
100
YEARS
1923-2023
NSCS
ELECTRICAL TECHNOLOGY

Welcome to the 100th Anniversary of the NDSCS Electrical Technology Program

May 12-13, 2023

CIRCUIT SPONSORS

North American COAL

COYOTE CREEK MINE
FALKIRK MINE
FREEDOM MINE

EXPANSE ELECTRICAL Co

100 YEARS 1923-2023
NSCS ELECTRICAL TECHNOLOGY

ENERGY SPONSOR

JDP ELECTRIC INCORPORATED

CURRENT SPONSORS

OTTER TAIL POWER COMPANY

Xcel Energy®

THANK YOU!

We are so thankful for all our corporate sponsors. We couldn't do this without you!

POWER SPONSORS

A & K Development
Cass County Electric
Electric Utility Workshop
Parson Electric

SURGE SPONSORS

Basin Electric Power
H & H Electric
Lesco, Inc.
Montana Dakota Utilities
North Central Electrical League, Inc.

FUSE SPONSORS

Border States Electric
Central Power Electric Cooperative, Inc.
Eagle Lake Electric
Gary & Sons Electric, Inc.
International Association of Electrical Inspectors
North Central Electrical Engineering Society
Northern Plains Electric Cooperative

NDSCS ELECTRICAL TECHNOLOGY
The Science of Success.

ELECTRICAL TECHNOLOGY INSTRUCTORS

Ben Barnard
1923-1959 • 36 years

Karl Larson
1924-1947 • 23 years

Ed Karst
1924-1926 • 2 years

Charles Sturdevant
1925-1926 • 1 year

E.A. Magnuson
1927-1928 • 1 year

Thore Hawk
1928-1930 • 2 years

D. V. Edling
1930-1932 • 2 years

Ed Johnson
1938-1939 • 1 year

Leslie Baumer
1945-1946 • 1 year

Joe Vetter
1945-1946 • 1 year

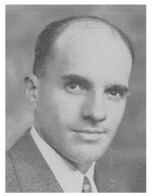
Charles Brockmeyer
1946-1954 • 8 years

Clarence Hoefs
1946-1960 • 14 years

Merton Jacobson
1946-1968 • 22 years

Donald Fauss
1946-1948 • 2 years

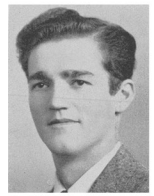
James Wright
1946-1950 • 4 years



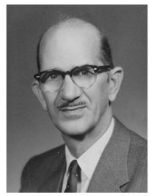
Walter Kurth
1948-1949 • 1 year

Harvey Bisek
1949-1950
1952-1954 • 3 years

Norman Ekblad
1949-1952 • 3 years



Boyd Will
1949-1951 • 2 years



Emil Peterson
1953-1956 • 3 years

Virgil Matheson
1954-1967 • 13 years

Verlin Lundgren
1953-1983 • 29 years

Marlo Hinsverk
1957-1986 • 29 years

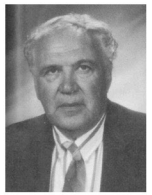
Gordon Kersten
1959-1960 • 1 year

Clifford Anderson
1961-1963 • 2 years

Chester Smuhl
1961-1966 • 5 years

Herman Hareland
1963-1966 • 3 years

Ken Anderson
1964-1986 • 22 y

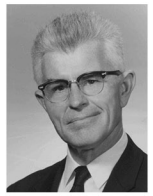


Bernie Anderson
1965-2000 • 35 years

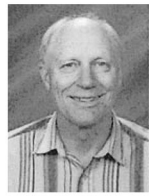
Stanley Grant
1966-1967 • 1 year

Dan Giddings
1967-1970 • 3 years

Walter Wellan
1967-1969 • 2 years



Francis Rice
1968-1969 • 1 year



Charles Henry
1969-2003 • 34 years

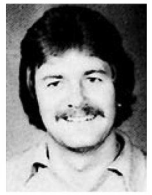
W. Ken Kjar
1970-1991 • 21 years

Dean Wenker
1971-2001 • 30 years

James Limmer
1973-1978 • 5 years

Don Kruckenberg
1975-2005 • 30 years

Dennis Bader
1978-1984 • 6 years



Jerry Gilsdorf
1979-1981 • 3 years

Bill Deibert
1979-1989 • 10 years

Tim Pull
1984-2015 • 31 years

Ron Knudtson
1997-2009 • 12 years

Rondo Schmith
1998-2001 • 3 years

John Freden
1999-2004 • 5 year

Jerry Brackin
1999-2014 • 14 years

Calvin Singleton
2001 • 1 year

Ken Laturnus
2004-2006 • 2 years

Shane Suko
2005-2016 • 11 years

Lonnie Wurst
2014-2023 • 9 years

Ivan Maas
1985-Current • 38 years

Kara Gruenberg
1993-Current • 30 years

Slade Fitzgerald
2002-Current • 21 years

Mark Eback
2004-Current • 19 years

John Travis
2006-Current • 17 years

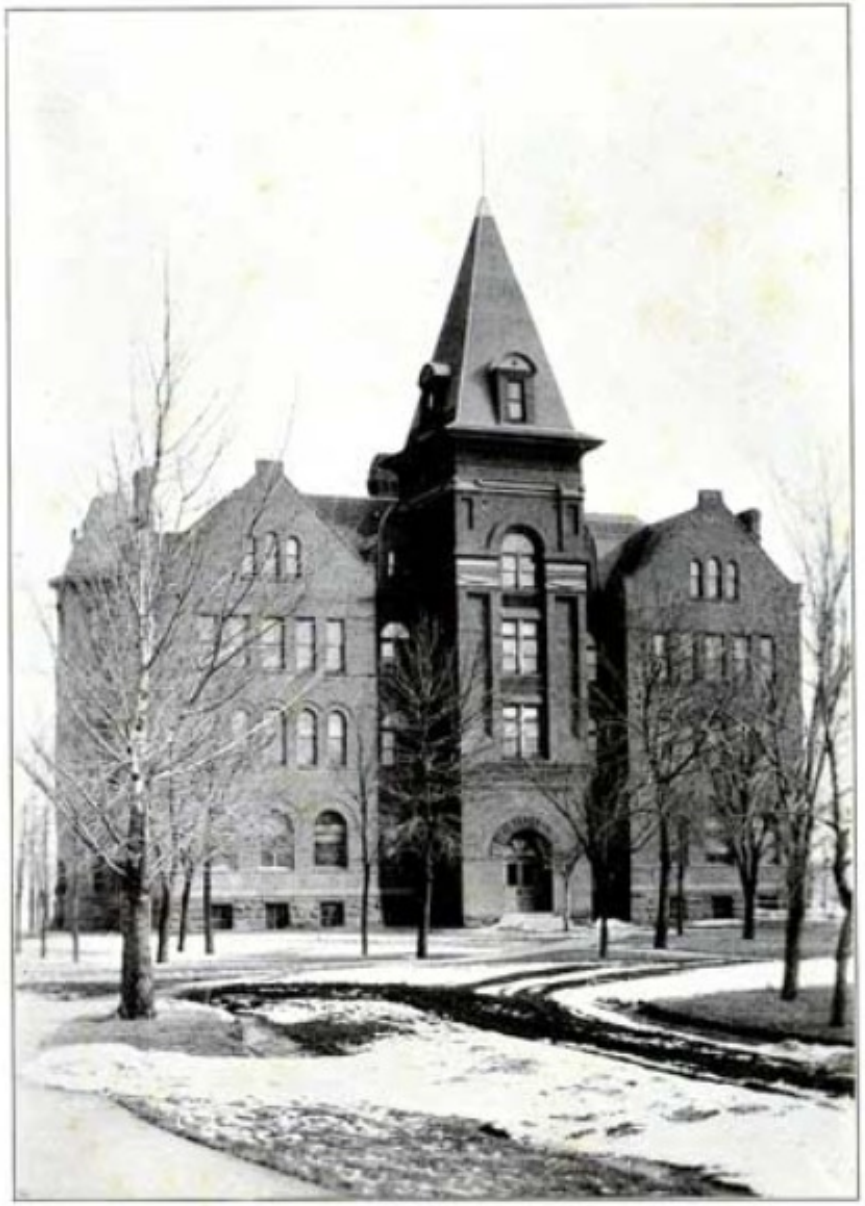
Leanne Jaenisch
2014-Current • 9 years

Greg Heitkamp
2018-Current • 5 years

Zach Sheeley
2021-Current • 2 years

1922
Agawasie

AGAWASIE



The Main Building

PRESIDENTS OF NDSCS

1. Earle G. Burch – 1903-1910
2. Fred E. Smith – 1910-1919
3. Garland A. Bricker – 1919-1921
4. Earl F. Riley – 1921-1954
5. G. W. -Bill" Haverty – 1954-1966
6. Clair T. Blikre – 1966-1987
7. Jerry Olson – 1987-2000
8. Sharon Y. Hart – 2000-2006
9. John Richman – 2007-2021
10. Rod Flanigan – 2022-present

Electrical Technology Department Chairs

Verlin Lundgren	unknown – 1983
Ken Kjar	1983 – 1991
Don Kruckenberg	1991 – 2005
Ivan Maas	2005 – present

Fun Facts

- 1903 – On March 10 North Dakota Legislature provides for immediate establishment and operation of the North Dakota Academy of Science.
- 1922 – The Electrical Program was started.
- 1927-1928 – On January I, 1928, trades departments move into new Trades building (Horton Hall) constructed at a cost of $565,000 with 10,000 square feet on each floor. It will house the Printing Department, machine shop, and the Automobile Repair department on the first floor, with the second floor occupied entirely by the Electrical Department, except for the drafting room.
- 1967 – Barnard Hall, instruction in Electrical and Electronics Technologies, built for $622,000.
- 1987 – State School of Science becomes North Dakota State College of Science.
- 1992 – Semester system becomes effective.

215 Sixth Street, Looking North, Showing State Science School in Distance, Wahpeton, N. D.

100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

Photo courtesy of David Cooper

1922 Electrical Trades

With the advent of electricity into every community and its extended use in rural districts, and the ever growing use of electrical appliances in every home, comes the growing demand for men who have had special practical training along these lines.

The State School of Science is equipped with the best and most modern material and machinery including both A. C. and D. C. motor generator sets. The courses in electricity are intensely practical and cover all branches of the industry.

Reference: NDSSS Bulletin November 1, 1922

1922 Electrical Trades

Our instructors have been selected not only because of their experience in teaching their particular subjects but also on account of their years of practical experience in the electrical trades and they are thus able to offer training that lacks nothing on the theoretical side and also carefully covers the practical side so necessary in industry.

Electricity is now recognized as the most useful tool of man and is attracting young men who wish to study and understand the newer mechanical devices which make life interesting and worth while.

Reference: NDSSS Bulletin November 1, 1922

1922 Electrical Trades

The courses contemplate instruction in the following general branches of the electrical trades:

Bench Work	Armature Winding
Inside Wiring	Storage Batteries
Signal Equipment	Instrument and Laboratory Work
A. C. Equipment	D. C. Equipment

The courses offered are:

General course for journeymen electrician	110 lessons
General course for shop electrician	150 lessons

These courses are practical shop courses correlated with recitations.

Reference: NDSSS Bulletin November 1, 1922

Ben Barnard

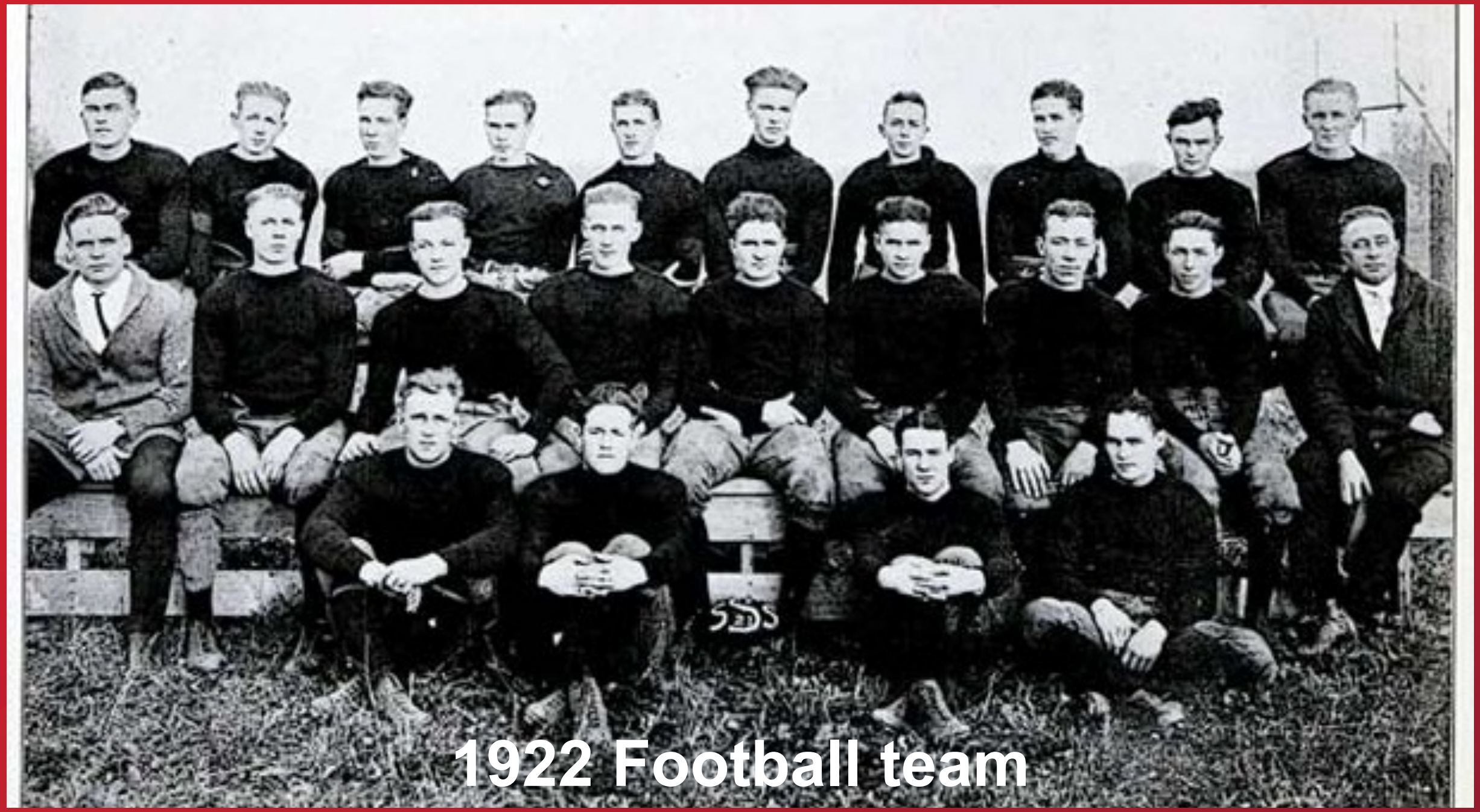
This technical building has been named after Ben Barnard, former staff member, who retired July 1, 1959, after completing 37 years of service to the North Dakota State School of Science.

