BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

68/69

SCHEDULE OF PREREQUISITES - 1968

1. BUSINESS MANAGEMENT TECHNOLOGIES

A. GENERAL PREREQUISITE

Graduation from senior secondary school on the Academic & Technical Programme as prescribed by the Department of Education for the Province of British Columbia.

B. SPECIAL PREREQUISITES

Option	MANDATORY PREREQUISITE	PREFERRED SUPPORT SUBJECT
Administrative Management	Nil	
Financial Management	Nil	
Marketing	Nil	
Computer Programming & Systems		
a. Business Systems	Nil	
b. Computer Science	Math 12	
Technical Management	Math 12	
Broadcast Communications		
a. Production	Hist.12; Eng.Lit.12	Typing 11
b. Technical	Math.12; Phys.11; Chem.11	Phys.12
Hotel, Motel Management	Nil	Foods 11, Foods 12

2. ENGINEERING TECHNOLOGIES

A. GENERAL PREREQUISITE

Graduation from senior secondary school on the Academic & Technical Programme as prescribed by the Department of Education for the Province of British Columbia.

B. SPECIAL PREREQUISITES

Option	MANDATORY PREREQUISITES	PREFERRED SUPPORT SUBJECT
Building	Math.12; Phys.11	Phys.12
Chemical & Metallurgical	Math.12; Chem.11; Phys.11	Chem.12
Civil & Structural	Math.12; Phys.11	Dra.11
Electrical & Electronics	Math.12; Chem.11; Phys.11	Phys.12; Chem.12
Food	Math.12; Chem.11	Chem.12; Bio.11
Forest Products	Math.12; Chem.11; Phys.11	Chem.12; Phys.12
Forestry	Math.12	Bio.11; Dra.11
Instrumentation & Control	Math.12; Phys.11	Phys.12; Chem.11
Mechanical	Math.12; Phys.11	Phys.12
Mining	Math.12; Chem.11; Phys.11	Dra.11
Natural Gas & Petroleum	Math.12; Chem.11; Phys.11	
Surveying	Math.12; Phys.11	Dra.11; Phys.12

3. HEALTH TECHNOLOGIES

A. GENERAL PREREQUISITE

Graduation from senior secondary school on the Academic & Technical Programme as prescribed by the Department of Education for the Province of British Columbia.

B. SPECIAL PREREQUISITES

Option	MANDATORY PREREQUISITES	PREFERRED SUPPORT SUBJECT
Biomedical Electronics	Math.12; Phys.11; Chem.11	Chem.12; Phys.12
Health Data Processing	Math.12; two Science 11's	Chem.12
Medical Isotopes	Math.12; two Science 11's	Chem.12
Medical Laboratory	Math.12; Chem.11; 1 other Science 11	Chem.12
Medical Radiography	Math.12; two Science 11's	Chem.12
Nursing	One Science 12	A second Science 11
Public Health	Math.12; two Science 11's	Chem.12

B. C. INSTITUTE OF TECHNOLOGY

CHANGES IN

SCHEDULE OF PREREQUISITES - 1968

As the requirements of Industry periodically change, programmes at B.C.I.T. are constantly reviewed.

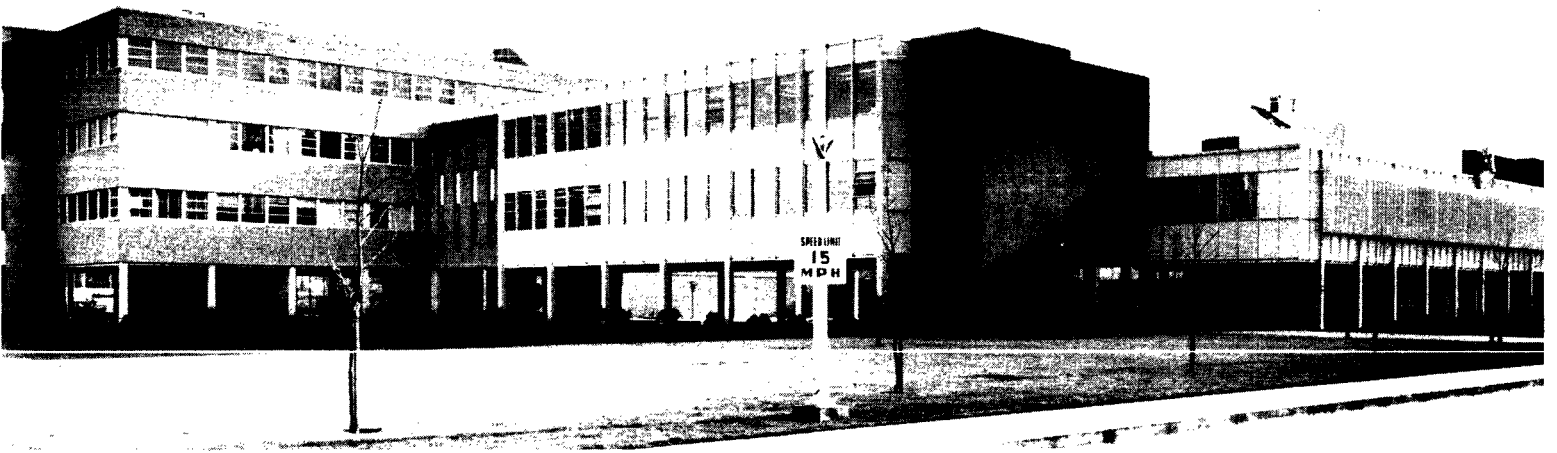
This year there have been a number of alterations in the special prerequisites. Applicants are advised that the ENROLMENT PREREQUISITES FOR ENTRY TO B.C.I.T. ARE AS INDICATED ON THIS SHEET. Enrolment prerequisites, as shown on Pages 58 and 59 and in the individual technology sections have been superseded.

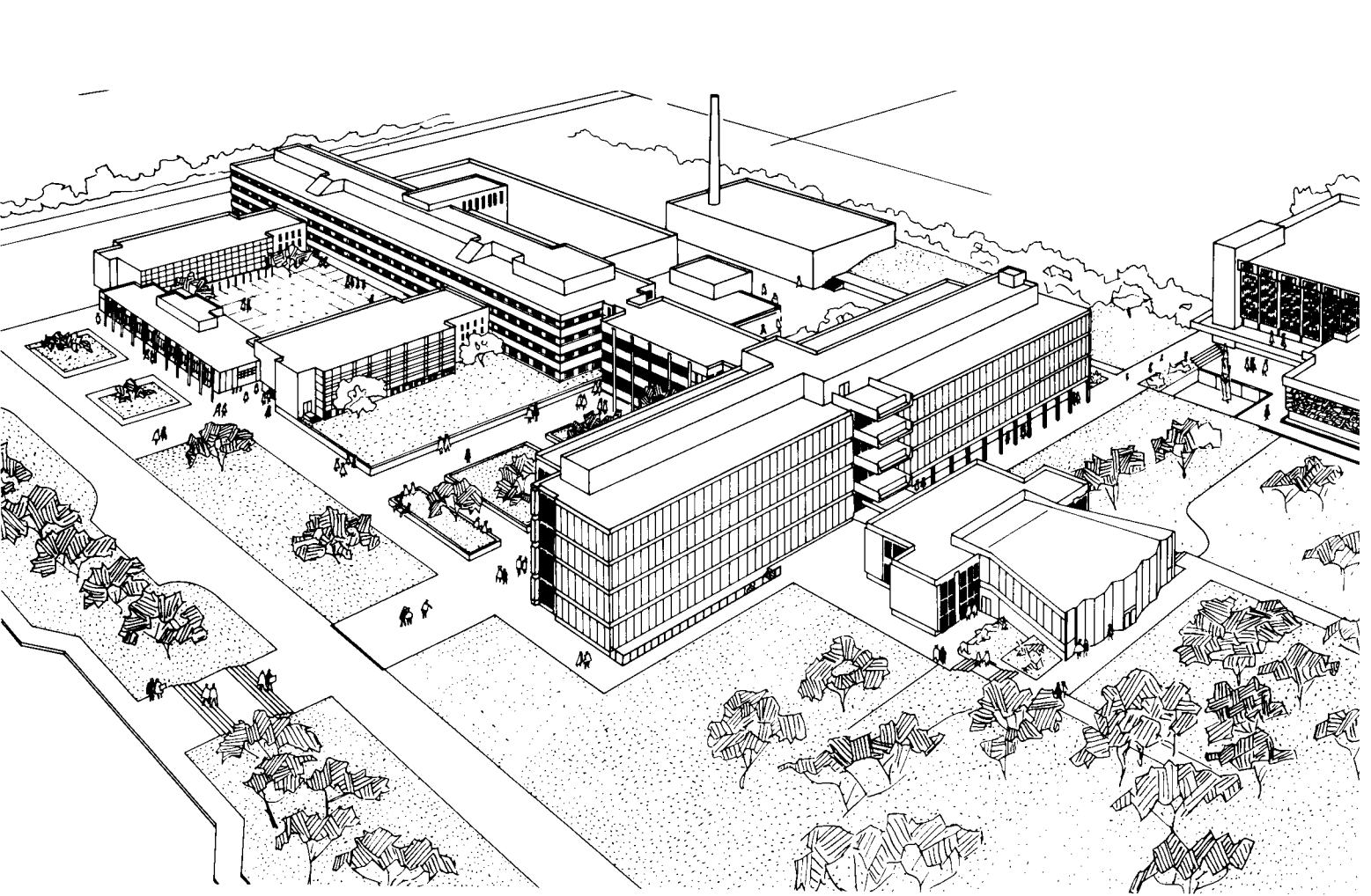
Applicants are requested to apply early as a number of seats may be committed to some applicants before August 1968, who have the academic and personal requirements suitable to the programme involved.

British Columbia Institute of Technology

3700 Willingdon Avenue
Burnaby 2, British Columbia
Telephone: 434-5722

Sponsored jointly by the Government of the Province of British Columbia and the Government of Canada.


SPEED LIMIT
15
MPH



THE HONOURABLE LESLIE R. PETERSON, Q.C., LL.B., LL.D., F.R.S.A.
Minister of Labour and Education

G. Neil Perry, B.A., M.P.A., M.A., Ph.D., LL.D.
Deputy Minister of Education

JOHN S. WHITE
Director of Technical and Vocational Education

Aims and Objectives

The British Columbia Institute of Technology, an institution for advanced technical education, is the first of its kind in British Columbia. Opened in 1964 under its first principal, Mr. E. C. Roper, it has already trained about 700 graduates who have established a fine reputation for the school by their work in industry as technicians or technologists.

The Institute offers a broad range of two-year technical programmes, each leading to a group of employment opportunities in the major industries of the Province. These programmes are a judicious blend of English, mathematics, the sciences, and very practical work related to the field of employment chosen by the student.

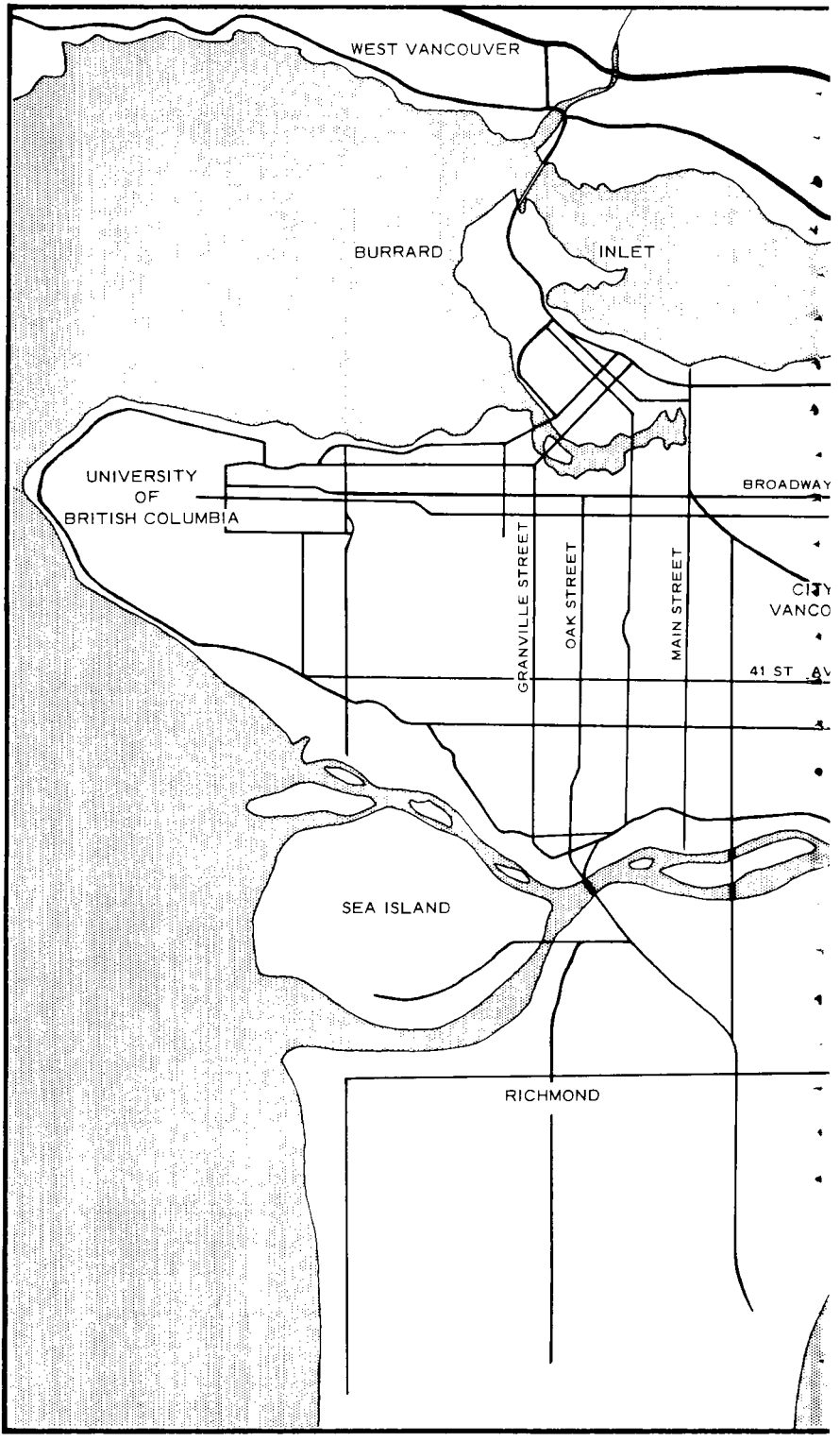
It is a prime aim of the Institute to serve the students as individuals. Many young graduates come directly from high school and are assisted to find their first jobs in industry. Others who have been out of school in industry for some time take advantage of these programmes to find new and more satisfying careers. It is becoming increasingly difficult for the individual to prepare himself for a career in our modern industrial society, and the Institute provides opportunities for training which open doors to suitable careers as technicians and technologists in the labour force.

The programmes of the Institute are designed to serve the industries of the region as well as the individual student. These programmes are established with the particular needs of the industries of the Province in mind. It is the aim of the Institute to produce graduates who, with additional experience, will fill many of the supervisory positions in business and industry.

B.C.I.T., therefore, helps the individual to prepare himself for a more productive and rewarding future and at the same time helps the industry of the region by supplying well-trained employees. And by helping both individual and industry to improve their productivity, the whole community is helped and the standard of living of all its members is improved.

D. H. GOARD, B.A.
Principal, British Columbia Institute of Technology

Table of Contents


WEST VANCOUVER
BURRARD
INLET
UNIVERSITY
OF
BRITISH COLUMBIA
BROADWAY
GRANVILLE STREET
OAK STREET
MAIN STREET
41 ST
SEA ISLAND
RICHMOND

RTH VANCOUVER
HASTINGS ST.
PORT MOODY
SIMON FRASER UNIVERSITY
BRENTWOOD
THROUGHWAY
GRANDVIEW HWY.
LOUGHEED HWY.
COQUITLAM
BOUNDARY ROAD
WILLINGDON AVE.
TRANS CANADA HWY.
BURNABY
KINGSWAY
NEW WESTMINSTER
MARINE DRIVE
WILLINGDON AVENUE
STUDENT ENTRANCE
PARKING
FOOD TRAINING CENTRE
BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
MECHANICAL BUILDING
THEATRE
LIBRARY
STUDENT PARKING
STUDENT PARKING
GYMNASIUM AUDITORIUM
PLAYING FIELD

Administrative and Instructional Staff

ADMINISTRATION

D. H. GOARD, B.A. - - - - *Principal.*
W. S. ADAMS, B.A.SC., P.ENG. - - *Vice-Principal.*
G. THOM, B.COMM., M.B.A. - - - *Vice-Principal, Evening.*
J. T. FIELD, B.COMM. - - - - *Registrar.*
D. M. MACPHERSON, C.A. - - - *Bursar.*
R. HARRIS, B.A., B.L.S. - - - - *Librarian.*

ADMINISTRATIVE STAFF

B. E. FRISBY, B.ED. - - - - *Director of Student Affairs.*
W. S. HUCKVALE, B.A., M.D., D.I.H. - *Physician.*
T. MILLAR - - - - - - - *Bookstore Manager.*
MRS. E. C. QUINTER, P.H.N. - - - *Nurse.*
R. D. FORBES-ROBERTS, R.M.C. - - *Head, Placement Centre (C.M.C.).*
M. M. TURNBULL - - - - - *Stores Supervisor.*
B. J. VAN RHYN - - - - - *Assistant Bursar.*
B. R. WEBSTER - - - - - *Data Processing.*

R. S. CAREY, B.A., LL.B. - - - *Chairman, Technological Planning Committee.*
W. A. ORR, B.SC. - - - - - *Assistant to the Chairman, Technological Planning Committee.*

INSTRUCTIONAL COMMUNICATIONS

N. U. KHAN, B.S., B.ED., M.ED. (HONS.), M.S.ED.
C. L. SAUNDERS.

INSTRUCTIONAL STAFF

Science Programmes

BUILDING TECHNOLOGY

K. B. DAVISON, B.ARCH., F.R.A.I.C., *Department Head.*

G. BERKENPAS.
K. F. COLLIER, A.R.I.C.S.
G. M. HARDIE, A.R.I.C.S.
J. Y. JOHNSTONE, B.ARCH., M.R.A.I.C.
D. S. MANN, B.ARCH., M.R.A.I.C.

CHEMICAL AND METALLURGICAL TECHNOLOGY

R. C. MASON, B.A.SC., *Department Head.*

W. J. BOGYO.
A. H. BOSCH, DIPL.T.
J. M. CURRIE, B.A.SC.
J. T. DENLEY, B.SC.
W. R. IRVINE, B.A., M.SC.
D. J. MCLEOD, A.R.M.T.C., A.I.M., T.T.T.C.
W. F. ROBERTS, B.A., B.A.SC., P.ENG.

CIVIL AND STRUCTURAL TECHNOLOGY

G. Q. LAKE, B.A.SC., P.ENG., *Department Head.*

A. R. BARREN, B.SC., PH.D.
R. BUTLER, A.M.I.STRUCT.E.
A. J. ELSTON, B.E., P.ENG.
F. R. HOLE, B.A.SC., A.M.I.T.E.
R. C. STARR, B.ENG., M.A.SC., P.ENG.
A. T. WEBSTER, B.A.SC., D.I.C., P.ENG.

ELECTRICAL AND ELECTRONICS TECHNOLOGY

R. E. RIDSDALE, P.ENG., *Department Head.*

L. A. TAYLOR, B.A.SC., P.ENG., *Chief Instructor.*

A. K. CHU, B.A.SC., P.ENG.
E. I. GASPARD.
T. J. GLAVE, B.SC., A.C.G.I.
R. W. GUY.
J. A. HOPKINS.
S. D. HUGHES, B.A.SC., P.ENG.
E. E. MCCONECHY, B.SC.
A. R. MURDOCH, B.A.SC., P.ENG.
E. W. SCRATCHLEY, B.A.SC., M.A.SC., P.ENG.
E. J. WARKENTIN.

FOOD TECHNOLOGY

R. B. HYDE, B.S.A., M.S., *Department Head.*

S. B. J. ANDERSEN, B.A.
R. E. CARLYLE, B.SC.A., M.SC., PH.D.
S. L. HANSON, B.S.A.
J. K. SOUTTER, H.D.F.T.
MISS J. F. WYLIE, B.SC.

FOREST TECHNOLOGIES

V. HEATH, B.S.F., B.C.R.F., *Department Head.*

G. R. HARRIS, B.A., M.A., *Chief Instructor.*

Forestry Technology

N. E. ALEXANDER.
J. S. CALDWELL.
R. CANNON, B.A.
E. C. CROSSIN, B.S.F., B.C.R.F.
J. A. CUTHBERT, B.S.F.
R. O. DUNSMORE, B.S.F.
N. J. HAYNES, B.SC.F.
D. C. HOLMES, B.A.SC., M.F., B.C.R.F., P.ENG.
A. G. JAKOY, B.S.F., M.F.
R. J. KERR.
D. H. MACLAURIN, B.S.F.
R. W. REISEN, E.T.I.

Forest Products Technology

J. R. CAMPBELL, B.S.F.
C. A. COLLINS.
G. W. MITCHELL.
S. BERGHOLD.

INSTRUMENTATION TECHNOLOGY

J. O. HULBERT, A.M.I.C.E., P.ENG., *Department Head.*

E. H. V. BACK, DIPL.T.
T. W. COGHLAN, DIPL.T.
J. W. EVANSON.
J. G. KENYON.
D. J. SVETIC, B.A.SC., P.ENG.
E. A. UPWARD.

MECHANICAL TECHNOLOGY

D. K. BANNERMAN, B.A.SC., S.M., P.ENG., *Department Head.*

E. J. CAIRNS, B.SC., P.ENG.(ONT.), A.F.R.AE.S., A.M.I.MECH.E.
R. O. DARLING, B.SC., P.ENG., M.E.I.C.
A. HEZZLEWOOD, C.ENG., A.M.I.MECH.E.
B. E. HORLACHER, DIPL.T.
K. JOHNSON.
G. D. JOHNSON, A.I.MECH.E., P.ENG.
J. R. RABY, B.SC., M.S.E., A.M.B.I.M., P.ENG.(ONT.).
R. C. W. SMYTH, C.ENG., A.M.I.MECH.E., P.ENG.
W. A. TANGYE, B.SC.(MECH.), P.ENG.
S. C. TODD, M.I.E.D.

MINING TECHNOLOGY

A. H. MANIFOLD, B.Sc., M.A.Sc., P.Eng., *Acting Department Head.*
J. A. WILLCOX, B.A.Sc., P.Eng.

NATURAL GAS AND PETROLEUM TECHNOLOGY

I. M. ANDERSON, M.I.GasE., C.Eng., *Acting Department Head.*
D. A. CAMPBELL, B.A.(Hons.).

SURVEYING TECHNOLOGY

D. R. MASON, B.Sc., B.C.L.S., *Department Head.*

G. E. ANDERSON.
G. T. C. BEDWELL.
B. S. BERTING, B.C.L.S.
D. C. DEANS.
R. I. MCNEIL, B.Surv., B.C.L.S., D.L.S.
A. M. NELSON.
D. V. TREVORROW, B.C.L.S.

Business Programmes

BROADCAST COMMUNICATIONS

L. S. H. IRVINE, *Department Head.*

M. S. BISHOP.
K. W. HUGHES.
M. C. HUGHES.
F. L. SANDERSON.

BUSINESS MANAGEMENT

J. C. MCADAM, B.A.Sc., P.Eng., *Department Head.*

Administrative Management Programme

J. A. VERNER, B.A.Sc., M.B.A., *Chief Instructor.*

G. BELL, B.Comm., M.A., Grad. Cert. Ed.
C. J. DICKHOFF, B.A., M.A.
L. E. JOHNSON, B.A., P.B.
ROBERT C. MILLER, B.A., M.B.A.
J. E. PETERS, B.A., M.A.
C. R. RIOPEL, B.Comm.
W. D. SPROULE, B.Comm., C.A., M.B.A., R.I.(B.C.), F.R.I.
H. E. WILLIAMSON, B.A., LL.B.

Computer Programming and Systems Programme

D. BRECKNER, B.A.(Hons.), M.A.(Hons.), *Chief Instructor.*

P. ABEL, C.G.A.
J. W. COOKE, C.G.A.
A. CZERNIN.
H. FROESE, B.Sc.
R. B. LONG, C.G.A.
R. MCGOWEN.
T. T. ROBERTSON, B.Sc.
F. SENIOR, B.A.(Hons.).
E. L. WHITE, B.A.

Financial Management Programme

P. J. WOOLLEY, B.A., M.A., C.A., *Chief Instructor.*

MISS C. M. BRISCALL, B.Comm., R.I.A.
MRS. R. V. CAMERON, C.G.A.
R. A. CRADOCK, B.Comm., R.I.A.
W. P. DEETH, B.Comm., C.A.
G. H. FARRELL, Dipl.T.
E. M. IANNACONE, B.Comm.
R. W. JACKSON, M.C.I.

Marketing Programme

E. W. H. BROWN, B.A., *Chief Instructor.*

G. H. ABBOTT, B.COMM., M.B.A.
P. W. EASTON, B.A.(HONS.), M.A.(HONS.).
E. T. OSBORN, B.S.A., M.B.A., P.AG.
L. H. WOOLMAN, B.COMM., M.B.A.

Technical Management Programme

C. N. MACKEOWN, B.A.SC., P.ENG., *Chief Instructor.*

F. GRUEN, B.MGT.ENG.
T. HART.
A. S. LEE, B.ENG.
R. J. MCLEAN, B.SC.(HONS.).
B. MORROW, B.COMM.
L. A. SMITH.
B. A. STREET, DIPL.T.
R. J. THOMPSON.

HOTEL, MOTEL AND RESTAURANT MANAGEMENT

M. M. COLTMAN, C.G.A., *Department Head.*
J. G. LINDENLAUB, *Chief Instructor.*

R. J. GRIFFITHS.
I. LIPOVSKY.

Health Technology Programme

HEALTH TECHNOLOGY

S. T. RICHARDS, C.H.A., *Department Head.*
MRS. M. J. BLAIR, B.A., A.R.T., *Chief Instructor.*
A. RIDGWAY, F.S.R., *Chief Instructor.*

MRS. E. C. ARMSTRONG, B.N., R.N.
MISS D. H. BARKER, R.N.
F. P. BAUCK.
MRS. M. J. BLOM, R.T.
MISS N. E. BRUCE, L.C.S.L.T.
MRS. G. M. CAMDEN, B.A., A.R.T.
MRS. P. A. CHRISTENSEN, B.S.N., R.N.
MISS M. E. DUVERNET, B.A.
MISS L. C. FISHER, B.SC., R.T.
MRS. H. M. GROVES, B.SC., R.T.
MRS. B. B. KOZIER, B.A., R.N., B.S.N., M.N.
MISS L. G. LEONARD, B.S.N., R.N.
MRS. V. M. MARK, B.SC., R.T.
D. W. MARTIN, B.SC.
MISS G. S. MATHESEN, R.T.
MISS J. S. MCLEAN, B.SC.
W. E. NOEL, R.T.
T. J. NOWAK, B.A.
L. E. PENNER, C.S.I.(C.).
MISS K. C. PETERS, B.A.(HONS.), M.A., R.N.
MISS S. G. PURVIS, R.T.
MISS P. M. ROGERS, R.T.
MRS. G. C. SMITH, B.SC., R.T.
R. J. SMITH, M.S.R., R.T.
MRS. K. LOGAN, R.T.
MRS. J. R. TREBILCOCK, B.A., R.T.
MISS S. L. WILLIAMS, B.A.(HONS.), M.S.R., F.S.R.
MISS E. A. WHITESIDE, B.A., A.R.T.

Departments

CHEMISTRY

C. BARNETSON, B.SC., *Department Head.*

N. ABDURAHMAN, B.SC., M.SC., PH.D.
G. C. ANDERSON.
D. W. CONDER, B.SC.(HONS.), M.SC.
MISS M. B. LESLIE, B.SC., M.SC., P.DT.
MISS J. A. MARSHALL, B.SC.
C. J. C. NICHOL, B.A., M.SC., PH.D.
W. D. ROBERTSON, B.ED.
E. E. TANG, B.SC.
L. V. TOLANI, B.SC.
P. W. VAN AMEYDE.

ENGLISH

P. E. F. COLEMAN, B.A., M.A., *Department Head.*

K. BRAMBLEBY, B.A.
P. J. BURNS, B.A.
F. C. H. CHALLANS, B.A.
N. K. CHIPPINDALE, B.Sc.
S. F. CUMMINGS, B.A., M.A.
O. D. ERICKSON, B.A.
D. J. H. HORAN, B.JOURN., B.A., M.A.
MRS. E. E. STRONACH, B.A., B.ED., M.A.
P. H. THOMAS, B.A., B.ED., M.A.

MATHEMATICS

W. S. SIMS, B.Sc., *Department Head.*

J. W. BROWN, B.Sc.
C. A. COPPING, B.Sc.
M. DEKKER, B.Sc.(HONS.), H.T.S.
P. M. HOBBINS, B.Sc.(HONS.).
E. R. MARTIN, B.Sc.
E. R. MCGUIRE, B.Sc., M.ED.
A. P. PARIS, B.A.Sc., M.A.Sc., P.ENG.
R. A. STERNE, B.A.Sc., P.ENG.
B. L. TURNER, B.Sc.
H. E. WALKER, B.A.
J. H. WARDROPER, B.Sc., A.M.I.C.E., M.Sc.

PHYSICS

W. THUMM, B.A., B.ED., B.Sc., M.A., *Department Head.*

C. BITSAKIS, B.Sc.
MISS A. HARRISON, B.Sc.(HONS.).
D. KENYON, B.Sc.
A. KSHATRIYA, B.Sc., M.Sc.
J. E. ORME, B.A.Sc., P.ENG.
R. H. PARKER, B.Sc.
F. READER, B.A.Sc., P.ENG.
J. R. SAUNDERS, B.Sc.
D. E. THOM, B.Sc.
A. B. L. WHITTLES, B.Sc., M.Sc., PH.D.

PART-TIME INSTRUCTIONAL STAFF, 1968–69

Name	Technology
MRS. D. ABRAHAMSON	*Business Management.*
A. M. BELL	*Business Management.*
C. F. A. CULLING	*Medical Laboratory.*
J. FERRY	*Hotel, Motel and Restaurant.*
MRS. G. M. GRIFFITHS, B.A.Sc., M.A.	*Physics.*
J. L. GROVE	*Broadcast Communications.*
M. HICKS, B.ARCH., M.R.A.I.C.	*Hotel, Motel and Restaurant.*
R. A. JONES	*Forestry.*
J. MACD. LECKY, B.A.	*Business Management.*
MRS. A. MAYER	*Hotel, Motel and Restaurant.*
J. MITCHELL	*Hotel, Motel and Restaurant.*
P. QUELCH	*Forest Products.*
J. W. RAVEN	*Forest Products.*
MRS. J. RECHE	*Hotel, Motel and Restaurant.*
D. W. RENNIE	*Forestry.*
J. P. SULLIVAN, B.Sc., P.ENG.	*Building.*
A. TAKACS, B.Sc.	*Chemical and Metallurgical.*
C. A. TIERS, B.ARCH., M.ARCH., M.R.A.I.C.	*Building.*
MRS. J. B. WARREN, B.A., M.A.	*Physics.*

Guest Lecturers

Name	Technology
I. V. F. ALLEN	*Forestry.*
W. M. ALLISON	*Forestry.*
E. H. ANDREWS, B.COMM.	*Business Management.*
A. H. V. BACKMAN, B.A.SC., B.C.R.F., P.ENG.	*Forestry.*
W. E. BEARMAN	*Forestry.*
S. R. BELDEN	*Business Management.*
A. K. G. BLAKENEY, B.A.SC., P.ENG.	*Forestry.*
W. BOLDT, M.D.	*Medical Laboratory.*
F. C. BOYD, B.A.	*Forestry.*
K. G. BOYD, B.S.F.	*Forestry.*
A. W. T. BRIDGE, G.I. FIRE ENG.	*Forestry.*
D. BROWN	*Forestry.*
D. G. BUCKLEY, B.A.	*Business Management.*
A. BURR, A.B., PH.D.	*Physics.*
J. M. CAMERON, B.A.	*Business Management.*
R. CAMPBELL	*Forestry.*
G. CARTER	*Business Management.*
A. R. CHADSEY	*Business Management.*
R. A. CHALLENGER	*Forestry.*
W. H. CHILDRESS	*Mining.*
A. COE	*Business Management.*
J. COMRIE	*Business Management.*
D. C. COOK, B.COMM.	*Business Management.*
G. N. COOPER	*Business Management.*
P. N. COTTON	*Hotel, Motel and Restaurant.*
B. C. CROSS	*Mining.*
J. A. CROWDER	*Business Management.*
T. N. DAWSON	*Mining.*
W. DONNELY, B.A.(ECON.)	*Forestry.*
H. W. DOSSO, B.A., M.SC., PH.D.	*Physics.*
G. A. DUNBAR	*Forestry.*
E. A. DUNKINSON	*Forestry.*
E. B. DUNN, M.B.A.	*Business Management.*
R. W. EDWARDS, B.A.SC., P.ENG.	*Forestry.*
D. EVANS, B.SC., M.SC.	*Forestry.*
J. F. EVANS, B.COMM.	*Business Management.*
R. S. EVANS, B.A., M.A., PH.D.	*Forest Products.*
A. M. EYRE, B.A.SC.	*Business Management.*
B. FORD, B.S.F., M.F., B.C.R.F.	*Forestry.*
J. R. FORD	*Medical Radiography.*
W. FRASER	*Business Management.*
B. R. GATES, B.SC.(ZOOLOGY)	*Forestry.*
W. J. GLAZIER, R.I.A.	*Forestry.*
J. N. GODFREY, B.S.F., B.C.R.F.	*Forestry.*

Name	Technology
RALPH H. GRAM, B.S.A., P.AG.	*Mechanical.*
G. R. GRAY, M.D., C.M., F.R.C.P.(C.)	*Medical Laboratory.*
P. J. GREGORY, B.COMM.	*Forestry.*
F. W. GUERNSEY, B.A.SC., B.C.R.F.	*Forest Products.*
B. HALLIDAY	*Business Management.*
J. W. E. HARRIS, B.S.F., M.F., PH.D.	*Forestry.*
K. S. HARRY, M.A.	*Forestry.*
R. G. HERBERT, D.F.C., C.D., B.A., LL.B.	*Business Management.*
J. C. HEAMAN, M.A.	*Forestry.*
J. E. HOEGG, B.SC., M.B.A.	*Business Management.*
G. HOLMES	*Forestry.*
MICHAEL HUCUL	*Mechanical.*
W. J. HUGHES	*Business Management.*
J. W. IBBOTT, B.A., M.D., C.M., F.R.C.P.(C.)	*Medical Laboratory.*
S. ISRAELS, B.SC., M.D., F.R.C.P.(C.)	*Medical Laboratory.*
A. W. JACKSON, B.A., M.A.	*Forestry.*
A. R. C. JAMES, DIP.MIN.E.	*Mining.*
W. H. JAY, B.S.S., M.COMM.	*Business Management.*
W. W. JEFFREY, B.SC.(HONS.), M.F.	*Forestry.*
B. JOHNSTON	*Business Management.*
L. JOHNSTONE	*Forestry.*
R. M. KAPLAN, B.COMM., M.B.A., PH.D.	*Business Management.*
J. K. KELLY, B.S.F.	*Forest Products.*
D. A. KING, A.M.I., PRD.E., A.I.I.E., A.I.W.S.	*Business Management.*
J .M. KINGHORN, B.S.F., M.F.	*Forestry.*
E. KNIGHT, B.S.F.	*Forestry.*
C. J. KNOX	*Business Management.*
A. KROCKER	*Business Management.*
R. LECKIE, B.A.	*Business Management.*
H. LENKO, B.S.F.	*Forestry and Forest Products.*
F. LINDSAY, P.ENG.	*Forest Products.*
K. LYALL, B.SC., M.SC.	*Physics.*
E. H. LYONS, B.S.F., B.C.R.F.	*Forestry.*
W. B. MACKAY, CHEM.ENG.	*Forest Products.*
B. S. MADSEN, P.ENG.	*Forest Products.*
A. MAHOOD	*Medical Radiography.*
J. S. MCCRACKEN	*Business Management.*
J. A. MCINTOSH, B.SC.F., B.C.R.F.	*Forestry.*
B. MOORE	*Business Management.*
J. MOORE	*Forestry.*
G. G. MOSS	*Business Management.*
D. C. MOULSON, B.A.SC., P.ENG.	*Mechanical.*

Name	Technology
O. H. NEWMARCH, B.A.SC., P.ENG.	*Forest Products.*
J. D. NEWTON, PH.D.	*Food.*
J. A. O'BRIEN	*Business Management.*
L. H. PALMER, A.B., PH.D.	*Physics.*
A. A. PANTELEYEVS	*Forestry.*
J. T. PARKER, B.S.F.	*Forestry.*
R. H. PEARCE, M.SC., PH.D.	*Medical Laboratory.*
A. C. PECK	*Business Management.*
E. PEKRUL	*Food.*
W. C. PENDRAY, B.S.A.	*Forestry.*
J. G. PIKET	*Business Management.*
D. W. PRINGLE, B.A.SC., P.ENG.	*Mining.*
A. E. PROCHNAU, B.S.A., M.F.	*Forestry.*
R. W. PURVES	*Business Management.*
J. W. RAVEN	*Forestry.*
J. M. RIENSTRA, PH.D.	*Hotel, Motel and Restaurant.*
J. W. ROFF, B.COMM., B.S.F.	*Forestry.*
A. C. ROSS	*Forestry.*
K. A. SCHELL, B.A.	*Forestry.*
W. G. SHARPE, B.S.F.	*Forestry.*
W. E. SHEPHERD, B.SC.(MED.), M.D.	*Medical Laboratory.*
F. J. SHUMAS, B.SC., M.SC., P.ENG.	*Forest Products.*
R. S. SMITH, B.SC., PH.D., D.I.C.	*Forestry.*
N. SPRINGATE	*Forest Products.*
H. N. STAVENS, B.S.F.	*Forestry.*
D. L. STEWART, B.A.SC., P.ENG.	*Forest Products.*
R. T. STEWART	*Business Management.*
J. H. STURDY, M.D.	*Medical Laboratory.*
R. R. SUME, B.A.SC., P.ENG.	*Mechanical.*
O. SZIKLAI, B.S.F., PH.D.	*Forestry.*
F. A. TAYELOR, B.A.SC., P.ENG.	*Forest Products.*
K. J. THOMAS, B.A.SC., P.ENG., B.C.R.F.	*Forestry.*
A. TURNBULL, M.D., M.S., F.F.R., F.A.C.R.	*Medical Radiography.*
W. R. TUTTON, B.A.SC., P.ENG.	*Food.*
G. W. WALLIS, B.S.F., M.SC., PH.D.	*Forestry.*
J. WALTERS, B.S.F., B.C.R.F.	*Forestry.*
D. S. WATTS	*Forestry.*
F. R. WERTS	*Business Management.*
K. L. WHELAN	*Business Management.*
P. H. WHITE, M.SC., F.R.I.C.S.	*Business Management.*
J. S. WILFERT, B.SC.F.	*Forestry.*
G. WILLOUGHBY	*Forestry.*
V. YOUNG, B.S.F.	*Forestry.*
W. ZILLER, B.S.F., PH.D.	*Forestry.*

Advisory Council and Advisory Committees

ADVISORY COUNCIL

Chairman:

G. N. PERRY, B.A., M.P.A., M.A., PH.D., Deputy Minister of Education, Victoria.

Vice-Chairman:

J. S. WHITE, Director of Technical and Vocational Training, Department of Education, Victoria.

Principal:

Dean H. GOARD, B.A., Principal, British Columbia Institute of Technology, Burnaby.

Members:

W. S. ADAMS, B.A.Sc., P.ENG., Vice-Principal, British Columbia Institute of Technology, Burnaby.

W. M. ARMSTRONG, B.A.Sc., P.ENG., Dean, Faculty of Applied Science, University of British Columbia, Vancouver.

R. S. CAREY, B.A., LL.B., Chairman of the Technological Planning Committee, British Columbia Institute of Technology, Burnaby.

G. R. F. ELLIOTT, M.D., C.M., D.P.H., Deputy Provincial Health Officer, Bureau of Special and Preventive Treatment Services, Vancouver.

R. R. HAERING, B.A., M.A., PH.D., Head, Physics Department, Simon Fraser University, Burnaby.

S. A. JENNINGS, M.A., PH.D., Head, Mathematics Department, University of Victoria, Victoria.

B. H. LEVELTON, B.A.Sc., M.A.Sc., PH.D., P.ENG., President, Levelton and Associates Ltd., Vancouver.

R. C. MACDONALD, B.Sc., M.A.Sc., Resident Geologist, New Jersey Zinc Exploration Company (Canada) Ltd., Vancouver.

G. R. MCMEEKIN, B.A.Sc., P.ENG., Special Assistant, Administration, Cominco Ltd., Trail.

R. F. PATTERSON, B.A.Sc., M.A.Sc., PH.D., General Manager, Howe Sound Pulp Division, Canadian Forest Products Ltd., Vancouver.

F. G. PEARCE, B.A.Sc., Chief Engineer, Vancouver Iron & Engineering Works Ltd., Vancouver.

J. H. STEEDE, B.A.Sc., P.ENG., Chief Engineer, British Columbia Hydro and Power Authority, Vancouver.

Resource Personnel:

A. J. BROOME, Administrative Assistant, Technical and Vocational Training, Department of Education, Victoria.

S. E. ESPLEY, Comptroller of Expenditure, Department of Education, Victoria.

F. P. LEVIRS, B.A., M.A., M.S. (ED.), Superintendent of Education, Department of Education, Victoria.

J. R. MEREDITH, B.A., M.ED., Assistant Superintendent, Instructional Services, Department of Education, Victoria.

V. E. RICKARD, B.ED., Assistant Director, Technical and Vocational Training, Department of Education, Victoria.

A. E. WEBB, Deputy Minister of Public Works, Victoria.

BROADCAST COMMUNICATIONS ADVISORY COMMITTEE

Chairman:

M. MACLACHLAN, President and General Manager, Radio Station CHWK, Chilliwack.

Ex Officio:

L. S. H. IRVINE, Head, Broadcast Communications Technology, British Columbia Institute of Technology, Burnaby.

Members:

J. E. W. ANSELL, Programme Manager, CKWX Radio Ltd., Vancouver.
R. T. BATEY, News Commentator.
S. W. DAVIS, Technical Supervisor, Radio Stations CFUN, CHQM, CKWX, Vancouver.
W. C. ELLIOTT, Vice-President, Production, British Columbia Television Broadcasting System Ltd., Burnaby.
K. R. HUTCHESON, President, Radio Station CJAV Ltd., Port Alberni.
H. M. PALMER, Director of Television, Canadian Broadcasting Corporation, Vancouver.
R. W. SERVICE, Maintenance Supervisor, Television, Canadian Broadcasting Corporation, Vancouver.

BUILDING ADVISORY COMMITTEE

Chairman:

C. A. TIERS, Assistant Professor, School of Architecture, University of British Columbia, Vancouver.

Ex Officio:

K. B. DAVISON, Head, Building Technology, British Columbia Institute of Technology, Burnaby.

Members:

W. H. BALL, National Research Council, Division of Building Research, University of British Columbia, Vancouver.
R. F. HARRISON, Architect, R. F. Harrison Architect Ltd., Vancouver.
M. J. JONES, Chief Building Inspector, Corporation of the District of Burnaby, Burnaby.
D. B. LEANEY, Partner, D. W. Thomson & Co. Ltd., Vancouver.
D. C. LOGAN, Architect, Duncan McNab and Associates, Vancouver.
D. A. MATHESON, City Building Inspector, City of Vancouver, Vancouver.
B. P. PARRY, Building Technologist, McCarter, Nairne and Partners, Vancouver.
M. S. THOMPSON, Chief Estimator, Dominion Construction Co. Ltd., Vancouver.

ADMINISTRATIVE MANAGEMENT ADVISORY COMMITTEE

Chairman:

W. H. PENHORWOOD, Woods Gordon & Company, Vancouver.

Ex Officio:

J. C. MCADAM, Head, Business Management Technology, British Columbia Institute of Technology, Burnaby.
J. A. VERNER, Chief Instructor, Administrative Management Option, British Columbia Institute of Technology.

Members:

J. D. BELL-IRVING, Executive Assistant to the President, Bell-Irving Realty Ltd., Vancouver.

J. C. CARLILE, Vice-President, British Columbia Telephone Company, Vancouver.

R. H. DOWNEY, Assistant Manager, Manpower Planning and Development Services, British Columbia Hydro and Power Authority, Vancouver.

A. M. EYRE, President, Dueck on Broadway Limited, Vancouver.

R. H. HEYWOOD, Associate Professor, Faculty of Commerce and Business Administration, University of British Columbia, Vancouver.

A. F. LITTLE, President, Vancouver Chapter, Administrative Management Society, Vancouver, and Office Supervisor, British Columbia Hydro and Power Authority.

W. J. MCBRIDE, Manpower Training Section, Pacific Region, Department of Manpower and Immigration, Vancouver.

COMPUTER PROGRAMMING AND SYSTEMS ADVISORY COMMITTEE

Chairman:

L. BATTRUM, Divisional Management Services Manager, Pacific Division Manager, T. Eaton Company Limited, Vancouver.

Ex Officio:

J. C. MCADAM, Head, Business Management Technology, British Columbia Institute of Technology, Burnaby.

D. BRECKNER, Chief Instructor, Computer Programming and Systems Programme, British Columbia Institute of Technology, Burnaby.

Members:

E. S. GARDNER, Manager, Data Processing, British Columbia Hydro and Power Authority, Vancouver.

DR. J. M. KENNEDY, Director of Computing Centre, University of British Columbia, Vancouver.

D. MURRAY, Director of Data Processing, British Columbia Telephone Company, Vancouver.

J. R. P. POWELL, Manager, Data Processing, MacMillan Bloedel Limited, Vancouver.

R. W. RUHWALD, Vice-President, Data Processing Management Association, Vancouver.

J. A. SPEIGHT, Consultant, J. A. Speight, Consultants, Vancouver.

R. L. STEVENSON, Manager, Data Center, Crown Zellerbach Canada, Limited, Vancouver.

FINANCIAL MANAGEMENT ADVISORY COMMITTEE

Chairman:

D. G. USHER, Partner, Thorne, Gunn, Helliwell & Christenson, Vancouver.

Ex Officio:

J. C. MCADAM, Head, Business Management Technology, British Columbia Institute of Technology, Burnaby.

P. J. WOOLLEY, Chief Instructor, Financial Management Programme, British Columbia Institute of Technology, Burnaby.

Members:

L. N. DYER, Controller, The Canadian Fishing Company Limited, Vancouver.

J. B. FERGUSON, Vice-President, Gulf of Georgia Towing Co. Ltd., Vancouver.

W. M. GOODLET, President and Dean, Canadian Credit Institute, Vancouver.

T. C. HUMPHREYS, Vice-President and Treasurer, Standard Oil Company of B.C. Limited, Vancouver.

A. S. HUNTER, Director of Education, Institute of Chartered Accountants of British Columbia, Vancouver.

J. S. LANG, Internal Auditor, British Columbia Hydro and Power Authority, Vancouver.

L. W. LINNITT, Chairman of Education Liaison Committee, Certified General Accountants' Association of British Columbia, Vancouver.

