawing.**

*Professor Gailey.*

Prerequisite, Arch. 39.

Junior and First Year Special, second term, three hours.

Wash drawings in Sepia are made from still-life models.

Arch. 55. **Architectural Design.**
*Professor Smith.*

Prerequisite, Arch. 24.
Senior, first term, eighteen hours.
In the Senior Year, the designing of larger compositions is begun. Group plans are studied and more complicated problems are taken up.

Arch. 56. **Architectural Design.**
*Professor Smith.*

Prerequisite, Arch. 55.
Senior, second term, twenty hours.
A continuation of Arch. 55. During the latter part of the term the Thesis designs for the Bachelor's degree are made. Programs requiring original work must be selected.

Arch. 59. **Archaeology.**
*Professor Smith.*

Prerequisite, Arch. 24 and 27.
Senior and Second Year Special, first term, four hours.
One or more Design problems in some of the more important historic styles are given. This course offers opportunity to obtain more exact knowledge of certain styles, and supplements the work in Architectural History, upon which it is largely dependent.

Arch. 63. **Building Construction. Carpentry.**
*Professor Smith.*

Senior and Second Year Special, first term, one hour.
Recitations and quizzes on Carpentry Construction as applied to buildings. The construction of the frame house, floors, partitions, roofs, interior finish, etc., are studied.
Text: *Kidder*, "Building Construction and Superintendence, Carpentry."

Arch. 64. **Building Construction. Carpentry.**
*Professor Smith.*

Prerequisite, Arch. 63.
Senior and Second Year Special, second term, one hour.
A continuation of Arch. 63.





Arch. 67. **Professional Practice.**
*Professor Smith.*

Senior and Second Year Special, first term, one hour.
A course of lectures and discussions on professional ethics, competitions, contracts, specifications, theory of design and the specific requirements of certain classes of buildings such as School Houses, Libraries, Hospitals, and Residences. Papers are prepared and read by the students and discussed in class.
Text: *Van Pelt*, "Essentials of Composition as Applied to Art."

Arch. 68. **Professional Practice.**
*Professor Smith.*

Prerequisites, Arch. 67.
Senior and Second Term Special, second term, one hour.
A continuation of Arch. 67.

Arch. 71. **History of Art.**
*Professor Gailey.*

Prerequisite, Arch. 16.
Senior and Second Year Special, first term, one hour.
Recognizing the often intimate connection of Architecture with the allied Arts of Sculpture and Painting, the history of these subjects is taken up briefly in a course of lectures and recitations, assisted by the stereopticon and by photographs. Egyptian, Assyrian, Greek and Roman work is studied.

Arch. 72. **History of Art.**
*Professor Gailey.*

Prerequisite, Arch. 71.
Senior and Second Year Special, second term, one hour.
A continuation of Arch. 71, devoting especial attention to the sculpture and painting of the Italian Renaissance.

Arch. 75 and 75a. **Antique Drawing.**
*Professor Gailey.*

Prerequisite, Arch. 40.
Arch. 75. Senior, first term, two hours.
Arch. 75a. Second Year Special, second term, two hours.
Drawing from the cast of antique sculpture and the full length figure.

Arch. 76. **Antique Drawing.**

*Professor Gailey.*

Prerequisite, Arch. 75.

Senior and Second Year Special, second term, two hours.

A continuation of Arch. 75, including also drawing from life.

Arch. 79. **Pen and Pencil Rendering.**

*Professor Smith.*

Prerequisite, Arch. 44.

Senior and Second Year Special, second term, two hours.

A continuation of Arch. 44, in which sketches are made from nature and more elaborate renderings are made.

Text: *Hays;* "Architectural Rendering in Pen and Ink."

Arch. 80. **Pen and Pencil Rendering.**

*Professor Smith.*

Prerequisite, Arch. 79.

Senior and Second Year Special, second term, two hours.

A continuation of Arch. 79.

Arch. 83. **Water Color Drawing.**

*Professor Gailey.*

Prerequisite, Arch. 52.

Senior and Second Year Special, first term, three hours.

Water Color drawings and sketches are made from photographs, still-life objects, architectural details, and nature.

Arch. 84. **Water Color Rendering.**

*Professor Gailey.*

Prerequisite, Arch. 83.

Senior and Second Year Special, second term, three hours.

A continuation of Arch. 83, in which the rendering of Architectural Perspectives in water color, is studied.





# DEPARTMENT OF CHEMISTRY

PROFESSORS EMERSON, BOGGS, AND DANIEL, MR. ALLEN, MR. ROLLER AND MR. GREEN.

## General Statement

The course offered by this department is intended, in the first place, to give the student a broad foundation in General and Theoretical Chemistry, so that new problems met in his future work may be solved intelligently; and, in the second place, to give him special training in those branches of Chemistry which have been most generally applied industrially, so that he may be immediately useful.

## Equipment

The Lyman Hall Laboratory of Chemistry, thus named in honor of Dr. Lyman Hall, second President of the institution, was completed in 1906. It is a T-shaped building of brick, with limestone trimmings, two stories high, with a basement. Each floor has an approximate area of 5,600 square feet. Lecture rooms, reading room, stock rooms, offices, combustion room, and dark rooms occupy the front, and laboratories the rear wing. The basement is fitted up for offices and lecture rooms. The large lecture room on the first floor will accommodate about one hundred students, and there are two smaller rooms for the use of advanced classes. Especial care has been given to the lighting and ventilation of the laboratories. All of them receive light from three sides, and for the removal of noxious fumes, they are amply provided with hoods, each of which has a separate flue leading to a tight wooden fume-box, located just under the roof. This box communicates with the outer air. The natural draught thus created serves the desired purpose admirably.

Each student is provided with gas, water, sink, and a private locker allowing at least four feet of desk space. The entire first floor of the rear wing is occupied by the laboratory for elementary Chemistry, which will accommodate 350 students. The upper floor of this wing is for

the laboratories of qualitative and quantitative analysis, and a small private laboratory for the instructors. Sixty students can be accommodated in the first named and thirty in the second. The hydrogen sulphide gas used is generated in a separate room. The students are served with materials and apparatus from a stock-room on each floor. The amply lighted balance room, which is shut off from the laboratory fumes by means of double doors, is equipped with eight high-grade balances, one of which is mounted on a pier of masonry free from contact with the building, thus eliminating vibrations. On this floor is located a reading room provided with some of the leading journals and reference works devoted to Chemistry.

## Course Leading to the Degree Bachelor of Science in Engineering Chemistry

The graduate in this course will be prepared to pursue the subject either on its manufacturing or analytical side. With respect to his fitness to take up the work in chemical manufacturing, the course offers exceptional opportunities. The work in Mechanical Engineering, embracing considerable shop and laboratory practice, elementary mechanics, and the steam engine, will enable him to understand machinery, superintend the running of it, and take charge of various mechanical operations. The course in Drawing will enable him to understand mechanical drawings and express his ideas by means of them. The course in Electricity will enable him to understand electrical appliances and to superintend industrial operations carried on by means of this power. His knowledge of Chemistry will equip him to determine the relative values of the raw materials offered by dealers, and to conduct intelligently operations based on chemical principles, detect imperfections in them and suggest improvements. The work of the course being mainly chemical, the graduate will be prepared to undertake analytical processes of almost any kind, and should be valuable in the laboratory in many ways.





## Tabulation of Subjects Leading to the Degree Bachelor of Science in Engineering Chemistry

### FRESHMAN YEAR

Uniform for all Engineering Courses. Students take Dr. 2, 4, one term, and M. E. 3, 5, 7, one term.

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 1 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 5 | Chemical Laboratory | | 2 | 2. |
| Eng. 11 | Composition and Rhetoric | 3 | | 7.5 |
| Eng. 15 | Theme Writing and Speaking | 1 | | 1. |
| Math. 11 | College Algebra | 3 | | 6. |
| Math. 15 | Trigonometry | 3 | | 7.5 |
| Mil. 1 | Military Instruction | | 5 | 5. |
| Dr. 2 | Desc. Geometry | 3 | | 7.5 |
| Dr. 4 | Desc. Geometry Drawing | | 3 | 3. |
| or | | | | |
| M. E. 3 | Wood Shop | | 6 | 6. |
| M. E. 5 | Smith Shop | | 3 | 3. |
| M. E. 7 | Foundry | | 3 | 3. |
| | Total.. | | | 47.or 48.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Chem. 2 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 6 | Chemical Laboratory | | 2 | 2. |
| Eng. 12 | Composition and Rhetoric .. . ... | 3 | | 7.5 |
| Eng. 16 | Theme Writing and Speaking | 1 | | 1. |
| Math. 16 | Slide Rule | | 1 | 1. |
| Math. 18 | Analytic Geometry | 5 | | 12.5 |
| Mil. 2 | Military Instruction | | 5 | 5. |
| Dr. 2 | Desc. Geometry | 3 | | 7.5 |
| Dr. 4 | Desc. Geometry Drawing | | 3 | 3. |
| or | | | | |
| M. E. 3 | Wood Shop | | 6 | 6. |
| M. E. 5 | Smith Shop | | 3 | 3. |
| M. E. 7 | Foundry | | 3 | 3. |
| | Total.. | | | 47 or 48.5 |

### SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 13 | Qualitative Analysis | | 7 | 7.5 |
| Dr. 13 | Machine Drawing | | 3 | 3. |
| Eng. 21 | American Literature | 3 | | 7.5 |
| Eng. 27 | Parallel Reading | | | |
| Geol. 1 | Ferrous Metallurgy | 2 | | 5. |
| Math. 21 | Analytic Geometry | 2 | | 5. |
| Math. 25 | Calculus | 3 | | 7.5 |
| Phys. 9 | Physics | 4 | | 10. |
| Phys. 13 | Physics Laboratory | | 3 | 4. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | 14 | 18 | 54.5 |

*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 14 | Qualitative Analysis | | 7 | 7.5 |
| Chem. 16 | Quantitative Analysis | 2 | 6 | 9. |
| Eng. 24 | Political Economy | 3 | | 7.5 |
| Eng. 28 | Parallel Reading | | | |
| Math. 28 | Calculus | 5 | | 12.5 |
| Phys. 10 | Physics | 4 | | 10. |
| Phys. 14 | Physics Laboratory | | 3 | 4. |
| Mil. 4 | Miltary Instruction | | 5 | 5. |
| | Total.. | 14 | 21 | 55.5 |

## JUNIOR YEAR

Military Instruction elective for equivalent of work shown below.

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 17 | Quantitative Analysis | | 9 | 9. |
| Chem. 21 | Organic Chemistry | 3 | | 7.5 |
| Chem. 23 | Organic Laboratory | | 3 | 3. |
| Chem. 29 | Advanced Inorganic Chemistry * | 2 | | 5. |
| Chem. 37 | Industrial Chemistry * | | | |
| Dr. 14a | Machine Drawing | | 3 | 3. |
| Eng. 31 | English Literature | 3 | | 7.5 |
| Eng. 35 | Literary Thesis | | | |
| M. L. 1 | German | | | |
| M. L. 7 | French One required | 3 | | 7.5 |
| M. L. 13 | Spanish | | | |
| Phys. 11 | Physics | 3 | | 7.5 |
| | Total.. | 14 | 15 | 51. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Chem. 18 | Quantitative Analysis | | 9 | 9. |
| Chem. 22 | Organic Chemistry | 3 | | 7.5 |
| Chem. 24 | Organic Laboratory | | 3 | 3. |
| Chem. 30 | Advanced Inorganic Chemistry * | 2 | | 5. |
| Chem. 38 | Industrial Chemistry * | | | |
| Eng. 32 | English Literature | 3 | | 7.5 |
| Eng. 36 | Literary Thesis | | | |
| Exp. E. 11a | Structural Mechanics | 2 | | 5. |
| Exp. E. 76 | Power Plants | 2 | | 5. |
| M. L. 2 | German | | | |
| M. L. 8 | French One required | 3 | | 7.5 |
| M. L. 14 | Spanish | | | |
| | Total.. | 15 | 12 | 49.5 |

## SENIOR YEAR

Military Instruction elective for equivalent of work shown below.

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 19 | Quantitative Analysis | 2 | 12 | 17. |
| Chem. 29 | Advanced Inorganic Chemistry * | 2 | | 5. |
| Chem. 37 | Industrial Chemistry * | | | |
| Chem. 33 | Physical Chemistry | 2 | | 5. |
| Exp. E. 1a | Analytic Mechanics | 3 | | 7.5 |
| Exp. E. 77 | Heat Engines and Thermodynamics | 3 | | 7.5 |
| Exp. E. 73 | Elementary Steam Laboratory | | 3 | 4. |
| M. L. 3 | German | | | |
| M. L. 9 | French One required | 3 | | 6. |
| M. L. 15 | Spanish | | | |
| | Total.. | 15 | 15 | 52. |

*Given alternate years.





*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 30 | Advanced Inorganic Chemistry * | 2 | | 5. |
| Chem. 38 | Industrial Chemistry * | | | |
| Chem. 34 | Physical Chemistry | 3 | | 7.5 |
| Chem. 36 | Physico-Chemical Measurements | | 3 | 3. |
| Chem. 42 | Thesis | | 8 | 8. |
| E. E. 2 | Applied Electricity | 3 | | 7.5 |
| E. E. 3a | Electrical Engineering Laboratory | | 3 | 4. |
| Exp. E. 78 | Advanced Heat Engines and Termodynamics | 2 | | 5. |
| Exp. E. 74 | Fuel and Gas Engine Laboratory | | 3 | 4. |
| M. L. 4 | German | | | |
| M. L. 10 | French One required | 3 | | 6. |
| M. L. 16 | Spanish | | | |
| | Total.. | 13 | 17 | 50. |

*Given Alternate years.

## Courses of Instruction

### Chem. 1. Elementary Inorganic Chemistry.

*Professors Emerson, Boggs and Daniel, Mr. Allen, Mr. Roller, and Mr. Green.*

Freshman, first term, three hours.

This course is required of all Freshmen and is designed to acquaint the student with some of the principles of Chemistry, and also familiarize him with the sources, methods of preparation, properties and uses of a number of important commercial substances. In order to accomplish these ends, considerable time is spent in explanatory and experimental lectures, in which the significance of the theories is dwelt upon, and their applications in a practical way pointed out. Thus the harmony between theory and practice is established. The modern theories of solution, and the "Mass Law," are emphasized. The solution of numerous numerical problems is required.

Text: *Cady's* "General Chemistry." The ground covered during this term includes the first sixteen chapters, with about a month of review.

### Chem. 2. Elementary Inorganic Chemistry.

*Professors Emerson, Boggs and Daniel, Mr. Allen, Mr. Roller, and Mr. Green.*

Prerequisite, Chem. 1.

Freshman, second term, three hours.

A continuation of Chem. 1, covering the remainder of text, with about a month of review.

Chem. 5. **Chemical Laboratory.**

*Professors Emerson, Boggs and Daniel, Mr. Allen, Mr. Roller, and Mr. Green.*

Freshman, first term, one two-hour period.

The Experiment-Observation-Deduction Method is here applied as far as the time permits. The keeping of accurate records of observations is required, as upon these the students must draw, in answering the oral questions following each experiment. These quizzes insure an understanding of the subject and its connection with the instruction given in Chem. 1. While the ground covered is limited, the thoroughness attained by requiring every student to recite on each experiment has amply justified the adoption of this method.

Text: Selected exercises.

Chem. 6. **Chemical Laboratory.**

*Professors Emerson, Boggs and Daniel, Mr. Allen, Mr. Roller, and Mr. Green.*

Prerequisite, Chem. 1 and 5.

Freshman, second term, one two-hour period.

A continuation of Chem. 5, with special attention to the metals.

Chem. 9. **Qualitative Analysis.**

*Professor Emerson.*

Prerequisites, Chem. 1, 2, 5, 6.

Sophomore, first term, three hours laboratory, one hour lecture.

This course is required of students in Civil and Textile Engineering. The course is similar to Chem. 13, and is conducted in a like manner. Groups 1 and 2 of the metals are completed during this term.

Text: *A. A. Noyes' "Qualitative Analysis."*





Chem. 10. **Qualitative Analysis.**

*Professor Emerson.*

Prerequisites, Chem. 9.

Sophomore, second term, time same as Chem. 9.

A continuation of Chem. 9, completing the study of the metallic ions.

Chem. 13. **Qualitative Analysis.**

*Professor Boggs.*

Prerequisites, Chem. 1, 2, 5 and 6.

Sophomore, first term, nine hours laboratory; one hour lecture.

This course includes laboratory work, lectures and quizzes, and is required of all students specializing in Chemistry. The lectures deal with the "Mass Law," Complex ions, solubility product, and other theoretical matters bearing on the work, as well as the methods of procedure, and the precautions necessary to secure good results. Frequent quizzes are given upon these lectures and upon the laboratory work.

Text: *A. A. Noyes'* "Qualitative Analysis."

References: Such texts as *Treadwell, Böttger,* and *Talbot and Blanchard.* The work of this term includes the separation of the metallic elements. Enough mixtures of known and unknown composition are given to ground the students thoroughly in the methods used.

Chem. 14. **Qualitative Analysis.**

*Professor Boggs.*

Prerequisite, Chem. 13.

Sophomore, second term, three hours laboratory, one hour lecture.

This course is a continuation of Chem. 13, and is conducted in a similar manner. The reactions and identifications of the more common anions are studied, and a number of unknown mixtures and minerals are given for complete analysis.

Chem. 16. **Quantitative Analysis.**

*Professor Daniel, and Dr. Emerson.*

Prerequisites, Chem. 13; Chem. 14, completed or parallel.

Sophomore, second term, Engineering Chemists, six hours laboratory; two hours lecture.

These courses are an introduction to the general methods of gravimetric analysis. The work consists chiefly in laboratory practice and includes a thorough drill in stoichiometry. Conferences and oral quizzes are given on each exercise, and supplement the laboratory work. Numerous references to the literature of the processes are assigned and recited on. The standard of accuracy is raised as the student becomes more proficient; duplicate analyses are required throughout, thus inducing the student to test his own work as to accuracy and reliability. The required work includes the following or its equivalent: the estimation of water and chlorine, in pure salts; sulphur in pyrite; and the complete analyses of limestone, brass and solder; and fat in cotton seed meal, and caffeine in tea.

Texts: *Mahin* and references.

Chem. 17. **Quantitative Analysis.**

*Professor Daniel, and Dr. Emerson.*

Prerequisites, Chem. 16.

Junior, first term, nine hours laboratory.

This course is a continuation of Chem. 16. As in all other quantitative work, duplicate analyses are required. Conferences, quizzes and problems are continued. The required work includes the following or its equivalent: the calibration of a set of weights and several pieces of volumetric apparatus; the principles of chlorimetry and iodimetry and their practical applications; the determination of the oxidizing power of pyrolusite; volumetric estimation of iron in ores; the gravimetric estimation of manganese in ores or alloys; and the analysis of iron and steel.

Texts: *Mahin, Lord,* and references.





Chem. 18. **Quantitative Analysis.**

*Professor Daniel, and Dr. Emerson.*

Prerequisite, Chem. 17.

Junior, second term, Engineering Chemists, nine hours.

These courses are continuation of Chem. 17, and are required of all students of Chemistry. The laboratory work includes the following or its equivalent: preparation and use of a half normal acid and base, and the analysis of fertilizer, coal, and a silicate.

Chem. 19. **Quantitative Analysis.**

*Professor Daniel, and Dr. Emerson.*

Prerequisite, Chem. 18.

Senior, first term, Engineering Chemists, twelve hours laboratory, and two hours recitation.

The first six weeks is given to the complete qualitative and quantitative analysis of an unknown sample.

Immediately after the completion of this analysis work on the Thesis is begun.

Chem. 21. **Organic Chemistry.**

*Mr. Allen.*

Prerequisites, Chem. 1, 2, 5 and 6.

Parallel, Chem. 23.

Junior, first term, E. C. and T. E., three hours.

The ground covered in this course includes the paraffin hydrocarbons and their derivatives, mixed compounds derived from paraffins, and the carbohydrates.

Text: *Cohen's* "Theoretical Organic Chemistry."

Chem. 22. **Organic Chemistry.**

*Mr. Allen.*

Prerequisites, Chem. 21 and 23.

Parallel, Chem. 24.

Junior, second term, E. C. and T. E., three hours.

It includes the mixed compounds containing nitrogen, phosphorus, arsenic and sulphur, the purine groups and the cyclic hydrocarbons and their derivatives.

Text: As for Chem. 21.

Chem. 23. **Organic Laboratory.**

*Mr. Allen and Mr. Roller.*

Prerequisites, as for Chem. 21.

Junior, first term, E. C. and T. E., three hours.

In this course the student becomes acquainted with the apparatus used in organic work, and with such operations as fractional distillation, saponification, steam distillation, and the determination of melting and boiling points. Twelve or fifteen typical substances, such as ether, chloroform and iodoform, are prepared.

Text: *Cohen's* "Practical Organic Chemistry."

Chem. 24. **Organic Laboratory.**

*Mr. Allen and Mr. Roller.*

Prerequisites, Chem. 21 and 23.

Junior, second term, E. C. and T. E., three hours.

This course is a continuation of Chem. 23. The student carries out such processes as nitration, sulphonation and diazotization, and prepares twelve or fifteen compounds of typical kinds.

Text: As for Chem. 23.

Chem. 22a. **Organic Chemistry.**

*Mr. Allen.*

Prerequisites, Chem. 1, 2, 5 and 6.

Parallel, Chem. 24a.

Junior, C. E., second term, three hours.

The ground covered in this course is that of Chem. 21 and 22, treated in less detail.

Text: *Stoddard's,* "Introduction to Organic Chemistry."

Chem. 24a. **Organic Laboratory.**

*Mr. Allen and Mr. Roller.*

Prerequisites, as for 22a.

Junior, C. E., second term, three hours.

In this course the student becomes acquainted with the apparatus used in organic work and prepares twelve or





fifteen typical substances involving such operations as fractional distillation, steam distillation, saponification, and the determination of melting and boiling points.

Text: *Orndorff's,* "Laboratory Manual of Organic Chemistry."

Chem. 29 and 30. **Advanced Inorganic Chemistry.**

*Professor Boggs.*

Prerequisites, Chem. 1, 2, 5 and 6.

Junior and Senior, first and second terms, alternate years, two hours.

This course consists in systematic study of the metals and non-metals, based on Mendeleeff's classification, and includes the chemistry of some of the rarer elements. While the course is largely descriptive, considerable time is devoted to modern theories.

Chem. 33. **Physical Chemistry.**

*Dr. Emerson.*

Prerequisites, Chem. 1, 2, 5, 6, and Phys. 9, 10, 11.

Senior, first term, two hours.

This subject is given to Seniors. It includes a study of the modern theories of structure of atom and molecule, the physical states of matter, and solution.

Text: *Senter's* "Outlines of Physical Chemistry."

Chem. 34. **Physical Chemistry.**

*Dr. Emerson.*

Prerequisite, Chem. 33.

Senior, second term, three hours.

A continuation of Chem. 33. Thermochemistry, Chemical Dynamics and Equilibrium, and Electrochemistry are the divisions studied. Some applications of physical-chemical data to commercial problems, particularly those of Electrochemistry, are discussed in the latter part of the course.

Text: Same as for Chem. 33.

**Chem. 36. Physico—Chemical Measurements.**

*Dr. Emerson.*

Prerequisites, Chem. 33: Chem. 34, parallel.

Seniors, second term, three hours.

The student will determine molecular weights by the freezing and boiling point methods. Dissociation will be determined by the freezing point, boiling point and conductivity methods.

Text: *Jones*: "The Freezing Point, Boiling Point and Conductivity Methods."

**Chem. 37. Industrial Chemistry.**

*Professor Daniel.*

Prerequisite or parallel, Chem. 21, 22.

Junior and Senior, first term, alternate years, two hours.

Attention is given to the general operations common to many industries, such as crushing, grinding, lixiviation, filtration, evaporation, crystallization, and the details of the various types of apparatus for carrying on these processes. The most important manufacturing industries, such as the production of alkali, sulphuric acid, fertilizers, glass pigments, cement, oils, fats, soap, and glycerine, as well as paper and wood distillation are considered in detail. Weekly reports are submitted by members of the class reviewing journal articles pertaining to industrial chemical processes. Monthly and term papers are assigned to each student in which is discussed in some detail a particular process or the utilization of a special material.

Text: *Thorp*: "Outlines of Industrial Chemistry."

**Chem. 38. Industrial Chemistry.**

*Professor Daniel.*

Prerequisite or parallel, Chem. 21, 22, 37.

Junior and Senior, second term, alternate years, two hours.

This course is a continuation of Chem. 37. Other in-





dustrial processes are studied and discussed and the reports and papers are continued.

Text: *Thorp*: "Outlines of Industrial Chemistry."
*Meade*: "Portland Cement".

**Chem. 42. Thesis.**

Prerequisites, all courses below the Senior year.

Senior, second term.

During the Senior year, the student prepares a thesis requiring original work. The subject for investigation is usually selected by one of the instructors in the department, who also supervises the work.

# DEPARTMENT OF CIVIL ENGINEERING

PROFESSOR BRANCH, PROFESSOR KNEALE, MR. WHITNER, MR. MATHIS AND MR. SHADBURN.

## General Statement

The instruction in the Department of Civil Engineering is by recitation, lecture, drawing room and laboratory work, and field practice, made to conform as nearly as possible to the general routine of work in current engineering practice and still remain general in its scope.

The young graduate in Civil Engineering should have a broad education based upon Mathematics, Mechanics, Chemistry and Physics, the fundamental sciences of Engineering. He is expected to be expert only to the extent that he be a good surveyor, a neat draftsman and an accurate and systematic computer. These are the agencies through which his knowledge of the sciences is applied, and his success in any one of the specialties of the profession will depend largely upon his ability to make this practical application.

His general training should be such as to enable him to express his thoughts clearly and forcibly in good, concise English. The study of English is continued through the first three years, and a two-year course in one modern language is required. From the beginning the student is taught thoroughness in all office, laboratory, and field work; and, placed in the proper atmosphere, he is led by recitations, lectures and the use of current engineering literature to discriminate between methods, while the importance of efficiency and results is held constantly before his mind.

The course is so outlined as to fit the student to be of immediate value in practically all of the subordinate positions of the profession and to bring him to a point where he may be able to continue his studies professionally and develop in any particular field which he may choose. Special attention is given to Railroad Engineering and the design of structures in steel and concrete.

The demand of recent years for better highways has broadened the field of Municipal or Highway Engineer until it has assumed such proportions that the Highway Engineer has become a paramount public official, with a broad





experience in business methods and a thorough training in Civil Engineering. His knowledge of modern road materials must be certain, necessitating a special preparation in Geology, Mineralogy and Chemistry. The Highway Engineering subjects are given special attention, and ample study of modern methods of highway construction and maintenance is provided for throughout the Junior and Senior years.

There is a great demand on the part of cities for men trained in the handling of water and sewerage purification plants, as well as general municipal work. The preservation of the health of communities is constantly calling for more intense specialization in that branch of civil engineering known as Sanitary Engineering, and to meet this need Georgia Tech has added a newly equipped laboratory for the study of purification methods and bacterial analyses in supplying communities with pure air and water and for disposing of municipal wastes.

## Special Highway Course

A three day's course in advanced highway engineering is given during the last week in January. This work is offered for the benefit of practicing engineers and special information will be sent on request.

## Equipment

The aim of the Department is to keep up the equipment to meet the needs of the classes, to add such instruments as are required, and to replace the worn-out models by newer ones, rather than to acquire a large and not fully needed equipment. This process has been worked out so completely that our instruments are all new and of the latest models.

# The Course in Civil Engineering

## FRESHMAN YEAR

See Page 55.

## SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 9 | Qualitative Analysis | 1 | 3 | 4.5 |
| C. E. 23 | Plane, Topographic and City Surveying and Mapping | 1 | 6 | 8.5 |
| Arch. 9 | Shadows and Perspective | | 3 | 3. |
| Eng. 21 | American Literature } | 3 | | 7.5 |
| Eng. 27 | Parallel Reading } | | | |
| Math. 21 | Analytic Geometry | 2 | | 5. |
| Math. 25 | Calculus | 3 | | 7.5 |
| Phys. 9 | Physics | 4 | | 10. |
| Phys. 13 | Physics Laboratory | | 3 | 4. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | 14 | 17 | 54.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Chem. 10 | Qualitative Analysis | 1 | 3 | 4.5 |
| C. E. 24 | Road and Railroad Surveying | 1 | 3 | 5.5 |
| Eng. 24 | Political Economy } | 3 | | 7.5 |
| Eng. 28 | Parallel Reading } | | | |
| Geol. 10 | Geology | 3 | | 7.5 |
| Math. 26 | Calculus | 5 | | 12.5 |
| Phys. 10 | Physics | 4 | | 10. |
| Phys. 14 | Physics Laboratory | | 3 | 4. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | 17 | 14 | 56.5 |

## JUNIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| C. E. 33 | Hydraulics | 3 | | 7.5 |
| C. E. 35 | Sewage and Water Supply | 3 | 3 | 10.5 |
| Eng. 31 | English Literature } | 3 | | 7.5 |
| Eng. 32 | Literary Thesis } | | | |
| Ex. E. 41 | Hydraulic Laboratory | | 3 | 3. |
| Math. 35 | Differential Equations | 2 | | 5. |
| M. E. 12 | Machine Shop | | 3 | 3. |
| M. L. 1 | German } | | | |
| M. L. 7 | French } One required | 3 | | 7.5 |
| M. L. 13 | Spanish } | | | |
| Phys. 11 | Physics | 3 | | 7.5 |
| | Total.. | 17 | 9 | 52. |





*Second Term*

| Abbrev. | Subject | Rec. Hrs. | Lab. Hrs. | Eq'v. |
|---|---|---|---|---|
| Arch. 22 | Elements of Architecture | | 3 | 3. |
| Chem. 21a | Organic Chemistry | 3 | | 7.5 |
| Chem. 23a | Organic Laboratory | | 3 | 3. |
| C. E. 38 | Sanitary Engineering | | 6 | 6. |
| Eng. 32 | English Literature } | 3 | | 7.5 |
| Eng. 36 | Literary Thesis } | | | |
| Ex. E. 1a | Analytic Mechanics | 3 | | 7.5 |
| Ex. E. 11b | Structural Mechanics | 3 | | 7.5 |
| Ex. E. 57 | Materials Lab. | | 3 | 3. |
| M. L. 2 | German } | | | |
| M. L. 8 | French } One required | 3 | | 7.5 |
| M. L. 14 | Spanish } | | | |
| | Total.. | 15 | 15 | 52.5 |

## SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| C. E. 41 | Sanitary Engineering | 3 | | 7.5 |
| C. E. 43 | Framed Structures | 3 | | 7.5 |
| C. E. 43b | Truss Analysis | | 6 | 6. |
| C. E. 45 | Re-inforced Concrete | 2 | 3 | 8. |
| C. E. 47 | Highway Engineering | 2 | 3 | 8. |
| Ex. E. 73 | Steam Laboratory | | 3 | 3. |
| Ex. E. 77 | Heat Engines | 3 | | 7.5 |
| M. L. 3 | German } | | | |
| M. L. 9 | French } One required | 3 | | 6. |
| M. L. 15 | Spanish } | | | |
| | Total.. | 16 | 15 | 53.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| C. E. 44 | Framed Structures | 3 | | 7.5 |
| C. E. 44b | Structural Detailing | | 6 | 6. |
| C. E. 46 | Concrete Structures | | 3 | 4. |
| C. E. 48 | Highway Engineering | 3 | 6 | 13.5 |
| E. E. 2 | Applied Electricity | 3 | | 7.5 |
| E. E. 3a | Electrical Engineering Lab. | | 3 | 4. |
| M. L. 4 | German } | | | |
| M. L. 10 | French } One required | 3 | | 6. |
| M. L. 16 | Spanish } | | | |
| | Thesis | | 5 | 5. |
| | Total.. | 12 | 18 | 53.5 |

## Civil Engineering

**C. E. 21 and 21a. Plane Surveying.**

*Mr. Whitner.*

Prerequisites, Math. 11 and 15.

Sophomore E. E. and M. E., first or second term, one hour lecture and three hours practice.

The construction, care, and adjustment of instruments commonly used in surveying; their use in traversing, land surveying, and differential and profile leveling; computation of areas, parting off land and the reduction and plotting of field notes.

A traverse enclosing about thirty acres is run usually in a semi-developed section of the city, the details tied in and a plot made by each student.

Texts: *Merriam & Brooks,* "Hand Book for Surveyors."

C. E. 23. **Plane, Topographic and City Surveying and Mapping.**

*Mr. Whitner.*

Prerequisite, Math. 11, 15.

Sophomore C. E., first term, one hour recitation and six hours practice.

The construction, care, and adjustment of instruments commonly used in surveying; their use in traversing, land surveying, and differential and profile leveling; computation of areas, parting off land and the reduction and plotting of field notes.

Theory of the Stadia and the Plane Table and their application in topographic surveying; city and mine surveying, and the U. S. Government system of laying out public lands; the elements of Geodetic surveying, with the adjustments of the measured and calculated data by the method of Least Squares; the general system of filing and recording deeds in the State of Georgia; plotting, finishing and filing maps; conventional topographic signs and symbols in ink and water color.

A topographic survey is made of a section of the city—usually a park—selected so as to offer as great diversion as possible and to exemplify all of the various methods of horizontal and vertical control and to afford practice in sketching contours, water lining, etc. The field notes are plotted up and a complete map of the section made by each member of the class.

Text: *Breed and Hosmer's* "Principles and Practice of Surveying." Part I.

C. E. 24. **Road and Railroad Surveying.**

*Mr. Whitner.*

Prerequisite, C. E. 23.

Sophomore, C. E., second term, one hour recitation and three hours practice.

Reconnaisance and preliminary surveys; simple, com-





pound, and reverse curves; the American Railway Spiral, with a discussion of various other forms of easement curves; right of way description; location, earth-work computations, haul and the Mass Diagram.

Problems so designed as to illustrate principles, as well as involve individual thinking in their solution, are given throughout the course. Those involving curves and best adapted for the purpose, are "run in" in the field. Checks on all computations and field work are required. Practice is also obtained in cross sectioning and setting slope-stakes.

Text: *Allen's* "Railroad Curves and Earthwork, with Tables."

C. E. 31. **Graphical Analysis of Roof Trusses.**

*Professor Branch.*

Junior and Special Arch., first term, three hours, lectures or drawing.

A course in the design of simple roof trusses, including the application of the force and equilibrium polygons and the Maxwell diagrams in the determination of stresses due to dead load, wind and snow loads, etc. The design of a roof truss, wood and steel is given in alternate years.