Mr. Barnard was one of the first trades instructions at the State School of Science. Barnard is a graduate Electrical Engineer and came to the college from the electrical industry. He started the electrical department in 1922 and taught in that department for 37 years. He also held at various time the positions of Dean of Men, Public Relations Director, Alumni Secretary and Department Head of the Electrical Department.

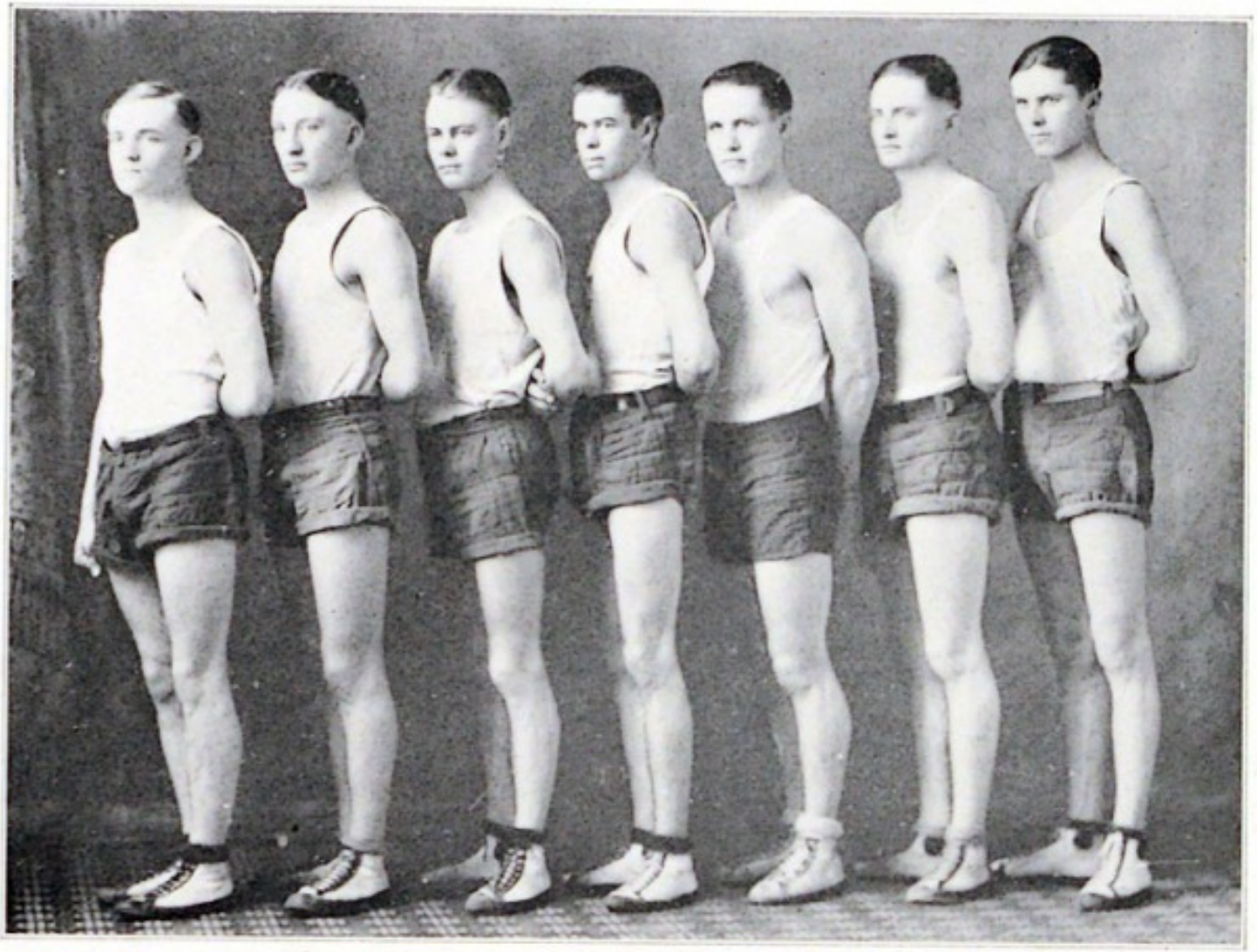
Ben Barnard is a charter member and past chairman of the Red River Valley Division of the Institute of Electrical and Electronic Engineers. He served eight years as secretary-treasurer of the North Dakota Electrical Contractors Association.

BEN H. BARNARD

Reference: NDSSS 1929 Agawasie



1922 Football team



Left to right: Harrison, Anderson, Patterson, Merritt, Wick, Mellin, Boettcher

Electricians Basketball

Electricians Basketball

Many years ago Diogenes stood upon his elevated platform in the market place crying forth these words: “Wanted Men”. In early December 1925 Professor Barnard took the platform and called for volunteers to represent the Electrical Club in the form of a basketball team. A number of men collected and out of the group a reputable team was developed. There was much competitive interest between members of the club. The ultimate result was a team worthy of much praise.

Reference: NDSSS 1926 Agawasie

1933 Summary of Costs

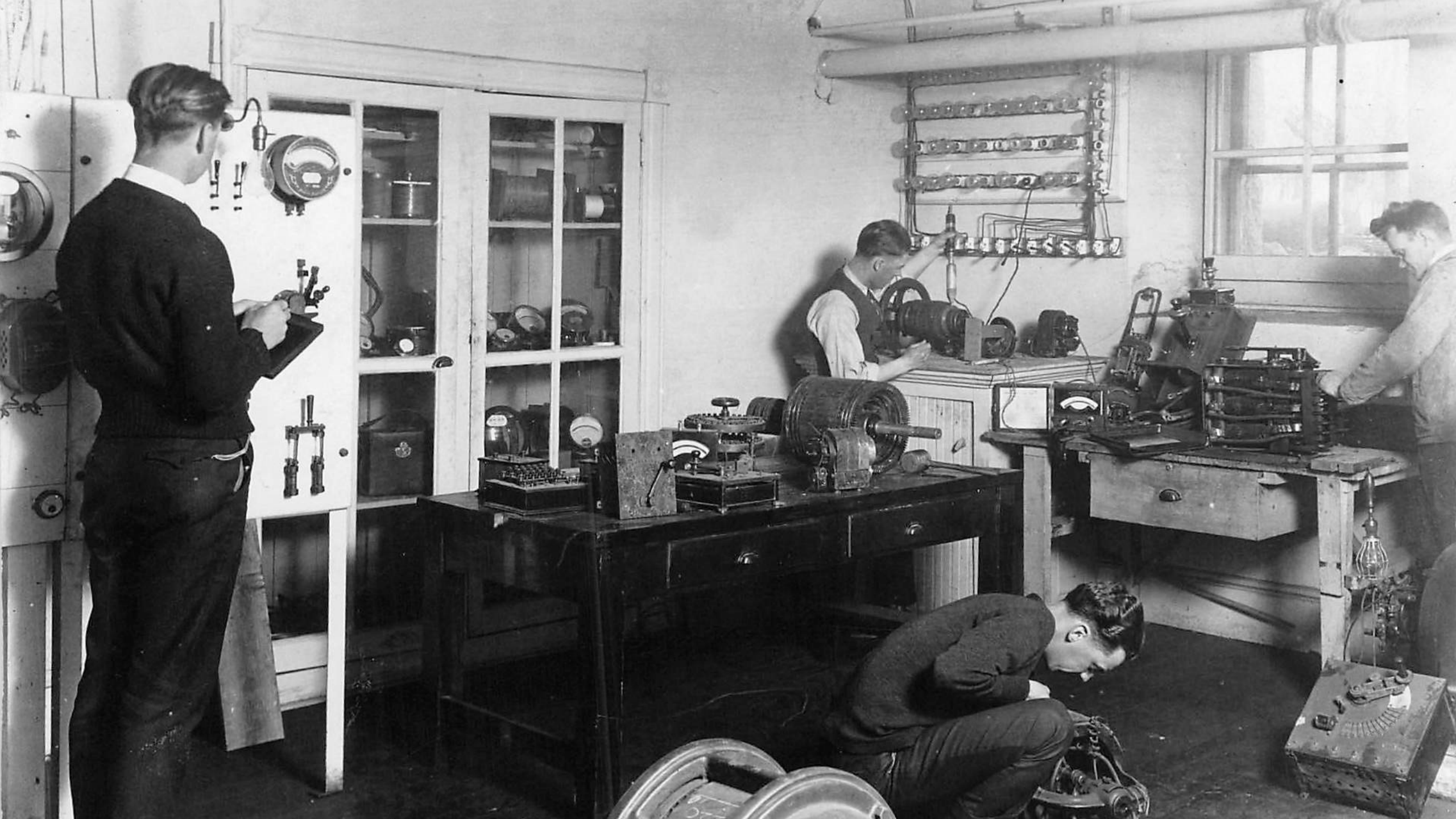
The costs for one term for **each** student is as follows:

Room	$12.00
Board	48.00
Fees (Not including deposit fees)	14.00
Books and supplies	5.00
Total	**$79.00**

Note—There are 13 weeks in the Fall term so that the board for that term will amount to $52.00.

The total cost for non-resident students for a **term of** twelve weeks will be $90.00

Reference: NDSSS Bulletin April 1933



1942 Textbooks & Tools

Book and Tool List

First Year Electrical Trades

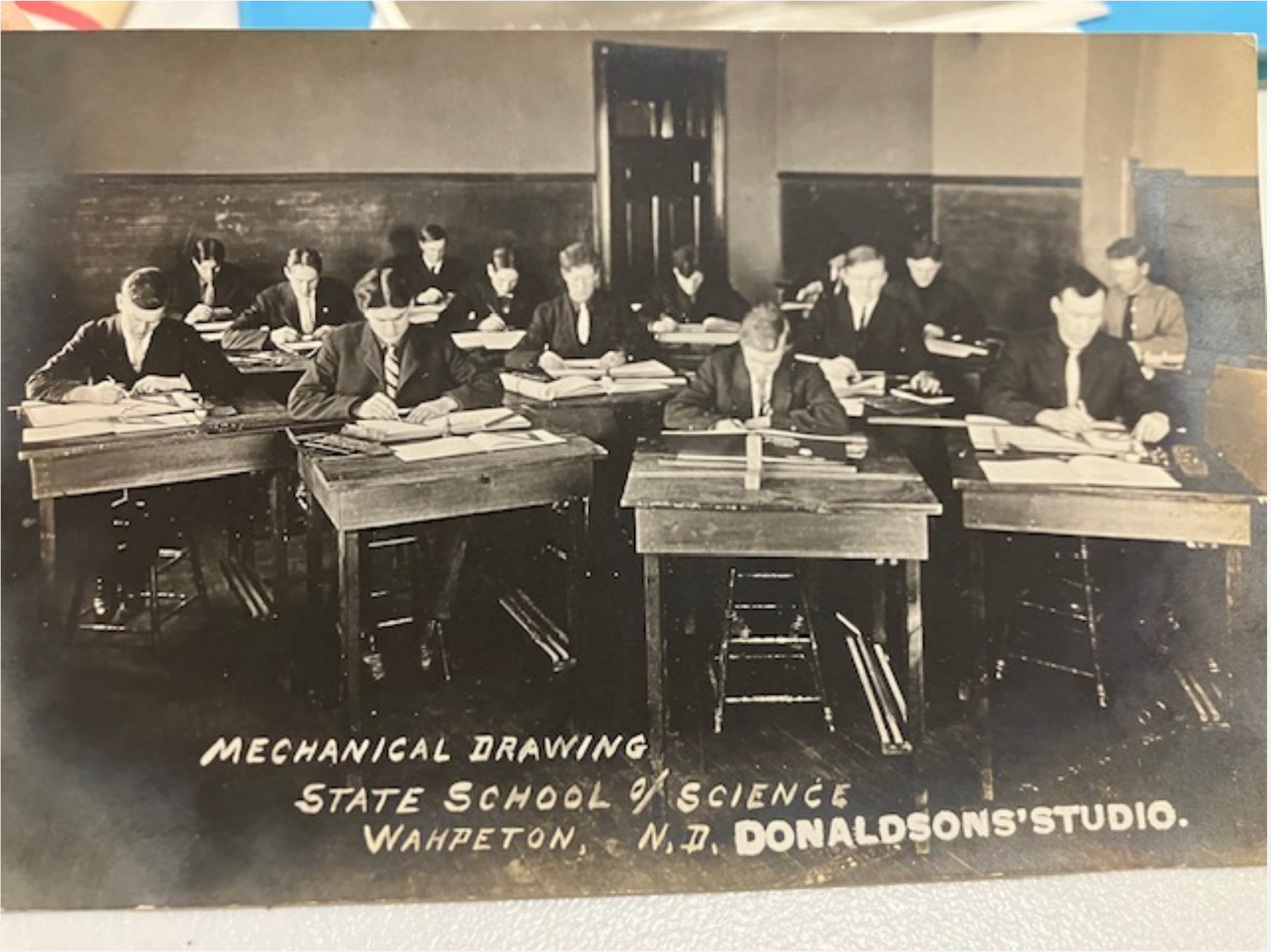
BOOKS REQUIRED:	Approximate Cost
Electrical Engineering Problems	$2.00
Industrial Electricity	2.30
Mathematics for Electrical Students	1.70
National Electrical Code	.15
Signal Equipment Job Book	.15
Electrical Wiring (Signal Equipment)	2.45
Practical Electricity & House Wiring	1.40
Lathe Book	.25
TOOLS REQUIRED:	
Side Cutter	$ .40
Tool Kit	.98
Straight Claw Hammer	.50
Two Screwdrivers	.20
Knife	.25
Steel Tape	.25
Diagonals	.35
6-inch Crescent Wrench	.25
Long Nose Pliers	.25
Punch	.10
Test Light Set	.30
TOTAL	$14.23