W. C. MCCALPIN, President, McCalpin, Leche & Company Limited, Vancouver.

K. A. SIMPSON, Chairman of Education Committee, Society of Industrial Accountants of British Columbia, Vancouver.

R. G. SPELLISCY, Vice-President and Controller, Canada Safeway Limited, Vancouver.

E. M. WOLFE, M.L.A., President, Wolfe Chevrolet-Oldsmobile Ltd., Vancouver.

MARKETING ADVISORY COMMITTEE

Chairman:

J. MACD. LECKY, Executive Assistant to Publisher, The Vancouver Sun, Vancouver.

Ex Officio:

J. C. MCADAM, Head, Business Management Technology, British Columbia Institute of Technology, Burnaby.

E. W. H. BROWN, Chief Instructor, Marketing Programme, British Columbia Institute of Technology, Burnaby.

Members:

E. H. ANDREWS, General Manager, Radio Station CJOR, Vancouver.

IAN A. BARCLAY, Executive Vice-President, British Columbia Forest Products Ltd., Vancouver.

A. M. BELL, Bell Advertising Ltd., Vancouver.

P. H. E. BJARNESON, Executive Vice-President, Cunningham Drug Stores Ltd., Vancouver.

D. G. BUCKLEY, Store Manager, Hudson's Bay Company, Vancouver.

T. R. FARRELL, Executive Vice-President, Woodward Stores Ltd., Vancouver.

J. L. GOURLAY, Assistant General Manager, Buckerfield's Ltd., Vancouver.

V. J. HOUSEZ, Divisional Sales Manager, Eatons of Canada Ltd., Pacific Division, Vancouver.

R. M. KAPLAN, PH.D., Assistant Professor, Department of Economics and Commerce, Simon Fraser University, Burnaby.

JOHN NAIRN, President and representing the American Marketing Association (B.C. Chapter), British Columbia Hydro and Power Authority, Vancouver.

S. M. OBERG, D.B.A., Associate Professor, Faculty of Commerce and Business Administration, University of British Columbia, Vancouver.

BRUCE C. WARD, General Manager, Retail, British Columbia, Simpson Sears, Ltd., Burnaby.

TECHNICAL MANAGEMENT ADVISORY COMMITTEE

Chairman:

W. M. YOUNG, President, Finning Tractor & Equipment Co. Ltd.

Ex Officio:

J. C. MCADAM, Head, Business Management Technology, British Columbia Institute of Technology, Burnaby.

C. N. MACKEOWN, Chief Instructor, Technical Management Option, British Columbia Institute of Technology, Burnaby.

Members:

S. F. CROCKER, President, B.C. Equipment Co. Ltd., Vancouver.

G. R. DAWSON, President, Dawson Construction Ltd. and Dawson & Hall Ltd., Vancouver.

A. M. EYRE, President, Dueck on Broadway Limited, Vancouver.

L. KELLOGG, Vice-President, Stevenson & Kellogg Co., Vancouver.

D. A. KING, Industrial Engineer, British Columbia Research Council, Vancouver.

E. H. MCCAFFERY, Secretary-Manager, British Columbia Branch, Canadian Plumbing and Mechanical Contractors' Association, Vancouver.

J. MILLER, Vice-President and General Manager, Fleck Bros. Ltd., Vancouver.

J. PATTERSON, Vice-President, Peter Kiewit & Sons of Canada Ltd., Vancouver.

A. S. RENDELL, President, Rendell Tractor & Equipment Co. Ltd., Vancouver.

D. SMITH, Head, Division of Technical Services, British Columbia Research Council, Vancouver.

E. D. SUTCLIFFE, General Manager, British Columbia Operations, Dominion Construction Co. Ltd., Vancouver.

F. TEMPLETON, President, Wing Machinery Ltd., Vancouver.

CHEMICAL AND METALLURGICAL ADVISORY COMMITTEE

Chairman:

DR. J. A. H. LUND, Professor, Department of Metallurgy, University of British Columbia, Vancouver.

Ex Officio:

R. C. MASON, Head, Chemical and Metallurgical Technology, British Columbia Institute of Technology, Burnaby.

Members:

W. M. ARMSTRONG, Dean, Faculty of Applied Science, University of British Columbia, Vancouver.

DR. B. A. DUNNELL, Professor, Department of Chemistry, University of British Columbia, Vancouver.

DR. B. H. LEVELTON, President, Levelton and Associates Ltd., Vancouver.

J. MCGOWAN, Supervisor of Research Services, Cominco Ltd., Trail.

P. M. MUSSALLEM, Regions Sales Manager, Imperial Oil Ltd., Vancouver.

L. H. SCHNURSTEIN, Vice-President Manufacturing, Hooker Chemicals Ltd., North Vancouver.

W. STERNE, Mill Superintendent, Anaconda Copper Ltd., Britannia.

DR. R. STEWART, Professor, Department of Chemistry, University of British Columbia, Vancouver.

CIVIL AND STRUCTURAL ADVISORY COMMITTEE

Chairman:

H. L. SMITH, Consulting Engineer, H. Leslie Smith Ltd., Vancouver.

Ex Officio:

G. Q. LAKE, Head, Civil and Structural Technology, British Columbia Institute of Technology, Burnaby.

Members:

R. M. MARTIN, City Engineer, City of Vancouver, Vancouver.
J. H. MCNAUGHTON, Chief Engineer, Dominion Bridge Co. Ltd., Vancouver.
H. F. WOOSTER, Director, Swan Wooster Engineering Co. Ltd., Vancouver.

ELECTRICAL AND ELECTRONICS ADVISORY COMMITTEE

Chairman:

L. R. KERSEY, Associate Professor, Department of Electrical Engineering, University of British Columbia, Vancouver.

Ex Officio:

R. E. RIDSDALE, Head, Electrical and Electronics Technology, British Columbia Institute of Technology, Burnaby.
L. A. TAYLOR, Chief Instructor, Electrical and Electronics Technology, British Columbia Institute of Technology, Burnaby.
E. W. SCRATCHLEY, Instructor, Electrical and Electronics Technology, British Columbia Institute of Technology, Burnaby.

Members:

M. G. BRADWELL, System Planning Engineer, British Columbia Hydro and Power Authority, Vancouver.
K. L. BROE, Manager, Pacific District Apparatus Department, Canadian General Electric Co. Ltd., Vancouver.
W. M. GRAY, Sales Specialist and Quotations Manager, Northern Electric Co. Ltd., Vancouver, Chairman of Vancouver Section, I.E.E.E.
H. A. HOYLES, Partner, Hoyles, Niblock and Associates, North Vancouver.
G. R. LEQUESNE, Data Processing Service Manager, I.B.M. Co. Ltd., Vancouver.
A. H. ROME, President, Universal Dynamics Ltd., Vancouver.
A. J. SPILSBURY, President, Spilsbury & Tindall Co. Ltd., Vancouver.
W. H. THOMPSON, Sales Manager, L. A. Varah Limited, Vancouver.
B. R. TUPPER, Consultant, Telecommunications, Vancouver.
E. N. WALTON, Chief Engineer, MacMillan Bloedel Limited, Vancouver.
R. L. WEEKS, Engineering Manager, Lenkurt Electric Co. Ltd., Burnaby.

FOOD PROCESSING ADVISORY COMMITTEE

Chairman:

E. L. WATSON, Associate Professor, Department of Agricultural Engineering, University of British Columbia, Vancouver.

Ex Officio:

R. B. HYDE, Head, Food Technology, British Columbia Institute of Technology, Burnaby.

Members:

W. D. CAMPBELL, Manager, William Robinson Ltd., Burnaby

E. L. DEVLIN, Regional Director, Department of National Health and Welfare, Food and Drug Directorate, Vancouver.

D. H. KITSON, General Production Manager, Royal City Foods Ltd., New Westminster.

DR. C. C. STRACHAN, Director, Research Station, Canada Department of Agriculture, Summerland.

FOOD PRODUCTION ADVISORY COMMITTEE

Chairman:

DR. J. A. FREEMAN, Research Scientist, Experimental Station, Canada Department of Agriculture, Agassiz.

Ex Officio:

R. B. HYDE, Head, Food Technology, British Columbia Institute of Technology, Burnaby.

Members:

J. S. ALLIN, Supervising Agriculturist and ARDA Co-ordinator, British Columbia Department of Agriculture, Victoria.

R. S. BERRY, Sales Manager, Rogers & Boyds Fortified Feeds Ltd., Langley.

W. A. CALDER, Vice-President and Director of Marketing, British American Chemical Co. Ltd., Vancouver.

DR. J. W. NEILL, Associate Professor of Horticulture, Division of Plant Science, University of British Columbia, Vancouver.

O. SCHULTZ, Plant Manager, York Farms, Division of Canada Packers Ltd., Sardis.

FOREST PRODUCTS ADVISORY COMMITTEE

Chairman:

DR. R. F. PATTERSON, General Manager, Howe Sound Pulp Division, Canadian Forest Products Ltd., Vancouver.

Ex Officio:

V. HEATH, Head, Forest Technologies, British Columbia Institute of Technology, Burnaby.

G. R. HARRIS, Chief Instructor, Forest Technologies, British Columbia Institute of Technology, Burnaby.

Members:

W. G. BEALL, Manager, Planning and Engineering Department, Tahsis Company Ltd., Vancouver.

D. S. DENMAN, Vice-President, Building Materials, Crown Zellerbach Canada Ltd., Vancouver.

B. I. HOWE, Mill Manager, Island Paper Mills Division, MacMillan Bloedel Limited, Annacis Island.

DR. D. R. MUIR, Director of Research and Planning, Columbia Cellulose Company Limited, Vancouver.

E. C. SHERMAN, Resident Manager, Howe Sound Pulp Division, Canadian Forest Products Ltd., Port Mellon.

F. A. TAYELOR, Manager, Technical Services, British Columbia Lumbering Manufacturing Division, Council of the Forest Industries of British Columbia.

E. N. WALTON, Chief Engineer, MacMillan Bloedel Limited, Vancouver.

DR. R. W. WELLWOOD, Professor, Faculty of Forestry, University of British Columbia, Vancouver.

R. J. WHITTLE, Director of Administration, British Columbia Forest Products Limited, Vancouver.

FORESTRY ADVISORY COMMITTEE

Chairman:

C. B. DUNHAM, Consulting Forester, West Vancouver.

Ex Officio:

VICTOR HEATH, Head, Forest Technologies, British Columbia Institute of Technology, Burnaby.

G. R. HARRIS, Chief Instructor, Forest Technologies, British Columbia Institute of Technology, Burnaby.

Members:

W. G. BURCH, Chief Forester, British Columbia Forest Products Ltd., Vancouver.

I. T. CAMERON, Assistant Chief Forester, British Columbia Forest Service, Victoria.

H. R. CHISHOLM, Assistant Vice-President and General Manager, Logging Group, MacMillan Bloedel Limited, Vancouver.

L. A. DEGRACE, President, Industrial Forestry Services, Prince George.

R. R. DOUGLAS, Vice-President, Forest Operations, Rayonier Canada (B.C.) Ltd., Vancouver.

DR. R. E. FOSTER, Director, Forest Products Laboratory, Vancouver.

M. W. GORMELY, President, Gormely Forestry Service Ltd., Vancouver.

I. C. MACQUEEN, President, Forestal Forestry & Engineering Ltd., Vancouver.

W. P. T. MCGHEE, Manager, Timber Department, Interior Operations, S. M. Simpson Ltd., Kelowna.

A. MOSS, Consulting Forester, Kelowna.

DR. R. W. WELLWOOD, Professor, Faculty of Forestry, University of British Columbia, Vancouver.

CO-ORDINATING COMMITTEE ON PARAMEDICAL TRAINING

Chairman:

S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

Members:

DR. G. R. F. ELLIOT, Deputy Provincial Health Officer, Bureau of Special and Preventive Treatment Services, Vancouver.

R. S. CAREY, Chairman of the Technological Planning Committee, British Columbia Institute of Technology, Burnaby.

M. A. M. FRASER, Assistant Administrator, Royal Jubilee Hospital, Victoria.

J. W. MAINGUY, Director of Hospital Consultation, Development and Research, Hospital Insurance Service, Victoria.

DR. H. STANSFIELD, Vancouver.

J. S. WHITE, Director of Technical and Vocational Training, Department of Education, Victoria.

DR. D. H. WILLIAMS, Professor and Head, Department of Continuing Medical Education, Faculty of Medicine, University of British Columbia, Vancouver.

BIOMEDICAL ADVISORY COMMITTEE

Chairman:

DR. H. V. RICE, Research Director, Clinical Investigation Unit, Department of Laboratories, St. Paul's Hospital, Vancouver.

Ex Officio:

S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

A. RIDGWAY, Chief Instructor, British Columbia Institute of Technology.

Members:

DR. S. M. DRANCE, Associate Professor, Ophthalmology Research Unit, Vancouver General Hospital, Vancouver.

DR. J. MACDONALD, Assistant Professor, Department of Electrical Engineering, Faculty of Applied Sciences, University of British Columbia, Vancouver.

R. E. RIDSDALE, Head, Electrical and Electronics Technology, British Columbia Institute of Technology, Burnaby.

HEALTH DATA PROCESSING ADVISORY COMMITTEE

Members:

DR. D. O. ANDERSON, Head, Department of Health Care and Epidemiology, Faculty of Medicine, University of British Columbia, Vancouver.

J. D. BRADFORD, Executive Director, British Columbia Hospitals Association, Vancouver.

D. BRECKNER, Chief Instructor, Business Management, British Columbia Institute of Technology, Burnaby.

DR. R. H. PEARCE, Associate Professor, Department of Pathology, Faculty of Medicine, University of British Columbia, Vancouver.

J. W. SHORT, Assistant Administrator, Children's Hospital, Vancouver.

MRS. M. TAGGART, Chief Record Librarian, Lions Gate Hospital, North Vancouver.

Ex Officio:

S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

MISS S. L. WILLIAMS, Instructor, British Columbia Institute of Technology.

MEDICAL ISOTOPE ADVISORY COMMITTEE

Members:

DR. J. A. BIRKBECK, Assistant Professor, Department of Pædiatrics, Faculty of Medicine, University of British Columbia, Vancouver.

DR. S. FISHMAN, Director of Chemistry and Isotope Laboratories, Department of Pathology, Shaughnessy Hospital, Vancouver.

DR. R. T. MORRISON, Chief of Division of Nuclear Medicine, Department of Radiology, Vancouver General Hosiptal, Vancouver.

DR. P. F. SOLVONUK, Research Assistant Professor of Medical Research, G. F. Strong Laboratory for Medical Research, Faculty of Medicine, University of British Columbia, Vancouver.

DR. A. E. W. TRITES, Chief of Service, Department of Pathology, Shaughnessy Hospital, Vancouver.

Ex Officio:

W. E. NOEL, Instructor, British Columbia Institute of Technology.

S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

MEDICAL LABORATORY ADVISORY COMMITTEE

Chairman:

DR. R. W. SPITZER, Associate Professor, Department of Pathology, Faculty of Medicine, University of British Columbia, Vancouver.

Ex Officio:

MRS. M. J. BLAIR, Chief Instructor, British Columbia Institute of Technology.

S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

Members:

DR. E. J. BOWMER, Director, Division of Laboratories, Health Branch, Department of Health Services and Hospital Insurance, Vancouver.
C. F. A. CULLING, Instructor, Department of Pathology, Faculty of Medicine, University of British Columbia, Vancouver.
MISS M. ERSKINE, Technical Supervisor, Clinical Laboratory Services, Department of Health Services and Hospital Insurance, Vancouver.
M. A. FRASER, Assistant Administrator, Royal Jubilee Hospital, Victoria.
DR. G. R. GRAY, Assistant Hæmatologist, Department of Pathology, Vancouver General Hospital, Vancouver.
DR. G. M. MARTIN, Chief, Clinical Pathology Service, Royal Inland Hospital, Kamloops.
DR. E. W. SHEPHERD, Pathologist, Shaughnessy Hospital, Vancouver.
DR. K. T. THORNTON, Associate Pathologist, Royal Jubilee Hospital, Victoria.

MEDICAL RADIOGRAPHY ADVISORY COMMITTEE

Chairman:

DR. A. TURNBULL, Drs. Turnbull, Dickey, Sloan, Norton, and Greig, Vancouver.

Ex Officio:

W. E. NOEL, Instructor, British Columbia Institute of Technology.
S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

Members:

M. A. FRASER, Assistant Administrator, Royal Jubilee Hospital, Victoria.
JAMES ROSS, Chief Technician, Department of Radiology, Royal Jubilee Hosiptal, Victoria.
S. M. SMITH, Technical Adviser, Radiology, Department of Health Services and Hospital Insurance, Vancouver.
DR. J. D. STEVENSON, Drs. Thorleifson, Stevenson, and Campbell, Vancouver.

NURSING ADVISORY COMMITTEE

Ex Officio:

MRS. B. B. KOZIER, Instructor, British Columbia Institute of Technology.
S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

Members:

DR. RAE CHITTICK, Vancouver.
DR. G. E. CRAGG, North Vancouver.
MISS F. A. KENNEDY, Director of Education Services, Registered Nurses' Association of British Columbia, Vancouver.
MRS. R. LAIRD, Director of Nursing, Burnaby General Hospital, Burnaby.
MISS M. M. LONERGAN, Director of Nursing Education and Nursing Consultant, Mental Health Services Branch, Department of Health Services and Hospital Insurance, Vancouver.
MISS E. E. NORDLUND, Consultant, British Columbia Hospital Insurance Service, Victoria.
MRS. N. STEVENS, Director of Nursing, Royal Columbian Hospital, New Westminster.
MISS F. TROUT, Director of Nursing, Lions Gate Hospital, North Vancouver.

PUBLIC HEALTH ADVISORY COMMITTEE

Chairman:

DR. C. J. G. MACKENZIE, Assistant Professor, Department of Preventive Medicine, Faculty of Medicine, University of British Columbia, Vancouver.

Ex Officio:

L. E. PENNER, Instructor, British Columbia Institute of Technology.

S. T. RICHARDS, Head, Health Technology, British Columbia Institute of Technology, Burnaby.

Members:

W. BAILEY, Director, Division of Public Health Engineering, Health Branch, Victoria.

E. T. BRADLEY, Public Health Inspector, Burnaby Health Department, Burnaby.

A. C. DOBSON, Chief Health Inspector, North Shore Health Unit, North Vancouver.

DR. G. A. MOTT, Deputy Medical Health Officer, City of Vancouver Health Department, Vancouver.

C. R. STONEHOUSE, Chief Public Health Inspector, Health Branch, Victoria.

J. A. STRINGER, Sanitation Control Officer, City of Vancouver Health Department, Vancouver.

HOTEL, MOTEL AND RESTAURANT MANAGEMENT ADVISORY COMMITTEE

Chairman:

J. R. CORBETT, Managing Director, British Columbia Hotels Association, Vancouver.

Ex Officio:

M. M. COLTMAN, Head, Hotel, Motel and Restaurant Management Technology, British Columbia Institute of Technology, Burnaby.

Members:

M. AMMANN, Queen Elizabeth Theatre Restaurant, Vancouver.

MRS. A. MAYER, Certified Executive Housekeeper, Vancouver.

C. PETER HUDSON, General Manager, Bayshore Inn, Vancouver.

E. BODNARCHUK, Lucky Strike Motor Inn, Vancouver.

E. SCHMUTZ, Co-ordinator, Accommodation and Food Services, British Columbia Government, Burnaby.

T. S. SMITH, Manager, Chipper's Drive-ins Ltd., Richmond.

R. J. STOUT, Director, Purchasing and Commissary, White Spot Restaurants Ltd., Vancouver.

B. FLANAGAN, Hy's Enterprises Ltd., Vancouver.

INSTRUMENTATION ADVISORY COMMITTEE

Chairman:

DR. P. H. STIRLING, Associate Head, Division of Engineering, British Columbia Research Council, Vancouver.

Ex Officio:

J. O. HULBERT, Head, Instrumentation Technology, British Columbia Institute of Technology, Burnaby.

Members:

J. U. CALDICOTT, Assistant Engineer (Instrumentation), Central Engineering, MacMillan Bloedel Limited, Vancouver.

E. R. DALLAS, Vice-President, Northern Columbia Process Equipment Company, North Vancouver.

G. JANSEN, Senior Engineer, Technical Services, Shell Canada Ltd., Burnaby.

H. M. MATHER, Superintendent, Communications and Testing, British Columbia Hydro and Power Authority, Vancouver.

W. V. NICHOLSON, Chief Instrument Engineer, Cominco Ltd., Trail.

LIBRARY ADVISORY COMMITTEE

Chairman:

B. F. STUART-STUBBS, Head Librarian, University of British Columbia, Vancouver.

Ex Officio:

R. HARRIS, Librarian, British Columbia Institute of Technology, Burnaby.

Members:

I. F. BELL, Associate Librarian, University of British Columbia, Vancouver.

MRS. A. BREARLEY, Assistant Professor, School of Librarianship, University of British Columbia, Vancouver.

W. S. LANNING, Associate Professor and Director of Curriculum Laboratory, University of British Columbia, Vancouver.

MISS A. R. LEITH, Head, Science Division, Library, University of British Columbia, Vancouver.

MISS A. TUFTS, Head, Business Division, Vancouver Public Library, Vancouver.

MECHANICAL ADVISORY COMMITTEE

Ex Officio:

D. K. BANNERMAN, Head, Mechanical Technology, British Columbia Institute of Technology, Burnaby.

Members:

P. N. BLAND, Engineer, H. A. Simons (International) Ltd., Vancouver.

R. D. BREWER, President, Hy-Torq Manufacturing Ltd., North Surrey.

DR. J. P. DUNCAN, Head, Department of Mechanical Engineering, University of British Columbia, Vancouver.

D. F. GUNNING, Superintendent, Rolling Mill Division, Western Canada Steel Ltd., Vancouver.

F. R. KILLAM, President, Industrial Coatings Ltd., Vancouver.

W. E. MILLS, Senior Mechanical Engineer, Department of Public Works, Victoria.

W. F. PAGE, Machine Shop Foreman, Burrard Drydock Co. Ltd., North Vancouver.

N. PURSELL, Senior Engineer, International Power & Engineering Consultants Ltd., Vancouver.

E. S. RHODES, Project Manager, H. A. Simons (International) Ltd., Vancouver.

W. O. RICHMOND, Professor, Department of Mechanical Engineering, University of British Columbia, Vancouver.

L. F. WRIGHT, Vice-President, Wright Engineers Ltd., Vancouver.

MINING TECHNOLOGY ADVISORY COMMITTEE

Chairman:

L. G. R. CROUCH, Professor of Mining Engineering, Department of Mining and Metallurgy, University of British Columbia, Vancouver.

Ex Officio:

A. H. MANIFOLD, Acting Department Head, Mining Technology, British Columbia Institute of Technology, Burnaby.

Members:

W. S. ADAMS, Vice-Principal, British Columbia Institute of Technology, Burnaby.

DR. J. A. GOWER, Senior Geologist, Kennco Explorations (Canada) Ltd., Vancouver.

J. D. LITTLE, Vice-President, Operations, Placer Development Ltd., Vancouver.

J. W. PECK, Chief Inspector of Mines, British Columbia Government, Victoria.

E. C. ROPER, Consultant, Vancouver.

NATURAL GAS AND PETROLEUM ADVISORY COMMITTEE

Chairman:

A. G. KANEEN, Chief Inspector, Department of Public Works, Gas Inspection Branch, Vancouver.

Ex Officio:

I. M. ANDERSON, Acting Department Head, Natural Gas and Petroleum Technology, British Columbia Institute of Technology, Burnaby.

Members:

H. BECKETT, Technical Superintendent, Imperial Oil Enterprises Ltd., Ioco.

W. A. JACKSON, Manager, Western Pacific Products & Crude Oil Pipelines Ltd., Vancouver.

R. KADLEC, Inland Natural Gas Co., Vancouver.

K. KIDD, Gas Division, British Columbia Hydro and Power Authority, Burnaby.

J. D. LINEHAM, Chief of Petroleum and Natural Gas Division, Department of Mines and Mineral Resources, Victoria.

G. B. MCGILLIVRAY, Manager, British Columbia Division, Canadian Petroleum Association, Victoria.

R. D. TOEWS, Westcoast Transmission Co. Ltd., Vancouver.

SURVEYING ADVISORY COMMITTEE

Chairman:

D. J. ROY, Land Surveyor and Civil Engineer, Vancouver.

Ex Officio:

D. R. MASON, Surveying Technology, British Columbia Institute of Technology, Burnaby.

Members:

A. BURHOE, Assistant City Surveyor, Vancouver.

S. H. DE JONG, Associate Professor, Department of Civil Engineering, University of British Columbia, Vancouver.

A. T. HOLMES, Partner, Underhill and Underhill, Surveyors and Civil Engineers, Vancouver.

W. N. PAPOVE, Partner, McElhanney Associates, Land Surveyors, Vancouver.

Calendar

1968

JULY

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

AUGUST

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

SEPTEMBER

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

OCTOBER

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

NOVEMBER

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

DECEMBER

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

1969

JANUARY

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

FEBRUARY

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

MARCH

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

APRIL

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

MAY

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

JUNE

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

Calendar of Events, Academic Year 1968–69

1968

July 1 - - - - Commencement of academic year.

August 12 - - - Closing date of applications for admission.

September 3, 4, and 5 - Registration of students.

September 6 - - - First and third term—classes begin.

October 14 - - - Thanksgiving Day holiday.

November 11 - - Remembrance Day holiday (if proclaimed).

December 19 - - Christmas vacation commences.

1969

January 6 - - - Second and fourth term—classes begin.

March 10 to 14 - - Spring vacation.

April 4 - - - - Good Friday holiday.

April 7 - - - - Easter Monday holiday.

May 19 - - - - Victoria Day holiday.

June 7 - - - - Summer vacation commences.

June 20 - - - - Convocation.

June 30 - - - - Conclusion of academic year.

General Information

THE INSTITUTE PROGRAMME

The objective of the Institute programme is to provide graduate technologists equipped to meet the needs of industry. Changes in the courses are made only after careful consideration and on the advice of members of the Advisory Committee, employers of graduates, and representatives of various professional organizations.

In the first year there is a common programme of study for most technologies. The subjects have been selected to give students the fundamental principles common to all branches of the technologies.

In both years basic principles and their applications are stressed in the lecture room, and these principles are tested and verified in the laboratories. The laboratory work is organized into groups of experiments. These experiments have been developed to permit students to test ideas formulated in the lecture room, to acquire familiarity with testing and designing techniques, and to develop dexterity in handling experimental equipment. The effectiveness of this approach is reflected in the increased number of students seeking admission to the various programmes and in the demand on the part of industry for services of the graduates of institutes of technology.

I. ENROLMENT

A. Conditions of Admission

1. *General Prerequisites.* — All student applicants must show documentary proof that they have graduated from Grade XII on the Academic and Technical Programme or the equivalent.

Students are referred to each technology for the additional special prerequisites required for enrolment in that technology.

Because the Institute's requirements for admission are new to the British Columbia school system, and because all secondary schools do not offer all the desirable prerequisites, unavoidable deficiencies in draughting, chemistry, physics, or biology will not necessarily preclude admission to an Institute programme.

Students who are entering Grades X and XI in the British Columbia secondary-school system in the fall of 1968 are referred to page 59 for tentative prerequisites for entrance to a particular programme. General prerequisite: Students seeking admission must have fulfilled the requirements for graduation from senior secondary school on the Academic and Technical Programme prescribed by the Department of Education for the Province of British Columbia.

2. Applicants educated outside of British Columbia should submit their qualifications to the Registrar of the Institute. Foreign language students must give evidence of reasonable competence in both written and spoken English.

3. A person whose education has been interrupted who, though lacking some of the formal admission requirements, can give evidence of probable success in a course may be admitted as a mature student. Such applications are dealt with on an individual basis. Persons interested should consult with the Registrar of the Institute.

4. Applicants who have successfully completed one or more years of study at a level equal to or higher than that of a British Columbia Institute of Technology course will be permitted to enter at the level of the course for which the application has been made if the work previously covered is similar in content to the work of the Institute's courses, and if, in the opinion of the Board of Admissions, the applicant's record justifies giving him advanced standing.

5. All prospective students must be at least 16 years of age. However, there is no upper age limit.

6. In any programme the Board of Admissions reserves the right to accept only those applicants who appear to have the capabilities necessary for success in the programme.

B. PROCEDURE FOR ADMISSION

1. Application forms may be obtained from the Registrar's Office.

2. The following documents and material must accompany the application:

(i) An official transcript of all secondary (British Columbia) or high school *and* university marks, showing necessary credits and grades for admittance to programme desired; or

(ii) A statement from the principal of a senior secondary school stating that applicant is expecting to obtain necessary credits and grades for admittance to the programme desired. *This statement must be substantiated by an official transcript when it becomes available.*

(iii) Academic documents will not be returned whether an applicant is accepted or not accepted for enrolment by the Board of Admissions.

(iv) A registration fee of five dollars ($5), payable by certified cheque or money order. Please send this amount only, with this application form. If your application is accepted, this fee is not refundable.

3. A medical questionnaire must be completed, and medical fitness determined prior to final acceptance.

4. All Health Technology students will be required to show evidence of having had a recent chest X-ray and having completed an immunization programme. Should supporting documentation not

be available at the time of registration, students will be required to be immunized and X-rayed at the Institute's Health Service Clinic.

5. Registration dates are September 3, 4, and 5, 1968. Students will be notified as to exact time they are required to register. All enrolling students must appear at the Institute or clarify their intentions by letter or wire before noon of the day of registration, otherwise their position may be forfeited.

C. Counselling

The staff of the Institute is available for interviews with parents and prospective students in order to discuss the Institute's programmes, and to offer advice and help.

D. Aptitude Tests

Aptitude tests will be written by any or all students at the discretion of the Registrar.

II. FEES

A. Annual Fees

Total fees for the academic year 1968-69 are:

	Tuition	Student Activity	Caution Account	Accident Insurance	Total
First-year students—					
First term	$60.00	$15.00	$10.00	$5.00	$90.00
Second term	90.00	*Nil*	*Nil*	*Nil*	90.00
Second-year students—					
Third term	60.00	15.00	10.00	5.00	90.00
Fourth term	90.00	*Nil*	*Nil*	*Nil*	90.00

1. Students re-entering the Institute for the second and fourth terms, after not attending the Institute for one or more terms, must pay a $10 student activity fee and a $10 caution account deposit and a $3.25 insurance fee.

2. All cheques and money orders must be payable to the B.C. Institute of Technology.

3. All fees are payable prior to the commencement of classes.

4. A student whose fees are not paid within 14 days after the commencement of each term will be excluded from classes and his registration cancelled.

5. If a student, whose registration has been cancelled because of non-payment of fees, applies for reinstatement and his reinstatement has been approved by the Registrar, he will be required to pay a reinstatement fee of $10 together with all outstanding fees before he is permitted to resume classes.

B. MISCELLANEOUS FEES

Application and registration	$5.00
Re-read of final marks	5.00
Transcript of marks	2.00
Duplicate diploma	3.00
Reinstatement fee	10.00

C. WITHDRAWAL

Students who voluntarily withdraw from a programme may receive a refund of their fees at the discretion of the Principal. Students must withdraw officially through the Registrar's Office.

Students who are requested to withdraw from a course for reasons of discipline or unsatisfactory progress may forfeit any right to a refund under this section.

D. ADDITIONAL EXPENDITURES

1. *Textbooks, Instruments, and Supplies.*—The cost of textbooks, instruments, and supplies varies according to the programme, from approximately $60 to $125. The Institute bookstore carries a complete line of draughting and writing supplies. Students are advised not to make any purchases until they have received a book list showing the required texts.

2. *Medical Insurance.*—Students may obtain medical insurance by arrangement with the British Columbia Medical Plan or the University Health and Accident Plan. Pamphlets outlining the details are available from the Registrar's Office.

III. FINANCIAL ASSISTANCE

A. GOVERNMENT OF BRITISH COLUMBIA SCHOLARSHIPS

This award is available for the current year to a student who undertakes a full-year programme at the British Columbia Institute of Technology. Candidates for awards applicable to the session 1969–70 will be considered on the basis of standing received in the final examinations for 1968–69. Candidates at the British Columbia Institute of Technology must take the final examinations set by the Institute in June; those in Grade XII or XIII must write the examinations set in June by the British Columbia Department of Education, and make application at the principal's office of the secondary school attended. Eligible applicants who obtain first-class standing will be granted three-quarters of the tuition fee. Awards of one-half and one-third the tuition fee will also be made to the Province's top second-class students.

B. British Columbia Institute of Technology Scholarship and Bursary Fund

The British Columbia Institute of Technology Scholarship and Bursary Fund has been established through private means, whereby awards are made annually by the trustees of the Fund to deserving students of the Institute. Private contributions from commerce and industry and other interested persons are being received and may or may not be designated for use in encouraging study in a particular course of study given by the Institute. Such contributions will be deductible for income-tax purposes. Pages 53 to 58 contain the details of the contributions. Inquiries concerning financial aid should be directed to the office of the Registrar.

C. The Canada Student Loans Plan

The maximum that may be obtained under this plan is $1,000 per year and not more than $2,000 over 2 years. Students applying for the loan must satisfy resident requirements and demonstrate need of financial aid. Loans are interest free while the student is in school, and are repayable with interest beginning 6 months after graduation. All full-time technical students are eligible for assistance under the Canada Student Loans Plan.

For application forms and further information inquire at the Registrar's Office.

IV. PLACEMENT SERVICE

The Student Placement Centre, staffed by Canada Manpower personnel, is available to all students of the Institute.

This office, besides providing a counselling and employment service, arranges seminars and interviews with national and local employers of the technologist.

To assist the student in further development of his career plan, a current library of information on careers in many industries is maintained in the Centre.

V. LIVING ACCOMMODATION

There are no dormitories connected with the Institute. Students may obtain room and board in the vicinity of the campus at a reasonable rate. A list of accommodations may be obtained from the Registrar's Office. Board and room will cost approximately $70 to $90 a month. An excellent cafeteria provides economical services for students.

VI. ACADEMIC AWARDS

A. Diplomas (Dipl.T.)

Graduates of the British Columbia Institute of Technology will be awarded a nationally recognized Diploma of Technology. An honours diploma will be awarded to those students who obtain a first-class honours standing (80 per cent average or better) in each of Terms 3 and 4. Duplicate diplomas will be issued on payment of a fee of $3.

B. The British Columbia Institute of Technology Honour Awards

The Academic Award will be presented to the top academic student in his graduating year.

The Citizenship Award will be presented to the student who shows reasonable academic standing, a reputation for mature personal relations with both staff and students, and a record of active participation in student activities.

C. Convocation Exercises

Convocation exercises take place as announced in the yearly academic calendar, and diplomas are presented only at these exercises.

VII. THE CURRICULUM

A. Programme of Studies

The academic year consists of two separate consecutive terms. Examinations are written and credit is given for the successful completion of each term. Students may interrupt their studies after completion of any term. Permission by the Board of Admissions is required before a student is allowed to change his programme, and only one transfer is permitted.

B. Final Examinations

Final examinations are conducted in December and May/June of each academic year. Students are personally responsible for presenting themselves at examinations on the scheduled day and hour. If a student is unable to produce a reason satisfactory to the Registrar for defaulting an examination, he is considered to have failed in that subject.

Unless a student has paid all fees and dues for which he is liable, has returned all borrowed Institute property, and attained requisite academic standing, he will not be allowed to write the final examinations. Students actually under medical treatment in the period

immediately prior to the examinations are reminded that it is their responsibility to notify the Registrar that this situation exists, if it is likely to affect their attendance at examinations.

C. Determination of Standing

Final standing is determined on the basis of term work and the results of final examinations. A minimum of 50 per cent in each subject is required for a credit standing. Examination standing is computed according to the following schedule:

First class	80% or more
Second class	65% to 79%
Credit	50% to 64%
Failure	Below 50%

The symbol "A" (aegrotat) indicates that the student was absent from the final examination because of medical reasons but was granted standing on the basis of the year's work. "Aegrotat" standing may apply to all subjects or to a single subject. A copy of the final report is mailed to the student's home address as soon as possible after the results are known.

D. Failure and Repetition

A student who fails a term may be permitted to repeat the term only at the discretion of the Principal.

E. Appeals in Regard to Final Marks

Final examinations may be re-read if a written request is submitted to the Registrar within 10 days after the results are mailed to students. A fee of $5 is required for each paper which is appealed. This fee will be refunded in full if, as a result of re-reading, the original mark is favourably adjusted.

F. Transcripts

A fee of $2 is charged for each transcript of an undergraduate's or graduate's marks. Transcripts are available from the Registrar's Office.

VIII. REGULATIONS REGARDING CONDUCT, DISCIPLINE, AND ATTENDANCE

It is assumed that all students enrolled at the British Columbia Institute of Technology come for a serious purpose, and that they will conform cheerfully to all regulations.

(*a*) Students are expected to conduct themselves in an exemplary fashion at all times and pay diligent attention

to their studies. If the Principal believes a student's conduct is such that it is detrimental to the interest of the Institute, he may be excluded from further attendance. In assessing a student's capability, the Principal will take into consideration his conduct and attitude, both on and off the campus. A student who has been expelled or suspended will not be admitted to the Institute grounds or buildings.

(*b*) The Principal possesses the final authority to approve, amend, and/or revise the constitutions of all student organizations connected with the Institute. If the Principal believes it is in the interest of the Institute to do so, he has full authority to suspend the constitution of any student organization, to penalize the members of that organization, or to deal with any situation that arises in any manner he deems fit.

(*c*) The Institute cannot be held responsible for debts incurred by student organizations.

(*d*) No student group is permitted to participate in a parade in a public thoroughfare without the prior consent of the Principal.

(*e*) If, through his carelessness or negligence, a student damages the property of the Institute, he shall be held responsible. If the damage is caused by students whose names are not known, the cost of repairing the damage may be assessed equally among all students enrolled at the Institute.

(*f*) A student will not be permitted to borrow or remove any apparatus or tools except by the written authority of the Principal or his delegate.

(*g*) Consumption of intoxicating beverages is not permitted on property belonging to the Institute. Violation of this regulation may result in expulsion.

(*h*) General supervision over all forms of entertainment given under the auspices of a student organization come under the jurisdiction of the Principal.

(*i*) All students are required to dress in a neat and tidy manner in keeping with the dignity of the Institute. For men this means the wearing of the following attire on the campus:

(i) Shirt and tie.

(ii) Business suit, or sports coat or blazer with suitable trousers.

(iii) In laboratory and shops a laboratory coat, which will be supplied by the Institute, is worn in place of the coats or blazers mentioned in item (i). Students who lose or damage laboratory coats will be charged a $5 replacement fee.

Women should be attired appropriately in accordance with the regulations for men.

(*j*) Regular attendance in lectures, seminars, and laboratory periods is required of all students. If a student is absent for any cause other than illness for more than 10 per cent of the time prescribed for any subject, he or she may be prohibited from writing the final examination in that subject. In case of illness or other unavoidable cause of absence, the student should communicate immediately with his department head, stating the cause of absence.

IX. CHANGES IN CURRICULA AND REGULATIONS

Although it is proposed to adhere to the programme of study as set forth in the Calendar, the Institute reserves the right to make, without prior notice, whatever changes are deemed necessary to either the programmes of study or the regulations. The Institute reserves the right to cancel any programme.

X. STUDENT ASSOCIATION

All students registered in the Institute are members of this Association. The governing body of the Association is the Students' Administrative Council, composed of officers elected by the student body. The Council represents the student body and administers student funds as outlined in the constitution of the Student Association.

XI. LOCKER FACILITIES

Full-length locker space is provided for the safe storage of personal effects. Students are warned to have identification marks—preferably names and addresses—on all their books, instruments, and other effects. All personal valuables should be kept on the student's person or secured in his locker. The Institute cannot accept responsibility for any loss of, or damage to, student's personal property.

XII. LIBRARY

The new library building is planned to open before the beginning of the 1968 fall term. This carefully planned building will provide

space for our growing student body and our growing book collection.

The library presently contains 11,000 volumes. In addition, it subscribes to 600 periodicals and a variety of other materials. This material has been selected to support study in all fields represented in the Institute's curriculum. The reserve shelves are the only area of the library's collection to which students do not have free access, the reference and general collections being in " open stack."

A handbook describing the facilities in the new library and the regulations governing the use of the library collections is planned for distribution during the student orientation period.

XIII. INSTRUCTIONAL COMMUNICATIONS BRANCH

The Instructional Communications Branch provides assistance to the Faculty in the selection, preparation, and application of the newer instructional media to their curriculum requirements.

It maintains the Institute's media library and provides for reference, rental, preview, and purchase of films, slides, videotapes, and other media from major sources throughout the world.

Based on continuing research in educational technology, the Branch provides assistance to the Faculty in co-ordinating the design and use of advanced instructional systems.

XIV. STAFF AND STUDENT HEALTH SERVICES

The Health Service Clinic is operated in Room 138 during school hours on week-days. A physician directs the programme, and a public health nurse is in attendance. Services include examination, health counselling, first-aid and emergency care, limited out-patient care for minor illnesses and injury, immunization, and chest X-rays. It is the policy of the Institute to co-operate with private family physicians and outside professional facilities rather than try to supplant them. The purpose of the clinic is to keep students at the highest level of efficiency and to conserve learning power.

EXTENSION DIVISION

The Institute offers a number of advanced technical courses through its Extension Division. These courses are available primarily as evening and Saturday morning classes.

As the demand grows, the Institute, in co-operation with industries through its Advisory Committee, will expand the number of subjects offered to satisfy the post-secondary technical training needs of almost every segment of trade, commerce, and industry.

The following types of programmes are offered:

(1) Programmes providing for those employed in industry or commerce who wish to proceed to a higher level of technical training, such as the Diploma of Technology.

(2) Tutorial programmes which will be developed in co-operation with organizations having established qualifying examinations in any field closely related to the Institute's regular programmes.

(3) Specialized courses to be offered where a demonstrated demand exists for post-secondary training or retraining, and where the Institute's resources provide the quality of retraining required.

(4) Courses that offer training to graduates with a Diploma of Technology from the British Columbia Institute of Technology or similar-level institutions.

Many of these courses are designed to make specific use of the specialized equipment available at the Institute, and are thus unique in the Province.

In order to obtain brochures or a calendar outlining in detail the courses offered in these evening or extension programmes, please contact the Vice-Principal (Extension) at the Institute.

British Columbia Institute of Technology
Scholarship and Bursary Fund

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY SCHOLARSHIP AND BURSARY FUND

Scholarships and Bursaries Awarded, 1967

AMERICAN SMELTING AND REFINING COMPANY ($100)

The American Smelting and Refining Company will award a $100 bursary or scholarship to a student in the Mining Technology.

AMERICAN SOCIETY FOR METALS ($150)

The American Society for Metals will award a $150 scholarship or bursary to a student in the Chemical and Metallurgical Technology.

BAY LUMBER CO. LTD. ($100)

The Bay Lumber Co. Ltd. will award a $100 scholarship or bursary to a student in the Forest Products Technology.

BRITISH COLUMBIA FOREST PRODUCTS LIMITED ($500)

British Columbia Forest Products Limited will award two $250 scholarships to second-year students—one in the Forest Products Technology and one in the Instrumentation and Control Technology.

BRITISH COLUMBIA HOTELS ASSOCIATION ($500)

The British Columbia Hotels Association will award bursaries or scholarships in the total amount of $500 to students in the Hotel, Motel and Restaurant Technology.

THE BRITISH COLUMBIA SUGAR REFINING COMPANY, LIMITED ($250)

The British Columbia Sugar Refining Company, Limited, will award a $250 scholarship or bursary.

B.C. SECTION, CANADIAN INSTITUTE OF MINING AND METALLURGY ($150)

The B.C. Section, Canadian Institute of Mining and Metallurgy, will award a $150 scholarship or bursary to a student in the Natural Gas and Petroleum Technology or the Chemical and Metallurgical Technology.

CANADA PACKERS LIMITED ($150)

Canada Packers Limited will award a $150 scholarship or bursary to a student in the Food Technology.

CANADA SAFEWAY LIMITED ($150)

Canada Safeway Limited will award a $150 scholarship or bursary to a student in the Food Technology.

CANADIAN FOREST PRODUCTS LTD. ($500)

The donation has been directed to a deserving student at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

COMINCO LTD. ($500)

Cominco Ltd. will award one scholarship of $250 to a student in the Mining Technology and one scholarship of $250 to a student in the Chemical and Metallurgical Technology.

CROWN ZELLERBACH CANADA FOUNDATION ($1,000)

The Crown Zellerbach Canada Foundation will award four $250 bursaries. Students in the Forestry, Forest Products Survey, Mechanical, Electrical and Electronics, Chemical and Metallurgical, Instrumentation and Control, and Business Management Technologies are eligible for these awards.

ELECTRIC POWER EQUIPMENT LIMITED ($150)

Electric Power Equipment Limited will award a $150 bursary to a student in the Electrical and Electronics Technology.

ELECTRO TEC MARKETERS, LTD. ($100)

Electro Tec Marketers, Ltd., will award a $100 bursary to a student in the Electrical and Electronics Technology.

FALCONBRIDGE NICKEL MINES LIMITED ($300)

Falconbridge Nickel Mines Limited will award bursaries or scholarships in the total amount of $300 to students in the Mining or Surveying Technologies.

FISHERIES ASSOCIATION OF BRITISH COLUMBIA ($150)

Fisheries Association of British Columbia will award a $150 scholarship or bursary to a student in the Food Technology.

FRASER VALLEY MILK PRODUCERS ASSOCIATION ($150)

The Fraser Valley Milk Producers Association will award a $150 scholarship or bursary to a student in the Food Technology.

GEORGE MACBRYER SCHOLARSHIP

The George MacBryer Scholarship has been established by the Truck Loggers' Association to honour the memory of the late George MacBryer. An initial donation was made by the Truck Loggers' Association ($1,000) and additional donations have been received from Randall Logging Limited ($100) and Nalos Logging Limited ($200).

HOOKER CHEMICALS LIMITED ($100)

The donation has been directed to a deserving student at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

INDUSTRIAL COATINGS LTD. ($300)

Industrial Coatings Ltd. will award a bursary or bursaries in the total amount of $300 to a student or students in the Mechanical Technology.

INTERNATIONAL NICKEL COMPANY OF CANADA, LIMITED

The Inco Scholarship Fund at the British Columbia Institute of Technology provides for the awarding of one or more scholarships annually. The awards, valued at a minimum of $100 to a maximum of $250, are known as the International Nickel Scholarships in Engineering Technology.