Text: "Design of Simple Roof-Trusses in Wood and Steel," *Howe.*

C. E. 33 and 33a. **Hydraulics.**

*Professor Branch and Professor Kneale.*

Prerequisites, Phys. 9, 10, 13 and 14, Math. 26.

C. E. 33, Junior C. E., and Senior E. E., first term, three lectures with problems.

C. E. 33a, Junior M. E., second term, three lectures with problems.

The study of the principles of laws which govern and control the behavior of liquids at rest or in motion. It includes the hydrostatics of water pressure as applied to simple structures and machines; the hydrokinetics of the flow, discharge, and measurement of water together with

applications in the design of canals, conduits, pipe lines, etc.; and the hydrodynamics of the use of water in the generation and transmission of power.

Text: *Merriman's* "Treatise on Hydraulics."

C. E. 34. **Masonry Laboratory.**

*Professor Branch.*

Juniors in Industrial Education, second term, three hours.

This course will consist of practical laboratory study of mortars and mortar mixture, concrete, and simple operations in plastering, and brick and stone masonry. Juniors and Seniors in Industrial Education may elect additional advanced work in masonry work. Not open to engineering students.

C. E. 35. **Sewage and Water Supply.**

*Professor Branch.*

Prerequisite, C. E. 33.

Junior C. E., first term, three lecture hours and three hours office.

A study of the theory of sewerage systems, their construction and maintenance. Sewer out-falls, and methods of disposal and treatment. Dilution, precipitation, irrigation, natural, and artificial filter, filtration processes, contact beds, septic tanks and contact and sprinkling filters.

Text: *Folwell's* "Sewerage" and *Folwell's* "Water Supply," and lectures.

C. E. 38. **Sanitary Engineering.**

*Mr. Mathis.*

Prerequisite, Chem. 10. Parallel, Chem. 21a, 23a.

Junior C. E., second term, six hours laboratory.

A Laboratory Course in General Bacteriology and taking up for study the bacteria that are most commonly found in sewage, water and milk.

There are several sewage treatment works and water





purification plants within the immediate vicinity of the school and these will be visited as often as possible for practical demonstrations.

C. E. 41. **Sanitary Engineering.**

*Mr. Mathis.*

Prerequisite, C. E. 38.

Senior C. E., first term, three hours lecture.

Sewerage Treatment and Water Purification with the resume of the most recent work being done along this line; the underlying principles of sewerage treatment; a discussion of the different types of sewerage treatment devices, and the importance of careful and intelligent supervision of sewage treatment and water works.

C. E. 42. **Theory of Structures.**

*Professor Branch.*

Prerequisite, Ex. E. 1 and 11.

Senior E. E., second term, three recitations per week.

A course in determination of stress in frames, principally roofs and bridges, for static and moving loads. The design of beams and girders will close the course.

C. E. 43. **Framed Structures.**

*Professor Branch.*

Prerequisites, Ex. E. 1a and Ex. E. 11b.

Parallel, C. E. 43b.

Senior C. E., first term, three lecture hours.

A course in which is grouped the analytical and graphical determinations of stresses in framed structures. The subjects studied are girders, roof and bridge trusses of various types, wood and steel trestles, towers, tanks, etc. The work includes the use of uniform and concentrated loads, snow and wind loads, and moving loads with their impact contribution to the stresses, maximum and minimum stresses, with their requirements for reversals and counters. Each student computes the stresses from given loadings for a roof truss, plate girder, and a Pratt truss, which are used in C. E. 44.

Text: *Johnson's* "Modern Framed Structures."

C. E. 43b. **Truss Analysis.**

*Professor Branch.*

Prerequisite, Ex. E 1a.

Parallel, C. E. 43.

Senior C. E., first term.

Six drawing hours per week, mainly devoted to algebraic and graphic determination of stresses in trusses, etc.

C. E. 44. **Framed Structures.**

*Professor Branch.*

Prerequisite, C. E. 43.

Parallel, C. E. 43b.

Senior C. E., second term, three lecture hours.

A course consisting of the design and detailing of a roof truss, a plate girder and a Pratt truss, with determination of pin sizes, pin plates, joint plates, camber diagrams, etc. Bills of material are made to accompany the shop drawings. Detail plans of similar structures and of tanks, tower, trestle and steel buildings are studied in and out of class. The course closes with a study of structural erection.

C. E. 44b. **Design of Structures.**

*Professor Branch.*

Prerequisite, C. E. 43b.

Parallel, C. E. 44.

Senior C. E., second term, six hours.

Drawing room work. Library research and visits to existing plants and structures.

C. E. 45. **Reinforced Concrete.**

*Professor Kneale.*

Prerequisites, Ex. E. 11b, Ex. E. 52a.

Senior C. E., first term, two hours recitation and three hours office.

Construction of shear and moment diagrams under intricate loading and practical application in reinforced





concrete design; *Clapeyron's* Theorem and the continuous girder: vertical and horizontal shear and diagonal tension. The Straight Line flexure formulas with a discussion of the parabolic formula and other formulas. The construction of diagrams and their use in the solution of the formulas. The design of slabs, T-beams, girders and columns. One hour per week for first half term and three hours per week for the term are given to the design of a reinforced concrete arch. Three hours per week for one term are devoted to the design of small T-beam and girder bridges.

Text: *Hool's* "Reinforced Concrete Construction," Vol. 1 and 2.

C. E. 46. **Design of Higher Structures in Concrete.**

*Professor Kneale.*

Senior C. E., second term, three hours.

A continuation of C. E. 45, devoted mainly to the design of special structures, high office buildings, etc. The students are divided into groups of two each, and each group given a special problem. While each student is placed very largely on his own resources and given access to the blue print files, etc., he is carefully watched and guided by his instructor to prevent him from arriving at absurdities.

C. E. 47. **Highway Engineering.**

*Professor Kneale.*

Prerequisite, C. E. 24. Ex. E. 1a.

Senior C. E., first term, two lectures, three hours laboratory.

This course includes the historic, economic, and structural phases of highway engineering. Especial emphasis is placed on traffic census, traffic development and traffic classification as related to type of highway; to plotting, mapping, paper location, and final field location from reconnaissance and location surveys; to soil classification and use in construction and maintenance; to selection and construction of type of road to give the maximum service

at a minimum cost; to effect of traffic on permanence of wearing surface; to preserving surfaces through artificial binders; and to road machinery. The laboratory work will include a study of road materials, with especial emphasis upon the testing of stone, clay, brick, concrete, etc.

Text: *Blanchard & Drowne's* "A Textbok on Highway Engineering."

C. E. 48. **Highway Engineering.**

*Professor Kneale.*

Prerequisite, Ex. E. 11b.

Senior C. E., second term, three lectures and six hours laboratory.

This course is a continuation of C. E. 22. It includes the design of highway structures; the laboratory analysis of artificial road binders; the maintenance of various types of pavements; road law; road specifications, and contracts; bond issues and other methods of financing; also a study of foreign highway practice, and road systems.

Text same as in C. E. 22, together with bulletins of Office of Public Roads, state highway departments, etc., and current road literature.

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## SCHOOL OF COMMERCE.

PROFESSOR WATTERS, MESSRS. BYINGTON, DOUGLASS, LOWENSTEIN, JONES, GREGG, EICHELBERGER, HILLEY, SHEMWELL, FASER AND MRS. WISE.

### Training for Executive Positions.

Men who have been successful in a legitimate business have in some way been trained for that success. They may have been trained in the business itself. If they have been, years of experience have brought them to the point where they observe certain definite principles of business action. Consciously or unconsciously, these principles are applied to the solution of problems as in law, medicine, and other professions.





The Commerce course contains the essentials for a well rounded business training and eliminates the subjects usually studied for the sake of having studied them. It covers the fields of Business Administration, Accounting, Advertising, Salesmanship, Finance, Credits and Law. This special training added to native ability will enable a business man to expand his business or to improve his situation.

The instruction in the School of Commerce, Georgia School of Technology, aims to prepare ambitious and energetic young men for business and to assist older men already in business to equip themselves for more responsible positions. The work is based on the belief that through a study of commercial methods and economic forces, young men can obtain valuable mental discipline and at the same time acquire technical training.

**The courses offered are designed to prepare men for:**

| | |
|---|---|
| Advertising | Commercial Secretaryship |
| Business Management | C. P. A. Examination |
| Commercial Teaching | Export and Import Trading |
| Credits and Collections | Real Estate |
| Insurance | Retail Merchandising |
| Wholesale Merchandising | Public Accounting |
| Private Accounting | Salesmanship |
| Government Service | Transportation |
| Banking | Journalism |

### Demand for Trained Men and Women.

Atlanta, the financial, manufacturing and distributing center of the South, is in need of trained men—men qualified to fill responsible positions, to step into the vacancies occurring in every large business, to direct other men in their work. To equip the young men of the South for taking advantage of these opportunities is the object of the School of Commerce. This is not a so called "business college". The courses are of standard college rank accredited by the Eastern universities.

## Day and Evening Schools.

The courses described in this catalog are given in the day school. Business men of Atlanta, who are employed during day, should write for special bulletin giving a complete course of study offered in the evening school. The day school is located on the college campus at 165 West North Avenue. The evening school classes are held in the Arcade Building, located in the business district of the city.

## Degrees Conferred.

The course in the day school leads to the degree of B.S. in Commerce; in the evening school leads to the degree of B.C.S., (Bachelor of Commercial Science). To receive the B.C.S. degree the student must have had at least two years of successful business experience while taking the course. Students are advised to enter the day school if possible.

## Elective Courses.

Students who are preparing themselves to enter certain lines of business and find it to their advantage to substitute a limited amount of work in one of the engineering departments for courses in the School of Commerce, may do so upon recommendation of the dean and approval of the faculty. This institution offers excellent opportunities for commerce students to receive practical working knowledge of Mechanical, Civil, Electrical, Chemical and Textile Engineering and Architecture.

## Advanced Standing.

Students who have completed the Freshman course in any of the other departments of this institution will be permitted to enter the Sophomore Commerce class conditioned in first year law and accounting.

Students who have completed one or more years work in other fully accredited institutions will be permitted to substitute a limited number of credits in non-commerce subjects for regular commerce courses described in this catalog.





### FRESHMAN YEAR

*First Term*

| Abbrev. | Subject | Rec. Hrs. | Lab. Hrs. | Eq'v. |
|---|---|---|---|---|
| Com. 11 | Economics: Resources and Industries | 2 | 1 | 6. |
| Com. 13 | Accounting: Introductory | 1 | 9 | 10. |
| Com. 15 | Law: Contracts and Agency | 2 | 1 | 6. |
| Com. 17 | Management: Business Organization | 2 | 2 | 7. |
| Com. 19 | Mathematics: Business | 3 | | 7.5 |
| Eng. 11 | English: Rhetoric | 3 | | 7.5 |
| Eng. 15 | English: Theme Writing | | 1 | 1. |
| M. E. 3 | Engineering: Woodshop | | 3 | 3. |
| Mil. 1 | Military Instructions | | 5 | 5. |
| | Total.. | 13 | 22 | 53. |

*Second Term*

| | Subject | Rec. Hrs. | Lab. Hrs. | Eq'v. |
|---|---|---|---|---|
| Com. 12 | Economics: Resources and Industries | 2 | 1 | 6. |
| Com. 14 | Accounting: Introductory | 1 | 9 | 10. |
| Com. 16 | Law: Negotiable Instruments and Partnership | 2 | 1 | 6. |
| Com. 18 | Management: Business Organization | 2 | 2 | 7. |
| Com. 20 | Mathematics: Commercial Algebra | 3 | | 7.5 |
| Eng. 12 | English: Rhetoric | 3 | | 7.5 |
| Eng. 16 | English: Theme Writing | | 1 | 1. |
| M. E. 5 & 7 | Engineering: Smith Shop and Foundry | | 3 | 3. |
| Mil. 2 | Military Instruction | | 5 | 5. |
| | Total.. | 13 | 23 | 53. |

### SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Rec. Hrs. | Lab. Hrs. | Eq'v. |
|---|---|---|---|---|
| Com. 21 | Accounting: Theory | 2 | | 5. |
| Com. 23 | Accounting: Principles | 2 | 9 | 12. |
| Com. 25 | Marketing: Salesmanship | 2 | | 5. |
| Com. 27 | Law: Partnership and Corporations | 2 | | 5. |
| Com. 29 | Management: Transportation | 2 | | 5. |
| Com. 31 | Finance: Principles | 2 | | 5. |
| Eng. 21 | English: American Literature | 3 | | 7.5 |
| Eng. 27 | English: Parallel Reading | | | |
| M. E. 11 | Engineering: Machine Shop | | 3 | 3. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | 15 | 17 | 52.5 |

*Second Term*

| Abbrev. | Subject | Rec. Hrs. | Lab. Hrs. | Eq'v. |
|---|---|---|---|---|
| Com. 22 | Accounting: Theory | 2 | | 5. |
| Com. 24 | Accounting: Principles | 2 | 9 | 12. |
| Com. 26 | Marketing: Retail and Wholesale Merchandising | 2 | | 5. |
| Com. 28 | Law: Suretyship and Real Estate | 2 | | 5. |
| Com. 30 | Management: Railroad Traffic | 2 | | 5. |
| Com. 32 | Finance: Banking | 3 | | 7.5 |
| Eng. 24 | Economics: Principles | | | |
| Eng. 28 | English: Parallel Reading | | 3 | 3. |
| M. E. 12 | Engineering: Machine Shop | | 5 | 5. |
| Mil. 3 | Military Instruction | | | |
| | Total.. | 15 | 17 | 52.5 |

JUNIOR YEAR*

*First Term*

| Abbrev. | Subject | Rec. Hrs. | Lab. Hrs. | Eq'v. |
|---|---|---|---|---|
| Com. 41 | Accounting: Problems | 2 | 4 | 9. |
| Com. 43 | Accounting: Factory Cost | 2 | 3 | 8. |
| Com. 45 | Marketing: Foreign Trade | 2 | | 5. |
| Com. 47 | Finance: Corporation | 2 | | 5. |
| Com. 49 | Economics: Industrial History | 2 | | 5. |
| Com. 51 | American Government | 2 | | 5. |
| Eng. 31 | English: English Literature | 3 | | 7.5 |
| Eng. 35 | English: Thesis | | | |
| M. L. 13 | Commercial Spanish | 3 | | 7.5 |
| | Total.. | 18 | 10 | 52. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Com. 42 | Accounting: Problems | 2 | 4 | 9. |
| Com. 44 | Accounting: Factory Cost | 2 | 3 | 8. |
| Com. 46 | Marketing: Foreign Trade | 2 | | 5. |
| Com. 48 | Finance: Corporation | 2 | | 5. |
| Com. 50 | Economics: Industrial History | 2 | | 5. |
| Com. 52 | Economics: American Government | 2 | | 5. |
| Eng. 32 | English: English Literature | 3 | | 7.5 |
| Eng. 35 | English: Thesis | | | |
| M. L. 14 | Commercial Spanish | 3 | | 7.5 |
| | Total.. | 18 | 7 | 52. |

SENIOR YEAR*

*First Term*

| Abbrev. | Subject | Rec. Hrs. | Lab. Hrs. | Eq'v. |
|---|---|---|---|---|
| Com. 61 | Accounting: Auditing, Theory and Practice | 2 | 3 | 8. |
| Com. 63 | Marketing: Advertising, Theory and Practice | 2 | 3 | 8. |
| Com. 65 | Law: International Diplomacy | 2 | | 5. |
| Com. 67 | Management: Insurance | 2 | | 5. |
| Com. 69 | Management: Industrial | 2 | | 5. |
| Com. 73 | Finance: Investments | 2 | | 5. |
| Com. 75 | English: Business Correspondence | 1 | 1 | 3.5 |
| Com. 77 | Journalism | 2 | | 5. |
| M. L. 15 | Commercial Spanish | 3 | | 7.5 |
| | Total.. | 18 | 7 | 52. |

*Members of the R. O. T. C. will substitute Military Instruction for one of the subjects listed below.





*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Com. 62 | Accounting: Auditing, Theory and Practice | 2 | 3 | 8. |
| Com. 64 | Marketing: Advertising, Theory and Practice | 2 | 3 | 8. |
| Com. 66 | Economics: Government and Its Relation to Business | 2 | | 5. |
| Com. 68 | Management: Real Estate | 2 | | 5. |
| Com. 70 | Management: Mercantile Credits | 2 | | 5. |
| Com. 74 | Finance: Investments | 2 | | 5. |
| Com. 76 | English: Business Correspondence | 1 | 1 | 3.5 |
| Com. 78 | Journalism | 2 | | 5. |
| M. L. 16 | Commercial Spanish | 3 | | 7.5 |
| | Total.. | 16 | 7 | 52. |

## Courses of Instruction.

### Com. 11 and 12. Economic Resources and Industries.

Freshman, first and second terms, three hours.

This course forms a foundation for the study of Marketing, Economics, and Finance. It covers the study of the location and distribution of natural resources, the location of industrial enterprises and the influence of geographical and climatic conditions on the development of trade. Special attention will be given to the study of mineral and food products, textile materials, skins, and leather goods, oils, woods, drugs, dye-stuffs, and how they influence the growth of cities and transportation facilities.

### Com. 13 and 14. Introductory Accounting.

Freshman, first and second terms, one hour recitation and nine hours laboratory.

This is an introductory course to accounting. It does not require a previous knowledge of bookkeeping. It includes the theory of debits and credits, the construction of the trial balance, the profit and loss statement, and the balance sheet. Practice is given in the use of the various types of modern books of original entry. Students who have completed a high school course in bookkeeping may substitute another course for the first term's work by securing a special permit from the head of the department. All commerce students will be required to take the second term's work.

Com. 15. **Law of Contracts and Agency.**

Freshman, first term, two hours recitation, one hour laboratory.

This course gives the student a working knowledge of the law of contracts. It deals with law in general, legal rights and remedies, contract consideration, agreement, and parties, contracts in writing, consent, illegal contracts, assignments, interpretation, discharge of contracts, remedies for breach of contracts and conflict of laws, agency, authority of agents, termination of agency and special agents.

Com. 16. **Law of Negotiable Instruments and Partnership.**

Freshman, first term, two hours recitation; one hour, laboratory.

This course deals with negotiable contracts and instruments; consideration, negotiation and rights of holders of negotiable paper; liability of parties, presentation for payment, notice of dishonor, discharge; bills of exchange, promissory notes and cheques; partnership relations, capital, property, powers of partners, partnership dissolutions and its effects, the liability of individual partners for firm debts.

Com. 17 and 18. **Business Organization.**

Freshman, first and second terms, two hours recitations and two hours laboratory.

This course deals with the human element in business —the securing of maximum results with the minimum of effort. It outlines methods of systematizing the work of the office and plant so as to economize time, labor, materials and money; hiring labor, welfare work, habits, fatigue, wage systems and training employees.

Com. 19 and 20. **Business Mathematics.**

Freshman, First and second terms, three hours recitation.

This course presupposes a knowledge of Algebra and advanced arithmetic. It is intended to cover the fields of mathematics a business man is most likely to need. It forms the basis for the mathematics used in the courses





of finance and accounting. It therefore includes such topics as, slide rule, logarithms, insurance, investments, equations of accounts, interest, annuities, amortization, depreciation, and graphs. Students may substitute algebra and trigonometry if they desire.

Com. 21 and 22. **Theory of Accounts.**

Sophomore, first and second terms, two hours recitation.

This course represents the connecting link between theory and practice. The handling of each individual asset account, and liability account, is taken up in detail, giving the "why" of each step and illustrating the practical application with a problem. The preparation of the different forms of balance sheets, profit and loss accounts, statements of affairs, statements of realization and liquidation are illustrated and explained in full.

Com. 23 and 24. **Principles of Accounting.**

Sophomore, first and second terms, two hours recitations, nine hours laboratory.

In this course methods of construction of a complicated system of accounts will be explained and illustrated by setting up a very crude system then changing the form to a modern system.

The course is built up to show the evolution of the holding company by means of explaining the legal types of organization preceding the same, namely, sole proprietorship, co-partnership and corporation. They are first run on a cash basis but are soon changed to an accrual basis. The sole proprietor engages first in a simple retail business which is gradually expanded into one of the departmental type. This is followed by manufacturing and wholesaling. A general and a special partner is taken in. One partner dies. The business is incorporated. Among the corporate transactions there is a bond issue with sinking fund provision; a retail store run as a separate department; a merger; the failure of an allied company, etc. Consolidation is eventually effected and a holding company is organized to take over the several underlying companies. The transactions of the holding company are carried on for a time

in order to bring out the exact relation of the parent company to the subsidiaries.

Com. 25. **Salesmanship.**

Sophomore, first term, two hours recitation.

This course will deal with the elements to be considered in conducting an aggressive selling campaign.

The first part will go into the principles of personal salesmanship. While the scientific method has been employed in discovering and formulating these principles, salesmanship is looked upon as a friendly, redblooded, man to man transaction where personality counts, rather than a cold scientific process. Among the topics discussed are: essential qualifications of the salesman, retail, staple and specialty selling, organizing and opening a new territory, planning a salesman's work, preparing for an interview, the interview, methods of closing, handling objections, securing co-operation and influence and human appeals that sell.

Com. 26. **Retail and Wholesale Merchandising.**

Sophomore, second term, two hours recitation.

In this course is given the up-to-date working methods of both the wholesale and the retail merchants, which should be known by every executive regardless of his line of activity. The lectures will explain the methods of organizing and financing a store, sales campaign, operating and conducting the business, training the selling force, buying, stock keeping, advertising displays, the specialty store, the department store, the chain store, and the mail order house.

Com. 27. **Law of Corporations and Insurance.**

Sophomore, first term, two hour recitations.

This course deals with the formation of corporations; their management, including the issue and transfer of stock, the rights and liabilities of promoters, stockholders and directors; the proper method of holding corporate meetings and the keeping the records thereof; the taxes required of the ordinary business corporation.

It deals also with fire insurance, special policy provisions, loss and proceedings, life and accident insurance.





Com. 28. **Law of Real Estate and Suretyship.**

Sophomore, second term, two hours recitation.

This course covers carriers, guaranty and suretyship and real property. It deals with carriers of goods, their liability and duty to deliver, and other public duties; guaranty and suretyships, real property, estates and titles, mortgages, landlord and tenant, wills and administration.

Com. 29 and 30. **Transportation and Traffic.**

Sophomore, first and second term, two hours recitation.

Railroad route and terminals, ocean highways and terminals. The organization of railroads and steamship companies and their work. Freight, passenger, and express service.

The theory of rate making, competition of transportation lines, transportation monopoly, discriminations and their effects, and rate regulation. Particular attention is devoted to leading discussions of the Interstate Commerce Commission.

Com. 31. **Principles of Finance.**

Sophomore, first term, two hours recitations.

A study of the courses which lead to the rise and fall of prices. The relation of money values to market prices; functions of money, quantities of money, banking and medium of exchange, centralized and decentralized banking systems. Panics and industrial depressions and monetary problems.

Com. 32. **Banking.**

Sophomore, second term, two hours recitation.

This course serves a two-fold purpose. It gives the working knowledge of a bank and at the same time teaches the student how to use the services of the bank to the greatest advantage in other lines of business. It deals with modern banking functions, classes of banks; bank loans, special loan problems, bank deposits, domestic exchange, foreign exchange, bank notes, clearing houses, bank organization and administration, capital and reserves, statements, government regulations, Federal Reserve Act, operation and control of Reserve System.

Com. 41 and 42. **Practical Accounting Problems.**

Junior, first and second terms, two hours recitation, four hours laboratory.

This course covers a part of the field of accounting problems such as are encountered in every day business and on C. P. A. examinations. It deals with single entry statements of profit and loss, single entry balance sheet construction, work sheet for adjusting a trial balance, and distribution to profit and loss and balance sheet columns, the preparation of statements for factory operations, the opening and closing of sets of accounts for the different forms of organizations, the special problems of different corporate openings, problems involved in mergers, consolidations, promotion, holding companies, stock donations, refunding, voluntary bankruptcy, statement of affairs and deficiency account, receivership, reorganization, realization and liquidation of insolvent sole proprietors, administrative accounts. In all problems the work sheets and various report forms are worked out as the case may require. The problems have been taken from practical experience in the accounting field and from C. P. A. examinations.

Com. 43 and 44. **Factory Cost Accounting.**

Junior, first and second terms, two hours recitation, three hours laboratory.

Lectures will be given explaining the elements of costs, principles and general methods of cost finding, direct and indirect expenses, wage systems, recording material and labor costs, devising cost systems. The students will be required to work up a set of manufacturing cost books during the first semester. During the last semester they will be given problems involving the various phases of cost accounting.

Com. 45 and 46. **Foreign Trade.**

Junior, first and second terms, two hours recitation.

This course involves a study of the methods used by the trading export and banking houses of the country. The selecting of an export market, development of the market articles to be exported—their uses, possible substitutions, customs, habits, social or economic condition





affecting the possible use in a foreign country; international credits, selling methods, contracts, and foreign exchange; special attention will be given to South American trade.

Com. 47 and 48. **Corporation Finance.**

Junior, first and second terms, two hours recitation.

Nearly every business man is interested in the formation or management of a corporation, or in buying and selling stocks of corporations. The methods by which corporations are organized and financed and the principles that underlie corporate management are fully explained. The difference between what is permissible at law and what is expedient in practice will be emphasized. The course includes the instruments of finance, the methods of raising and managing investments and working capital, inter-business relations, distribution of profits, causes and remedies for failures.

Com. 49 and 50. **Industrial History.**

Junior, first and second terms, two hours recitation.

This course traces the progress and development of Europe and its effect on the commercial situation in America. It shows the relation between commercial progress and political history. Special emphasis is given to the development of industry, agriculture and land tenure, growth of slavery, internal improvements, finance, development of banking, combination of labor and capital, growth of transportation facilities, natural resources, large scale manufacturing, commercial expansion, education and general social life.

Com. 52. **American Government.**

Junior, first and second terms, two hours recitation.

The intention of this course is to develop the students into better citizens and more intelligent voters. A special study is made of the methods employed by congress, the courts, the president and the administrative departments of the government, in the performance of the functions with which they are charged. This course will deal with the actual working of the United States and state governments rather than a historical study of the various institutions.

Com. 61 and 62. **Auditing, Theory and Practice.**

Senior, first and second terms, two hours recitation, two hours laboratory.

The student will be taught to prepare audit programs for various classes of business. Methods of accounting used by unsuccessful concerns will be explained and the causes of the failure analyzed. Methods followed by concerns in need of capital involving hypothecation of assets, and manipulation of accounts with allied and subsidiary concerns will be discussed. Actual practice will be given in the audit of books of various lines of business.

Com. 63 and 64. **Advertising, Theory and Practice.**

Senior, first and second terms, two hours recitations, three hours laboratory.

This course covers the essential principles of Advertising, copy, display.

It also requires routine work in city campaigns, state campaigns, and national campaigns. It deals with the problems of analysis of commodities, the functions of advertising copy, newspaper, magazines, bulletins, billboard, street car mediums; use of novelties, and agency work.

During the practice period the students will visit business houses of the city and learn how the various kinds of cuts are made and how advertisements are set up. Considerable time will be devoted to the actual construction of advertisements.

Com. 65. **International Diplomacy.**

Senior, first term, two hours recitation.

This course treats of the rights and obligations of nations in times of peace and war, trade treaties, rights of American citizens traveling in foreign countries, consular methods and service, and rights of citizens engaged in foreign commerce.

Com. 66. **Government and Its Relation to Business.**

Senior, second term.

Many laws have been passed recently to regulate business. It is necessary for the business man, for his own





protection to study these laws and their effects on the business. Such questions are also discussed as taxation, land registration, labor laws, government inspection, child labor, industrial combinations, government regulation of business, and public ownership. This course also takes up a study of the departments of government which promote business, and how the greatest amount of profit may be derived from these departments.

Com. 67. **Insurance.**

Senior, first term, two hours recitation.

This subject treated from the view point of both the policy holder and the insurance company. It involves a a study of types of policies, policy contracts, principles of rate making, hazards, reserves for protection of policy holders, examination of the company to determine its safety, adjustments of losses, fire protection and prevention, state regulation and fixing of rates, and the methods of organizing an insurance company or agency.

Com. 68. **Real Estate.**

Senior, second term, two hours recitation.

A man can scarcely be in business without becoming interested in real estate, either as owner or lessee. It is often profitable and sometimes a dangerous field of investment. This is a practical course dealing with the business problems connected with the sale, purchase and management of real estate. The following topics are included in this study: real estate brokerage, contracts in real estate, liens, taxes and assessments, the transfer of titles, deeds, bonds and mortgages, leases, methods of arriving at the valuation of real estate, surveyors relations to real estate and the work of the architect, land registration.

Com. 69. **Industrial Management.**

Senior, first term, two hours recitation.

This course involves a study of the fundamental principles of factory organization and how these principles may be applied in placing a manufacturing business on a profitable basis. It discusses organization elements of an industrial body; departmental authorities—their duties and responsibilities, how to pay labor, welfare work, de-

preciation and its relation to costs, how the executive may keep in touch with his factory and how to cut labor costs.

Com. 70. **Mercantile Credits.**

Senior, second term, two hours recitation.

A practical study of the factors to be considered when credit is granted, and the routine of the credit and collection departments. It explains the duties of the members of the credit department, the granting of credit to customers, bank credits, commercial agencies, interchange of credit information about customers, checking orders, collection and credit man's methods, causes of failure, bankruptcy of claims and adjustments.

Com. 73 and 74. **Investments.**

Senior, first and second terms, two hours recitation.

This course is intended to present the methods of analyzing and determining the values of the various kinds of stocks and bonds. It prepares the business man to seek out safe investments for his money. A life-time's savings may be lost in a day. It, also, gives special preparation for a position as secretary and treasurer of a corporation. The students will be required to study and make reports on stocks and bonds of railway, manufacturing, banking and other classes of corporations, also municipal and farm bonds and mortgages.

Com. 75 and 76. **Business Correspondence.**

Senior, first and second terms, one hour recitation, one hour laboratory.

The daily correspondence of every concern is a great opportunity for advertising. Every letter that is properly written lays the foundation for future business. The type of the letter indicates the type of the concern. Tactful letters save customers and make friends. This course teachers how to make every letter a sales letter whether it be to sell goods, collect money, or adjust a complaint. Lectures are given covering the elements of letter writing. Then the student is required to write a letter embodying the principles covered. The letter is reviewed by the instructor. The faults are corrected, the good points are noted and suggestions are made to assist the student to improve his style.





Com. 77 and 78. **Journalism.**

Senior, first and second terms, two hours recitation.

Given in evening school only, but it may be elected by day students. The course in Journalism is designated not merely for those who intend to take up some form of newspaper, magazine or trade journal work as a profession, but also for the business man who wishes a broader knowledge of this important aid to his success, and a greater ability in expressing himself. This is particularly valuable to men who will be engaged in any form of advertising or in any business where publicity is of value. The student is given practical work in the art of using effective English; he learns the principles underlying the art and is given a broad survey, by means of special lectures, of the field of Journalism.

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## THE CO-OPERATIVE PLAN.

PROFESSOR BRANCH AND PROFESSOR LYTLE.

The co-operative plan which is now applied to the electrical and mechanical engineering courses at the Georgia School of Technology, is briefly as follows:

To enter, the student must qualify in exactly the same manner as described under entrance requirements for the four year engineering courses, and show that he is capable of making good, both in the school and in industry. Those selected for these courses are given jobs in the summer at the foundry, factory, or machine shop in the city, which best fits the aims of the individual. These students are hired as regular workmen and spend every week until the last of September, each doing the work of a helper or apprentice in one of the trades allied with engineering.

When the fall term opens, the students at each shop are grouped in pairs and each pair assigned to one job, for which each individual is responsible every other two weeks of the year. One of each pair from all the shops, attends school the first two weeks and this number constitutes Section I. At the beginning of the next two weeks those who have been in school return to their shops and allow the other students who have been at work to have their turn at school. This number constitutes Section II. Thus while

Section I again takes up shop work so that the jobs are never vacant, Section II has the school work repeated. This alteration is continued throughout the five years of the courses. Students may enter in the fall, but it is better for all concerned to begin as much before then as possible.

The "Co-op." as he is called, has a short vacation at Christmas and two weeks during the summer, but this time is taken from school weeks so that the shop arrangement is entirely on a business basis. Due to the extra year, the summer class work and full schedules during the regular terms, it is possible to give the full engineering courses leading to degrees. Nothing is omitted, nothing is abridged but much of the practical is gained.

Total school expenses are identical with the four year courses.

The student-worker is paid wages from 20 cents an hour at first, up to $22.50 a week, and is under the regular discipline of the shop. The financial income varying from $200.00 to $550.00 a year, is helpful to all, but the great merit of the plan is the five year acquaintance with actual industrial conditions. To be shop trained as well as school trained and thus understand shop men, shop methods and shop appliances, gives the co-op. graduate an experience that will reward his investment of energy and time.

The theory of the class room and the practice of the shop are co-ordinated as far as possible. The reaction of each upon the other is helpful in developing a student for the position he must fill upon graduation. The usual apprenticeship required of college men after graduation is either shortened or eliminated. The co-op. is moulded by his double environment to be versatile, independent and efficient. He is already learning life lessons in a world of reality.

The school and shop authorities confer in regard to the work of the student and as far as is permissible he is transferred from one department to another. For instance, a student often starts in the machine shop. After a few months on each of the main types of machines he is allowed to spend six months in the foundry. The upper class co-op. is particularly valuable as assistant in engineering research work such as the testing of power plant apparatus and the





investigating of efficiency methods. He is frequently found at the end of the course in the draughting room or office, already doing work of considerable engineering responsibility. Obviously such a man is valuable to his present employer. That is the reason why employers are co-operating with colleges through this plan. The benefits are mutual.

The work of the first three years is the same for the two degrees and is given below only once. The Summer work arrangement depends on the personnel of the Summer School Faculty, and is not always the same as shown here. There are five weeks of school for each section between commencement and vacation. For the detailed description of each subject taught, see the pages on Electrical Engineering, Mechanical Engineering, etc.

## CO-OPERATIVE PLAN.

### Electrical Engineering and Mechanical Engineering.

A minimum of three hours per week military drill is required each term.