Second Year Electrical Trades

BOOKS REQUIRED:	Approximate Cost
Alternating Current Lesson Sheets	$1.00
Alternating Current Problem Book	.25
A. C. Job Book	.25
Instrument Job Book	.15
Meter Testing Job Book	.15
Meterman's Hand Book	3.00
Electrical Distribution Book	5.00
TOOLS REQUIRED:	**Approximate Cost**
Caliper Rule	.75
8-inch Crescent Wrench	.75
4-inch Crescent Wrench	.50
8-inch Slip Joint Plier	.25
Small 5-inch Screwdriver	.10
12-oz. Ball Pein Hammer	.50
7-oz. Riveting Hammer	.50
8-inch Shear or Scissors	.35
Pair of Tweezers	.15
1 Set of Punches Including Center Punch	.65
A Pair of Dividers	.25
TOTAL	$14.55

For 2 years **Textbooks = $20.20** **Tools = $8.58**

Reference: NDSSS Bulletin May 1942



100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

Photo courtesy of
David Cooper

National Recognition

During World War II, the State School of Science gained additional national recognition when it was chosen by the Navy to train machinists' and electricians' mates. During the 2 ½ years of its existence, the Naval Training School here trained some 3500 men. During the Korean conflict the school was selected by the United States Air Force to train 800 Air Force men as Clerk-Typists.

Reference: NDSSS Bulletin November 1963

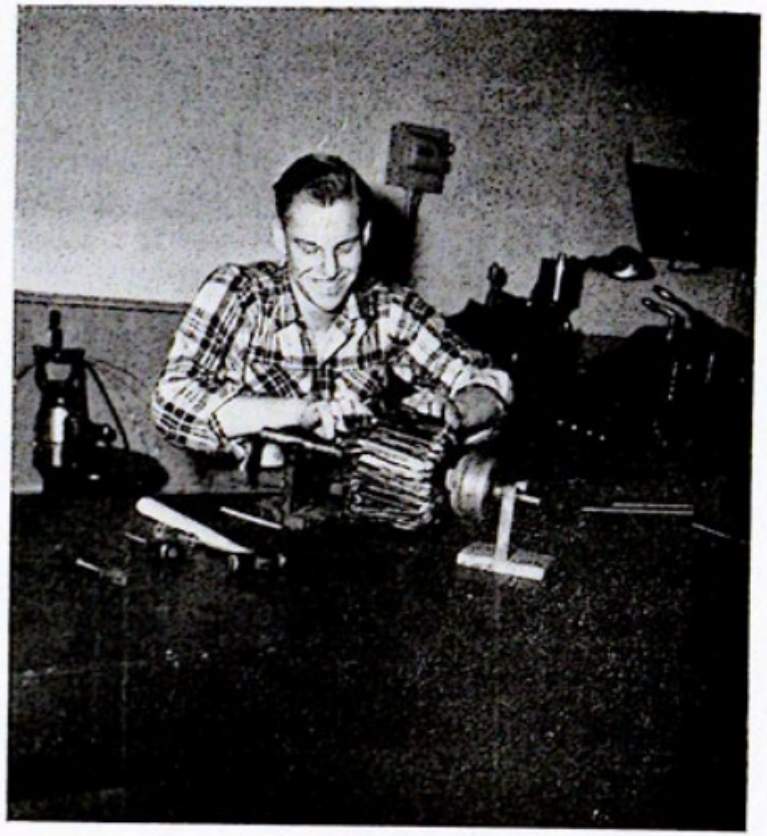
1953

How Much Does It Cost?

Listed below are the approximate costs for a school year (9 months) at the North Dakota State School of Science:

- **REGISTRATION FEES** — $45.00
  $15.00 per quarter. Out-of-state students must add $7.50 per quarter for non-resident fee.
- **STUDENT ACTIVITY FEES** — 12.00
  $4.00 per quarter. Includes all on-campus activities such as assemblies, parties, school paper, annual, sports events, etc.
- **STUDENT HEALTH FEES** — 4.50
  $1.50 per quarter. Provides a regular on-campus health service with doctor and nurse.
- **COURSE FEES** — 15.00
  $5.00 per quarter. Covers all laboratory and shop costs except where welding is required. Welding fee is $10.00 for each 45 clock hours of welding.
- **DIPLOMA FEE** — 2.00
  All who graduate from a two-year course and receive a diploma are required to pay the diploma fee.
- **LOCKER FEES** — 2.00
  $.50 per quarter. $.50 deposit on lock.
- **BOOKS, TOOLS AND SUPPLIES** — 50.00
  This will vary depending on the particular course. In most cases the biggest part of this cost will come during the fall quarter since many books, tools and supplies purchased then will be used throughout the school year. Tools and many supplies purchased by students will be required after they accept employment on completion of courses.
- **ROOM** — 90.00
  $30.00 per quarter. This, of course, will depend on your requirements and facilities available, but $30.00 per quarter has been the average during 1952-53.
- **ROOM DEPOSIT** — 10.00
  Refunded to those with no loss or damage to room.
- **BOARD** — 324.00
  $108.00 per quarter. This is based on an estimated charge of $9.00 per week at the campus cafeteria.
- **TOTAL** — $552.50
  (To this, of course, must be added cost of transportation, clothes and recreation outside of school activities. It represents, however, probably the lowest year's schooling cost to be found anywhere in the nation.
  Fees are paid at the beginning of each quarter (12 weeks) and board and room is paid monthly. The average cost per quarter for all known expenses is approximately $184.00.

Reference: NDSSS Bulletin May 1953



Rewinding an armature is an important part of the electrical student's training. Here the job is getting the full attention of Gordon Olson of Forman.

Reference: NDSSS 1953 Agawasie

Photo courtesy of
David Cooper

1953

Two-Year Electrical Trade Course

FIRST YEAR

1st Term (Fall)	Periods Per Day
Signal Equipment, Appliance Repair and Elec. Controls	3
S.K. Sig. Equip., Appliance Repair and Elec. Controls	1
Electrical Mathematics	1
Fundamentals of D. C. Electricity I	1
Hand Tools - Bench Work (6 weeks)	2
Electrical Drawing (6 weeks)	2

2nd Term (Winter)	
Electrical Wiring	3
Electrical Code Study I	1
Electrical Mathematics II	1
Fundamentals of D. C. Electricity II	1
Blueprint Reading and Estimating	2

3rd Term (Spring)	
Electric Motor Maintenance and Repair	3
S. K. Electric Motor Maintenance and Repair	1
Electrical Mathematics III	1
Fundamentals of A. C. Electricity	1
Refrigeration	2

SECOND YEAR

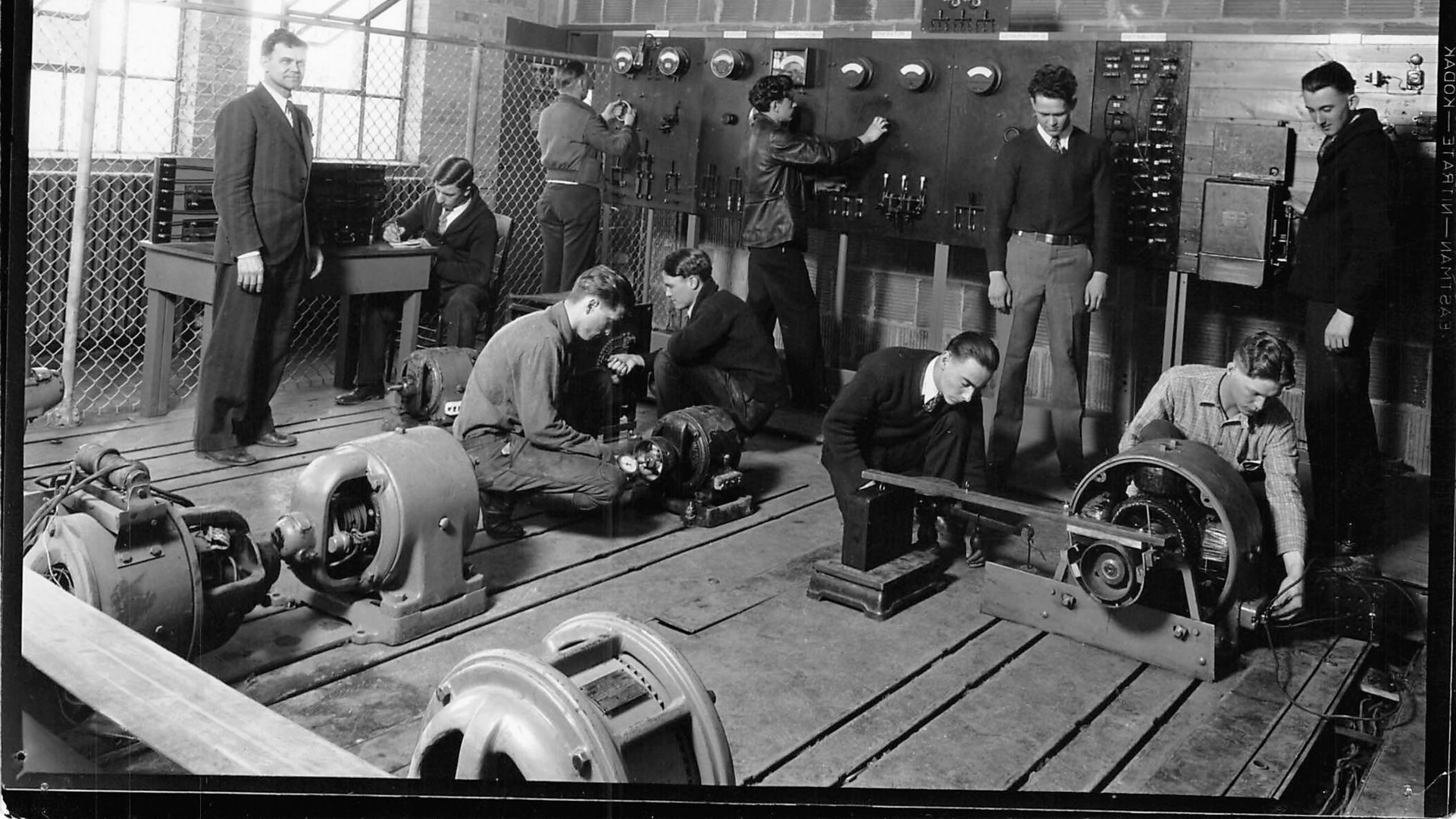
4th Term (Fall)	Periods Per Day
Alternating Current Theory I.	1
A. C. Lab and Electrical Measurements	2
A. C. Shop Work I	2
Business Fundamentals	1
Estimating	2

5th Term (Winter)	
Alternating Current Theory II.	1
A. C. Lab and Meter Testing	2
A. C. Shop Work II	2
Electrical Code Study II	1
Electronics and Electronics Lab	2

6th Term (Spring)	
Electrical Distribution Systems	1
Repairing and Testing Meters and Elec. Machine Design	2
Record Keeping for a Small Business	1
* A. C. Shop Work III	4

** Electives in place of A. C. Shop Work: Machine Shop, Welding, Electrical Wiring II, and Refrigeration.*

Reference: NDSSS Bulletin May 1953



1962

How Much Does It Cost?

	Quarterly (3 Months Term)
Registration Fee, North Dakota Resident	$ 50.00
Non-Resident Fee	120.00
Student Service Fee — This includes placement, health, mailbox rental and service, library and laboratory fees.	12.00
Student Activity Fee — This includes Student Union Fee, Yearbook, Athletics and Student Cabinet Budget.	10.00
Estimated Books, Tools and Supplies	20.00 to 30.00
Board	100.00 to 130.00
Room	45.00 to 66.00
Total Per Quarter, N. Dakota Resident	237.00 to 298.00
Non-Resident	307.00 to 368.00
Total Per Year, North Dakota Resident	711.00 to 894.00
Non-Resident	921.00 to 1104.00

What Housing Is Available?