Any student with a good scholastic record and a good personal reputation, who has the necessary qualifications to enrol in a diploma course in Engineering Technology, is eligible to apply for an Inco scholarship.

Interested students should apply directly to the Registrar at the British Columbia Institute of Technology.

KAMLOOPS HOO-HOO CLUB ($100)

The Kamloops Hoo-Hoo Club will award a $100 bursary to a deserving student.

MACMILLAN BLOEDEL LIMITED ($500)

MacMillan Bloedel Limited will award one scholarship of $250 to a student in the Forestry Technology and one scholarship of $250 to a student in the Forest Products Technology.

MCCARTER, NAIRNE AND PARTNERS ($150)

McCarter, Nairne and Partners will award a $150 scholarship to a student in the Building Technology.

NABOB FOODS LTD. ($150)

Nabob Foods Ltd. will award a $150 bursary to a student in the Food Technology.

PACIFIC LOGGING COMPANY LIMITED ($150)

The donation has been directed to a deserving student at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

PLACER DEVELOPMENT, LIMITED ($1,750)

Placer Development, Limited, will award five $350 scholarships to students in the Chemical and Metallurgical, Mining, and Surveying Technologies.

RAYONIER CANADA (B.C.) LIMITED ($1,050)

Rayonier Canada (B.C.) Limited will award three $350 scholarships—two scholarships to the Forest Products Technology (one scholarship will be given in the Wood Option and one scholarship will be given in the Pulp and Paper Option) and one scholarship to the Forestry Technology. The awards are available to students who have completed their first year of their course and are proceeding into the second year.

ROYAL CITY FOODS LTD. ($150)

Royal City Foods Ltd. will award a $150 scholarship or bursary to a student in the Food Technology.

SANDWELL AND COMPANY LIMITED ($250)

The donation has been directed to a deserving student at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

SILVER STANDARD MINES LIMITED ($1,000)

The donation has been directed to deserving students at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

H. A. SIMONS (INTERNATIONAL) LTD. ($1,000)

The donation has been directed to deserving students at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

SUN-RYPE PRODUCTS LIMITED ($150)

The Sun-Rype Products Limited Scholarship will be awarded to a student in the Food Technology.

TAHSIS COMPANY, LTD. ($500)

The donation has been directed to a deserving student at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

THE CANADA STARCH COMPANY ($150)

The Canada Starch Company will award a $150 scholarship or bursary to a student in the Food Technology.

WILLIAM ROBINSON LIMITED ($150)

William Robinson Limited will award a $150 scholarship or bursary to a student in the Food Technology.

L. A. VARAH LIMITED ($100)

The donation has been directed to a deserving student at the Institute of Technology to be awarded at the discretion of the trustees of the Scholarship and Bursary Fund.

JACK WOODWARD MEMORIAL SCHOLARSHIP AND BURSARY FUND

The Jack Woodward Memorial Scholarship and Bursary Fund has been established to honour the memory of the late Head of the Chemical and Metallurgical Technology. The Fund is supported by the B.C.I.T. staff society and by an annual contribution of $200 from Eldorado Mining and Refining Limited.

WRIGHT ENGINEERS LIMITED ($250)

Wright Engineers Limited will award a $250 scholarship or bursary to a student in the Mechanical Technology.

Academic Medals

The following silver medals are awarded annually to the graduate who has achieved the highest academic standing in his programme of studies. As indicated, most of the awards include a $100 prize.

Broadcast Communications—B.C. Association of Broadcasters Award ($100).

Building—The Architectural Institute of B.C. Award ($100).

Business Management:

Administrative Management—The Eaton Award ($100).

Data Processing—The British Columbia Telephone Company Award ($100).

Marketing—The Vancouver Sun Award ($100).

Civil and Structural—The Col. W. G. Swan Award ($100).

Food—The Food Executives Club Award ($100).

Forest Products: Wood Utilization—The Council of Forest Industries Award ($100).

Forestry—The Council of Forest Industries Award ($100).

Hotel, Motel and Restaurant—The British Columbia Hotels' Association Award ($100).

Instrumentation—The Instrument Society of America Award.

Mechanical—The Canadian Manufacturers' Association Award ($100).

Mining—The B.C. Section, Canadian Institute of Mining and Metallurgy Award ($100).

Medical Radiography—The B.C. Radiological Society Award ($100).

Surveying—The D. H. Burnett Award ($100).

Prizes

The following prizes are awarded annually to graduates who have gained the highest standing in specific subjects related to the pertinent industry or who have shown the greatest combination of academic ability and leadership to warrant unusual recognition.

The BRITISH COLUMBIA ASSOCIATION OF PROFESSIONAL ENGINEERS (MUNICIPAL DIVISION) PRIZE is presented to the graduate in Civil and Structural Technology who has won the highest standing in Muncipal Engineering.

The B.C. SECTION of the CANADIAN INSTITUTE OF MINING AND METALLURGY awards annually a book prize to an outstanding

student upon completion of the first year of a programme in the mineral technologies.

The CANADIAN INSTITUTE OF FORESTRY PRIZE is awarded to an outstanding graduate in Forestry.

The CANADIAN PULP AND PAPER ASSOCIATION PRIZE of $250, together with a framed scroll, is awarded annually to the outstanding graduate in the Pulp and Paper Option of the Forest Products Technology.

The CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF BRITISH COLUMBIA PRIZE of $25 will be awarded to the student obtaining the highest marks in Financial Accounting 90.347 and 90.447.

The CLUB MANAGERS' ASSOCIATION OF AMERICA, Dogwood Chapter of British Columbia, will award a $150 prize to the graduate in the Hotel, Motel and Restaurant Technology who has achieved the highest standing in the Food and Beverage Course.

The INSTITUTE OF CHARTERED ACCOUNTANTS OF BRITISH COLUMBIA PRIZE of $25 will be awarded to the student obtaining the highest marks in Auditing 90.346 and 90.446.

The INSTITUTION OF MECHANICAL ENGINEERS BOOK PRIZE is awarded annually to the graduate in the Mechanical Technology who has achieved the highest standing in Machine Design.

The METROPOLITAN BIO-MEDICAL LABORATORIES LTD. awards two prizes annually of $100 each to the best student in Bacteriology and the best student in Bio-chemistry, Health Technology.

The ORTHO PHARMACEUTICAL (CANADA) LTD. PRIZE is awarded to an outstanding graduate in the Medical Laboratory Option who has gained the highest standing in hæmatology and immuno-hæmatology.

The SOCIETY OF INDUSTRIAL ACCOUNTANTS OF BRITISH COLUMBIA PRIZE of $25 will be awarded to the student obtaining the highest marks in Cost and Managerial Accounting 90.341 and 90.441.

The WARNER-CHILCOTT AWARD is made to the graduate in Health Technology who has gained the highest general proficiency in his programme of studies.

Interim Prerequisites

During an interim period some senior secondary schools in British Columbia may not have completed the conversion to the revised curriculum.

For this interim period only, the Institute may consider as sufficient prerequisite the appropriate major science programme which has been offered at the school at which the applicant studied.

Prerequisites (Effective September, 1967)

GENERAL PREREQUISITES

Graduation on Academic and Technical Programme (technical specialty or equivalent, including Ma 12).

SPECIAL PREREQUISITES BY TECHNOLOGY

	Building	Chemical and Metallurgical	Civil and Structural	Electrical and Electronics (plus Broadcast Tech.)	Food	Forest Products	Forestry	Health
Mandatory—A. & T. Prog.	Ma 12 **See* note.	Ma 12 **See* note.	Ma 12 **See* note.	Ma 12 **See* note.	Ma 12 †*See* note.	Ma 12 **See* note.	Ma 12 Bi 11	Ma 12 †*See* note.
Desirable‡ A. & T. Prog.				Ec 11			Phys 11	
Desirable‡ Other Progs.	Dra 11, 12 Const 11, 12A, 12B	Mech 11 Dra 11	Dra 11, 12 Const 11, 12A, 12B Mech 11	Mech 11 Elect 11 Ind. Power 11 Dra 11		Ind. Power 11 Gen. Bus. 11, 12 Dra 11	Ind. Power 11 Gen. Bus. 11, 12 Dra 11	

	Instrumentation	Mechanical	Mining	Natural Gas and Petroleum	Surveying	Broadcast Communications Prod.	Business	Hotel, Motel Management
Mandatory—A. & T. Prog.	Ma 12 **See* note.	Ma 12 **See* note.	Ma 12 **See* note.	Ma 12 **See* note.	Ma 12 **See* note.	Hist 12 En Lit 12	Ma 12	Ma 12
Desirable‡ A. & T. Prog.						Ec 11	Fr 11 En Lit 12 Ec 11	En Lit 12 Ec 11 Fr 11
Desirable‡ Other Progs.	Mech 11 Dra 11	Elect 11 Dra 11, 12	Dra 11	Dra 11	Dra 11	Typ 11 Any Theatre Specialty Courses	Any Accountancy Specialty Courses	Foods 11, 12 Any Accountancy Specialty Courses

* Plus any three of Physics 11, 12 and Chemistry 11, 12.

† Plus three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be a Science 12.

‡ Desirable subjects are not to be construed as mandatory for selection purposes. However, they would be an aid as background material.

Expansion
Programme

The building expansion is keeping pace with the increased student enrolment in the British Columbia Institute of Technology. In the fall of 1967, 2,043 students were registered in first and second year at the Institute, while for 1966 the figure was 1,281 students. In the fall of 1968, it is anticipated that student registration will be 2,770 students, and by 1969 this figure will rise to 3,000 students. These figures indicate the need for a continued building programme.

The first phase of expansion at the British Columbia Institute of Technology has been completed. This was a four-story addition to the 1962 building. It contains 170,000 square feet of classrooms, laboratories, and lecture theatres, which were opened to student use at the beginning of September, 1967.

Extensive alterations to the 1962 building were required to accommodate the Institute's new and expanded technologies. These alterations were completed during the summer and early fall of 1967. As a consequence of the fine new facilities in the school and the altered 1962 building, it will be possible to accommodate the increased enrolment projected for the fall of 1968.

The Library/Audio-Visual and Bookstore Building is being constructed on the campus now, and it is expected to be completed by August, 1968. This building will serve all students on campus and will be a necessary addition to school facilities.

The Boiler House/Mechanical Building, which supplies the services for the campus, is also being enlarged, and the completion of this building is planned for the beginning of 1968. It will contain additional mechanical laboratory space, changing-rooms for Survey and Forestry students, and surveying workroom and classrooms.

An extension to the Food Training Centre is also on the drawing-boards, and it is expected that construction will start early in 1968. This addition will provide laboratory space for the Hotel, Motel and Restaurant Technology and for food laboratories for the Burnaby Vocational School.

Plans are going forward for the construction of a badly needed multi-purpose building on the campus. It will provide an auditorium-gymnasium and an additional cafeteria, student offices, and student recreation and exercise rooms. It is hoped that construction of this building can commence early in 1968.

In the meantime, two temporary buildings for use of students have been erected on the campus—a student centre and a field house. A playing-field, surrounded by a track, is in the course of construction and will be ready for use by the fall of 1968.

New technologies and new training options are being studied to ascertain availability of students and demand for graduates. At this time it appears that there are opportunities for further growth in the British Columbia Institute of Technology.

List of Programmes

BROADCAST COMMUNICATIONS

BUILDING TECHNOLOGY

BUSINESS MANAGEMENT PROGRAMMES

CHEMICAL AND METALLURGICAL TECHNOLOGY

CIVIL AND STRUCTURAL TECHNOLOGY

ELECTRICAL AND ELECTRONICS TECHNOLOGY

FOOD TECHNOLOGY

FOREST PRODUCTS TECHNOLOGY

FORESTRY TECHNOLOGY

HEALTH TECHNOLOGY PROGRAMMES

HOTEL, MOTEL AND RESTAURANT MANAGEMENT

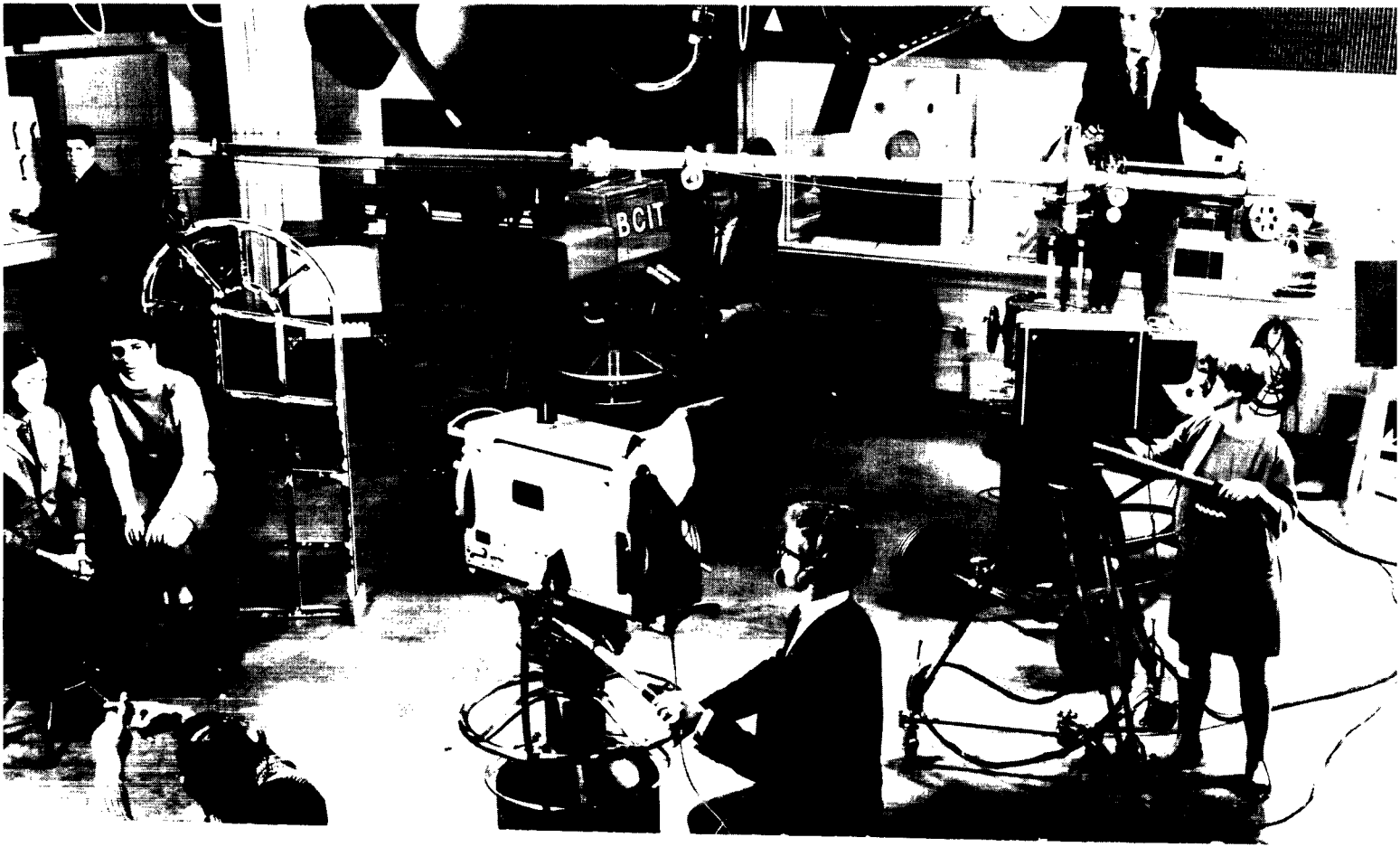
INSTRUMENTATION TECHNOLOGY

MECHANICAL TECHNOLOGY

MINING TECHNOLOGY

NATURAL GAS AND PETROLEUM TECHNOLOGY

SURVEYING TECHNOLOGY


BCIT

Broadcast Communications

The need for educational facilities in broadcast communications has long been recognized by the industry in Canada.

The broadcasters of this Province lend their whole-hearted support to this concept; moreover, an industry committee was deeply involved in the formulation of the Broadcast Communications programme.

With new radio and television stations coming on the air every year, the demand for trained personnel continues to rise. To give training with a strong emphasis on the practical aspects, a complete radio and television station was established in the Institute. The Broadcast Communications programme is a realistic one, offering authentic on-the-job training and experience within the Institute, with students working in actual radio and television production for months before they go into industry.

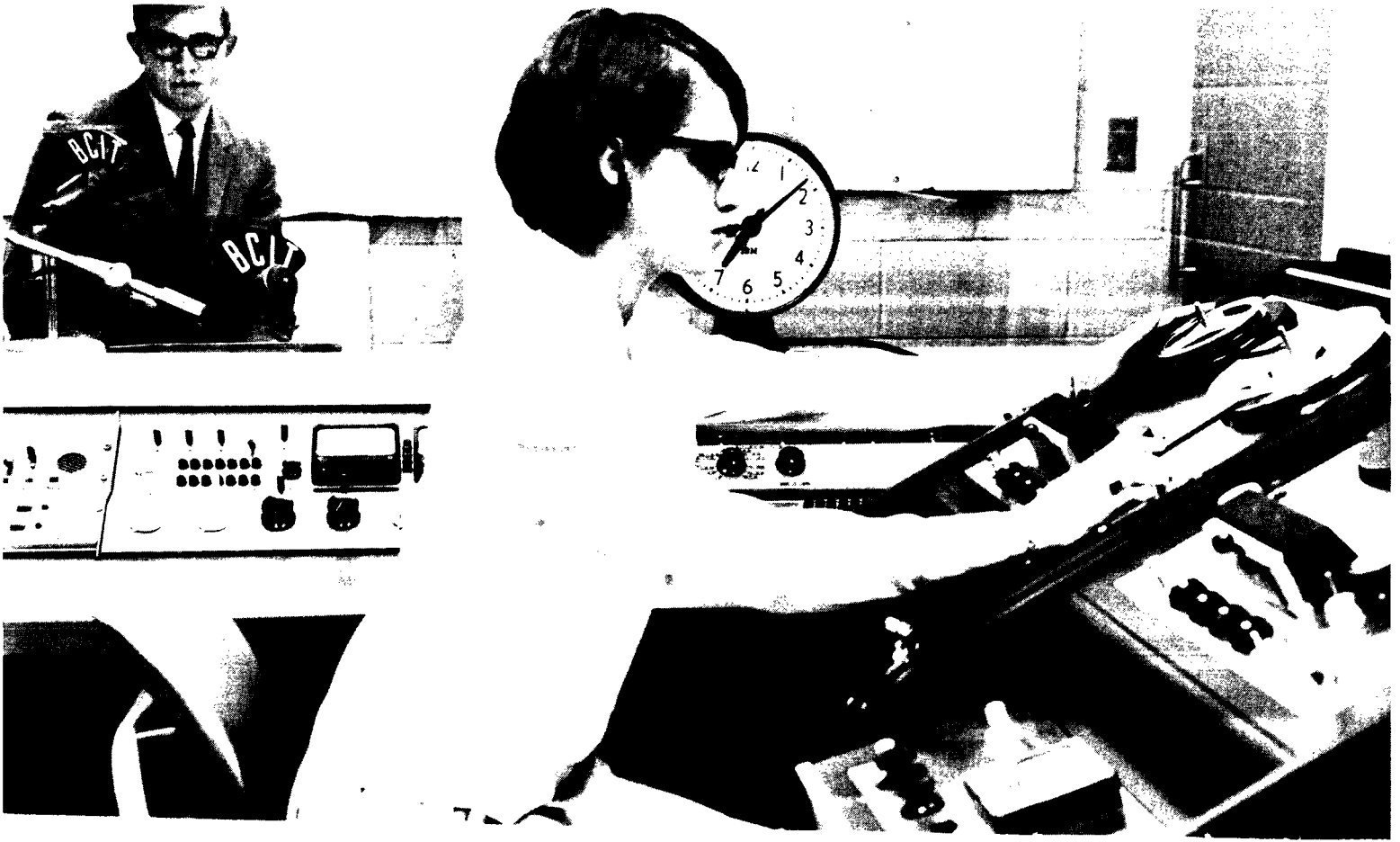
The programme offers two distinct 2-year options—Production and Technical. Each includes both radio and television.

Students in the Production Option receive training in all non-electronic areas of broadcasting. In addition to tuition in announcing, writing, news operations, recording, and radio and television production, students are given a thorough knowledge of the use and operation of all broadcasting equipment.

Technical Option students are given a complete electronics programme, coupled with extensive practical training in the maintenance and repair of all radio and television broadcasting equipment in both studio and transmitter operations.

To be successful, students in Broadcast Communications must possess a real interest for this demanding field. Although personality requirements vary somewhat, the out-going person is better suited to those positions in which meeting the public is of great importance. Shift work is common in the industry, since both radio and television stations operate most of the day and night. A sound knowledge of English is essential for the Production Option; competence in mathematics and physics is required for the Technical Option.

To graduates, the industry offers interesting, challenging, and rewarding work, with ample opportunity for advancement.


BCIT
BCIT

BROADCAST COMMUNICATIONS

PRODUCTION OPTION

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.103	Writing and the Mass Media	2	1
90.105	Statistics in Broadcasting	2	1
90.135	Economics	2	2
90.230	Business	2	1
91.101	Elementary Broadcast Technology	2	2
91.103	Writing and Sales	1	2
91.109	Introduction to News	2	----
91.110	Broadcast Production	3	8
	Tutorials	----	2
		16	19

Term 2

31.203	Writing and the Mass Media	2	1
90.205	Statistics in Broadcasting	2	1
90.235	Economics	2	2
90.260	Basic Law for Broadcasting	2	----
91.201	Elementary Broadcast Technology	2	2
91.203	Writing and Sales	1	2
91.209	Introduction to News	2	2
91.210	Broadcast Production	3	7
	Tutorials	----	2
		16	19

YEAR 2 — *Term 3*

31.303	Writing and Modern Literature	2	1
91.305	Contemporary History	2	----
91.309	News	2	2
91.303	Writing and Sales	2	2
91.302	Production—Radio	2	7
91.312	Production—Television	4	7
	Tutorials	----	2
		14	21

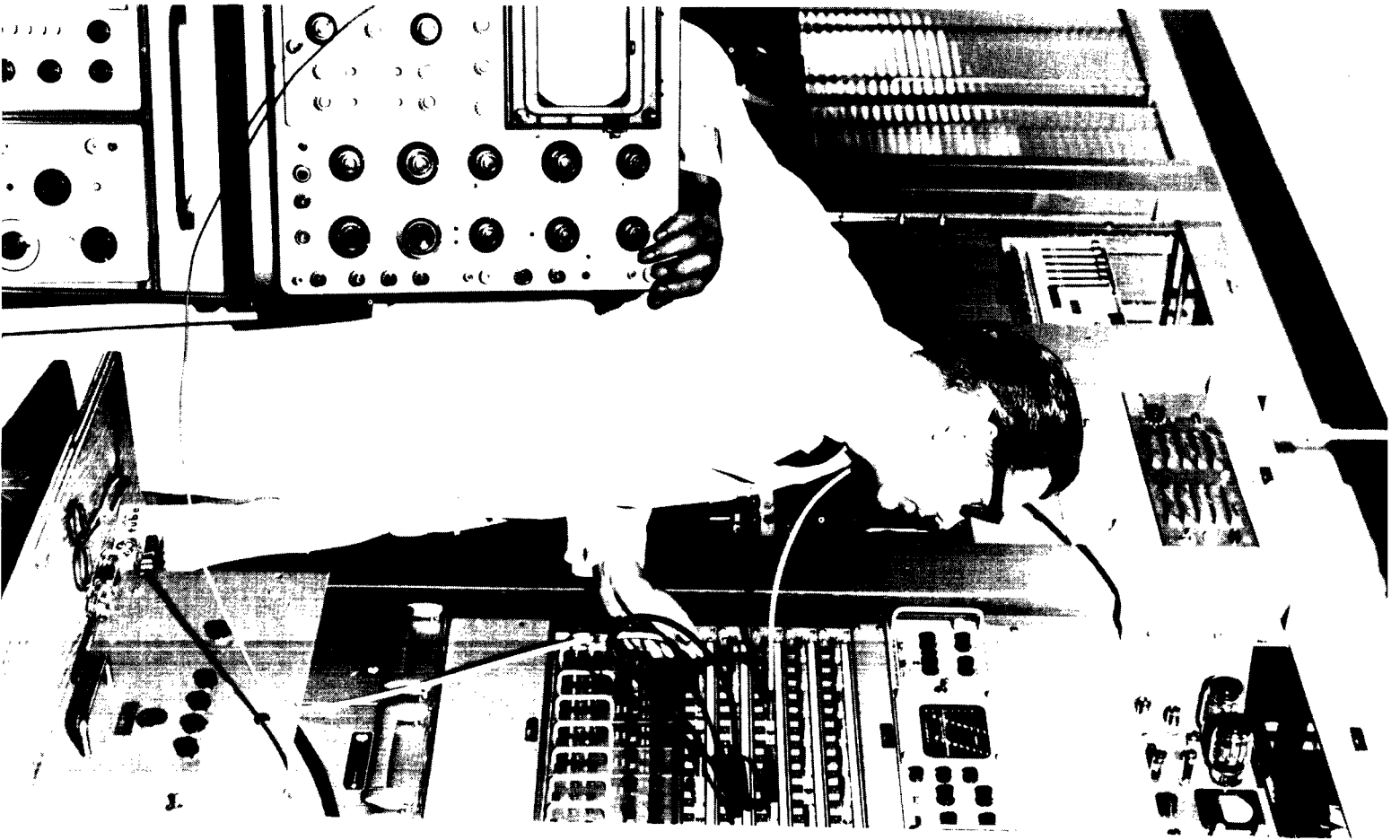
Term 4

31.403	Writing and Modern Literature	2	1
91.405	Contemporary History	2	----
91.409	News	2	2
91.403	Writing and Sales	2	2
91.402	Production—Radio	2	7
91.412	Production—Television	4	7
	Tutorials	----	2
		14	21

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: History 12, English Literature 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Economics 11, Typing 11, or any Theatre Specialty courses.



BROADCAST COMMUNICATIONS

TECHNICAL OPTION

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.170	Mathematics	5	4
33.101	General Physics	3	3
43.102	Electrical Circuits	5	5
49.101	Draughting	—	3
91.111	Elementary Broadcast Technology	2	2
		17	18

Term 2

31.201	Writing and Contemporary Thought	2	1
32.270	Mathematics	5	4
33.201	General Physics	3	3
43.202	Electrical Circuits	3	2
43.205	Electronic Circuits	2	2
91.211	Elementary Broadcast Technology	2	2
	Tutorials	—	4
		17	18

YEAR 2 — *Term 3*

31.301	Writing and Contemporary Thought	1	1
32.370	Mathematics	3	2
43.303	Measurements	2	2
43.305	Electronic Circuits	2	3
43.306	Digital Techniques	3	3
91.314	Radio and Television Transmission	2	1
91.315	Workshop	3	7
		16	19

Term 4

43.421	Communications	2	2
43.425	Pulse Circuits	3	3
43.427	Microwave Techniques	2	2
43.429	Special Projects and Tutorials	—	5
90.230	Business	1	1
91.414	Radio and Television Transmission	1	2
91.415	Workshop	4	7
		13	22

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and any three of Physics 11, 12 and Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Economics 11, Mechanics 11, Electricity 11, Industrial Power 11, and Draughting 11.

TABLE 3
SCHEDULE SEE PAGE
DOOR
STYLE
BEDROOM
FURNACE
UTILITY
BATH
LIVING ROOM
ENTRY
FLOOR PLAN

Building Technology

Throughout the world rapidly expanding populations have enormously increased the demand for building operations of all kinds, and the course in Building Technology is designed to give a sound preparation in as broad a range of related material as the time allows.

In addition to continuing such basic high-school subjects as physics, mathematics, and English, which are essential in acquiring any degree of technical proficiency, the course introduces students in the first year to various specialized subjects such as architectural design, building construction, structural engineering, mechanical and electrical services, and surveying. All these subjects contain both lecture and draughting-room instruction, and, as a result, students find they can further their education through their summer employment, being capable of working as draughtsmen in architects' and engineers' offices, as well as in the offices of various sub-trade and general contracting organizations.

In the second year, students continue with the major subjects listed above, but in addition begin a thorough coverage of such subjects as materials of construction, specification writing, quantity and cost estimating, work study, and similar subjects which further expand the number of possible areas into which they may move successfully on graduation.

Fundamentally, graduate technologists will understand buildings three-dimensionally, with all their architectural, structural, and mechanical implications, and with this as a point of departure may enter any area of the building, or related, field to which their individual interests and qualifications lead them.

We envisage graduates, after a suitable period of practical experience, becoming chief draughtsmen in a variety of offices; specification writers; estimators with architectural, engineering, contracting, quantity surveying, manufacturing, or other offices; building inspectors; officials in real-estate or property management departments of major business firms or industries; appraisers and assessors in private and governmental offices; expediters, senior clerks, office managers in contractors' offices; superintendents of construction for architects, engineers, general or sub contractors; partners in construction organizations, particularly sub-trades; agents for manufacturers of building supplies and equipment; technicians in private or governmental building laboratories or agencies; teachers and instructors in public schools and universities, to name the more obvious possibilities.

In general, this course is creating a supply of highly qualified " assistant administrators " who will fill positions in the building world which lie between the professional architect, engineer, and contractor on the one hand and the vocationally trained draughtsman and tradesman on the other.

BUILDING TECHNOLOGY

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	General Physics	3	3
40.101	Design and Draughting	1	4
40.102	Building Construction	4	4
40.103	Building Services	1	2
40.104	Building Regulations	1	—
40.120	Building Structures	2	2
		17	18

Term 2

31.201	Writing and Contemporary Thought	2	1
32.226	Mathematics	3	2
33.201	General Physics	3	3
40.201	Design and Draughting	1	4
40.202	Building Construction	2	4
40.203	Building Services	2	1
51.202	Surveying	1	2
40.220	Building Structures	2	2
		16	19

YEAR 2 — *Term 3*

31.301	Writing and Contemporary Thought	1	1
40.301	Design	1	3
40.302	Building Construction	2	5
40.303	Building Services	2	2
40.305	Construction Specifications	3	—
40.306	Construction Estimating	3	1
40.320	Building Structures	1	4
90.230	Business	2	1
	Tutorials	—	3
		15	20

Term 4

31.401	Writing and Contemporary Thought	1	1
40.401	Design	1	3
40.402	Building Construction	2	5
40.403	Building Services	2	3
40.405	Construction Specifications	2	1
40.406	Construction Estimating	3	1
40.420	Building Structures	1	4
90.390	Work Study	1	1
	Tutorials	—	3
		13	22

General Prerequisite: Graduation on the Academic-Technica Programme.

Special Prerequisites: Mathematics 12 and any three of Physics 11, 12 and Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Draughting 11, 12; Construction 11, 12A, 12B.

Business Management

The accelerated development in recent years of scientific knowledge and industrial productivity has increased the complexity of modern business. This has stimulated competition to a very high degree, and in order to maintain its ability to compete, management has had to rely on a more scientific approach to managing. Specialists in many fields are employed to gather, analyse, interpret, and present information for management's use. With the increasingly specialized nature of modern business, young persons about to enter business must not only be eager, intelligent, and hard working, but must have specialized training as well. The curriculum of the Business Management technology embraces the technical nature of management practices, and consequently graduates from this programme are in high demand by prospective employers. Students will follow a prescribed course in one of the following programmes.

Administrative Management Programme

Students taking the Administrative Management Programme will concentrate their studies in the growing and dynamic aspects of modern administrative management services to be found in large and formally organized enterprises, small businesses, and government. Job opportunities lead to a wide selection of administrative management activities, with emphasis on getting things done through people.

Computer Programming and Systems Programme

The development of the computer in the last 10 years has provided the technical means which have made many of the present sophisticated techniques of management feasible. This field is probably the fastest-growing area in business, and students graduating in this option will be proficient in the design of systems using modern business machines and electronic computers. They will find many challenging and rewarding opportunities as operators, programmers, or systems analysts.

Financial Management Programme

The increasing complexity of modern business management is demonstrated nowhere more clearly than in the field of financial management. The recording and reporting of financial information are constantly being improved and up-dated. The use of financial data in making predictions and decisions has been revolutionized by the computer and the application of new techniques such as discounted cash flow. It is to train graduates in this growing and important field that the financial management programme has been designed.

Marketing Programme

The revolution in marketing calls for new emphasis in training to take advantage of the many satisfying job opportunities in buying, merchandising, industrial sales, advertising, and sales promotion. These occupations present as great a challenge to ambition and rewards for accomplishment as almost any other field of endeavour.

Technical Management Programme

Industrial technology is progressing even more rapidly and has created a demand for the man trained in both management methods and the basic engineering principles. Graduates of this programme are expected to find initial employment in industrial engineering or methods offices, technical sales or purchasing, cost analysis or estimating. These careers should lead toward a position in management.

Business Management

Administrative Management Programme

The Administrative Management Programme is designed to give the student a broad yet thorough understanding of modern business practices, and to fit him for efficient administrative performance. This programme provides the necessary background for young men and women who wish to enter positions in a wide range of businesses, industry, or government.

Following the basic subjects given in the earlier terms, the student will study a variety of interrelated subjects in the field of business. Course material covering the framework of the various subjects is supplemented by laboratory work designed to simulate actual business problem situations. Business case discussions, problem sessions, seminars, and field trips give the student full opportunity to take an active part in analysing problems, drawing conclusions from the data provided, making proposals, and suggesting solutions much as would be the case in actual situations. In this way the student gains confidence in his ability to participate in handling the many varied problems of business, and develops a competence and adaptability in those administrative techniques so necessary for the successful manager.

To the student taking this programme, opportunities are available in a choice of fields, including public utilities, governmental agencies, transportation, real estate, manufacturing, financial institutions, and a range of large and small businesses.

Administrative positions in these fields would involve such functions as planning, research, finance, business organization, personnel administration, and industrial relations. After appropriate job experience, opportunities would be at the intermediate level, such as office manager, department or branch manager.

Upon graduation, competent individuals with initiative who have an inquiring mind, diversified interests, a desire to see things done efficiently, and who enjoy working with people could find themselves launched on a rewarding career leading to important executive positions.

BUSINESS MANAGEMENT

ADMINISTRATIVE MANAGEMENT PROGRAMME

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.102	Business Writing and Contemporary Thought	2	1
90.103	Business Mathematics and Statistics	2	3
90.131	Management in Industry	1	2
90.135	Economics	1	3
90.140	Accounting	2	3
90.150	Introduction to Data Processing	2	2
90.170	Marketing	2	1
90.182	Office Systems and Equipment	1	2
	Tutorials	....	5
		13	22

Term 2

31.202	Business Writing and Contemporary Thought	2	1
90.203	Business Mathematics and Statistics	2	3
90.221	Psychology	2	1
90.232	Administrative Practices	1	3
90.235	Economics	2	2
90.240	Accounting	2	3
90.270	Marketing	2	1
90.296	Systems and Procedures	1	2
	Tutorials	....	5
		14	21

YEAR 2 — *Term 3*

		ADMINISTRATION OPTION Hours per Week Lec.	Lab.	MANPOWER MGT. OPTION Hours per Week Lec.	Lab.
90.391	Work Study	1	2	1	2
90.322	Human Relations	2	1	2	1
90.333	Industrial Processes	1	2	1	2
90.360	Business Law	2	1	2	1
90.361	Finance	2	2	2	2
90.352	Data Processing Applications	2	3	2	3
90.332	Estate Management	2	1	....	....
90.381	Communication Systems	1	1	....	....
90.321	Psychology	....	....	2	1
90.325	Industrial Relations	2	3	2	3
	Tutorials	....	4	....	6
		15	20	14	21

Term 4

90.424	Personnel Administration	2	3	2	3
90.434	Managerial Policy	1	2	1	2
90.360	Business Law	2	1	2	1
90.461	Finance	2	2	2	2
90.491	Work Study	1	3	1	3
90.432	Estate Management	2	1	....	....
90.443	Management Accounting	2	3	....	....
90.481	Transportation	2	1	....	....
90.425	Industrial Relations	....	....	2	3
90.427	Manpower Selection and Placement	....	....	2	3
	Tutorials	....	5	....	6
		14	21	12	23

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisite: Mathematics 12.
Subjects Desirable but Not Essential: French 11, English Literature 12, Economics 11, and any Accounting Specialty courses.

Computer Programming and Systems Programme

The development, in the last few years, of the electronic computer has resulted in what has been called a "second industrial revolution." Almost every field of human endeavour has been affected by this development, and computers are now used in such diversified areas as banking, libraries, business accounting, air-line ticket reservations, space flight, controlling railroads, predicting weather, calculating statistics for insurance companies, scientific research, and automatic control of factories, refineries, and power plants.

These applications of the electronic computer cannot be successfully established without an enormous amount of human planning and preparation. The computer is an extremely fast and reliable calculating device, but it must be given completely detailed instructions for every step in the calculation. This involves three main steps in the application of a computer to a problem. First, a complete analysis must be made of the problem, taking into account every conceivable situation that can arise. Second, an approach to the solution must be formulated showing the action to be taken in each different circumstance. Finally, the solution must be expressed in the form of a set of instructions to the computer.

These three steps comprise the work of the systems analyst and computer programmer, and the growth in the use of electronic computers has been so rapid and so extensive that there is a severe shortage of such personnel throughout the entire world.

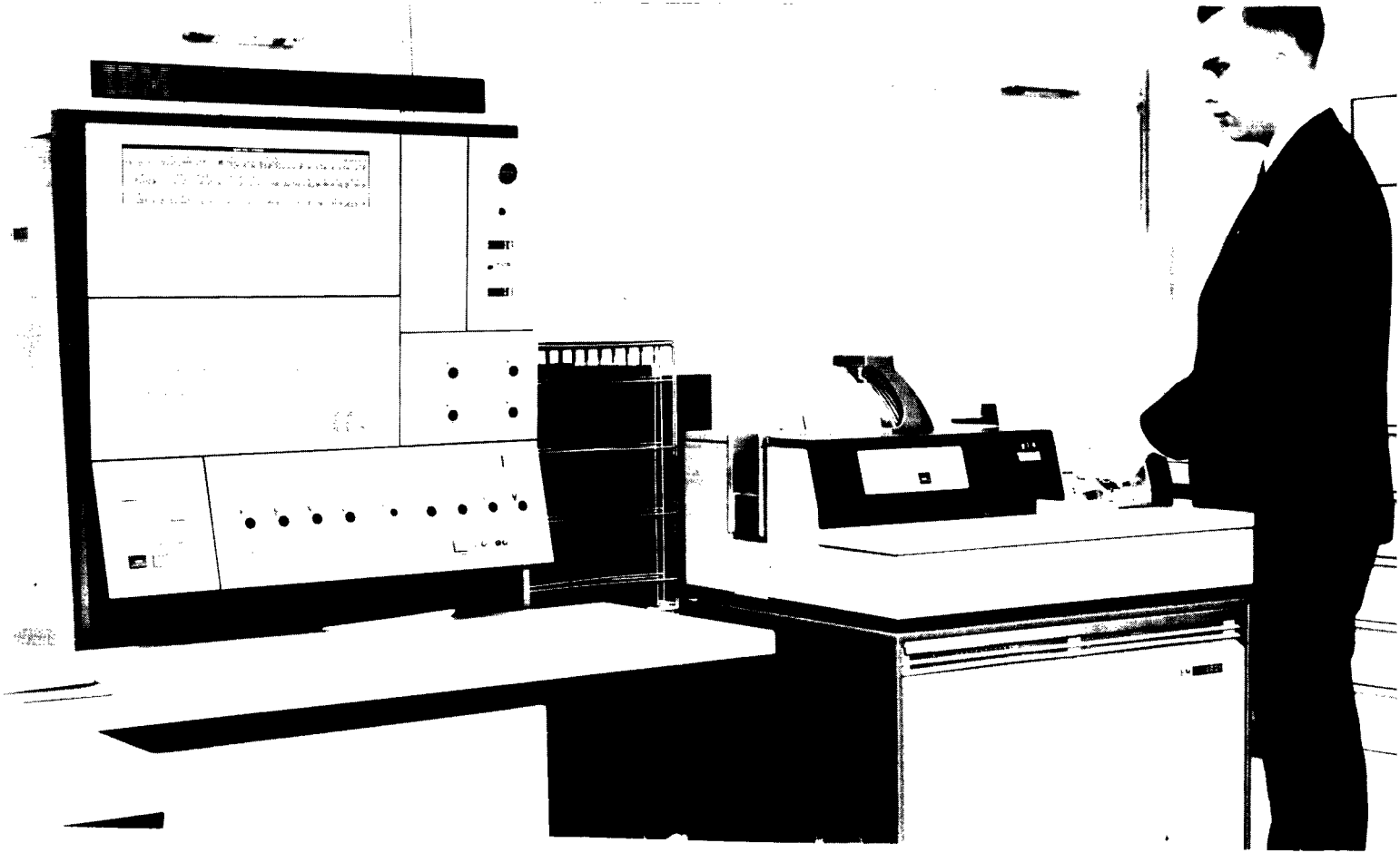
Current estimates indicate that the number of people directly involved with electronic computers in British Columbia will almost triple between 1967 and 1971.

The Computer Programming and Systems Programme is designed to train students to meet this demand for programmers and systems analysts. In the first year, basic business subjects such as accounting, economics, office equipment, etc., are studied, as well as the introductory courses in programming and systems. In the second year, students have the choice of concentrating either on business data-processing systems or on the more technical areas of mathematical, process-control, and data-communication programming.

Students wishing to enter this programme should have an analytical mind with a strong aptitude for logical reasoning, as well as a capacity for painstaking attention to detail.

Those interested in the Computing Science Option in the second year must also have an outstanding ability in mathematics and a keen interest in the physical sciences.

A graduate of this programme, with these qualities, is assured of employment in one of the most exciting and rapidly growing areas of modern technology.



BUSINESS MANAGEMENT

COMPUTER PROGRAMMING AND SYSTEMS PROGRAMME

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.102	Business Writing and Contemporary Thought	2	1
90.103	Business Mathematics and Statistics	2	3
90.131	Management in Industry	1	2
90.135	Economics	2	2
90.140	Accounting	2	3
90.150	Introduction to Data Processing	2	2
90.170	Marketing	2	1
90.182	Office Systems and Equipment	1	2
	Tutorials	....	5
		14	21

Term 2

31.202	Business Writing and Contemporary Thought	2	1
90.204	Mathematical Analysis I	2	3
90.235	Economics	2	2
90.240	Accounting	2	3
90.250	Computer Programming Principles	2	4
90.252	Punched Card Systems	1	2
90.270	Marketing	2	1
90.296	Systems and Procedures	1	2
	Tutorials	....	3
		14	21

YEAR 2 — *Term 3*

		Business Systems Hours per Week Lec.	Lab.	Computing Science Hours per Week Lec.	Lab.
31.302	Business Communications	1	1	1	1
90.322	Human Relations	2	1	2	1
90.350	360 Assembler Programming	2	6	2	6
90.396	Systems Analysis/Fortran (alternating)	2	3	2	3
90.190	Work Study	1	2	....	....
90.303	Mathematical Analysis II	1	2	....	....
90.341	Cost and Managerial Accounting	2	3	....	....
32.390	Calculus, Series and Differential Equations	....	....	2	4
32.391	Probability and Mathematical Statistics	....	....	2	2
48.350	Instrumentation	....	....	....	3
	Tutorials	....	6	....	4
		11	24	11	24

Term 4

90.450	360 Assembler and Operating Systems	2	6	2	6
90.496	Computer Systems/Cobol (alternating)	2	4	2	4
90.403	Mathematical Analysis III	1	2	....	....
90.404	Applied Statistics	1	2	....	....
90.434	Managerial Policy	1	2	....	....
90.441	Cost and Managerial Accounting	2	3	....	....
90.491	Work Study	1	3	....	....
90.497	Engineering Application Programmes	....	....	1	1
43.431	Digital Techniques	....	....	2	2
32.490	Numerical Analysis	....	....	1	2
32.491	Linear Algebra and Applications	....	....	1	2
32.492	Introduction to Operations Research	....	....	1	2
	Tutorials	....	3	....	6
		10	25	10	25

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisite: Mathematics 12.
Subjects Desirable but Not Essential: French 11, English Literature 12, Economics 11, and any Accounting Specialty courses.

Annual Report

...PANY OF CANADA, LIMITED and Subsidiary Companies

...STATEMENT OF INCOME AND RETAINED ... (with comparative figures for the year 1965)

	1966	1965
	$504,762,987	$[illegible]
	2,462,170	[illegible]
	$507,225,157	$[illegible]
	$398,165,780	$[illegible]
	29,499,952	[illegible]
	3,764,448	[illegible]
	5,977,067	[illegible]
	27,074,000	[illegible]
	$464,481,247	$[illegible]
	$ 42,743,910	$[illegible]
	[illegible]2,403,789	266,478,996
	[illegible]47,699	$303,932,866
	[illegible]2,194	$ [illegible]
	$104,629,505	$282,403,789

...Ten Years

...tained in the Business

MILLIONS OF DOLLARS

Capital Expenditures

THOUSANDS OF DOLLARS

CONSOLIDATED BALANCE SHEET December 31, 1966

(with comparative figures at December 31, 1965)

	1966	1965
CURRENT ASSETS		
Cash	$ 9,601,319	$ 7,576,235
Marketable securities, at cost (approximates quoted market value)	25,968,006	37,939,107
Accounts receivable	69,341,211	74,766,499
Inventories, at the lower of cost or market (Note 6)	114,176,797	121,112,044
Prepaid expenses	1,458,674	1,275,151
	$220,546,007	$242,669,036
SPECIAL REFUNDABLE TAX	$ 3,327,524	—
INVESTMENTS IN ASSOCIATED COMPANIES, at cost (Note 7)	$ 20,002,709	$ [illegible]
FIXED ASSETS	$846,692,975	$[illegible]
Property and equipment, at cost	382,380,139	[illegible]
Less Accumulated depreciation	$464,312,836	$346,[illegible]
TOTAL ASSETS	$708,189,076	$657,771,649
CURRENT LIABILITIES		
Accounts payable and accrued	$ 58,135,910	
Provision for income and other taxes	3,404,012	
Dividend and extra distribution payable	6,034,762	
Current portion of long term debt	14,411,00	
	$ 81,985,6[illegible]	
LONG TERM DEBT (Note 2)	59,726	
PROVISION FOR DEFERRED INCOME TAXES	133,7	
TOTAL LIABILITIES	$275,4[illegible]	
COMMON SHAREHOLDERS' EQUITY		
Common shares, no par value (Note 9)		
Authorized [illegible] shares	$128,098,886	
Issued [illegible] shares	304,429,505	
RETAINED EARNINGS [illegible] in the business	$432,528,391	
TOTAL SHAREHOLDERS' EQUITY	$708,189,076	$[illegible]
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		

[illegible]

Financial Management Programme

Financial management is a vital aspect of business life and continues to grow in importance as modern management techniques are developed and applied. The Financial Management Programme will enable students to train in this field by taking a general course of studies in their first year followed by specialized training in either Accounting or Finance.