FRESHMAN YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 1 | Inorganic Chemistry | 6 | | 15. |
| Chem. 5 | Chemical Laboratory | | 4 | 4 |
| Dr. 2 | Descriptive Geometry | 3 | | 7.5 |
| Dr. 4 | Descriptive Geometry Drawing | | 3 | 3. |
| Eng. 11 | Rhetoric | 6 | | 15. |
| Eng. 15 | Theme Writing | 2 | | 2. |
| Math. 11 | Algebra | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 23 | 7 | 61.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Chem. 2. | Inorganic Chemistry | 6 | | 15. |
| Chem. 6 | Chemical Laboratory | | 4 | 4. |
| Dr. 2 | Descriptive Geometry | 3 | | 7.5 |
| Dr. 4 | Descriptive Geometry Drawing | | 3 | 3. |
| Eng. 12 | Rhetoric | 6 | | 15. |
| Eng. 16 | Theme Writing | 2 | | 2. |
| Math. 15 | Trigonometry | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 23 | 7 | 61.5 |

## FRESHMAN-SOPHOMORE SUMMER

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| C. E. 21 | Plane Surveying | 3 | 10 | 17.5 |
| Math. 18 | Analytic Geometry | 12 | | 30. |
| Math. 16 | Slide Rule | | 2 | 2. |
| | Co-ordination | | | |
| | Total.. | 15 | 12 | 49.5 |

## SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Eng. 21 | American Literature } | | | |
| Eng. 27 | Parallel Reading } | 6 | | 15. |
| Math. 21 | Anlytic Geometry | 4 | | 10. |
| Math. 25 | Calculus | 6 | | 15. |
| Phys. 9 | Physics | 6 | | 15. |
| Phys. 13 | Physics Laboratory | | 6 | 6. |
| | Co-ordination | | | |
| | Total.... | 22 | 6 | 61. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Dr. 13 | Machine Drawing | | 6 | 6. |
| Eng. 24 | Political Economy } | | | |
| Eng. 28 | Parallel Reading } | 6 | | 15. |
| Math. 26 | Calculus | 6 | | 15. |
| Phys. 9-10 | Physics | 6 | | 15. |
| Phys. 14 | Physics Laboratory | | 10 | 10. |
| | Co-ordination | | | |
| | Total.. | 16 | 12 | 57. |

## SOPHOMORE-PRE-JUNIOR SUMMER

| | | | | |
|---|---|---|---|---|
| Dr. 14 | Machine Drawing | | 6 | 6. |
| Phys. 10 | Physics | 7 | | 17.5 |
| Phys. 11 | Physics | 10 | | 25. |
| | Co-ordination | | | |
| | Total.. | 17 | 10 | 52.5 |

## PRE-JUNIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 21 | Machine Drawing | | 6 | 6. |
| Dr. 23 | Mechanism | 6 | | 15. |
| Eng. 31 | English Literature } | | | |
| Eng. 35 | Literary Thesis } | 6 | | 15. |
| Math. 26 | Calculus | 4 | | 10. |
| M. L. 13 | Spanish | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 22 | 6 | 61. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| C. E. 33 | Hydraulics | 2 | | 5. |
| Geol. 1 | Ferrous Metallurgy | 4 | | 10. |
| Dr. 22 | Kinematic Drawing | | 6 | 6. |
| Eng. 32 | English Literature } | | | |
| Eng. 36 | Literary Thesis } | 6 | | 15. |
| Math. 35 | Differential Equations | 4 | | 10. |
| M. L. 14 | Spanish | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 22 | 6 | 61. |





# Electrical Engineering.

## JUNIOR SUMMER

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| C. E. 33 | Hydraudics | 6 | | 15. |
| E. E. 7 | Principles of Electrical Engineering | 6 | | 15. |
| Ex. E. 77 | Thermodynamics | 10 | | 25. |
| Phys. 16 | Physics Laboratory | | 5 | 5. |
| | Co-ordination | | | |
| | Total.. | 22 | 5 | 60. |

## JUNIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| E. E. 8 | Principles of Electrical Engineering | 5 | | 12.5 |
| E. E. 16 | Electrical Engineering Lab'y. | | 6 | 6. |
| Ex. E 1 | Analytic Mechanics | 4 | | 10. |
| Ex. E. 21 | Calibration Laboratory | | 6 | 6. |
| Ex. E. 76 | Power Plants | 4 | | 10. |
| M. L. 15 | Spanish | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 19 | 12 | 59.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| E. E. 8 | Principles of Electrical Engineering | 5 | | 12.5 |
| E. E. 9 | Alternating Currents | 4 | | 10. |
| E. E. 16 | Electrical Engineering Lab'y. | | 6 | 6. |
| Ex. E. 1 | Analytic Mechanics | 2 | | 5. |
| Ex. E. 11 | Structural Mechanics | 2 | | 5. |
| Ex. E. 52 | Hydraulic and Materials Lab'y. | | 6 | 6. |
| M. L. 16 | Spanish | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 19 | 12 | 59.5 |

## JUNIOR-SENIOR SUMMER

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| E. E. 9 | Alternating Currents | 10 | | 25. |
| E. E. 10 | Electrical Engineering | 2 | | 5. |
| E. E. 17 | Electrical Engineering Lab'y. | | 15 | 15. |
| Ex. E. 11 | Structural Mechanics | 3 | | 7.5 |
| | Co-ordination | | | |
| | Total.. | 15 | 15 | 52.5 |

## SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| E. E. 10 | Electrical Engineering | 5 | | 12.5 |
| E. E. 11 | Illumination and Photometry | 6 | | 15. |
| E. E. 13 | Telephone Engineering | 2 | | 5. |
| E. E. 14 | Electric Railways | 4 | | 10. |
| E. E. 17 & 18 | Electrical Engineering Lab'y. | | 12 | 12. |
| Ex. E. 71 | Fuels Laboratory | | 6 | 6. |
| | Co-ordination | | | |
| | Total.. | 17 | 18 | 60.5 |

*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| E. E. 10 | Alternating Current Machinery | 5 | 3 | 12.5 |
| E. E. 18 | Electrical Engineering Lab'y. | | | 3. |
| E. E. 30 | Electrical Transmission of Power | 6 | | 15. |
| E. E. 20 | Thesis | | 12 | 12. |
| Ex. E. 80 | Hydro-Electric Power Plants | 4 | | 10. |
| Ex. E. 84 | Engine Laboratory | | 6 | 6. |
| | Co-ordination | | | |
| | Total.. | 15 | 15 | 58.5 |

## Mechanical Engineering.

### JUNIOR SUMMER

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| C. E. 33 | Hydraulics | 6 | | 15. |
| E. E. 4 | Dynamos and Motor | 7 | | 17.5 |
| M. E. 46 and 23 | Graphical Statics | 2 | 6 | 11. |
| | Co-ordination | | | |
| | Total.. | 14 | 11 | 43.5 |

### JUNIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| E. E. 3 | Electrical Laboratory | | 6 | 6. |
| E. E. 5 | Applied Electricity | 4 | | 10. |
| Ex. E. 21 | Calibration Laboratory | | 6 | 6. |
| Ex. E. 76 | Power Plants | 4 | | 10. |
| M. E. 23 | Analytic Mechanics | 5 | | 12.5 |
| M. L. 15 | Spanish | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 19 | 12 | 59.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Ex. E. 52 | Hydraulic and Materials Lab'y. | | 6 | 6. |
| Ex. E. 86 | Gas Engine Laboratory | | 6 | 6. |
| M. E. 24 | Analytic Mechanics | 6 | | 15. |
| M. E. 28 | Mechanics of Materials | 6 | | 15. |
| M. E. 35 | Thermodynamics | 1 | | 2.5 |
| M. L. 16 | Spanish | 6 | | 15. |
| | Co-ordination | | | |
| | Total.. | 19 | 12 | 59.5 |

### JUNIOR-SENIOR SUMMER

| | | | | |
|---|---|---|---|---|
| M. E. 31 | Mechanics of Materials | 7 | | 17.5 |
| M. E. 35 | Steam Engines | 11 | | 27.5 |
| | Co-ordination | | | |
| | Total.. | 18 | | 45. |





### SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| M. E. 44 | Machine Design | 6 | | 15. |
| Ex. E. 71 | Fuels Laboratory | | 6 | 6. |
| M. E. 41 | Designing (Drawing) | | 12 | 12. |
| M. E. 36 | Gas Engine | 4 | | 10. |
| M. E. 51 | Shop Methods | 2 | | 5. |
| M. E. 33 | Engineering Problems | 2 | | 5. |
| | Co-ordination | | | |
| | Total.. | 14 | 24 | 53. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Ex. E. 72 | Steam Engine Laboratory | | 6 | 6. |
| M. E. 33 | Engineering Problems | 2 | | 5. |
| M. E. 42 | Machine Design (Drawing) | | 12 | 12. |
| M. E. 39 | Valve Gears | | 6 | 6. |
| M. E. 36 | Gas Engines | 4 | | 10. |
| M. E. 48 | Steam and Water Turbines | 4 | | 10. |
| | Thesis | | | 8. |
| | Co-ordination | | | |
| | Total.. | 10 | 18 | 57. |

# DEPARTMENT OF DRAWING

**PROFESSORS LOWNDES, PEEK AND GROVES AND MR. GILBERT.**

## General Statement

The aim of this department is to give the student a thorough grounding in the principles of drawing as used in the engineering world; to teach him the best draughtsman's methods of representing machinery and machine parts, together with the use of the customarily accepted conventions; and also to enable him to acquire that technique which makes possible neatness and accuracy without any sacrifice of time. Neatness in lettering is always stressed. The instruction in this department is by lecture, followed up by individual instruction, the instructors constantly passing from desk to desk and discussing with the students the work in hand.

## Equipment

The Drawing Hall occupies the entire top floor of the Electrical Building. On this floor are three class-rooms, a blue print room, the drawing hall, and office. The hall

is a spacious room, being some 60 by 90 feet, with windows on three sides and three skylights above, so that the light is most perfectly distributed. There are at present 136 individual desks, with room for some 10 more, which will soon be put in place. There are 12 drawing board cases, holding 40 boards each, a total of 480 boards.

Besides this, there are numbers of minor articles of equipment in daily use, such as special draughting instruments, odontographs, sets of tables, models of machine parts, books, and a cabinet of drawings, obtained from representative manufacturers.

Between each two windows, around three sides of the hall, is placed a glass covered bulletin board. On these boards are mounted such drawing as from time to time serve to illustrate such work as the student may have in hand.

## Tabulation of Subjects Taught in Drawing Department

There are no degrees offered in this department. The work here being necessarily subordinate to the Senior work in the different engineering courses, is outlined with special reference to the course the individual student intends to pursue.

### FRESHMAN YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 2a | Desc. Geom. Recitations | 3 | | 7.5 |
| Dr. 4a | Desc. Geom. Drawing | | 3 | 3. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Dr. 2 | Desc. Geom. Recitations | 3 | | 7.5 |
| Dr. 4 | Desc. Geom. Drawing | | 3 | 3. |

### SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 13 | (E. Ch., E. E., M. E., T. E., Co-ops) Machine Drawing | | 3 | 3. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Dr. 14 | (E. E., E. Ch., M. E., T. E., Co-ops.) Machine Drawing | | 3 | 3. |





### JUNIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 21 | Machine Drawing (M. E.) | | 3 | 3. |
| Dr. 23 | Mechanism (E. E., M. E., T. E., Co-ops.) | 4 | | 10. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Dr. 24 | Kinematic Drawing (Same as Dr. 23) | | 3 | 3. |

## Courses of Instruction

### Drawing 2a and 2. Descriptive Geometry.

*Professors Lowndes, Peek and Groves and Mr. Gilbert.*

Drawing 2a. Freshmen first term, three hours.

Drawing 2. Freshmen, second term, three hours, (a repetition of Drawing 2a.)

This work is carried on both from a text book and from notes and lectures. The subject is presented in such a way as to enable the student to make use of it in the practical solution of problems in drawing and to give the Architectural students, especially, a familiarity with conventional shades and shadows.

Text: *Faunce's* "Descriptive Geometry."

### Drawing 4a and 4. Descriptive Geometry Drawing.

*Professors Lowndes, Peek and Groves and Mr. Gilbert.*

Drawing 4a. Freshmen first term, three hours.

Drawing 4. Freshmen, second term, three hours, (a repetition of Drawing 4a.)

This course is devoted to the solution of problems on the drawing board. This course is so arranged as to be parallel with the recitation work, and the problems are drawn from notes. There are no partly finished drawings furnished the students. Most of the work is done in the first and third angles, and the profile plane is freely used.

Drawing 13. **Machine Drawing to Scale.**

*Professors Lowndes, Peek and Groves and Mr. Gilbert.*

Sophomores in E. Ch., M. E., E. E., T. E., and Co-ops., first term, three hours.

In this course the student is taught the correct methods of making working drawings of machinery and machine parts, both assembled and detailed. All dimensions are given and carefully checked over, so that the student is made to appreciate the methods in common practice in the modern manufacturing shops.

Text: *Anthony's* "Machine Drawing."

Drawing 14. **Machine Drawing to Scale.**

*Professors Lowndes, Peek and Groves and Mr. Gilbert.*

Sophomores in E. Ch., M. E., E. E., T.E., and Co-ops., second term, three hours.

A continuation of Drawing 13.

Drawing 21. **Machine Drawing to Scale.**

*Professors Lowndes, Peek and Groves and Mr. Gilbert.*

Juniors in M. E., first term, three hours.

A continuation of Drawing 14. In addition to the text book, the student uses certain special drawings and notes.

Drawing 23. **Kinematics or Mechanism.**

*Professors Lowndes and Groves.*

Prerequisites, Math. 21 and Math. 25.

Juniors in E. E., M. E., and T. E., first term, four hours.

The principal aim of this study is to teach the student correct methods of analyzing machinery and machine motions, and to give him certain of the well-founded principles upon which certain classes of machinery are constructed. It teaches him the application of mathematics to the solution of machine problems, and gives him a familiarity with pure mechanism. A part of this course is given up to the proper construction of gears,





and to the practical methods in common use of approximating gear tooth outlines.

Text: **Sthal and Woods,** "Elementary Mechanism."

Drawing 24. **Kinematic Drawing.**

*Professors Lowndes, Peek and Groves and Mr. Gilbert.*

Prerequisite, Dr. 23.

Juniors in E. E., M. E., and T. E., second term, three hours.

This course is an application of the principles of mechanism to the laying out of spur and bevel gears of cycloidal and involute types, as well as types of approximate tooth outlines; and the laying out of cams of various kinds and helical gears; and the drawing of velocity acceleration, rotative, effort, deflection and other curves.

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## DEPARTMENT OF ELECTRICAL ENGINEERING

PROFESSORS ELDRED AND HUXLEY, MR. SCHWARTZ AND MR. ————

### General Statement.

The Electrical Engineering Department has for its object the training of young men to be industrious and clear thinking, and to equip them with the scientific and practical knowledge necessary for the successful practice of their profession as Electrical Engineers.

The course of study is planned to give comprehensive training in the fundamental sciences of Chemistry, Physics, Mathematics and Applied Mechanics. Adequate training is also given in the scientific and applied aspects of the several important branches of engineering other than Electrical, such as Constructive Materials, Steam Engineering, Hydraulics, Hydraulic Machinery and Structures.

The electrical subjects are so planned as to give thorough instruction in the fundamental underlying principles of the various branches of applied elcctricity. During the senior year some of the more important applications of electricity are included in the course of study with a view to showing

the application of the principles rather than attempting to produce specialists in that particular branch.

Parallel with the theoretical work are carefully planned laboratory courses beginning with the first year in Chemistry and continuing throughout the four years in the various sciences and engineering branches studied. The laboratory work is so conducted as to enable the student to verify theory in the performance of fundamental experiments, and to develop in the student the powers of accurate observation and initiative.

## Equipment.

The lecture rooms and laboratory of the Electrical Engineering Department are on the second floor of the Electrical Building. The laboratory is at present supplied with 60-cycle alternating current, and direct current is obtained from a 17.5-kilowatt compound generator driven by a 25-horse power induction motor.

The laboratory contains the following apparatus: a 25-kilowatt split-pole double-current generator, and a 10-kilowatt double-current generator, both built in the School Shops and capable of supplying continuous or polyphase currents; a number of shunt and compound continuous current generators and motors; two 5-kilowatt three-phase alternators or synchronous motors; two 5-horsepower three-phase induction motors: one single-phase induction motor; a 2-kilowatt booster set for continuous currents; a 2-kilowatt induction regulator for alternating currents; a ten light series arc light generator; two 3-kilowatt transformers arranged for phase transformation; a constant-current transformer; three transformers arranged for star and delta connection on three-phase and six-phase circuits; one 30,000-volt transformer for making puncture tests on insulating material; a mercury arc rectifier; a Tungar rectifier; condensers aggregating several hundred microfarads capacity; a 130-volt storage battery for testing purposes; and electrical measuring instruments, prony brakes, spring balances, rheostats and other pieces of laboratory apparatus necessary for the convenient and accurate performance of the usual laboratory experiments.





A Kelvin hekto-ampere balance and a potentiometer with certified resistances and a standard cell are a portion of the apparatus available for calibration work.

The photometer room is equipped with a Lummer-Brodhun screen; a Sharp-Miller illuminometer for determining the illumination of streets and buildings, and a 72-inch Globe Photometer.

An important part of the laboratory apparatus is an oscillograph equipped with two measuring loops and used for the observation of current and voltage wave forms and their phase displacement. This machine is also equipped for observing transient phenomena due to disturbances on transmission line, or the phenomena which attend the growth or decay of currents in circuits at the time of closing or opening the switch supplying that circuit.

The laboratory also contains a model of the common battery telephone exchange arranged for convenient inspection and testing.

## The Course in Electrical Engineering

### FRESHMAN YEAR

See Page 55.

### SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 13 | Machine Drawing | | 3 | 3. |
| Eng. 21 | American Literature | 3 | | 7.5 |
| Eng. 27 | Parallel Reading | | | |
| Geol. 1 | Ferrous Metallurgy (or C. E. 21) | 2 | | 5. |
| Math. 21 | Analytic Geometry | 2 | | 5. |
| Math. 25 | Calculus | 3 | | 7.5 |
| M. E. 11 | Machine Shop | | 6 | 6. |
| Phys. 9 | Physics | 4 | | 10. |
| Phys. 13 | Physics Laboratory | | 3 | 4. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.... | 14 | 17 | 53. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| C. E. 21a | Plane Surveying (or Geol. 1a) | 1 | 3 | 5.5 |
| Dr. 14 | Machine Drawing | | 3 | 3. |
| Eng. 24 | Political Economy | 3 | | 7.5 |
| Eng. 28 | Parallel Reading | | | |
| Math. 26 | Calculus | 5 | | 12.5 |
| Phys. 10 | Physics | 4 | | 10. |
| Phys. 14 | Physics Laboratory | | 3 | 4. |
| Phys. 16 | Physics Laboratory | | 1.5 | 2. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | 13 | 15.5 | 49.5 |

## JUNIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 23 | Kinematics or Mechanism | 3 | | 7.5 |
| E. E. 7 | Principles of Electrical Engineering | 3 | | 7.5 |
| Eng. 31 | English Literature | 3 | | 7.5 |
| Eng. 35 | Literary Thesis | | | |
| Ex. E. 1 | Analytic Mechanics | 3 | | 7.5 |
| Ex. E. 11 | Structural Mechanics | 2 | | 5. |
| Ex. E. 21 | Calibration Laboratory | | 3 | 4. |
| M. L. 1 | German | | | |
| M. L. 7 | French — One required | 3 | | 7.5 |
| M. L. 13 | Spanish | | | |
| Phys. 11 | Physics | 3 | | 7.5 |
| | Total.. | 20 | 3 | 54. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Dr. 24 | Machine Drawing | | 3 | 3. |
| E. E. 8 | Principles of Electrical Engineering | 5 | | 12.5 |
| E. E. 16 | Electrical Engineering Laboratory | | 6 | 8. |
| Eng. 32 | English Literature | 3 | | 7.5 |
| Eng. 36 | Literary Thesis | | | |
| Ex. E. 76 | Power Plants | 2 | | 5. |
| Ex. E. 53 | Hydraulic and Materials Laboratory | | 3 | 4. |
| Math. 35a | Differential Equations | 2 | | 5. |
| M. L. 2 | German | | | |
| M. L. 8 | French — One required | 3 | | 7.5 |
| M. L. 14 | Spanish | | | |
| | Total.. | 15 | 12 | 52.5 |

## SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| C. E. 33 | Hydraulics | 3 | | 7.5 |
| E. E. 9 | Alternating Current Machinery | 5 | | 12.5 |
| E. E. 11 | Illumination and Photometry | 2 | | 5. |
| E. E. 13 | Telephone Engineering | 2 | | 5. |
| E. E. 17 | Electrical Engineering Laboratory | | 6 | 8. |
| Ex. E. 71 | Fuels Laboratory | | 3 | 4. |
| Ex. E. 77 | Heat Engines and Thermodynamics | 3 | | 7.5 |
| M. L. 3 | German | | | |
| M. L. 9 | French — One required | 3 | | 6. |
| M. L. 15 | Spanish | | | |
| | Total.. | 18 | 9 | 55.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| C. E. 42 | Structures | 3 | | 7.5 |
| E. E. 10 | Alternating Current Machinery | 5 | | 12.5 |
| E. E. 14 | Electric Railways | 2 | | 5. |
| E. E. 18 | Electrical Engineering Laboratory | | 6 | 8. |
| E. E. 36 | Electrical Transmission of Power | 3 | | 7.5 |
| Ex. E. 80 | Hydro-Electric Power Plants | 2 | | 5. |
| Ex. E. 84 | Engine Laboratory | | 3 | 4. |
| M. L. 4 | German | | | |
| M. L. 10 | French — One required | 3 | | 6. |
| M. L. 16 | Spanish | | | |
| | Total.. | 18 | 9 | 55.5 |





## Courses of Instruction

**E. E. 2. Applied Electricity.**

*Professor Huxley.*

Prerequisite, Physics 11 (Physics 6 for T. E. Seniors). Parallel E. E. 3a.

Senior C. E., E. Ch., and T. E., second term, three hours.

A course of recitations covering the fundamental principles and characteristics of direct and alternating current machines.

**E. E. 3 and 3a. Electrical Engineering Laboratory.**

*Professor Huxley, Mr. Schwartz and Mr.* ————

Parallel E. E. 2 and E. E. 5.

E. E. 3. Senior M. E., first term, three hours.

E. E. 3 a. Senior C. E., E. Ch., and T. E., second term, three hours.

A course consisting of the experimental determination of the characteristics, efficiency and regulation, of direct and alternating current machines. A written report is required on each experiment covering the method of procedure and the results obtained.

**E. E. 5. Applied Electricity.**

*Professor Huxley.*

Prerequisite, Physics 11. Parallel, E. E. 3.

Senior M. E., first term, three hours.

A course devoted to the study of the principles of construction and operation and the industrial applications of direct and alternating current apparatus and machines.

**E. E. 7. Principles of Electrical Engineering.**

*Professor Eldred.*

Prerequisites, Physics 10 and Math. 26.

Junior E. E., first term, three hours.

A course devoted to the study of the laws and properties of electric and magnetic circuits, and the elementary principles of the construction of direct-current machines.

**E. E. 8. Principles of Electrical Engineering.**

*Professor Eldred and Mr. Schwartz.*

Prerequisite, E. E. 7. Parallel, E. E. 16.

Junior E. E., second term, five hours.

A continuation of E. E. 7 and consisting of recitation and problem work devoted to the principles of construction and performance of direct-current machinery. The latter part of this course is given to the study of variable currents and alternating-current circuits.

**E. E. 9. Alternating Current Machinery.**

*Professor Eldred and Mr. Schwartz.*

Prerequisite, E. E. 8. Parallel, E. E. 17.

Senior E. E., first term, five hours.

A course consisting of recitations and problem work devoted to the study of single and polyphase systems and the construction and the operating characteristics of the static transformer and the synchronous generator.

**E. E. 10. Alternating Current Machinery.**

*Professor Eldred and Mr. Schwartz.*

Prerequisite, E. E. 9. Parallel, E. E. 18.

Senior E. E., second term, five hours.

A continuation of E. E. 9, and consisting of recitations and problem work devoted to the study of the construction and the operating characteristics of polyphase and single-phase motors and rotary converters.

**E. E. 11. Illumination and Photometry.**

*Professor Huxley.*

Senior E. E., first term, two hours. Parallel, E. E. 9.

A course of recitations devoted to the study of the production, measurement and utilization of light, including the fundamental principles involved in efficient and economical illumination.

**E. E. 13. Telephone Engineering.**

*Professor Huxley.*

Senior E. E., first term, two hours. Parallel, E. E. 9.

A course consisting of recitations and laboratory work.





The recitations are devoted to the study of the principles and construction of telephone and telegraph apparatus and its application in modern systems. The laboratory work consists of inspection and testing on the model telephone exchange and telephone apparatus.

**E. E. 14. Electric Railways.**

*Professor Huxley.*

Senior E. E., second term, two hours. Parallel, E. E. 10.

A course consisting of recitations and problem work devoted to the study of modern electric traction covering construction, equipment and operation of the different types of roads.

**E. E. 16. Electrical Engineering Laboratory.**

*Professor Huxley, Mr. Schwartz and Mr. ————*

Junior E. E., second term, six hours. Parallel, E. E. 8.

A course consisting of the experimental determination of the characteristics, efficiency and regulation of direct current generators and motors. A preliminary report written in class at certain assigned hours is required on each experiment as well as a final report covering in detail the results and conclusions derived from the experiment.

**E. E. 17. Electrical Engineering Laboratory.**

*Professor Huxley, Mr. Schwartz and Mr. ————*

Senior E. E., first term, six hours. Parallel, E. E. 9.

A course consisting of experiments on single and three-phase circuits and the characteristics, efficiency and regulation of transformers and synchronous generators. A preliminary report written in class at certain assigned hours is required on each experiment as well as a final report covering in detail the results and conclusions derived from the experiment.

**E. E. 18. Electrical Engineering Laboratory.**

*Professor Huxley, Mr. Schwartz and Mr. ————*

Senior E. E., second term, six hours. Parallel, E. E. 10.

A course consisting of the experimental determination

of the characteristics, efficiency and regulation of polyphase and single-phase motors and rotary converters. A preliminary report written in class at certain assigned hours is required on each experiment as well as a final report covering in detail the results and conclusions derived from the experiment.

E. E. 30. **Electrical Transmission of Power.**

*Professor Eldred and Mr. Schwartz.*

Parallel, E. E. 10.

Senior E. E., second term, three hours.

A course consisting of recitation and problem work devoted to the study of the construction and the operating characteristics of transmission lines, and the distribution of power.

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## DEPARTMENT OF ENGLISH

PROFESSORS WALLACE AND PERRY; MESSRS. ARMSTRONG, MCKEE, FARRIS, AND LASLEY.

### General Statement

The course in English begins with the Freshman class, and extends through the Junior class, a period of three years.

The work of the department is required of all regular students, and its importance as the avenue of approach to all knowledge is kept constantly in mind. Particularly is its value to technical students recognized and enforced; first, as supplying the engineer with that equipment of direct, accurate, and vigorous expression necessary to his success in life; and second, as co-ordinating with his scientific training the equally important cultural development which is justly demanded of the educated man today.

The purposes of the course are utility, which predominates in the first year and in half of the second; and culture, which is the chief end sought as the student progresses in his work. It is to be recognized and stressed, however, that both purposes are considered fundamental and correlative, and are earnestly sought from beginning to end of the course.





### Courses of Instruction

English 11. **Composition and Rhetoric.**

*Professors Wallace and Perry; Messrs. Armstrong, McKee, Farris, and Lasley.*

Freshman, first term, three hours.

This course consists, primarily, of a careful study and application of Rhetorical principles, including the structure of the paragraph and the sentence, a correct and effective use of words, punctuation, letter-writing, and forms of discourse. The subject of composition is considered entirely from the point of view of construction, and constant effort is made to bring the student to apply in his own compositions the principles that are studied in the classroom. Composition work during the first term is devoted mainly to Description and Narration. The work in this course is closely adjusted to that in English 15.

Text-books: *Lomer and Ashmun's,* "The Study and Practice of Writing English."

*Penniman's* "Common Words Difficult to Spell;" the "Literary Digest"; various classics; and an approved dictionary.

English 12. **Composition and Rhetoric.**

*Professors Wallace and Perry; Messrs. Armstrong, McKee, Farris, and Lasley.*

Freshman, second term, three hours.

This course is in a large measure a continuation of English 11. The composition work of this term, however, is devoted mainly to Exposition. Some effort is also made to approach the study of Rhetoric from the standpoint of appreciation. The student is made familiar with fundamental principles of literary criticism, and illustration of these principles is sought in the simpler classics of English prose and poetry and in current literature.

Text-books: *Lomer and Ashmun's,* "The Study and Practice of Writing English", the "Atlantic Monthly"; various classics; reference to books in the library.

English 15. **Theme-Writing and Speaking.**

*Messrs. McKee, Farris, and Lasley.*

Freshman, first term, one hour.

The aim of this course is to teach correctness and clearness in the expression of thought, and to stimulate the powers of observation, imagination, and reflection in the student. Sixteen themes on assigned topics are required of the student during the term, and attendance upon a consultation with the instructor one hour a week. No theme is accepted which is notably defective in grammar or spelling, and no student will be allowed to pass the course until he has acquired correctness in these particulars and reasonable facility in the application of rhetorical principles.

English 16. **Theme-Writing and Speaking.**

*Messrs. McKee, Farris, and Lasley.*

Freshman, second term, one hour.

This course is a continuation of English 15. Fewer and longer themes are required. The use of the library, outline making, thought organization, and oral presentation of thought are taught. The weekly consultations are continued.

At the close of the year a contest is held in which a gold medal is offered for excellence in the preparation and delivery of orations. Students will be qualified to enter this contest by the general excellence of their work in this course.

Courses 15 and 16 may be completed in one year; but, if the student fails to pass the work satisfactorily, he may be required to repeat it as often as is necessary until he is able to write correctly. Students in more advanced courses whose work in composition is unsatisfactory will be required to take this course in whole or in part.

English 21. **American Literature.**

*Professors Wallace and Perry; Messrs. Armstrong, McKee, and Farris.*

Sophomore, first term, three hours.

This course consists of a brief review of the history of American literature, essays, lectures, and quizzes.





Representative works of *Irving, Bryant, Longfellow, Lowell, Emerson, Hawthorne, Holmes, Whitman, Poe,* and *Lanier* are subjected to careful analysis and interpretation. The aim of this course is to give the student an appreciation of the meaning and worth of the literature of America; to familiarize him with the masterpieces of American writers; and to cultivate in him a sound critical faculty.

Text-books: *Page's* "Chief American Poets"; *Foerster's* "Chief American Prose Writers."

English 24. **Economics.**

*Professors Wallace and Perry; Messrs. Armstrong, McKee, and Lasley.*

Sophomore, second term, three hours.

As the School has no department of political or social science, a brief course in Economics is given by the English Department. *Carver's* "Principles of Political Economy is used as a text-book, supplemented by lectures, papers upon various economic subjects, and discussions. The aim of the course is to familiarize the student with economic theories, to indicate the laws underlying the complex fabric of modern commercial and social systems, and to give him an intelligent apprehension of the nature and meaning of the great economic problems of the age. An essay on some approved economic subject is required of each student.

Text-book: *Carver's* "Principles of Political Economy."

English 27-28. **Parallel Reading.**

*Professors Wallace and Perry; Messrs. Armstrong, McKee, Farris, and Lasley.*

Sophomore, both terms, not scheduled.

During the entire Sophomore year a reading course in American fiction is required as supplementary to English 21. The books are selected for their interest and worth; and in this way, it is hoped that the student may acquire a taste for good literature.

Text-books: As the books read vary from year to year, they are announced at the beginning of the course. All books necessary for this course are supplied by the school library.

English 31. **English Literature.**

*Professors Wallace and Perry; Mr. Armstrong.*

Junior, first term, three hours.

The course in English Literature, given throughout the Junior year, offers a study of literature itself rather than of texts about literature. It recognizes that a literary work is not merely a work of art, but an expression of the personality of its author, and through him, as the voice and exponent of his age, a record of the ideas and ideals of a section of the nation's life. Certain dominant men of letters are chosen as representatives of important literary periods, and, as far as opportunity offers, their work is studied intensively. A simple handbook of literary history is used for reference, and occasional reports on the part of the student are called for. The student is also expected to supplement the lectures by reference to the body of criticism which is placed at his disposal in the library and to which he is referred. The course is conducted by lectures, oral and written quizzes, and written reports.

The writers studied during the first term are Milton and Shakespeare.

Text-books: *Milton's* Poems (complete); selected plays of Shakespeare.

English 32. **English Literature.**

*Professors Wallace and Perry; Mr. Armstrong.*

Prerequisite, English 31.

Junior, second term, three hours.

This course, which is a continuation of English 31, is similar in aim and scope to the preceding course.

The writers studied during the second term are *Wordsworth, Tennyson* and *Browning.*

Text-books: *Henry Van Dyke's* Selections from the Poems of *Tennyson* (Athenaeum Press Series); *Edward Dowden's* Selections from Wordsworth's Poems (Athenaeum Series); *Robert Browning,* (Pocket Classics).

English 35-36. **Literary Thesis.**

*Professors Wallace and Perry; Mr. Armstrong.*

Junior, first and second terms, not scheduled.

Each member of the Junior class is required to pre-





pare several critical essays or reports each term, the subjects for treatment being the work of one of the greater English essayists, as assigned. Unsatisfactory essays will be returned for thorough revision; and failure to satisfy the instructor in this respect denies to the writer the privilege of taking the final examination in English Literature or of receiving credit for the course.

Text-books: The school library supplies all material necessary for the course.

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## DEPARTMENT OF EXPERIMENTAL ENGINEERING

PROFESSORS KING AND HOWELL, AND MR. W. H. SAUNDERS.

### General Statement

The object of courses in this department is to enable the engineering student to recognize and apply such natural forces and materials as are adapted to his uses.

In order that he may be capable of intelligently and skilfully designing, constructing and supervising all kinds of machinery, it is necessary that he should pursue thorough and extensive theoretical courses which are of primary importance in according mental discipline not to be derived from practical research. The latter is made to go hand in hand with the former, for it is believed that, from continued practical applications of theoretical conclusions, a broader and more tangible conception of their truths may be derived. It is not, then, at the expense of the abstract mathematical law that time is given to show how it may be involved in the construction of the simplest machine, for not only is a new and suggestive meaning thereby given to the various contrivances of the mechanism, but an insight into the whole significance of the law itself is gained, which can be acquired only by observing practical applications.