	Quarterly
Men—Babcock Hall, triple	$57.00
Men—Babcock Hall, double	66.00
Men—Babcock Hall, four	66.00
Men—Burch Hall, triple	45.00
Men—Burch Hall, double	54.00
Men—McMahon Hall, triple	57.00
Men—McMahon Hall, double	66.00
Men—McMahon Hall, four	66.00
Girls—Riley Hall, triple	51.00
Girls—Riley Hall, double	60.00
Girls—Campus Residences, triple	45.00
Girls—Campus Residences, double	54.00
Girls—Campus Residences, single	60.00

	Monthly
Families—Apartments	45.00 to 50.00
Families—Houses	35.00
Families—Trailer Space	14.00

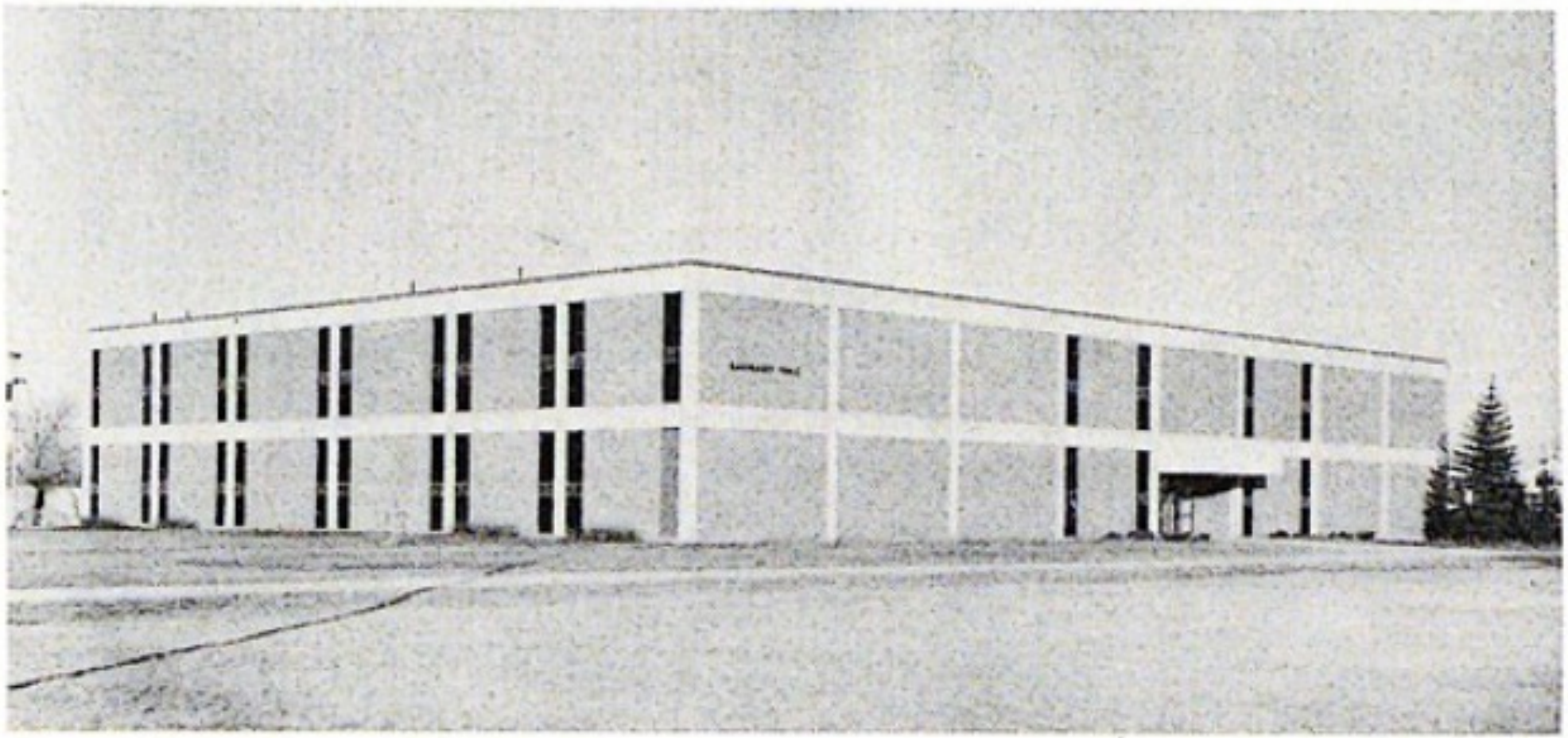
Reference: NDSSS Bulletin November 1963

Electrical Students – 1967

first row: Gary Thomas, Stan Derkeim, Clarence VanderLaan, Roger Kuhn, Gary Quiring, Donald Vettrus, Paul Hoff. *Second row:* Erroll Molter, Keith Richter, Paul Dotzenrod, Leroy Fickert, John Nygaard, George Heck. *Third row:* James Burner, Loran Halstenson, Jerome Wiese, David Olson, Philip Foss, Larry Toreson.

Reference: NDSSS 1967 Agawasie

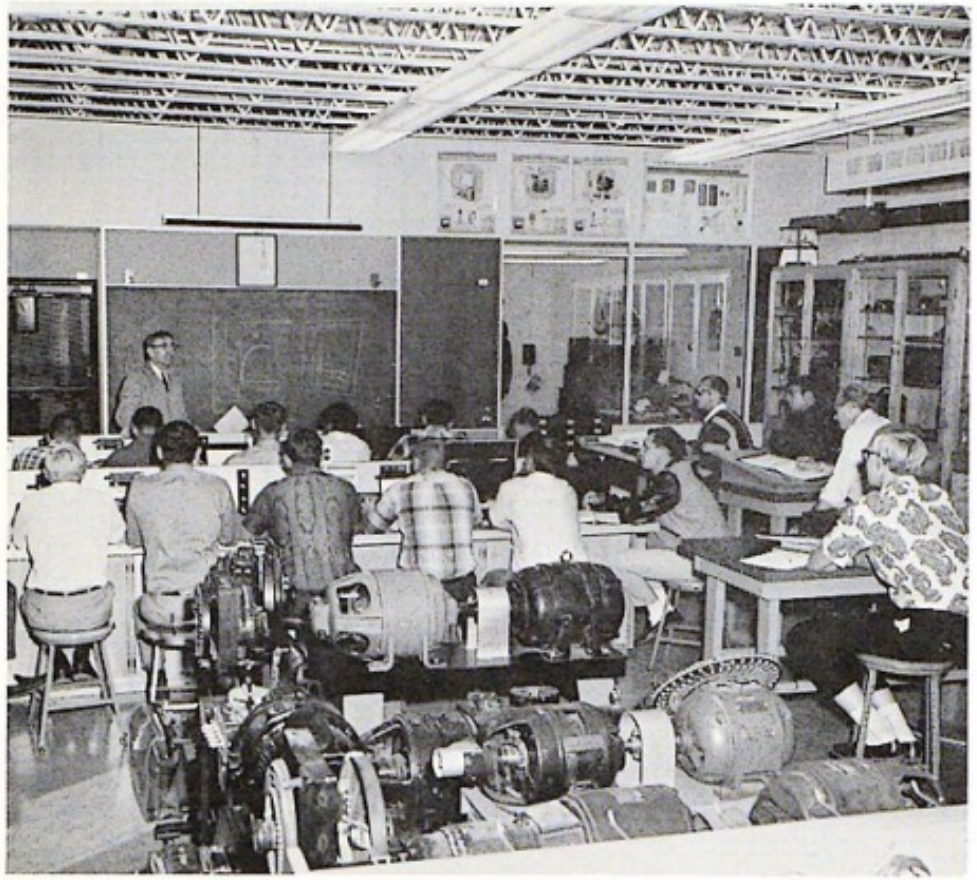
Barnard Hall - 1969



BARNARD HALL – Is the newest technical education building.

Reference: The Dakota Scientist 3-31-1969

Barnard Hall Dedication To Be Held Today



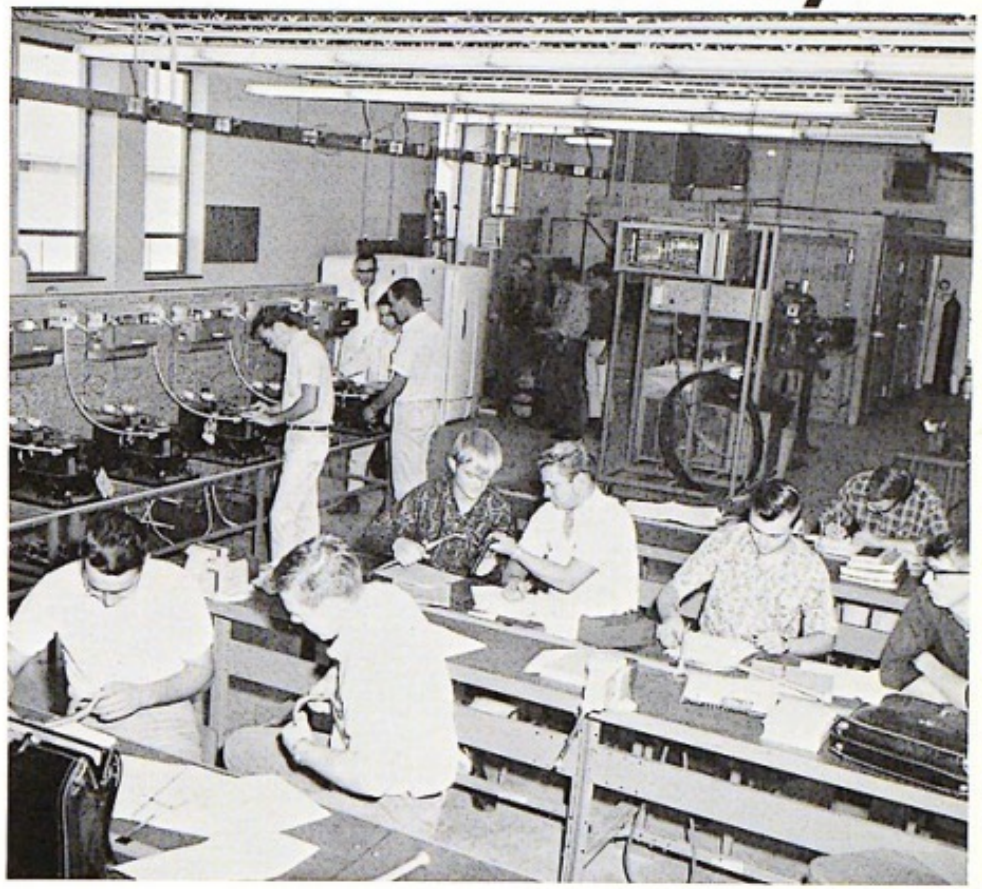
BARNARD HALL SECOND YEAR ELECTRICAL POWER LAB —Second year students have a wide variety of equipment to use in gaining knowledge about electrical power in one of the classrooms.

Barnard Hall, named in honor of Ben Barnard, long time Science School staff member, will be dedicated at 2:30 p.m. on Friday, October 6 in the SSS Auditorium. Guests and the public are invited to attend the dedication at 2:30 and the building tour at 4:00 p.m.

Barnard

Barnard Hall was built at a cost of $622,650. State appropriations provided $311,325 of the construction cost and the State Board of Vocational Education authorized the matching sum of $311,325 to complete financing.

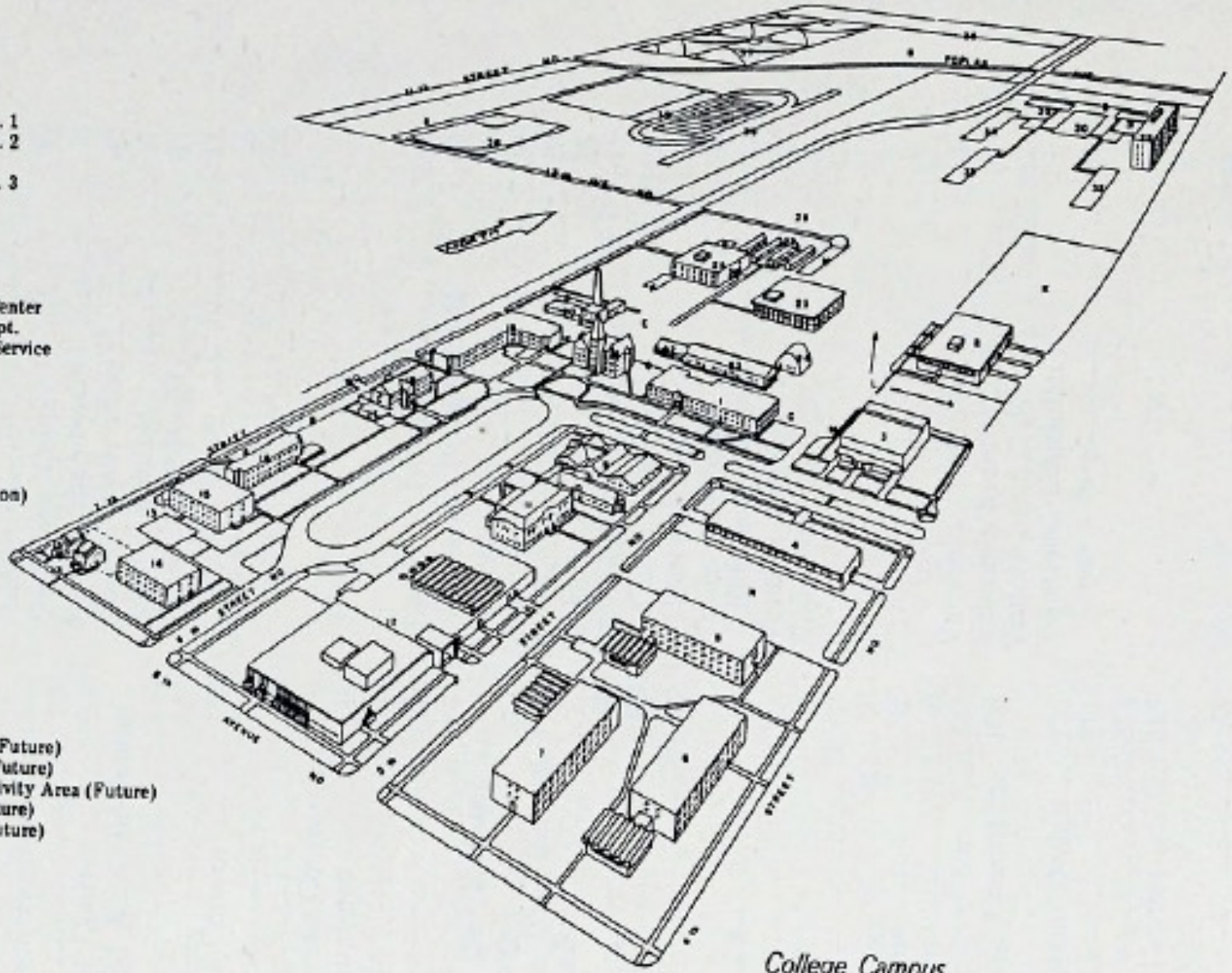
Barnard Hall houses the electronics technology, electrical technology and refrigeration air conditioning technology departments.