Accounting Option

Accounting, which has frequently been called the "language of business," can be broken down into three parts—accounting systems, financial reporting, and auditing. The Accounting Option is concerned with all three aspects of accounting. The accounting system is dealt with in courses which cover manual systems, one-write systems, bookkeeping machines, the unit record installation, and the computer system. Financial reporting is introduced in the first year, and is dealt with extensively in the second year courses in Financial Accounting and Cost and Managerial Accounting. The Auditing Course builds upon the knowledge of accounting systems and financial reporting gained by the student in other courses.

Large organizations maintain departments to perform the accounting functions of financial accounting, cost accounting, internal audit, and budget preparation. Many jobs are open in these departments at the middle management level. That the graduate can enter accounting positions upon leaving the British Columbia Institute of Technology does not mean that his training should be considered at an end. The faculty of the option maintain active and close liaison with the professional accounting associations in British Columbia, and the graduate who wants to undertake the training they offer is in an advantageous position as a result of the courses he has taken at the Institute.

Finance Option

Finance is an essential part of business management. No undertaking can begin or continue unless it has financing. Finance is the concern of business firms as they seek funds for existing and new operations. Finance is the concern of financial institutions, as they provide funds for the business firms. The courses in Finance and Security Analysis deal specifically with decision-making in the finance field. The Financial Accounting Course contains coverage of bond, surplus, and dividend transactions, together with specialized coverage of business reorganization, merger, and amalgamation. The provision of funds is dealt with in depth in the Financial Institutions Course, the Money and Banking Course, and the course dealing specifically with the money market.

Many job opportunities exist for graduates in this option. Financial institutions such as banks, trust companies, insurance companies, and finance companies offer a wide range of occupations. These institutions are increasingly aware of the need for post-high-school training. Business firms also offer opportunities in their finance departments for option graduates. After appropriate job experience, opportunity for advancement to the intermediate level of branch manager and beyond would exist.

A student wishing to enter either the Accounting Option or the Finance Option should have an inquiring mind and enjoy working with people. A capacity to reason clearly and to work hard is also required. A student who comes with these qualities and a determination to succeed will be assured of employment in a field of absorbing interest and continuing challenge.


ACCOUNTS PAYABLE METHODS
ACCOUNTING PROCEDURE
RECEIVING
CONTROL
AUDIT
ACCOUNTS PAYABLE METHODS
DISBURSEMENT ACCOUNTING
SOURCE
PRE-CHECK PREPARATION
DETAIL ACCOUNTING
GENERAL LEDGER

BUSINESS MANAGEMENT

FINANCIAL MANAGEMENT PROGRAMME

No.	Subject	Hours per Week Lec.	Lab.
	YEAR 1 *Term 1*		
31.102	Business Writing and Contemporary Thought	2	1
90.103	Business Mathematics and Statistics	2	3
90.131	Management in Industry	1	2
90.135	Economics	2	2
90.140	Accounting	2	3
90.150	Introduction to Data Processing	2	2
90.170	Marketing	2	1
90.182	Office Systems and Equipment	1	2
	Tutorials	—	5
		14	21
	Term 2		
31.202	Business Writing and Contemporary Thought	2	1
90.203	Business Mathematics and Statistics	2	3
90.232	Administrative Practices	1	2
90.235	Economics	2	2
90.240	Accounting	2	3
90.245	Credit and Collections	2	1
90.270	Marketing	2	1
90.296	Systems and Procedures	1	2
	Tutorials	—	6
		14	21

No.	Subject	Accounting Option Hours per Week Lec.	Lab.	Finance Option Hours per Week Lec.	Lab.
	YEAR 2 *Term 3*				
90.390	Work Study	1	2	1	2
90.322	Human Relations	2	1	2	1
90.332	Estate Management	—	—	2	1
90.341	Cost and Managerial Accounting	2	3	—	—
90.346	Auditing	2	1	—	—
90.347	Financial Accounting	2	3	2	3
90.352	Data Processing Applications	2	3	—	—
90.360	Business Law	2	1	2	1
90.361	Finance	2	2	2	2
90.364	Financial Intermediaries	—	—	2	2
90.365	Money and Banking	—	—	2	2
	Tutorials	—	4	—	6
		15	20	15	20
	Term 4				
90.424	Personnel Administration	2	1	2	1
90.432	Estate Management	—	—	2	1
90.434	Managerial Policy	1	2	1	2
90.441	Cost and Managerial Accounting	2	3	—	—
90.446	Auditing	2	1	—	—
90.447	Financial Accounting	2	3	2	3
90.452	Business Computer Programming	2	2	—	—
90.460	Business Law	2	1	2	1
90.461	Finance	2	2	2	2
90.464	The Money Market	—	—	2	2
90.466	Security Analysis	—	—	2	2
	Tutorials	—	5	—	6
		15	20	15	20

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisite: Mathematics 12.
Subjects Desirable but Not Essential: English Literature 12, Economics 11, and any Accounting Specialty courses.


JAMAS

Marketing Programme

The stature of marketing within our society continues to grow.

The tremendous growth of our productive capacity made possible by the accelerating rate of technological innovation demands dynamic marketing practices, intense cultivation of markets, and intelligent, resourceful, trained marketing people to carry out the varied marketing functions.

It also requires an increasing number of graduates equipped with an understanding of the objectives, concepts, principles, methods, and problems of marketing, graduates who have an aptitude and flair for responding to the challenges of a dynamic society where wants and needs are continually changing.

To meet this need, the Institute makes extensive use of the most modern methods of instruction, provides for guests from industry to lecture in their respective fields of specialization, and requires active participation of the student in business settings, through field trips, group projects, seminars, and case studies.

Commencing with the 1967–68 academic year, as a consequence of growth both in enrolments and career opportunities, provision has been made for additional specialization within the marketing field. The objective of course is to bring the student closer to the point where he can make an effective contribution in his career occupation after graduation.

Two options will be available in the Marketing Programme. Following a common first year, students may elect either the Marketing Management Option or the Retail Marketing Option.

The former prepares students for careers in sales and sales management, advertising and sales promotion, and marketing research.

The latter is a preparation for a career in retailing.

Both options lead to careers in fields where the rewards for accomplishment are prompt and substantial.

BUSINESS MANAGEMENT

MARKETING PROGRAMME

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.102	Business Writing and Contemporary Thought	2	1
90.103	Business Mathematics and Statistics	2	3
90.131	Management in Industry	1	2
90.135	Economics	2	2
90.140	Accounting	2	3
90.150	Introduction to Data Processing	2	2
90.170	Marketing	2	1
90.182	Office Systems and Equipment	1	2
	Tutorials	....	5
		14	21

Term 2

31.202	Business Writing and Contemporary Thought	2	1
90.203	Business Mathematics and Statistics	2	3
90.235	Economics	2	2
90.240	Accounting	2	3
90.270	Marketing	2	1
90.296	Systems and Procedures	1	2
90.245	Credit and Collections	2	1
90.275	Salesmanship	2	1
90.271	Selected Marketing Institutions	1	1
	Tutorials	....	4
		16	19

YEAR 2 — *Term 3*

No.	Subject	Retail Marketing Option Hours per Week Lec.	Lab.	Marketing Management Option Hours per Week Lec.	Lab.
90.322	Human Relations	2	1	2	1
90.360	Business Law	2	1	2	1
90.373	Advertising and Sales Promotion	2	3	2	3
90.374	Marketing Research—Theory	2	1	2	1
90.389	Consumer Behaviour	2	2	2	2
90.342	Retail Merchandise Accounting	2	2	....	....
90.384	Retailing	2	2	....	....
90.385	Fashion and Æsthetics*	2	3	....	....
90.383	Wholesaling†	....	....	2	1
90.386	Imports and Exports	....	....	2	3
90.387	Market Planning	....	....	2	2
	Tutorials	....	4	....	5
		16	19	16	19

Term 4

90.424	Personnel Administration	2	2	2	2
90.460	Business Law	2	1	2	1
90.473	Advertising and Sales Promotion	2	3	2	3
90.474	Marketing Research—Applied	1	3	1	3
90.434	Managerial Policy	1	2	1	2
90.488	Transportation and Materials Handling	2	1	2‡	1
90.442	Retail Merchandise Accounting	2	2	....	....
90.472	Merchandising	2	3	....	....
90.443	Management Accounting	....	....	2	3
90.476	Sales Management	....	....	2	1
	Tutorials	....	4	....	5
		14	21	14	21

* Possible alternate elective: 90.379 Food Merchandising.
† Alternate elective: 90.332 Estate Management.
‡ Alternate elective: 90.432 Estate Management.

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisite: Mathematics 12.
Subjects Desirable but Not Essential: French 11, English Literature 12, Economics 11, and any Accounting Specialty courses.

Technical Management Programme

Modern industry has created a demand for a new kind of technologist. He is the man who combines a mathematical and scientific interest in solving industrial problems. He needs a sound knowledge of both business operations and engineering fundamentals and procedures. The training he receives will lead him to a career in problem-solving as a methods analyst in plant or office, or possibly into a position as technician in an industrial engineering office.

Graduates of this programme whose interests centre on the communication of ideas, rather than the creation of solutions, will find this training to be a solid foundation for a career in technical sales or purchasing. Others, whose interests relate to the control of business, may proceed into careers in cost analysis or estimating.

The job opportunities in these areas are expanding rapidly because modern business is becoming more and more technical. With more money being spent in research than ever before, products are being developed which require businessmen to extend their technical knowledge in order to produce, market, purchase, and use them. This development, coupled with increased competition, requires that more and more attention be given to operating cost and methods. In many cases, products are produced which must be profitable from their introduction to the market because they become technically obsolete within a few years.

The person who wishes to work and progress in this environment requires specific attributes. He must have good ability and interest in the applications of mathematics, coupled with the potential to communicate effectively in English. He must be mature and able to share ideas with a wide range of people. A sense of curiosity toward mechanical and electrical devices is beneficial especially if associated with the talent to put this to use. In general, he must have the ability to acquire a higher education and have a desire to use the tools of the technologist in a modern business environment.

To provide students with the basic tools, this programme provides subjects in both business and the basic engineering technologies. These subjects will provide training to enable the student to operate at a practitioner level and will consequently stress applications. Some subjects will, of course, emphasize theoretical knowledge (e.g., mathematics), which will be necessary in order to understand some of the more advanced topics.

Trips will be arranged to demonstrate the application of various techniques in industry. This will be complemented by guest lecturers who have special knowledge in particular areas. These approaches ensure that the programme remains oriented toward industrial practice. Students graduating from this programme will have a sound base from which to progress toward a management career.

BUSINESS MANAGEMENT

TECHNICAL MANAGEMENT PROGRAMME

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.102	Introductory Physics	3	3
49.101	Draughting	—	3
49.106	Applied Mechanics A	2	3*
90.110	Problems Laboratory	1	3*
90.140	Accounting	2	3
90.150	Introduction to Data Processing	2	2
	Tutorials	—	3
		15	20

Term 2

31.201	Writing and Contemporary Thought	2	1
32.224	Mathematics	3	2
33.202	Introductory Physics	3	3
49.206	Engineering Concepts	2	2
49.267	Introduction to Machine Tools	1	3
90.210	Applied Programming	1	3
90.240	Accounting	2	3
	Tutorials	—	4
		14	21

YEAR 2 — *Term 3*

32.303	Mathematics	3	2
90.135	Economics	2	2
90.314	Work Measurement	2	4
30.315	Method Study	2	3
90.316	Systems and Procedures Analysis	2	1
90.322	Human Relations	2	1
90.343	Cost Accounting	2	3
	Tutorials	—	4
		15	20

Term 4

32.456	Mathematics	3	2
90.235	Economics	2	2
90.410	Business Engineering Problems	3	5
90.412	Industrial Organization and Operation	4	4
90.417	Materials Handling and Control Equipment	2	1
90.424	Personnel Administration	2	1
	Tutorials	—	4
		16	19

* Three hours alternating each week.

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisite: Mathematics 12.
Subjects Desirable but Not Essential: Physics 11, English Literature 12.

Chemical and Metallurgical Technology

The programme in Chemical and Metallurgical Technology provides instruction to those men and women wishing to enter the process industries—either in the laboratory, in the production department, in the engineering department, or in the technical sales department. As the technology encompasses a broad range of industries and sciences, the training emphasizes mathematics, physics, and chemistry, and their application to general problems recurring in the chemical process industries, rather than to specific problems peculiar to a single industry. Consequently, the first year is quite general; in addition, the tutorials, a Unit Processes course, and a workshop course are unique to this programme.

In the second year the curriculum provides considerable analytical laboratory practice together with such production and engineering training as work study, unit operations, and instrumentation. In addition, the student is given the option of taking one subject in advanced organic chemistry, in physical metallurgy, or in extractive metallurgy.

In this way a graduate will be equipped to enter the industry of his choice in either the sales, production, engineering, or laboratory department.

Typical of the chemical process industries that will engage graduates from the programme are oil refineries, chlorine and caustic soda producers, beet and cane sugar refiners, cement producers, lime and gypsum producers, plastic and resin producers; copper, lead, zinc, and other metal smelters; aluminum, iron and steel, magnesium, and bronze smelters; metal fabricators and heat treaters; pulp and paper mills, and cellulose chemical producers; and mining companies engaged in both exploration and production. Typical of the positions graduates would seek upon entering industry would be as chemists and analysts in research, commercial, and industrial laboratories, as engineering assistants in engineering departments of industrial and consulting companies, as production supervisor trainees in production plants, or as technical sales trainees in the sales departments of chemical process industries or equipment manufacturers.

NIKON
32309

CHEMICAL AND METALLURGICAL TECHNOLOGY

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	Physics	3	3
41.103	Engineering Materials	2	3*
30.101	General Chemistry	3	3
49.101	Draughting	—	3
41.102	Laboratory Workshop	—	3
90.230	Business	2	1
	Tutorials	—	4/1*
		15	20

Term 2

31.201	Writing and Contemporary Thought	2	1
32.223	Mathematics	3	2
33.201	Physics	3	3
30.201	General Chemistry	3	3
30.304	Chemical Laboratory Techniques	—	3
41.203	Engineering Materials	2	3*
41.207	Unit Processes	2	2
49.201	Draughting	—	3
	Tutorials	—	3/1*
		5	20

* Alternate weeks.

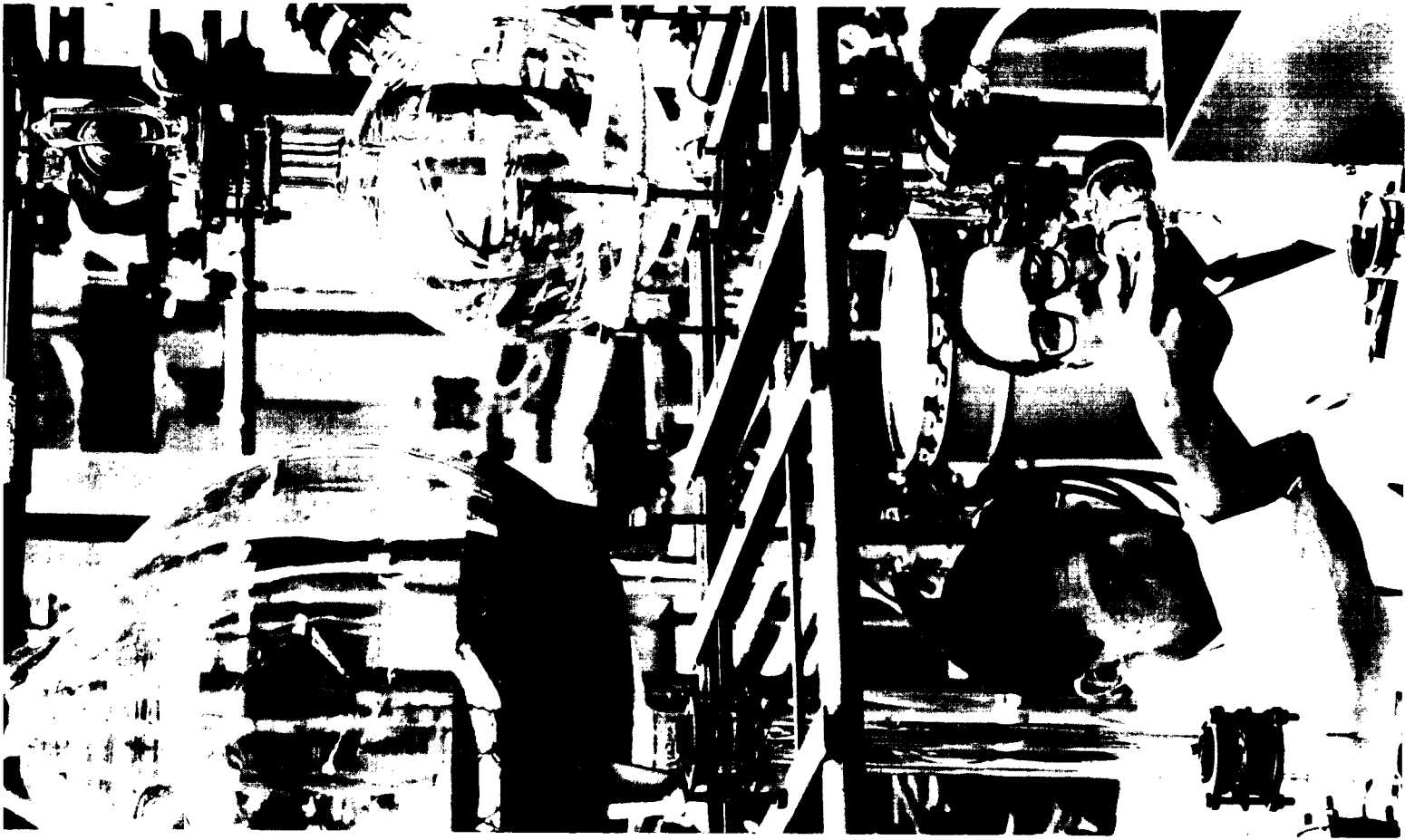
INDUSTRIAL CHEMISTRY OPTION

YEAR 2 — *Term 3*

No.	Subject	Hours per Week Lec.	Lab.
31.301	Writing and Contemporary Thought	1	1
32.306	Mathematics	3	2
30.301	Organic Chemistry	2	4
30.302	Physical Chemistry	2	3
41.303	Analytical Chemistry	2	4
48.350	Instrumentation	—	3
47.341	Unit Operations	3	3
	Tutorials	—	2
		13	22

Term 4

31.401	Writing and Contemporary Thought	1	1
32.445	Mathematics	3	2
41.403	Analytical Chemistry	2	4
30.401	Organic Chemistry	2	4
48.450	Instrumentation	—	3
47.441	Unit Operations	3	3
90.390	Work Study	2	—
	Tutorials	—	5
		13	22



PHYSICAL METALLURGY OPTION

YEAR 2 — *Term 3*

No.	Subject	Hours per Week Lec.	Lab.
30.301	Writing and Contemporary Thought	1	1
32.306	Mathematics	3	2
30.302	Physical Chemistry	2	3
41.303	Analytical Chemistry	2	4
41.304	Physical Metallurgy	2	4
48.350	Instrumentation	---	3
47.341	Unit Operations	3	3
	Tutorials	---	2
		13	22

Term 4

31.401	Writing and Contemporary Thought	1	1
32.445	Mathematics	3	2
41.403	Analytical Chemistry	2	4
41.404	Physical Metallurgy	2	4
48.450	Instrumentation	---	3
47.441	Unit Operations	3	3
90.190	Work Study	2	---
	Tutorials	---	5
		13	22

EXTRACTIVE METALLURGY OPTION

Term 3

No.	Subject	Hours per Week Lec.	Lab.
31.301	Writing and Contemporary Thought	1	1
32.306	Mathematics	3	2
41.307	Extractive Metallurgy	2	3
30.302	Physical Chemistry	2	3
41.303	Analytical Chemistry	2	4
48.350	Instrumentation	---	3
47.341	Unit Operations	3	3
	Tutorials	---	2
		14	21

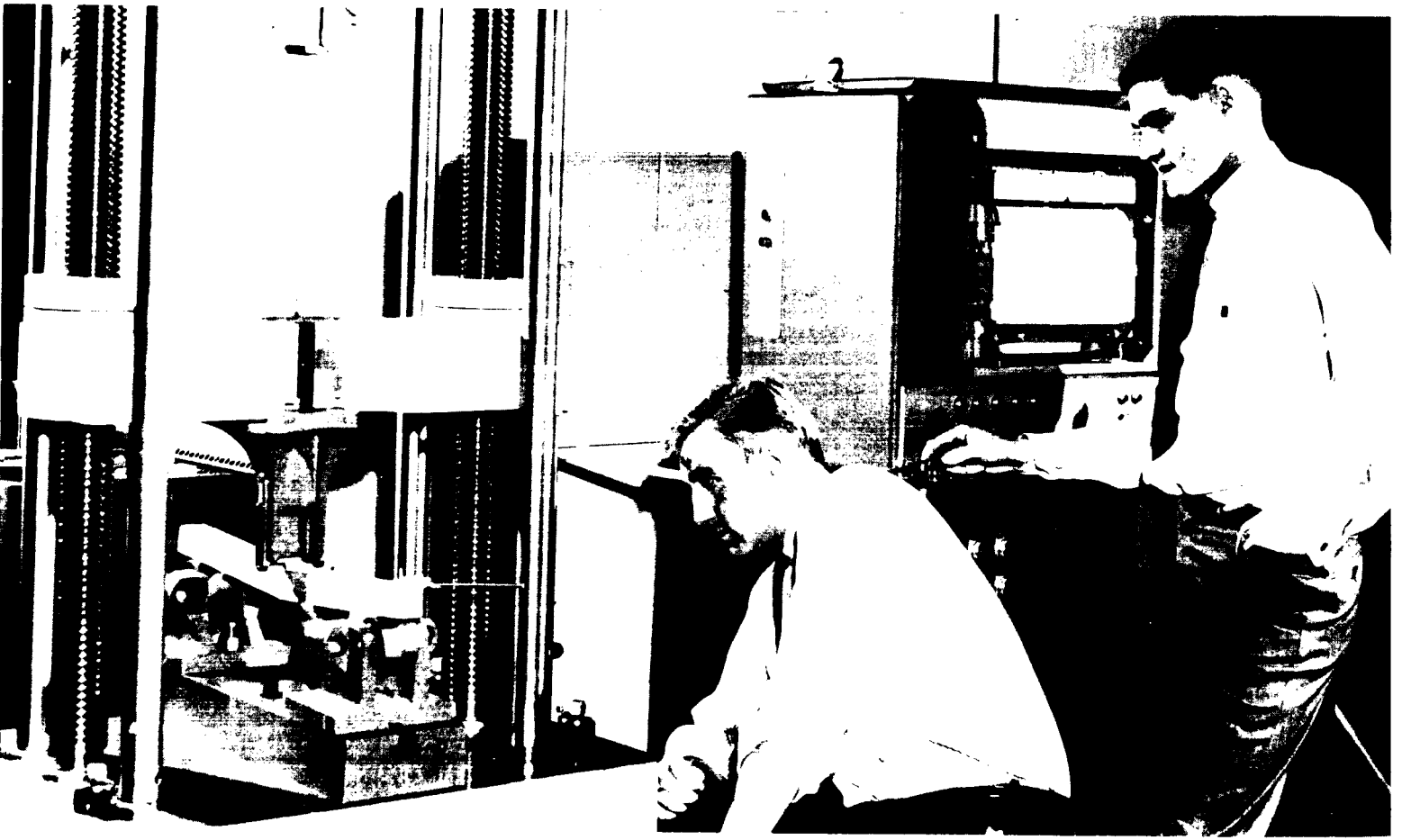
Term 4

31.401	Writing and Contemporary Thought	1	1
32.445	Mathematics	3	2
41.407	Extractive Metallurgy	3	3
41.408	Assaying	---	3
41.403	Analytical Chemistry	2	4
48.450	Instrumentation	---	3
47.441	Unit Operations	3	3
90.190	Work Study	2	---
	Tutorials	---	2
		14	21

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and any three of Physics 11, 12 and Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Draughting 11 and Mechanics 11.



Civil and Structural Technology

Civil and Structural Technology, which creates the physical facilities for the civilized environment, is concerned with the design and construction of bridges, highways, railways, airports, dams, power developments, canals, docks, harbours, and buildings of all kinds, as well as drainage, irrigation, sewage, and water-supply systems.

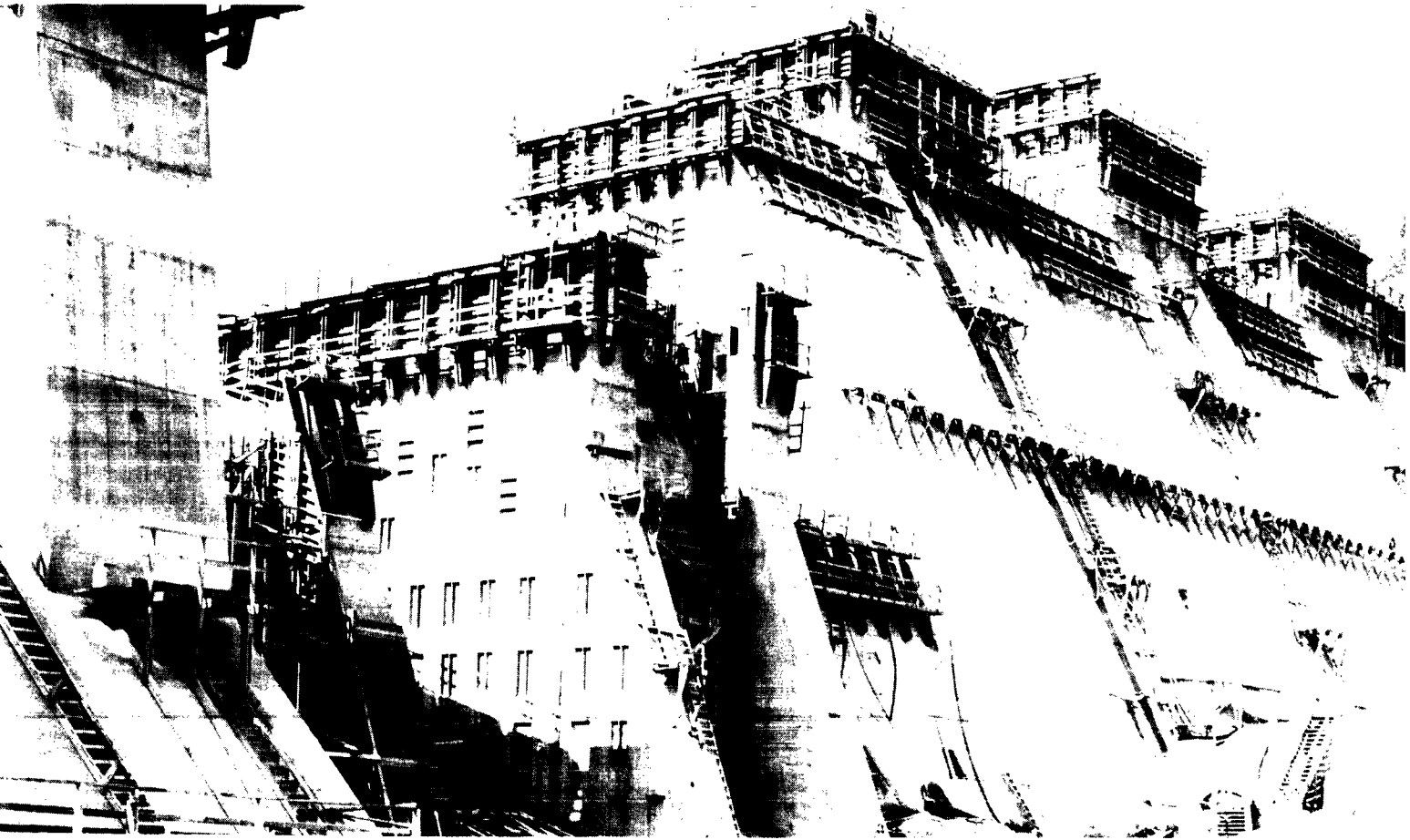
In Canada, and particularly in British Columbia, with the economy developing rapidly, a great demand exists for trained technicians. Specifically designed to train civil and structural technicians, this programme will provide a man with sufficient specialized knowledge to make him immediately capable of playing a useful role in the economy. In addition, the programme prepares him to adapt to demands of the future.

The programme provides a foundation in mathematics and the applied sciences for continued technical growth, and in English for the ability to set forth, in clear and precise language, descriptions and analyses of projects and engineering activities. The methods of instruction are planned to develop the initiative of the student while training him in habits of accurate analysis and careful work. In addition, frequent field trips will be made to appropriate projects to demonstrate at first hand the technology in operation. A student is encouraged to secure summer work which will give him an insight into various aspects of the career upon which he is about to enter.

A graduate may be employed as an inspector or supervisor in the contracting field, as an investigating or laboratory technician, or as a design or field technician in a consultant's office. He may be employed by municipal, provincial, or federal agencies, by consulting engineers, architects, and contractors, or in technical sales.

Candidates must have a sound knowledge of mathematics, physics, and English, and preferably some training in draughting. An interest in the practical application of scientific principles is essential.

This field frequently involves both indoor and outdoor assignments and requires keenness to take up the challenge offered by a fast-expanding industry demanding initiative and responsibility from its employees.



CIVIL AND STRUCTURAL TECHNOLOGY

No.	YEAR 1 — *Term 1* — Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	General Physics	3	3
49.101	Draughting	....	3
51.102	Surveying	....	3
42.101	Civil Engineering	5	7
	Tutorials	....	3
		13	22
	Term 2		
31.201	Writing and Contemporary Thought	2	1
32.223	Mathematics	3	2
33.201	General Physics	3	3
49.201	Draughting	....	3
51.202	Surveying	....	3
42.201	Civil Engineering	5	8
	Tutorials	....	2
		13	22
	YEAR 2 — *Term 3*		
31.301	Writing and Contemporary Thought	1	1
32.304	Mathematics	3	2
51.304	Surveying	....	3
42.301	Civil Engineering	8	11
	Tutorials	....	3
	Electives	1	2
90.391	Work Study (Civil and Traffic)	....	....
90.390	Work Study (Structurals)	....	....
		13	22
	Term 4		
31.401	Writing and Contemporary Thought	1	1
32.456	Mathematics	3	2
51.404	Surveying	....	3
90.351	Computer Programming	1	1
	Tutorials	....	4
	Electives	6	13
42.401	Civil Engineering (Civil)	....	....
42.402	Civil Engineering (Traffic)	....	....
42.403	Civil Engineering (Structural)	....	....
		11	24

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 plus any three of Physics 11, 12 and Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Draughting 11, 12, Construction 11, 12A, 12B, Mechanics 11.

REGULATOR

Electrical and Electronics Technology

The electrical and electronics industry, vital to every aspect of Canadian life, continues to grow rapidly. It provides power needed by industry (the use of electrical energy in Canada doubles every 10 years), supplies facilities for the ever-increasing requirements of communications, serves the needs of automation, transportation, defence, and our personal comforts. New products and methods are continually being developed to meet new demands. Consequently, there is a continuing and increasing need for men and women well trained in the principles and practical application of electricity and electronics to apply their talents and assume positions of importance in an ever-expanding and interesting field.

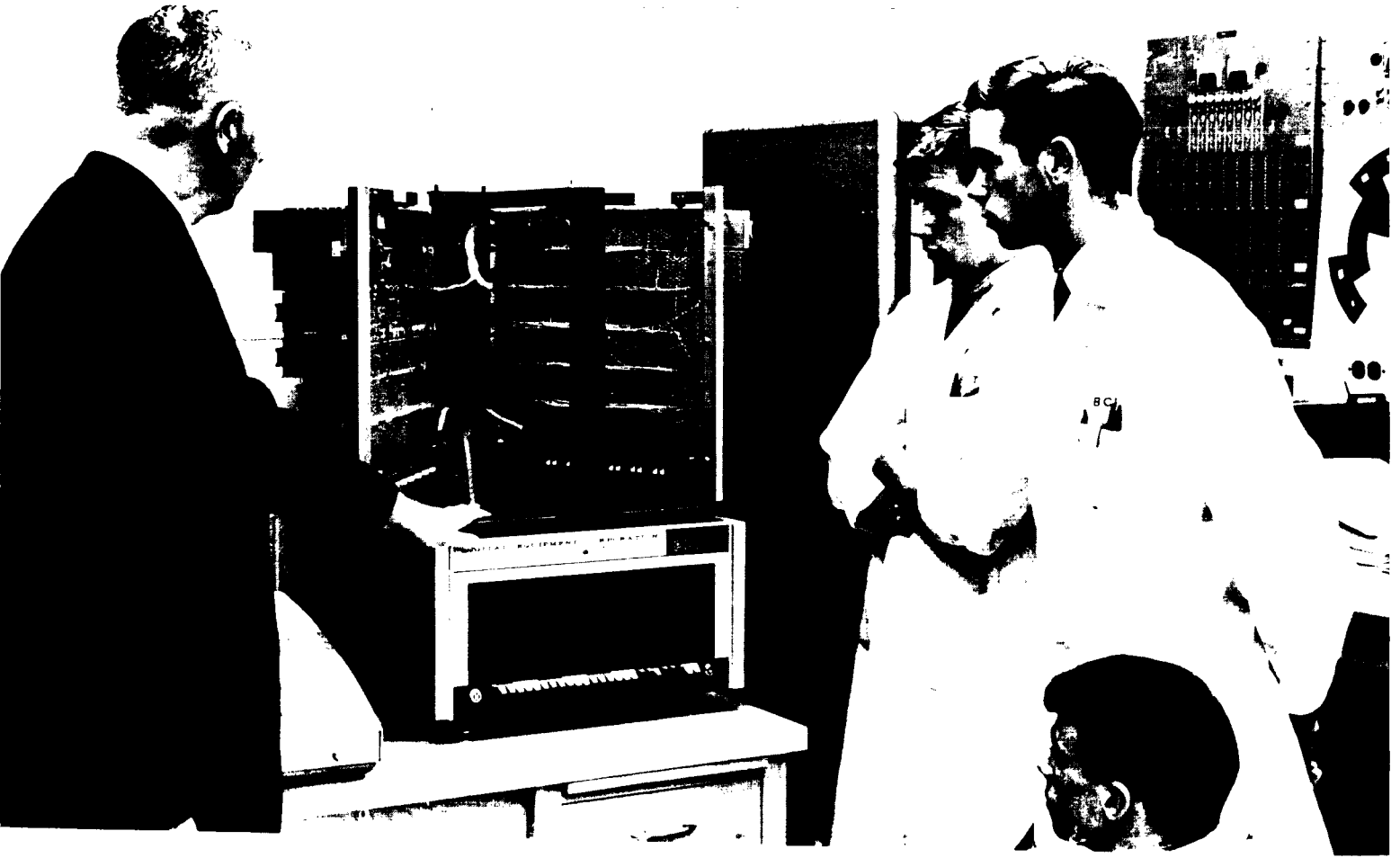
The objective of the two-year Electrical and Electronics Technology programme is to provide sufficient training for the graduate to enter industry at the para-professional level as an engineering assistant or technologist. A broad training is given in fundamentals and industrial practices, qualifying the graduate to enter a variety of fields in an industry which provides many opportunities.

Two options are offered—Electrical Power and Electronics. The programme in the first three terms is identical in both options, with special emphasis on electrical and electronics principles, with essential back-up subject-matter provided by a series of service courses.

The fourth term of the programme is entirely applications oriented; for example, the Electronics Systems and Power Systems Courses relate the previously learned principles to the industrial environment which the student will encounter upon graduation.

Throughout the entire two-year period the student will spend approximately one-half of his time in the up-to-date laboratories, confirming the results of theoretical studies and carrying out personal investigations.

Graduates from the Electrical and Electronics Technology are employed in research, development, production, sales, installation, and service in both commercial companies and government agencies.



ELECTRICAL AND ELECTRONICS TECHNOLOGY

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.170	Mathematics	5	4
33.101	General Physics	3	3
43.102	Electrical Circuits	5	5
49.166	Mechanical Components	....	2
49.101	Draughting	....	3
	Tutorials	....	2
		15	20

Term 2

31.201	Writing and Contemporary Thought	2	1
32.270	Mathematics	5	4
33.201	General Physics	3	3
43.202	Electrical Circuits	3	2
43.205	Electronics Circuits	2	2
49.201	Draughting	....	3
30.202	General Chemistry	2	2
	Tutorials	....	1
		17	18

YEAR 2 — *Term 3*

31.301	Writing and Contemporary Thought	1	1
32.370	Mathematics	3	2
33.301	Physics	2	....
43.301	Electrical Equipment	2	3
43.302	Electrical Circuits	2	2
43.303	Measurements	2	2
43.305	Electronics Circuits	2	3
43.306	Digital Techniques	3	3
	Tutorials	....	2
		17	18

Term 4

		Power Option Hours per Week Lec.	Lab.	Electronics Option Hours per Week Lec.	Lab.
43.404	Control Systems	3	3	3	3
43.411	Electrical Equipment	4	4	....	....
43.412	Circuit Analysis	2	3	....	....
43.414	Power Systems	4	4	....	....
43.419	Special Projects and Tutorials	1	5	....	....
43.420	Electronic Systems	....	....	4	4
43.421	Communications	....	....	2	2
43.425	Pulse Circuits	....	....	3	3
43.427	Microwave Techniques	....	....	2	2
43.429	Special Projects and Tutorials	....	....	....	5
90.230	Business	1	1	1	1
		15	20	15	20

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 plus any three of Physics 11, 12 and Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Economics 11, Draughting 11, Mechanics 11, Electricity 11, Industrial Power 11.

Food Technology

Our abundance of food, more nutritious, appetizing, and convenient today than ever before, can be attributed in large part to technological progress. The application of scientific methods is rapidly changing both the production of raw food materials and the processing of finished food products. As a result, skilled personnel, including technicians, are required to oversee and control the complex operations of our modern food industry. The Food Technology programme, consisting of two options, Food Production and Food Processing, is designed to provide these trained technicians.

The Food Production Option provides for a thorough grounding in the basic sciences which lead to more specialized courses in Crop, Animal, and Soil Technologies and, in addition, offers a sound training in the analytical, mechanical, and business aspects of modern agricultural production.

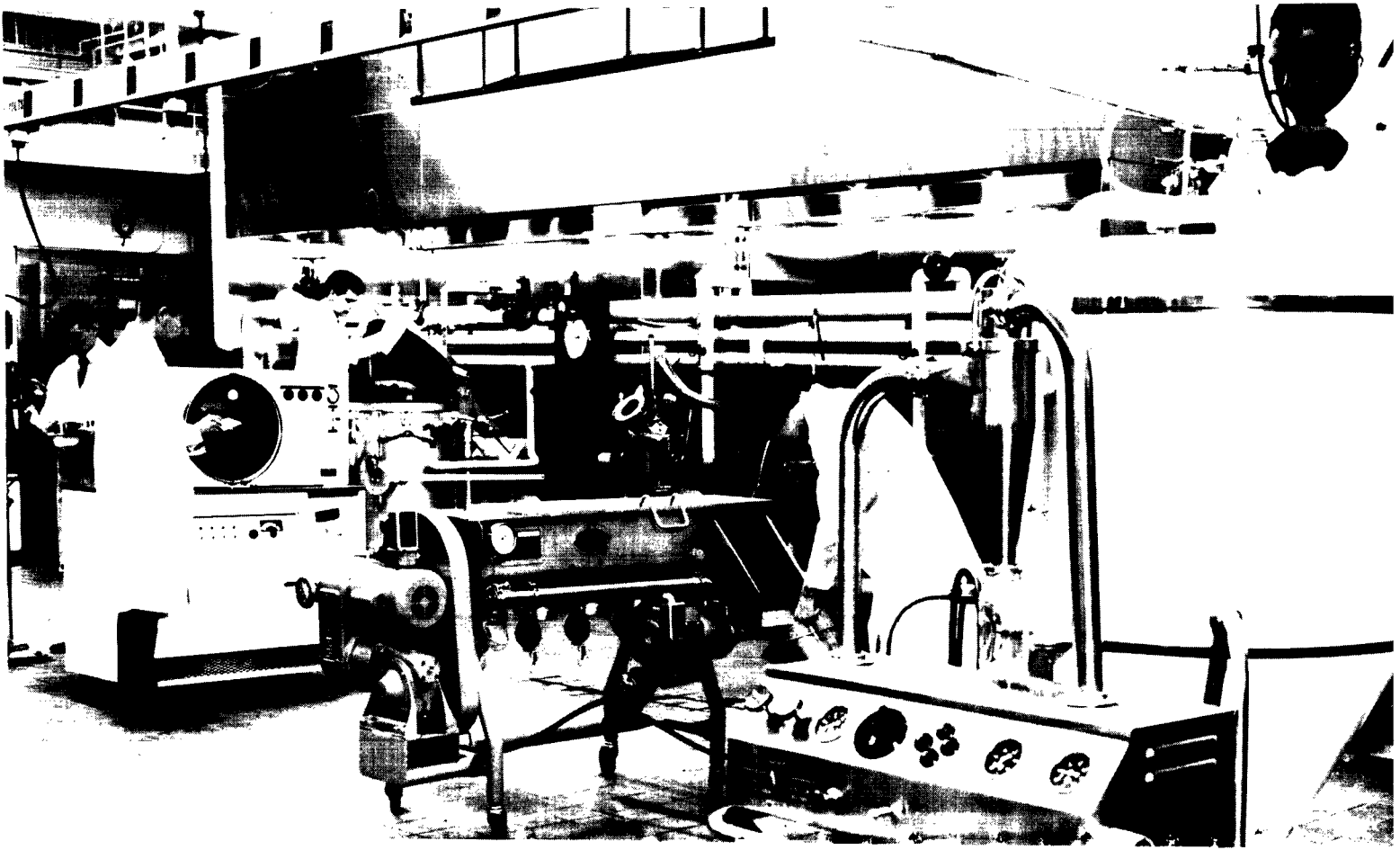
In the laboratory, the student will learn to apply knowledge of specialities such as genetics, nutrition, pathology, chemistry, microbiology, statistics, and business, to the improvement of man's food supply from plant and animal sources. Laboratory sessions will be supplemented with field trips to observe actual agricultural operations.

The graduate in the Food Production Option will have many employment avenues open to him, each leading to a worth-while career opportunity; for example, trained technicians are required for the laboratory control and marketing of agricultural chemicals, feeds, and fertilizers, and also in the field operations of food-manufacturing concerns. Additional job opportunities exist in inspection services and in government and industry research operations. There are almost limitless opportunities for rewarding careers in this basic and important sector of our nation's economy.

The Food Processing Option is planned, first, to provide a sound knowledge of the basic sciences and, second, to proceed to more advanced technical courses in quality-control methods, food analysis, food preservation, sanitation, instrumentation, processing machinery, and business management.

The Institute has a well-equipped experimental processing laboratory that enables the student to become familiar with a wide variety of food processing methods and testing procedures. Organized trips to industrial food plants and laboratories will allow him to study and observe the operations performed in commercial food manufacturing, testing, and research.

The graduate in the Food Processing Option will be well qualified to seek employment in the many branches of the food-manufacturing industry; for example, technicians are required in quality-control laboratories where chemical, physical, and bacteriological tests are performed on food materials before and during processing, and on the finished packaged products. The graduate will also be qualified to operate special equipment and to supervise processes within the food plant itself. Further employment opportunities exist in government laboratories and inspection services. Opportunities for advancement are good.



FOOD TECHNOLOGY

No.	Subject	Hours per Week Lec.	Lab.
	YEAR 1 *Term 1*		
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
30.101	General Chemistry	3	3
33.102	Introductory Physics	3	3
44.121	Food Microbiology	2	4
44.122	Biology	2	3
	Tutorials	—	4
		15	20
	Term 2		
31.201	Writing and Contemporary Thought	2	1
32.246	Mathematics	3	2
30.201	General Chemistry	3	3
33.202	Introductory Physics	3	3
44.221	Food Microbiology	2	3
	Tutorials	—	4
44.201	Food Processing	—	—
44.251	Food Production	3	3
		16	19
	YEAR 2 *Term 3*		
31.301	Writing and Contemporary Thought	1	1
30.303	Instrumental Analytical Methods	2	3
44.312	Introductory Food Analysis	2	3
44.341	Mechanics of Machines	2	3
	Tutorials	—	2
48.350	Instrumentation	—	—
90.230	Business	—	—
44.301	Food Processing	—	—
44.311	Quality Control	—	—
44.361	Crop Technology	3	3
44.371	Animal Technology	2	3
44.381	Soil Technology	2	3
		14	21
	Term 4		
31.401	Writing and Contemporary Thought	1	1
	Tutorials	—	3
48.450	Instrumentation	—	—
90.390	Introduction to Work Study	—	—
44.401	Food Processing	—	—
44.402	Process Analysis	—	—
44.411	Quality Control	—	—
44.412	Food Analysis	—	—
44.431	Sanitation	—	—
90.230	Business	1	1
90.351	Scientific Computer Programming	1	1
44.413	Agricultural Analysis	2	3
44.414	Experimental Techniques	2	3
44.442	Agricultural Mechanics	2	3
44.462	Crop Protection	3	3
44.471	Animal Technology	2	3
		14	21

No.	Subject	Food Production Option Hours per Week Lec.	Lab.	Food Processing Option Hours per Week Lec.	Lab.
	YEAR 1 *Term 1*				
31.101	Writing and Contemporary Thought	2	1	2	1
32.101	Mathematics	3	2	3	2
30.101	General Chemistry	3	3	3	3
33.102	Introductory Physics	3	3	3	3
44.121	Food Microbiology	2	3	2	3
44.122	Biology	—	4	—	4
	Tutorials	—	—	3	3
		16	19	16	19
	Term 2				
31.201	Writing and Contemporary Thought	1	1	1	1
32.246	Mathematics	2	3	2	3
30.201	General Chemistry	2	3	2	3
33.202	Introductory Physics	2	3	2	3
44.221	Food Microbiology	2	3	2	3
	Tutorials	—	3	—	3
48.350	Instrumentation	—	—	—	3
90.230	Business	—	—	2	1
44.301	Food Processing	—	—	2	3
44.311	Quality Control	—	—	—	3
44.361	Crop Technology	3	3	—	—
44.371	Animal Technology	2	3	—	—
44.381	Soil Technology	2	3	—	—
		14	21	12	23
	Term 4				
31.401	Writing and Contemporary Thought	1	1	1	1
	Tutorials	—	3	—	4
48.450	Instrumentation	—	—	—	3
90.390	Introduction to Work Study	—	—	—	1
44.401	Food Processing	—	—	2	3
44.402	Process Analysis	—	—	2	3
44.411	Quality Control	—	—	1	3
44.412	Food Analysis	—	—	2	3
44.431	Sanitation	—	—	2	3
90.230	Business	1	1	—	—
90.351	Scientific Computer Programming	1	1	—	—
44.413	Agricultural Analysis	2	3	—	—
44.414	Experimental Techniques	2	3	—	—
44.442	Agricultural Mechanics	2	3	—	—
44.462	Crop Protection	3	3	—	—
44.471	Animal Technology	2	3	—	—
		14	21	11	24

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisites: Mathematics 12, and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.