To explain theoretical principles, however, is not the only value of the experimental work of the department. If the student desires to go from college to the manufacturing world, it is essential that he should be familiar with working machines, methods of management, and as much of the every-day detail of engineering work as it is possible for him to acquire as a supplement to his higher training.

# Courses in Experimental Engineering

## SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Ex. E. 9 | Elem. Applied Mechanics (T. E.) | 3 | | 7.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Ex. E. 48 | Elem. Materials Laboratory (T. E.) | | 3 | 4. |

## JUNIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Ex. E. 1 | Analytic Mechanics (E. E.) | 3 | | 7.5 |
| Ex. E. 1 | Analytic Mechanics (E. E. Co-op.) | 3 | | 3.75 |
| Ex. E. 7 | Elementary Mechanics and Strength of Materials (I. E.) | 3 | | 7.5 |
| Ex. E. 11 | Structural Mechanics (E. E.) | 2 | | 5. |
| Ex. E. 11 | Structural Mechanics (E. E. Co-op) | 2 | | 2.5 |
| Ex. E. 21 | Calibration Laboratory (E. E., M. E. and Co-op.) | | 3 | 4. |
| Ex. E. 41 | Hydraulic Laboratory (C. E.) | | 3 | 3. |
| Ex. E. 47 | Elem. Materials Laboratory (I. E.) | | 3 | 4. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Ex. E. 1 | Analytic Mechanics (E. E. Co-op.) | 3 | | 3.75 |
| Ex. E. 1a | Analytic Mechanics (C. E.) | 3 | | 7.5 |
| Ex. E. 11 | Structural Mechanics (E. E. Co-op.) | 2 | | 2.5 |
| Ex. E. 11a | Structural Mechanics (Arch., E. Ch.) | 2 | | 5. |
| Ex. E. 11b | Structural Mechanics (C. E.) | 3 | | 7.5 |
| Ex. E. 52 | Hydraulic and Materials Laboratory (E. E., M. E. & Co-op.) | | 3 | 4. |
| Ex. E. 57 | Materials Laboratory (C. E.) | | 3 | 3. |
| Ex. E. 76 | Power Plants (M. E., E. E., E. Ch., Co-op.) | 2 | | 5. |

## SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Ex. E. 1 | Analytic Mechanics (E. Ch.) | 3 | | 7.5 |
| Ex. E. 15 | Power Plant Operation (I. E.) | 1 | 3 | 6.5 |
| Ex. E. 71 | Fuels Laboratory (M. E., E. E. and Co-op) | | 3 | 4. |
| Ex. E. 73 | Elementary Steam Lab'y. (C. E., E. Ch., T. E.) | | 3 | 3. |
| Ex. E. 77 | Heat Engines and Thermodynamics (E. E., C. E., E. Ch., T. E.) | 3 | | 7.5 |
| Ex. E. 77a | Heat Engines and Thermodynamics (E. E. Co-op.) | 4 | | 5. |





*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Ex. E. 72 | Steam Engine Laboratory (M. E.) | | 3 | 4. |
| Ex. E. 74 | Fuels and Gas Engine Laboratory (E. Ch., T. E.) | | 3 | 4. |
| Ex. E. 78 | Advanced Heat Engines and Thermodynamics (E. Ch., T. E.) | 2 | | 5. |
| Ex. E. 80 | Hydro-Electric Power Plants (E. E., E. E. Co-op.) | 2 | | 5. |
| Ex. E. 84 | Engine Laboratory (E. E.) | | 3 | 4. |
| Ex. E. 86 | Gas Engine Laboratory (M. E., M. E. Co-op.) | | 3 | 4. |
| Ex. E. 84a | Engine Laboratory (E. E. Co-op.) | | 6 | 4. |

## Courses of Instruction.

**Ex. E. 1 and 1a. Analytic Mechanics.**

Prerequisite, Math. 26-28.

Ex. E. 1. Juniors in E. E., first term, three hours.

Ex. E. 1a. Juniors in C. E., second term, three hours. Seniors in E. Ch., first term, three hours.

Ex. E. 1. Juniors in E. E. Co-op. course, three hours alternate two weeks, first and second terms.

A course in the fundamental principles of mechanics treated with especial reference to engineering problems. The first part of the term is devoted to Statics, developing the algebraic and graphical solutions of problems. In the treatment of the theory of centroids and centers of gravity it is developed both with and without the use of the Calculus.

Under Kinematics, are treated the properties of displacement, velocity and acceleration; rectilinear and curvilinear motion of a particle, giving the graphical interpretation of position displacement, velocity, acceleration and time relations, and motion of a rigid body in translation and rotation.

Under Dynamics (motion and force) are considered the laws of motion, motion under the action of a variable force or in a resisting medium, constrained motion, impact work, energy, moment of inertia, D'Alembert's principle applied to translatory and rotary motion, and the motion of the mass center of any system of particles.

Text-book used 1918-1919: Applied Mechanics by *Poorman.*

**Ex. E. 7. Elementary Mechanics and Strength of Materials.**

Juniors in Industrial Education, first term, three hours.

This course covers the folowing items: Practical ap-

plications of forces and moments, forces in simple framed structures, friction and lubrication, power, transmission of motion and power, resultant and component forces, the elastic law, strength and stiffness of materials, bending, torsion, working stresses in materials and standard specifications. This course is not open to regular engineering students.

Ex. E. 9. **Elementary Applied Mechanics.**

Sophomores in T. E., first term, three hours.

A course in Applied Mechanics for Textile Engineering students. This course covers the subjects of forces and moments, their practical applications; effort, friction and efficiency of simple machines; power; transmission of motion and power by belting, gearing, etc.; strength of materials; working stresses; momentum, inertia and force; various motions; hydraulics, etc.

Text-books used in 1918-1919: Elementary Applied Mechanics by *Morley* and *Inchley*.

Ex. E. 11 and 11a. **Structural Mechanics.**

Prerequisite, Mathematics 26-28.

Ex. E. 11. Juniors in E. E., first term, two hours.

Juniors in E. E. Co-op. course, alternate two weeks, first and second terms, two hours.

Ex. E. 11a. Juniors in Arch. and E. Ch., second term, two hours.

Ex. E. 11b. Juniors in C. E., second term, three hours.

This course is devoted to the strength and deflection of beams; pieces under tension and compression; columns, posts, and struts; safe working stresses; rivets, pins, and plate girders.

Text-book used in 1918-1919: Strength of Materials by *Boyd*.

Ex. E. 15. **Power Plant Operation.**

Seniors in Industrial Education, first term, one hour recitation and lecture and four hours laboratory.

This is an abridged course in power plant operation and is intended to give the student a working knowledge of the operation of small power plants and the care of the





apparatus usually encountered in such plants. The theory of operation is given in the class room and is followed by practical work and demonstration in the laboratory. This course is not open to regular engineering students.

Ex. E. 21. **Calibration Laboratory.**

Juniors in E. E., M. E., and Co-op, first term, four hours.

This course covers the calibration of steam gauges and other pressure measuring devises, thermometers, indicator springs, reducing motions, and planimeters. The use of the steam engine indicator. The testing of lubricating oils and greases.

Ex. E. 41. **Hydraulic Laboratory.**

Prerequisite, C. E. 15, or Parallel.

Juniors in C. E., first term, four hours.

The calibration of nozzles and orifices, weirs, water meters of different types, pitot tubes, etc., the testing of pelton water wheels, hydraulic rams, centrifugal pumps, steam pumps, pulsometer, and flow of water in pipes are some of the subjects covered by this course.

Ex. E. 47. **Elementary Materials Laboratory.**

Prerequisite, Ex. E. 7, or Parallel.

Juniors in Industrial Education, first term, four hours.

This course covers the commercial testing of structural materials. All materials are tested according to standard specifications, and particular stress is laid on the commercial application of such tests. The work covers the testing of cement, concrete, structural steel, timber, riveted joints, rope, cable, etc. This course is not open to regular engineering students.

Ex. E. 48. **Elementary Materials Laboratory.**

Prerequisite, Ex. E. 9.

Sophomores in T. E., second term, four hours.

A course designed especially for Textile students and covers in addition to regular commercial testing of materials the testing of materials of special use to the textile engineer.

Ex. E. 52. **Hydraulics and Materials Laboratory.**

Prerequisite, C. E. 15a, Ex. E. 21, Ex. E. 11, Ex. E. 76, or Parallel.

Juniors in E. E., M.E., and Co-op, second term, four hours.

The work covered in this course embraces the testing and calibration of orifices, nozzles, weirs, water meters, pelton wheel, centrifugal pump, etc., and the testing of the strength of materials in tension, compression, cross bending, torsion and shear. Complete tests of cement are made.

Ex. E. 57. **Materials Laboratory.**

Prerequisite, Ex. E. 11b, or Parallel.

Juniors in C. E., second term, four hours.

This course covers the testing of cement and concrete, the strength of materials in tension, compression, torsion, shear, cross-bending, riveted joints and the commercial tests of structural materials.

Ex. E. 71. **Fuels Laboratory.**

Prerequisite, Ex. E. 70.

Seniors in M. E., and E. E., first term, four hours.

This course embraces the determination of the calorific values of fuel, proximate analysis of fuels, sulphur determinations, flue gas analysis, steam calorimetry, tests of injectors, boilers and ventilating fans.

Ex. E. 72. **Steam Engine Laboratory.**

Prerequisite, M. E. 35, M. E. 39, Ex. E. 21.

Seniors in M. E., second term, four hours.

This course includes valve setting, economy tests of steam engines, entropy analysis of steam engines, pulsometer, refrigerating machines, air compressors and the use of dynamometers.

Ex. E. 73. **Elementary Steam Laboratory.**

Parallel with Ex. E. 77.

Seniors in C. E., E. Ch., T. E., first term, four hours.

This is an abridged course in the steam engine laboratory and covers the testing of steam gauges, lubricating oils, valve setting, engine testing, flue gas analysis and boiler trials.





Ex. E. 74. **Fuels and Gas Engine Laboratory.**

Seniors in E. Ch., T. E., second term, four hours.

This is an abridged course in these laboratories and covers a small amount of testing of materials in addition. The work covers the testing of internal combustion engines, the calorific values of fuels, tests of cement, and tests of strength of materials.

Ex. E. 76. **Power Plants.**

Juniors in M. E., E. E., and E. Ch., second term, two hours.

Juniors in E. E. and M. E. Co-op course, second term, alternate two weeks, four hours.

This course is devoted to the study of power plants and auxiliaries, and the apparatus used in the testing of same. The testing of air machinery, hydraulic machinery, internal combustion engines, refrigeration plants and miscellaneous machinery used by the engineer. Methods of keeping plant records and their interpretation is taken up.

Text-book used in 1918-1919: **Power Plant Testing** by *Moyer*.

Ex. E. 77. **Heat Engines and Thermodynamics.**

Seniors in E. E., C. E., E. Ch., and T. E., first term, three hours.

The thermal properties of gases, expansion of gases, the thermal properties of vapors, wet and superheated vapors, the steam engine, steam cycles, losses in steam engines, design and test of steam engines, the steam turbine, condensing machinery, combustion, steam boilers, boiler plant accessories, gaseous fuels, heating and entropy diagrams are treated in this course.

Text-book, 1918-1919: Steam Power Plant Engineering by *Gebhardt*.

Ex. E. 77a. Seniors in E. E. Co-op., first term, four hours every other two weeks.

This is an abridgement of course Ex. E. 77.

Ex. E. 78. Seniors in E. Ch., T. E., second term, two hours.

This course is a continuation of course Ex. E. 77. Particular stress being placed on thermodynamic processes and principles, power plant equipment and its operation. Standard power plant designs are studied.

Ex. E. 80. **Hydro-Electric Power Plants.**

Prerequisite, C. E. 15.

Seniors in E. E., second term, two hours.

Seniors in E. E. Co-op., second term, four hours every other two weeks.

This course deals with the Hydraulic Engineering only, and covers the fundamental principles of hydraulic motors, water wheels and turbines, typical installations and the cost of water power.

Text-book used 1918-1919: Hydro Electric Power by *Lyndon.*

Ex. E. 84 and 84a. **Engine Laboratory.**

Prerequisite, Ex. E. 71, Ex. E. 77.

Seniors in E. E., second term, four hours.

Seniors in E. E. Co-op., second term, four hours.

The work in this course includes the testing of steam engines, valve setting, tests of internal combustion engines, testing of pulsometers and air compressors.

Ex. E. 86 and 86a. **Gas Engine Laboratory.**

Parallel with M. E. 36.

Seniors in M. E., M. E. Co-op., second term, four hours.

Complete tests of internal combustion engines are given in this course, including heat balances and entropy analysis. The student is required to determine the heating value of his fuels and make an analysis of the exhaust gases.

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## GEOLOGY AND METALLURGY

PROFESSOR ————————*.

### General Statement

The Department of Geology and Metallurgy does not offer a separate degree, but gives courses which are needed for

*To be supplied.





other degrees offered by the school. The aim, therefore, is to give such courses as will emphasize geologic and metallurgic principles in their application to the engineering fields of other departments. Special efforts are made to bring the student in contact with those publications which are vital forces in his chosen field. Topics for special investigation, and articles for special review are assigned to him, and as many class-room references as possible are made to the literature of this particular field. To impress upon the student the practical side of his work, inspection tours are made, which enable him to see in actual operation the processes discussed in the class room. In every department of the work the aim is to make the student responsible for himself; so that he may learn to attack a piece of work or a problem with the sole purpose of getting out of it, not what this or any other department may require by schedule from him, but what that particular case merits of his best efforts.

### Equipment

The equipment consists of the usual office, section room, museum and assay laboratory. The museum has collections as follows,—type collections for Mineralogy. Petrography, and Geology; working collections for Crystallography, Mineralogy, and Petrography, Building Stones Collection; Metallurgical Products Collection. For use in the class room there is a catalog library of 700 bulletins, prints and papers. The assay laboratory is equipped with a gas furnace and has access to a set of analyzed ores to the number of 200. There is also a Saveur Microscope for work in Metallography in this laboratory. Material is being added to the equipment from time to time through regular funds and through the kindness of patrons in the commercial world.

Geology 1 and 1a. **Ferrous Metallurgy.**

Prerequisite, Chem. 1, 2, 5, 6.

Geol. 1. Sophomore, first term, students in E. Ch., C. E., E. E. and M. E., who are not taking C. E. 21.

Geol. 1a. Sophomore, second term, students in E. Ch., C. E., E. E. and M. E., who have not taken Geol. 1.

A course of recitations and lectures covering four sections as follows,—(a) Fuels. The work in this section consists of a brief study of the various kinds and the uses of fuels, together with their metallurgical applications. (b) Refractory Materials. The various types of crucibles, casting sands, mortars, and different acids and basic linings for furnaces are studied under this head. (c) Metallurgical Problems relating to Coal, Boilers, Blast Furnaces, etc., are studied. (d) Iron and Steel. No attempt is made to treat this section in detail, but modern steel making practice is taken, with special stress being laid on the Blast Furnace, the Besemer, Open Hearth and Alloy Steels.

Text-books: *Stoughton's* "Iron and Steel." Department's Notes on "Fuels, Combustion, Refractories and Related Problems."

Geology 8. **Non-Ferrous Metallurgy.**

Prerequisite, Chem. 1, 2, 5, 6.

Second term, four hours.

(Given if applied for by a sufficient number of students.)

A recitation course, in which the metallurgy of gold, silver, copper and lead is studied, the entire time being put on the modern practice in this country. No attempt is made to grasp the minutiae of the many processes, but each is studied as closely as is required to bring the student to the position where detailed work can be carried on at his pleasure. Extensive use is made of library assignments, trade catalogues and inspection trips.

Text-book: *Borcher's "Metallurgy."*

Geology 10. **Geology.**

Prerequisite, Chem. 1, 2, 5, 6.

Sophomores in C. E., second term, three hours.

A recitation course, consisting of Dynamical Geology, in which the student studies the forces which are now at work changing the surface of the earth, such as the atmospheric, aqueous and igneous agencies; Structural Geology, a study of earth materials, their past and present forms; Historical Geology, which treats of the earth's





life and history as revealed in the sequence of the rock beds. Use is made of the library and field trips as opportunity offers.

Text-book: *Cleland's*, "Geology."

Geology 12. **Assaying.**

Prerequisite, Geology 5, Chem. 13, 14.

Second term, three hours.

(Given if applied for by a sufficient number of students.)

A laboratory course, including a study of slags; fluxing of a limestone and of a siliceous ore; the assay of lead ores, both sulphide and oxide; and the various methods of assays of gold and silver ores.

Text-book: *Fulton's* "Manual of Assaying."

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## DEPARTMENT OF INDUSTRIAL EDUCATION.

### For the Training of Teachers of Trade, Industrial and Related Subjects.

The Georgia School of Technology has been selected, by the State Board of Vocational Education, to conduct the Teacher-training in Trades, Industries, and Related Subjects.

The demand for teachers of Vocational Subjects, greatly exceeds the supply. In fact, there has never been, so far, a sufficient number of Manual Training teachers to supply the demand in the United States even though the salary has been, in most cases, higher than in other lines of similar grade.

The Smith-Hughes Act, which became effective July 1st, 1917, provides for Federal aid for the promotion of Vocational Education. The provisions of this act have been accepted by all of the States, and Vocational Education is being promoted. This has opened up a comparatively new field in the United States, for teachers, and the salaries paid are very attractive.

Inquiries concerning this line of work, are solicited by the Department of Industrial Education.

## Scheme for the Training of Teachers of Trade, Industrial and Related Subjects Under the Provision of the Smith-Hughes Act.

It is the purpose of the Georgia School of Technology, through its Department of Industrial Education, to train four groups of men for teachers of the trades and industries. These will be designated as Groups A, B, C, and D.

Group A. Men who have had trade experience equal at least to two years in excess of the period required to learn the trade and at least an elementary school education or its equivalent may qualify as shop teachers when they have completed a course in specialized training at the Georgia Tech. or at centers best suited for this instruction.

Group B. Men who have had two years' successful trade experience and the equivalent of a high school education, or men who have had two years' training in a technical school of college grade and successful contact with a trade or industry, may pursue a special course in Industrial Education at the Georgia School of Technology. This course will lead to a certificate of proficiency, and will include drawing, English, the more elementary mathematics, professional courses in Industrial Education, and a thorough training in industrial shop work.

Group C. Graduates of the Georgia School of Technology in any of the courses leading to the degree of B.S. in Civil Engineering, Mechanical Engineering, Electrical Engineering, or Textile Engineering, may qualify for teachers of subjects related to trades and industries in which they have had actual experience upon fulfilling the conditions, outlined in special bulletin.

Group D. Regular students at the Georgia School of Technology may pursue a four year course in Industrial Education leading to the degree of B.S. in Industrial Education. Students in this group who possess no actual trade experience will be required to secure regular employment during the summer months of two years in some trade or industry and in some capacity that will provide actual contact with the work of that trade or industry. This work will be arranged through and be un-





der the direction of the instructor in charge of coordination at the Georgia School of Technology.

A man who qualifies for this degree, and who engages in the teaching of shop or related subjects, should be qualified for a responsible position as principal of a trade or industrial school, or as city superintendent of industrial schools.

## SCHEDULE OF COURSES IN INDUSTRIAL EDUCATION

### For the Training of Teachers Under the Provision of the Smith-Hughes Vocational Education Law.

### Special Course Leading to a Certificate of Proficiency

FIRST YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k. Rec. | Lab'y | Equ'v |
|---|---|---|---|---|
| *Chem. 1 | Inorganic Chemistry | 3 | | 7.5 |
| *Chem. 5 | Chemical Laboratory | | 2 | 2. |
| Eng. 11 | Rhetoric | 3 | | 7.5 |
| Eng. 15 | Theme Writing | 1 | | 1. |
| Math. 11 | Algebra | 3 | | 7.5 |
| Ind. Ed. 21 | Psychology | 3 | | 7.5 |
| | **Electives in Shop Work | | 12 | 12. |
| Mil. 1 | Military Instruction | | 5 | 5. |
| | Total.... | | | 50. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| *Chem. 2 | Inorganic Chemistry | 3 | | 7.5 |
| *Chem. 6 | Chemical Laboratory | | 2 | 2. |
| Dr. 6 | Elementary Drawing | | 7 | 7. |
| Eng. 12 | Rhetoric | 3 | | 7.5 |
| Eng. 16 | Theme Writing | 1 | | 1. |
| Ind. Ed. 24 | History of Industrial Education | 3 | | 7.5 |
| Ind. Ed. 26 | Sanitation and Industrial Hygiene | 2 | | 5. |
| Mil. 2 | Military Instruction | | 5 | 5. |
| | **Electives in Shop Work | | 12 | 12. |
| | Total.. | | | 54.5 |

SECOND YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k. Rec. | Lab'y | Equ'v |
|---|---|---|---|---|
| Math. 15 | Trigonometry | 3 | | 7.5 |
| Ind. Ed. 31 | Industrial Economics | 2 | | 5. |
| Ind. Ed. 33 | Methods of Industrial Education | 3 | | 7.5 |
| Ind. Ed. 51 | Drawing Methods | 2 | | 5. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | **Electives in Shop Work | | 18 | 18. |
| | Total.. | | | 48. |

*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Ind. Ed. 34 | Practice Teaching | | 4 | 4. |
| Ind. Ed. 36 | Methods of Industrial Education | 1 | | 2.5 |
| Ind. Ed. 53 | Reports on Assigned Readings | 6 | | 6. |
| Ind. Ed. 58 | Shop Organization | 3 | | 7.5 |
| | | 2 | | 5. |
| | Electives in Shop Work | | 18 | 18. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | | | 48. |

*Where chemistry is offered as a qualification for entrance, physics will be given in place of chemistry.

**Electives chosen by students will be subject to approval by the faculty, and will be governed by the following consideration: (1) Shop work will be required to supplement the trade experience of the student: (2) Shop work will be required in some additional trade or industry in a sufficient amount to make the student fairly proficient in his second chosen field.

## Four Year Course Leading to the Degree of B.S. in Industrial Education.

### FRESHMAN YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k. Class | Lab'y | Equ'v |
|---|---|---|---|---|
| Chem. 1 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 5 | Chemical Laboratory | | 2 | 2 |
| Eng. 11 | Rhetoric | 3 | | 7.5 |
| Eng. 15 | Theme Writing | 1 | | 1. |
| Math. 11 | Algebra | 2 | | 5. |
| Math. 15 | Trigonometry | 3 | | 7.5 |
| M. E. 3a | Wood Shop | | 6 | 6. |
| M. E. 5 | Smithy | | 3 | 3. |
| Mil. 1 | Military Instruction | | 5 | 5. |
| | Total.. | | | 44.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Chem. 2 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 6 | Chemical Laboratory | | 2 | 2. |
| Dr. 2 | Descriptive Geometry | 3 | | 7.5 |
| Dr. 4 | Descriptive Geometry Drawing | | 3 | 3. |
| Eng. 12 | Rhetoric | 3 | | 7.5 |
| Eng. 16 | Theme Writing | 1 | | 1. |
| Math. 18 | Analytical Geometry | 5 | | 12.5 |
| M. E. 4a | Wood Shop | | 3 | 3. |
| M. E. 6 | Smithy | | 3 | 3. |
| Mil. 2 | Military Instruction | | 5 | 5. |
| | Total.. | | | 52. |





### SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k. Lec. | Lab'y | Equ'v |
|---|---|---|---|---|
| Eng. 21 | American Literature | 3 | | 7.5 |
| Eng. 27 | Parallel Reading | | | |
| Phys. 5 and 7 | Mechanics and Sound | 3 | 3 | 11.5 |
| C. E. 1 | Plane Surveying | 1 | 3 | 5.5 |
| Dr. 13 | Machine Drawing | | 3 | 3. |
| Math. 21 | Analytic Geometry | 2 | | 5. |
| M. E. 3e | Wood Shop | | 3 | 3. |
| M. E. 7 | Foundry | | 3 | 3. |
| Ind. Ed. 21 | Psychology | 3 | | 7.5 |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | | | 51. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Eng. 24 | Political Economy | 3 | | 7.5 |
| Eng. 28 | Parallel Reading | | | |
| Phys. 6 and 8 | Heat, Light and Electricity | 3 | 3 | 11.5 |
| Dr. 14 | Machine Drawing | | 3 | 3. |
| Math. 2 | Shop Mathematics | 2 | | 5. |
| M. E. 4e | Wood Shop | | 3 | 3. |
| M. E. 8 | Foundry | | 3 | 3. |
| M. E. 16 | Plumbing | | 3 | 3. |
| Ind. Ed. 24 | History of Industrial Education | 3 | | 7.5 |
| Ind. Ed. 26 | Sanitation and Industrial Hygiene | 2 | | 5. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | | | 53.5 |

### JUNIOR YEAR

*First Term*

| Abbrev | Subject | Hrs. Per W'k. Lec. | Lab'y | Equ'v |
|---|---|---|---|---|
| Ind. Ed. 31 | Industrial Economics | 2 | | 5. |
| Ind. Ed. 33 | Methods of Industrial Education | 3 | | 7.5 |
| Ex. E. 7 | Elementary Mechanics and Strength of Materials | 3 | | 7.5 |
| Ex. E. 47 | Elementary Material Laboratory | | 3 | 3. |
| M. E. 11 | Machine Shop | | 6 | 6. |
| M. E. 17 | Sheet Metal Work | | 6 | 6. |
| M. E. 19 | Advanced Blacksmithing | | 3 | 3. |
| Arch. 31 | Building Construction (Masonry) | 1 | | 2.5 |
| Arch. 35 | Sanitation of Buildings | 1 | | 2.5 |
| Mil. 5 | Military Instruction | | 3 | 3. |
| | Total.. | | | 46. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Ind. Ed. 34 | Practice Teaching | | 3 | 3. |
| Ind. Ed. 36 | Methods of Industrial Education | 1 | | 2.5 |
| Geol. 1a | Ferrous Metallurgy | 2 | | 5. |
| M. E. 12 | Machine Shop | | 6 | 6. |
| M. E. 18 | Wood Finishing | | 3 | 3. |
| C. E. 34 | Masonry Laboratory | | 3 | 3. |
| T. E. 60 | Carding and Weaving | 2 | | 5. |
| T. E. 62 | Carding and Weaving | | 3 | 3. |
| Arch. 32 | Building Construction (Masonry) | 1 | | 2.5 |
| | ***Elective | 3 | 7.5 | 7.5 |
| Mil. 6 | Military Instruction | | 3 | 3. |
| | Total.. | | | 43.5 |

SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k. Lec. | Lab'y | Equ'v |
|---|---|---|---|---|
| Ind. Ed. 51 | Drawing Methods | 2 | | 5. |
| Ind. Ed. 53 | Reports on Assigned Readings | 6 | | 6. |
| Ex. E. 15 | Operation of Engines | 1 | 4 | 6.5 |
| T. E. 61 | Carding and Weaving | | 3 | 7.5 |
| T. E. 63 | Carding and Weaving | | 6 | 6. |
| Arch. 63 | Building Construction (Carpentry) | 1 | | 2.5 |
| | ***Elective | 6 or | 15 | 15. |
| Mil. 7 | Military Instruction | | 3 | 3. |
| | Total.. | | | 51.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Ind. Ed. 56 | Vocational Guidance | 2 | | 5. |
| Ind. Ed. 58 | Shop Organization | 3 | | 7.5 |
| E. E. 1a | Applied Electricity | 2 | | 5. |
| E. E. 3a | Electrical Laboratory | | 3 | 3. |
| T. E. 64 | Carding and Weaving | 3 | | 7.5 |
| T. E. 66 | Carding and Weaving | | 6 | 6. |
| Arch. 64 | Building Construction | 1 | | 2.5 |
| | ***Elective | 6 or | 15 | 15. |
| Mil. 8 | Military Instruction | | 3 | 3. |
| | Total.. | | | 54.5 |

***Electives chosen by students will be subject to approval by the faculty, and will be governed by the following considerations: (1) No student may elect a course unless he has passed the prerequisites for that course; (2) Subjects elected must be either a continuation of or directly related to the courses scheduled as required.

## Description of Courses

Ind. Ed. 21. **Psychology.**

First Year Special and Sophomore, first term, three hours. Lectures and recitations.

An elementary study of the general phenomenon of consciousness; sensation, images, affections, and the laws of their grouping in perception, attention, association, memory, etc., with particular attention given to the applications of psychology to industrial education.

Ind. Ed. 24. **History of Industrial Education.**

First Year Special and Sophomore, second term, three hours. Lectures and recitations.

The characteristic ideals of ancient, mediaeval, and modern educational systems will be briefly considered; but the primary aim of the course will be the study of the rise and development of industrial education. The





various apprentice systems under changed industrial conditions since mediaeval times will be reviewed, and the modern conditions that have stimulated interest in trade and industrial schools in the United States will receive careful attention.

Ind. Ed. 26. **Sanitation and Industrial Hygiene.**

First Year Special and Sophomore, second term, two hours. Lectures and recitations.

The fundamental conditions of health as related to comfort and efficiency, and the attainment of these conditions through proper heating, lighting, and ventilation of factory buildings and the proper housing of the worker. The administration of "first aid", and the control of contagious and infectious diseases through sanitation and cleanliness, will receive careful attention.

Ind. Ed. 31. **Industrial Economics.**

Second Year Special and Junior, first term, two hours. Lectures and recitations.

A continuation of Political Economy (Eng. 24). The study of the special industrial relations of labor, capital, rent, interest, wages, profits, and profit sharing, and the aims of industrial education in the lessening of poverty and crime through industrial preparedness.

Ind. Ed. 33. **Methods of Industrial Education.**

Second Year Special and Junior, first term, three hours. Lectures and recitations and inspection trips.

A study of the application of the principles of pedagogy to the special field of industrial education; the consideration of courses pursued and methods used in industrial schools in the United States and Europe; and the aim and intent of vocational education under the provisions of the Smith-Hughes Act. Visits will be made to industrial shops and industrial schools.

Ind. Ed. 34. **Practice Teaching.**

Second Year Special and Junior, second term, four hours practice in actual teaching.

Practice in teaching of industrial shop work will be given in the shops of the school under the direction and supervision of an experienced tradesman and teacher.

Ind. Ed. 36. **Methods of Industrial Education.**

Second Year Special and Junior, second term, one hour. Lectures and recitations.

A parallel course to Ind. Ed. 34. The problems arising in practice teaching will be considered.

Ind. Ed. 51. **Drawing Methods.**

Second Year Special and Senior, first term, two hours. Lectures and recitations.

Special value and adaptations of drawing in relation to the field of vocational teaching in industrial school shops.

Ind. Ed. 53. **Reports on Assigned Readings.**

Second Year Special and Senior, first term, six hours per week.

Conferences, readings, and written reports upon timely topics related to vocational guidance, industrial education, efficiency of shop organizations, etc., with the aim of introducing the student to the literature of his chosen work.

Ind. Ed. 56. **Vocational Guidance.**

Senior, second term, two hours. Lectures and recitations.

A study and an attempt at classification of the individual characteristics and abilities in their relation as determining factors in denoting adaptability to particular occupations. The course will be closely related to Ind. Ed. 21; and various psychological tests will be discussed and demonstrated as time will permit.

Ind. Ed. 58. **Shop Organization.**

Second Year Special and Senior, second term, three hours. Lectures, recitations, and shop visits.





This course will consider the fundamentals of shop organization and as many of the specialized "systems" as time will permit. Especial attention will be given to the practical adaptations of these systems in the organization of courses in the industrial school shop.

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## DEPARTMENT OF MATHEMATICS

PROFESSORS FIELD, SKILES, MORTON AND SMITH, MESSRS. STAMY, BINGLEY AND SHAW.

### General Statement

Great importance is attached to the study of Mathematics. Primarily the aim of the instruction is to supply the student with a working knowledge of those principles which he needs in the study of engineering; but since the acquisition of a ready and logical mind is quite as valuable as the ability to use the subject, it is not the purpose to subordinate altogether the logical development of mathematics to the practical side.

Instruction in this department is given by use of textbooks, supplemented by oral explanations and lectures. The student's knowledge of the subject is tested almost daily. It is hoped that the classes may be subdivided into sections numbering from twelve to twenty, thus making possible the individual treatment of students who require it.

### Entrance

For entrance to the Freshman Class by examination, it will be necessary to pass the following subjects:

Plane and Solid Geometry: all theorems and one-third of exercises.

Elementary and Advanced Algebra: factors, fractions, involution, evolution, exponents, radicals, solution of quadratic equations by formula and by factoring, simultaneous equations, ratio, proportion, variation, progressions, partial fractions, logarithms, etc.

Do not omit the subject of logarithms, for this is necessary for Freshman Trigonometry.

A review course in Alegbra during the last half year of the high school would be of great value to the student. In this course, drill should be given in problems involving ex-

ponents, solution of equations, reduction of fractions, radicals, etc. The inability of students to do this part of the later work is the chief cause of discouragement and failure.

## Courses of Instruction

**Math. 2. Shop Mathematics.**

Second Year Specials and Sophomores in Industrial Education.

This course emphasizes the practical industrial applications of mathematical principles with which the students are already familiar.

Lectures and assigned problems. Not open to engineering students.

**Math. 3. Algebra.**

Prerequisite, Elementary Algebra to Simultaneous Quadratics.

Freshman, first term, three hours.

This course is designed for those students who are conditioned in higher Algebra. It covers the subjects of ratio, proportion, variation, progression, partial fractions, logarithms, etc.

Text: *Ashton and Marsh.*

**Math. 7. Geometry.**

Prerequisite, Plane Geometry.

Freshman, first term, three hours.

This course is for those students who enter, conditioned in Solid Geometry. It is the usual course with propositions and two-thirds of the exercises.

Text: *Wentworth and Smith.*

**Math. 11 and 11a. Freshman Algebra.**

*Professors Field, Skiles, Morton and Smith, Messrs. Stamy, Bingley and Shaw.*

Prerequisite, Entrance Mathematics for Freshman.

Math. 11. Freshman, first term, three hours.

Math. 11a. Freshman, second term, three hours, following Math. 3.





A review of the important topics in the Algebra for entrance to the Freshman Class and advanced work in Theory of Equations.

Text: *Ashton and Marsh.*

**Math. 15 and 15a. Trigonometry.**

*Professors Field, Skiles, Morton and Smith, Messrs. Stamy, Bingley and Shaw.*

Prerequisite, Entrance Mathematics for Freshman.

Math. 15. Freshman, first term, three hours.

Math. 15a. Freshman, second term, three hours, following Math. 3.

The derivation of all formulas of Plane Trigonometry, transformations, solution of trigonometric equations, right and oblique triangles. All exercises worked.