BARNARD HALL SECOND YEAR REFRIGERATION—Theory and application are taught in this refrigeration course which is a part of the technical division.

Legend

1. Trade-Technical Bldg. No. 1
2. Trade-Technical Bldg. No. 2
3. Bute Gymnasium
4. Trade-Technical Bldg. No. 3
5. Babcock Hall (Men)
6. Satterlee Hall (Men)
7. McMahon Hall (Men)
8. A-P Parking Areas
9. Auto Body Bldg.
10. Annex Bldg. and Health Center
11. Auditorium and Music Dept.
12. College Center and Food Service
13. College Housing
14. Walton Hall (Women)
15. Forkner Hall (Women)
16. Riley Hall (Women)
17. College Laundry
18. Burch Hall (Women)
19. Haverty Hall (Administration)
20. Central Heating Plant
21. Old Main
22. College Garages
23. Auto Mechanics 1 Bldg.
24. Plumbing Bldg.
25. Library
26. Barnard Hall
27. Student Apartments
28. Trailer Court
29. Robertson Hall (Men)
30. Food Service (Future)
31.-35. Men's Residence Halls (Future)
36. Married Student Housing (Future)
37. Physical Education and Activity Area (Future)
38. Football Practice Field (Future)
39. Stadium and Fieldhouse (Future)



College Campus
North Dakota State School of Science
Wahpeton

100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

1970

Reference: NDSSS Bulletin May 1970

1972

FEES AND EXPENSES

The North Dakota State School of Science is on the "Quarter System." This means that the student will pay major expenses at the beginning of each quarter – September, December, March, and June. Students enrolled in regular courses in all divisions will pay fees as follows:

Fees for Regular Programs

	Fees Per Quarter		Fees Per Year	
	Resident	Non-Res.	Resident	Non-Res.
Registration Fee	$ 95.00	$251.00	$285.00	$753.00
Student Service Fee	11.00	11.00	33.00	33.00
Student Activity Fee	12.00	12.00	36.00	36.00
TOTAL	$118.00	$274.00	$354.00	$822.00

Reference: NDSSS Bulletin May 1971

Legend

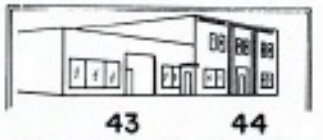
1. Trade-Technical No. 1
2. Trade-Technical No. 2
3. Bute Gymnasium
4. Auto Body
5. Babcock Hall (Men)
6. Satterlee Hall (Men)
7. McMahon Hall (Women)
- ①-⑩ Parking Areas
9. Shop/Lab (Temporary)
10. Health Center/OTA Dept.
11. Auditorium (Music, Drama, Dental Auxiliaries)
12. Student Center and Food Service
13. Schulz Hall (Women)
14. Walton Hall (Women)
15. Forkner Hall (Women)
16. Riley Hall (Women)
17. Physical Plant-Security Office
18. Burch Hall (Men)
19. Haverty Hall (Administration)
20. Central Heating Plant
21. Old Main
22. Environmental Systems (Plumbing, Sheet Metal, Heating and Cooling)
23. Diesel
24. Auto Mechanics
25. Mildred Johnson Library
26. Barnard Hall
27. Cottage Court (Temporary)
28. Trailer Court (Temporary)
29. Robertson Hall (Men)
30. Nordgaard Hall (Men)
31-32. (Future Buildings)
33. College Complex
34. College Complex NW
35. College Complex SE
36. Physical Education - Activity Area
37. Activities Center
38. Alumni Stadium
39. Frank Vertin Field
40. Tennis Courts
41. Football Practice Field
42. Physical Plant/Storage
43. Practical Nursing Dept.
44. Continuing Education Center

PARKING ① – ⑩

Areas of each parking lot are marked for students and staff. Visitor parking is designated and so noted by "VISITOR" signs. If you should receive a parking ticket while visiting NDSSS either take it or mail it to the Security Office without fine. The Security Office is located in building location No. 17 (Lower Level, Burch Hall).

Student parking areas are designated to coincide with the type of parking permit you have purchased.

Staff reserved parking areas are designated by proper signs in all lots on the campus.



43. Practical Nursing Dept.
44. Continuing Education Center
708 Dakota Avenue

College Campus
North Dakota State School of Science
Wahpeton

100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

1981

Reference: NDSSS Bulletin January 1981

CIRCUIT SPONSORS

North American COAL

COYOTE CREEK MINE
FALKIRK MINE
FREEDOM MINE

EXPANSE ELECTRICAL Co

ENERGY SPONSOR

JDP ELECTRIC INCORPORATED

CURRENT SPONSORS

OTTER TAIL POWER COMPANY

Xcel Energy®

POWER SPONSORS

A & K Development
Cass County Electric
Electric Utility Workshop
Parson Electric

SURGE SPONSORS

Basin Electric Power
H & H Electric
Lesco, Inc.
Montana Dakota Utilities
North Central Electrical League, Inc.

FUSE SPONSORS

Border States Electric
Central Power Electric Cooperative, Inc.
Eagle Lake Electric
Gary & Sons Electric, Inc.
International Association of Electrical Inspectors
North Central Electrical Engineering Society
Northern Plains Electric Cooperative

100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

Once again…

THANK YOU, SPONSORS!

1982

Reference: NDSSS Bulletin May 1982

1992

Fees

(Tuition and Activity)
Fees Per Year (9 months)

ND Resident	MN Resident*	Border States**	Out-of-State
$1,599.00	$1,959.00	$1,959.00	$4,023.00

* Minnesota residents who qualify can attend North Dakota colleges/universities under a special reciprocity tuition agreement.

** Border states — Montana, South Dakota, Manitoba, Saskatchewan.

The average yearly total cost (fees/tuition/room and board/personal expenses) for North Dakota residents will be approximately $6,600.00, for border state residents (Minnesota, South Dakota, Montana) approximately $6,960.00, and for an out-of-state student approximately $9,025.00.

Reference: NDSCS Bulletin October 1992


Three-phase Four-wire Circuit
Line
Load
Neutral


1923
75th
ANNIVERSARY
1998
NDSCS
Electrical Technology

NDSCS Electrical Museum made possible by Don Kruckenberg

Electrical Museum Displays Rare 1909 Code Book, Lots of Industry History

Wow! Only 102 pages of electrical code. This was one of the first reactions by Electrical students as they checked out the new NDSCS Electrical Museum. The students were referring to a rare 1909 102-page code book—considerably briefer (and easier) than the 1996 1,069-page, larger size version.

These side-by-side code book displays are among numerous interesting bits of electrical history dating back to the 1880's in the new NDSCS Electrical Museum. Electrical Technology associate professor Don Kruckenberg has had the project in the back of his mind for 15 years as he was teaching a motors course. But he didn't actively pursue the museum until recently when it became something of a personal challenge and he couldn't drop it.

The 24-foot, six section Electrical Museum became reality during the holidays. It is located along the hallway connecting the Tech Center and Barnard Hall and is expected to be one of the new attractions for Family Day on March 29 and many other activities on campus.

Among the classic electrical displays are a replica of a 1879 Edison lamp that was just given five years ago, a 1909 electrical code book on loan from the father of a faculty member and many early motors, meters, starters and transformers. Electrical notes from former instructors and a voltmeter patented in 1895 are among the displays.

A1962 Electrical Club leather sleeved jacket on loan from faculty member Dean Wenker is displayed in the glass-enclosed oak cabinets. Electrical club jackets and logo were founded in 1961 when Don Kruckenberg was attending the Electrical Program.

Kruckenberg has thought about the museum for the past 15 years while teaching a summer motor repair course. During this time he said he received many donations, much of it junk and not worth fixing. But many devices were fixed and Kruckenberg recognized their antique value and he put them away in the basement of Barnard Hall.

About five to six years ago the Electrical faculty gathered in the basement and they identified and cataloged items that could be good candidates for display in the electrical museum.

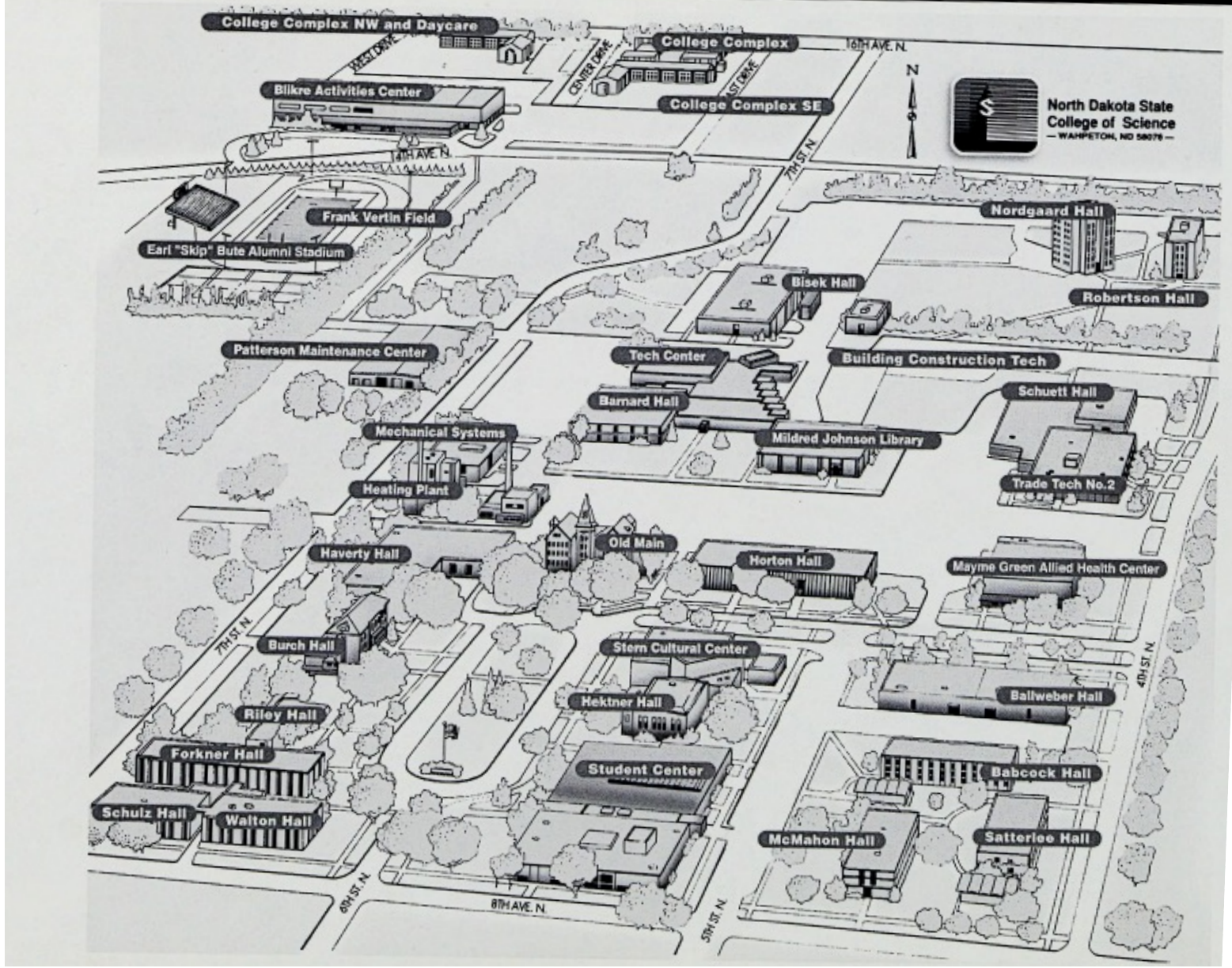
Last year when Kruckenberg's work study student, Allan Lagerquist identified himself as a cabinetmaker, interest spurred once more. He couldn't pass up the opportunity so he asked Lagerquist to help design the cabinet.

The cabinet was put up on Dec. 15. During the holiday break as Kruckenberg started filling the shelves, a few students and other faculty members wandered in and got caught up with the project's nostalgia.

Assisting the museum's author, designer and coordinator were department chair Rick Hendrickson, Bernie Anderson, Charles Henry, Tim Pull and Dean Wenker. Project coordinator was Richard Schmitt of the NDSCS Maintenance Department. Orlyn Pederson Co., Fergus Falls, built the cabinet last spring.