Forest Products Technology

The forest industry of British Columbia has undergone a marked change since the end of World War II. While a large proportion of the timber of the Province is still manufactured into lumber, the utilization of wood has become increasingly varied. Owing to the application of new principles and techniques to the pulp, paper, newsprint, plywood, and particle-board industries, increasing numbers of technical personnel are required. These industries offer challenging and rewarding employment for conscientious young men of ability and training.

The objectives of the Forest Products Technology programme are to qualify technicians for the various manufacturing operations and to prepare them for responsible positions in British Columbia's largest industry. For example, young men with a good knowledge of technological advances and their application are needed in plant operations, research and development, quality control, and sales.

In addition to basic sciences, subject areas in the first year include botany, dendrology, wood technology, sawmilling, plywood manufacture, and pulp and paper production. This variety will assist the student in selecting one of two options offered during second year. The Wood Option includes the techniques and economics involved in harvesting wood and converting it to usable products such as lumber, laminated beams, plywood, and particle board. Wood seasoning, wood preservation, and fire-retardant treatments will also be introduced, as well as the integration of the forest industries for maximum utilization. The Pulp and Paper Option is concerned with the theory and practice of mechanical, semi-chemical, and chemical pulping, the bleaching of the various pulp types, and the conversion of pulp to useful products such as newsprint, paper, paper products, and textiles.

Laboratory and plant procedures required for product quality control are covered extensively in both options, and field trips to various related industrial operations are used to augment classroom and laboratory instruction. The courses common to both options provide the student with a sufficiently broad background of knowledge to permit him to progress within an advancing technology.

FOREST PRODUCTS TECHNOLOGY

No.	Year 1 — *Term 1* — Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.102	Introductory Physics	2	3
30.101	General Chemistry	3	3
49.101	Draughting	—	3
41.103	Engineering Materials	2	3*
45.101	Forest Science	2	3*
45.107	Forest Utilization	2	3*
	Tutorials	—	3*
		17	18
	Term 2		
31.201	Writing and Contemporary Thought	2	1
32.223	Mathematics	3	2
33.202	Introductory Physics	2	3
30.201	General Chemistry	3	3
49.201	Draughting	—	3
41.203	Engineering Materials	2	3*
45.201	Forest Science	2	3*
45.207	Forest Utilization	2	3*
	Tutorials	—	3*
		17	18

* Alternate weeks.

No.	Year 2 — *Term 3* — Subject	Pulp and Paper Option Hours per Week Lec.	Lab.	Wood Option Hours per Week Lec.	Lab.
31.301	Writing & Contemporary Thought	1	1	1	1
32.304	Mathematics	3	2	3	2
30.304	Chemical Laboratory Techniques	—	3	—	3
48.350	Instrumentation	1	2	1	2
	Tutorials	—	2	—	2
30.303	Instrumental Analytical Methods (Lectures)	—	2	—	—
47.341	Unit Operations	3	3	—	—
46.301	Pulp and Paper Technology	4	3	—	—
46.304	Pulp and Paper Testing	2	3	—	—
46.311	Wood Properties	—	—	2	4
46.314	Wood Processing	—	—	2	4
46.317	Quality Control and Marketing	—	—	2	3
90.390	Introduction to Work Study	—	—	1	2
		14	21	12	23
	Term 4				
31.401	Writing & Contemporary Thought	1	1	1	1
32.465	Mathematics	3	2	3	2
48.450	Instrumentation	1	2	1	2
	Tutorials	—	2	—	2
30.303	Instrumental Analytical Methods (Laboratory)	—	2	—	—
47.441	Unit Operations	3	3	—	—
46.401	Pulp and Paper Technology	2	3	—	—
46.404	Pulp and Paper Testing	2	3	—	—
46.407	Wood Chemistry	2	3	—	—
46.451	Mechanical & Electrical Equip't	—	—	2	3
46.411	Wood Properties	—	—	2	3
46.414	Wood Processing	—	—	2	3
46.417	Quality Control and Marketing	—	—	2	3
90.424	Personnel Administration	—	—	2	1
		14	21	15	20

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisites: Mathematics 12 and any three of Physics 11, 12 and Chemistry 11, 12.
Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Draughting 11, Industrial Power 11, General Business 11, 12.

DURALINE

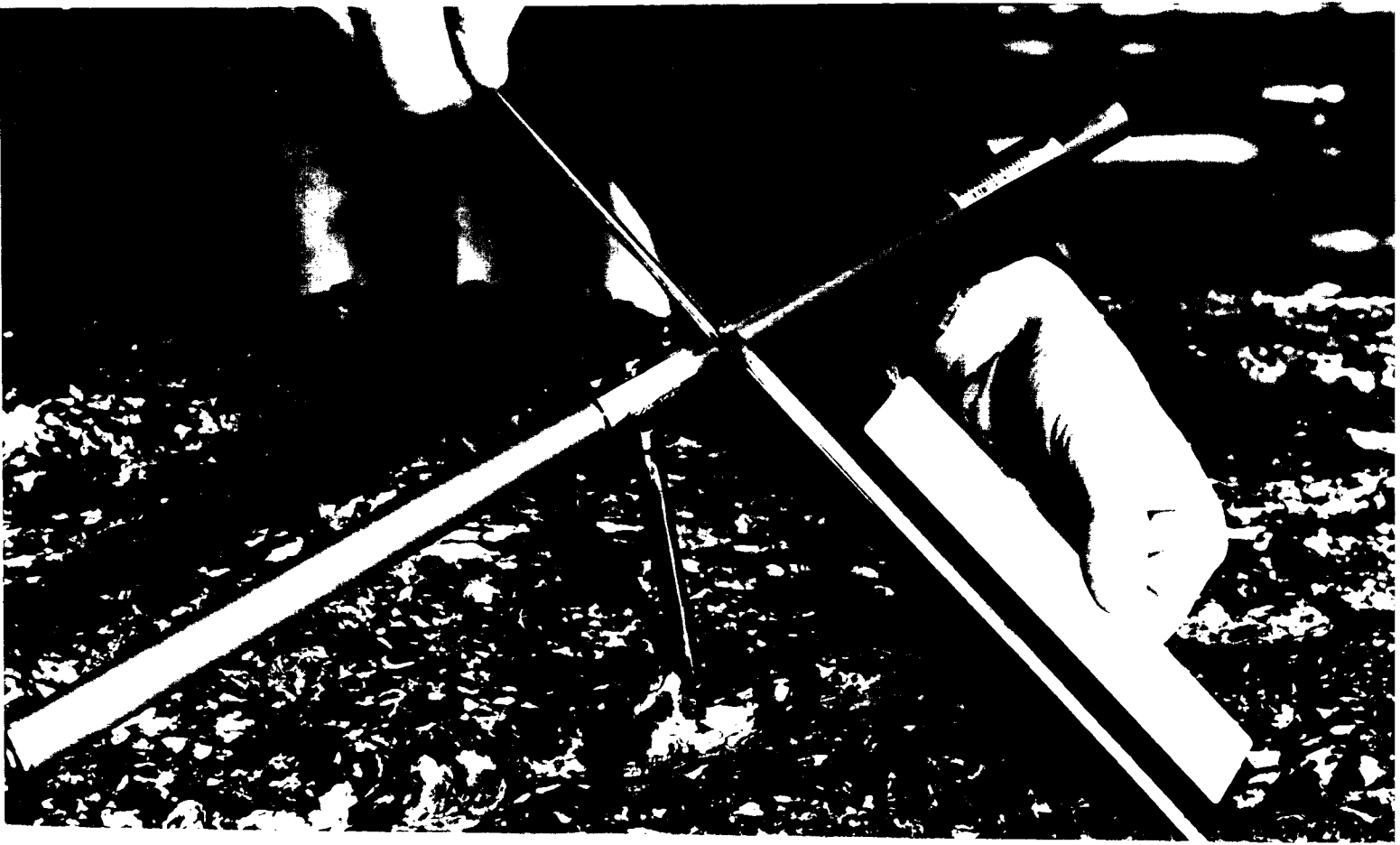
Forestry Technology

The forests of British Columbia constitute the most valuable natural resource, and their utilization provides the greatest single source of income to the Province, supporting approximately one third of our population. A tremendous expansion in the harvesting of timber products is creating demands for new techniques in logging, manufacturing, and reforestation. Thus, there is today a greatly increased demand for technically trained men in this industry.

Since many opportunities are available in forestry, the graduate can expect to qualify for several categories of employment. In logging he will prepare and lay out setting plans and cutting boundaries, mark timber, survey and construct roads; in cruising and stand management he will cruise timber stands for inventory and logging development; in research he will study characteristics of trees and wood for a multiplicity of uses; in forest protection he will plan and direct programmes to minimize losses from fire, insects, and disease; in reforestation he will supervise regeneration surveys, planting or seeding, and nursery operations. In addition, technicians employed by public agencies will be engaged in scaling, protection, research, or inspection of logging or milling operations.

Candidates for this programme should possess initiative and leadership qualities, be able to work efficiently under adverse circumstances, and require a minimum of supervision. The business of forestry is dynamic and constantly faced with new and perplexing problems. Forest technicians must be resourceful, conscientious, and not easily deterred by unfavourable weather and working conditions. Applicants should possess good health, particularly good eyesight, be prepared to adjust to life in a small community or camp, and adapt to spending most of their time out-of-doors. It is important that prospective students consider their own personality and interest. With a genuine interest in the work, not only will they be happier, but they will be much more likely to succeed.

A good background in mathematics, physics, and English is desirable for an applicant in this technology. The Forestry Technology programme will include such subjects as draughting, surveying, forest measurement, interpretation of aerial photographs, logging methods, and wood utilization. Advanced subjects include details of scaling and cruising, entomology, pathology, fire protection, silviculture, and forest management.



FORESTRY TECHNOLOGY

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
49.101	Draughting	-	3
51.102	Surveying	-	3
45.101	General Forestry	2	3*
45.102	Forest Mensuration	2	3
45.110	Fire Control	2	2
45.106	Photo Interpretation and Mapping	-	3
45.107	Forest Utilization	2	3*
	Tutorials	-	2
		13	22

Term 2

31.201	Writing and Contemporary Thought	2	1
32.242	Mathematics	3	2
45.206	Photo Interpretation and Mapping	-	3
51.202	Surveying	-	3
45.201	General Forestry	2	3*
45.202	Forest Mensuration	2	3
45.210	Fire Control	1	3*
45.205	Logging	2	3
45.207	Forest Utilization	2	3*
	Tutorials	-	3*
		14	21

YEAR 2 — *Term 3*

31.301	Writing and Contemporary Thought	1	1
45.302	Forest Mensuration	1	5
45.305	Logging	2	3
45.308	Roads and Transportation	2	4
45.309	Silviculture	2	3
45.313	Forest Pathology	1	3
45.316	Forest Management	2	1
90.351	Scientific Computer Programming	1	1
	Tutorials	-	2
		12	23

Term 4

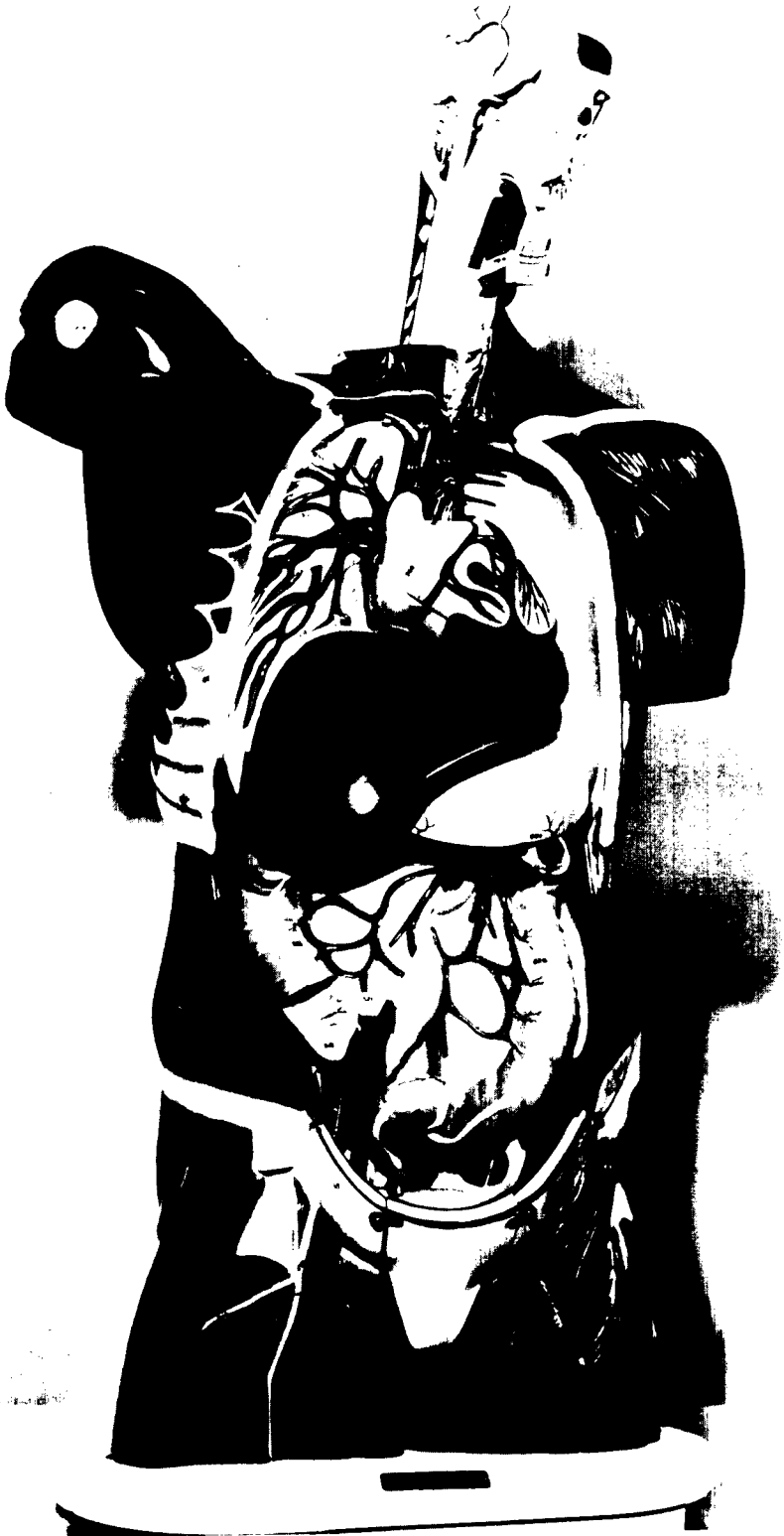
31.401	Writing and Contemporary Thought	1	1
45.409	Silviculture	2	3
45.408	Roads and Transportation	1	3
45.414	Forest Entomology	1	3
45.410	Fire Control	1	3
45.402	Forest Mensuration	2	4
45.416	Forest Management	2	-
90.190	Work Study	1	1
90.424	Personnel Administration	2	1
	Tutorials	-	3
		13	22

* Alternate weeks.

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12, Biology 11.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Physics 11, Draughting 11, General Business 11, 12, Industrial Power 11.



Health Technology

The rising demand for health services, together with the increasingly complex scientific and social aspects of such services, is opening up new and challenging employment opportunities for a wide range of specialist health technologists.

The Health Technology training programme, developed with the advice and counsel of leaders in the health sciences, and operated in conjunction with health facilities within the community, aims to produce technologists at a level of education and training suited to the need in the health field.

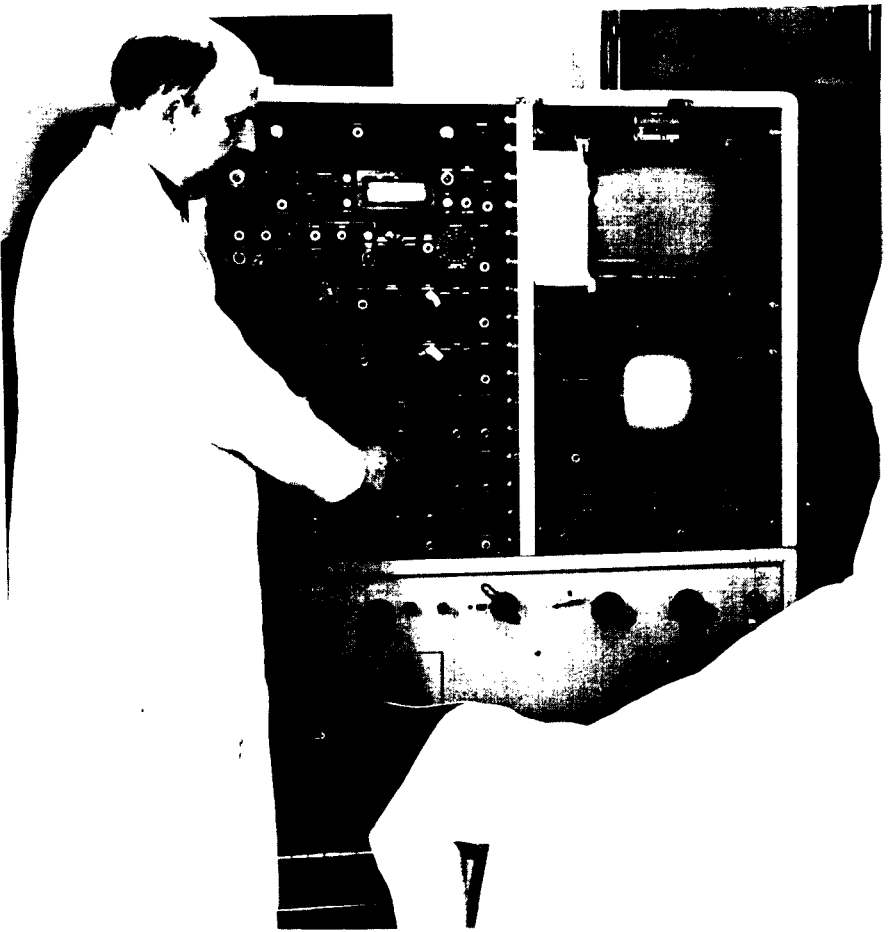
It is intended that the education provided will develop, in the graduate, a general understanding of the cultural and health environment in which he or she is to work. The training in the specific areas of choice will be sufficiently detailed to provide the skills necessary to the specialty.

It is expected that the health technologist will work at a level intermediate between the professional and vocational worker acting as a junior colleague to, or in immediate support of, the professional whose responsibilities in the field of health have to do with prevention, diagnosis and treatment, or research.

Wherever possible, students in the several training options of the Health Technology programme will receive common instruction so as to encourage mutual understanding and foster an atmosphere of harmony between them and other workers in the health field. Further, where practicable, this training will be integrated with that of the students in other technological programmes, thus enriching the training of both.

Seven training options, open to male or female applicants, are offered in the Health Technology programme. Details of the options listed below will be found on succeeding pages:

Biomedical Electronics.
Health Data Processing.
Medical Isotopes.
Medical Laboratory.
Medical Radiography.
Nursing.
Public Health.



Biomedical Electronics Option

In recent years there has been a growing demand for skilled professionals who have been trained in both medicine and engineering. The development of artificial kidneys, hearts, blood vessels, and the many other complicated engineering structures for service in the human body has called for a unique combination of interests and aptitudes on the part of those responsible for their design. The widespread use of medical electronic apparatus for the measurement of blood flow, pulse rate, respiration, nerve activity, and other bodily functions has further increased the demand. This trend will certainly accelerate in the future.

Biomedical engineers are at present graduating from leading North American universities and medical schools. Well-trained technologists working in close association with these professional persons provide essential technological services in the operation and maintenance of scientific medical equipment. They are also called upon to assist in the design and development of new medical electronic and mechanical instrumentation.

The Biomedical Electronics Option, a programme of two years' duration, provides the education and training for this type of health technologist.

In both years of study the student will learn the fundamentals necessary to the understanding of the medical and technical aspects of the specialty. Mathematics and electronics play a large part in the training, as does detailed study of the processes which take place in the human body.

Many opportunities are open to the graduate with a Diploma of Technology in Biomedical Electronics. Employment will be found in the fields of research, development and production, sales, installation, operation, and servicing. The technologist may work in a hospital, a university, or in a factory. His work and studies bring him into close contact with a wide range of workers in the health field.

Persons wishing to enter this new field of dramatic growth should be interested in the welfare of people and have an aptitude for things mechanical and electrical.

HEALTH TECHNOLOGY

BIOMEDICAL ELECTRONICS OPTION

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
82.103	Human Anatomy and Physiology	2	2
43.102	Electrical Circuits	5	5
32.170	Mathematics (Electronic)	5	4
30.182	General Chemistry for Health Technologists	3	3
31.101	Writing and Contemporary Thought	2	1
	Tutorials		3
		17	18

Term 2

82.202	Human Anatomy and Physiology	2	2
43.202	Electrical Circuits	3	2
43.205	Electronic Circuits	2	2
32.270	Mathematics (Electronic)	5	4
30.282	General Chemistry for Health Technologists	3	3
31.201	Writing and Contemporary Thought	2	1
	Tutorials		4
		17	18

YEAR 2 — *Term 3*

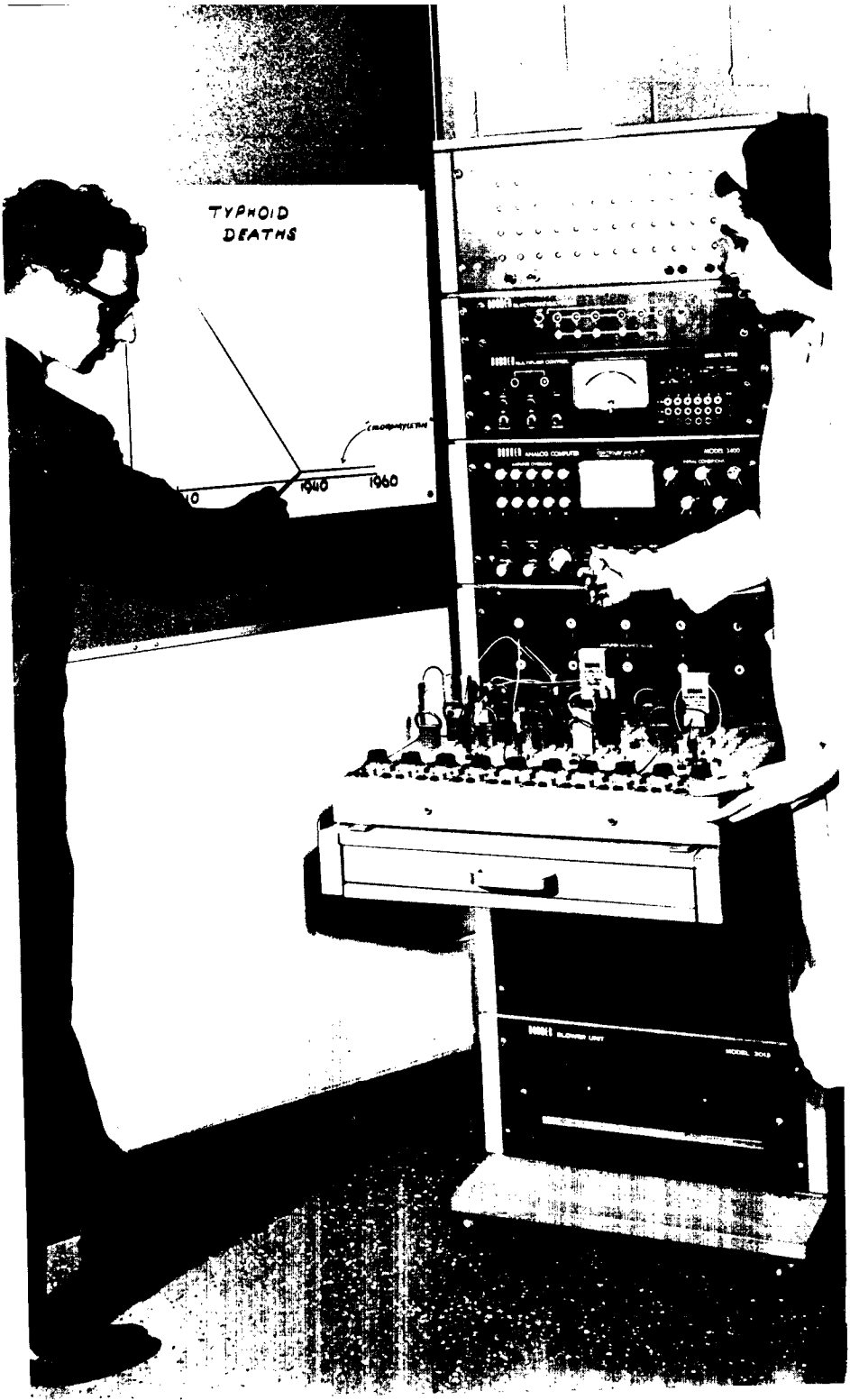
82.316	Biomedical Electronics	2	3
41.309	Medical Materials	3	2
43.303	Measurements, Electrical and Electronics	2	2
32.370	Mathematics (Electronic)	3	2
43.305	Electronic Circuits	2	3
48.360	Medical Instrumentation		3
82.102	Basic Medical Microbiology and Epidemiology	1	2
82.317	Physiology	2	3
		15	20

Term 4

82.415	Biomedical Electronics	2	5
82.416	Clinical Experience in Biomedical Electronics		7
48.460	Medical Instrumentation		3
43.425	Pulse Circuits	3	3
43.431	Digital Techniques	2	2
33.401	Biophysics	3	2
82.201	Basic Medical Microbiology and Epidemiology	1	2
		11	24

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.


TYPHOID
DEATHS
1940
1960

Health Data Processing Option

Society is becoming increasingly concerned with the need to process efficiently vast quantities of information. In the health field this is especially true. Information regarding the state of health of the individual and of a community must be collected, arranged into meaningful forms, analysed, and acted upon. To do this requires technologists trained in the procedures of health data processing and capable of communicating in a professional and technical language with other health workers. Many of the processing procedures are at present quite sophisticated. They will become more so in the years ahead. The Health Data Processing Option is designed to fit the graduate to meet today's demands and those of the foreseeable future. The emergence of new nations and new standards of health open up wide vistas.

The first year of study will provide the student with an understanding of the principles involved in health information processing and a firm grasp of the necessary basic sciences. He will become acquainted with other health technologists and be introduced, by means of indoctrination periods and visits to health facilities in the community, to the health field at large.

In the year following, the accent will be on specialist subjects in which the student will learn those skills necessary to his career. Through affiliation with the Institute, instruction will be given in various health facilities in the Lower Mainland.

Health data may include facts or figures pertaining to births and deaths, communicable diseases, epidemics, and the financing of health programmes, to the physiological functions of a patient, the inner workings of a hospital such as bed occupancy, the efficiency of patient care, or the analysis of the results of surgical and medical procedures.

The successful student with a Diploma of Technology in this specialty can expect to work with equipment as simple as a pencil and paper or as complicated as a computer. He will be qualified to seek employment wherever health data are produced or processed. Such places include hospitals, health and welfare agencies, private clinics, universities, and research establishments. Application will also be found in insurance programmes, especially those related to health services. The field will see some exciting developments in the near future, particularly as they relate to the use of electronic data-processing devices.

The Health Data Processing technologist should be a mathematically minded and methodical person who enjoys working with others and who has a sincere interest in the health of the community.


BCIT

HEALTH TECHNOLOGY

HEALTH DATA PROCESSING OPTION

YEAR 1 *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
82.101	Introduction to Behavioural Sciences	2	1
82.102	Basic Medical Microbiology and Epidemiology	1	2
32.182	Mathematics for Health Technologists	3	2
31.101	Writing and Contemporary Thought	2	1
30.182	General Chemistry for Health Technologists	3	3
82.103	Human Anatomy and Physiology	2	2
90.150	Introduction to Data Processing	2	2
82.107	Collection of Health Data	4	—
	Tutorials	—	3
		19	16

Term 2

82.207	Introduction to Behavioural Sciences	2	1
82.201	Basic Medical Microbiology and Epidemiology	1	2
32.282	Mathematics for Health Technologists	3	2
31.201	Writing and Contemporary Thought	2	1
30.282	General Chemistry for Health Technologists	3	3
82.202	Human Anatomy and Physiology	2	2
32.290	Applied Fortran IV	2	2
90.250	Principles of Computer Programming	2	4
	Tutorials	—	1
		17	18

YEAR 2 *Term 3*

31.301	Writing and Contemporary Thought	1	1
90.390	Work Study	1	2
90.182	Office Systems and Equipment	1	2
90.352	Data Processing Applications	2	3
82.305	Health Data Applications	8	6
82.318	Health Statistics	2	3
	Tutorials	—	3
		15	20

Term 4

31.401	Writing and Contemporary Thought	1	1
90.396	Systems Analysis	2	3
82.403	Principles of Medical Organization and Management	1	2
82.405	Health Data Applications	5	6
82.417	Health Statistics	3	6
	Tutorials	—	5
		12	23

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Typing 11.


PEPSI
CARBON
BRITISH COLUMBIA
INSTITUTE OF TECHNOLOGY

Medical Isotopes Option

The advent of the nuclear reactor with its ability to produce artificial radioactive isotopes in quantity has made possible a widely increasing use of these materials in medical research, diagnosis, and therapy. This field of medicine, relatively unknown a decade ago, is now on the threshold of major developments. An urgent demand arises for well-educated and properly trained technologists. The British Columbia Institute of Technology offers a two-year course in medical isotopes to meet this demand.

Isotopes are the various forms in which a chemical element may occur. They have the same general chemical properties and the same atomic number, but have important physical differences. Some of them are radioactive and emit certain radiations. This characteristic permits them to be detected and measured. They may be introduced into the chemical structure of a large variety of compounds, including biological materials. Investigation of normal and abnormal functions may be undertaken by following the isotope through the chemical and physical processes in the human body or the laboratory. Radioactive materials are handled in such a way that they constitute no health hazard.

In the first year the student studies subjects to broaden his general cultural and technological background. These studies prepare him for the specialization to follow. Because of the wide variety of isotope applications and the need for a diversity of capabilities, the programme of studies provides a thorough knowledge of the theoretical principles involved as well as training in the required skills.

During the second year, special subjects relevant to isotope technology are dealt with in the Institute's isotope laboratory. Clinical and research applications are studied under the direction of Institute instructors in appropriate facilities in the Lower Mainland affiliated with the Institute.

On completion of the course, the graduate is granted a Diploma of Technology in Medical Isotopes. Employment will be found in health institutions and also laboratories connected with medicine, agriculture, fisheries, veterinary, and other biological sciences.

Medical isotope technologists must have a strong sense of responsibility, a desire to be of service to others, be meticulous in work habits, and be technically minded.

HEALTH TECHNOLOGY

MEDICAL ISOTOPES OPTION

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
82.101	Introduction to Behavioural Sciences	2	1
82.102	Basic Medical Microbiology and Epidemiology	1	2
32.182	Mathematics for Health Technologists	3	2
30.182	General Chemistry for Health Technologists	3	3
33.102	Introductory Physics	3	3
82.103	Human Anatomy and Physiology	2	2
82.104	Medical Laboratory Orientation and Tutorials	3	5
		17	18

Term 2

82.207	Introduction to Behavioural Sciences	2	1
82.201	Basic Medical Microbiology and Epidemiology	1	2
82.202	Human Anatomy and Physiology	2	2
32.282	Mathematics for Health Technologists	3	2
30.282	General Chemistry for Health Technologists	3	3
33.202	Introductory Physics	3	3
33.205	Radioactivity	2	...
82.212	Introduction to Radiation Safety	1	3
	Tutorials	...	2
		17	18

YEAR 2 — *Term 3*

31.101	Writing and Contemporary Thought	2	1
90.390	Work Study	1	2
82.311	Radiobiology and Protection	1	3
33.305	The Measurement of Radioactivity	3	3
82.326	Radioisotopes in Diagnostic Procedures	3	6
82.327	Clinical Experience in Diagnostic Isotope Procedures	...	6
82.315	Pathology for Medical Isotope Technologists	2	...
	Tutorials	...	2
		12	23

Term 4

31.201	Writing and Contemporary Thought	2	1
82.414	Radiobiology and Protection	1	3
82.426	Radioisotopes in Diagnostic Procedures	3	6
82.427	Clinical Experience in Diagnostic Isotope Procedures	...	9
82.428	Radioisotopes in Therapeutic Procedures	1	...
82.429	Clinical Experience in Therapeutic Isotope Procedures	...	3
82.402	Pathology for Medical Isotope Technologists	2	...
	Tutorials	...	4
		9	26

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.

Medical Laboratory Option

The medical laboratory technologist, as a member of the health team, performs the many and varied laboratory procedures the results of which are used by physicians as important aids to the diagnosis and treatment of the patient.

Laboratory screening programmes are being developed to alert the physician to disease processes which, though not yet clinically evident, are nevertheless present in the patient. Automation, instead of decreasing the need for the medical laboratory technologist, has created a demand for more highly trained technologists. The increasing use of sophisticated laboratory procedures and the rising demand generally for health services assure a wide range of opportunities for employment.

Medical Laboratory Technology offers a variety of scientific pursuits within the modern hospital, the private clinical laboratory, and the research laboratory. These fields include histopathology, clinical chemistry, hæmatology, microbiology, and immuno-hæmatology. The trained technologist may pursue any one or a combination of these fields after completion of training.

Applicants should have a strong interest in science and be meticulous in their work and habits.

At the present time there are two plans for the training of medical laboratory technologists at the British Columbia Institute of Technology. Both lead to graduation and the same Diploma of Technology.

The Canadian Society of Laboratory Technologists requires graduates of both Plans I and II to complete a further year of practical training in a hospital laboratory approved by the Canadian Medical Association to be eligible to sit the society's general certification examination. During this year the graduate receives a salary.

Plan I

Under this plan students spend two years at the Institute. Applicants must have graduated on the Academic and Technical Programme or the equivalent with the following special prerequisites: Mathematics 12, and credit in three sciences, one of which must be a 12. Chemistry 12 is strongly recommended.

Plan II

As an interim measure, applicants may be accepted into the second year of the Institute programme provided they hold the following prerequisites: Senior Matriculation or the equivalent, with credits in mathematics, English, chemistry, a second science, and one other subject. Students accepted under this plan may be required to attend a special two-week course at the Institute prior to the start of the academic year. Applicants may obtain further information regarding Plan II from the Registrar.

HEALTH TECHNOLOGY

MEDICAL LABORATORY OPTION

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
82.101	Introduction to Behavioural Sciences	2	1
32.182	Mathematics for Health Technologists	3	2
31.101	Writing and Contemporary Thought	2	1
30.182	General Chemistry for Health Technologists	3	3
33.102	Introductory Physics	3	3
82.103	Human Anatomy and Physiology	2	2
82.104	Medical Laboratory Orientation and Tutorials	3	5
		18	17

Term 2

82.207	Introduction to Behavioural Sciences	2	1
32.282	Mathematics for Health Technologists	3	2
31.201	Writing and Contemporary Thought	2	1
30.282	General Chemistry for Health Technologists	3	3
33.202	Introductory Physics	3	3
82.202	Human Anatomy and Physiology	2	2
90.150	Introduction to Data Processing	1	2
90.390	Work Study	1	1
	Tutorials		3
		17	18

YEAR 2 — *Term 3*

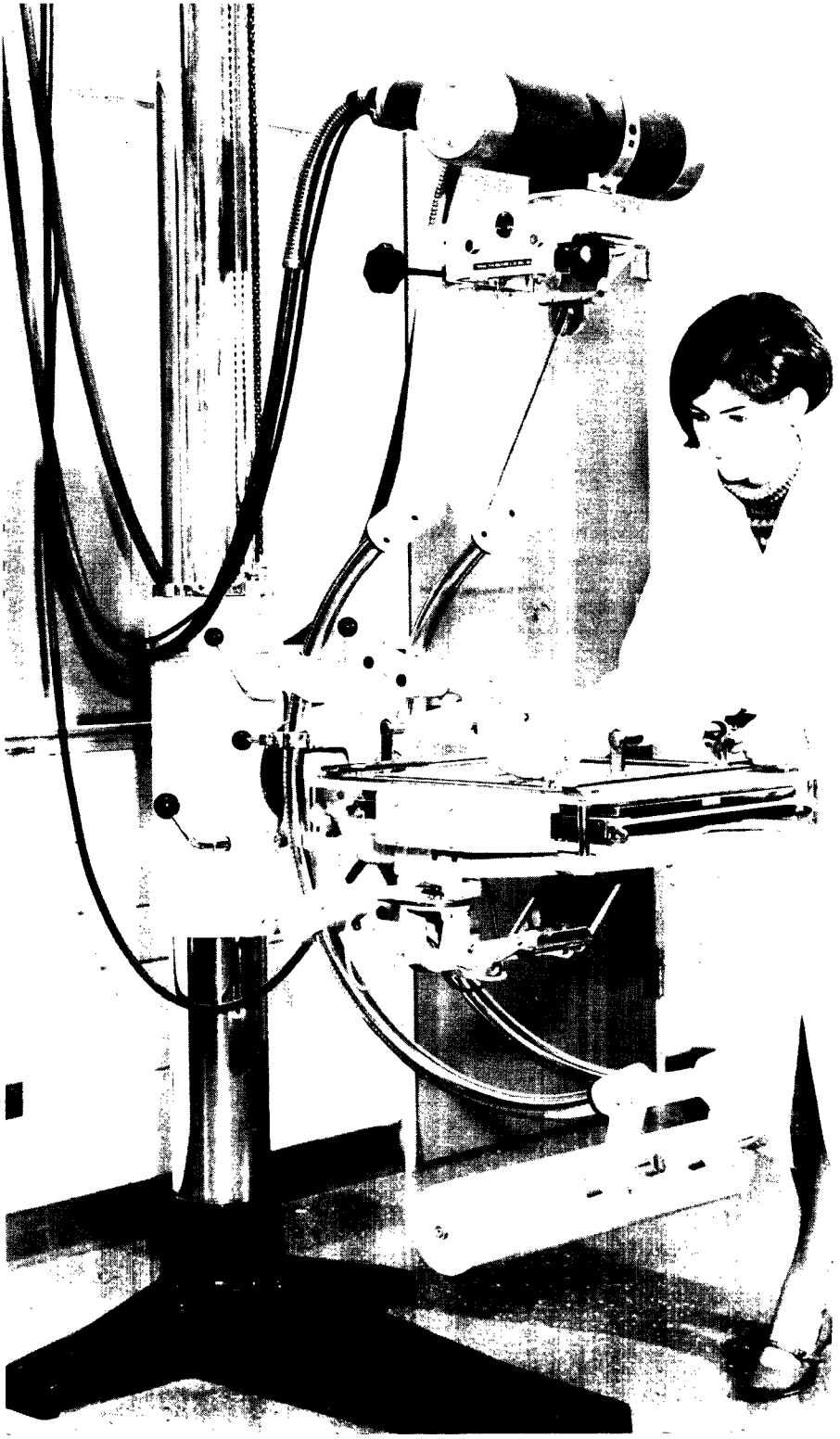
82.314	Medical Microbiology and Parasitology	3	6
82.312	Introductory Principles and Techniques of Immunology	1	3
82.313	Anatomy and Physiology for Medical Laboratory Technologists	2	
82.303	Instrumentation in Clinical Chemistry	3	6
82.308	Hæmatology	2	2
82.302	Histology	2	4
	Tutorials		1
		13	22

Term 4

82.409	Medical Microbiology and Parasitology	4	6
82.406	Clinical Chemistry	3	6
82.412	Hæmatology	2	4
82.408	Blood Banking	2	6
	Tutorials		2
		11	24

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.



Medical Radiography Option

Medical radiography has been defined as "the art of recording on a sensitized film an image of the inner structures of the human organism." Radiography is essential to the diagnosis and treatment of disease and injury. Technologists in this field must be interested in the welfare of others and possess a strong sense of responsibility.

Advances in science and technology are greatly influencing the field of medical radiography. The course offered is intended to qualify radiographers who will be in step with the latest developments in patient care. They will become an invaluable part of the health team.

It is emphasized that this occupation is not considered to present any hazard to health. The dangers of radiation are well recognized and rigidly controlled. Any exposure received by technologists is below the limits set by national authorities.

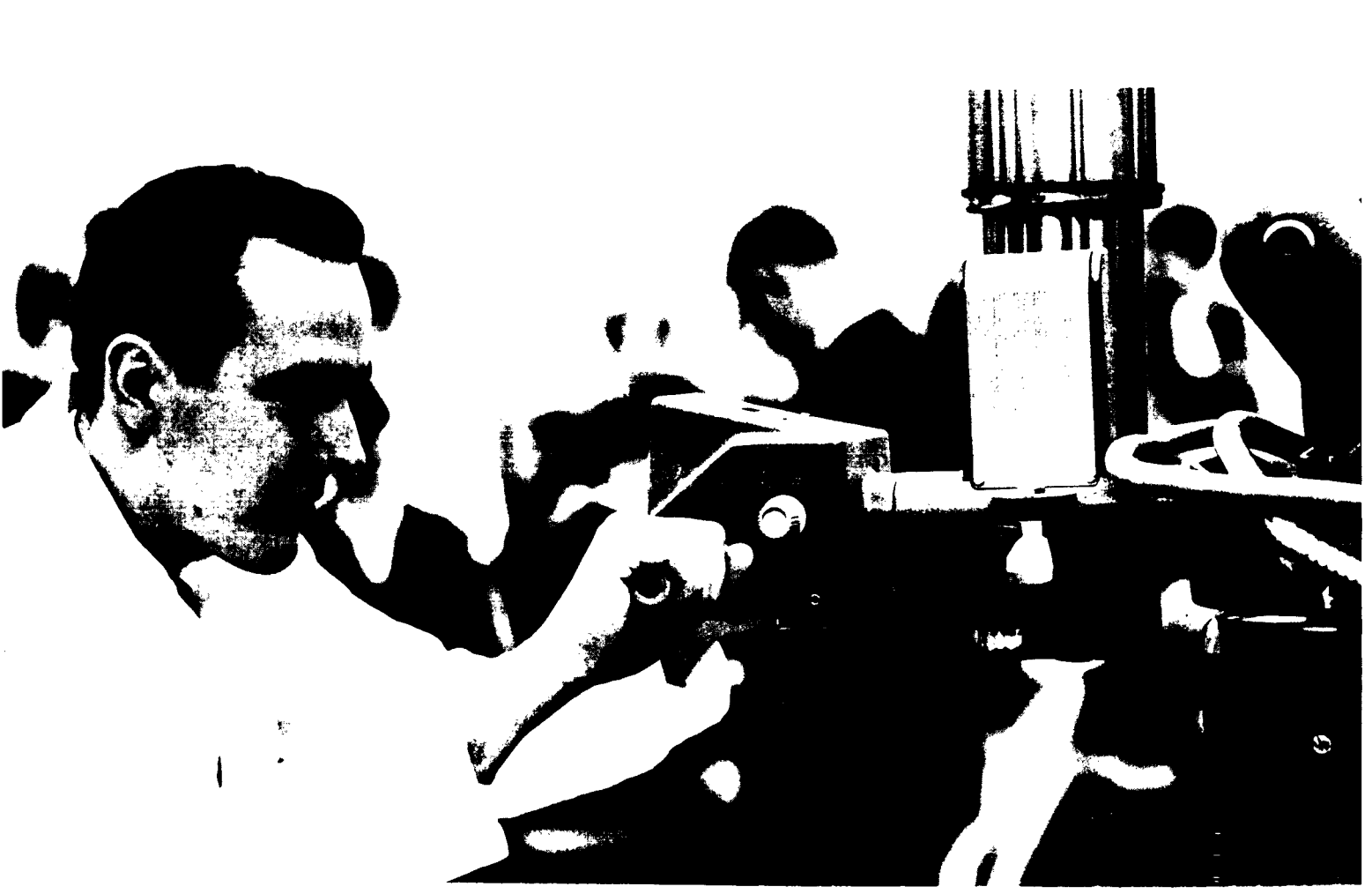
Training includes considerable contact with other students in the Health Technology Programme. During the first year, emphasis is placed on general studies chosen and organized with reference to their usefulness to the student as a health technologist. At the same time there is included introductory work in radiography.

In the second year, emphasis is placed on subjects related to the specialty. During this time, students gain experience in the clinical application of medical radiography in hospitals associated with the Institute. While at the hospital the student is under the direct supervision of Institute instructional staff. Considerable laboratory work is a feature of both years.

The Canadian Society of Radiological Technicians requires graduates to complete a further year of practical training in a hospital X-ray department approved by the Canadian Medical Association to be eligible to sit the society's certification examination. During this year the graduate receives a salary.

Certification resulting from this programme is recognized and accepted in all 10 Provinces, the United States, Great Britain, Australasia, and many other countries.

Registered technicians may expect to be employed in hospitals and private X-ray clinics. There are also opportunities for men in the sales divisions of X-ray equipment and film companies.



HEALTH TECHNOLOGY

MEDICAL RADIOGRAPHY OPTION

YEAR 1 *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
82.101	Introduction to Behavioural Sciences	2	1
82.102	Basic Medical Microbiology and Epidemiology	1	2
32.182	Mathematics for Health Technologists	3	2
30.182	General Chemistry for Health Technologists	3	3
33.102	Introductory Physics	3	3
82.103	Human Anatomy and Physiology	2	2
82.106	Introduction to Medical Radiography	4	—
	Tutorials	—	4
		18	17

Term 2

82.207	Introduction to Behavioural Sciences	2	1
82.201	Basic Medical Microbiology and Epidemiology	1	2
82.202	Human Anatomy and Physiology	2	2
32.282	Mathematics for Health Technologists	3	2
30.282	General Chemistry for Health Technologists	3	3
33.202	Introductory Physics	3	3
82.203	Basic Medical Radiography	4	3
	Tutorials	—	1
		18	17

YEAR 2 *Term 3*

31.101	Writing and Contemporary Thought	2	1
33.303	Physics of Medical Radiography	3	3
82.309	Medical Radiography	3	3
82.307	X-ray Apparatus	2	3*
82.311	Radiobiology and Protection	1	3*
82.304	Clinical Experience in Medical Radiography	—	14
		11	24

Term 4

31.201	Writing and Contemporary Thought	2	1
82.413	Medical Radiography	1	3
82.414	Radiobiology and Protection	1	3*
82.411	X-ray Apparatus	1	3*
82.401	Pathology for Medical Radiographers	2	—
82.407	Clinical Experience in Medical Radiography	—	21
		7	28

* Alternate weeks.

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.

Nursing Option

The Nursing Option offers a student a two-year programme of study and hospital experience which leads to graduation as a qualified nurse and the eligibility to write the professional nursing examinations in order to obtain an R.N. The option is open to men and women, and neither age nor marital status are primary factors in the selection of candidates. It is preferred that the nursing student has had biology and some chemistry in high school. A physical examination is required prior to entry to the Nursing Option.