Text: *Crockett's* "Plane Trigonometry;" *Wentworth's* 5 place tables.

**Math. 18. Analytic Geometry.**

*Professors Field, Skiles, Morton and Smith, Messrs. Stamy, Bingley and Shaw.*

Prerequisite, Math. 3, 7, 11 and 15.

Freshman, second term, five hours.

Includes points, lines, circles, plots both rectangular and polar, transformation of co-ordinates from rectangular to polar and polar to rectangular, the ellipse, parabola, hyperbola, and loci of second order.

Text: *Wilson and Tracy,* "Analytic Geometry."

**Math. 16. Slide Rule.**

*Professors Field, Skiles, Morton and Smith, Messrs. Stamy, Bingley and Shaw.*

Freshmen, except Commerce, second term, one hour.

The slide rule is explained and used in the solution of many problems of calculation.

**Math. 21. Analytic Geometry.**

*Professors Field, Skiles, Morton and Smith, and Mr. Stamy.*

Prerequisite, Math. 11, 15 and 18.

Sophomore, first term, two hours.

Special work in curve tracing and analytic geometry of three dimensions.

Text: *Wilson and Tracy,* "Analytic Geometry."

Math. 25. **Calculus.**

*Professors Field, Skiles, Morton and Smith, and Messrs. Stamy and Bingley.*

Prerequisite, Math. 11, 15 and 18.

Sophomore, first term, three hours.

Differential Calculus, including the derivatives of all algebraic and transcendental functions, maxima and minima, curvature, indeterminate forms, series, etc.

Text: *Granville's* "Calculus."

Math. 26. **Calculus.**

*Professors Field, Skiles, Morton and Smith, and Mr. Stamy.*

Prerequisite, Math. 11, 15, 18, 21 and 25.

Sophomore, second term, five hours.

Complete Differential and Integral Calculus. Many problems of practical application from outside the text.

Text: *Granville's* "Calculus."

Math. 28. **Calculus.**

*Professor Skiles.*

Prerequisite, same as for Math. 26.

Sophomore, second term, five hours. Students in Arch., and E. C.

Integral Calculus and a short course in Differential Equations. A great many applications from Geometry, Physics, Chemistry, and Mechanics are given.

Text: *Granville's* "Calculus."

Math. 35 and 35a. **Differential Equations.**

*Professors Field, Skiles, Morton and Smith.*

Prerequisite, Math. 18, 21, 25, 26.

Math. 35. Junior, first term, two hours. Students in M. E. and C. E.

Math. 35a. Junior, second term, two hours. Students in E. E.

Ordinary Differential Equation of first and second orders and special types of higher order. A great many applications from Physics and Mechanics are given.

Text: *Campbell's* "Differential Equations."





# DEPARTMENT OF MECHANICAL ENGINEERING

PROFESSORS COON AND LOWNDES; MESSRS. MARTINDALE, HENIKA, THOMPSON, VAN HOUTEN, NORMAN, PEACOCK, PRINTUP, GRIFFIN AND PATILLO.

## General Statement

A mechanical engineer should possess accomplishments in three general particulars: He should be able to grasp and solve mechanical problems; he should be an expert mechanical draftsman in order to be able to design, and he should be thoroughly familiar with shop processes, and shop limitations. The studies in the mechanical course are laid out with these ends in view.

As Mathematics is, to a large extent, the basis of Engineering, the student is given a thorough course in this subject as an important part of his foundation work. Of scarcely less importance is the study of Physics and Chemistry, the former giving the student a knowledge of the laws of Nature, and the latter enabling him to better understand the composition of matter. The course in English is not only general, but practical in its benefits since an essential part of the equipment of every engineer is the ability to express his ideas clearly and concisely either orally or in writing.

With a careful preparation in the foregoing subjects as a groundwork the student is prepared to take up the subjects which are of a technical nature, and peculiar to the course in Mechanical Engineering. It will probably not be questioned that a good designer of machinery must primarily be a good draftsman, and to this end the course in Mechanical Drawing extends throughout the four years, it being recognized that the "only way to learn how to draw is to draw." Supplementing the work in the drafting room a course is given in Machine Design, both by text books and lectures, and in his Senior year the student is thrown largely upon his own resources, with the knowledge that neither here nor elsewhere, is the undergraduate competent to turn out good mechanical designs without assistance from an experienced designer.

As many hours as the time permits are devoted to work in the various shops. The purpose of this practical work

is not to teach the student a trade, although it can not be questioned that the more skill a man possesses with his hands, the better off he is, in every way. Except one or two preliminary tasks, all the machine shop work is confined to parts of machines under construction, the student following working drawings prepared under the supervision of an experienced designer. In the limited time he is enabled to devote to this class of work, the student does not ordinarily acquire sufficient skill to readily make the accurate fits required in first class construction, but he unconsciously acquires a knowledge of the manner in which the several members of a machine have to be fabricated, and this knowledge is of inestimable value to him as a designer of machinery. Of a like value is the knowledge gained by his work in the foundry and smith shop. Experience in pattern making and in the foundry enables the student to instinctively avoid designing needlessly difficult or absurd castings.

Studies of a strictly technical character pertaining to this course necessarily are deferred to the later years, as a thorough knowledge of the subject already briefly touched upon is essential to a comprehensive grasp on the student's part, of the basic principles of Mechanical Engineering. Many men have become eminent as engineers who had no training in a technical school. It is no doubt equally true that many men have become of great service in the engineering profession who owe their inspiration, their initial start, to the training, the mental discipline they received in some technical school. The purpose of a course in engineering is not so much in the line of imparting facts and information, as it is to enable the student to form the habit of logically reasoning, to depend upon his own resources, to draw correct conclusions from given premises,—in short, to *think*.

Engineering courses do not pretend to cover the whole field of technical thought and achievement. At best they can impress upon the student only basic principles. Students who pursue successfully the course in Mechanical Engineering can not hope to be experts in all its varied and useful fields. On joining the great army of workers in the commercial world, they will inevitably drift into some particular line of work in which the productive period of their lives will be passed.





It will be conceded that it is not sufficient for a course in engineering to turn out technical experts, if it can hope to do even this. But it must do much more; it must turn out *men*. While the schedule of subjects in this coure does not indicate it, it is the prime object to send out young men to engage in the commercial work of the world with high ideals and a keen sense of moral responsibility. Good character is of more importance to the young engineer than engineering ability. Much has been said about the "commercialism" of our time, but it is probable that no other one cause can have so profound and widespread influence for the uplift of all, as the right kind of manufacture, of trade, of commerce. There can not be too much commerce of the right sort. An earnest effort is made to fit our young men for the responsibilities of citizenship and to impress upon them the fact that the useful life, the life worth living, is a life of service.

## Equipment

With the growth of the school, adequate as our shop equipment seemed to be, it has been outgrown, and the year 1912 saw a portion of the shops displaced by new ones of a decidedly better class. The new shops comprise a smith shop, containing space for forty forges,—twice the former equipment,—and a foundry. Both of these shops are strictly up-to-date in plan, and among their most marked characteristics are the flood of light, and the splendid ventilating systems. Forges of the down-draft system are installed in the smith shop, with also a score of vises for bench work. The foundry is equipped with core oven, brass foundry, overhead traveling crane, and an oil system for starting cupola fires. All roof trusses are of steel, in both shops, with a glass monitor roof. All blowers are electrically driven.

Adjoining the new shops is an administration building of strictly fire-proof construction, having brick walls, reinforced concrete floors and roof,—the latter covered with slate. This building is four stories high. On the basement floor are offices for the smith shop and foundry foremen, with complete lavatory and toilet facilities, and

large storage bins for blacksmith's coal, and for other storage purposes. On the next, or ground floor, are a museum, a library, a large locker room with space for seven hundred lockers, and adjoining the latter are ample lavatory and toilet facilities for the students working in the shops. These rooms are fitted up in the style found in strictly first class hotels, and form an object lesson to the students as to the provision which should be made for working men.

On the second floor of the administration building are the offices of the mechanical director, and two large class rooms, and a drawing room, besides a janitor's room. On the top floor are two large drawing rooms, and a handsome studio and office, the entire floor being used by the Department of Architecture. The blackboards in the drawing rooms, and the class rooms below, are made of slate.

Later, new wood shops and machine shops will be added, each 40 ft. x 200 ft., with necessary offices, tool rooms, store rooms and lecture rooms.

The machine shop equipment comprises a large assortment of tools incident to the needs of the School. Several of these tools are much larger than are to be found at other technical shops. Among them are an iron planer 36 inch x 40 inch x 10 feet; two lathes having 25 ft. beds, the larger 36-inch swing; five 20 inch x 20 inch x 6 ft. iron planers all of our own design and manufacture complete; six emery wheel stands, and the steam engine which at present drives all the machinery in all the shops. Much of the machine shop equipment is new, including a universal milling machine, a universal grinding machine, shaping machine, horizontal boring machine and many lathes. The growth of the School will require additions to this equipment when we move into the new shops.

Besides the tools, etc., mentioned above as having been made in our shops, we have also made a 24-inch buzz planer for our own use which has given excellent satisfaction. The shops have also made nineteen high-speed wood lathes, all for our own use. We have also made a hot water boiler feed pump which has been a long time in successful service, scores of shaft hangers and bearings, many electrical machines, including a large rotary converter, many steam





traps *which work*, steam and water pressure reducing valves, friction clutches, drawing stands, a great amount of cabinet work of various kinds and many other miscellaneous tools.

The shop management does not think it desirable, and thus far has not found it necessary to put students upon tasks to be cast into the scrap heap, though it would be much easier to run the shop on that plan. Neither does the shop purchase castings and drawings of machinery to be built. All work done in the shops is from our own design from beginning to end, and there has never been any indication that our plan is not successful.

For description of equipment used by students in mechanical engineering during the latter, or advanced part of the course, see Department of Experimental Engineering and also Electrical Engineering.

All students are given some practical work in concrete construction, which up to the present time has been in the form of outdoor walks, basement floors, flagging, or foundations.

## Course in Mechanical Engineering

### FRESHMAN YEAR

See page 55.

### SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 13 | Machine Drawing | | 3 | 3. |
| Eng. 21 | American Literature } | 3 | | 7.5 |
| Eng. 27 | Parallel Reading } | | | |
| Geol. 1 | Ferrous Metallurgy (or C. E. 1) | 2 | | 5. |
| Math. 21 | Analytic Geometry | 2 | | 5. |
| Math. 25 | Calculus | 3 | | 7.5 |
| M. E. 11 | Mach. Shop | | 6 | 6. |
| Phys. 9 | Physics | 4 | | 10. |
| Phys. 13 | Physics Laboratory | | 3 | 4. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | 14 | 17 | 53. |

*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| C. E. 21 | Plane Surveying (or Geol. 1a) | 1 | 3 | 5.5 |
| Dr. 14 | Machine Drawing | | 3 | 3. |
| Eng. 24 | Political Economy } | 3 | | 7.5 |
| Eng. 28 | Parallel Reading } | | | |
| Math. 26 | Calculus | 5 | | 12.5 |
| M. E. 12 | Mach. Shop | | 6 | 6. |
| Phys. 10 | Physics | 4 | | 10. |
| Phys. 14 | Physics Laboratory | | 3 | 4. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | 13 | 20 | 53.5 |

## JUNIOR YEAR

Military Instruction is optional for Juniors and Seniors as a substitute for an equivalent amount of the work tabulated below.

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Dr. 21 | Machine Drawing | | 3 | 3. |
| Dr. 23 | Mechanism | 4 | | 10. |
| Eng. 31 | English Literature } | 3 | | 7.5 |
| Eng. 35 | Literary Thesis } | | | |
| Ex. E. 21 | Calibration Laboratory | | 3 | 4. |
| Math. 35 | Differential Equations | 2 | | 5. |
| M. E. 23 | Analytic Mechanics | 3 | | 7.5 |
| M. L. 1 | German } | | | |
| M. L. 7 | French } One required | 3 | | 7.5 |
| M. L. 13 | Spanish } | | | |
| Phys. 11 | Physics | 3 | | 7.5 |
| | Total.. | 18 | 6 | 52. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| C. E. 15a | Hydraulics | 3 | | 7.5 |
| Dr. 24 | Kinematic Drawing | | 3 | 3. |
| Eng. 32 | English Literature } | 3 | | 7.5 |
| Eng. 36 | Literary Thesis } | | | |
| Ex. E. 52 | Hydraulic & Materials Lab'y. | | 3 | 4. |
| Ex. E. 76 | Power Plants | 2 | | 5. |
| M. E. 24 | Analytic Mechanics | 3 | | 7.5 |
| M. E. 28 | Mechanics of Materials | 3 | | 7.5 |
| M. L. 2 | German } | | | |
| M. L. 8 | French } One required | 3 | | 7.5 |
| M. L. 14 | Spanish } | | | |
| | Total.. | 17 | 6 | 49.5 |

## SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| E. E. 3 | Electrical Engineering Laboratory | | 3 | 4. |
| E. E. 5 | Applied Electricity | 3 | | 7.5 |
| Ex. E. 71 | Fuels Laboratory | | 3 | 4. |
| M. L. 3 | German } | | | |
| M. L. 9 | French } One required | 3 | | 6. |
| M. L. 15 | Spanish } | | | |
| M. E. 31 | Mechanics of Materials | 2 | | 5. |
| M. E. 33 | Engineering Problems | 2 | | 5. |
| M. E. 35 | Steam Engine | 4 | | 10. |
| M. E. 39 | Valve Gears | 2 | | 5. |
| M. E. 41 | Designing (Drawing) | | 6 | 6. |
| M. E. 51 | Shop Methods | 1 | | 2.5 |
| | Total.. | 17 | 12 | 55. |





*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Ex. E. 72 | Steam Engine Lab'y | | 3 | 4. |
| Ex. E. 86 | Gas Engine Lab'y | | 3 | 4. |
| M. L. 4 | German } | | | |
| M. L. 10 | French } One required | 3 | | 6. |
| M. L. 16 | Spanish } | | | |
| M. E. 36 | Gas Engines | 4 | | 10. |
| M. E. 42 | Machine Design (Drawing) | | 6 | 6. |
| M. E. 44 | Machine Design | 3 | | 7.5 |
| M. E. 46 | Graphical Statics | 2 | | 5. |
| M. E. 48 | Steam and Water Turbines | 2 | | 5. |
| M. E. 52 | Shop Methods | 1 | | 2.5 |
| | Thesis | | | 4. |
| | Total.. | 15 | 12 | 54. |

## Courses of Instruction

### M. E. 3-4. Woodshop.

*Professor Coon, Mr. Henika, Mr. Norman, Mr. Printup and Mr. Patillo.*

M. E. 3-4, Freshman C. E., E. Ch., E. E., M. E. and T. E., first or second term, 90 hours.*

M. E. 3a, Freshman Arch. and Com., first term 45 hours.

M. E. 3c, Sp. T. E., first term, 36 hours.

M. E. 3e, Sophomore Ind. Ed., first term, 45 hours.

An advanced course in Cabinet Making required of four year students in Industrial Education. Not open to engineering students.

M. E. 4e, Sophomore Ind. Ed., second term, 45 hours.

An advanced course in Pattern Making required of four year students in Industrial Education. Not open to engineering students.

1st.—To pass Woodshop, students must complete Bench and Lathe work, pass examination in Text Books, and put in 40 hours maximum or 20 hours minimum time, on Cabinet and Pattern Making; as soon as the Maximum is completed, they are excused from Woodshop, and they can not graduate until the minimum is completed.

*In the shop courses the total hours per term is given. In other courses, hours per week.

2nd.—Each unexcused absence shall take four points from grade; deficiencies caused by unexcused absences, at the end of the month, will necessitate repeating the subject.

3rd.—No student will be allowed to do more than four hours work for himself until the maximum time has been completed.

As described above, the beginner completes satisfactorily about twelve tasks in joint making in wood. He then takes up wood turning and is kept on this, turning at first mere tasks, but later useful articles, such as file handles, etc., until he has acquired considerable skill at the lathe. After the lathe work the student is put upon cabinet work. It is always upon some useful thing, usually something ordered by some Department of the School. For instance, students have made many hundreds of drawing boards, and scores of cabinets in pine, and in plain and quartered oak.

Students who have completed the maximum of 40 hours time are allowed to construct articles for themselves, being charged the bare cost of materials used. Very many of these articles have reflected the highest credit upon the student, and some astonishingly beautiful things have been constructed by boys who had had no prior experience whatever in the use of tools.

Students are required to keep their tools in good order, and only the very best of tools are supplied to them. The student pays for all damaged or missing tools.

All students are required to pass an examination in pattern-making, which is taught by lecture, text book and pattern construction.

Students from accredited schools where wood working is taught, are given credit for such work, but are required to pass an examination in pattern-making.

Students in Industrial Education are required to put in the full time scheduled in all courses, but after having completed the minimum of 20 hours, as outlined above, on Cabinet and Pattern Making, they are urged to use the balance of the time in making useful articles for themselves upon the same basis as recommended for engi-





neers, viz., that they are required to pay only the bare cost of the materials used.

M. E. 5, 6, and 19. **Smithshop.**

*Professor Coon and Mr. Thompson.*

M. E. 5 or 5a, Freshman, first or second term, 45 hours.

M. E. 5b, Sp. T. E., second term, 30 hours.

M. E. 6, Freshman Ind. Ed., second term, 45 hours.

A continuation of M. E. 5, required of four year students in Industrial Education. Not open to engineering students.

M. E. 19, Junior Ind. Ed., first term, 45 hours.

An advanced course in Blacksmithing, required of four year students in Industrial Education. Not open to engineering students.

In the smithshop the student at first is given a set of tasks in forging, in order to acquire skill in the handling of a forge fire and in the heating of metals, as well as in the actual work of forging. He is taught the treatment required for different classes of steels, annealing and tempering, case hardening, brazing, tool dressing of lathe tools, etc. Students in this shop make a very great number of useful articles, such as razors, carving sets, drawing knives, andirons, hammers, etc.

This subject is taught by text-books and lectures, as well as by practice, and students are required to pass an examination on these.

M. E. 7 and 8. **Foundry.**

*Professor Coon and Mr. Van Houten.*

M. E. 7 or 7a, Freshman, first or second term, 45 hours.

M. E. 7b, Sp. T. E., first or second term, 30 hours.

M. E. 8, Sophomore Ind. Ed., second term, 45 hours.

A continuation of M. E. 7, required of four year students in Industrial Education. Not open to engineering students.

Students in the foundry do the various work of the foundryman, making molds for patterns, running heats

from the cupola, metal mixing, brass casting, aluminum and alloy making, core making, etc.

Students are required to pass an examination in this subject, which is taught, like the smith shop work, by text book and lectures, as well as by practice.

M. E. 11 and 12. **Machine Shop.**

*Professor Coon, Mr. Martindale, Mr. Peacock and Mr. Griffin.*

Prerequisite, M. E. 3, 4, 5, 7, and ability to read and understand simple machine drawings.

M. E. 11, Sophomore E. E., and M. E., first term, 90 hours.

M. E. 11a, Sophomore T. E., second term, 90 hours.

M. E. 11b and 12b, Sp. T. E. II first and second terms, 45 hours each term.

M. E. 12, Sophomore M. E., second term, 90 hours.

The work in the machine shop is almost exclusively the construction of useful, workable machinery, as described in the opening announcement of the Department of M. E. All the varied processes carried on in a well equipped machine shop of a manufacturing plant are at the disposal of the student. He is given work in gear cutting, turning, shaping, planing, drilling, grinding, babbiting journal boxes, chipping, filing, scraping not only flat surfaces, but scraping fits, laying out work, assembling, sketching, tool room keeping by check system, keeping machinery in order and making repairs of many kinds, valve fitting, cylinder boring, management of portable forge, keeping engines and dynamos in order, firing and caring for steam boilers. At all times a varied class of work is in process of construction, such as lathes, planers, gas engines, steam traps, grinding machines, friction clutches, electric machines of different kinds, etc., and repairs for the various departments of the school.

Instruction and practical work are given in pipe fitting, both steam and water, plumbing in its various branches, electric wiring, etc., all under instruction of experienced men in the varied classes of work,—men who have had large experience in commercial work.





Special emphasis is placed on this last statement. There is not an instructor in the shops anywhere who has not come up through the school of hard knocks, with years of experience in commercial shops.

M. E. 16. **Plumbing and Pipe Fitting.**

*Professor Coon, Professor Cannon and Mr. Griffin.*

Sophomores in Industrial Education, second term, 60 hours.

This course is designed to introduce the student to the fundamentals of the plumbers work, and will consist of the making of joints in wrought and cast iron pipe, lead pipe, and vitrified tile. All work will be executed to measure from working drawings. Students may elect additional work in plumbing during their Junior and Senior years. Not open to engineering students.

M. E. 17. **Sheet Metal Work.**

*Professor Coon, and Professor Cannon.*

Juniors in Industrial Education, first term, 60 hours.

This course will include the development of patterns and the making of various commercial articles of sheet metal. Practice and facility in the use of fluxes and solder will be required. Students may elect additional Sheet Metal Work during their Junior and Senior years. Not open to engineering students.

M. E. 18. **Wood Finishing.**

*Professor Coon, Professor Cannon, and Mr. Henika.*

Juniors in Industrial Education, second term, 45 hours.

This course will consist of practice in the preparation of wood surfaces for finishing, and study and practice in the use of shellac, paint, filler, stain, and varnish. Not open to engineering students.

M. E. 23-24. **Analytic Mechanics.**

*Professor Lowndes.*

Prerequisite, Math. 26 and 28, M. E. 11-12.

Junior M. E., first and second terms, three hours.

M. E. 28 and 31. **Mechanics of Materials.**

*Professors Coon and Lowndes.*

Prerequisites, Math. 25 and 26, and all Physics.

M. E. 28, Junior, second term, three hours.

M. E. 31, Senior, first term, two hours.

Analysis of stresses in beams and girders. Analytical determination of formulas, of use of practical constants determined in testing machines. Columns, long and short, of wood, steel, concrete and reinforced concrete. Stresses in thick cylinders and boiler shells, pipe, etc. Girders, floors, roofs, etc., of reinforced concrete. Various stresses in shafting, transmission of power, etc. Centrifugal forces and other forces of acceleration in circular saws, fly wheels, connecting rods, etc. Stresses in tanks, grain bins, crane hooks, stand pipes, smokestacks, etc.

Text: *Merriman,* Mechanics of Materials.

M. E. 33. **Engineering Problems.**

*Professor Coon.*

Prerequisites, All Math., Phys., Draw., 2, 4, 13, 14, 21, 23.

Senior, first term, two hours.

Special problems in Analytical Mechanics, given to M. E. Seniors who have completed Ex. E.-1. Exclusively lectures and problems in accelerated motion, such as centrifugal force, axis of spontaneous rotation, centre of percussion, point of application of resultant force, and its direction. Graphic analysis wherever applicable. Forces applied to bodies free to move, with resultant motion.

M. E. 35. **Steam Engine.**

*Professor Coon.*

Prerequisites, All Math., Physics, Analytic Mechanics, and Draw., 2, 4, 13, 14, 21, 23.

Senior, first term, four hours.

Thermodynamics of steam. Action of the steam engine as a heat engine. Indicator card. Temperature-entropy chart. Analysis of compound and triple expansion engines, complete. Calorimetry, Condensers, Feed water heaters, Jacketing, Superheating, Injectors, and other boiler feeders. Lubricators, Governors, complete analysis by instant centre method (principle of virtual velocities.) Kinematics of the steam engine, rotative effort. Accelerations of piston and forces set up. Graphics wherever applicable. Stresses due to various accelerations in connecting rod. Steam engine details, types of steam engines. Complete analysis of drop cut-off engines, such as Corliss, etc. Locomotive and marine engines. Steam engine design. Steam turbines.

Text: *Ripper.*





M. E. 36. **Gas Engine.**

*Professor Coon.*

Prerequisites, All Math., Physics, and Draw., 2, 4, 13, 14, 21, 23.

Senior, second term, four hours.

Thermodynamics of gas engines, types of gas engines, —explosive engines, combustion engines, gas engine details, marine engines, stationary engines, gas engine fuels, combustion, carburetors, gas production, such as suction producers with "soft" coal, lignite, etc. Analysis of gas engine tests, heat balances, gas turbines.

Text: *Carpenter and Diederichs.*

M. E. 39. **Valve Gears.**

*Professor Coon.*

Prerequisites, All Math., Physics, and Draw., 2, 4, 13, 14, 21, 23.

Senior, first term, two hours.

Complete analysis of plain slide valve gears, fixed and shifting eccentrics, by Bilgram, Zeuner and McCord diagrams. Exclusive graphics. Ryder (Meyer), and Gonzenbach gears. Complete blackboard analysis of link motions. Shifting (Howe-Stephenson) link; stationary (Danl. Gooch) link; straight link (Allan); Egide Walschaerts link; Pilliod link; all both for stationary and locomotive purposes. Buckeye valve gears. Joy, Marshall and Hackworth gears. Cam gears.

Text: *Halsey* and lectures.

**M. E. 41. Drawing.**

*Professor Coon.*

Prerequisites, All Math., Physics, and Draw., 2, 4, 13, 14, 21, 23.

Senior, first term, six hours per week.

The student is given the elements of a machine to design, as nearly as possible as would be done in a commercial drawing office. He is thrown upon his own resources, having access to other machines to aid him in deciding upon sizes, thickness, etc., with expert advice to prevent his drawing absurdities. The designing covers a wide range of subjects, its principal value being to impress upon the student the conventional shop practice, and the proper method of producing working drawings of machinery. All the various machines, etc., manufactured in the shops are from working drawings made by students.

**M. E. 42. Machine Design Drawing.**

*Professor Coon.*

Prerequisites, All Math., Physics, and Draw., 2, 4, 13, 14, 21, 23.

Senior, second term, six hours per week.

As far as possible the drawing of this term is in connection with the M. E. 44. It is also largely the solution of problems involving force, by use of graphical statics. Problems connected with governor design, as shaft governors, inertia governors, spring loaded governors, stresses in framed structures, etc. Laying out of power plants and works. There is also always something to be designed and drawn for our use in the shops.

**M. E. 44. Machine Design.**

*Professor Coon.*

Prerequisites, All Math., Physics, Analytic Mechanics, and Draw., 2, 4, 13, 14, 21, 23 and M. E. 28 and 31.

Senior, second term, three hours. Text and lectures.

Wrought and cast iron pipe and fittings. Cylinders and joints. Boilers, horizontal, tubular, and vertical.





Heating surface and grate area. Boiler and other riveted joints, analysis for maximum efficiency. Stacks and foundations. Clutches and brakes, disc, ring, strap and hydraulic. Belt and rope transmission. Locomotive and engine designs. Shafting hangers and lubrications. Gears, toothed and friction. Aeroplane construction.

Text: *Spooner.*

**M. E. 46. Graphical Statics.**

*Professor Coon.*

Prerequisites, All Math., Physics, and Draw., 2, 4, 13, 14, 21, 23.

Senior, second term, two hours.

Lectures and problems. Warren, Pratt, Bollman trusses, Fink, "A" roof trusses, etc. Analysis by tabulation and moments, supplemented by graphics in the drawing room. Graphical solution of governor problems.

The construction of mills and factories is not given a separate heading. Modern mill construction, including foundations, is given during the Senior year.

**M. E. 48. Steam and Water Turbines.**

*Professor Coon.*

Prerequisites, All Math., Physics, and Draw., 2, 4, 13, 14, 21, 23.

Senior, second term, two hours.

Construction and operation of the various steam turbines so far introduced. Superheated steam, Condensers, Forms of buckets and systems of expansion. Use in connection with compound reciprocating engines.

Water turbines, Pelton Wheels and others. Design, form of guides and buckets, Laws of Velocity, Efficiencies, Distribution of power from water-power sites. Construction of masonry and concrete dams, solid and cellular slip joints (expansion). Proper foundations for dams to secure permanency.

**M. E. 51-52. Shop Methods.**

*Professor Lowndes.*

Senior in M. E., first and second terms, one hour.

The object of this course is to familiarize the student with shop processes in such problems as are common in daily practice; to further the knowledge he has gained in the more elementary shop courses; to give him a clear idea of the kind of problems one meets in a modern shop; and to instruct him in the methods of attacking and solving such problems.

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## DEPARTMENT OF MILITARY SCIENCE

MAJOR R. P. COOK.

This department was organized in 1917 to fill the pressing need of a military course to fit students to better perform their part in the national emergency, and to put the School on a par with other institutions of like grade. Thus the School is doing its full share in the work of military preparedness, while the benefits to the individual amply repay the effort and time involved. For all-round physical development nothing has ever been devised superior to military drill and exercises.

The result of the military work is easily discernible in improved carriage, alertness of mind, improvement in physique and development of the spirit of loyalty to constituted authorities, of co-operation and team work and of organization,—all of which are important factors in the life work of any man, whether soldier or civilian. Properly followed up and developed these initial advantages should and will conduce largely to success in any calling.

Under present world conditions no man can be considered as educated who is not well grounded in the theory and practice of military science. He is thus better fitted not only to perform his duties as a citizen but also to take his place as one of the country's defenders.

The War Department has detailed an army officer in charge of the department. The military course is obligatory for all students of the first two years who are physically qualified. It comprises a minimum of five hours a week. An advanced course of five hours per week is optional for juniors and seniors. This course includes both theoretical and practical work and leads to a commission in the army.





### R. O. T. C. Senior Division

Under the Act of Congress of June 3, 1916 and General Orders No. 49, War Department, 1916, a Reserve Officers' Training Corps, Senior Division, was established at this Institution. The School of Technology thus became a part of the general system established throughout the country for the training of officers for our land forces. The units established at this institution are Signal Corps and Coast Artillery, both of which especially fit in with the engineering and scientific work of the School, so that a student's work in other departments contributes directly to his rating in the military department.

After two years work as above outlined, approved students may agree to take five hours a week in the military department for the remaining two years. In this case they will be paid commutation of subsistence by the Government, and after graduating satisfactorily are eligible for commissions in the Officers' Reserve Corps.

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## DEPARTMENT OF MODERN LANGUAGES.

PROFESSOR CRENSHAW, MR. MCKEE AND MR. CAMPOAMOR.

### General Statement

The study of modern languages at the School of Technology has a two-fold aim. Primarily, its purpose is to enable students to translate into their own tongue with ease and precision the literature which is constantly appearing in these languages on their professional subjects. Secondarily, its aim is to create in the student a living interest in the literature of these languages—an interest so strong that he will continue to read the great literary masterpieces found in them.

The courses in French, German, and Spanish extend through two years, and candidates for all degrees, except that of Bachelor of Science in Textile Engineering, are required to take a two-year course in one of these languages.

The fall term of the first year is devoted to a thorough grounding in the inflections of the languages. In the winter and spring terms, the forms already learned are fixed by translating and parsing easy prose selections. Correct pronunciation is aimed at from the beginning—a correctness gained, not by rules, but from the teacher. The ear is trained by dictation, and, as far as time will permit, by conversational exercises.

During the second year, works of greater difficulty are translated, the syntax of the language is studied more thoroughly, and the sentence structure is taught by practical work, both in written and oral exercises. In both years a wider field is covered by reading one part of the work assigned, carefully and slowly, another part rapidly. Greater facility in handling the languages is also gained by frequent sight translations.

In order that the students may learn to handle the topics discussed in the current technical magazines, articles from these are assigned to members of the Senior class, and written translations are required to be made in good English, at the same time faithfully reproducing the originals.

To facilitate this work, the Modern Language Department has at its disposal a reading room where magazines and newspapers published abroad and in the United States can be freely used by students.

## DEPARTMENT OF MODERN LANGUAGES

### Courses of Instruction

**M. L. 1. Elementary German.**

*Dr. Crenshaw.*

Junior, first term, three hours.

German grammar, including the declension of nouns, adjectives, the conjugation of strong and weak verbs, the use of prepositions, the word-order in the independent sentence.

Texts: *Vos,* "Essentials of German;" *Grimm,* "Marchen."





**M. L. 2. Elementary German.**

*Dr. Crenshaw.*

Junior, second term, three hours.

German grammar, including the use of modal auxiliaries, passive voice, separably and inseparably compounded verbs, word-order in the dependent sentence.

Texts: *Vos,* "Essentials of German;" *Storm,* "Immensee;" *Gore,* "German Science Reader;" *Truscott & Smith,* "German Composition;" *Wilhelmi,* "Einer musz heiraten;" *Benedix,* "Eigensinn."

**M. L. 3. Advanced German.**

*Dr. Crenshaw.*

Senior, first term, three hours.

Grammar reviewed in connection with translations. Stress laid on the acquisition of a vocabulary for speaking and writing German and for translating German into English. Daily practice in German composition and German conversation.

Texts: *Wright,* "Scientific German;" *Truscott & Smith,* "German Composition;" *Bacon,* "German Composition;" *Riehl,* "Burg Neideck;" *Freytag,* "Die Journalisten."

**M. L. 4. Advanced German.**

*Dr. Crenshaw.*

Senior, second term, three hours.

German Syntax, with special reference to the structure of the sentence in connected prose. Translation of scientific German works on heat, steam, electricity, magnetism, electric motors, and steam-engine.

Texts: *Wright,* "Scientific German;" *Bacon,* "German Composition;" *Truscott & Smith,* "German Composition;" "Erfindungen und Erfahrungen;" *Müller,* "Die Elektrischen Maschinen;" Newspaper German; *Elz,* "Er ist nicht eifersüchtig;" *Goethe,* "Egmont."

**M. L. 7. Elementary French.**

*Dr. Crenshaw and Mr. Campoamor.*

Junior, first term, three hours.

French elements including: forms of nouns and adjec-

tives, regular conjugations, use of auxiliaries "avoir" and "être," the position of the personal pronoun objects, the use of cardinals, the partitive noun and partitive genitive.

Texts: *Frazer and Squair,* "Elementary French Grammar;" *Kuhn,* "French Reader;" *La Bedollière,* "Mère Michel et son Chat."

**M. L. 8. Elementary French.**

*Dr. Crenshaw and Mr. Campoamor.*

Junior, second term, three hours.

Grammar reviewed in connection with reading; drill on the forms of the irregular verbs, the use of tenses, relative and interrogative pronouns, passive voice, infinitive, and subjunctive mood. Daily practice in French composition and dictation.

Texts: *Frazer and Squair,* "French Grammar;" *Dike,* Scientific Reader;" *Kuhn,* "French Reader;" *Halèvy,* L'Abbé Constantin;" French Military Terms.

**M. L. 9. Advanced French.**

*Dr. Crenshaw and Mr. Campoamor.*

Senior, first term, three hours.