Reference: The Dakota Scientist 1-1-1996

NORTH DAKOTA STATE COLLEGE OF SCIENCE CAMPUS



100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

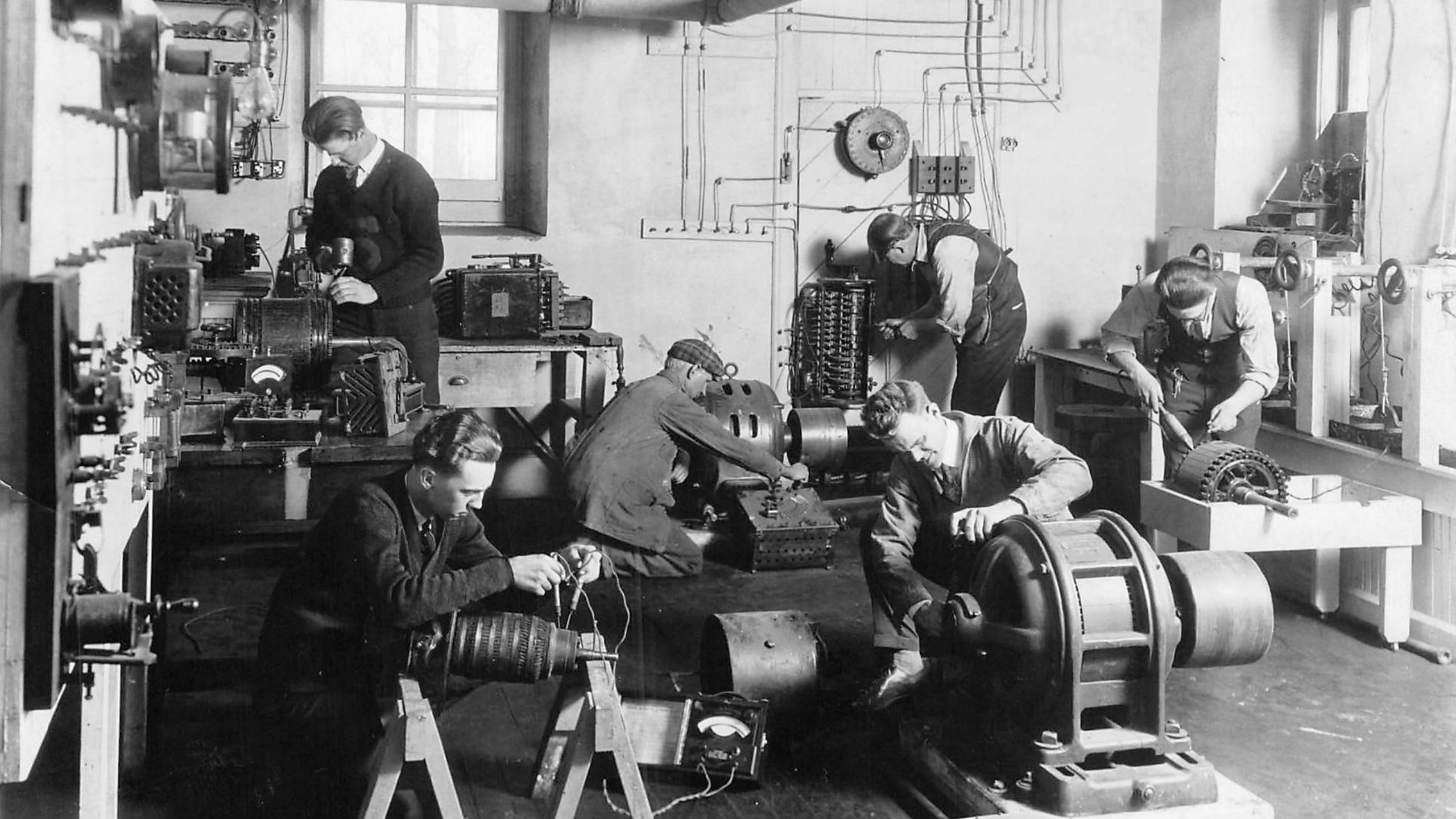
2000

Reference: NDSCS Bulletin July 2000

2003

The Electrical Technology program is designed to give students the skills necessary for successful employment in the electrical industry. Electrical Technology includes an in-depth study of electrical theory, applied math, code study and residential wiring. A substantial amount of hands-on experience is provided. Our six laboratories contain AutoCAD, test equipment, electric motors, magnetic motor starters, programmable controllers, electronic devices and residential wiring for both the Electrical Construction and Industrial Electrical options.

Reference: NDSCS Bulletin July 2003



2013

2013-2014 Estimated Average Costs

NDSCS is on the semester system. This means the student will pay major expenses at the beginning of each semester – September, January and June.

Students pay tuition and mandatory fees at the following rates:

- North Dakota resident, $143.10 per credit
- Minnesota resident with reciprocity, $157.01 per credit
- South Dakota, Montana, Saskatchewan and Manitoba residents, $172.08 per credit
- MSEP3 or WUE2 resident, $201.07 per credit
- Other Non-Residents and Other Canadian Providences, $336.70 per credit
- Online and other distance education students, $187.50 per credit
- NDSCS-Fargo students, $187.50 per credit

On-Campus with Meal Plan

Residents of all states and countries will be charged in-state tuition if living on-campus with meal plan of 160 meals or greater

Residency	Tuition/ Fees*	Room/ Board**	Books/ Supplies	Personal***	TOTAL
All States/ Countries	$4,325	$5,384	$1,000	$3,306	$14,015

Reference: NDSCS Bulletin January 2013

Electrical Club

Electrical Club Officers: Andy Duval, Ronald Roos, Dale Kempf and Ted Edinger.

Reference: NDSSS 1969 Agawasie

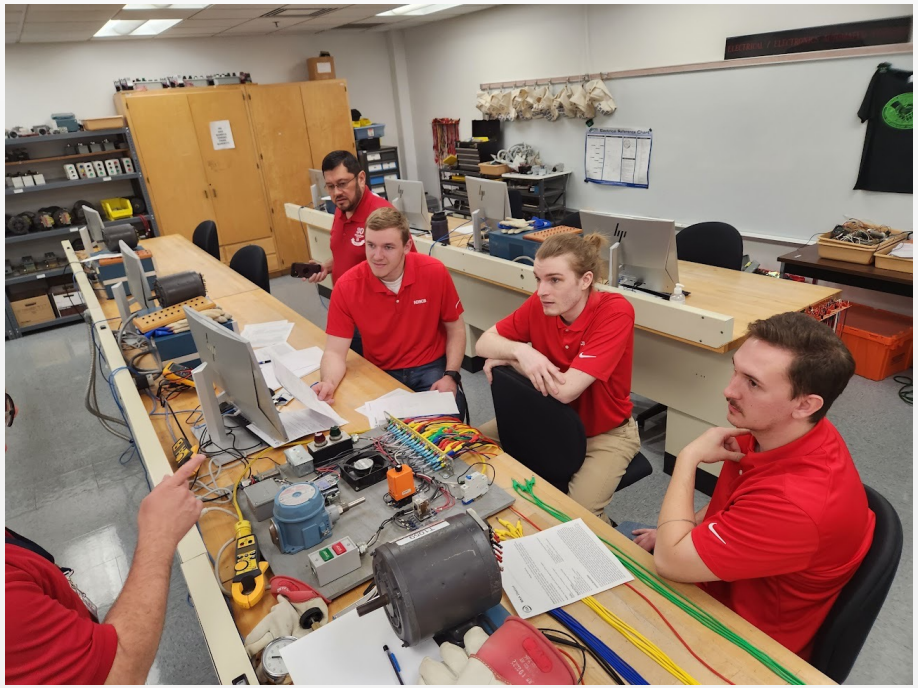
Electrical Club Jackets Courtesy of John Travis

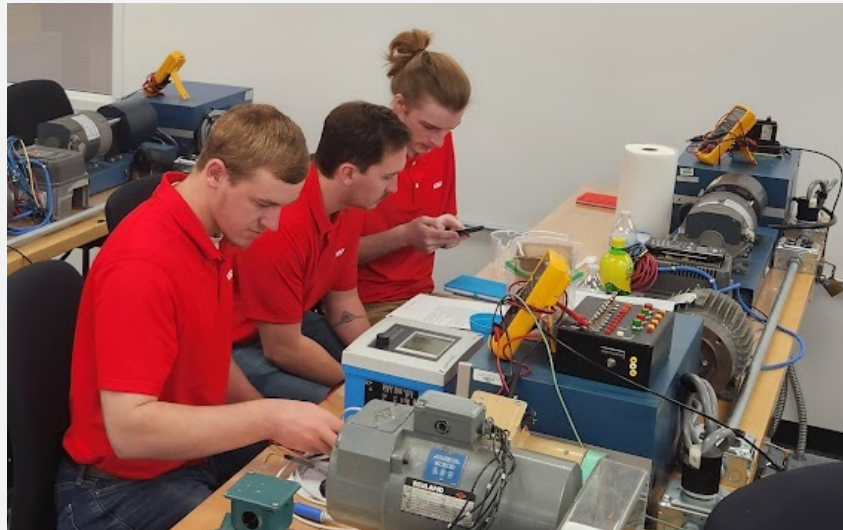
Electrical Club – House Project

Electrical Club Trip 2023

ISA Competition 2023 – Joliet, IL

International Society of Automation – Chartered in 2008 at NDSCS





Recent Placement Information

North Dakota State College ofScience

ELECTRICAL TECHNOLOGY^

Academic Year: 2021-2022

	Number of Graduates	Percent
Electrical Technology Total Graduates	**49**	
Accepted **related** employment	42	86%
Accepted **unrelated** employment	0	0%
Seeking employment	4	8%
Continuing Education	1	2%
Seeking employment at a later date	0	0%
Military Service	0	0%
Unknown	2	4%

Salary Information (Electrical Technology)	
Average monthly salary accepted	$3,756
Accepted monthly salary range	$2,427 - $8,147


ELECTRICAL TECHNOLOGY
95
YEARS
1923-2018
NDSCS
TM

Electrical Scholarships

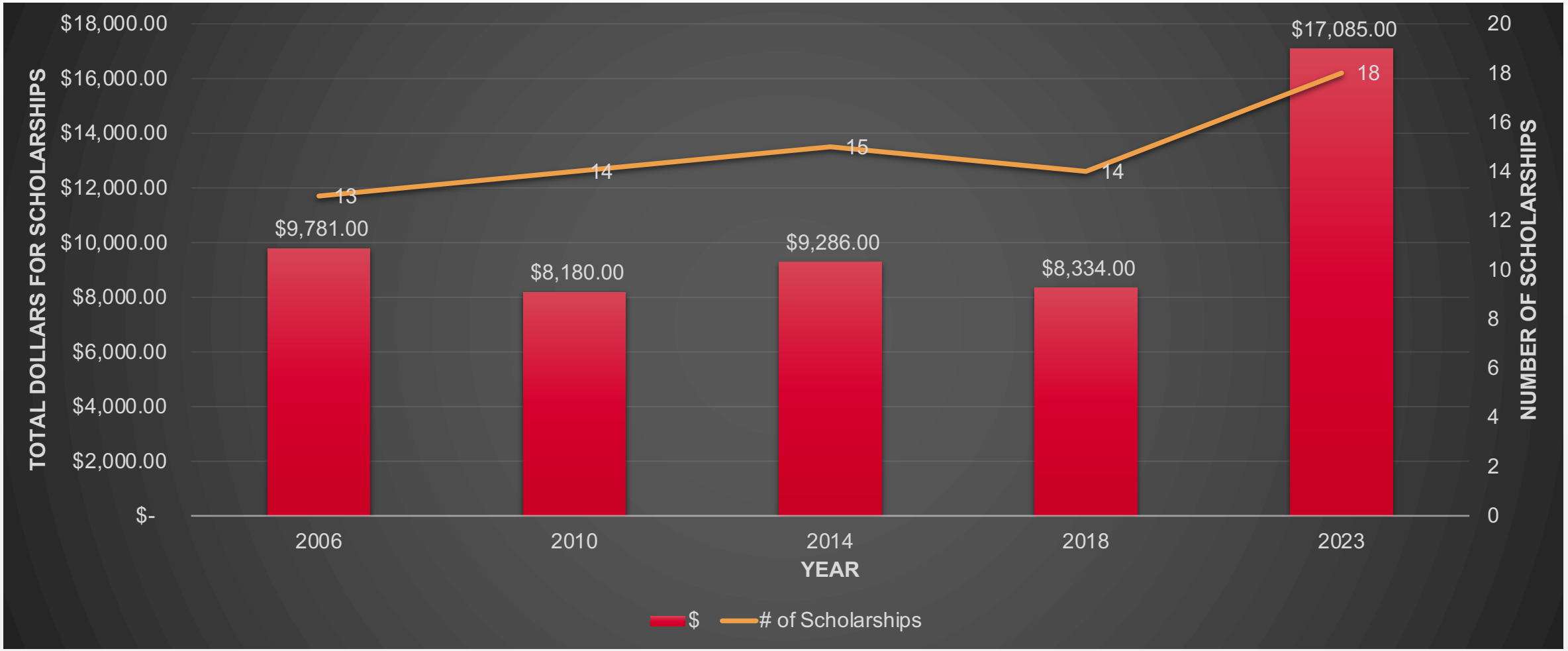
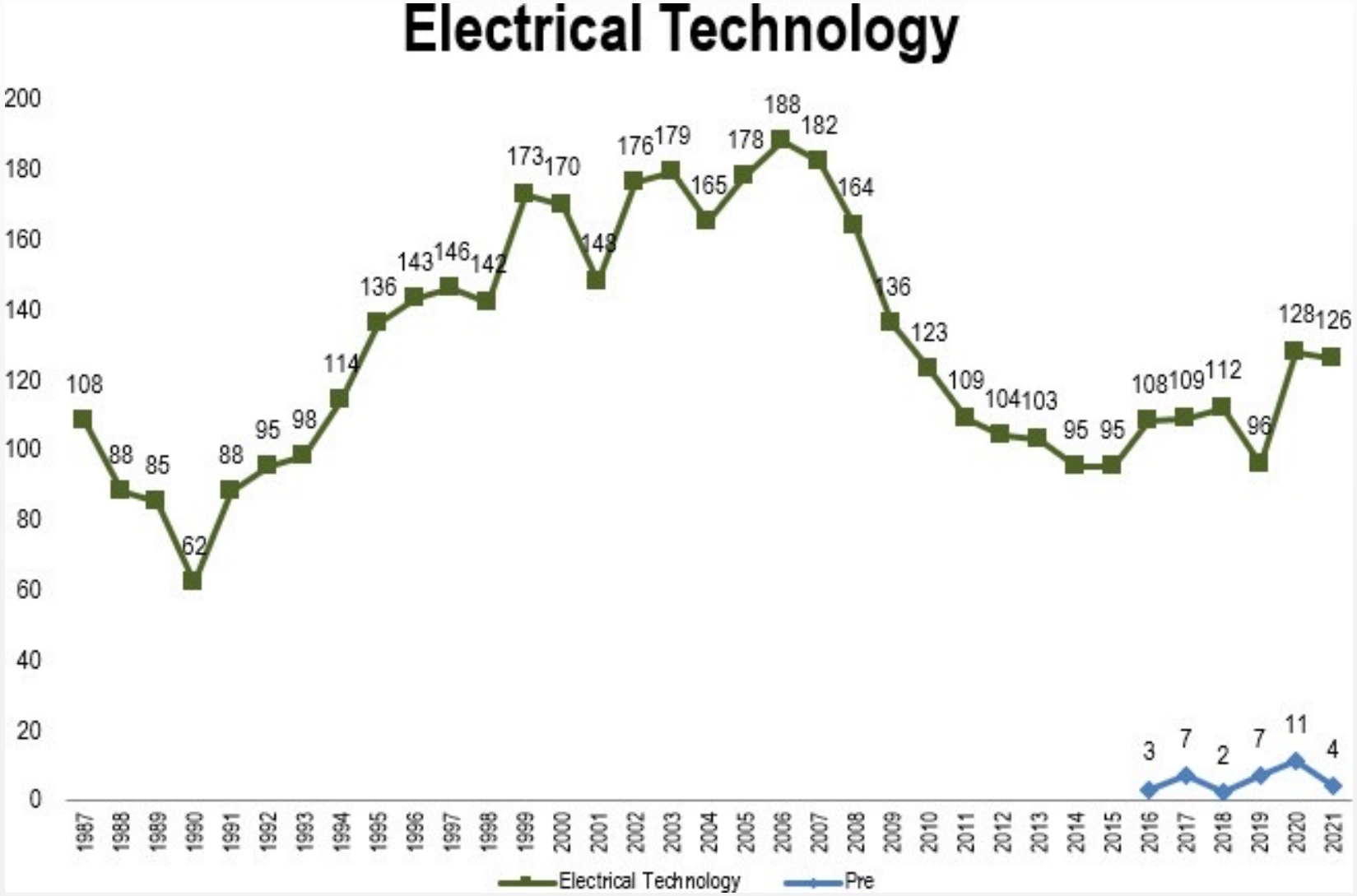