The curriculum for nursing students includes biological, pure, social, and applied sciences. Nursing is taught throughout the two years, and clinical experience under the supervision of Institute instructors is provided concurrently at nearby hospitals and health agencies. During the first year a number of basic subjects are taken with other Health Technology students. Summer practicums provide additional clinical practice over and above that which is arranged during the four terms.

The nursing courses include study and experience in basic nursing, psychiatric nursing, maternal-child nursing, and medical-surgical nursing. Specific knowledge and skills in areas such as pharmacology, dietetics, and rehabilitation are integrated throughout the curriculum. Modern trends regarding communication, advanced hospital equipment, and work study methods are reflected in the curriculum.

Successful candidates in the Nursing Option will be well equipped to work as beginning practitioners in hospitals and analogous situations in the community.

HEALTH TECHNOLOGY

NURSING OPTION

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
82.108	Introduction to Nursing	2	2
82.109	Introductory Clinical Experience in Nursing	—	8
82.101	Introduction to Behavioural Sciences	2	1
82.103	Human Anatomy and Physiology	2	2
82.102	Basic Medical Microbiology and Epidemiology	1	2
33.103	Basic Medical Physics	3	—
30.182A	Introductory Chemistry for Nursing	3	—
82.110	Pharmacology	1	2
82.111	Interpersonal Relations for Nursing	1	—
	Tutorials	—	3
		15	20

Term 2

82.205	Basic Nursing	3	2
82.206	Clinical Experience in Basic Nursing	—	8
82.207	Introduction to Behavioural Sciences	2	1
82.202	Human Anatomy and Physiology	2	2
82.201	Basic Medical Microbiology and Epidemiology	—	2
30.282A	Introductory Chemistry for Nursing	2	—
82.208	Pharmacology	1	—
82.209	Interpersonal Relations for Nursing	—	2
82.210	Human Growth and Development	3	—
82.211	Pathology and Pathophysiology	2	—
	Tutorials	—	2
		16	19

YEAR 2 — *Term 3*

82.320*	Medical-Surgical Nursing	3	2
82.321*	Clinical Experience in Medical-Surgical Nursing	—	19
82.322*	Maternal-Child Nursing	3	2
82.323*	Clinical Experience in Maternal-Child Nursing	—	19
82.324	Professional Nursing	2	—
31.101	Writing and Contemporary Thought	2	1
	Tutorials	—	1
		12	23

Term 4

82.420*	Medical-Surgical Nursing (14 weeks)	3	2
82.421*	Clinical Experience in Medical-Surgical Nursing	—	19
82.422*	Maternal-Child Nursing (14 weeks)	8	2
82.423*	Clinical Experience in Medical-Surgical Nursing	—	19
31.201	Writing and Contemporary Thought	2	1
82.424	Psychiatric Nursing (6 weeks)	6	—
82.425	Clinical Experience in Psychiatric Nursing	—	23
90.390	Work Study	1	1
	Tutorial	—	1
		11	24

* In Term 3 one-half of the class takes Medical-Surgical Nursing and one-half of the class takes Maternal-Child Nursing. These course assignments are reversed in Term 4.

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisites: Mathematics 12 and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.

Public Health Option

Modern society is presenting problems in increasing number and magnitude which influence the health of people. Within the broad field of health it is the concern of the public health technologist to measure and control those problems in the community which are associated with environmental hazards. Historically, inspection and control have been an important aspect of public health. Responsibility, once confined to infectious disease and the more common environmental hazards, has now extended to the hazards of pollution of air, land, and water and the many toxic and safety hazards which arise in industrial, agricultural, and urban society. Public accommodation and recreation, community planning, and food processing and control are also major areas of concern.

To meet the growing demand for highly skilled technologists in this challenging field, the British Columbia Institute of Technology offers a course in Public Health Technology. A well-balanced curriculum of lecture, laboratory, and field experience provides the graduate with a thorough knowledge of environmental hazards and their effect on human individuals and populations. He will be able to couple his technical skills with human needs and requirements. A large portion of his studies is taken in conjunction with that of other health workers and technologists of a wide range of industries.

A graduate, in addition to qualifying for a Diploma of Technology, will be well prepared to write the national examinations to qualify for a Certificate in Public Health Inspection (Canada).

Employment will be found in official and private health agencies, in industry, and with specialized agencies interested in pollution control, food sanitation, and public health on a local, national, and international level.

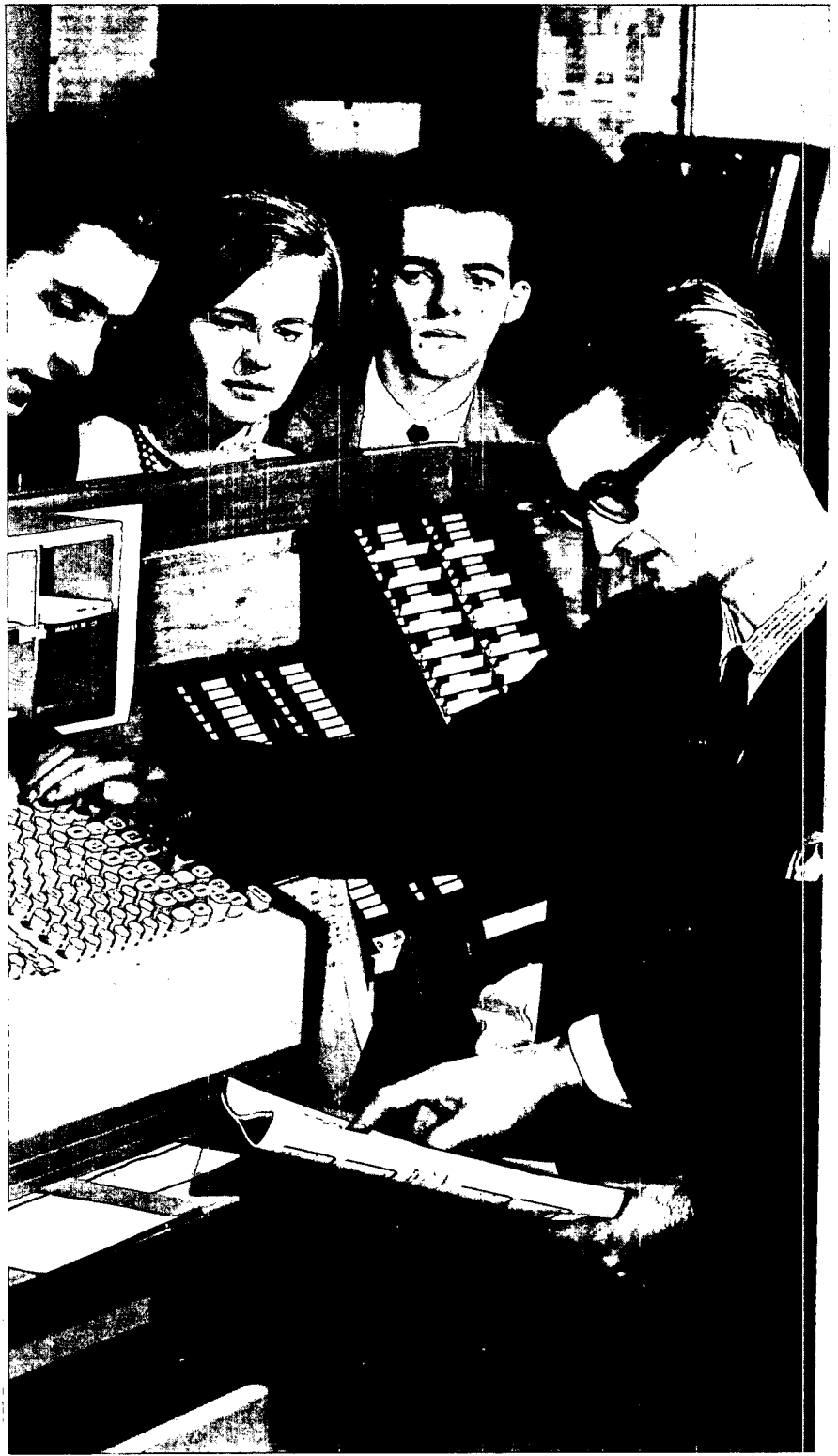
HEALTH TECHNOLOGY

PUBLIC HEALTH OPTION

No	Subject	Hours per Week Lec.	Lab.
	YEAR 1 *Term 1*		
82.102	Basic Medical Microbiology and Epidemiology	1	2
32.182	Mathematics for Health Technologists	3	2
31.101	Writing and Contemporary Thought	2	1
30.182	General Chemistry for Health Technologists	3	3
33.102	Introductory Physics	3	3
82.103	Human Anatomy and Physiology	2	2
82.105	Food Sanitation	4	---
	Tutorials	---	4
		18	17
	Term 2		
82.201	Basic Medical Microbiology and Epidemiology	1	2
32.282	Mathematics for Health Technologists	3	2
31.201	Writing and Contemporary Thought	2	1
30.282	General Chemistry for Health Technologists	3	3
33.202	Introductory Physics	3	3
82.202	Human Anatomy and Physiology	2	2
32.290	Applied Fortran IV	2	2
82.204	Food Sanitation	1	3
		17	18
	YEAR 2 *Term 3*		
82.101	Introduction to Behavioural Sciences	2	1
31.301	Writing and Contemporary Thought	1	1
90.390	Work Study	1	2
90.362	Public Health Law	2	1
82.306	Public Health Administration	1	2
82.301	Environmental Health and Engineering	8	9
	Special Projects	---	4
		15	20
	Term 4		
82.207	Introduction to Behavioural Sciences	2	1
31.401	Writing and Contemporary Thought	1	1
92.211	English Speech	---	2
82.410	Public Health Administration	1	2
82.404	Environmental Health and Engineering	6	9
82.419	Communicable Disease Control	3	3
	Special Projects	---	4
		13	22

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and three courses selected from Chemistry 11, 12, Physics 11, 12, Biology 11, 12, one of which must be Science 12.



Hotel, Motel and Restaurant Management

The " hospitality " industry is in a state of rapid expansion. In 1967 receipts from tourists to Canada rose to approximately $1 billion from $800 million in 1966. This rate of growth is expected to continue. Every hotel, motel, and restaurant must be staffed by trained managers and employees to serve the tourist trade and travelling public. At present the demand for qualified administrative personnel exceeds the supply, a situation likely to become even more serious in the next few years. The need is for well-trained managers with the ability to look ahead and plan—with the flexibility of mind to adapt to rapidly changing conditions. This is the challenge!

In the two-year programme, students obtain intensive theoretical and practical training not only in general business procedures, but also in every aspect of hotel or restaurant operations: front office and housekeeping; general and departmental controls and accounting; purchasing, receiving, and storing of hotel supplies; preparation and serving of food and beverages; maintenance and engineering; planning and design; advertising and promotion; and human relations. The hotel and restaurant laboratory area at the Institute is outfitted with fully furnished typical hotel and motel rooms, a lobby and lounge, and a front desk equipped with the latest automatic billing and audit machine. Students will train in the school's cafeteria and dining-room, learning the fundamentals of food operations from the purchase of food through its preparation to the serving of a top-quality meal.

With this training, supplemented by three months of added practical experience in a hotel, motel, or restaurant between the first and second years, graduates should find ample employment opportunities. Although it is unlikely that a graduate will step immediately into a top position, after some experience at the front desk or in the general office he should, within a few years, assume such positions as front office manager, catering manager, or assistant manager of a smaller hotel. Female graduates could expect to assume executive housekeeping or management positions. Eventual promotion to full managership is up to the individual. Many other opportunities lie in the fields of industrial and air-line catering, and in other businesses associated with the problems of mass feeding and housing, such as hospitals and universities.

Graduates should be prepared to work irregular hours if necessary and be able to associate harmoniously with fellow employees and the public in general. The personal touch is imperative; in the service industries, machines can lighten the load, but they cannot replace a personality.

HOTEL, MOTEL AND RESTAURANT MANAGEMENT

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
90.103	Business Mathematics and Statistics	2	3
90.135	Economics	2	2
90.140	Accounting	2	3
90.131	Management in Industry	1	2
90.245	Credit and Collection	2	2
31.102	Business Writing and Contemporary Thought	2	1
92.101	Front Office Management	2	2
92.102	Food and Beverages	3	2
	Tutorials	....	2
		16	19

Term 2

90.203	Business Mathematics and Statistics	2	3
90.235	Economics	2	2
90.240	Accounting	2	3
90.150	Introduction to Data Processing	1	2
31.202	Business Writing and Contemporary Thought	2	1
92.203	Bar and Rooms Management	2	2
92.202	Food and Beverages	3	3
92.211	English Speech	....	2
	Tutorials	....	3
		14	21

HOTEL, MOTEL OPTION

YEAR 2 — *Term 3*

90.390	Introduction to Work Study	1	2
92.302	Food and Beverages	3	7
92.313	Hotel and Restaurant Accounting	2	2
92.314	Planning and Design	2	2
92.315	Advertising and Promotion	2	2
92.316	Human Relations	2	2
92.317	Law	1	1
	Tutorials	....	4
		13	22

Term 4

92.402	Food and Beverages	3	7
92.412	Engineering and Maintenance	2	1
92.413	Hotel and Restaurant Accounting	2	2
92.414	Planning and Design	2	2
92.415	Advertising and Promotion	2	2
92.417	Law	1	1
92.418	French Conversation	....	3
	Tutorials	....	5
		12	23

FOOD MANAGEMENT OPTION

YEAR 2 — *Term 3*

90.390	Introduction to Work Study	1	2
92.316	Human Relations	2	2
92.320	Food and Beverage Accounting	1	1
92.321	Advertising and Merchandising	2	2
92.322	Food Management	3	12
92.323	Food Science and Sanitation	2	1
	Tutorials	....	4
		11	24

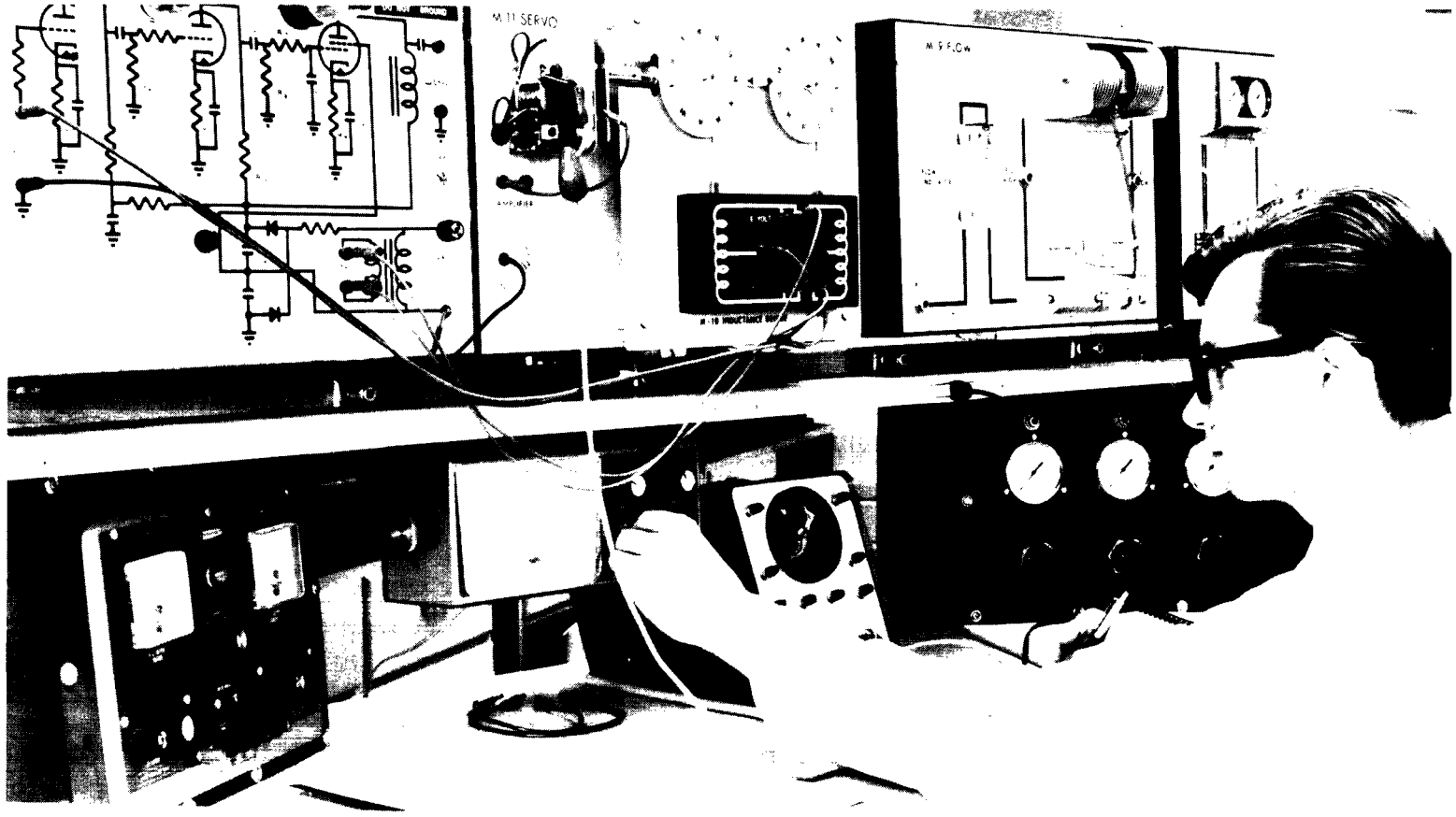
Term 4

92.412	Engineering and Maintenance	2	1
92.420	Food and Beverage Accounting	1	1
92.422	Food Management	4	12
92.423	Food Science and Sanitation	2	1
92.425	Design and Planning	2	2
92.426	Law	1	1
	Tutorials	....	5
		12	23

General Prerequisite: Graduation on the Academic and Technical Programme.

Special Prerequisite: Mathematics 12.

Subjects Desirable but Not Essential: English Literature 12, French 11, Economics 11, Foods 11, 12, and any Accounting Specialty course.


M.11 SERVO
M.5 FLOW

Instrumentation Technology

Modern high-output production processes demand precise control of operating conditions in order to achieve satisfactory product quality at minimum cost. Industrial instrumentation provides a measurement of these operating conditions. Subsequent control can be carried out by the operator, but nowadays it is usually performed by automatic control built into the instrument. The design, installation, and maintenance of measuring and automatic control devices are the functions of the instrumentation technologist. The equipment utilizes electronic, pneumatic, and hydraulic principles and is common to many industries such as oil and gas production and refining, pulp and paper production, atomic power-plant operation, plastics manufacture, food-processing, chemical-plant operation, primary-metals processing, and so forth. In these industries as much as 20 per cent of the capital cost may be accounted for by instrumentation, and this proportion is constantly rising as industrial processes become more complex.

The programme offered at the Institute covers in the first year the basic scientific and engineering principles used in the design and application of measuring instruments, as well as examples of the numerous commercially available versions. The primary measurements involved here are those of pressure, temperature, flow, and level. These are the variables most often controlled in industrial processes, and a wide variety of physical techniques is used for their measurement. In the second year, more complex commercial equipment will be studied, particularly modern electronic instruments, as well as the principles and practical applications of automatic control. A survey of typical industrial processes will be included since proper application of automatic control necessitates an understanding of the process being controlled as well as of the controlling equipment. Modern techniques such as telemetering and application of computers will be covered.

A student desiring to enter this technology should be keenly interested in physics and mathematics and in putting his knowledge to practical use. The reward is the opportunity to use one's ingenuity in developing better devices, with small and sometimes delicate components, capable of controlling enormous production.

Opportunities for employment range from that of installing equipment to such functions as calibrating and trouble-shooting under operating conditions, supervising of maintenance crews, and designing new applications and types of instruments. Further opportunities exist in the instrument-manufacturing industry for salesmen and field servicemen; also in laboratories containing specialized measuring equipment. The computer-controlled fully automated process is now with us, and perhaps the biggest bottleneck to further development is the shortage of good technologists. In these fields, exciting new developments are constantly taking place, so that an instrumentation technologist is assured of an interesting and rewarding career.

INSTRUMENTATION TECHNOLOGY

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	General Physics	3	3
41.103	Engineering Materials	2	3*
43.132	Electrical Fundamentals	2	3
48.100	Basic Measurements	3	3
48.110	Instrument Shop Practice	—	3*
49.106	Applied Mechanics A	2	3*
	Tutorial	—	3*
		17	18

Term 2

31.201	Writing and Contemporary Thought	2	1
32.223	Mathematics	3	2
33.201	General Physics	3	3
41.203	Engineering Materials	2	3*
30.202	Chemistry	2	2
43.232	Electronic Fundamentals	3	3
48.200	Basic Measurements	3	3
	Tutorial	—	3*
		18	17

YEAR 2 — *Term 3*

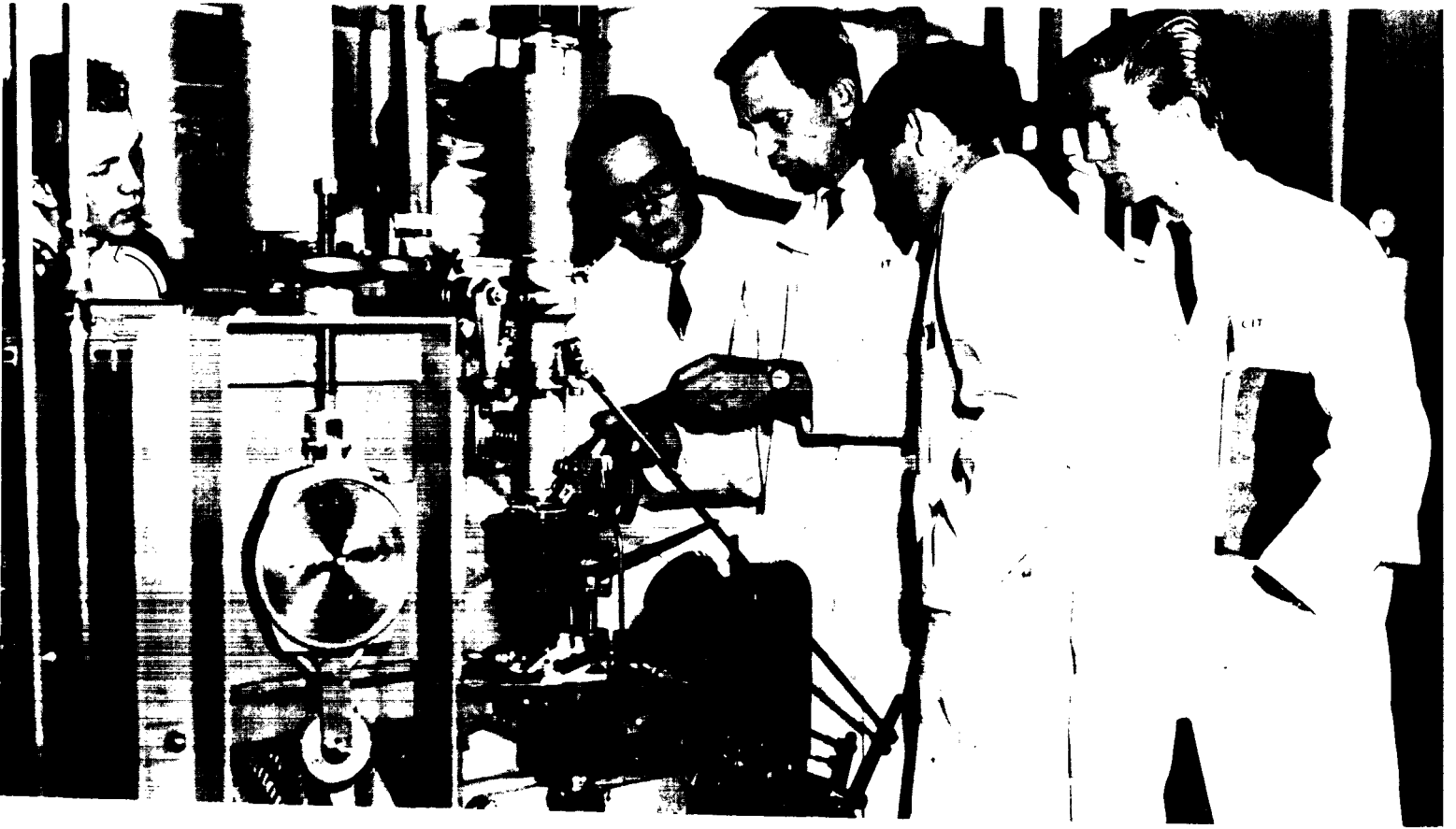
32.306	Mathematics	3	2
47.341	Unit Operations	3	3
48.300	Advanced Measurements	3	3
48.310	Process Control	3	3
48.320†	Analog and Digital Techniques	2	3*
48.330	Electronics for Instruments	2	3*
49.101	Draughting	—	3
	Tutorials	—	2
		16	19

Term 4

32.454	Mathematics	3	2
47.341	Unit Operations	3	3
48.400	Advanced Measurements	3	3
48.410	Process Control	3	3
48.420†	Analog and Digital Techniques	2	3*
48.430†	Industrial Orientation	3	3*
90.351	Scientific Computer Programming	1	1
	Tutorials	—	2
		18	17

* Alternate weeks.
† New courses.

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisites: Mathematics 12 plus any three of Physics 11, 12 and Chemistry 11, 12.
Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Mechanics 11, Draughting 11.



Mechanical Technology

Mechanical Technology encompasses an extremely broad range of industrial activities involving design, construction, installation, and use of machines and mechanical devices of all types, as well as the manufacture of goods in general. It follows that persons qualified in this field can expect challenging and rewarding employment in a wide range of interesting occupations.

The two-year Mechanical Technology programme offers intensive training leading to graduation as a mechanical technologist. Job possibilities include work in consulting engineering offices as mechanical design draughtsmen on machinery, steelwork, piping, power plants, and installation; in plant engineering offices, production departments, and estimating departments; in testing and inspection establishments; in field installation and service; and in machinery sales.

The programme includes studies in mathematics and physics plus specialized subjects such as engineering materials, draughting, strength of materials, machine design, fluid mechanics and fluid power, business, thermodynamics, electricity, and machine tools. Theory presented in lectures is directly applied in problem periods, design drawing sessions, and laboratory assignments utilizing excellently equipped laboratories and shops. In the thermodynamics laboratory, for example, students will operate and test steam boilers, air compressors, a steam turbine, gas turbine, dual-fuel engine, and other equipment, while in the machine shop they will use engine lathes, milling machines, a turret lathe, jig borer, boring mill, precision grinders, punch press, and other modern equipment. In the fluid-power laboratory, students utilize miniaturized equipment to verify hydraulics theory and build hydraulic and pneumatic circuits to amplify lecture material on modern fluid-power techniques.

To augment these studies, field trips will be made to industrial plants to observe practical installations and operations. Close liaison with industry will ensure that graduates are trained to meet the exacting and varying requirements of industry. Coincidentally, this liaison will acquaint students with the range of opportunities available and assist them in selecting their individual areas of greatest interest.

To span the broad field of Mechanical Technology, two options are provided, subject to adequate enrolment in each—(1) Production, (2) Design. Choice of option will be made at the end of the first year.

Those best suited to take advantage of this training will be students interested in applying scientific knowledge to practical use in the mechanical field. The aspiring technologist must have a sound grounding in mathematics and physics, and should be able to apply ideas in practical situations. Because the mechanical technologist normally functions as a key member of a closely knit team of engineers, production supervisors, craftsmen, and others, his ability to work with people effectively and congenially is essential. Working conditions generally are attractive, and physical requirements are not demanding.

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	Physics	3	3
49.101	Draughting	—	3
41.103	Engineering Materials	2	3*
49.105	Applied Mechanics	3	3*
49.165	Shopwork	—	3
49.168	Machine Tool Theory	2	2
90.230	Business	2	1
	Tutorials	—	—
		17	18

Term 2

31.201	Writing and Contemporary Thought	2	1
32.223	Mathematics	3	2
33.201	Physics	3	3
49.201	Draughting	—	3
41.203	Engineering Materials	2	3*
49.210	Strength of Materials	3	3*
49.225	Applied Heat	1	1
49.265	Shopwork	—	3
49.268	Machine Tool Theory	2	2
	Tutorials	—	1
		16	19

YEAR 2 — *Term 3*

No.	Subject	PRODUCTION OPTION Hours per Week Lec.	Lab.	DESIGN OPTION Hours per Week Lec.	Lab.
31.301	Writing and Contemporary Thought	1	1	1	1
32.305	Mathematics	3	2	3	2
49.301	Engineering Graphics	—	3	—	3
49.312	Machine Design	3	2	3	2
49.315	Fluid Mechanics	2	2	2	2
43.331	Electrical Equipment	2	1	2	1
90.390	Introduction to Work Study	—	—	1	2
90.391	Work Study I	1	2	—	—
48.350	Instrumentation	—	—	—	3
49.325	Thermodynamics	—	—	2	3
49.350	Production Engineering	2	2	—	—
49.365	Shopwork	—	3	—	—
	Tutorials	—	3	—	2
		14	21	14	21

Term 4

31.401	Writing and Contemporary Thought	1	1	1	1
32.446	Mathematics	3	2	3	2
49.435	Fluid Power	2	3	2	3
49.455	Tool Design	1	2	1	2
49.465	Shopwork	—	3	—	3
48.450	Instrumentation	—	—	—	3
49.412	Machine Design	—	—	3	2
49.425	Thermodynamics	—	—	3	4
49.445	Manufacturing Processes	2	4*	—	—
49.450	Production Engineering	3	3	—	—
90.491	Work Study II	1	3	—	—
	Tutorials	—	5/1*	—	2
		13	22	13	22

* Alternate weeks.

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and any three of Physics 11, 12 and Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Electrical 11, Draughting 11 and 12.

Mining Technology

During the past decade as a supplier of metals to the entire world, Canada has been increasing its share of the market and has now become a major producer of such metals as iron, asbestos, lead, nickel, silver, and zinc. Western Canada is now about to experience an unprecedented expansion of the mining industry. Exploration in British Columbia and the Yukon is more active than anywhere in North America, and the area is considered to be the most promising mineral-bearing region on the continent. Coupled with this is the great interest shown in the non-metallic mineral deposits now being developed on the Prairies. Several major discoveries, currently being examined, offer reasonable assurance of production and consequent demand for engineers and technicians.

Because of strong international competition, the higher costs of operation in our rugged terrain, and the increasingly complex ores now being sought, the industry is becoming much more reliant upon engineering imagination and technological skill.

The programme of Mining Technology is designed to serve this major industry by preparing technicians to help search for new mineral deposits, develop and operate new mines, and design and operate new mineral-processing plants. Most students who complete this programme can expect to enter the industry as exploration assistants mapping structure, logging drill core, or performing geophysical and geochemical tests in the field; as engineering assistants sampling developed rock, surveying in pits or underground, or doing production control work in mines; or as test laboratory technicians, assayers, or junior operating staff in mineral-processing plants.

Opportunities for advancement in this industry are good for a person of ability and initiative, and, possibly within 5 years of graduation, he might well achieve a supervisory rank as party chief, shiftboss, or foreman.

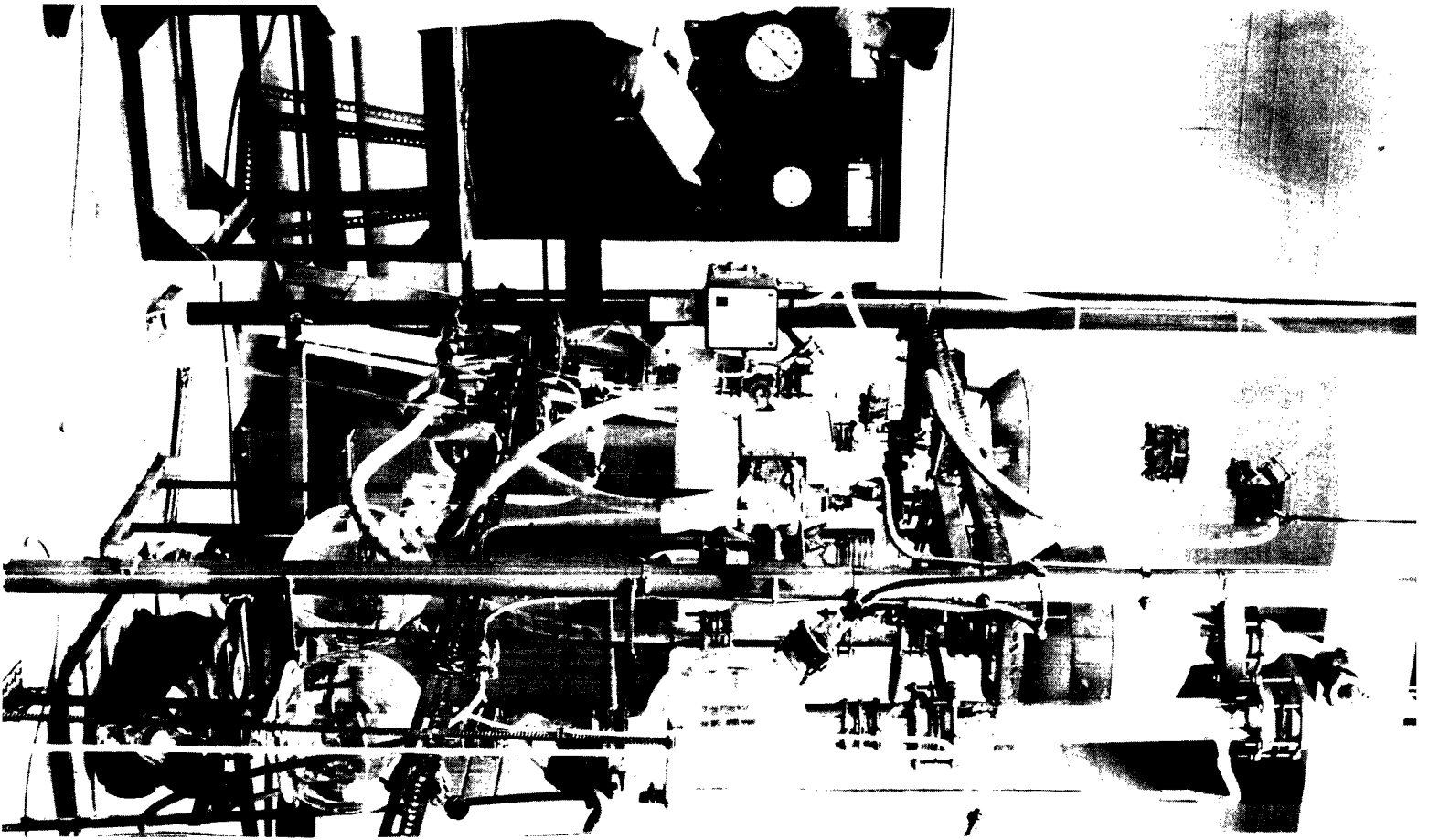
Men entering the mining industry should be able to get along with people, be able to enjoy life in smaller communities, and be willing to travel. They should also have good health and be able to pass a medical examination and chest X-ray if they wish to work in or around a mine.

MINING TECHNOLOGY

No.	Subject	Hours per Week Lec.	Lab.
	YEAR 1 *Term 1*		
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	General Physics	3	3
30.101	General Chemistry	3	3
49.101	Draughting	—	3
41.103	Engineering Materials	2	—
51.102	Surveying	—	3
50.101	Geology	2	2*
50.102	Mining	2	—
	Tutorials	—	1/3†
		17	18
	Term 2		
31.201	Writing and Contemporary Thought	2	1
32.242	Mathematics	3	2
33.201	General Physics	3	3
30.201	General Chemistry	3	3
49.201	Draughting	—	3
41.203	Engineering Materials	2	—
51.202	Surveying	—	3
50.201	Geology	2	2*
50.202	Mining	2	—
	Tutorials	—	1/3†
		17	18
	YEAR 2 *Term 3*		
90.230	Business	2	1
31.301	Writing and Contemporary Thought	1	1
32.303	Mathematics	3	2
42.103	Statics	2	2
41.305	Assaying (Laboratory Option)	1	6
41.306	Assaying (Mining Option)	1	3
51.305	Surveying (Mining Option)	—	3
50.301	Geology—Structural	2	3*
50.304	Mineral Processing	2	3*
50.302	Mining—Operation	2	—
50.303	Mining—Equipment	—	2*
33.304	Introduction to Geophysical Prospecting Methods	—	2*
	Tutorials	—	3
		15	20
	Term 4		
31.401	Writing and Contemporary Thought	1	1
32.456	Mathematics	3	2
42.205	Strength of Materials	—	3
42.202	Hydraulics	2	2*
41.405	Assaying (Laboratory Option)	1	6
41.406	Assaying (Mining Option)	1	3
51.405	Surveying (Mining Option)	—	3
50.401	Geology—Mineral Deposits	2	3*
50.404	Mineral Processing	2	3*
50.402	Mining Operation	2	—
50.403	Mining Equipment	—	2*
	Tutorials	—	3/5*
		13	22

* Alternate weeks.
† One hour one week and 3 hours next week.

General Prerequisite: Graduation on the Academic-Technical Programme.
Special Prerequisites: Mathematics 12 and any three of Physics 11, 12 and Chemistry 11, 12.
Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Draughting 11.



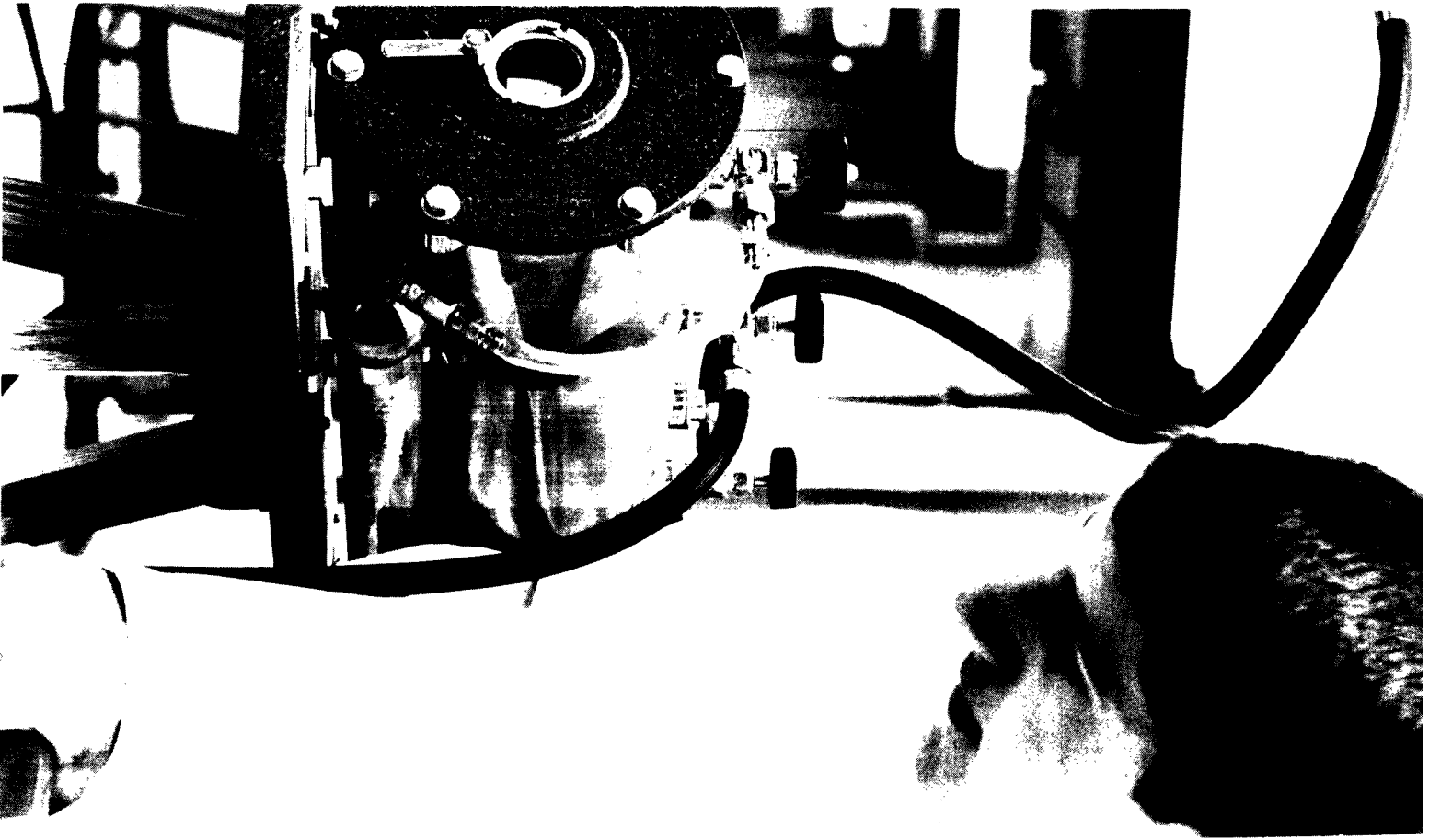
Natural Gas and Petroleum Technology

The gas and oil industry offers a wide variety of employment opportunities for a qualified technician. The transmission branch of the industry, involving the operation of pumping stations and maintenance of pipe-lines over vast areas, offers graduates opportunity for outdoor work in remote regions. On the other hand, the refining branch of the industry, usually located in more populous areas, offers a stable source of interesting work if this is preferred. Moreover, the industry as a whole is one of the most modern and up to date and is constantly introducing the latest technological improvements. Thus, there is every opportunity for a keen technician to advance in an interesting and profitable vocation.

The first year of the programme offered at the Institute primarily covers basic scientific and engineering principles as a foundation for the subsequent specialized petrochemical training. Training will be provided in the distribution and utilization of gas in both industrial and domestic fields, and there will be considerable emphasis on measurement and automatic control since the trend is toward completely unmanned automatic installations. Tuition will be given in the transmission of oil and its utilization in modern automatically controlled refineries, and there will be emphasis on the chemistry of petroleum products. The course will include a brief orientation course in business practices, computer programming, and frequent opportunities for field trips to local installations.

Students desiring to enter this field should have a keen interest in the operation of large-scale equipment, as distinct from its maintenance and repair, and should have a good academic standing in chemistry and physics. Although in modern refineries most of the time may be spent indoors, technicians should be prepared to work outdoors for lengthy periods. They must be prepared, in the plant operations, to take great responsibility for the satisfactory and safe operation of highly complex plant equipment.

Employment opportunities for technicians include laboratory work, studies of corrosion of above-ground and buried structures, analysis of oils, gases, and petroleum products, right-of-way land work, and plant operation in pumping stations and refineries. With such a variety of opportunities, a qualified technician should have no difficulty in establishing himself in a profitable and interesting career.



NATURAL GAS AND PETROLEUM TECHNOLOGY

YEAR 1 — *Term 1*

No.	Subject	Hours per Week Lec.	Lab.
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	General Physics	3	3
30.101	General Chemistry	3	3
49.101	Draughting	—	3
41.103	Engineering Materials	2	3*
51.102	Surveying	—	3
90.230	Business	2	1
	Tutorials	—	1/4†
		15	20

Term 2

31.201	Writing and Contemporary Thought	2	1
32.223	Mathematics	3	2
33.201	General Physics	3	3
30.201	General Chemistry	3	3
47.221	Gas Distribution and Utilization	3	3
49.266	Introduction to Machine Tools	1	1
90.190	Work Study	3	—
	Tutorials	—	4
		18	17

YEAR 2 — *Term 3*

31.301	Writing and Contemporary Thought	1	1
32.305	Mathematics	3	2
47.341	Unit Operations	3	3
47.311	Gas and Oil Production and Transmission	3	3
30.302	Physical Chemistry	2	3
43.132	Electrical Fundamentals	2	3
48.350	Instrumentation	—	3
	Tutorials	—	3
		14	21

Term 4

31.401	Writing and Contemporary Thought	1	1
32.464	Mathematics	3	2
47.441	Unit Operations	3	3
48.450	Instrumentation	—	3
30.404	Organic Chemistry	2	3
90.351	Scientific Computer Programming	2	—
47.431	Oil Refining and Utilization	4	4
	Tutorials	—	4
		15	20

* Alternate weeks.
† Two hours one week and 5 hours the next week.

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and any three of Physics 11, 12 and Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Draughting 11.

Surveying Technology

Survey techniques have undergone radical changes during the last two decades, due largely to advances in the development of electronic devices which are capable of measuring distance up to 40 miles with an accuracy of three parts per million, and significant refinements which have been made in photographic equipment and their applications to aerial photogrammetry.

The two-year programme in the Surveying Technology has two main objectives. The first is to equip the student with the required knowledge of mathematics, physics, astronomy, photogrammetry, and theory of surveying, together with the practical skills in note-keeping, draughting, field operations, and calculating so that he may be employed as a surveying or engineering assistant in the various fields where survey techniques are used. The second objective is to provide those students with the knowledge and skills which, with experience, will eventually qualify them as members of the Corporation of Land Surveyors of British Columbia.

Intensive courses will be given in mathematics, physics, photogrammetry, astronomy, natural science, and descriptions for deeds, in which the standards are those required by the Corporation of Land Surveyors of British Columbia. A student who has successfully completed this programme may, after three years of articles with a qualified land surveyor, sit for the final examination of the Corporation and obtain a commission as a British Columbia land surveyor.

Employment opportunities in survey fields are widely varied. Surveyors, consulting engineers, the oil and gas industry, government mapping departments, government highway departments, utility companies and civic planning and engineering departments are among those that offer employment to graduates. Areas of employment in Canada range from the southern border to the Arctic regions and from the Pacific to the Atlantic Ocean and many Canadian surveyors are employed on large mapping projects throughout the world.

The student requires a good basic understanding of mathematics and physics to the University Entrance level and should also be physically and mentally suited to outdoor and office work.

SURVEYING TECHNOLOGY

No.	Subject	Hours per Week Lec.	Lab.
	YEAR 1 *Term 1*		
31.101	Writing and Contemporary Thought	2	1
32.101	Mathematics	3	2
33.101	General Physics	3	3
49.101	Draughting	—	3
51.101	Surveying	2	8
42.102	Hydraulics	2	2*
51.103	Natural Science	1	2
	Tutorials	—	1/3†
		13	22
	Term 2		
31.201	Writing and Contemporary Thought	2	1
32.226	Mathematics	3	2
33.201	General Physics	3	3
90.230	Business	2	—
49.201	Draughting	—	3
51.201	Surveying	2	8
	Tutorials	—	6
		12	23
	YEAR 2 *Term 3*		
31.301	Writing and Contemporary Thought	1	1
32.303	Mathematics	3	2
51.301	Surveying	3	8
51.306	Astronomy	3	—
51.307	Photogrammetry	2	—
51.302	Description for Deeds	2	—
51.303	Draughting	—	6
	Tutorials	—	4
		14	21
	Term 4		
90.190	Work Study	—	2
31.401	Writing and Contemporary Thought	1	1
32.445	Mathematics	3	2
51.401	Surveying	2	12
51.406	Astronomy	2	3
51.407	Photogrammetry	2	2
	Tutorials	3	—
		13	22

* Alternate weeks.

† One hour one week and 3 hours next week.