This course includes the translation of advanced literary and scientific French texts; weekly exercises in connected French prose with special reference to French syntax; daily sight translations; French dictation; French conversation.

Texts: *Vreeland & Koren,* "French Syntax and Composition;" *Dike,* "Scientific French Reader;" Newspaper French; *Buffum,* "Contes Francais;" "Courrier des Etats Unis;" "Bulletin de l' Union Pan-Americaine;" *Dumas* "Vingt Ans Après."

**M. L. 10. Advanced French.**

*Dr. Crenshaw and Mr. Campoamor.*

Senior, second term, three hours.

This course is a continuation of M. L. 9.

Texts: *Vreeland & Koren,* "French Syntax and Composition;" *Dike,* "Scientific French Reader," completed; *Molière,* "Le Bourgeois Gentilhomme;" "Courrier des





Etats Unis;" "Bulletin de l' Union Pan-Americaine;" *Aubert,* "Notre Dame de Paris;" "Newspaper and Magazine French;" *Legouvè and Labiche,* "La Cigale;" French Military Terms.

**M. L. 11. Elementary French.**

*Dr. Crenshaw and Mr. Campoamor.*

Second, term, three hours.

This course is given to students who have had a year and a half of German or Spanish and is designed especially for those who may soon be called into military service and may have to go to France. It aims to teach the fundamentals of French grammar, stresses correct pronunciation, introduces the student to the geography, the climate, the government, the chief cities, rivers, canals, and railway systems of France. Dictation, conversation and military terms are stressed.

Texts: *Fraser & Squair,* "Elementary French Grammar;" *Talbot,* "Le Francais et Sa Patrie."

## Spanish

The courses in Spanish are intended to equip the student with a speaking knowledge of the language. Conversation begins practically with the first lesson and extends throughout the course. The daily language of the home, street, newspaper, business and commerce is taught by the use of commercial readers, Spanish newspapers, Spanish magazines, Spanish conversation and Spanish composition. The fundamental differences between Castillian and American Spanish are pointed out and practice is given in the American Spanish. The whole trend of the instruction is practical.

**M. L. 13. Elementary Spanish.**

*Dr. Crenshaw and Mr. Campoamor.*

Junior, first term, three hours.

Spanish Grammar, including the forms of nouns, adjectives and pronouns; the regular conjugations; the idiomatic uses of estar, hacer, ser, tener.

Texts: *Espinosa and Allen,* "Spanish Grammar."

**M. L. 14. Elementary Spanish.**

*Dr. Crenshaw and Mr. Campoamor.*

Junior, second term, three hours.

Spanish Grammar, including position of personal pronoun objects, verbs with radical change, use of subjunctive mood, passive voice, irregular verbs. Daily practice in Spanish composition and Spanish conversation; Spanish translation.

Texts: *Espinosa & Allen,* "Spanish Grammar;" *Berge-Soler & Hatheway,* Spanish-American Reader.

**M. L. 15. Advanced Spanish.**

*Dr. Crenshaw and Mr. Campoamor.*

Senior, first term, three hours.

This course is devoted to Spanish composition, Spanish conversation and to the translation of works of greater difficulty in literary and scientific Spanish. Use is made of current Spanish magazines and newspapers.

Texts: *Alarcon,* "Novelas Cortas;" *Crawford,* Spanish Composition; *Willcox,* "Scientific and Technical Spanish;" "La Revista del Mundo" (The World's Work in Spanish); "El Comercio."

**M. L. 16. Advanced Spanish.**

*Dr. Crenshaw and Mr. Campoamor.*

This course is a continuation of M. L. 15, in which the points stressed are: first, the acquisition of the vocabulary of daily life; second, Spanish conversation; the ability to write business letters in Spanish; fourth, fluency in translating commercial, technical and newspaper Spanish into good English.

Texts: *Willcox,* "Scientific and Technical Spanish;" *Waxman,* "A Trip to South America;" "La Revista del Mundo;" "El Mundo Azucarero;" "El Comercio;" "Blanco y Negro;" Tres Comedias Modernas; *Galdos,* "Marinela."





# DEPARTMENT OF PHYSICS.

PROFESSORS EDWARDS*, ELLIOTT, GODFREY AND MR. MACKAY.

## General Statement.

The primary aim of this department is to provide basic training for successful work in engineering. The fundamental principles of physics are emphasized, and the experimental basis presented together with the mathematical reasoning involved.

The instruction, which includes experimental demonstrations, lectures, recitations and laboratory work, is taken up in a thorough and systematic manner. Large numbers of numerical problems are assigned to familiarize the student with the significance and practical application of the theoretical instruction. Problem and recitation sections are planned small enough to permit considerable individual instruction.

The laboratory work is quantitative. The aim is to train the student in correct modes of experimentation, to give practice and proficiency in the use of standard physical instruments, and to inculcate an appreciation of the science of measurements. Carefully written reports of all experiments are required to teach the student to properly record his observations, to combine and present them in convincing form, and to correctly interpret his results. In performing the experiments, students work in pairs, but the reports are worked up independently. The attempt is made to make the list of experiments well chosen and appropriate rather than extensive.

## Equipment.

All lecture demonstrations are given in the physics lecture room on the first floor of the Academic Building. This room is provided with facilities for lecture demonstrations to large classes in accordance with best practice. It is well planned and lighted. The list of apparatus for lecture experiments is large and additions are constantly being made by purchase and manufacture in the school shops to meet

*Absent on leave.

the demands of the work. Recitation rooms are liberally provided with black boards.

The laboratories of the department are situated in the basement of the Academic Building, occupying a floor space of approximately 4,000 square feet, divided into three connecting rooms. In addition there is a dark room for photometric work. The apparatus is complete and conforms to best laboratory practice in engineering schools. Additions are made yearly by purchase from standard manufacturers and by construction in the school shops. Adequate sources of energy are available. The laboratory is strongest in mechanics, heat and electrical apparatus but is also equipped for the necessary work in magnetism, light and the other branches of physics.

## Courses of Instruction

**Phys. 5. Elementary Mechanics and Sound.**

*Professor Godfrey.*

Prerequisite, Math. 15.

Sophomore, T. E., Arch., and Sp. Arch., first term, three hours.

This course is elementary and consists of recitations, problems, and lectures. The physical properties of Matter, Mechanics of Solids, Mechanics of Fluids and Sound, are included in this course. A large number of numerical problems are solved.

Text: To be supplied.

**Phys. 6. Elementary Light, Heat, and Electricity.**

*Professor Elliott.*

Prerequisite, Phys. 5.

Sophomore, T. E. and Arch., second term, three hours.

A continuation of Phys. 5, Light, Heat, Electricity, and Magnetism, being treated in an elementary way.

Text: To be supplied.





**Phys. 7. Laboratory.**

*Professors Elliott and Godfrey, and Mr. Mackay.*

Prerequisite, Phys. 5.

Sophomore T. E., first term, three hours.

Supplementary to Phys. 5 and 6 for Textile Engineering students.

**Phys. 9. Mechanics and Heat.**

*Professors Elliott and Godfrey, and Mr. Mackay.*

Prerequisite, Math. 18.

Sophomore, M. E., E. E., C. E., and E. Chem., first term, four hours.

A course in Kinematics, Kinetics, Elasticity, Mechanics of Fluids, and Heat. Most of the time is devoted to Kinematics and Kinetics. The solution of a large number of numerical problems is required, involving the use of the English engineers' and metric systems of units.

Text: *Reed and Guthe's* "College Physics."

**Phys. 10. Heat and Electricity.**

*Professors Elliott and Godfrey, and Mr. Mackay.*

Prerequisite, Phys. 9.

Sophomore, M. E., E. E., C. E., and E. Chem., second term, four hours.

A continuation of Phys. 9. Heat, Electricity and Magnetism are included in this course.

Text: *Reed and Guthe's* "College Physics."

**Phys. 11. Electricity, Magnetism, Sound, and Light.**

*Professors Elliott and Godfrey, and Mr. Mackay.*

Prerequisite, Phys. 9 and 10, Math. 25 and 26.

Junior, M. E., E. E., C. E., and E. Chem., first term, three hours.

This course includes lectures and recitations. The fundamental principles of Electrodynamics, Electromagnetism, and Electromagnetic induction are taken up in a systematic way. The application of these principles

to the dynamo and motor are explained by lectures and demonstration.

The subject of discharge of electricity through gases is given by lectures and a large number of demonstrations.

In the subject of light, special attention is given to optical instruments.

Text: *Reed and Guthe's* "College Physics."

Phys. 13. **Laboratory.**

*Professors Elliott and Godfrey and Mr. Mackay.*

Prerequisite, Phys. 9.

Sophomore, M. E., E. E., C. E., and E. Chem., first term, three consecutive hours.

This course consists of experiments, reports and instruction in the laboratory. The experiments are on specific heat, heat of fusion, heat of vaporization, mechanical equivalent of heat, elasticity, friction, machines, etc.

Reference: *Nichols'* "Laboratory Manual."

Phys. 14. **Laboratory.**

*Professors Elliott and Godfrey, and Mr. Mackay.*

Prerequisite, Phys. 11 and 13.

Sophomore, M. E., E. E., C. E., and E. Chem., second term, three consecutive hours.

A continuation of Phys. 13. The experiments are on Light, Electricity, and Magnetism.

Reference: *Nichols'* "Laboratory Manual."

Phys. 16. **Laboratory.**

*Professors Elliott and Godfrey, and Mr. Mackay.*

Prerequisite, Phys. 14.

Sophomore, E. E., second term, three hours on alternate weeks.

This course is similar to Phys. 14, but is designed for students of Electrical Engineering; the magnetic properties of iron, specific resistance, loop tests, etc., are studied.





Phys. 20. **Slide Rule.**

Parallel Course, Phys. 14.

Sophomore, M. E., E. E., C. E., E. Chem., second term, one-half hour.

A thorough drill is given in the theory and use of the Mannheim Slide Rule.

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## TEXTILE DEPARTMENT

### The A. French Textile School

PROFESSORS SEAL AND CAMP, MR. JONES, MR. PHILPOT, AND MR. BRANDON.

### General Statement

The Textile Department gave the first instruction in textile education south of the Mason and Dixon Line in February, 1899. The end of the first decade found the department well past the experimental stage, proceeding along well tried lines with the various phases of its curricula appreciated and fully recognized by cotton manufacturers and the public in general.

The scope of instruction has been broadened to include the very highest grades of yarns and fabrics in order to exhibit the possibilities of native resources, as well as to give technical training along textile lines.

This department now offers excellent advantages to young men who intend entering the textile industry. The department is equipped for performing every process and operation of cotton manipulation from cotton field to finished fabric, and has admirably arranged class rooms, laboratories, etc., for giving practical instruction in the sciences and the application of this knowledge along industrial lines.

A large amount of practical work is given, enabling the student to familiarize himself with all details in the design, construction and operation of the various types of the several machines and processes. The yarns required in the weaving rooms are manufactured in the carding and

spinning departments, thus affording opportunity for performing the whole of every process and operation on yarn and fabric from the ginning of the seed cotton to the finished fabric.

These products are manufactured by the students, unassisted, except under the direction of skilled instructors, in as nearly mill-like manner and quantity as is consistent with best results. These products are not merely experimental samples, but are made in quantity with the quality fully up to mill standards.

## Textile Building

The Textile Building is a splendid example of architectural skill in modern mill construction. Its three floors, 150x 70 feet, each, contain ample class rooms, laboratories and halls for textile equipment.

## Textile Equipment

Great care was exercised in selecting the textile equipment, for the different branches of cotton manufacture. It will be noticed, in almost every process, different forms of machines, as built by the different makers, have been installed, thus enabling the student to become familiar with the various types, as well as affording a most unusual opportunity for direct comparison.

The power for driving the machines is derived from electric motors and is transmitted by Jones and Laughlins equipment. The Sturtevant system is used for heating and ventilating, and the humidity is controlled by the American Moistening Company's system. The entire building is provided with Grinnell automatic sprinklers for fire protection and is lighted by electricity.

## Carding Department

*Ginning.*—One Winship Cotton Gin with Feeder and Condenser.

*Pickers.*—One Saco-Lowell Breaker with Automatic Feeder; one Finisher with Perhams and Davis Sectional Plate Evener, and Kirschner Carding Beater.





*Cards.*—One Saco-Lowell 40-inch Revolving Flat Card; one Whitin 40-inch Revolving Flat Card; one Howard & Bullough 40-inch Revolving Flat Card.

*Combing.*—One Dobson & Barlow Sliver Lap Machine; one Whitin Sliver Lap Machine; one Whitin Ribbon Lap Machine; one Dobson & Barlow Comber, 8 heads; one Whitin Comber, 6 heads.

*Drawing.*—One Saco-Lowell Drawing Frame, 4 deliveries, metallic rolls; one Whitin Drawing Frame, 4 deliveries, metallic rolls.

*Fly-Frames.*—One Woonsocket Slubber, 32 spindles; one Woonsocket Intermediate, 42 spindles; one Woonsocket Fine-frame, 64 spindles; one Providence Fine-frame, 64 spindles, one Saco-Pettee Jack-frame, 96 spindles.

*Miscellaneous.*—Grinding, stripping and burnishing rolls; percentage, roving and yarn scales; complete set carder's tools, sliver balance, change gears, etc.

## Spinning Department

*Ring Spinning.*—One Fales & Jenks Combination Warp and Filling Frame, 80 spindles; one Fales & Jenks Filling Frame, 80 spindles; one Saco-Lowell Combination Warp and Filling Frame 132 spindles; one Howard & Bullough Combination Warp and Filling Frame, 160 spindles; one Whitin Warp Frame, 64 spindles.

*Mule Spinning.*—One Mason Spinning Mule, 360 Spindles.

*Twisting.*—One Draper Twister, 128 spindles; one Draper Twister, 32 spindles; one Fales & Jenks Twister, 80 spindles.

*Spooling.*—One Easton & Burnham Spooler, 24 spindles; one Draper Spooler, 40 spindles; one Fairmont Presser Spooler, 12 drums.

*Winding and Reeling.*—One single spindle Universal Winding Machine; one Universal Winding Gang, 6 spindles; one Fairmount Bobbin Winder, 12 spindles; one Tompkins Reel, 50 spindles.

*Miscellaneous.*—One Week's Banding Machine; one power yarn testing machine; two Barber knotters; one twist counter; spindle sets, change gears, etc.

## Weaving Department

*Warping.*—One Entwistle Beam Warper; one Entwistle Beamer; one Draper Beam Warper; one Draper Ball Warper; one Cole Beaming Machine.

*Slashing.*—One Lowell Single Cylinder Slasher; one Lowell Size Kettle; one Lowell Size Pump.

*Hand Looms.*—Hand-weaving room, with thorough equipment of hand bobbin winders, warping pins, hecks, drawing-in frames, and 22 hand looms with 30 harness dobbies, 4 shuttles, 4 beams complete and 200 Halton Jacquard.

*Power Looms.*—One Colvin Plain Loom; six Draper Northrop Looms; one Lewiston Pillow Case Loom; one Whitin Plain Loom; one Mason Plain Loom; two Kilburn-Lincoln Looms; one Mason Gingham Loom; one Crompton Gingham Loom; one Mason Dobby Loom; three Compton Dobby Looms; two Knowles "Gem" Looms; Chompton-Thayer Dobby Loom; one Fairmount Dobby Loom; one Fairmount Loom, 600 Jacquard; one Crompton Knowles Upholstery Loom, 400 Jacquard; C. & K. 4 x 1 Box Gingham Loom, 400 Schaum & Uhlinger Jacquard; one Stafford Plain Loom; one Lewiston Wide Loom, 1,200 Halton Jacquard; one Crompton Damask Loom, 600 Jacquard.

*Finishing.*—One Curtis & Marble Railway Sewing Machine; one Curtis & Marble Brushing and Calendering Machine; one Ellott & Hall Cloth Folder; one Windle Doubling and Winding Machine; one Parks & Woolson French Napper; one American Napping Machine Co.'s French Napper,

## Dyeing Department

One Klauder-Weldon Raw Stock Dyeing Machine; one Klauder-Weldon Skein Dyeing Machine; one Hussong Skein Dyeing Machine; one Textile Finishing Machinery Co.'s Chain Warp Dyeing Machine; two Chain Dyeing Machines, built in our own shops; one Draper Winding-on Machine; one Draper Winding-off Machine; one Textile Finishing Machinery Co.'s Can Chain Warp





and Drying Machine; one Schaum & Uhlinger Engine-driven Hydro-extractor; one Berry Ventilating Wheel; one Granger Jigg Dyer; one Phillips Steam Chest; one Butterworth Steam Cylinder; one Dry Room; two Cypress Dye Vats, regulation depth; one set Phillips' Copper Measures; twelve small Cypress Dye Vats, fitted with steam and water for experimental dyeing.

The Dyeing Laboratory is fitted up complete for experimental dyeing, color matching, testing, and analysis. Students have access to our splendid collection of dyestuffs, dyed specimens, etc., which we believe to be as complete as any in the United States.

## Course Leading to the Degree of B. S. in Textile Engineering

The four years course in Textile Engineering was established in response to the demand for instruction in the arts and sciences directly applicable to the cotton manufacturing industry.

The course includes a sound foundation in engineering subjects, in addition to the purely textile branches. Lecture room theory is combined with laboratory practice in a very comprehensive manner.

The practical results of this well rounded course are well illustrated in the positions of trust and responsibility occupied by the alumni, by the numerous requests for their services and in the increasing number of matriculates attracted by the successful careers of former students.

It will be noticed that the course includes Mathematics, English, Chemistry, Physics, Mechanism, Mechanics, Steam Engines and Boilers, Power Transmission, Lubricants, Strength of Materials, and Shop Work; in addition to Carding, Spinning, Weaving, Bleaching, Dyeing, Finishing, Mill Construction and Equipment, Mill Economy and Practice, Drawing, and Machine Design.

# Department of Textiles

## FRESHMAN YEAR

See page 55.

## SOPHOMORE YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 9 | Qualitative Analysis | | 4 | 4.5 |
| Dr. 13 | Machine Drawing | | 3 | 3. |
| Eng. 21 | American Literature } | 3 | | 7.5 |
| Eng. 27 | Parallel Reading } | | | |
| Ex. E. 9 | Strength of Materials | 3 | | 7.5 |
| Math. 21 | Analytic Geometry | 2 | | 5. |
| Phys. 5 | Physics | 3 | | 7.5 |
| Phys. 7 | Physics Laboratory | | 3 | 4. |
| T. E. 9 | Yarn Manufacture | | 3 | 3. |
| T. E. 49 | Weaving Mill | | 3 | 3. |
| T. E. 31 | Fabric Design | | 3 | 4. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | | | 54. |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Chem. 10 | Qualitative Analysis | | 4 | 4.5 |
| Dr. 14 | Machine Drawing | | 3 | 3. |
| Eng. 24 | Political Economy } | 3 | | 7.5 |
| Eng. 28 | Parallel Reading } | | | |
| Ex. E. 48 | Materials Laboratory | | 3 | 4. |
| M. E. 11a | Machine Shop | | 6 | 6. |
| Phys. 6 | Physics | 3 | | 7.5 |
| Phys. 7 | Physics Laboratory | | 3 | 4. |
| T. E. 2 | Yarn Manufacture, Theory | 3 | | 7.5 |
| T. E. 10 | Yarn Manufacture | | 3 | 3. |
| T. E. 50 | Weaving Mill | | 3 | 3. |
| T. E. 32 | Fabric Design | | 3 | 4. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | | | 55. |

## JUNIOR YEAR

Military Instruction is optional for Juniors and Seniors as a substitute for an equivalent amount of the work tabulated below.

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 21 | Organic Chemistry | 3 | | 7.5 |
| Chem. 23 | Organic Laboratory | | 3 | 3. |
| Dr. 23 | Mechanism | 4 | | 10. |
| Eng. 31 | English Literature } | 3 | | 7.5 |
| Eng. 35 | Literary Thesis } | | | |
| T. E. 3 | Yarn Manufacture, Theory | 3 | | 7.5 |
| T. E. 11 | Yarn Manufacture | | 3 | 3. |
| T. E. 41-51 | Weaving | 2 | 3 | 8. |
| T. E. 33 | Fabric Design | | 3 | 4. |
| T. E. 27 | Fabric Analysis | | 3 | 4. |
| | Total.. | | | 54.5 |





*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 22 | Organic Chemistry | 3 | | 7.5 |
| Chem. 24 | Organic Laboratory | | 3 | 3. |
| Dr. 24 | Kinematic Drawing | | 3 | 3. |
| Eng. 32 | English Literature } | 3 | | 7.5 |
| Eng. 36 | Literay Thesis } | | | |
| T. E. 4-12 | Yarn Manufacture | 3 | 3 | 10.5 |
| T. E. 22 | Dyeing Laboratory | | 3 | 3. |
| T. E. 42-52-56 | Weaving | 2 | 6 | 11. |
| T. E. 34 | Fabric Design | | 3 | 4. |
| T. E. 28 | Fabric Analysis | | 3 | 4. |
| Mil. 6 | Military Instruction | | 3 | 3. |
| | Total.. | | | 53.5 |

## SENIOR YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Ex. E. 73 | Elem. Steam Engine Laboratory | | 3 | 4. |
| Ex. E. 77 | Heat Engines and Thermodynamics | 3 | | 7.5 |
| M. L. 13 | Spanish | 3 | | 7.5 |
| T. E. 15 | Mill Engineering | 1 | 3 | 5.5 |
| T. E. 5-13 | Yarn Manufacture | 3 | 3 | 10.5 |
| T. E. 17 | Dyeing | 2 | | 5. |
| T. E. 23 | Dyeing Laboratory | | 3 | 3. |
| T. E. 37 | Jacquard Design | | 3 | 3. |
| T. E. 43-53 | Weaving | 2 | 3 | 8. |
| | Total.. | | | 53.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| E. E. 2 | Applied Electricity | 2 | | 5. |
| E. E. 3a | Electrical Engineering Laboratory | | 3 | 3. |
| Ex. E. 74 | Fuels and Gas Engine Laboratory | | 3 | 4. |
| Ex. E. 78 | Thermodynamics | 2 | | 5. |
| M. L. 14 | Spanish | 3 | | 7.5 |
| T. E. 16 | Mill Engineering | 1 | 3 | 5.5 |
| T. E. 6-14 | Yarn Manufacture | 3 | 3 | 10.5 |
| T. E. 18 | Dyeing | 2 | | 5. |
| T. E. 24 | Dyeing Laboratory | | 3 | 3. |
| T. E. 38 | Jacquard Design | | 3 | 3. |
| T. E. 54 | Weaving Mill | | 3 | 3. |
| | Total.. | | | 53.5 |

# SPECIAL TEXTILE COURSE

## General Statement

This Course is offered to students not having the necessary time to pursue the four year course.

Fourteen (14) units are required for entrance, except in cases where the applicant has had one or more years of practical mill experience.

The course includes instruction in carding, spinning, weaving, dyeing, fabric structure, fabric analysis, Jacquard

design, wood shop, smithy, foundry, machine shop, Chemistry, and English.

This course is not recommended to any student who can possibly arrange to pursue the regular course, but it is meeting the demand for a brief course, and many former students of this course are now holding remunerative and responsible positions in textile mills.

## Special Textile Course

### FIRST YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| Chem. 1 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 5 | Chemical Laboratory | | 2 | 2. |
| Eng. 11 | Rhetoric | 3 | | 7.5 |
| Eng. 15 | Theme Writing and Speaking | 1 | | 1. |
| M. E. 3d | Wood Shop | | 3 | 3. |
| M. E. 5b or 7b | Smithy or Foundry | | | |
| T. E. 2-9, 10 | Yarn Manufacture | 3 | 6 | 13.5 |
| T. E. 31 | Fabric Design | | 3 | 4. |
| T. E. 41, 49, 50 | Weaving | 2 | 6 | 11. |
| Mil. 1 | Military Instruction | | 5 | 5. |
| | Total.... | | | 54.5 |

*Second Term*

| | | | | |
|---|---|---|---|---|
| Chem. 2 | Inorganic Chemistry | 3 | | 7.5 |
| Chem. 6 | Chemical Laboratory | | 2 | 2. |
| Eng. 12 | Rhetoric | 3 | | 7.5 |
| Eng. 16 | Theme Writing and Speaking | 1 | | 1. |
| M. E. 5b | Smithy | | 3 | 3. |
| M. E. 7b | Foundry | | | |
| T. E. 3-11, 12 | Yarn Manufacture | 3 | 6 | 13.5 |
| T. E. 22 | Dyeing Laboratory | | 3 | 3. |
| T. E. 32 | Fabric Design | | 3 | 4. |
| T. E. 42-56 | Weaving | 2 | 3 | 8. |
| Mil. 2 | Military Instruction | | 5 | 5. |
| | Total.. | | | 54.5 |

### SECOND YEAR

*First Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| M. E. 11b | Machine Shop | | 3 | 3. |
| T. E. 15 | Mill Engineering | 1 | 3 | 5.5 |
| T. E. 4-13 | Yarn Manufacture | 3 | 3 | 10.5 |
| T. E. 17-23 | Dyeing | 2 | 3 | 8. |
| T. E. 33 | Fabric Design | | 6 | 8. |
| T. E. 37 | Jacquard Design | | 3 | 3. |
| T. E. 27 | Fabric Design | | 6 | 6. |
| T. E. 43-51, 52 | Weaving | 2 | 6 | 11. |
| Mil. 3 | Military Instruction | | 5 | 5. |
| | Total.. | | | 55. |





*Second Term*

| Abbrev. | Subject | Hrs. Per W'k Class | Lab'y | Equv. |
|---|---|---|---|---|
| M. E. 12b | Machine Shop | | 3 | 3. |
| T. E. 16 | Mill Engineering | 1 | 3 | 5.5 |
| T. E. 5, 6-14 | Yarn Manufacture | 6 | 3 | 18. |
| T. E. 18-24 | Dyeing | 2 | 3 | 8. |
| T. E. 38 | Jacquard Design | | 3 | 3. |
| T. E. 53-54 | Weaving Mill | | 6 | 6. |
| T. E. 34 | Fabric Design | | 3 | 3. |
| T. E. 28 | Fabric Analysis | | 3 | 3. |
| Mil. 4 | Military Instruction | | 5 | 5. |
| | Total.. | | | 54.5 |

**T. E. 1, 2, 3, 4. Yarn Manufacture. Theoretical.**

*Professor Camp and Mr. Philpot.*

T. E. 2, Sophomore, second term, Sp. I, first term, three hours.

T. E. 3, Junior, first term, Sp. I, second term, three hours.

T. E. 4, Junior, second term, Sp. II, first term, three hours.

T. E. 5, Senior, first term, Sp. II, second term, three hours.

T. E. 6, Senior, second term, Sp. II, second term, three hours.

This work is covered by lectures, recitations from technical text books and notes, upon the machines and processes; and is given three hours per week for two years.

The work of the first year includes the study of cotton; its varieties, cultivation, ginning, grading, etc.; the special features of the various cottons; classes and numbers of yarn for which certain cottons are most suitable; methods used by mills in buying cotton are explained. This work is followed by a study of the principles, the details of construction and operation of the machines in this department. The student is thoroughly drilled in all calculations pertaining to this machinery, including organizations for various numbers and classes of yarns.

The work of the second year is extended to include the following: combing, mule spinning, spooling, twisting, warping, reeling, winding, baling, packing, and conditioning yarn; the selection of machinery for coarse, medium and fine yarns; calculations for finding the number of the various machines needed in the equipment of a mill for making a certain kind and amount of product; specifi-

cations of the machines, and the laying out, or arranging the machines for the best results; estimate of the cost of the machinery, horsepower required, labor cost, etc.; the defects in yarns and their remedies; the sale of yarns, terms, etc.; factory laws, etc.

T. E. 15 and 16. **Mill Engineering.**

*Professor Camp.*

Seniors and Specials II, first and second terms, one hour lecture and three hours practice.

In this work the student combines his knowledge of engineering with that of the textile processes, in the study of mill design, construction and organization. A detailed study is made of modern types of mill buildings, including the insurance requirements, calculations, and drawings.

The different methods of driving all machines in a mill are studied, and the proper arrangement of the machines, as regards economy in power, and labor, etc.

Plumbing, heating, ventilating, lighting, humidifying, fire protection, insurance, etc., are studied.

T. E. 9, 10, 11, 12, 13, 14. **Cotton Yarn Manufacture. Practical.**

*Professor Camp and Mr. Philpot.*

T. E. 9 and 10, Sophomore, first and second terms, three hours, Special I, first term, six hours.

T. E. 11 and 12, Junior, first and second terms, three hours, Special I, second term, six hours.

T. E. 13 and 14, Senior, Special II, first and second terms, three hours.

The practical work in Yarn Manufacture begins with the Sophomore year and extends throughout the course.

The students are allowed every opportunity of acquiring a thorough knowledge of the construction and practical working of each machine. A moderate amount of time is devoted to the actual running of the different machines, so as to make them familiar with the use and operation of each machine and process.

Each student is required to ascertain such particulars as, draft, twist, weight, hank or number, speed, production, etc., at each machine in this department. Some time is spent in testing laps, slivers, rovings, and yarns, for comparing the actual with the theoretical results; indicating speeds, sizing rovings, yarns, etc., and getting up the necessary data for determining the efficiency of the machines; the effect of different twists, humidities, and temperatures on the appearance and the strength of yarns.





Practice is afforded in taking various parts of the machines down and replacing them; clothing, grinding and setting the revolving top flat card; setting rolls, spindles, builders, etc.; making the comber settings and timings; making changes in the numbers and varieties of yarns.

Cotton matching by the Government standards is practiced sufficiently to enable the student to get some idea about classing cotton. The merit or spinnable value of cotton is also studied.

T. E. 17, 18. **Dyeing.**

*Mr. Jones.*

Prerequisite, Chem. 1, 2, 5, 6, T. E. 22.

Parallel, T. E. 23, 24.

T. E. 17. Senior and Special II, first term, two hours.
T. E. 18. Senior and Special II, second term, two hours.

This subject, which includes the theory of both Bleaching and Dyeing, is taught by means of recitations from text books and lectures, in conjunction with laboratory work and experiments, covering such details as the study of the physical and chemical properties of cotton, wool, silk, artificial silk and the minor fibres, chemical agents commonly made use of under above head and their application to above fibres, bleaching agents, cotton bleaching, mercerizing, water impurities and purifications, theories of dyeing, natural and artificial colors, particular attention being paid those colors of value in cotton dyeing.

The course in Dyeing is arranged in conjunction with that in Textile Chemistry, required of all textile students, the object of which is to give the student a clear idea of the fundamental principles which underlie the arts of Bleaching and Dyeing.

T. E. 22, 23, 24. **Dyeing Laboratory.**

*Mr. Jones.*

Prerequisite, Chem. 1, 2, 5, 6.

Parallel, T. E. 17, 18.

T. E. 22, Junior and Special I, second term, three hours.
T. E. 23, Senior and Special II, first term, three hours.
T. E. 24, Senior and Special II, second term, three hours.

Experimental dyeing begins the second half of the Junior and extends through the Senior year. The Junior work (T. E. 22) is in preparation for T. E. 17, 18, 23, 24, and is intended to acquaint the student with the elementary principles of Dyeing and Bleaching before taking the work up in more advanced form.

Dyeing Laboratory, includes such work as tests and experiments in: preparation of materials for bleaching and dyeing, bleaching agents and methods of bleaching, the use of mordants, fixing agents and assistants. The use and application of natural dyes and artificial coloring matters. The dyeing of single and compound shades; color mixing and shade matching. Testing of dyes for fastness and value, etc.

T. E. 27, 28. **Fabric Analysis.**

*Professor Seal.*

Prerequisites, T. E. 31, 32, 33.

Junior and Special II, first and second terms, three hours.

Instruction is first given in the various yarn standards and calculations leading to analysis. The student is provided with specimens of yarns for determination of breaking strength, count, twist, material, and cost of spinning. Specimens of fabric are then dissected for determination of weave, color arrangement, texture, quality and percentage of materials, counts of warp and filling, analysis of finish, and other technical consideration.

The more advanced work in the analysis of cloths of different character renders the student familiar with modern systems of ascertaining the exact construction





of existing fabrics and compiling the data in suitable form for guidance in the reproduction of the fabrics.

In the latter part of this year the study of fabric analysis is taken up, samples of all kinds being analyzed. In this work woolen, worsted and silk fibers are touched upon as well as cotton, this being necessary in order that the student may be able to make the tests necessary to distinguish between them. This work also covers sizes and other materials which are used for their weight giving properties.

T. E. 31, 32, 33, 34. **Fabric Design.**

*Mr. Jones.*

T. E. 31, Sophomore and Special I, first term, three hours.
T. E. 32, Sophomore and Special I, second term, three hours.
T. E. 33, 34, Junior and Special II, first and second terms, three hours.

The study of design covers a period of three years and is a parallel course to dobby and Jacquard weaving, by which means the practical application of the theoretical design to the cloth gives a more thorough insight into the actual construction of the fabrics.

During the first year fundamental weaves and their derivatives are constructed, special attention being given to their application to the various fabrics for which they are best suited. Following this work is the combining of these weaves into designs and their application to the cloth. Methods of reduction and drawing in are then taken up, one of the main objects at this time being to get a clear understanding of the relative value of the design to the actual fabric.

The course of study laid out for the second year consists, first, of a continuation of the above; this embracing the design of the more complicated weaves such as picques, gauze and leno fabrics, ply fabrics and the actual laying out on paper of all data necessary to construct the various cloths.

T. E. 37, 38. **Jacquard Design.**

*Professor Seal.*

Prerequisite or Parallel, T. E. 27, 28, 31, 32, 33, 34.

T. E. 37, 38. Seniors, Special II, first and second terms, three hours.

In the third year the design of fabrics for jacquard weaving is taken up. The course covers the entire range of Jacquard work and is made as practical as seems consistent with best results. The simplest type of jacquard machine is first studied, together with the various methods of tying in the harness. After this the more complicated and larger machines are taken up before the actual work of designing is begun.

Understanding the principles and limitations of the several machines and forms of harness, the student is taught the selection of figures, the making of cloth sketches, and the symmetrical distribution after stripe, diagonal or motive arrangement. The course also covers such technicalities as the proper selection of design papers, the development of the ground and figure with the various weaves, figure shading, card stamping and lacing, casting-out, etc.

In connection with this work is the punching and lacing of the cards from the pattern, after which a sample is woven to see the results obtained. Every design made by the student during this study of Jacquard design is placed on a machine, either hand or power loom.