Photo courtesy of
David Cooper

Wire Up Contest 2023

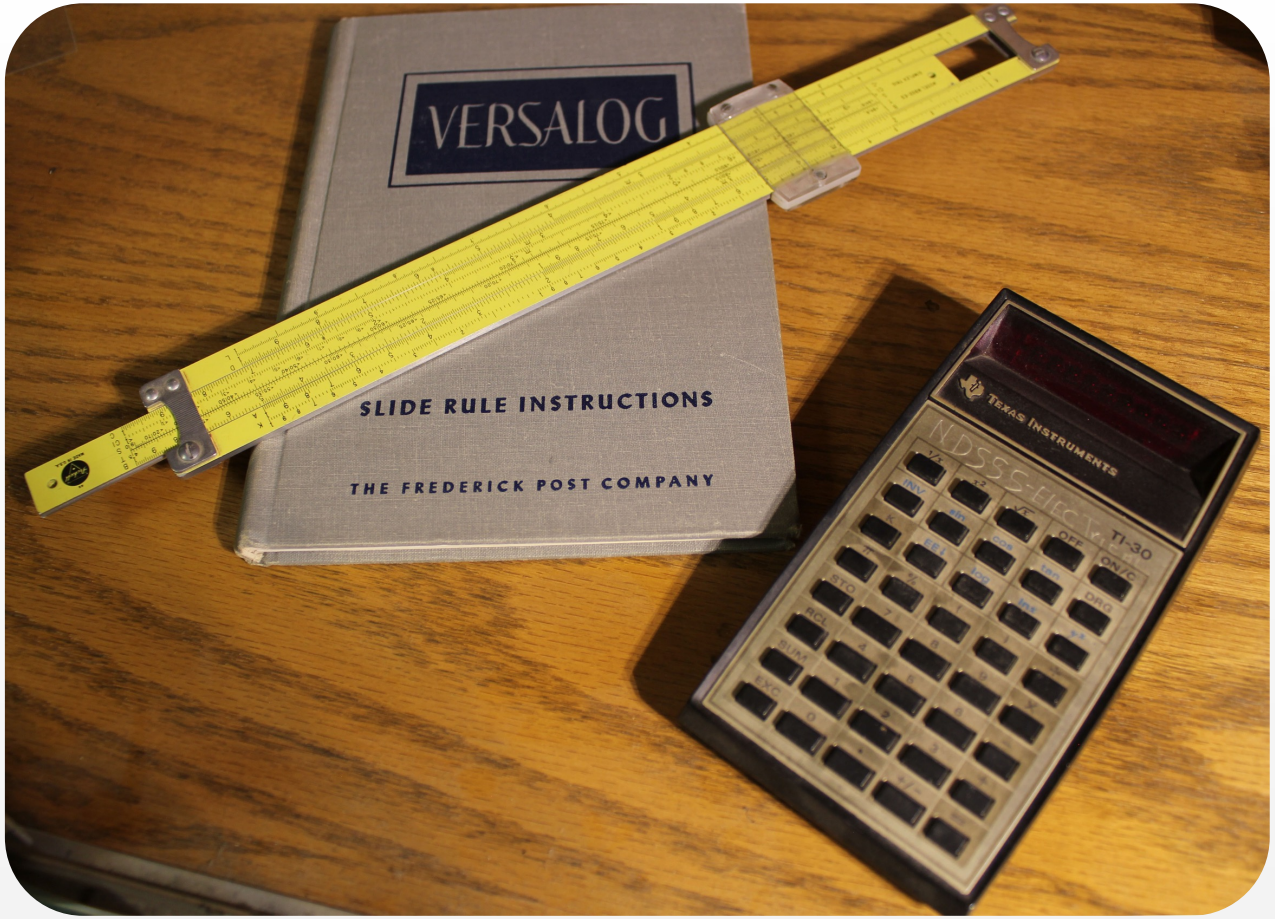
Photo courtesy of
David Cooper

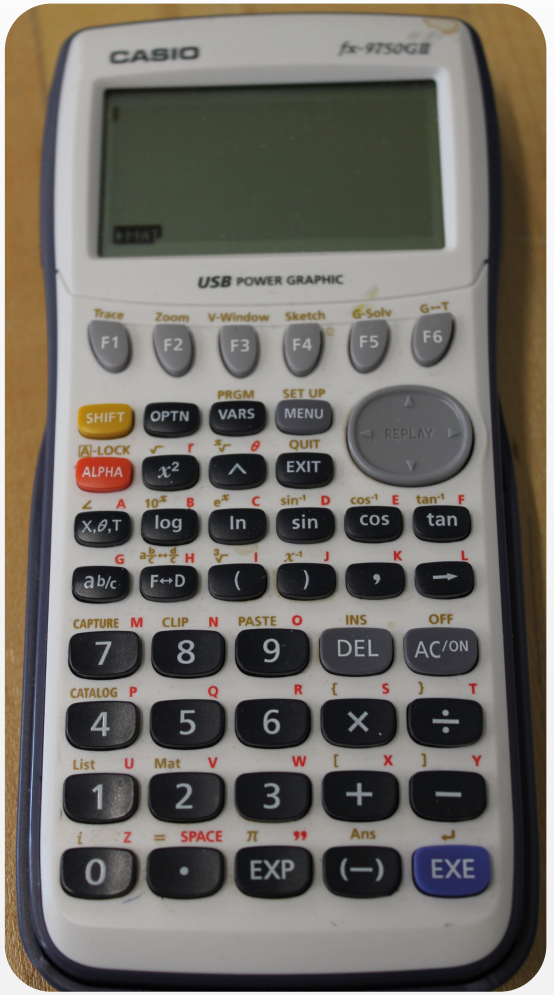
Enrollment


Electrical Technology
200
180
160
140
120
100
80
60
40
20
0
108
88
85
62
88
95
98
114
136
143
146
142
173
170
148
176
179
165
178
188
182
164
136
123
109
104
103
95
95
108
109
112
96
128
126
3
7
2
7
11
4
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Electrical Technology
Pre