General Prerequisite: Graduation on the Academic-Technical Programme.

Special Prerequisites: Mathematics 12 and any three of Physics 11, 12; Chemistry 11, 12.

Subjects Desirable but Not Essential (*see* General Requirements under Enrolment): Draughting 11.

ACKNOWLEDGMENTS

Grateful acknowledgment is made to the following persons and organizations for photographs used in this publication:

British Columbia Hydro and Power Authority.
Division of Technical and Vocational Curriculum, Technical Branch, Department of Education.
Visual Education Department, Vancouver School Board.

SUBJECT SUMMARIES

SUBJECT NUMBERING SYSTEM

Subjects are numbered to indicate the technology or department under which instruction is given, the term, and the subject material. The first two figures indicate the parent technology or department, the third figure indicates the term in which a subject is normally taught, the last two figures indicate the subject description. In the example 31.201, the "31" shows that the subject is offered by the English Department, the "2" shows that the subject is normally taught in the second term, the "01" stands for the subject description. The departments and technologies with their corresponding numbers are as follows:

30—Chemistry.
31—English.
32—Mathematics.
33—Physics.
40—Building.
41—Chemical and Metallurgical.
42—Civil and Structural.
43—Electrical and Electronics.
44—Food.
45—Forestry.
46—Forest Products.
47—Natural Gas and Petroleum.
48—Instrumentation.
49—Mechanical.
50—Mining.
51—Surveying.
82—Health Technology.
90—Business Management.
91—Broadcast Communications.
92—Hotel, Motel and Restaurant Management.

CHEMISTRY

30.101, 30.201 General Chemistry

The material presented in this course includes fundamental principles of inorganic, physical, and organic chemistry.

During the first part of the course the following topics will be presented: atomic structure; periodicity; bonding; practical problem solving; applications of the gas laws; liquids, solids, and changes of state; solution chemistry; colloids; chemical kinetics and equilibrium; ionic equilibrium; electrochemistry; periodic table trends and descriptive chemistry of representative elements.

The latter part of the course will include the properties and major reactions of the following classes of organic compounds: alkanes; alkenes; alkynes; simple aromatic compounds; alcohols; ethers; aldehydes; ketones; carboxylic acids, amines, amino acids, and carbohydrates.

Laboratory work consists of qualitative analysis of common anions and cations; gravimetric analysis of simple industrial materials; volumetric analysis (acid-base and oxidation-reduction) of natural compounds; and basic organic techniques and preparations.

30.182, 30.282 General Chemistry

A general course in which inorganic and physical chemistry (Part A) and organic and biochemistry (Part B) are presented concurrently. Part A comprises two-thirds of the lecture periods in Term 1 and one-third in Term 2.

Topics presented in Part A include atomic theory and the periodic table; bonding; chemical formulæ and equations; the gas laws, properties of solutions; distillation; equilibrium; properties of acids and bases; kinetics; electrochemistry; and nuclear chemistry.

In Part B the properties and some of the reactions of the major classes of organic compounds are described with an introduction to reaction mechanisms. A selection of biochemical material is presented which includes carbohydrate and fat metabolism; properties of amino acids and their metabolism; properties of proteins and their synthesis; enzyme action; and metabolic effects of hormones, pesticides, and herbicides.

The laboratory work consists of quantitative inorganic analysis, organic synthesis, properties of biological materials, physical methods of their analysis, and enzyme reactions.

30.182A, 30.282A Introductory Chemistry for Nurses

Similar to 30.182, 30.282, without laboratory.

30.201 *See* 30.101.

30.202 General Chemistry

Basic chemical concepts are stressed to develop an understanding of simple reactions, oxidation-reduction, bonding, periodic trends in chemical properties, solids and liquids, pH, ionic equilibria, and electrochemistry.

The laboratory work is designed to illustrate and complement the lecture material. Typical chemical reactions and properties of common compounds are systematically examined in qualitative analysis. Simple gravimetric and volumetric analysis exemplifies stoichiometric reactions and calculations, while chromatography and ion exchange methods demonstrate more modern techniques. Corrosion processes are examined with emphasis on control and prevention in the industrial situation.

30.282 *See* 30.182.

30.204, 30.304 Chemical Laboratory Techniques

This course teaches basic techniques in sampling, weighing, moisture determinations, ashing, extractions, filtration gravimetric methods, volumetric methods; instrumental analysis and separation methods will be described, demonstrated, and whenever possible, practised.

30.282 *See* 30.182.

30.301, 30.401 Organic Chemistry

A general course in organic chemistry in which the properties and reactions of all major classes of organic compounds are described: aliphatic and aromatic hydrocarbons, alcohols, acids, phenols, aldehydes; ketones, amines, amides, amino acids, sulphur compounds, carbohydrates, heterocyclic compounds, dyes and polymers. Reaction mechanisms are introduced where these are of value in assisting the student to organize the material.

Laboratory work consists of syntheses of organic compounds, using some of the more important reactions described in the lectures, qualitative chemical analysis, and some physical methods of analysis.

30.302 Physical Chemistry

The course presents the kinetic theory of gases, the first and second laws of thermodynamics, the study of crystals by X-ray diffraction, the phase rule, chemical kinetics, and catalysis. Laboratory work consolidates lecture material and gives experience in practical physical chemical measurements.

30.303 Instrumental Analytical Methods

This course introduces basic theoretical concepts, instrument construction and operation, and general applications of the following methods: measurement of pH; potentiometry; polarography; spectrophotometry (including visible, ultraviolet, infra-red, and atomic absorption); flame photometry; refractometry and polarimetry; solvent extraction; column, paper, and thin layer chromatography, gas chromatography; ion exchange resins; and basic radioisotope counting techniques.

30.304 *See* 30.204.

30.305, 30.405 Chemical Instrumentation

This course presents the basic instrument components, their characteristics, and their modular construction in analytical instrumentation. The emphasis is on signal flow and the information represented by the same. Basic design patterns, as well as practical aspects of servicing, are presented with references to pH meters, polarographs, titrators, spectrophotometers, gas chromatographs, rate meters and scalers, chemical signal sources, electrical components, operational amplifiers as multipliers, subtractors, function generators, and servo-systems.

Laboratory work consists of examination of components and construction of basic instruments described in the lectures.

30.401 *See* 30.301.

30.404 Organic Chemistry

This course presents a survey of the properties and common reactions of the classes of organic compounds which are found in petroleum, or are of importance in the petrochemical industry: paraffins, olefins, alkynes, aromatic hydrocarbons, sulphur compounds, and heterocyclic compounds. The chemistry of the refining processes and of the production of some petrochemicals is presented.

In the laboratory the student will use some of the reactions described in the lectures and will carry out some analyses of petrochemicals using physical and chemical methods.

ENGLISH

31.101, 31.201 Writing and Contemporary Thought

The course will consist of two parts. Part A comprises a review of the principles of composition, emphasizing the two main prose forms, description and argument, and the methods of development writers commonly use for these forms; a brief survey of the history of English, the principles of semantics, and the logic of argument; and the application of all the preceding material to the writing of technical reports. Part B is concerned with the analysis of some major problems of the 20th century, with particular emphasis on the social consequences of science and technology.

31.102, 31.202 Business Writing and Contemporary Thought

The course will consist of two parts. Part A comprises a study of the applications of the basic principles of composition, semantics, and social psychology to the writing of business letters and reports. Part B is concerned with the analysis of some major problems of the 20th century as they are presented in modern literature, with particular emphasis on the social consequences of science and technology.

31.103, 31.203 Writing and the Mass Media

The course will consist of two parts. Part A comprises brief examinations of the history of English, the relations between language and culture, semantics, the methods of argument and persuasion, and the application of the preceding material to the writing of letters, reports, and scripts. Part B consists of studies in the development, nature, effects, and uses of the media of mass communication.

31.201 *See* 31.101.

31.202 *See* 31.102.

31.301, 31.401 Writing and Contemporary Thought

The first part of the course continues the instruction in technical writing provided in the first year; the second year's work is mostly concerned with problems in the selection and arrangement of technical data, and substantial writing projects on topics arising out of the student's special field. The second part continues the attempt of the first year's work to analyse the social context of technology and the technician in the modern world, through the study of modern essays, short stories, and novels.

31.302 Business Communications

In this course, students will continue the work of the first year, with emphasis on communication theory, and on practical problems of interpretation, evaluation, organization, and presentation of data, in both written and spoken form.

31.303, 31.403 Writing and Modern Literature

The course consists of a study of some representative modern fiction and drama, with the intention of developing in the student some understanding of the methods and aims of writers.

31.401 *See* 31.301.

31.403 *See* 31.303.

32.ABC Mathematics for the Technologies (Except Electrical and Electronics, Broadcast Communications, and Health Technologies).

(NOTE.—The order in which the following units of study are scheduled in a particular technology programme is indicated by the subject number 32.ABC, where A is the term number and B and C are the unit numbers associated with that term (e.g., 32.436 indicates a mathematics course running in Term 4 and consisting of Units 3 and 6).)

Unit 0

An introductory course in computational techniques involving basic ideas in flow-charting and programming with the use of calculators and computer; given in Term 1 and continuing in Term 3.

Unit 1

Topics in algebra and trigonometry, with technical applications, prerequisite for the courses described in Units 2 to 6.

Unit 2

An introductory course in calculus and its applications involving the differentiation and integration of algebraic, trigonometric, logarithmic, and exponential functions.

Unit 3

Further calculus topics and applications; conics and calculus problems associated with these; power series; partial differentiation; differential equations.

Unit 4

An introduction to statistics. Organization and presentation of data; measures of central tendency and dispersion; frequency distributions; sampling; estimation; hypothesis testing; regression.

Unit 5

Elementary numerical methods in theory and practice; iterative methods in the solution of algebraic and transcendental equations; finite differences; interpolation; numerical differentiation and integration; numerical solution of simple differential equations.

Unit 6

Further topics of special importance in the student's chosen technology, selected from applied analytic geometry, spherical trigonometry, further statistics, further differential equations, Boolean algebra, linear algebra, further numerical methods.

(NOTE.—In Units 2 to 6, problems will be assigned requiring solution by computer routines.)

32.170, 32.270, 32.370 Mathematics for Electrical and Electronics, Broadcast Communications (Technical Option), and Health (Biomedical Option) Technologies.

32.170

This course deals with the theory and application in the electrical and electronic fields of the following areas of study: Trigonometry, with empha-

sis on wave-forms, vectors, and use of identities; complex numbers and their use in a.c. circuit calculations; logarithmic and exponential functions, with application to transient and power problems; linear equations, matrices and determinants, with application to mesh circuits analysis.

32.182, 32.282 Mathematics for Health Technology (Except Biomedical and Nursing Options)

32.182

This course, together with 32.282, is designed to provide Health Technology students with a good understanding of the mathematical principles and practices used in their various fields of work.

Exponents and logarithms (common and natural); logarithmic and exponential equations, log-log and semi-log graphs.

Introduction to calculus. The derivative and its applications; the integral and its applications.

Special topics. Applications especially suited to specific branches of Health Technology.

32.270

A course in calculus dealing with the following topics, with applications throughout in the electrical and electronics fields: The differentiation and integration of algebraic, trigonometric, logarithmic, exponential, and hyperbolic functions; power series; partial differentiation; differential equations of the first and second order.

This course will include a short course on computing techniques involving basic ideas in flow-charting and programming with the use of calculators and computer.

32.282

Descriptive statistics—organization and graphical presentation of data: measures of location, variation, skewness, and kurtosis.

Probability, theoretical frequency distributions, sampling and sampling distributions.

Inference statistics—estimation, hypothesis testing, chi-square, non-parametric methods, analysis of variance, quality control.

Correlation and regression.

Special topics.

32.290

An introductory course in the Fortran language, involving the use of the I.B.M. 360 computing system, and with applications in the Health Technology field. Some subsidiary topics in mathematics, additional to those in Courses 32.182 and 32.282, will be presented.

32.370

Laplace transforms; transform pairs of functions and operations, inverse transforms, applications to circuits involving integro-differential equations, the transfer function, pole-zero configurations. Matrix algebra; use of determinants in mesh and model analysis, simple matrix operations and their application in four-terminal networks. Fourier series; trigonometric form of Fourier expansion, analysis of various wave-forms.

PHYSICS

33.101, 33.201 General Physics

This course is designed to satisfy the background knowledge required in the various engineering technologies and consequently covers elementary aspects of the main fields of physics: structure and properties of matter, statics, kinematics, Newton's laws of motion, angular motion, fluids, sound, calorimetry, thermal behaviour of gases, thermodynamics, electromagnetism,

d.c. circuits, brief treatment of simple a.c. circuits, applied electricity, geometrical optics, wave optics, applied optics, atomic and nuclear phenomena. Mathematical treatment requires only algebra and trigonometry, although calculus may be introduced near the end of the second term. Considerable emphasis is placed on laboratory work.

Prerequisite: Thorough grounding in senior secondary-school physics is presumed. Physics 11 in British Columbia is the minimal requirement.

Text: A. Beiser, *Modern Technical Physics,* Addison-Wesley, 1966.

33.102, 33.202 Introductory Physics

This course covers, at a somewhat lower level, approximately the same material as Physics 33.101, 33.201. The course is designed for those process and medical technologies for which secondary-school physics is not a prerequisite. Considerable emphasis is placed on laboratory work. Mathematical treatment demands only basic algebra and trigonometry.

Text: A. Beiser, *The Mainstream of Physics,* Addison-Wesley, 1963.

33.103 Basic Medical Physics

This course is designed especially for students in the nursing programme. The course is a descriptive rather than a quantitative treatment of the elements of general physics, and dwells in some measure on practical examples of physical principles as found in the field of medicine. There is no laboratory programme associated with the course, but extensive use is made of demonstration experiments during the lectures.

Text: C. E. Bennett, *Physics without Mathematics,* Barnes and Noble, 1960.

33.205 Radioactivity

This course is designed for students in the Medical Isotope Programme. Physics 33.202 is presumed to be taken concurrently. The course involves a quantitative, rather than a descriptive, approach to those elements of physics bearing directly upon radioactivity and radiation phenomenia: atomic structure; X-rays; early experiments in radioactivity; radioactive change and successive radioactive transformations; half life; some key nuclear reactions; the energetics of nuclear change; the interaction of radiation with matter; production of radioisotopes; survey of radiation detection methods.

Prerequisite: Physics 33.102.

Text: To be announced.

33.301 Electricity and Magnetism

This course is designed particularly for the Electrical and Electronics Technology, and concerns itself with electric and magnetic fields in materials, energy bands and semi-conductors, dielectrics, magnetism (particularly ferromagnetic behaviour), and to a limited extent with quantum electronics.

Prerequisite: Physics 33.101, 33.201.

33.303 The Physics of Medical Radiography

This course is designed for diagnostic X-ray technicians. The course deals with the elements of electricity and modern physics as they apply specifically to medical radiography. Among the topics included are: Radioactivity in medicine, transient phenomena in d.c. circuits, electromagnetic phenomena, elementary a.c. circuit analysis, valve tubes and solid-state rectifiers, X-ray

tubes, gas tubes in control circuits, the essentials of a complete X-ray circuit, the production and nature of X-rays and their interaction with matter.

Prerequisite: Physics 33.102 and 33.202.

Text: A. Ridgway and W. Thumm, *The Physics of Medical Radiography*, Addison-Wesley, 1968.

33.304 Geophysical Prospecting Methods

This course will stress points of particular interest to those engaged in exploring and developing mineral bodies. Magnetic prospecting: basic concepts and definitions, magnetic susceptibilities of rocks; prospecting instruments; field procedures; air-borne magnetometer surveys; reduction and interpretation of data. Electrical prospecting: electrical properties of rocks; self-potential and equipotential methods; resistivity methods. Inductive methods: induced polarization; INPUT method; electromagnetic techniques. Prospecting for radioactive minerals: fundamental principles; prospecting equipment; examples of radioactivity surveys.

Prerequisite: Physics 33.201.

33.305 The Measurement of Radioactivity

This course is a continuation of Physics 33.205 in that it concerns itself in detail with the methods of radiation detection surveyed in 33.205. The following topics are considered: Statistics of detection systems; ionization chambers; Geiger-Müller counter; proportional counters; scintillation detectors; calorimeter; electroscope; semi-conductor radiation detectors; cloud chambers; photographic emulsions and other detection systems; neutron detection methods (briefly); electronics for nuclear radiation detection; methods of radioactivity standardization.

Prerequisite: Physics 33.102, 33.202, 33.205.

Text: To be announced.

33.401 Biophysics

A study of biophysics with particular reference to the needs of the biomedical technologist. The course will cover mechanics, electricity, magnetism, waves, heat and temperature. The emphasis in the lectures and laboratories will be on basic physics as applied to biological systems.

Prerequisite: The lecture development will require a knowledge of algebra and trigonometry; however, no previous physics training other than in the realm of electrical circuits is assumed.

BUILDING

40.101, 40.201 Design and Draughting

Fundamentals of design, æsthetic and functional; design of utilitarian objects; architectural design principles.

Advanced draughting; lettering; isometric; perspective; presentation techniques, sketching; colour; model building; simple architectural design.

40.102, 40.202 Building Construction

Principles of building construction in terms of the assembly of materials; examination of typical systems of wood and masonry construction; preliminary introduction to characteristics of materials; study of architectural detailing.

Application of the above to the preparation of working drawings, in co-ordination with courses in Building Structures and Building Services. Trips to building sites and plants.

40.103, 40.203 Building Services

Introduction to building services complex; water supply; waste disposal; heating; electrical illumination. Emphasis on fundamentals and interrelation of services.

Preparation of working drawings for mechanical and electrical systems. Field trips.

40.104 Building Regulations

Origins and purposes of building regulations; typical zoning by-laws and building by-laws. National Building Code; other Acts, codes, by-laws, and regulations related to buildings.

Aspects of common law and law of contract related to building premises.

40.120 Building Structures

Historical development and relation to structural design; vectors and force systems; graphical representation; resultants and components; moments and couples; conditions of equilibrium; force polygon; funicular polygon; co-planar systems; three-dimensional systems; frames and trusses; stress diagram and Bowes notation; chains and cables; vertical shear force and bending moment diagrams; related problems and experiments with emphasis on building structures, retaining walls.

40.201 *See* 40.101.

40.202 *See* 40.102.

40.203 *See* 40.103.

40.220 Building Structures

Historical development of structural systems; contemporary structures; principles of structural design; discussion of structural materials and their properties.

Assumptions of loading and types of loading; stress, strain, and elasticity; simple stresses; temperature stresses; composite material and resultant stresses; yield; factors of safety and load factors.

Properties of sections, bending moments, and shear forces; theory of flexure; slope and deflection of beams; restrained and continuous beams.

Axially loaded columns; tension and compression members; connections.

Introduction to soils, foundations, piling, and retaining walls.

40.301, 40.401 Design

Short history of architecture and building, particularly since the Industrial Revolution; contemporary architectural masterpieces, with analysis of their planning, structure, services, æsthetic quality, landscaping.

Draughting-room exercises in architectural design, integrated with other courses, sketching and rendering; model-making.

During the summer months between first and second years, students will be required to prepare an illustrated report. This will be presented at the commencement of second year and be marked as part of the second-year Design course.

40.302, 40.402 Building Construction

Continuation of first-year course, but applied to concrete and steel framed buildings; site fabrication and assembly; prefabrication.

Application of the above to the preparation of working drawings, in co-ordination with the courses in Building Structures and Building Services. Trips to building sites and plants.

40.303, 40.403 Building Services

Ventilation; air conditioning; electrical illumination and power supply; mechanical equipment; transportation; communication; acoustics.

Preparation of working drawings related to above, and to projects in Design and Building Construction. Field trips.

40.305, 40.405 Construction Specifications

Contract documents; types of specifications; writing techniques; standard format for North America.

Study of materials and methods; properties of materials and components; construction science; use of indigenous materials and methods; field trips to sites and to factories.

Practical specification writing for a project: use of computers for selection of materials and methods, and for production of project specifications using basic specifications.

Correlated with Construction Estimating and Building Construction.

40.306, 40.406 Construction Estimating

Construction procedure of design, tendering, site work and supervision: fundamentals of law; contracts; bonds; contractual relationships; rights and responsibilities.

Estimating—cost accounting cycle; measurement of work from drawings; quantity surveying.

Economics of building; practical cost analysis; bid preparation and submission; contract management.

Cost accounting; production control. Approximate estimates for cost planning and control. Correlation of all building courses into the design-estimating-production procedure.

40.320 Building Structures

Reinforced-concrete beams; tension steel only; one-way and two-way slabs; compressive reinforcements; tee beams; axially and eccentrically loaded columns; simple footings and retaining walls; reinforcing detailing, schedule, and placement; design of forms.

40.401 *See* 40.301.

40.402 *See* 40.302.

40.403 *See* 40.303.

40.405 *See* 40.305.

40.406 *See* 40.306.

42.420 Building Structures

Combined bending and axial loads; eccentric columns in steel and timber; built-up sections in steel and timber; beam-column connections.

Restrained and continuous beams; strain energy; moment-area; moment distribution; portal and multi-story frames; steel and timber detailing and fabrication.

Discussion of ultimate load design, prestressed concrete, advanced structural forms, and experimental stress analysis.

CHEMICAL AND METALLURGICAL

41.102 Laboratory Workshop

Use of hand and bench tools; soldering, brazing, and gas welding. Glass-blowing techniques; repair of chemical glassware and construction of simple apparatus. Basic electrical circuitry, electrical fittings, switches, and safety precautions. Organization and control of chemical laboratory, record-keeping, ordering and inventory.

41.103, 41.203 Engineering Materials

Comparative properties of all classes of engineering materials, including metals and alloys, woods, plastic materials, ceramic materials, concrete, and composite materials; bonding forces in solids; microstructures, plastic deformation, work-hardening, recrystallization; failure of materials under operating conditions; plastic materials; elastomers; wood and wood products; introduction to binary phase diagrams of alloy systems; precipitation hardening; heat treatment of steels; plain carbon and alloy steels; ceramic materials; inorganic cements; concrete; composite materials; electrical and magnetic materials; corrosion and weathering of materials. Laboratory assignments in physical testing of materials, properties of materials in operating environments, and comparison of materials.

41.203 *See* 41.103.

41.207 Unit Processes

Use of flow diagrams for representing chemical processes; instrumentation flow plan symbols; production of sulphuric acid and nitric acid; production of caustic soda and chlorine; production of phenol; production of phenol-formaldehyde, urea-formaldehyde, and alkyd resins; paints and varnishes; the pulping processes; petroleum refining; sugar refining, fermentation processes and the production of ethyl alcohol; refining of copper, lead, and zinc; production of aluminum; fuel gases; industrial gases.

41.303, 41.403 Analytical Chemistry

Conventional inorganic methods of analysis for the determination of the common metals in ores and alloys. Basic methods of fire assaying for gold and silver. Advanced analytical techniques using various instruments such as the polargraph, spectrophotometer, colorimeter, gas chromatograph, refractometer, spectrograph, X-ray scintillometer, X-ray diffractometer, etc.

41.304, 41.404 Physical Metallurgy

Relation of extractive metallurgy to physical metallurgy; iron- and steel-making processes; review of crystallography; solidification of metals and alloys; casting methods and defects; foundry technology; metal-forming operations; review of phase diagrams for binary and ternary alloy systems; isothermal transformations in steels; heat-treating techniques; non-ferrous metals and alloys; welding metallurgy; principles of non-destructive testing. Laboratory sessions supplement the lectures by field trips to industrial plants and emphasize physical testing of materials, metallography and non-destructive testing.

41.305, 41.405 Assaying (Laboratory Option)

Analytical chemistry applied to the ore minerals with special attention to fire assaying for gold and silver. Both titration and instrument techniques including X-ray diffraction are developed for the more common metals, and the student will be encouraged to attempt as soon as possible after graduation from the Institute the examinations for the Provincial Government licence to practise assaying in British Columbia.

41.306, 41.406 Assaying (Mining Option)

Similar to that for laboratory option but with only half the laboratory time and consequent reduction in application of theory.

41.307, 41.407 Extractive Metallurgy

Comminution, concentration, extracting; crushing, grinding, classification; concentration, flotation, filtration; electrical concentration; magnetic concentration; roasting; drying; cyanidation; cementation; ion exchange; differential solution; leaching; amalgamation; pelletizing; production, uses, and treatment of aluminum, copper, gold, silver, iron, lead, zinc, magnesium, manganese, mercury, molybdenum, nickel, antimony, titanium, tungsten, uranium.

41.309 Medical Materials

Comparative properties of all classes of engineering materials with emphasis on biomedical applications, including metals, plastic materials, adhesives, and composite materials; bonding forces in solids, microstructures, plastic deformation and annealing, alloying, heat treatment of steels, and nonferrous metals; polymers, elastomers, and organic adhesives; corrosion and ageing of materials; interaction of materials with biological tissues, toxicity; reference sources and materials selection.

41.403 *See* 41.303.

41.404 *See* 41.304.

41.405 *See* 41.305.

41.406 *See* 41.306.

41.407 *See* 41.307.

41.408 Assaying (Extractive Metallurgy Option)

The identification of economically important minerals, general principles of quantitative analysis of ore samples, including representative volumetric determinations such as acid-base, oxidation-reduction, and volumetric precipitation. Fire assaying, stressing fusion and combination wet-fire methods. Practical applications in instrumental and physiochemical analysis, including the latest analytical aids, polarography, spectrophotometry, atomic absorption, and emission spectroscopy.

CIVIL AND STRUCTURAL

42.101 Civil Engineering

This course includes the subjects Elementary Hydrology, Concrete Technology, Statics of Structures. In addition, an array of typical civil engineering problems are examined for solution. These solutions may be structural,

analytical, geometric, communicative, or economic. Visiting lecturers, movies, slides, and field trips make the student familiar with civil-engineered structures, their uses and their methods of construction.

Elementary Hydrology (42.102).—The application of precipitation data to various run-off areas is learned in order to predict run-off yield and flood magnitude. Measurement of storages and flows in the field is studied together with characteristics of open channel flows.

Concrete Technology.—Cement—types, chemistry, manufacture, and testing. Aggregates—sources, types, production, and testing. Concrete properties—strength, durability, permeability, workability, and testing. Concrete mix design. Production—mixing, transporting, placing, finishing, and curing. Formwork—design, construction, and stripping. Concrete products—precast, lock, pipe, etc. Special topics—cold-weather concreting, colouring, finishing, additives. Laboratory experiments and a field trip.

Statics (42.103).—Vectors, force systems, graphical analysis, resultants, components, moments, equilibrium laws, force polygons, funicular polygons, frames and trusses, stress diagrams, Bowes' notation, flexible tension members, load, shear and bending moment curves. Closely supervised problem sessions are used to provide the student with practice in common analytical and graphical solutions to problems of static load on simply determinate structures.

42.201 Civil Engineering

This course includes the subjects Elementary Hydraulics, Elementary Structural Design, Strength of Materials. An array of problems especially from the realms of transport and distribution are presented and solutions examined. Consequently the course introduces highways, airports, wharves, harbours, breakwaters, conveyors, pipe-lines, and irrigation works.

Elementary Hydraulics (42.202).—Hydrostatics, properties of fluids, pressure, centre of pressure; flow of fluids, equation of continuity, velocity head, venturi, jets; orifices; notch and weir, friction and pipe flow; Reynold's experiments, sudden stoppage, water hammer; viscous flow, laminar and turbulent; open channel flow, regular channels, hydraulic jump, irregular channels; backwater curve, dimensional analysis, dynamic similarity, model testing; meters, valves, pumps, and turbines. Laboratory experiments form a basic part of this course.

Elementary Structural Design.—Historical development of contemporary structural systems; loading, types and assumptions; principles of working stress design and ultimate load design; tension members in steel and timber; connections in steel and timber; compression members under axial loading; trusses and frames; theory of flexure and distribution of bending and shear stresses; deflexion and design of beams in steel and timber; combined bending and compression; eccentrically loaded columns; principles of bending in reinforced concrete; design of simple beam and slab with tensile reinforcement only; related problems and model experiments.

Strength of Materials (42.205).—Simple stresses; stress, strain elasticity; compound bars and columns; temperature stress; elastic limit; limit of proportionality; yield; ultimate; factor of safety; load factor; ductility; resilience; fatigue; shock. Properties of sections; bending moments; shear forces; theory of flexure; slope and deflection of beams; restrained and continuous beams. Strut theories; eccentric loading, lateral loading. Compound stress and strain; ellipse of stress; Poisson's ratio; principal stresses and strains; Mohr's circle. Testing techniques; machines; extensometers; strain gauges; brittle lacquers; photo elasticity; evaluation of results.

42.301 Civil Engineering

This course includes the subjects Introductory Soils Mechanics and Geology, Highway Engineering, Structural Design, Municipal Services. Applications of hydraulic theory in the fields of water supply, wastes disposal, and energy production are given, with guest lecturing on pollution and pollution control.

Soils Mechanics and Geology.—Fundamentals of geology; rocks and minerals; formation of soils, site exploration; sampling methods; field testing; classification of soils; soil particles; structure of soils; porosity; void ratio; moisture content; permeability; ground-water movement; frost action; consolidation theory; settlement; shear strengths; deformation; slope stability; bearing capacities; excavations; types of foundations; earth retaining structures.

Highway Engineering.—Highway geometry: curves, spirals, superelevation, widths, sight distances, surfaces, grades, safety, signs, and lighting. Highway performance: foundation material, sub-bases, base courses, pavements, behaviour of these materials under varying conditions of load, weather and temperature, drainage, maintenance. The evaluation and design of roadways using deflection data; the Benkelman Beam use and subsequent evaluation of materials; field procedures, compaction specification. Streets: classification, street geometry, widths, sections, drainage; service trench effects, street equipment, lighting, street use, and public relations. Subdivision patterns, the street as dictated by land-use planning.

Structural Design.—Plate web girder; built-up sections in steel and timber; beam column connections; steel and timber detailing and fabrication. Restrained and continuous beams; strain energy; column analogy; moment distribution; tapered beams. Reinforced concrete beams; tee beams, compressive reinforcement; one-way and two-way slabs; footings; retaining walls; reinforcement detailing; scheduling; concrete placement and formwork design.

Municipal Services.—The placement, specification, and recording of all below-grade services in community development; design and draughting of sanitary sewers, storm sewers, and water-main systems. Students gather data in the field and against a land-use proposal design needed services for a specific area. Field trips are taken to observe existing installations and works in construction.

42.401 Civil Engineering

This course includes the subjects of Work Study, Soils Mechanics and Foundations, Municipal Services, Costing and Specifications, Bridge and Building Practice.

Work Study.—*See* 90.491 of the Business Courses.

Soils Mechanics and Foundations.—More intensive study of specifically civil engineering applications; compaction and stabilization of soils; caisson foundations; sheet piling; cofferdams; tunnels and conduits; dams, foundation failures; earth dams; design of cuttings and embankments; highway pavements, airport pavements. Laboratory tests, model experiments, and field trips to exploration and construction sites.

Municipal Services.—The considerations and procedures connected with the layout, design, and construction of city streets. Wherever possible the learning will take place in a design project of some local street and student work may be compared with professional design. Construction may follow.

Costing and Specifications.—Fundamentals of contracts; study of contract documents; specifications as contract documents and as technical directives:

contract procedures—the estimating and cost-accounting cycle; measurement and pricing of engineering work; cost records and analysis; unit prices.

Bridge and Building Practice.—Visiting lecturers, movies, and field trips will present practical construction problems and their solutions. This will cover the fields of investigation, design, fabrication, and erection of bridges and buildings, and job layout, job organization, and project financing.

42.402 Civil Engineering

This course is similar to 42.401 but is designed to include Traffic Engineering. To permit this the subjects of Costing and Specifications, Bridge and Building Practice are omitted for students choosing this elective.

Traffic Engineering.—Modes, volumes, trends; accident diagrams and analysis; intersections; signs and markings; signals; parking; street capacities; geometrics; street classification; pavement widths; regulations; urban traffic planning; traffic inventory; travel characteristics; forecasts.

42.403 Civil Engineering

This course is similar to 42.401 but permits extended studies in Structural Design. Bridge and Building Practice is also more extensive. To permit these extensions the subjects of Work Study and Municipal Services are omitted, and Soils Mechanics is reduced for students choosing this elective.

Structural Design.—Portal and multi-story frames; wind analysis; shear and moment in arches; 3-pin, 2-pin, and fixed arch; suspension bridge. Shear flow; shear centre; torsion in beams; curved beams. Tension coefficients; space frames. Flat slabs; prestressed beams; ultimate load design of reinforced concrete. Experimental stress analysis, computer analysis, and discussion of advanced structural forms. Problems and experiments in application of principles to structures.

ELECTRICAL AND ELECTRONICS

43.102, 43.202, 43.302 Electrical Circuits

An integrated series of courses covering the fundamental principles and techniques involved in the analysis of electrical and electronic circuits.

Subjects dealt with include: Circuit laws and theorems; series, parallel, combination, and three terminal networks carrying direct and alternating currents; d.c. transient conditions; complex elements and their behaviour in circuits; *z*, *y*, and *h* parameters; resonance; coupled circuits; three-phase circuits; rectification and filtering; solid-state devices and electron tubes.

Laboratory sessions associate practical experience with theoretical study and develop manual skills.

43.132 Electrical Fundamentals

Electrical components and their behaviour in typical circuits. Electrical parameters, units and relationships. Characteristics of series, parallel, and combination circuits with direct and alternating currents.

43.202 *See* 43.102.

43.205 Electronic Circuits

A course in understanding and designing basic electronic circuits. Although dealing mainly with solid-state devices, some vacuum tube circuits will be covered. The course will include the following topics: Review of characteristic curves of transistors and tubes and their interpretation; basic amplifier circuits containing these devices; load-line analysis; choice of

Q-point; bias circuits and stability; amplifier configurations; a.c. equivalent circuits; interstage coupling; frequency response considerations; feed-back and its effects; oscillation and oscillator circuits; power supplies, including voltage and current regulating circuits.

43.232 Electronic Fundamentals

Circuit laws and theorems. Electron tubes and solid-state devices. Application of circuit principles to some electronic circuits such as amplifiers, oscillators, frequency discriminators, feed-back control networks, logic circuits, etc.

43.301 Electrical Equipment

An introductory course on a.c. and d.c. machines and machine controls; transformers; conventional auxiliary relaying; basic single-phase and three-phase distribution equipment; protective devices such as switches, circuit breakers, and fuses; panel boards, etc.

43.302 *See* 43.102.

43.303 Measurements

A lecture and laboratory course on the principles and applications of electrical and electronic measuring instruments. Meter movements, principles of operation, construction, and characteristics. Instruments for the measurement of voltage, current, power, energy, resistance, impedance, frequency. The cathode-ray oscilloscope—principles of operation and applications in the measurement of electrical parameters. Signal sources. Special read-out instruments such as chart recorders and digital instruments. Transducers such as thermistors, thermocouples, and strain gauges. Techniques involved in measurement. Accuracy, repeatability, and traceability in measuring systems and techniques. Elementary calibration techniques.

43.305 Electronic Circuits

A continuation of course 43.205, going more deeply into the analysis and design of a more diversified range of devices and circuits, including different configurations of power amplifiers, tuned amplifiers, d.c. amplifiers, field-effect devices, and integrated circuits.

43.306 Digital Techniques

Introduction to digital techniques. Number systems used in digital circuits. Codes and coding systems. Introduction to Boolean algebra. Minimization techniques. Application of Boolean algebra to circuit analysis and circuit synthesis. AND, OR, and NOT circuits. Transistor and integrated circuit logic. NOR/NAND circuits. Logic networks and trees. Encoding and decoding matrices.

Introduction to sequential logic systems. Flip flop conventions and input equations. Design of binary and BCD counters. Critical races. Shift registers and ring counters. Parallel and serial adding and subtracting circuits. Storage elements. Input and output elements. Error detection and error correction systems. Analog to digital conversion and digital to analog conversion. Analog and digital data acquisition methods. Introduction to the digital computer and elementary programming. DDC and DAC systems. Application of digital techniques to industrial control, communications, and other complex systems.

43.331 Electrical Equipment

Theory, characteristics, and applications of a.c. and d.c. machines, with emphasis on interrelationships between electrical and mechanical characteristics.

Protective and control equipment for a.c. and d.c. machines.

Conductors, switchgear, and related equipment as used in industrial distribution systems. Single-phase and three-phase distribution systems; voltage control and power factor correction in these systems.

Utility rate structures for purchased power and energy.

43.404 Control Systems

Theory, design, and application of feed-back control systems involving a wide variety of industrial equipments; position controls, indicating systems, variable-speed drives, remote control. Application of static logic to industrial control.

43.411 Electrical Equipment

A more advanced equipment course for Power Option students covering a.c. and d.c. machines, starters, controls, transformers, switchgear, protective devices, wire and cable, and lighting. The application of the above equipment to power systems and the co-ordination of protective devices would be covered in detail.

43.412 Circuit Analysis

Techniques for solving three-phase power system problems, such as voltage regulation, short circuit, and power factor correction problems.

The per unit and per cent method of analysis.

The symmetrical component method of analysing unbalanced conditions such as single line to ground fault on a three-phase system.

43.414 Power Systems

Utilities, organization, duties, and rights.

Generating stations, types, major equipments, typical electrical station services, generator synchronizing and load sharing.

Transmission-lines, conductors, tower types, electrical characteristics, frequency considerations including a.c. vs. d.c., power handling capabilities, power circle diagrams, stability, power angle diagrams.

Distribution systems such as radial, secondary selective, primary selective and network, distribution equipment selection and co-ordination, system and equipment grounding.

Protective relaying, relay and relay-fuse co-ordination.

System planning and economics.

Distribution system design project.

43.419 Special Projects and Tutorials

Suitable project to be chosen or assigned for individual or group participation in the investigation, design, building, testing, and reporting on all aspects of the project. The technical report required in this course to carry considerable weight in the over-all assessment. Field trips and guest speakers to be used where suitable.

43.420 Electronic Systems

A course dealing with complete systems used in various applications of electronics. Typical systems dealt with are related to radar, communications, television, navigation, digital computer control of industrial processes, etc.

Lectures cover the principles of operation of the systems. The laboratory sessions enable the students to gain experience in testing, line-up, and servicing of electronic systems. Field trips to operating electronic systems and manufacturing plants give the students knowledge of industrial practices.

43.421 Communications

A course dealing with modern techniques used in voice communication. Characteristics of human speech and hearing form the introduction and set the requirements for telephone wire and radio communication links. Investigation of telephone toll systems exposes the subjects of Frequency Division and Time Division Multiplexing. Under Frequency Division Multiplexing, the common forms of modulation (i.e., AM, FM, PM, and SSB) are analysed in terms of useful power and occupied band width. Standard methods for generation and demodulation of these coherent signals are also investigated. Under Time Division Multiplexing, the Sampling Theorem is discussed along with the common forms of pulse modulation (i.e., PAM, PDM, PPM, PCM, and Delta).

43.425 Pulse Circuits

A course dealing with the switching properties of bipolar transistors and junction diodes and their application in the design of pulse circuits. Design investigations are carried out on astable multivibrators, free-running blocking oscillators, monostable multivibrators, triggered blocking oscillators, bistable multivibrators, voltage and current ramp generators, and the common forms of logic circuits.

43.427 Microwave Techniques

A course introducing the theory of propagation, signal handling techniques, and measurement techniques at the microwave frequencies. Typical topics discussed are: The distributed transmission-line; the general wave equations; the ideal lossless line; travelling waves; standing waves and standing wave ratio; transmission-line impedance; graphical representation of transmission-line characteristics; Smith chart; impedance matching using the Smith chart; the coaxial slotted line; V.S.W.R. measurements; impedance measurements; wave guides; wave guide cut-off frequency; common rectangular wave guide modes; coupling in and out of wave guide structures; impedance matching elements; wave guide tees, attenuators and terminations; directional couplers; detectors; cavities; wave meters; active microwave devices.

43.429 Special Projects and Tutorials

This laboratory course develops in the students the ability to assume personal responsibility in the design, development, and testing of electronics equipment. Each student is assigned one or more projects to complete during the term. The students work in an environment which simulates as closely as possible the anticipated role of the graduate electronics technologist with the teaching staff acting in an advisory capacity on both individual and group bases.

43.431 Digital Techniques

Introduction to Digital Techniques. Number systems used in digital circuits. Codes and coding systems. Introduction to Boolean algebra. Minimization techniques. Application of Boolean algebra to circuit analysis and circuit synthesis. AND, OR, and NOT circuits. Logic networks and trees. Encoding and decoding matrices.

Introduction to sequential logic systems. Flip flop conventions and input equations. Design of binary and BCD counters. Critical races. Shift registers and ring counters. Parallel and serial adding and subtracting circuits. Storage elements. Input and output elements. Error detection and error correction systems. Analog to digital conversion and digital to analog conversion. Analog and digital data acquisition methods. Introduction to the digital computer. On line operation of the digital computer for data logging and clinical analysis.

FOOD

44.121, 44.221 Food Microbiology

An introductory course in food microbiology with emphasis on bacteriological techniques. The use and care of the microscope. The isolation of bacteria for purposes of differentiation and classification by morphological, cultural, and biochemical methods. The use of desirable micro-organisms in the food industry. Shelf-life studies. Maintaining high bacteriological standards in fresh and processed foods. Micro-organisms of significance to agriculture. Assessing microbiological test results and report writing to management.

44.122 Biology

A study of the principles underlying living phenomena, including the organizational attributes of living matter. Evolutionary development is traced from one-celled organisms to higher plants and animals. The economic importance of various classes of plants and animals is included.

44.201 Food Processing

The composition of foods. Nutritional aspects. An introduction to the processes of canning, freezing, pasteurizing, dehydrating, salting, smoking, fermenting, and treating food with ionizing radiations. Experimental lots of food will be preserved by these methods during laboratory periods.

44.221 *See* 44.121.

44.251 Food Production

A general introduction to the study of soils, plants, and animals as related to the production of food.

44.301, 44.401 Food Processing

Detailed studies of specific food-manufacturing processes, including dairy-products manufacture, fruit and vegetable processing, jams and jellies, fish and meat products, edible fats and oils, food emulsions, processed potato products, dehydrated and freeze-dried foods, tea and coffee, spices, confections and products of milling and baking. Characteristics of packaging materials, including flexible films, and how they meet the package requirements of various foods.

44.311, 44.411 Quality Control

Responsibilities and organization of a quality-control department in the food industry. Equipping a control laboratory. Methods of measuring and controlling quality factors, such as colour, texure, flavour, and consistency in foods. Principles of statistical quality control. Federal and Provincial Government standards. Laboratory periods will provide practical experience in the scoring and grading of processed foods and in the use of various control instruments.

44.312 Introductory Food Analysis

Chemistry of the principal components of the major representative classes of foods and feeds. Moisture in foods. Proximate composition and energy values. Standard methods of analysis for common constituents. Techniques and procedures in general use in food and agricultural products laboratories.

44.341 Mechanics of Machines

Basic mechanical principles. Force and motion as applied to simple machines. Work and energy, power, efficiency. Power transmission, fluid mechanics, thermodynamics as applied to steam power and refrigeration. Materials of construction, corrosion, maintenance, and lubrication. Electrical-power equipment and its use in food processing and production. Whenever possible, food-industry equipment will be used in the laboratory exercises.

44.361 Crop Technology

Plant nutrition, including photosynthesis, mineral nutrition, permeability and adsorption of nutrients, water economy, translocation. Plant metabolism. The dynamics of growth and development, integration growth, physiology of reproduction, dormancy and arrested development, differentiation, plant environment.

44.371, 44.471 Animal Technology

A general familiarization with the live-stock and poultry industries as they relate to food production. Nutritive requirements of live stock during growth, reproduction, and lactation. Role of basic nutrients in metabolism. Animal physiology. Genetics of live-stock improvement and artificial insemination. Preventive medication. Growth-controlling substances.

44.381 Soil Technology

The origin, formation, and classification of soils, use of survey reports, map interpretation. Components of soils, soil colloids, cation exchange reactions, soil acidity, phosphorus, nitrogen, the crop as an indicator of fertility, soil organic matter, fertilizers. Soil-sampling procedures, extraction methods used in soil analysis.

44.401 *See* 44.301.

44.402 Process Analysis

This course is designed to acquaint the student with the more important production-engineering aspects of food manufacturing. Basic engineering principles for several food-manufacturing processes will be considered along with materials handling, plant layout and design, and principles of cost analysis. Laboratory sessions will involve experimentation, demonstration, and problem solving.

44.411 *See* 44.311.

44.412 Food Analysis

Detailed chemistry of the products of the food industry: fat and oil, sugar, cereal, fruit and vegetable, dairy, fishery, meat, and poultry products. Vitamins and nutritional supplements. Chemistry of various types of food deterioration and its prevention. Food additives—preservatives, colouring, flavouring, and sweetening agents. Physiochemical and instrumental methods used in food analysis.

44.413 Agricultural Analysis

Chemistry and standard methods of analysis of agricultural products. Determination of major and minor nutrients in fertilizers. Elemental analysis of plant materials and soils. Analysis of cereal grains and animal products. Chemistry of pesticides and fungicides. Instrumental and chromatographic procedures for determination of metallic, pesticide, and other potentially hazardous residues in feeds. Determination of drugs in feeds.

44.414 Experimental Techniques

Principles of experimental design, field plot and laboratory techniques, methods of recording data, principles and procedures of statistics, quality-control methods.

44.431 Sanitation

Organization of a sanitation programme in the food industry. The chemistry of cleaning. Properties of a good detergent. Types of cleaning compounds and formulation. Methods of disinfection and sterilization. Sanitary aspects of buildings and equipment. Safe water supply. Waste treatment and disposal. Effective insect and rodent control. Employee training in sanitary practices. Inspection techniques and laboratory tests.

44.442 Agricultural Mechanics

A study of basic engineering principles as applied to agricultural operations. The stationary power plant and hydraulic systems. Tillage and harvesting machinery. Care of equipment.

44.462 Crop Protection

A study of the destructive forces of diseases, insects, and weeds on our food production and means of control. Cultural control. Chemical control —insecticides, fungicides, herbicides. Systems of application—dusting, spraying, concentrate spraying, operating and maintaining equipment. Measures of efficiency. Seed treatment. Turf protection. Protection of stored crops.

44.471 *See* 44.371.

FORESTRY

45.101, 45.201 Forest Science

Fundamental concepts related to the forest. Brief outline indicating the importance of forests and forestry in British Columbia. Basic structure and physiology of the seed plants. Special emphasis on the reproduction of gymnosperms. The classification of plants. The gross and microscopic structure of wood. Wood properties and uses. Identification of the commercial B.C. woods. The dendrology of trees, emphasizing species native to British Columbia.

45.102, 45.202 Forest Mensuration

Methods of measurement of standing and felled timber. Direct measurement of tree diameters, heights, and ages. Use and construction of volume, stand, growth, and yield tables. Measurement of site index. Forest inventory techniques, compilation of forest data, elementary statistical analysis. Types of sampling. Sampling design. Application of aerial sampling and point sampling.