## Course of Study

First Year—Fundamental Weaves, Derivaties, Reduction and Drawing In, Simple Fabric Layouts.

Second Year—Ply Fabric Design, Leno Design, Extra Warp Effects, Fabric Analysis.

Third Year—Study of Jacquard Machine, Jacquard Designing, Card Cutting, Application of Design to Fabrics.

T. E. 41, 42, 43. **Weaving.**

*Mr. Brandon.*

T. E. 41. Junior and Special I, first term, two hours per week.

T. E. 42. Junior and Special I, second term, two hours per week.





T. E. 43. Seniors and Special II, first term, two hours per week.

Weaving recitation, beginning with the Junior year is conducted by means of lectures, and demonstrations on the equipment of power looms in the weaving laboratory, the work starting with the simplest motion and loom then working gradually through the more advanced and complicated types until a good theoretical knowledge is obtained of the principal makes of machines at use in the southern mills.

The student makes drawings of the principal parts, illustrates their use and prepares notes on the setting and timing of the same, giving causes and remedies for looms producing fabrics of faulty construction. Special attention is paid to the study of warping, slashing and the mixing of adhesives, softeners, antiseptics, and weight giving elements into sizes to yield certain characteristic results.

During this term the study of calculations necessary in the size of yarns and construction of cloth is begun, this including the counts, weight, length and reed calculations.

The construction and drawing of loom harness cams is given, first by theoretical data and later by actual measurements from looms in the laboratory, this work including all types and forms of cams necessary for producing fabrics within their scope and limit.

In the second term Junior the work is extended to automatic looms. Let-off and take-up motion, warp and filling stop motions, feeler motions, protestor and shuttle changing mechanisms, thin place preventors, etc., are studied in detail. A comparison of the various types of automatic looms for both plain and colored work are carefully studied.

Late method in yarn and fabric calculations, loom gear, belting calculations, loom speeds, etc., are carefully dwelt upon. The importance of cloth construction and all calculations necessary for the same are given careful attention.

In the Senior year dobbies, single and double index, head motion of various types, box motions and Jacquards are studied. Although this course is primarily a cotton

one, at various times the subjects of silk, linen, jute, wool and worsted are touched upon as a machine adapted to that work is studied. Pattern weaving and arrangement of colors for advanced fabrics is given and all calculations pertaining to the same. Advanced loom fixing relative to machines above is given by means of lectures, this work being parallel to the course given in the weaving laboratory.

T. E. 49, 50, 51, 52, 53, 54. **Weaving.**

*Mr. Brandon.*

T. E. 49 and 50, Sophomore, first and second term, three hours; Special I, first term, six hours.

T. E. 51 and 52, Junior, first and second terms, three hours; Special II, first term, six hours.

T. E. 53 and 54, Senior, first and second terms, three hours; Special II, second term, six hours.

T. E. 56, Loom Fixing, Junior and Sp. I, second term, three hours.

Instruction in weaving is given by means of lectures, demonstrations and actual practice. Recitation work consists of a study of the mechanism of the loom, careful attention being given to the construction and settings so that the student may know the best method for producing various cloths. Parallel with this instruction is a course in cloth construction in recitation, dealing with all calculations pertaining to the layout of the cloth in the loom. This work also embraces loom and gear calculations; yarn and cloth calculations; average counts, power, belting, etc.

The instruction given in weaving is being placed more and more on an experimental basis so that the student may by actual manufacture become familiar with the different cotton fabrics.

The equipment and facilities in the weaving department are such that we are able to give each student individual attention and correct mistakes in faulty construction before the fabric to be woven is placed on the loom.

The scope of the work undertaken, the proficiency obtained and the high standard required of the finished





fabrics are to the student completing this course a sound as well as a general knowledge of the application of design to fabric and fabric to loom.

## Outline of Study in Weaving

First Year, First Term—Hand Loom Weaving.

First Year, Second Term—Power Loom Weaving.

Second Year, First Term—Weaving of original designs.

Second Year, Second Term—Power Weaving, Colored Work, Loom Fixing.

Third Year, First Term—Box Looms and Dobby Weaving.

Third Year, Second Term—Jacquard Hand and Power Loom.

T. E. 60, 61, 62, 63, 64, 66. **Industrial Teacher Training.**

T. E. 60, Juniors in Industrial Education, second term, two hours.

T. E. 61, Seniors in Industrial Education, first term, three hours.

T. E. 62, Juniors in Industrial Education, second term, three hours.

T. E. 63, Seniors in Industrial Education, first term, six hours.

T. E. 64, Seniors in Industrial Education, second term, three hours.

T. E. 66, Seniors in Industrial Education, second term, six hours.

The above courses are given only to students in Industrial Education and for the purpose of providing training in the actual operations of the textile industry. These courses differ from those of the regular courses given to engineering students in that the aim is to train men as textile operators and teachers. T. E. 60, 61, and 64 are given by lecture and recitation; T. E. 62, 63, and 66 are laboratory courses. Students may elect additional work in the Textile Mill during the Senior year.

## EMERGENCY WAR WORK.

In the Spring of 1917, soon after the declaration of war, the Board of Trustees of the Georgia School of Technology offered the facilities of the institution to the Government to be used for whatever war-work might be deemed necessary in the national crisis.

At that time, the War Department, realizing that there was greater need than ever for continuing such technical training as the school was already giving, did not interrupt the regular courses but rather made additional call for assistance in various forms of war work, of which the most important were the School of Military Aeronautics, one of eight established throughout the country for the purpose of giving preparatory instruction in Military Aeronautics, and the School for Supply Officers for Aviation Squadrons, the only one established in the United States.

During the past year, up to December 1st, when all such work ceased, the entire activity of the institution falls under the head of emergency war work. To meet the demands made on it by the War Department, the Georgia School of Technology found it necessary to increase its plant with temporary structures and to make additions to its faculty and equipment. Broadly speaking, its activities were confined to two lines. The U. S. Training Detachment, for training men for vocational work in the army; and the Student Army Training Corps.

### U. S. Training Detachment.

The splendid shop facilities and the trained corps of instructors made the Georgia School of Technology especially desirable for the training of enlisted men for Army Vocational Work. Accordingly work in this activity was begun on June 15, 1918 and continued until December 6, 1918, when all such work was discontinued. In this section 1164 men received instruction, about 800 of whom were Georgians.

The personnel consisted of men inducted into service by their Local Draft Boards and sent directly to the Georgia School of Technology for instruction in the technique of the soldier and in one of the trades or vocations essential for maintaining an efficient army organization. The course ex-





tended through a period of eight weeks. Instruction was given in ten different vocations; and each soldier was allowed, in so far as was possible, to select his own vocation. Men were classified as army truck drivers, auto and motorcycle mechanics, general machinists, electricians, radio operators, blacksmiths, bench and wood workers, general carpenters, surveyors, and wheelwrights. All students were soldiers in the U. S. Army, subject to army dicipline and receiving the usual pay, commutations and allotments; and at the end of their course, were either sent to more advanced army schools or assigned to units.

The vocational work was under the direction of Professor R. H. Lowndes, President of the Academic Board. The military instruction and control was vested in Major Radcliff Hermance, U. S. A., Commanding Officer, assisted by a staff of officers detailed for that purpose. When the Students' Army Training Corps was established on Oct. 1st, 1918, the Training Detachment became a part of this organization as the Vocational or "B" section.

### Student Army Training Corps.

The Student Army Training Corps was the organization established by the War Department for the purpose of retaining the men of the country in school under military and scholastic instruction until the military exigencies should require them in active military service. The control of these men was delegated to a special committee known as The Committee on Education and Special Training. The desire of the committee was to disturb the regular education of the student as little as possible, and an attempt was made rather to compress the college courses than to disrupt them. It was planned that the usual four-year course, with such modifications as the situation demanded, be completed in two years by operating through twelve months of the year. Each college was required to make such changes in its curriculum as were necessary to meet these requirements and secure the approval of the Committee on Education and Special Training.

The Georgia School of Technology, like all other educational institutions of the requisite grade, operated this year under the S. A. T. C. until the corps was demobilized. The School was under contract to the Government to give,

through its regular faculty, the necessary scholastic instruction and to house and feed the members of the corps. The military control and instruction was vested in army officers detailed for that purpose from the U. S. Army.

Requirements for admission to the collegiate or "A" section of the corps included the passing of physical and educational tests and presentation of thirteen college entrance units. Admission was initially restricted to men between the ages of 18 and 21 years, although subsequently men above 21 were admitted. Each member had the status of an enlisted private in the army, subject to the restrictions and discipline of a military camp, and received the pay and allowances of that grade. In the case of men in the Navy Unit, the status was that of an apprentice seaman.

The "A" Section of the Crops at the Georgia School of Technology was divided into three units: The Army Unit, the Navy Unit, and the Marine Corps Unit. Only eight institutions in the country were selected by the Marine Corps for training men in this branch of the service.

The following is a list of officers assigned to this institution in connection with the several S. A. T. C. Units:

Major Radcliffe Heermance, U. S. A., Commanding Officer.
Major R. P. Cook, U. S. A., Commanding Officer.
Capt. E. C. Schultze, Medical Corps, U. S. A.
R. E. Bledsoe, 1st Lieut., U. S. A.
J. M. Bartlett, 1st Lieut., U. S. A.
E. S. George, 1st Lieut., U. S. A.
A. C. Gottschaldt, 1st Lieut.
J. T. Reardon, 1st Lieut., U. S. A.
E. R. Respess, Dental Corps, U. S. A.
J. H. B. Brashears, 1st Lieut., Marine Corps, U. S. A.
F. R. Ellerbe, Ensign, U. S. N.
E. A. Kegley, Ensign, U. S. N.
C. B. Carlton, Ensign, U. S. N.
C. L. Mullally, Ensign, U. S. N.
C. C. Bailey, 2nd Lieut., U. S. A.
W. N. Barber, 2nd Lieut., U. S. A.
O. M. Buerger, 2nd Lieut., U. S. A.
S. Dawes, 2nd Lieut., U. S. A.
L. B. Dunn, 2nd Lieut., U. S. A.
H. W. Grage, 2nd Lieut., U. S. A., Q. M. Officer.





R. J. Greil, 2nd Lieut., U. S. A.
R. J. Grether, 2nd Lieut., U. S. A., Personnel Officer.
R. W. Hefferton, 2nd. Lieut., U. S. A
C. P. Hershey, 2nd Lieut., U. S. A.
H. Heyman, 2nd Lieut., U. S. A.
A. Hoffman, 2nd Lieut., U. S. A., Adjutant.
F. C. Kovach, 2nd Lieut., U. S. A., Ordnance Officer.
A. L. Mills, 2nd Lieut, U. S. A.
T. H. Mills, 2nd Lieut., U. S. A.
D. H. Morris, 2nd Lieut., U. S. A., Adjutant.
T. W. Orr, 2nd Lieut., U. S. A.
R. E. Ruder, 2nd Lieut., U. S. A.
H. W. Ryan, 2nd Lieut., U. S. A.
W. W. Walters, 2nd Lieut., U. S. A.
D. Whitcomb, 2nd Lieut., U. S. A.

## NIGHT SCHOOL

Atlanta as a manufacturing center, has a large population of operatives, most of whom have been denied vocational training above the average standard imposed by faulty apprenticeship and financial necessity.

In addition, the expanding manufacturing interests of the city offer constantly increasing inducements to the young men who will prepare themselves for skilled labor. To meet both of above conditions, a Night School was inaugurated in the Institution March 2, 1908, and is now in successful operation.

The Night School is supported by appropriations from the City Council of Atlanta, supplemented by a small contingent fee charged each student.

The session for 1919-1920 will begin September 15, 1919, and continue in session until June 3, 1910, divided into three terms of twelve weeks each. The week beginning Dec. 21 and Ending Dec. 27 will be observed as a holiday. The contingent fee for each term will be $5.00.

Courses in Elementary English and Mathematics are offered as well as the more advanced courses in these subjects. Special courses in Architectural and Mechanical Drawing, Steam and Gas Engines, Mechanics, Chemistry, Machine Shop Practice and Morse Telegraphy. The school at present is considering the establishment of courses in engineering leading to a certificate.

During the year 1918-1919, 468 students were enrolled, many of whom are now holding positions of trust and responsibility at good salaries.

For full information concerning the Night School, address,
A. B. Morton, Dean, Ga. School of Technology.

## THE SUMMER SCHOOL

The twenty-third annual session of the Summer School will begin July 21, 1919, and continue for eight weeks. As in former years the Faculty will be chosen from members of the Faculty of the Georgia School of Technology.

The School is designed primarily to give a thorough training in some of the subjects required for examination by applicants for admission to the Freshman class of the Georgia School of Technology; and, secondly, to enable such students of the Georgia School of Technology as have incurred deficiencies in their work to remove these deficiencies and continue with their respective classes.

The instructors, by reason of their connection with the School of Technology, are particularly well fitted to know the needs of the student and to direct his work. Knowing, moreover, the demands which will be made upon him after he enters the School of Technology, they will advise him as to the class which he should prepare to enter.

Emphasis is laid on those studies which a student finds most difficult, the instructor pointing out and laying stress upon the important principles which occur in each lesson. In this way a student's mind is filled with the principles he is to use and not crowded with useless materials. Success, being largely dependent upon the individual and his fitness for and application to his work, can not be guaranteed, but is expected in the case of those who will work earnestly for it.

It must be borne in mind, however, that the Summer School is essentially a school of review, and that, as the time spent here during the summer is short at most, it is essential to success that students enter at the opening of the session.

For the subjects upon which students who wish to enter the Freshman class must pass an examination the reader is referred to the subject entitled "Admission" in this catalogue. The curriculum of the Summer School includes courses in Elementary Algebra, Plane Geometry, the class-room and laboratory work in Freshman Chemistry, Sophomore and Junior, Physics, and all courses in Mathematics offered in the Freshman, Sophomore and Junior classes, and the English courses in the Sophomore and Junior classes of the Georgia School of Technology.

Students who attend the Summer School will be given examinations immediately at its close, thus lifting anxiety from their minds and giving them an opportunity for rest before the regular session begins.

Students of the Georgia School of Technology who have deficiencies in their college work will find the Summer School an excellent place for review. The Board of Trustees, at a recent meeting, has granted the Summer School the right to give credit to students who satisfactorily review subjects in which they are deficient, or to students who wish to study with a view to advanced standing.

Such credit is given as follows: A student who is deficient shall be allowed to take in review the equivalent of three three-hour courses for one-half year. Students taking such courses will be regarded in exactly the same light as those who repeat a subject during the regular session.





A deficiency in a five-hour subject can be removed by a double assignment of duty each day the Summer School is in session. Students who wish to take advanced standing will be allowed credit in the equivalent of two three-hour half-year courses, or one five-hour half-year course, by double assignment.

All examinations for advanced standing, or for the removal of deficiencies will occur at the close of the Summer School. By a three-hour, half-year course is meant a course which has three recitations per week for one-half the school year.

The college courses offered in the Summer School are identical in character and scope, and approximately the same in time with those offered during the regular session of the Georgia School of Technology.

The Dean of the Summer School will be glad to furnish a list of boarding places to prospective students.

Further information regarding courses and entrance requirements will be found in this catalogue, or may be had by addressing the Registrar.

Information regarding rates of tuition, length of session, and benefits of the Summer School, will be furnished upon application to Prof. A. B. Morton, Georgia School of Technology, Atlanta, Ga.

## Medical Attendance

### DR. E. B. WOOD, MISS MARY MCCONNELL.

The Joseph Brown Whitehead Memorial Hospital has been in operation five years; and the system, instituted at its opening, has been so successful in treating the sick and conserving the health of the student body, that the same system will be in force during the coming year.

The School Surgeon is in charge of the Hospital and a trained nurse is in residence, thus insuring the very best care of the students in case of sickness. A hospital term fee of $5.00 is charged to all students, who do not reside at home. Payment of the hospital fee entitles any student who is temporarily ill to all necessary medical treatment, without charge, by the School Surgeon, and to necessary medicine and skillful nursing by a trained nurse, in residence. This exemption from charges does not apply to chronic cases, to surgical operations, or to constitutional disorders, the cause of which existed prior to the student's enrollment.

A student becoming ill will be required to report to the hospital for treatment at the discretion of the School Surgeon, unless attended by his own physician.

A student sick with diptheria, scarlet fever, or smallpox, will be sent to the public hospital provided for those diseases, and will pay his own board while there, but will be entitled to free medical treatment by the school surgeon, and will be provided with the necessary medicine required for the treatment of his case, without charge.

A "Special Nurse" will be provided in those cases where the same is desired, at an additional fee covering the salary of the nurse and board, at the rate charged above. When consultation is required student will pay the fee for consultation.

A student residing at home, who desires to avail himself of the hospital privileges will be allowed to do so by payment of the stated fee. But no student who has been in attendance the first term will be allowed this privilege the second term, except by paying the fee for both terms. A student matriculating for the second term will pay the hospital fee for that term only.

Students not residing in the dormitories will be charged twenty-five cents for each meal served in the hospital.

## Student Advisor System

At the beginning of the school year each student in the Freshman Class will be assigned to some member of the Faculty, who will act as his advisor during the year. Each advisor will have regular hours when the student can consult with him relative to any phase of the student life, whether in regard to his studies, his finances, his social life, his association, or any other matter which concerns him. It is contemplated that the number of students assigned to each advisor will not be so large as to prevent his advising frequently and fully with each one.

In case any individual member of the Faculty is desired to serve as the advisor of some particular student, this desire may be made known to the Dean, and, if practicable, arrangements will be made to comply with the desire thus expressed.

# THE LIBRARY

A $20,000 library building, gift of Mr. Andrew Carnegie, occupies a central location on the Campus. The building has been occupied twelve years, during which time the number of volumes has increased from about 3,000 to over 13,700. It is now a well equipped Library in every way, being strongest in its scientific side, but also containing many other valuable books, especially in literature and art. Each year valuable acquisitions are made, with a view to strengthening the work of the college in each department. The Library also contains many rare books, among them a number of early 16th and 17th century volumes, the gift of ex-Governor Joseph M. Brown.

A most important feature is its number of scientific periodicals. The Library is now supplied with over one hundred of the leading papers and periodicals of this country and Europe. Each year has shown a marvelous growth over the preceding year in every way, and the entire outlook promises well for future expansion.

The Library is in the charge of a competent and thoroughly trained Librarian and her assistants. All books and pamphlets, as soon as received, are classified and catalogued in accordance with the most approved library system.

Library hours are from 8 A. M. to 6 P. M. daily, and Friday and Saturday evenings from 7 to 10.





## Atlanta Carnegie Library

In addition to the School library, students have free use of the Atlanta Carnegie Library, where they are always welcome. This library contains over 40,000 volumes. A great many books of reference have been added within the past year, among them a number of very valuable technical works which have been made available to students.

# SOCIETIES AND STUDENT ORGANIZATIONS

## Young Men's Christian Association

The Young Men's Christian Association is the largest student organization in school, in that every student is a member, and that its purpose is to serve, without partiality, the moral, social and spiritual need of each individual in the community. There is scarcely a student organization that does not, in one or many ways, come to the Y. M. C. A. for assistance, and in this way it touches the entire life of the school.

It conducts weekly devotional and special Sunday evening meetings for the students, attempts to keep them in touch with the happenings of the missionary world, conducts studies and investigations on the social problems of the times, and attempts in an effective way to supplement training afforded by the class-room curriculum. It brings prominent religious, social, and lay workers to address the student body from time to time. It is in no sense a church, nor does it attempt in any way to take the place of the church, but it does aid the various churches of the city in their attempt to reach the students here and to supplement the work they do among the students.

The most important feature of its work is the organization and conduct each year of groups for Bible study. The plan is to organize the students into congenial groups for daily and systematic study of the Bible. The leaders of these groups are students who have been coached each week before they meet their group, by a member of the Faculty or one of the Secretaries. For the past year over three hundred students have thus been engaged in the study of the Bible, and the place of such work is recognized by them as necessary to their best development. An Employment Bureau has been organized this year which has aided a number of students in helping defray their college expenses.

The Association, with its excellent equipment, constitutes the real center of the student life. Its splendid new home offers a wholesome atmosphere and adequate amusement, making it unnecessary for a boy to go to the city to spend his idle hours.

Mr. E. L. Secrest who received his education at Trinity College and Yale University is now closing his first year as General Secretary of the Association. Mr. J. Foster Barnes, Richmond College, 1918, is Associate General Secretary. His musical training has added much interest to the various programs. The cabinet and other voluntary workers have co-operated with the secretaries in serving practically every need of the Student Body.

# THE HONOR COURT

## Declaration of Principles

"We, the students of the Georgia School of Technology, hold that the heart of education is morality, and the essence of achievement in character. We would place honor above credits and base attainment upon desert. We believe there is no enduring reputation which is not rooted in worth and no real success which has not its foundation in manhood; that every honorable man would rather suffer failure than stoop to fraud; and that trustworthiness is the superlative asset of the engineer.

As a concrete expression of this belief we hereby pledge ourselves:

**First.** Neither to give nor to receive assistance during examinations, recitations or any work upon which we are graded.

**Second.** To report to the proper authorities any one who we have good reason to believe is guilty of giving or receiving unauthorized assistance."

The Honor System has been in successful operation at the Georgia School of Technology for several years. An Honor Court is elected from the student-body to develop and foster the right spirit in regard to the Honor System, and to conduct the trial of persons accused of violating it. The following are the members of the Honor Court:

## Members of the Honor Court

### Seniors

H. C. Hickenlooper, President
J. H. Skeen, Vice-President
J. K. Paisley
G. L. Jones
W. L. McEver
T. H. Brittingham, Alt.
T. R. Curtis, Alt.

### Juniors

W. A. Rutherford, Sgt. at Arms
E. D. Sledge, Secretary
R. W. Woods
R. D. McNeice
W. R. Pollard

### Sophomores

C. S. Hays
J. G. Wilson
E. P. Ansley
C. L. Darling

### Freshmen

G. W. Shoemaker
J. M. Slaughter





# COLLEGE ATHLETICS

## The Georgia Tech Athletic Association

DR. J. B. CRENSHAW, *Director.*

MR. J. W. HEISMAN, *Football Coach.*

MR. J. W. BEAN, *Baseball Coach.*

College Athletics at the Georgia School of Technology is managed and controlled by a Board of Directors consisting of five members of the teaching force appointed by the president, who is, ex-officio, chairman of the Board, three students, chosen by the student body, who are the president, vice-president, and secretary of the Georgia Tech. Athletic Association, and two alumni, elected by the Alumni Association. This Board aims to secure co-operation of the Faculty and the students in athletic affairs, to maintain the highest standards of sportsmanship, to give every student an opportunity to take part in some athletic activity, and to arouse in each one the desire to improve his health and physique, so as to leave school a better man physically as well as mentally. Athletics are not allowed to interfere with the proper attention to, and progress in, the courses of instruction, but every encouragement is given to participation in some form of exercise. The liberal policy adopted by the Faculty towards athletics has resulted in the greatest enthusiasm for college sports, so that the number engaged in some form of outdoor exercise is very large, over fifty per cent, and is increasing yearly. The interest shown is in the following order: football, baseball, track, tennis, basketball, swimming, golf.

## Mass Athletics.

The term "mass athletics" has come into use since the United States entered the war. It means simply the adaptation of games of all kinds to large groups playing all at the same time. Such games were found very effective in the development of the raw recruits who were brought to the cantonments to be prepared for military service. Not to lose the lessons learned during this crisis, these mass athletic exercises are now being adopted in colleges and universities all over the country in order to give physical training to all students who enter college and to make them physically as well as mentally fit for the occupations of peace and the stress of war. The Georgia School of Technology will adopt these mass games, and, as part of the military training will be devoted to the physical upbuilding of students, "mass athletics" will find a place in the work and play required of all.

## Hugh Inman Grant Field

Due to the liberality of Mr. John W. Grant, of Atlanta, the new Athletic Field, named "The Hugh Inman Grant Field," as a memorial to his son, is now finished and in constant use.

This gives us the finest Athletic Field in the South and the completion of the new concrete grand stand furnishes accommodation for seating over 6,000 spectators. The field has a quarter-mile running track, room for a 220 yard straight away track, for sprints, two baseball diamonds, two football fields, tennis court, pole vaulting and jumping paths and accommodations for all other forms of field sports.

The plans of the Field are shown in the campus view frontispiece. It is planned to erect here in the near future a gymnasium with basketball and volleyball courts, a large swimming pool, locker rooms, wrestling and boxing rooms and complete gymnastic equipment. When this is done, the students at Georgia Tech. will have the advantages of an athletic field and gymnastic equipment inferior to none in the country.

## Publications

**The Technique** is the college newspaper. It is published weekly by the students. Its purpose is to give the college news, discuss student enterprises, and to promote the general welfare of the school; to serve the institution, in short, along the same lines as the daily newspaper serves the community.

**The Blue Print**, the College Year Book, is published annually by the students, and contains the usual matters of interest relative to student life.

**The Students' Hand-Book** is published annually under the auspices of the School Y. M. C. A., contains information referring to student organizations, college customs, etc., intended primarily for new students.

The School publishes five bulletins annually, in January, April, July, August and October.

## Civil Engineering Society

Only C. E. Seniors and certain elected C. E. Juniors are eligible to membership in this society. The meetings are held bi-monthly, and are often addressed by resident or visiting engineers of well-established reputation.

## Architectural Society

All Architectural students who have completed the first term of the Sophomore year are eligible for membership. Prominent local architects frequently address the monthly meetings. Prizes are offered for the best work in Design, and a creditable library of drawings from architectural books has been formed.

## Society of Mechanical Engineers

The society is for Seniors, with a few elected Juniors to form a nucleus for the following year. The plan is to meet bi-monthly, at





which meetings engineering subjects are discussed by the members, and also frequently by Engineers of experience. Special trips and outside investigations by the members are a feature of the proceedings. The Society has recently become a branch of the American Society of Mechanical Engineers.

## Emerson Chemical Society

The membership consists of the Senior, Junior and Sophomore Classes in the two Chemical Courses. The Faculty of the Chemical and Geological Departments of the School and all graduates of the Department of Chemistry are honorary members. At the weekly meetings, papers are presented by the students. Once a month the Society is addressed by members of the Faculty and by Professional Chemists.

## Electrical Engineering Society

This Society is a branch of the American Institute of Electrical Engineers.

Membership is taken from the Senior and Junior students in the Electrical Engineering Course. Original papers are presented and articles from current electrical literature are abstracted and discussed. Lectures are given the Society by practicing engineers.

## Textile Engineering Society

Senior and Junior Textile students are eligible to membership. Other students in the textile department may be elected to membership. Regular meetings are held on the first and third Wednesdays of each month at which papers are read by members. Lectures by visitors prominent in the textile industry are arranged from time to time.

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# SCHOLARSHIPS AND PRIZES

## The A. French Scholarships

Mr. Aaron French, of Pittsburgh, Pa., gave three scholarships to the Georgia School of Technology, which are self-perpetuating, in that the beneficiary refunds the money after graduation in payments of small monthly notes without interest.

The conditions under which the scholarships are awarded are as follows:

1. The applicant must be at least sixteen years of age.

2. No one is eligible whose family pays taxes on more than $3,000 worth of property. (Affidavits from city and county tax collectors to this effect are required.)

3. The scholarships are to be awarded by competitive examinations in the subjects for entrance to the Freshman Class.

## Scholarship No. 1

The competitive examination for scholarship No. 1 was held at the School in the fall of 1898, and was won by Mr. W. E. Klein, of Atlanta, who graduated in 1902. The scholarship has since been held by Mr. W. C. Appleby, of Winder, Ga., who graduated in 1906, by Mr. W. M. Fellers, of Jacksonville, Fla., who graduated in 1910, by Mr R. S. Howell, of White Plains, Ga., who graduated in 1914, and by Mr. G. H. Sparkes, who graduated in 1915, and by Mr. H. C. Kenemer, who graduated in 1917.

## Scholarship No. 2

The competitive examination for scholarship number two was held at the school Wednesday, September 26, 1900, under the conditions named above and was won by Mr. G. A. Harbour, of Atlanta, who graduated in 1904. It has since been held by G. W. Gibbs, of St. Augustine, Fla., who graduated in 1908, by Mr. D. S. McLaurin, of Jacksonville, Fla., who graduated in 1912, and by Mr. A. C. Strother, who graduated in 1917.

## Scholarship No. 3

The competitive examination for scholarship number 3, was held at the School September 24, 1902, and was won by Mr. Arnold Wells, of Belton, Texas, who graduated in 1906. It has since been held successively by Mr. A. J. Phillips, of McRae, Ga., who resigned before graduation, Mr. A. E. Kunze, of Newnan, Ga., who graduated in 1912, and by Mr J. E. Thompson, who resigned before graduating, and by George Y. Brown, Jr., the present incumbent.

**Scholarships Are Limited to no State or Section of the Country.**

The winner of these scholarships will be furnished funds at such time as the President may think necessary for expenses, books, fees, etc., but not over $125.00 will be furnished each year.

No formal application for entrance to the competitive examination is necessary. The presence of the applicant at the School at 9 a. m., on the opening day of the fall term, will entitle him to admission to the examinations.

## T. W. Smith Scholarship

On January 27, 1906, Mr. T. W. Smith gave a scholarship to the School, self-perpetuating on the basis of the French scholarships, and allowing the successful candidate $150 per annum for a period of four years. In the competitive examination held September 20, 1906, Mr. M. C. Meadows, of Carrollton, Ga., won the scholarship, but left before graduation, since which time the scholarship has been allowed to lapse. The amount paid on the scholarship, however, is used as a loan fund to deserving students of limited means.





## The E. P. McBurney Scholarships

In March, 1909, Mr. E. P. McBurney, of Atlanta, established three scholarships, also self-perpetuating, on the basis of the French scholarships; beneficiaries to be appointed by the donor and president, and each scholarship to pay $200 per year for four years.

In March, 1909, Mr. T. D. Guinn, of Cuthbert, Ga., was awarded Scholarship No. 1. He was succeeded by Mr. R. A. Clark in September, 1912, and by Mr. J. T. Mitchell in September, 1915, and by James MacDonald in September 1917.

In September, 1909, Mr. W. D. Evans, of Fort Screven, Ga., was awarded Scholarship No. 2. He was succeeded in September, 1914, by Mr. J. C. Jones, of Corinth, Miss., and by Mr. W. A. Wilcox in 1917.

In September, 1909, Mr. H. J. Crider, of St. Simon's Island, Ga., was awarded Scholarship No. 3. On his withdrawal from school June 8, 1911, Mr. W. P. Hammond, of Atlanta, was awarded the scholarship. In September, 1913, this scholarship was awarded to Mr. W. M. Hawkes, of Americus, Ga., and in September, 1916, to A. D. Whittaker, and in February, 1918, to Mr. A. S. Howell

In July, 1913, Mr. McBurney decided to establish three additional scholarships, similar in amount and operation to the three already established by him.

In September, 1913, No. 4 was assigned to Mr. Rex Powell, Vienna, Ga., in 1917 to Mr. E C. Gartner, and in 1918 to John G. Nelms, of Hartwell, Ga.

No. 5 was assigned to L. C. Evans, of Jonesboro, Ga., in 1914 to Mr. F. L. Jones, and in 1917 to Mr. H. L. Turner.

No. 6 was assigned to Mr. G. W. Tutan, of Savannah, Ga., and in 1917 to Mr. T. H. Hall.

## The Joseph Madison High Scholarship

In October, 1910, Mrs. J. M. High, of Atlanta, established a scholarship, to be known as the Joseph Madison High Scholarship, to carry $200 per year for four years, and to be self-perpetuating on the basis of the McBurney Scholarships. When possible, the beneficiary is to come from Morgan County, Ga., the former home of Mr. High.

On October 25, 1910, Mr. J. O. Clarke, of Atlanta, Ga., was awarded the scholarship. It has since been held by Mr. H. L. Henry, of Atlanta, and by Mr. C. W. Shackleford, of Rutledge, Ga.

## The M. R. Berry Scholarships

In July, 1913, Mrs. Fannie B. Wright, of Atlanta, established three scholarships, self-perpetuating, on the basis of the E. P. McBurney Scholarships, and named them The M. R. Berry Scholarships, in memory of her father, who for many years was an honored, influential and beloved citizen of Atlanta. In September, 1913, the following beneficiaries were appointed. No. 1, Mr. E. M. Upshaw, Rydal, Ga.; No. 2, Mr. E. E. Hardin, Monticello, Ga.; No. 3, Mr. J. M. Battson, Mt. Berry, Ga. No. 2 was later held by Mr. C. C. Jones, and

No. 3 by Mr. E. T. Mathis, who succeeded Mr. H. M. Flanagan in September, 1916. In September, 1917, No. 1 was assigned to Mr. H. L. Richards; No. 2 to Mr. S. Y. Guess, and No. 3 to Mr. R. H. Taliaferro.

## The I. S. Hopkins or First President's Scholarship

In July, 1914, a friend of the School established what is to be known as The I. S. Hopkins, or First President's Scholarship. The full amount not being paid, this scholarship has been allowed to lapse and is being used as a loan fund to deserving students.

## The Architectural Scholarship

The Georgia Chapter of the American Institute of Architects has established a self-perpetuating scholarship open to students in the two upper classes who may be in need of financial assistance. The beneficiary refunds the money after graduation in payments of small monthly notes without interest. This scholarship is now held by Mr. H. I. Hirsch.

## The Ad Men's Scholarships

In February, 1915, the Ad Men's Club of Atlanta established two scholarships, one by the organization and one by personal subscriptions of certain members. These are loan scholarships, similar in operation to those described above. They went into effect in September, 1916. These scholarships are administered by the Ad Men's Club direct.

## The Clark Thornton Scholarship

In September, 1914, Mr. R. M. Angas, Mr. J. J. Apple, Mr. B. S. Brown, Mr. H. M. Corse, Mr. W. H. Cowan, Mr. F. C. Davies, Mr. J. G. Holtzclaw, Mr. H. H. Leech, Mr. O. H. Longino, Mr. L. B. Mann, Mr. G. T. Marchmont, Mr. C. W. Pittard and other members of the class of 1907 established a scholarship to be called the Clark Thornton Schoparship in memory of a former member of their class. The beneficiary of this scholarship, which is established on the basis of the E. P. McBurney scholarships, is to receive $150 annually.

This scholarship was awarded in September, 1914, to Mr. W. T. McCullough, Jr., of Atlanta, and in 1915 to Mr. H. W. Cheney. This scholarship has never been completed.