Then vs. Now

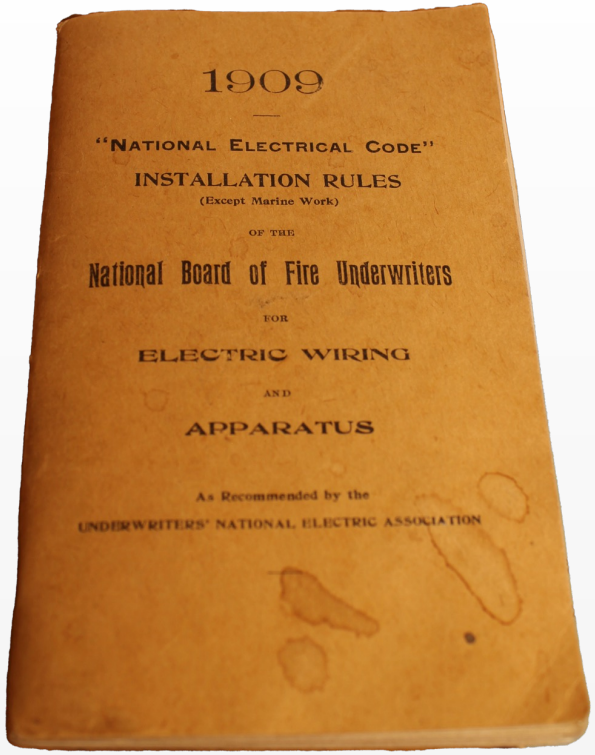
Photo credit:
LeAnne Jaenisch



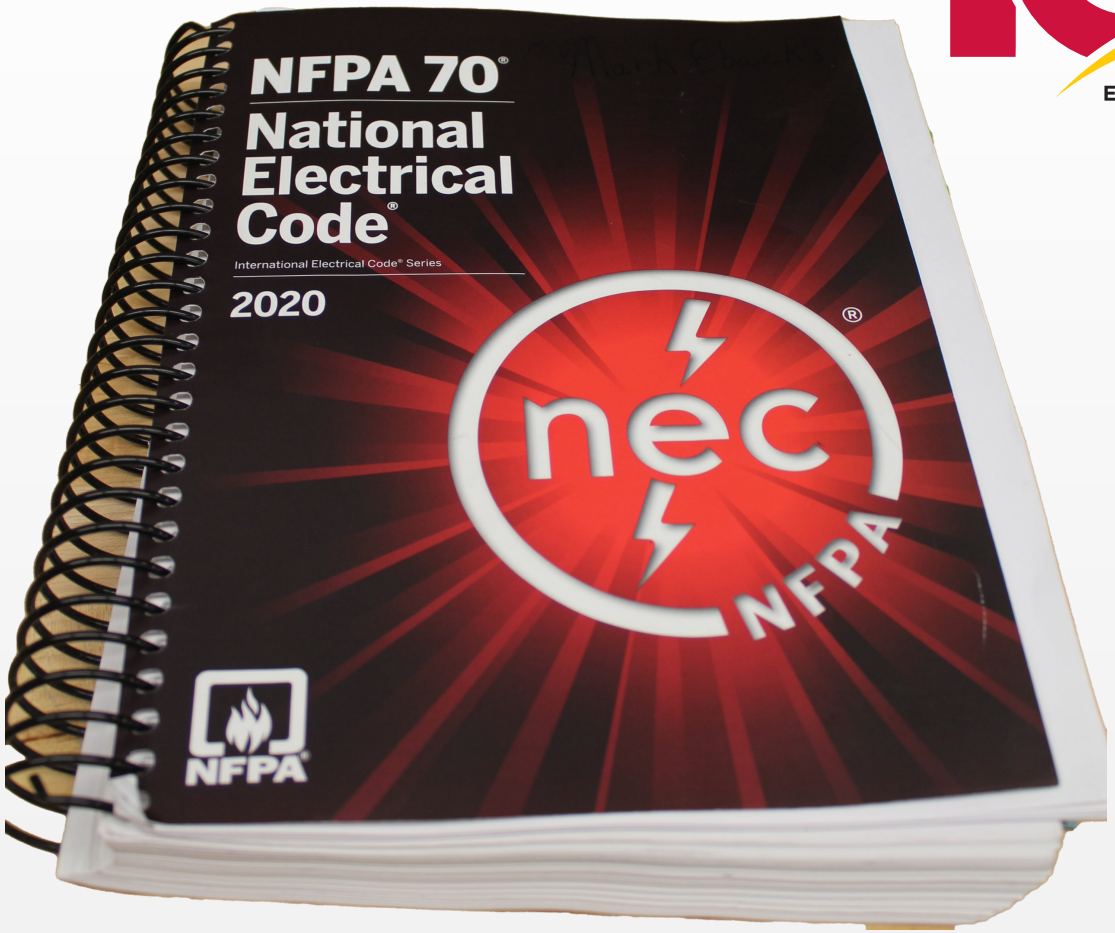


Then vs. Now

Photo credit:
LeAnne Jaenisch



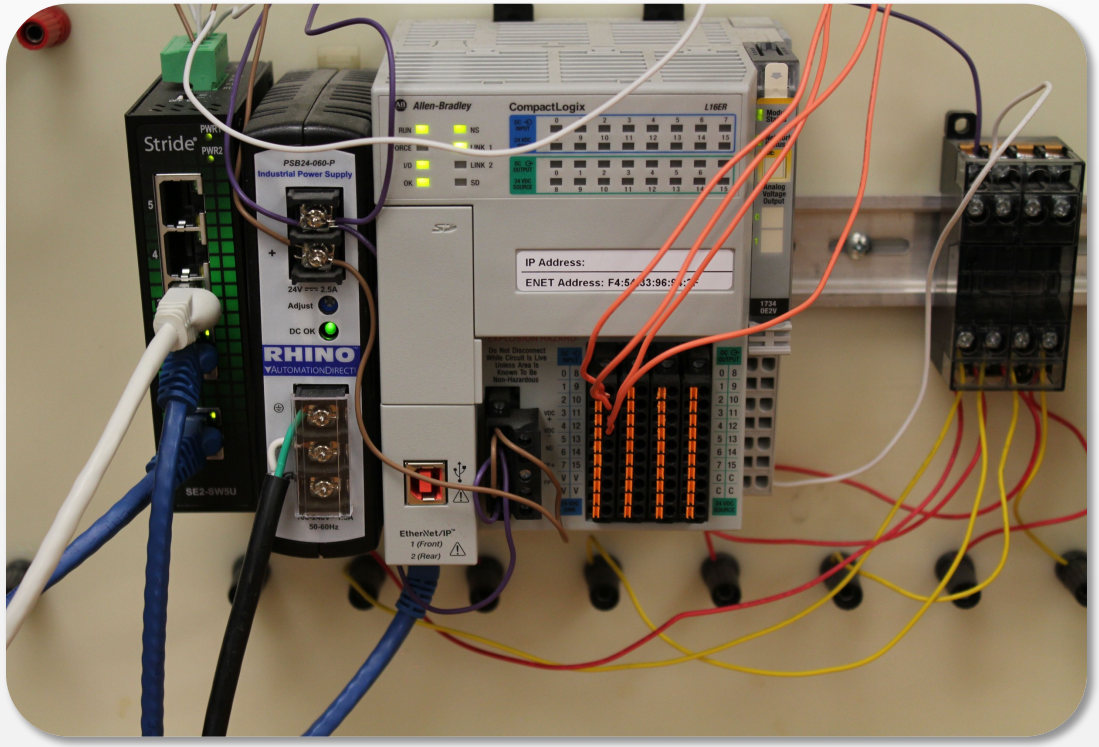
1909 National Electrical Code
102 Pages
Approx. 3-1/2” x 6”



2020 National Electrical Code
901 Pages
Approx. 8-1/2” x 11”

Then vs. Now

Photo credit:
LeAnne Jaenisch



Then vs. Now

Photo credit:
LeAnne Jaenisch

Then vs. Now

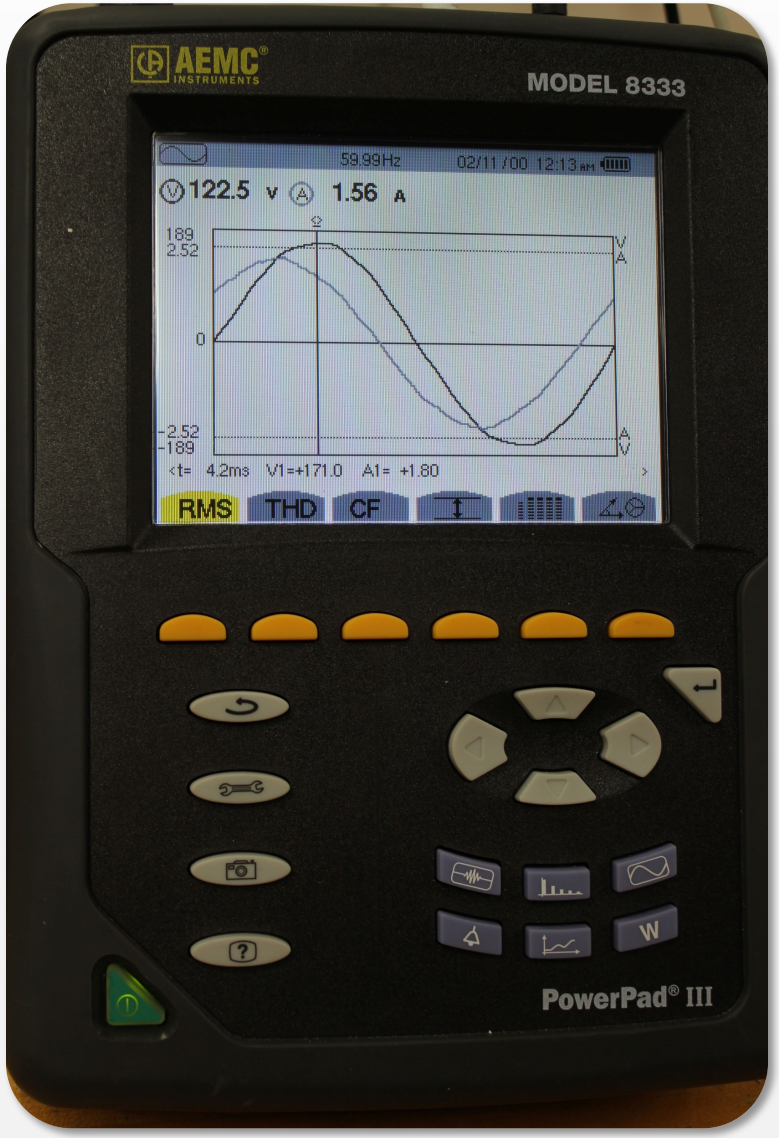


Photo credit:
LeAnne Jaenisch

Photo courtesy of
David Cooper

ELECTRICAL TECHNOLOGY PROGRAM TOOL LIST

QTY	DESCRIPTION	CATALOG #	VENDOR
1	Electricians Combo Support Belt	48-22-8110	Milwaukee
1	33T Electrical Tape (Super-3/4" x 66')	63806029035	Scotch
1	16 oz. Fiberglass Straight Claw Hammer	11419C-06	Plumb
1	6 pc. Hex Set, 5/32" to 3/8"	25611	Eklind
1	1" X 25' Power Tape	33-425	Stanley
1	Amprobe Multimeter, 600a AC/DC (ACDC-52NAV)	3729961	Amprobe
1	10" Straight Jaw Tongue & Groove Plier	430C	Channellock
1	Wire Stripper	45-120	Ideal
1	Fine Point Marker, Black	48-22-3100	Milwaukee
1	Precision Screwdriver Set	66-052	Stanley
1	6 pc. Mini Pliers Set	84-079	Stanley
1	GFCI Outlet Tester	GFI-3501	GB
1	8" Wrench – Adjustable	J708B	Proto
1	Safety Glasses	S3200	Uvex
1	6" Magnetic Level	TL041M	Savage
1	13 pc. Klein Kit**	M2041591KIT	Klein
	**Retractable Blade Utility Knife	44131K	
	**Multi Purpose Carry Bag, 12-1/2" X 7"	5139B	
	**4" Square Shank Screwdriver	600-4K	
	**4" Round Shank Screwdriver	601-4	
	**#2 Phillips Screwdriver	603-4	
	**6 In 1 Tapping Tool	627-20	
	**7" Scratch Awl	650K	
	**Square-Recess Tip Screwdriver	662	
	**Comb Reamer & Screwdriver	85191	
	**6" Long Nose Plier	D203-6	
	**9" Side Cut Plier	D213-9NECR	
	**8-1/8" Journeyman Diagonal Cut Plier	J2000-48	
	**7-3/4" Curved Wire Stripper	K1412	
1	Casio 9750 Calculator	CASIO9750GIII	Casio

TOTAL
$1,064.00
(plus ND sales tax)

A partial kit may be itemized as a special order. Special orders are subject to availability, vendor discretion, and may not receive the standard educational pricing. To request a special order quote, contact the NDSCS Bookstore Tool Department. Vendors reserve the right to substitute items due to changes in supply chain with items deemed of equal or greater quality. Prices are subject to change without notice due to unforeseen vendor cost increases.

100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

Tool List for 2023

100 YEARS 1923-2023
NOSCS
ELECTRICAL TECHNOLOGY

Photo credit:
Seth Simonson

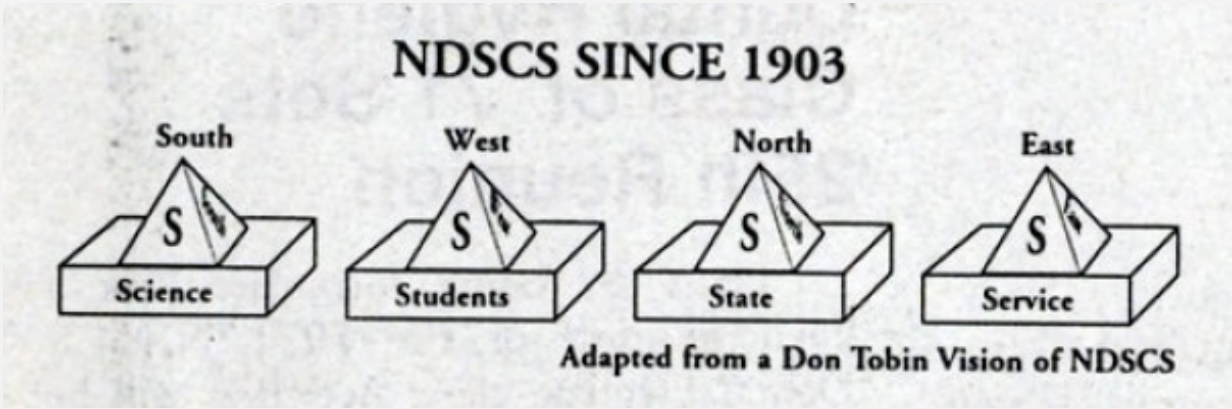
100 YEARS 1923-2023
NOSCS
ELECTRICAL TECHNOLOGY

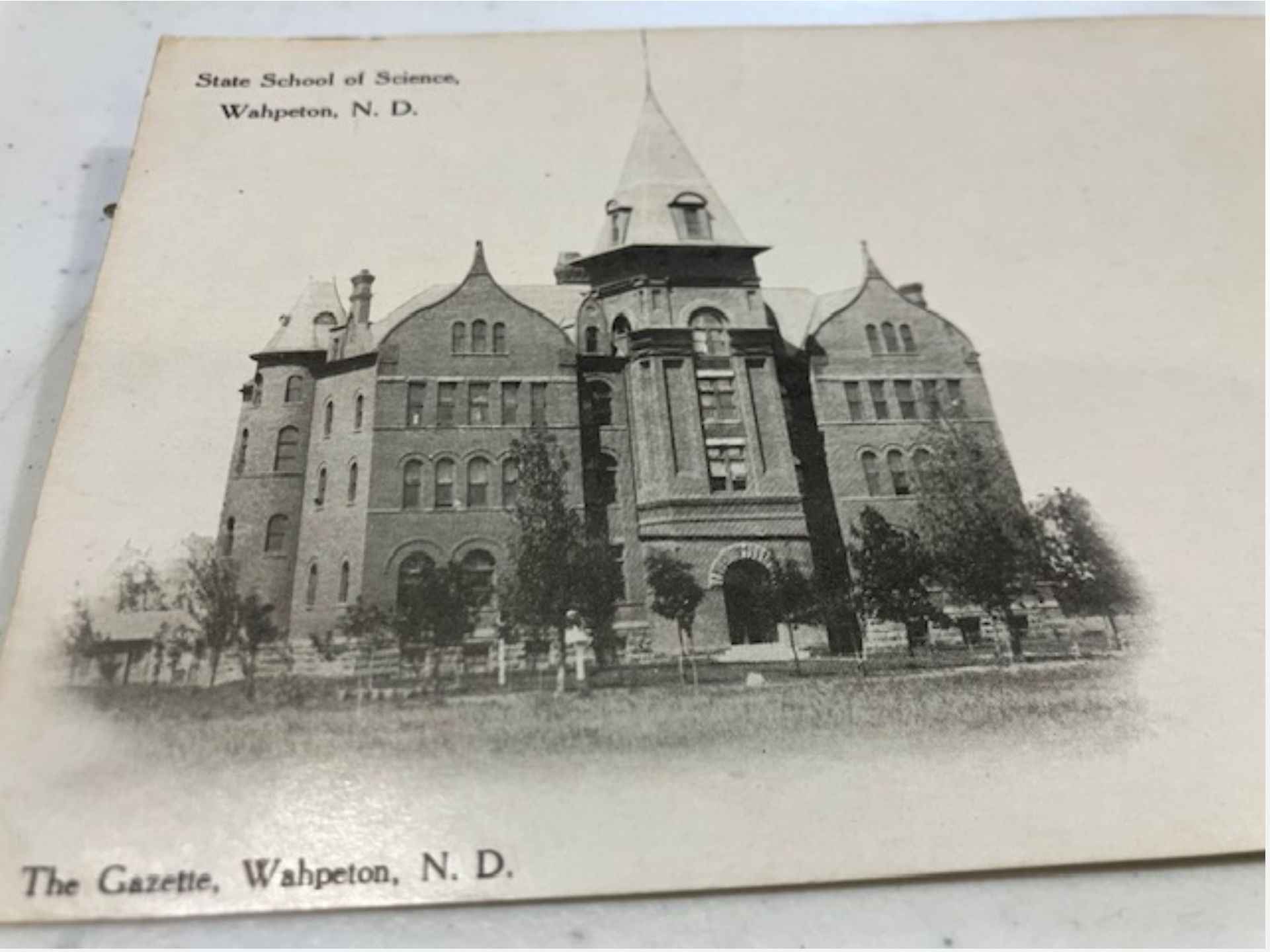
Photo credit:
Seth Simonson

Did you know?

The S's of NDSCS

The Old Main tower contains 4 brilliant S's. They represent **Science**, **State**, **Students** and **Service** which anchors our organizational structure and provide continuity through as many as 10 degrees of relationships developed across the campus and nurtured throughout the system.





100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

Photo courtesy of
David Cooper

100 YEARS 1923-2023
NDSCS
ELECTRICAL TECHNOLOGY

Old Main
2022