## The Lona Mansfield Scholarship

In September, 1916, Mr. J. B. Mansfield, of Detroit, a former student of The Georgia School of Technology established a scholarship which is to be known as The Lona Mansfield Scholarship. The beneficiary of this scholarship is to receive $250.00 per year for four years. It is held at present by Mr. Marvin S. Wimberly, of Ft. Gaines, Ga.



du Pont de Nemours & Co.
Scholarship $350.00 - Chemistry.



## Dr. and Mrs. Thomas P. Hinman Scholarship

This scholarship was established in October, 1916, by Dr. and Mrs. Thomas P. Hinman, of Atlanta. The beneficiary of this scholarship is to receive $200.00 per year for four years. It was held one year by Mr. W. C. Mathes, of Jonesboro, Ga. After that time the scholarship was allowed to lapse, the amount on hand being used as a loan to students.

## The Louis Gholstin Johnson Scholarship

In October, 1917, Mr. Edwin F. Johnson, of Atlanta, established a self-perpetuating loan scholarship paying $200.00 per year. This scholarship, which has been named, in honor of Mr. Johnson's son, The Louis Gholstin Johnson Scholarship, is now held by Mr. J. M. Robinson, of Montezuma, Ga.

## Scholarships to Local High Schools

By action of the Board of Trustees a scholarship is awarded each year to an honor graduate to each of the following public high schools in the City of Atlanta: The Technological High School, The Boys' High School, and The Fulton County High School. The scholarships pay the fees of the recipients, except the Student Activities fee, which is required of all students.

## W. L. Peel Prizes

Each year there are awarded as prizes to the ten men of the Junior Class who have attained the highest academic average for the past two and one-half years, a gold "T". These are given through the generosity of Col. W. L. Peel, of Atlanta, and are named in his honor.

## Andrews Oratorical Medal

Through the generosity of Mr. Walter P. Andrews, a public spirited citizen and a friend of the School, a handsome gold medal will be awarded each year to that member of the Freshman Class who shall deliver in public contest, during the period of Commencement, the best original oration upon some subject approved by the English department. The winner of this medal will be announced on the evening of the contest, but the presentation of it will be made at the regular Commencement Exercises.

## The Honor Society of the Phi Kappa Phi

Among the prizes offered for scholarship by the Georgia School of Technology perhaps the most coveted is membership in the honor society, Phi Kappa Phi, to which a limited number of seniors representing all departments are elected annually. Phi Kappa Phi is a

national organization with branches or chapters in many Northern, Southern, Eastern and Western universities and colleges; and where ever it has been established it has proved a stimulus not only to scholarship but to all-round manhood. Its members are men of books, of affairs, and of character, its aims coinciding accurately with those of the Georgia School of Technology as set forth in the motto, "To know, to do, to be."

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# GENERAL REGULATIONS

## Sessions and Terms

The session begins next to the last Wednesday in September and ends the second Wednesday in June. It will be divided into two nearly equal terms. There will be an intermission at Christmas, as indicated in the Calendar.

All students are required, and all applicants are requested to be present at the opening hour of each session, as punctuality operates to their advantage in many ways.

## Examinations

Final examinations are held at the end of each term. Students are liable to be dropped from the roll of their classes at any examination, when they do not meet the requirements, as well as at any time when they neglect their studies and fall hopelessly behind their classes. No tuition or fees are refunded under such circumstances. All examinations are written.

## Reports

Reports of the standing of students are issued at the close of each term.

Bulletin boards are placed in the halls of the Academic Building, and upon these are posted each month the grading of students as ascertained by the monthly records.

Whenever a student is deficient in any study or department at the close of any month, a report of such fact is sent to his parents.

## Tuition and Fees

**All checks for fees, board, or other deposits should be made payable to The Georgia School of Technology.**

By a law of the State, the fees for each term must be paid in advance before the day on which the term opens.

For students whose parents are legal residents of Georgia, and who hold county scholarships, the fees are:





| First Term | | Second Term | |
|---|---|---|---|
| Semi-annual fee | $12.50 | Semi-annual fee | $12.50 |
| Student Activities | 6.50 | Student Activities | 6.50 |
| Medical fee | 5.00 | Medical fee | 5.00 |
| Deposit for damage | 5.00 | | |
| | $29.00 | | $24.00 |

Each county in the State of Georgia is entitled to fifteen free scholarships. When there are over fifteen students from any county, the fifteen who shall be exempt from tuition are determined as follows: 1st. Those who have been registered longest. 2nd. From a group who have been registered an equal time, those who are in the highest class. 3rd. Class-standing shall determine the preference among those who have been here the same period of time and who are in the same class.

Students from Georgia, who do not hold county scholarships, are required to pay a tuition fee of $12.50 per term, in addition to the fees listed above.

Students whose parents are not legal residents of Georgia are required to pay a tuition fee of $50.00 per term. The total fees for such students are: first term, $79.00; second term, $74.00.

The Semi-annual fee of $12.50 per term is to cover the various incidental expenses in connection with the operation of the laboratories, class rooms, and shops. It is required of all students.

The Student Activities fee of $6.50 per term has been recently added, at the request of the Student Body and the Alumni. The payment of this fee is really a matter of economy to the student, since it covers subscription to all student publications, membership in the Y. M. C. A., membership in the Athletic Association, and a pass to all of the athletic games. This fee is collected for the student associations as a matter of accommodation. None of it goes into the School treasury.

The medical fee of $5.00 per term is required of all students who do not reside at their homes. This fee entitles the student to the benefits of the hospital, including the services of a physician and a nurse. Chronic cases and those requiring a surgical operation are not included in the above.

Each member of the Senior Class must pay a diploma fee of $5.00 before graduating.

Examinations at other than the regular examination times will be granted in exceptional cases only and by Faculty action. A fee of $2.00 will be charged in all such cases.

A fee of $2.00 will be charged to old students reporting late for registration or payment of fees, without a valid excuse.

Until the above requirements are complied with, no student will be allowed to participate in the duties and recitations of his class.

The student is advised to defer the purchase of drawing instruments and materials until he can have the direction of the professors in their selection. The prices range from $10.00 to $20.00.

Text books and stationery can be purchased from the School Quartermaster at reasonable rates. The student is advised, however, to bring such scientific books as he may possess. The books for a freshman usually amount to ten or twelve dollars.

No fees are refunded to students who are required to withdraw on account of conduct, or for failure in work, or who may withdraw for any reason, except for disabling sickness, properly certified to by a reputable physician. In the latter event, an equitably prorated amount will be refunded, provided the student is not able to return to the School before the end of the term in which he withdraws.

Contingent fees are not returned to any student unless he presents an order for the same from parent or guardian, saying he is to leave the School permanently. These fees are not returnable till the end of the school year.

## Dormitories

All students in the Freshman Class who do not reside with their parents, near relatives, or bona fide guardians legally appointed, are required to board in the School Dormitories.

This regulation was passed by the Board of Trustees, after a careful examination of the advantages and protection afforded by the dormitories to students of the Freshman class, and all such students as are physically or otherwise unable to comply with the law, will not be retained in the School.

Ordinarily two are assigned to a room, and students of the higher classes will not be accommodated in the dormitories until all eligible lower classmen have been assigned rooms. Students to the number of sixty, living in the vicinity of the School, however, will be accommodated with table board in the dining hall at the lowest co-operative price possible—the privilege to be accorded in the order of application.

## Living Expenses

The School is provided with dormitory accommodations for two hundred students. The rooms are well lighted and ventilated. Hot and cold shower baths are accessible to all students, in new and well-heated bath rooms.

Board, including laundry, fuel, and lights, is furnished at cost, and must be paid monthly in advance. The cost which depends on the prices of food, fuel, and other commodities is estimated not to exceed $30.00 per month for 1919-20, and it is hoped that it may be kept considerably below this figure. Parents of prospective students will be given more definite information as the time for the opening of the next session approaches.

Money paid for board is not refunded to students unless they have been absent over fourteen consecutive days on account of sickness properly certified to; or unless they withdraw from school. This law is necessary on account of the dormitories being conducted under a system of fixed charges.





Any student who desires a room in the dormitories must write and secure it before reporting for duty, as the dormitories accommodate scarcely one-third of the students who are in the institution. In order to secure a room, each student must deposit $30.00, one month's board, with the President not later than September 1st. Applications are listed in the order in which they are received. Those who apply early will be sure of a reservation. In case the student finds it impossible to enroll, the fee will be refunded provided notice is given the President not later than September 15th.

Students who board in the dormitories are required to furnish the following articles: One pillow, three pillow cases, four sheets, blankets or comforts, six towels, and other small and portable articles needed about their rooms. The articles named should be brought from home. The school furnishes with each room: Beds (single three-quarter width), mattresses, springs, wardrobe, or closet, washstand, bureau, and table.

Each student should have two suits of overalls, costing $2.00 to $4.00 each.

The cost of equipment in the Freshman year, is relatively large on account of the purchase of drawing instruments.

## Discipline and Dormitory Regulations

The students of the school have a record for good conduct unsurpassed by any corps in the country. They are required to obey but few regulations, the authorities bearing in mind the development and best interest of the student body.

Every man is expected to conduct himself in a gentlemanly manner. When he fails in this and convinces the authorities that he has not come to work, his parents are requested to withdraw him.

Special Textile students and students having but few lessons to prepare will not be admitted to the dormitories.

Patrons or prospective patrons will be furnished upon application with the printed Rules and Regulations of the School.

## Entrance Requirements

The requirements for admission to the Georgia School of Technology are as follows:

The applicant shall be not less than 16 years of age, and shall present a certificate from the last school attended, showing his scholastic record, and that he is of good moral character.

For entrance to the Freshman Class **without condition**, every applicant shall present 14 or more units.*

At least twelve units must be offered at entrance. Units due in Mathematics and Physics shall be made up before entering the Sophomore Class. All other units due shall be made up before entering the Junior Class.

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***After January 1, 1920, the requirement will be 15 units, with not more than two conditions allowed.**

| Specified Units | | Optional Units | |
|---|---|---|---|
| It is very important that all of these be presented on entrance. | | History | ½ to 2 |
| | | Civics | ½ to 1 |
| English Grammar | 1 | Latin | 2 to 3 |
| | | Greek | 2 to 3 |
| Composition and Rhetoric | 1 | German | 1 to 2 |
| | | French | 1 to 2 |
| English Classics | 1 | Spanish | 1 to 2 |
| Elem. Algebra* | 1½ | Chemistry | ½ to 1 |
| Adv. Algebra | ½ | Biology | ½ to 1 |
| Plane Geometry | 1 | Botany | ½ to 1 |
| Solid Geometry | ½ | Physiology | ½ to 1 |
| History | 1 | Phys. Geography | ½ to 1 |
| Physics | 1 | Gen. Science | ½ to 1 |
| | | Drawing | ½ to 2 |
| | | Commerce | 1 to 3 |
| | | Manual Training | ½ to 2 |
| Total | 8½ | Agriculture | ½ to 2 |

In addition to the specified units, the applicant must present enough of the optional units to make up his total of 14 units.

Special attention is called to the required units in Algebra, as a great many students are conditioned in this subject. To receive entrance credit for the ½ unit in **Advanced Algebra** the course must have included **Logarithms, Ratio and Proportion, Binominal Theorem, Progressions, and Partial Fractions.**

We wish to urge that the students have a good command of all of the Mathematics required for entrance. It frequently happens that members of the freshman class must be turned back to review their foundation work in Algebra and Geometry.

Students from schools which do not offer Physics may substitute Chemistry, but it is desirable that both of these subjects be offered for admission.

There are two ways of presenting the units required for admission to the Georgia School of Technology.

1. **By Examinations.**

While students may enter at any time and be examined on entrance, two general entrance examinations will be held: One at the time of the final examination for the school session, and the other at the opening of the fall term. Applicants for admissions to Freshman and higher classes will be admitted to either or both of these examinations.

Candidates for Freshman Class not graduates of accredited High Schools, may stand entrance examinations at their homes about June

*Students registering in the School of Commerce are not subject to the full requirements in Mathematics and Physics. They must present 1 unit in Algebra and 1 unit in plane geometry, and may offer an optional unit for Physics.





1st. For full particulars address the Registrar, Georgia School of Technology.

Subjects passed satisfactorily in May-June Examinations will be credited on the admission in September.

2. **By Certificate.**

The Faculty of the Georgia School of Technology desires to bring the school into closer relations with the High Schools of the state, hoping thereby to make the transition from the latter to the former easier for the student. Therefore, the privilege of becoming accredited, by which graduates of schools can enter without examinations, is extended to those High Schools on the accredited list of the University of Georgia.

## Definition of Unit

A unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. This statement is designed to afford a standard of measurement for work done in secondary schools. It takes the four-year high school course as a basis and assumes that the length of the school year will be approximately thirty-six weeks, that a period is at least forty minutes, and that the study is pursued for four or five periods a week; but, under ordinary circumstances, a satisfactory year's work in any subject can not be accomplished in less than one hundred and twenty sixty-minute hours, or their equivalent. Schools organized on a different basis can, nevertheless, estimate their work in terms of this unit. Less than forty minutes for recitation will reduce the unit value. The subject may cover more than one year, according to the pleasure of the teacher arranging courses. The time element counts on the certificate as well as the quantity of work. As a general rule, four units a year is as much as the average pupil can prepare adequately at one time.

Principals or superintendents will send to the Registrar of the Georgia School of Technology the certificate of such students in their schools as desire to enter. This should be done in June. Blank certificates may be obtained from the Registrar. The student must present himself for admission within one year after leaving the high school.

The work done by its graduates is ultimately the genuine test of the character of the preparation given by a high school. If, therefore, the students accepted from an accredited school shall be found deficient in preparation, that school must expect to be dropped from the list.

## Changes of Courses and Withdrawals

Changing from one course to another, in some special cases, is highly advisable, but if the change is merely to satisfy the foolish whim of some student it is to be discouraged. In all cases where the student wishes to change his course or to withdraw from the School, he must file written permission from his parent or guardian to this effect.

## LIST OF ACCREDITED SECONDARY SCHOOLS OF GEORGIA AS REPORTED APRIL 1, 1918.

Application for accredited relations should be addressed to Professor of Secondary Education, University of Georgia.

### FOUR-YEAR HIGH SCHOOLS.

12 to 20 Units Offered.

Graduation on 16 units in Group I, 14 units in Group II, 12 units in Group III.

(Schools for Girls only are omitted.)

Acworth High School, III ---------- W. W. Linton
Adairsville High School, II ---------- J. F. Williams
Adel High School, II ---------- Jason Scarboro.
*Albany High School, I ---------- R. E. Brooks.
*Americus High School, I ---------- J. E. Mathis.
*Ashburn High School, I ---------- A. G. Cleveland.
*Athens High School, I ---------- E. B. Mell.
Atlanta:
*Boys' High School, I ---------- Eugene Ragland.
Commercial High School, II ---------- Annie T. Wise.
*Fulton County High School, I ---------- Wm. Hopkins.
*Marist College, I (Private) ---------- James A. Horton.
*Peacock School, I (Private) ---------- R. C. Little.
*Technological High School, I ---------- W. A. Sutton.
Auburn:
Christian Academy, II (Private) ---------- H. R. Garrett.
Augusta:
*Richmond Academy, I ---------- Geo. P. Butler.
Summerville Academy, II ---------- J. B. Lockhart.
*Bainbridge High School, I ---------- E. G. Elcan.
*Barnesville, Gordon Institute, I ---------- E. T. Holmes.
Baxley High School, I ---------- T. M. Purcell.
Blackshear:
Blackshear High School II ---------- L. C. Evans.
Blakely High School, II ---------- T. J. Townsend.
Boston High School, II ---------- W. P. Brooks.
Bowdon High School, III ---------- C. K. Henderson.
Bowman: Gibson-Mercer, II (Private) ---------- Lawson Brown.
*Brunswick: Glynn Academy. I ---------- N. H. Ballard.
Buena Vista High School, II ---------- J. G. Colbert.
Calhoun High School, II ---------- M. C. Allen.
Camilla High School, I ---------- S. K. Tanner.
Canton High School, II ---------- Paul Wheeler.

*On the Southern Commission List.





Carrollton High School, I ---------- H. B. Adams.
*Cartersville High School, I ---------- H. L. Sewell.
*Cedartown High School, I ---------- J. E. Purks.
Chickamauga High School, II ---------- W. A. Wiley.
Cochran High School, II ---------- W. E. Monts.
College Park:
*Ga. Mil. Acad., I (Private) ---------- J. C. Woodward.
College Park High School, II ---------- L. O. Freeman
Columbus:
*High School, I ---------- T. C. Kendrick.
*Secondary Industrial School, I ---------- J. W. Bagby.
*Commerce High School, I ---------- H. B. Carreker.
Conyers High School, I ---------- G. W. Glausier.
Cordele:
*High School, I ---------- H. B. Nicholson.
Cornelia High School, III ---------- J. W. Marion.
Covena:
Gillis Springs Institute, III ---------- C. M. Carpenter.
*Covington High School, I ---------- H. B. Robertson.
Crawfordville High School, II ---------- R. D. McDowell.
Cuthbert High School, III ---------- G. W. Marks.
Dallas High School, III ---------- W. F. Tribble.
*Dalton High School, I ---------- J. H. Watson.
Darien High School, III ---------- S. A. Cooper.
Dawson High School, I ---------- J. C. Dukes.
Decatur High School, I ---------- E. E. Treadwell.
Demorest: Piedmont Acad. I (Private) ---------- J. C. Rogers.
Donaldsonville High School, II ---------- R. I. Knox.
Douglasville High School, I ---------- E. D. Gunby.
*Dublin High School, I ---------- Paul King.
Eastman High School, I ---------- R. G. Hall.
*Elberton High School, I ---------- W. A. Anderson.
Ellaville High School, II ---------- S. E. Denton.
Fairburn High School, II ---------- M. D. Collins.
*Fitzgerald High School, I ---------- J. W. Barnhill.
Forsyth High School, I ---------- W. O. Perritt.
*Fort Valley High School, I ---------- Ralph Newton.
Gainesville High School, II ---------- J. A. Mershon.
Girard High School, II ---------- W. B. Lovett.
Gray High School, III ---------- W. S. Lancaster.
Graymont High School, I ---------- Ernest Anderson.
*Greensboro High School, I ---------- C. C. Wills.
Greenville High School, II ---------- C. O. Stubbs.
*Griffin High School, I ---------- J. A. Jones.
Harlem High School, III ---------- C. C. Hoover.
Hartwell High School, I ---------- C. G. Powers.
Hawkinsville High School, I ---------- J. F. Lambert.
Hazelhurst High School, III ---------- G. P. Hunt.
Hepzibah High School, II ---------- H. W. Sewell.
Jackson High School, I ---------- W. P. Martin.

*On Southern Commission List.

Jefferson: Martin Institute, II ---------- L. F. Elrod.
LaFayette High School, III ---------- W. H. McDaniel.
*LaGrange High School, I ---------- F. F. Rowe.
Lawrenceville High School, I ---------- F. M. Hunter.
Lithonia High School, III ---------- J. L. Sargent.
*Locust Grove Institute, I (Private) ---------- Claud Gray.
Loganville High School, III ---------- W. G. Coffee.
Louisville High School, II ---------- O. B. Trammell.
Lumpkin High School, III ---------- W. J. Dowd.
Macon:
*Lanier High School, I ---------- R. J. Coates.
Rutland High School, III ---------- Mrs. C. A. Stubbs.
*Madison High School, I ---------- J. H. Purks.
Manchester High School, II ---------- M. O. McCord.
*Marietta High School, I ---------- W. T. Dumas.
McDonough High School, II ---------- G. H. Boyd.
McRae: South Ga. College, I (Private) ---------- B. G. Childs.
Menlo High School, III ---------- J. L. Ray.
Metter High School, II ---------- G. E. Usher.
*Milledgeville: Ga. Military College, I ---------- J. H. Marshburn.
Millen High School, I ---------- F. A. Brinson.
Monroe High School, II ---------- C. F. Fawcett.
Montezuma High School, II ---------- L. C. Corbett.
Mount Berry:
The Berry School, I ---------- Martha Berry.
Mt. Vernon:
Brewton-Parker Inst., I (Private) ---------- J. C. Brewton.
*Moultrie High School, I ---------- J. H Saxon.
*Newnan High School, I ---------- B. F. Pickett.
Norman Park Institute, I (Private) ---------- L. H. Browning.
Oxford: Emory Academy, I (Private) ---------- W. A. Carlton.
Pavo High School, I ---------- W. M. Parker.
Pelham High School, I ---------- F. A. Moss.
*Quitman High School, I ---------- H. D. Knowles.
Reynolds High School, III ---------- W. M. Pettis.
Richland High School, II ---------- Guy Wells.
Rochelle High School, III ---------- D. H. Standard.
Rome:
*High School, I ---------- W. P. Jones.
*Darlington Academy, I (Private) ---------- J. M. Harden.
Royston High School, III ---------- R. H. Moss.
Sandersville High School, I ---------- C. B. Quillian.
Sardis High School, III ---------- J. H. Miser.
Savannah:
*Chatham Academy, I ---------- Linwood Taft.
*Benedictine Col., I (Private) ---------- F. Bernard.
Myers School II (Private) ---------- D. M. Myers.
Senoia High School, III ---------- J. T. Henry.
Smithville High School, II ---------- J. H. Forbis.
Social Circle High School, II ---------- J. A. Kelley.
Sparks Collegiate Inst., I (Private) ---------- Leland Moore.

*On Southern Commission List.





Sparta High School, I ---------- J. N. Haddock.
*Statesboro High School, I ---------- R. M. Monts.
Stillmore High School, I ---------- J. C. Langston.
Stone Mountain High School, II ---------- C. L. Gowan.
Swainsboro High School, I ---------- C. A. Keith.
Sylvester High School, II ---------- J. T. Lowe.
Tennille High School, II ---------- G. G. Maughon.
*Thomaston: R. E. Lee Institute, I ---------- C. W. Reid.
*Thomasville High School, I ---------- B. B. Broughton.
Thomson High School, I ---------- N. E. Ware.
Tifton High School, I ---------- A. H. Moon.
*Toccoa High School, I ---------- J. I. Allman.
*Valdosta High School, I ---------- W. O. Roberts.
Vidalia High School, II ---------- W. L. Downs.
Waleska: Rheinhardt Institute, I (Private) ---- T. M. Sullivan.
*Warrenton High School, I ---------- G. S. Roach.
Washington High School, I ---------- J. W. Moseley.
Waverly Hall High School, III ---------- I. S. Ingram.
Waycross:
*High School, I ---------- B. E. Flowers.
Piedmont Institute, II (Private) ---------- J. F. Watson.
Waynesboro High School, I ---------- J. T. Lance.
West Point High School, II ---------- W. P. Thomas.
*Winder High School, I ---------- J. P. Cash.
Woodbury High School, III ---------- G. J. Gearin.
Wrens High School, I ---------- C. C. McCollum.
Statesboro: 1st Dist. Agricultural School, I ---- F. M. Rowan.
Tifton: 2nd Dist. Agricultural School, I ---------- S. L. Lewis.
Americus: 3rd Dist. Agricultural School, I ---- J. M. Collum.
Carrollton: 4th Dist. Agricultural School, I ---- J. H. Melson.
Monroe: 5th Dist. Agricultural School, I ---------- J. H. Walker.
Barnesville: 6th Dist. Ag. School, I ---------- T. O. Galloway.
Powder Springs: 7th Dist. Agr. School, I ---- H. R. Hunt.
Madison: 8th Dist. Agricultural School, I ---- B. F. Gay.
Clarkesville: 9th Dist. Agricultural School, I ---- C. A. Wells.
Granite Hill: 10th Dist. Ag. School, I ---------- E. C. Merry.
Douglas: 11th Dist. Ag. School, I ---------- L. G. Proctor.

## THREE-YEAR HIGH SCHOOLS.

**10 to 12 units only to be allowed.**

Bartow High School ---------- E. C. Salter.
Brooklet High School ---------- J. W. Davis.
Broxton High School ---------- O. C. Campbell.
Buford High School ---------- W. N. Nunn.
Byromville High School ---------- J. W. Smith.
Cairo High School ---------- J. G. Christian.
Chipley High School ---------- J. J. Binford.
Claxton High School ---------- A. W. Strozier.
Comer High School ---------- J. W. Adams.

*On Southern Commission List.

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|---|---|
| Eatonton High School | T. P. Tribble. |
| Edison High School | O. F. Helm. |
| Fort Gaines High School | R. E. Ozier. |
| Glennville High School | J. M. Harvey. |
| Grantville High School | R. O. Powell. |
| Hogansville High School | T. A. Clower. |
| Jesup High School | Anna K. Clark. |
| Kirkwood High School | W. M. Rainey. |
| Lavonia High School | Lamar Ferguson. |
| Leesburg High School | R. P. Ford. |
| Mansfield High School | E. N. Reynolds. |
| Maysville High School | E. H. Beck. |
| Meigs High School | T. T. Benton. |
| Monticello High School | Van Fletcher. |
| Mt. Zion Seminary (Private) | Lee Trimble. |
| Nashville High School | J. L. Strozier. |
| Plains High School | T. J. Barrett. |
| Reidsville High School | Jessie Newton. |
| Rockmart High School | Lola L. Smith. |
| Rutledge High School | C. W. Peacock. |
| Shellman High School | Miss F. K. McGee. |
| Soperton High School | B. H. McLarty. |
| St. Marys High School | C. A. Brooks. |
| Sylvania High School | C. A. Strickland. |
| Tallapoosa High School | A. L. Brewer. |
| Unadilla High School | V. H. McKee. |
| Vienna High School | J. M. Richardson. |
| Winterville High School | J. W. Williams. |
| Wrightsville High School | J. O. McMahon. |





## STATEMENT REGARDING ADVANCED CREDITS

### Credits for Advanced Standing

Students from recognized colleges who desire advanced credits should see that their certificates and other evidences of work done, are such that the information required below can be obtained from them. By doing so, inconvenience and delay in entering will be avoided.

In all cases the grade made by the applicant and the required passing grade should be given. The various departments will expect detailed information as outlined below:

**Class Room Work:**

(1) Text books used, and portions omitted, if any.

(2) The total number of hours given to recitations.

(3) In English courses, also, the number of themes and longer essays, and a list of the parallel reading.

(4) In Modern Language courses, also, the amount of composition work, and the number of pages of both literary and scientific prose translated.

(5) In courses in Drawing, also, the drawings should be submitted, each approved by the instructor.

**Laboratory and Shop Work:**

(1) The manual used.

(2) The total number of hours given to laboratory work, and the number of experiments required.

(3) The note book, approved by the instructor should be submitted.

(4) In shop work, the number of hours given to bench work, lathe work, etc., should be given, and the number of pieces of work completed.

## THE UNIVERSITY OF GEORGIA

The complete organization of the University of Georgia is as follows:

### THE UNIVERSITY AT ATHENS

**I. Franklin College.**

**(THE COLLEGE OF ARTS)**

Established in 1881, offering the Degree of Bachelor of Arts, and including: (1) General Courses in the Liberal Arts; (2) Special Courses.

**II. The State College of Agriculture and the Mechanic Arts.**

**The College of Science.**

Established in 1872, offering the Degree of Bachelor of Science, and including the following courses: (1) General Science Course; (2) Civil Engineering Course; (3) The Electrical Engineering Course; (4) The Agricultural Course; (5) The One-Year Agricultural Course; (6) The Winter Course in Agriculture; (7) The Experiment Station (at Experiment); (8) The Farmers' Institutes.

**III. The Graduate School.**

Offering the following Degrees: (1) Master of Arts; (2) Master of Science; (3) Civil and Mining Engineering.

**IV. The Law Department.**

Offering the Degree of Bachelor of Laws: Two-Years' Course.

**V. The University Summer School.**

Founded in 1903. Five Weeks' Session, offering courses in: (1) Common School Branches; (2) Pedagogy and Related Subjects; (3) High School Studies; (4) Selected College Studies.

**VI. The School of Pharmacy.**

Offering the Degree of Graduate of Pharmacy. A Two-Years' Course.

For catalogue of any of the above, write to
DAVID C. BARROW, Chancellor,
Athens, Ga.

**The North Georgia Agricultural College, Dahlonega, Ga.**

Established 1871, offering the Degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Instruction, Bachelor of Business Science, having the following schools: Philosophy, Pedagogy, Courses in Science (including Agriculture), French, Department of Business Military Department. For catalogue, apply to
GUSTAVUS R. GLENN, President,
Dahlonega, Ga.

**The Medical College, Augusta, Ga.**

Established 1829. A Full Four Years' Course in Medicine.
For catalogue apply to
WILLIAM HENRY DOUGHTY, JR., M.D., F.A.C.S., Dean.
Augusta, Ga.





**Georgia School of Technology, Atlanta, Ga.**

Established 1888, offering the Degrees of Bachelor of Science in Mechanical Engineering, in Civil Engineering, in Electrical Engineering, in Textile Engineering, in Engineering Chemistry and Chemistry, in Architecture, and in Commerce, and having the following departments: Mathematics, Engineering Chemistry, Chemistry, Mechanical Engineering, Experimental Engineering, English, Physics, Drawing, Civil Engineering, Electrical Engineering, Modern Languages, Textile Engineering, Geology, Mineralogy, Highway Engineering, Architecture, Commerce, Military Science and Industrial Education. For catalogue apply to K. G. MATHESON, President,
Atlanta, Ga.

**Georgia Normal and Industrial College, Milledgeville, Ga.**

(For Girls)

Established in 1889, offering the following diplomas: Normal Diplomas, Collegiate Diplomas, and the following Certificates of Proficiency: In Bookkeeping, Stenography, Dressmaking, Freehand Drawing; organized in the following departments: Normal Department, Normal and Industrial Arts, Collegiate Department, Physical Training Industrial Department, Department of Domestic Science, Department of Music and Fine Art.
For catalogue apply to MARVIN M. PARKS, President,
Milledgeville, Ga.

**State Normal School, Athens, Ga.**

(Co-Educational)

Established 1891, having the following courses: Common School Course, one year; Graduate School, three years; including the following schools: Literature, English, Elementary Science, Mathematics, History, Geography, Latin, Art, Educational and Manual Training, Penmanship, Psychology, Pedagogy, Domestic Science.
JERE M. POUND, President,
Athens, Ga.

**The South Georgia State Normal College, Valdosta, Ga.**

(For Girls)

Established 1906. An institution of collegiate rank, providing both general and special training. The courses are designed primarily to meet the needs of those who expect to fill positions as teachers in the public schools of the state. R. H. POWELL, President,
Valdosta, Ga.

**Georgia Industrial College for Colored Youths, at College, Near Savannah, Ga.**

Established 1890, and organized in the following schools: English, Pedagogy, Mathematics, Science, Agriculture, Manual Training, including Mechanical Drawing, Wood Working, and Iron Working Department of Trades, Carpentry, Blacksmithing, Masonry, Painting, Tailoring, Shoemaking, Sewing. R. R. WRIGHT, President,
College, Ga.

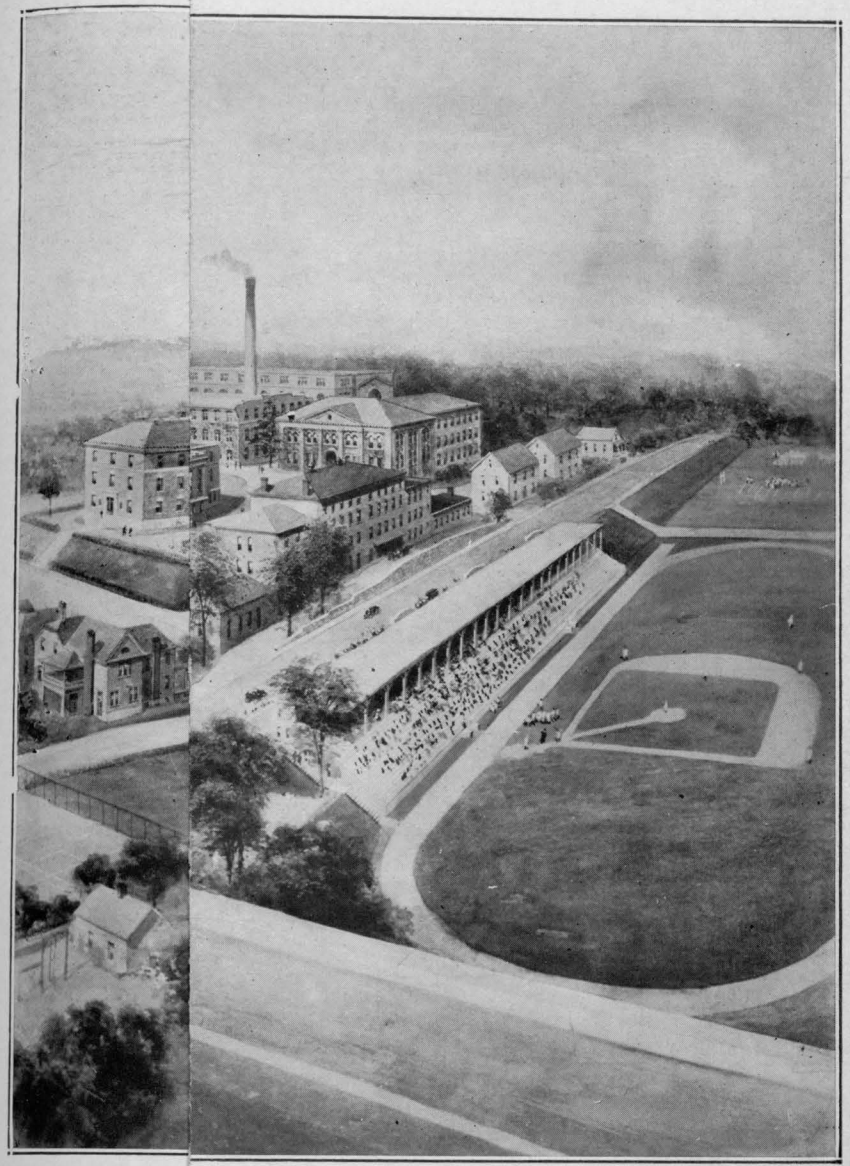
For catalogues of the several institutions mentioned, address the presidents, whose names are given above; for catalogues of the entire university organization, address
DAVID C. BARROW, Chancellor,
Athens, Ga.

## Register of Graduates.

The Register of Graduates which has formerly been included in the catalog will be published this year as a separate bulletin. It will show that some 470 of the alumni were in active service, of whom 375 or more were commissioned officers.



# GENERAL INDEX



Swann

New Power Laboratory and Research Bureau

Chemical Building

Knowles Dormitory

Frame Dormitories

Concrete Grand Stand

Grant Field