45.106, 45.206 Photo Interpretation and Mapping

Practical use and application of aerial photography in forestry. Recognition and study of landforms and forest types. Measurement of heights, stand densities, and areas. Classification of forest land and cover. Limitations to and use of photos in reconnaissance, planning, and inventory. Practice in use of pocket and mirror stereoscopes, parallax bars, planimeters, dot grids, and other interpretation aids.

Construction of forest maps and plans. Transfer of forest information to topographic and planimetric maps using stereoscopes, Sketchmasters, Kail plotters, pantographs. Evaluation and use of maps from various sources. Map reproduction techniques.

45.107, 45.207 Forest Utilization

An introduction to the harvesting and utilization of our forest crop. Survey of logging and lumbering practice. Laminated beam, plywood, round timber, composition board, pulp, and paper manufacture. Paper-converting operations. Integration in forest utilization. Field trips to demonstrate lecture material.

45.110, 45.210, 45.410 Fire Control

Historical review, principles of combustion, fire weather and its measurement. Factors influencing forest inflammability, fire danger, hazard, fuels. Fire behaviour, prevention, occurrence, and development. B.C. Forest Service and industrial pre-organization, detection. Fire control, reconnaissance by air and ground. Water and chemicals. Use of bulldozers, crew organization and fire camps, transportation and communication. Reports, mapping, personnel, first aid. Fire legislation. Fire simulator training for initial action and problem solving.

45.201 *See* 45.101.

45.202 *See* 45.102.

45.205, 45.305 Logging

History and development of logging. Description of systems most commonly used on the B.C. Coast and Interior. Layout and construction of settings, roads, and landings. Pre-logging, salvage and thinning. Equipment developments. Logging plans. Camp location, construction, and maintenance. Woods organization and safety. Contracts and costs.

45.207 *See* 45.107.

45.210 *See* 45.110.

45.302, 45.402 Forest Mensuration

Field application of cruising techniques. Office compilation and cruise report preparation. Cruising for inventory and logging development. Preparation of forest maps. Familiarization with B.C. Forest Service cruising systems and maps. Project planning and implementation.

Instruction in log scaling for Coastal and Interior operations. Scaling for woods records and inventory. Cubic- and board-foot log scales Conversion factors and volume calculations. Use of computers for mensurational data.

45.305 *See* 45.205.

45.308, 45.408 Roads and Transportation

Design of transportation plans to fit timber and terrain. Road specifications to suit production plans. Truck-road location, construction, and maintenance. Earth and rock work. Drainage, culverts, run-off control. Snow removal and winter roads. Small bridges, log dumps, booming grounds. River improvements, rafting and barging. Road costs. Rail transportation.

45.309, 45.409 Silviculture

Introduction to elementary silvics, silvicultural principles and systems, intermediate cuttings. Natural and artificial regeneration including site preparation, brush control, planting, seeding, and care of nurseries. Planting surveys and crews, pruning, thinning. Systems of cutting and effects on future growth, stand composition and yield. Silvical characteristics of major B.C. species. Forest soils. Forest stand types and relation to logging planning. Regional silviculture: Coastal, Interior. Introduction to genetics and ecology. Forest classification. Project planning and report writing.

45.313 Forest Pathology

Elementary study of forest tree diseases in British Columbia. Relative importance of various groups of diseases: root rots, trunk rots, foliage diseases. Effects on development and management of stands. Control of disease through silvicultural practices. Research projects.

45.316, 45.416 Forest Management

Principles of sustained yield, regulation of the cut, rotation, allowable cut, multiple use. Administration of Crown and private timber via timber sales, tree-farm licences, pulp harvesting areas, farm wood-lots. Inspections and supervision. Sloan Report. Forest Act. Stumpage appraisal: principles, methods, and application of estimations of value of standing merchantable timber. Principles of forest valuation, immature forests, forest properties. Damage appraisal. Insurance.

45.402 *See* 45.302.

45.405 *See* 45.205.

45.408 *See* 45.308.

45.409 *See* 45.309.

45.410 *See* 45.110.

45.414 Forest Entomology

Forest insect problems in British Columbia. Recognition of damage in standing and felled timber. Major types of harmful insects. Effects on timber stands and forest products. Control measures.

45.416 *See* 45.316.

FOREST PRODUCTS

46.301, 46.401 Pulp and Paper Technology

History of pulp and papermaking. The industry in Canada and the world. World fibre sources. Wood structure and fibre morphology. Wood chemistry. Preparation of wood. Water treatment. Principles of pulping. Mechanical, semi-chemical, and chemical pulping. Handling of unbleached pulp. Preparation of pulping chemicals. Chemical and heat recovery. Pulp

bleaching. Preparation of bleaching chemicals. Drying and packaging of pulp. Pulp uses. Pulping by-products. Paper and paperboard manufacture. Microbiology of pulp and paper. Mill instrumentation. Materials of construction. Mill hazards and safety. Pollution abatement. Possible future developments.

46.304, 46.404 Pulp and Paper Testing

Process chemicals evaluation and water quality. Process control tests, including wood and chip tests, pulping and bleaching liquor tests, pulp viscosity and bleachability, consistency, fibre and screening losses. Fibre microscope and photomicroscopy. Beater and freeness testing. Sheet-making. Physical tests, including basis weight, caliper, density, brightness, opacity, stiffness, absorbency, porosity, smoothness, printability, dirt count, fibre classification. Chemical tests including acidity, alkalinity, pH, ash, resin.

46.311, 46.411 Wood Properties

Wood anatomy and identification of important commercial species. Preparation of microscope slides. Photomicrography. Wood growth, natural defects and agencies of deterioration. Chemical, physical, and mechanical properties of wood. Strength tests. Wood adhesives and surface coatings.

46.314, 46.414 Wood Processing

Log preparation: bucking, sorting, barking. Lumber and plywood manufacture. Chipping, wood seasoning, preservation. Fire retardants. Laminated woods. Edge and end gluing. Composition boards. Round timbers and modified wood products. Millwork.

46.317 Quality Control and Marketing

An introduction to the marketing environment and marketing institutions in the wood products industry. Study of the basic marketing functions: market research, product planning, selection of trade channels, merchandising, advertising and sales promotion. Case studies and readings used to relate the theoretical aspects of marketing to the practical problems of the wood products industry.

46.401 *See* 46.301.

46.404 *See* 46.304.

46.407 Wood Chemistry

Basic organic chemistry. Chemical composition of wood. Structure of the major wood components: extractives, lignin, hemicellulose, and cellulose. Chemistry of the wood components, particularly as related to commercial pulping processes. The chemistry of cellulose derivatives.

46.411 *See* 46.311.

46.414 *See* 46.314.

46.417 Quality Control and Marketing

Lumber grading, tallying, and shipping. Plywood grades and sizes. Quality control methods in lumber, plywood, glulam, preservation, and composition board. Statistical quality control.

46.451 Mechanical and Electrical Equipment

A study of mechanical and electrical equipment relating to development, transmission, application, and control of power as applied to the wood products industries. A.c. and d.c. drives, controls, and characteristics; distribution of power systems; prime movers, speed conversion, drives and bearings; hydraulic and pneumatic systems.

NATURAL GAS AND PETROLEUM

47.221 Distribution and Utilization (Gas)

City gate stations; regulation and odourization; high, medium, and low pressure distribution systems; network analysis; services; service regulators; meters; combustion stoichiometry; furnaces, boilers; installation codes; industrial and power utilization; corrosion control; peak shaving; storage.

47.311 Gas and Oil, Production and Transmission

Petroleum geology; reservoirs; exploration; well drilling; field production and treatment; conservation; gathering and transmission systems; pipeline construction and maintenance; corrosion protection; compressor and pumping stations; flow computations; economics of design; measurement; laws and regulations.

47.341, 47.441 Unit Operations

First and second law of thermodynamics; enthalpy, entropy, phase rule, thermodynamic diagrams and tables; fluid flow and measurement in pipes and channels, piping, pipe fittings, and valves; solid handling, grinding, crushing, screening, mixing, settling, sedimentation, filtration, flotation; flow of heat, conduction, convection, radiation, film and over-all transfer of coefficients, heat exchangers; principles and application of equipment for evaporation, distillation, absorption, extraction; humidification and dehumidification; drying; crystallization; ion exchange.

47.431 Refining and Utilization (Oil)

Crude oil, distillation; cracking, thermal and catylitic; reforming; hydrogenation; oil products, product testing, storage, loading, combustion stoichiometry; oil and gas engines, oil burners.

47.441 *See* 47.341.

INSTRUMENTATION

48.100 Basic Measurement

Measurement as the basis of control. Characteristics and theory of operation for first-order instruments used in the measurement of pressure, level, and density. Laboratory work involving commercial examples to illustrate principles of operation of density, pressure, and level measuring equipment. Methods of calibration and installation.

48.110 Instrument Shop Practice

Precision machining and measurement of small items. Fabrication of linkages and typical components. Heat treatment, including welding and soldering. Tube-bending and pipe-fitting.

48.200 Basic Measurement

Principles of operation, commercial examples and laboratory work with flow-measuring and temperature-measuring devices for fluids and solids. Theory of fluid mechanics. Design calculation of flow-measuring devices. Electrical bridge application to measuring instruments.

48.300 Advanced Measurements

Measurement and control of weight, viscosity, consistency, humidity and dew point, oxygen in flue gas, smoke density and turbidity, speed, vibration, optical and radiation pyrometry.

48.310 Process Control

Concept of automation; pressure and level regulators; problem of offset; modern control valves and valve characteristics; pilot operation; valve positioners; concept of feedback and balance; static and dynamic response; self-regulation; simple controllers; proportional control; gain, set point, and offset; open and closed loop response.

48.320 Analog and Digital Techniques

Basic components of an analog computer. Computer solutions of differential equations. Representation of everyday phenomena with particular reference to cases involving feed-back; i.e., servomechanisms and control loops. Scaling to suit various forms of readout. Analog memory. Iterative techniques on an analog-hybrid computer.

48.330 Electronics for Instruments

The application of standard electrical and electronic circuits for the particular requirements of process measuring instruments. D.c. to a.c. converters; voltage and power amplifiers; a.c. and d.c. bridges.

48.350 Instrumentation

Primarily an orientation course for students in other technologies. Principles of mechanisms; instrument classification; measurement of pressure, level, and temperature; calibration techniques; laboratory demonstration of the main types of instrument involved.

48.400 Analytical Measurements

A study of the principles of analysis instruments measuring the physical, chemical, and radiation characteristics of liquids or gases. Including potentiometric amperometric and polarographic techniques; ultraviolet, visible, and infra-red absorption measurement; photometry, chromatography, and refractometric methods.

48.410 Process Control

Reset action; rate action; three-mode control; pneumatic and electronic controllers and components; time constants; R.C. in multi-capacity processes; step analysis; frequency response analysis; solutions by analog computer; control systems—cascade, ratioing, feed-forward, etc.; industrial applications.

48.420 Analog and Digital Techniques

Fundamental concepts of analog and digital parameters. Number systems. Binary arithmetic. Binary algebra. Logic simplification. Basic logic circuits. Special codes, encoding. Digital memory. Particular emphasis on analog instruments with digital readout, with optimization of plant production and with telemetering information and remote control.

48.430 Industrial Orientation

Introduction to Engineering Economy. Supply and demand. Interest and depreciation. Capital and operating costs. Break-even analysis. Economics and safety. Codes and regulations. Safety equipment. Alarm systems. Production control techniques. Administration.

48.450 Instrumentation

Continuation of the orientation course. Flow measurement. Measurement of miscellaneous reactions; e.g., pH, reduced oxygen, conductivity, etc. Principles of process control. On-off control and floating control. Control involving proportional, reset, and rate action. Flow sheets and typical instrument applications in industry.

48.460 Medical Instrumentation

A study of the principles of analysis instruments using potentiometric, amperometric, and polaragraphic techniques; ultra-violet, visible, and infrared spectroscopy; flame photometry; paper and column chromatography; electrophoresis and refractometric methods.

MECHANICAL

49.101, 49.201 Draughting

Orthographic and isometric projection; lettering; technical sketching; sections; conventional practices; dimensioning; working drawings; intersections and developments.

49.105 Applied Mechanics

Vectors; force systems; graphical representations and solutions; analysis of practical problems involving static and dynamic loads; friction and acceleration forces; inertia; torque; work; power; introduction to hydraulics.

49.106 Applied Mechanics A

A study of applied mechanics for non-Mechanical students. Topics include statics, forces, moments, couples, frames, beams, centroids, friction, dynamics, motion in a circle.

49.165, 49.265 Shopwork

Practical experience in the use and application of basic metal-cutting machine tools—engine lathe, drill press, shaper, milling machine, power saw, planer, and precision grinder; layout and bench work; precision measuring; tool sharpening.

49.166 Mechanical Components

A brief study of various mechanical topics, including common engineering metals, machine shop processes, metal joining techniques, bearings, and mechanical drives.

49.168, 49.268 Machine Tool Theory

Study of modern machine tools, their history and development, as well as the range and application of each in the modern shop and industry.

49.201 *See* 49.101.

49.206 Engineering Concepts

Study of some of the basic principles required in engineering design. Solution of problems involving mechanics and strength of materials. Practical work to be carried out by the student in the engineering materials laboratory.

49.210 Strength of Materials

Study of stresses, strains, and deflections resulting from action of tensile, compressive, shear, and torsion forces on simple types of structural and machine elements. Consideration of beams, columns, shafts, thin-walled cylinders, riveted and welded joints. Laboratory testing of engineering materials and common machine elements.

49.225 Applied Heat

Study of basic topics leading to engineering thermodynamics, including heat, energy, work; fluid properties, processes and systems, ideal gases, enthalpy and entropy; first and second laws of thermodynamics; Carnot engine and heat pump; standard air cycles; calorific values of fuels. Laboratory work will be carried out to supplement theory presented in lectures.

49.265 *See* 49.165.

49.266 Introduction to Machine Tools

A basic course designed to familiarize the student with shop tools and equipment and with shop terminology and established standards of workmanship. Demonstrations are carried out to provide a good understanding of the subject.

49.267 Introduction to Machine Tools

The study of modern machine tools with practical experience in their use and application. Costs and economics related to production.

49.268 *See* 49.168.

409.301 Engineering Graphics

A study of advanced draughting practices and graphical solutions to engineering problems.

49.312, 49.412 Machine Design

Basic principles of machine design, including application of fundamentals of mechanics, strength of materials, draughting techniques, and physical properties of materials toward creation of complete machines for economical production and efficient operation. Incorporation of practical experience gained in machine-shop periods into practical designs is stressed. Study of common machine elements, including beams, columns, shafts, gears, belts, pulleys, couplings, and screws, and incorporation of these into more complex assemblies.

49.315 Fluid Mechanics

Principles of hydrostatics, including properties of fluids; pressure measurement; forces on submerged surfaces; fundamentals of fluid flow; flow

through pipes, nozzles, and orifices; streamline and turbulent flow; flow measurement; dimensional analysis. Laboratory tests are performed to verify lecture theory.

49.325, 49.425 Thermodynamics

Review of fundamentals of thermal systems. Study of steady-flow processes, thermodynamic properties of pure substances, properties of mixtures of gases and vapours, psychrometry, combustion, steam processes, steam power plants, heat transmission, refrigerators, and heat pumps. Practical work includes performance investigations on steam conditions, steam turbine and boiler, heat transfer, refrigerating plants, air compressor, gas turbine, and internal-combustion engines.

49.350, 49.450 Production Engineering

Study of the problems and techniques of cost estimating, materials handling, plant layout, production planning, and quality control; relationship between good plant layout, efficient materials handling, and operating effectiveness; site evaluation; floor layouts; product and process layout schemes; materials-handling equipment; flow diagrams; use of templates and models; product development; plant engineering.

49.365, 49.465 Shopwork

Continuation of Shopwork 49.165 and 49.265 with further experience on machine tools, including boring mill, jig borer, tool and cutter grinders, turret lathe, die sinker, and punch press; use of fine measuring tools.

49.412 *See* 49.312.

49.425 *See* 49.325.

49.435 Fluid Power

Study of the basic components of hydraulic and pneumatic systems and how they are combined to build up various circuits. The uses of hydraulics and pneumatics for both power transmission and control purposes are covered. Laboratory work includes experiments and tests on various types of equipment used in industry.

49.445 Manufacturing Processes

Study of modern manufacturing processes, including the machines, materials, methods, and practices used in the mechanical industries; casting; welding; hot and cold forming; extruding; forging; die casting; stamping; and pressing. Course content is related to material covered in Engineering Materials and to training given in Shopwork 49.165 to 49.465. Field trips to appropriate local industries are arranged.

49.450 *See* 49.350.

49.455 Tool Design

Study of tool design as related to manufacturing methods and requirements; tooling for production and gauging; standard tooling components and devices; consideration of drill jigs, press tools, punches, dies, and special devices.

49.465 *See* 49.365.

MINING

50.101, 50.201 Geology

Definition, basic concepts, earth's crust, geologic time; atomic structure of minerals, crystal forms and symmetry systems; properties of common minerals; sedimentary rock types, clastic and chemical sedimentaries; igneous rock types, classification; deformation of earth's crust, folds, faults; metamorphic rocks; weathering, erosion, and glaciation; economic geology, mineral fuels, non-metallics, ore deposits and their controls; geological history, pre-cambrian, paleozoic, mesozoic, tertiary, pleistocene; geologic maps.

50.102, 50.202 Mining

Nature of the mineral industries, search for economic mineral deposits; economics of mining, potential reserves, "average grade," mineral prices, costs; exploration of a mineral deposit, sampling campaigns, weighted arithmetic mean, confidence limit and reliability of an average; acquisition of title, the claim system; exploitation of deposits, choice between surface and underground methods, development patterns; planned systematic extraction, terminology of mine development; classification of mining methods, description of common methods.

50.201 *See* 50.101.

50.202 *See* 50.102.

50.301 Geology—Structural

Brief review of mechanical principles of rock deformation and of the primary structures of sedimentary, igneous, and metamorphic rocks. The origin, nature, and classification of joints, folds, and faults, with emphasis on their relation to mineral resources.

Laboratory work includes examination of specimens, methods of recording structural data, mapping and solution of structural problems, with emphasis on economic aspects.

50.302, 50.402 Mining—Operation

Mining economics, total cost components, selection of equipment, utilization of equipment, break-even rate; breaking ground; ground support; ore and waste removal, chutes and handling systems; development drives, rounds, cycles, control; examples of mining practice; drainage, water sources, water removal or isolation; ventilation; accident prevention, occupational hazards and their control; *Metalliferous Mines Regulation Act*, equivalent regulations; production management, organization, control techniques.

50.303, 50.403 Mining—Equipment

Underground services: compressed air, power, water, ventilation. Compressed-air equipment, use and maintenance. Hoisting systems and their maintenance. Power generation and distribution; d.c. and a.c. motors and generators for mine service; transformers and rectifiers. Mechanical design of gearing, V-belt drives, bearings, shafting, etc., for common mine service.

50.304, 50.404 Mineral Processing

Purpose of mineral processing. Essential operations: comminution, concentration, extraction. Crushing: forces available; product size distri-

bution, reduction range; types of crushers. Screening: efficiency and capacity; screen types; closed-circuit calculations; crushing and screening flowsheets. Grinding: attrition mills, high-energy mills, tumbling mills; energy input; grinding media; liner forms and their effect. Classification: free and hindered-settling concepts; cyclones, hydraulic classifiers, mechanical classifiers; closed-circuit classification.

Concentration: hand sorting, gravity concentration, heavy media; gravity flowsheets. Flotation: collection, activation, depression, frothing; flotation machines; flotation flowsheets. Electrical concentration. Magnetic concentration. Filtration, drying, pelletizing.

Extraction processes: roasting, cyanidation, cementation, ion exchange, differential solution, autoclave leaching, amalgamation.

50.401 Geology—Mineral Deposits

The terminology, classification, manner of occurrence, distribution, and economics of mineral resources, with emphasis on typical Canadian occurrences. Ways of recognizing, discovering, and developing mineral deposits.

Laboratory work will illustrate and develop techniques in: megascopic study and identification of hand specimens; valuation of mineral deposits.

Field trips will be correlated with all classroom work in geology.

50.402 *See* 50.302.

50.403 *See* 50.303.

50.404 *See* 50.304.

SURVEYING

51.101, 51.201 Surveying

Introduction, types of survey; fundamental principles, accuracy and precision, errors and mistakes; measurement of distance, direction and elevation, calculation of latitude and departure areas and volumes; horizontal and vertical curves; use of plane tables, levels, compasses, transits, theodolites, chains, and calculating machines; note-keeping and plotting of records; care, maintenance, and adjustments of equipment.

51.102, 51.202 Surveying

Fundamental concepts of surveying: measurement of distances, use of compasses, transits, plane tables, levels and chains, site surveys. Calculations relating to traverses, triangulation, areas, and volumes: obtaining, recording, and plotting topographic detail. Care, maintenance and adjustment of equipment.

51.103 Natural Science

Study of the forest flora of British Columbia; biotic zones, their boundaries, altitude, climate, and natural flora; the characteristics of native trees, identifying features and common uses. Elementary geology, including the study of rocks and minerals; geologic structures, general location and uses of common ores; soil classification and location.

51.201 *See* 51.101.

51.202 *See* 51.102.

51.301, 51.401 Surveying

Application of survey methods to construction surveys, topographic surveys, hydrographic surveys, and legal surveys; triangulation and trilateration; base-line measurement, use of electronic measuring devices; re-establishment of section and lot corners; subdivision of land; surveys under the *Land Act, Mineral Act, Highways Act, Special Surveys Act,* and *Petroleum and Natural Gas Act;* calculation of problems of closure, areas, circular curves, transitional curves, terminal curves, and the conversion of geodetic co-ordinates to geographic co-ordinates; adjustment of elevations, adjustment of figures, reliability of observations, and rejection of observation.

51.302 *Description for Deeds*

Purpose and characteristics of descriptions; systems of survey, township system and district lot system, the preamble; the correct use of the words "more or less"; the importance of a good "point of commencement"; descriptions by adjoiners, description by aliquot parts, descriptions by metes and bounds, descriptions by exceptions, descriptions of rights-of-way by means of centre line; plans to accompany descriptions; Land Registry Office procedure; descriptions pertaining to Acts of the Legislature.

51.303 Draughting

Application of draughting fundamentals to preparation of plans for, preliminary plans, construction plans, "as built" plans, subdivision plans, highway and other right-of-way plans, posting plans, and plans and field-notes under the *Land Act* and *Mineral Act* in accordance with the General Survey Instructions to British Columbia Land Surveyors issued by the Surveyor-General of British Columbia.

51.304, 51.404 Surveying for Civil and Structural Technology

Application of survey methods to construction surveys, topographic surveys, and hydrographic surveys; triangulation and trilateration; base-line measurement, use of electronic measuring devices; route surveys, including preliminary profile and cross-sections, calculation of quantities and volumes, and plan preparation; site surveys, including horizontal and vertical control; bench-mark levelling and adjusting of nets; calculation of areas, volumes, closure, circular curves, transitional curves, and vertical curves; elementary photogrammetry applied to planning, site surveys, route surveys, grades, and quantities.

51.305, 51.405 Surveying for Mining Technology (Mining Option)

Application of survey methods to underground surveying; definitions of mining terms; illumination of stations; use of mining transits, auxiliary telescopes; connecting surface and underground surveys, transferring azimuth to underground surveys, transferring elevations to underground surveys; location of property boundaries underground; location of tunnels, control and alignment, determining quantities; note-keeping and plotting of records; computation of closures, areas, and volumes; elementary astronomy, derivation of meridian; elementary photogrammetry applied to mining.

51.306, 51.406 *Astronomy*

Introduction to practical astronomy; solid geometry and spherical trigonometry; the celestial sphere; the astronomical triangle; universal time, mean solar time, siderial time; the ephemeris and star almanacs; instruments used in solar and stellar observations; star identification; observations for latitude; observations for time and longitude; observations for azimuth.

51.307, 51.407 Photogrammetry

Introduction to photogrammetry; horizontal photographs, aerial photographs; cameras; flight planning for vertical photography; determination of scale; mapping from aerial photos; mosaics, use and method of construction; principle of stereo-vision; determination of heights from aerial photos; photo interpretation; route reconnaissance; radial-line plotting; oblique photos; plotting machines.

51.401 *See* 51.301.

51.404 *See* 51.304.

51.405 *See* 51.305.

51.406 *See* 51.306.

51.407 *See* 51.307.

HEALTH TECHNOLOGY

82.101, 82.207 Introduction to Behavioural Sciences

This course is designed to give the student in Health Technology an awareness of the psychological and sociological factors which influence health in our complex changing society. Emphasis will be placed on the individual as a member of the family, the health team, and the social system.

82.102, 82.201 Basic Medical Microbiology and Epidemiology

A course designed for students who are having their first experience with the world of microbes, which includes bacteria, viruses, protozoa, fungi, and rickettsiæ.

The student will acquire an understanding of the structure and activities of the micro-organisms, their reservoirs in nature, their pathways to the human host, and the many ways of recognizing, identifying, and combating them.

82.103, 82.202 Human Anatomy and Physiology

This service course for all Health Technology students stresses the underlying unity of the many aspects of human biology to be considered. Special consideration is given to the structure and function of the human organism and the problems raised by its peculiarities. Fundamental body processes are discussed with reference to work which the student covers in 30.182, 30.282, General Chemistry, for the health technologists.

82.104 Medical Laboratory Orientation

An introduction to procedures and principles of operation of precision instruments and equipment used in the clinical laboratory.

82.105, 82.204 Food Sanitation

A course for public health technologists in the sanitary practices and inspection techniques associated with the production, processing, and distribution of food. Visits are made to appropriate food-handling facilities.

82.106 Introduction to Medical Radiography

This course includes studies of the photographic aspects of radiography, the basic exposure factors, and the technical terms relating to the quality of radiographs. The fundamentals of image recording, processing, and accessory radiographic equipment such as grids, cones, and filters are studied.

82.107 *Collection of Health Data*

This course is designed to introduce the student to the field of health data. Special areas of study will include medical terminology, pathological conditions significant to health data collection, and the sources of health data.

82.108 *Introduction to Nursing*

The course provides the nursing student with introductory scientific principles designed to help them acquire a beginning understanding of the basic communicative and motor skills which nursing utilizes. A problem-solving approach toward assisting patients to meet their basic needs will be introduced.

82.109 Introductory Clinical Experience in Nursing

The clinical experience taken concurrently with 82.108 will be directed toward orienting the student to the hospital environment.

82.110, 82.208 *Pharmacology*

The broad objectives of this course are to provide the nursing student with a basic knowledge of the various medications and medicinal agents which are used in the care of patients. The computation of dosages is also included.

82.111, 82.209 *Interpersonal Relations for Nursing*

This course covers the interpersonal aspects of nursing, with emphasis on developing observation and communication skills. Group discussions based on the students' own experience with patients are conducted. Small groups of students discuss their interactions with patiens and learn how to use their interpersonal skills in a variety of situations. The emphasis is on normal and adaptive behaviour.

82.201 *See* 82.102.

82.202 *See* 82.103.

82.203 Basic Medical Radiography

This course is concerned with the conditions influencing the choice of exposure factors and an introduction to patient positioning. A study in detail is made of the types of radiographic film, their structure and relative sensitivity. Various types of X-ray apparatus are considered. The student is made aware of hospital organization, levels of responsibility, and the operation of other hospital services. Patient care and handling are introduced.

82.204 *See* 82.105.

82.205 Basic Nursing

The student is introduced to the problems which comprise the broad basis of medical-surgical nursing. The study of patho-physiology, pharmacology, and diet therapy and clinical experience is built around this broad base.

82.206 Clinical Experience in Basic Nursing

The clinical experience taken concurrently with 82.205 includes operating-room, and surgical and medical nursing associated with the less complicated pathological conditions.

82.207 *See* 82.101.

82.208 *See* 82.110.

82.209 *See* 82.111.

82.210 Human Growth and Development

The course provides information on the normal process of growth and development from conception to senescence. Physical and motor, adaptive, emotional, language, and social development are viewed longitudinally. Various development theories will be presented for discussion. Problems associated with the adolescent and senescent stage of development are included.

82.211 Pathology and Pathophysiology

The subject includes the basic divisions of pathology and pathophysiology of common disorders. Instruction is closely correlated with the courses in normal physiology, basic nursing, and to clinical experience.

82.212 Introduction to Radiation Safety

This course provides a basic knowledge of the biological effects of radiation and the hazards connected with the ingestion or inhalation of radioactive material. Contamination and its prevention are considered. The procurement, storage, shielding, handling, monitoring, and disposal of isotopes in accordance with national regulations are studied.

82.301, 82.404 Environmental Health and Engineering

The student is provided with the basic technical knowledge and methods of assessing the engineering aspects of the human environment. Parallel with this, he studies the effects of environmental hazards and stresses on the human organism in order that engineering flaws may be assessed in terms of possible human effect. Particular reference is made to water supplies, sewage and refuse disposal, pollution control; domestic, public, and recreational facilities; pest and rodent control, community planning and safety, and occupational hygiene.

82.302 Histology

The morphology of human cells, tissues, and organs. Emphasis is placed on the preparation of tissues for microscopic examination: methods of fixation, embedding, sectioning, staining, and mounting.

82.303 Instrumentation in Clinical Chemistry

This course, designed primarily for the medical laboratory technologist, emphasizes the application of the following instruments: photometers and calorimeters, flame photometers, auto-analyser. The use, care, and calibration of the instruments used in the clinical chemistry laboratory is taught, using biological specimens to demonstrate techniques involved.

82.304, 82.407 Clinical Experience in Medical Radiography

This course runs concurrently with 82.309 and 82.413. The student acquires a broad knowledge of medical radiographic techniques by applying classroom and laboratory training in actual clinical situations in affiliated hospitals.

82.305, 82.405 Health Data Applications

The aim of this course is to introduce the student to the handling of health data. Emphasis will be upon generation, processing, and transmission of health data. Experience in the handling of data is gained through allocation of special projects.

82.306, 82.410 Public Health Administration

The objective of the course is to enable the public health technologist to work effectively with other public health workers, local government, and the general public in the pursuit of a healthy environment. Subjects studied include the organization of health services and related government structures, communications, health education, managerial practices, and the development and evaluation of community health programmes.

82.307, 82.411 X-Ray Apparatus

A detailed study is made of the theory and operation of X-ray and auxiliary apparatus, X-ray tubes, and special-purpose equipment.

82.308, 82.412 Hæmatology

The study of the composition of blood and blood-forming tissues, with emphasis on the cellular constituents and coagulation mechanism, both normal and abnormal.

82.309, 82.413 Medical Radiography

This course, given concurrently with 82.304 and 82.407, covers in detail special radiographic, operating-room, and mobile radiographic techniques and related nursing procedures. The use of contrast media is included. Image recording, cameras, and other recording media are studies in depth. The administrative procedures common to X-ray departments are considered.

82.310 Not allocated.

82.311, 82.414 Radiobiology and Protection

A study is made of ionizing radiation and its biological effect. Local, systemic, and genetic effects are considered. Also studied is the significance of maximum permissible exposures, the extent of radiation hazards, radiation monitoring, and the means of protection. The basic principles of radiation therapy are considered.

82.312 Introductory Principles and Techniques of Immunology

The history and basic concepts of the formation of immune bodies and their in-vivo and in-vitro reactions.

82.313 Anatomy and Physiology for Medical Laboratory Technologists

This course is concerned with specific physiological, anatomical, and biochemical processes of interest to the medical laboratory technologist. Particular reference is made to structure and the metabolic and hormonal functions of the urinary, gastro-intestinal, cardiovascular, and respiratory systems.

82.314, 82.409 Medical Microbiology and Parasitology

A detailed study of the classification, morphological identification, and physiology of bacteria, fungi, viruses, and parasites, with emphasis on the human pathogens and their relationship to disease. Laboratory preparation of specimens and media, sterilization techniques, culturing methods, and serological characteristics of micro-organisms.

82.315 Pathology for Medical Isotope Technologists

A study of common pathological conditions of various systems of the human body which are of significance to the medical isotope technologist.

82.316, 82.415 Biomedical Electronics

A study of electronic and special instrumentation used in the health sciences. Emphasis is placed on laboratory work at the Institute.

82.317 Physiology

A review of human physiology in its relationship to the needs of the biomedical electronic technologist.

82.318, 82.417 Health Statistics

This course examines the collection, arrangement, analysis, and presentation of health statistics. Special areas of consideration will include health patterns in the community, birth and death rates, and disease and accident trends.

82.319 Not allocated.

82.320, 82.420 Medical-Surgical Nursing

This course is designed to give the student experience in solving the more complicated nursing problems involved with intensive nursing, reactivation nursing, and community health resources.

82.321, 82.421 Clinical Experience in Medical-Surgical Nursing

Taken concurrently with 82.320 and 82.420, clinical experience related to the more complex pathological problem provides the student with an opportunity to practise and reinforce the skills and knowledge acquired in the classroom.

82.322, 82.422 Maternal-Child Nursing

The course orients the student to the needs of the family during the maternity cycle as these needs are related to the normal physiological changes that occur. The pathology of the ante-, intra-, and post-partum periods is studied. Common childhood ailments are considered. The problem-solving method is used in identifying the family's needs.

82.323, 82.423 Clinical Experience in Maternal-Child Nursing

Clinical experience taken concurrently with 82.322 and 82.422 provides the student with the opportunity to become increasingly involved in identifying and meeting the family's needs. Learning opportunities involving increased depth in application of communicative and motor skills are provided.

82.324 Professional Nursing

The course is designed to orient the nursing student to the evolution of nursing, past, present, and future. Nursing is related to sociological trends, and emphasis is placed upon educational patterns and nursing practices.

82.326, 82.426 Radioisotopes in Diagnostic Procedures

This course covers the in-vivo and in-vitro use of radioactive tracer materials. It includes a study of the pharmaceutical considerations—purity and stability of radioactive materials necessary for their clinical use. Also considered are the methods, techniques, and equipment used in the study of the thyroid and endocrine glands, the blood, iron metabolism, the circulation, body water and electrolytes, malabsorption syndromes, the urinary tract and the liver, pancreas and spleen. The techniques and equipment used in scanning studies are considered.

82.327, 82.427 Clinical Experience in Diagnostic Isotope Procedures

This course runs concurrently with 82.326 and 82.426. The student acquires a broad knowledge of medical isotope techniques by applying classroom and laboratory training in actual clinical situations in affiliated hospitals and clinics.

82.401 Pathology for Medical Radiographers

This course provides a basic knowledge of common pathological conditions. A study is made of the effect of such pathology upon the technical factors used in radiography.

82.402 Not allocated.

82.403 Principles of Hospital Organization and Management

An introductory course to initiate the student into the principles of organization and management in a hospital. Emphasis is placed on the co-ordination and integration of functions. The use of data as a management tool is studied.

82.404 *See* 82.301.

82.405 *See* 82.305.

82.406 Clinical Chemistry

This course for medical laboratory technologists is designed to enable them to become familiar with the various tests and methods of assaying biological specimens. Emphasis is placed on the chemical principles of the tests and on the practical aspects and sources of error.

The chemical analyses of serum, plasma, whole blood, C.S.F., urine, and fæces, using various methods (including automation) for all tests performed in a modern clinical chemistry laboratory, such as glucose, B.U.N. enzymes, and electrolytes.

82.407 *See* 82.304.

82.408 Blood Banking

The theories of antigen-antibody reactions with detailed study of important blood-group systems encountered in cross-matching; methods of collection, storage and precautions employed in blood transfusion services.

82.409 *See* 82.314.

82.410 *See* 82.306.

82.411 *See* 82.307.

82.412 *See* 82.308.

82.413 *See* 82.309.

82.414 *See* 82.311.

82.415 *See* 82.316

82.416 Clinical Experience in Biomedical Electronics

Demonstrations and field investigations are carried out concurrently with 82.415 by arrangement with local health agencies.

82.417 *See* 82.318.

82.418 Not allocated.

82.419 Communicable Disease Control

The course is designed to provide the student with a sound knowledge of the natural history, spread, and control of communicable diseases. Emphasis is placed on specific diseases of provincial and national importance and epidemiological methodology.

82.420 *See* 82.320.

82.421 *See* 82.321.

82.422 *See* 82.322.

82.423 *See* 82.323.

82.424 Psychiatric Nursing

The course introduces the student to the field of psychiatric nursing. Emphasis is placed on communications and interpersonal skills as they are related to patients exhibiting the more maladaptive forms of behaviour.

2.425 Clinical Experience in Psychiatric Nursing

Clinical Experience taken concurrently with 82.428 provides opportunities for the student to work with psychiatric treatment teams in promoting the interpersonal and social adjustment of psychiatric patients in active treatment hospitals and selected community agencies.

82.428 Radioisotopes in Therapeutic Procedures

This course covers the application of radioactive isotopes to radiation therapy from the point of view of the technologist. The use of isotopes in the treatment of thyroid disease, blood diseases, and malignancy is considered. Study is made of the application and handling of radiocolloids. Also covered is the use and handling of radioisotopes as external and implanted sources of radiation.

82.429 Clinical Experience in Therapeutic Isotope Procedures

This course runs concurrently with 82.428. This student acquires a knowledge of therapeutic procedures which utilize radioisotopes by participating in actual clinical situations in affiliated hospitals and clinics.

BUSINESS MANAGEMENT

90.103 Business Mathematics and Statistics I

Review of basic mathematics; fundamentals of analytic geometry; functions and managerial planning; elements of calculus with business applications; introduction to statistics.

90.105, 90.205 Statistics in Broadcasting

The use of statistical analysis. Frequency distributions, graphical presentations. Measures of central tendency. Probability, probability distributions. Sampling. Hypothesis testing. Chi-square test. Correlation. Linear regression analysis. Time series analysis. All techniques will be referenced to marketing, market research problems and radio and TV. measurement techniques. Strong emphasis will be placed on the use of statistics in associated projects.

90.110 Problems Laboratory

An introductory course to initiate the student into the application of known theory. The problems given will be in the areas of business and engineering and will mostly involve mathematics.

90.131 Management in Industry

An orientation in the nature of business in the private enterprise system, embracing forms of business ownership and organization, management, leadership, and business elements of production.

90.135, 90.235 Economics

A 1-year two-term approach to economics, with the aim of furthering an understanding of the organization and operation of our economic environment. The organization for production and distribution of wealth, determinants of prices and costs, and of income and employment, money and banking, the role of government in business and international trade; analysis of supply and demand, national accounts and business cycles; fixed, variable, and marginal costs; and analysis of the business firm under varying conditions.

90.140, 90.240 Accounting

The principles and techniques of a complete accounting cycle covering assets, liabilities, and owners' equity; basic accounting procedures; changes in owners' equity; closing the books; adjustments for accrued revenue, accrued expense, and for revenue and cost apportionments. The construction of working papers and financial statements including merchandise operations. Accounting for proprietorships, partnerships, and limited companies. Procedures and principles applicable to cash, investments, receivables, inventory, fixed assets, and liabilities. Accounting for manufacturing operations and basic cost accounting techniques. The analysis of financial data for management including sources and uses of working capital, cash flow statements and cash forecasting, and departmental and branch operations. Accounting aids to management, budgeting and profit planning. Consolidated statements. Canadian tax structure and Federal-Provincial tax arrangements. Income tax. All students are required to complete a practice set during the second term.

90.150 Introduction to Data Processing

An introduction to the principles and application of data-processing equipment in business and industry. A study of manual, electric, and electronic machines, including unit record equipment and an introduction to electronic computers.

90.170, 90.270 Marketing

An introduction to the marketing environment and marketing institutions; detailed study of the basic marketing functions, market research, product planning, selection of trade channels, merchandising, advertising and sales promotion, salesmanship. Emphasis on marketing of industrial as well as consumer goods.

90.182 Office Systems and Equipment

An introduction to the capabilities of the commonly used machines—adding and calculating machines, cash registers, copiers and duplicating equip-

ment, microfilming, dictating equipment, etc. Operating skill with the adding and calculating machines only is included.

90.203 Business Mathematics and Statistics II

Discounts, mark-ups, margin, selling price, mark-downs; simple interest, compound interest; discounting negotiable instruments; instalment purchases; depreciation; insurance; frequency distributions, averages, index numbers, probability, linear correlation, reliability, and sampling.

90.204 Mathematical Analysis I

Differential and integral calculus; probability expectations, games and decisions; regression and correlation; hypothesis testing, prediction; introduction to linear programming.

90.210 Applied Programming

Instruction will be given in Fortran programming, which will then be used by the student in solving problems in engineering and business.

90.221 Psychology

This subject introduces the student to the known fundamentals of human behaviour so that he might understand more clearly work in the personnel field. Studies include the social and industrial aspects of the subject.

90.230 Business (for Engineering and Process Technologies)

Designed to give students enrolled in the engineering and processing technologies a basic appreciation of the complex world of business both from an economic and from an organizational point of view.

90.231 *See* 90.131.

90.232 Administrative Practices

A study to give the student an introductory insight into the basic nature of business problems and into the administrative processes involved in handling them. Problems in all of the several business areas will be examined, with emphasis on the personnel management aspects of these fields. Study and discussion will be undertaken of actual business situations selected to illustrate typical problems met in industry requiring managerial analysis, decision, and action.

90.235 *See* 90.135.

90.240 *See* 90.140.

90.245 Credit and Collections

Study of various types of credit and their use by retail businesses, commercial enterprises, and consumers. Includes sources of information, credit policy and control, and collection techniques.

90.250 Principles of Computer Programming

A detailed study of the fundamental principles and techniques common to the programming of electronic computers. The student will programme numerous business problems using an I.B.M. 1620 computer. Included will be symbolic language, flow-charting, control breaks, switching, address modification, table look-up, sub-routines. The student will be expected to analyse problems, organize solutions, then code, assemble, test, debug, and document his programme according to acceptable standards and controls.

90.252 Punched Card Systems

Begins with the basic wiring of standard unit record equipment including collator, reproducing punch, and 407 accounting machine. Continues with the study of unit record and punched card computer systems as applied to payroll, billing, and other accounting and statistical functions.

90.271 Selected Marketing Institutions

Investigation of marketing agents, wholesalers, brokers, co-operatives, and research agencies, as they relate to the distribution of goods and services.

90.275 Salesmanship

Introduction to professional selling. Emphasis on practical problems of locating and qualifying prospects, use of the depth approach, and improving sales preparation and organization. Some examination also given to improving interpersonal communications in non-selling situations.

90.296 Systems and Procedures

An introduction to manual, one-write, keysort, and machine systems covering such applications as billing, sales analysis, accounts receivable, accounts payable and expense distribution, inventory, payroll distribution, and payroll writing. A practice set in one-write form is to be completed by all students. The course also provides a brief introduction to the interrelationships of the basic functions such as purchasing, receiving, stock-keeping, production, selling, disbursing.

90.303, 90.403 Mathematical Analysis

A study of mathematical principles and methods having particular relevance to data-processing machines and application, including number systems, logic, Boolean algebra, linear equations, numerical methods, random numbers, and calculus.

90.314 Work Measurement

Introduction to work study and the application of the basic principles to business and industry. Work content. Productivity. The need to measure. Performance rating. The theory and practical application of time study. Production studies. Rated activity sampling. Predetermined motion-time systems. Analytical estimating. Standard data systems. Supplemented by frequent field trips to enable the student to apply the techniques under existing business and industrial conditions.

90.315 Method Study

Introduction to the principles of method study and motion economy. Selection of study areas. Techniques of record—the charting of work using out-

line, operation, flow, and two-handed process charts. Flow diagraming, multiple activity charts, the use of graphs. Principles of plant layout and materials handling. The application of critical examination in the systematic solution of design and production problems. Supplemented by frequent field trips to enable the student to apply the techniques under existing business and industrial conditions.

90.316 Systems and Procedures Analysis

Method study of office procedures. The organization and function of a systems and procedures department. Systems charting. Work distribution, procedures analysis, forms analysis. Forms design and control. Work measurement. Work simplification. Office layout. Manuals. Report writing. Supplemented by frequent field trips to enable the student to apply the techniques under existing business and industrial conditions.

90.321 Psychology *See* 90.221.

90.322 Human Relations

Study of the human elements in the operation of all enterprise; the nature of individual behaviour, interaction between individuals and organizations, group dynamics, and leadership.

90.325 Industrial Relations *See* 90.425.

90.332, 90.432 Estate Management

The real-estate function—land law, estates, and interests in land and the personal and business management decision process. The economic characteristics of urban real estate and the market; city growth and development—locational factors in influencing the determination of land use and ownership. Building construction and property development; institutional lenders and the mortgage market. Practical aspects of the syllabus will include studies of the functions of the real-estate agent, salesman, and appraiser.

90.333 Industrial Processes

A special course designed to familiarize students with the principal extractive, process, manufacturing, and service industries of British Columbia Major emphasis on the marketing, production, and financial aspects of these industries with strong back-up in films and guest lecturers.

90.341, 90.441 Cost and Managerial Accounting

The accountant's role in the organization; major purposes of cost accounting; cost-volume-profit analysis: job order costing; process costing; standard costs; budgeting, responsibility accounting; direct costing; capital budgeting; joint and by-product costs; non-manufacturing costs; inventory; accounting systems; payroll.

90.342, 90.442 Retail Merchandise Accounting

Departmental, branch, and agency accounting systems. Consumer credit, instalment sales and consignment sales procedures. A comprehensive study of the solution of the mathematical problems of retail merchandising; i.e., profit calculation, mark-up, retail prices, price policies and lines, markdowns, inventory, expenses, and budgeting. The role of accounting in retail merchandise management.

90.343 Cost Accounting

Cost-volume-profit analysis; job order costing; process costing; service departments; joint and by-product costs; standard costs; budgeting, capital budgets; accounting systems; inventory; payroll.

90.346, 90.446 Auditing

Basic auditing procedures. Features of the internal control system. The audit programme. Statutory audits, government audits, internal audits. The audit routine as applied to cash, inventory, accounts receivable and sales, fixed and other assets, accounts payable and purchases, income and other taxes and expenses. Specialized audit routines.

90.347, 90.447 Financial Accounting

Review of accounting procedures, the accounting cycle, and the preparation of financial statements. Net income concepts, capital stock, surplus and dividends, accounting principles, cash, receivables, inventories, investments, fixed assets, liabilities and reserves, analysis of working capital, application of funds. Statement from incomplete records, reorganization schemes, price level impact on financial statements.

90.350 Computer Programming

Introduction to third-generation computers with special emphasis on the architecture and principles of operation of I.B.M. System /360. A detailed study of programming capabilities using the System /360 assembler language. Numerous programming exercises for card and printer operations. Introduction to input/output control and operating system.

90.351 Scientific Computer Programming

An introduction to the principles and technical applications of digital electronic computers in industry. Students will use the computer to solve a problem in their own technological field.

90.352 Data Processing Applications

A study of the application of data-processing principles to accounting and statistical functions, including accounts receivable, billing sales analysis, inventory control, accounts payable, and payroll.

90.360, 90.460 Business Law

A study of legal rules and principles which guide decisions involving the law of contracts, including the sale of goods and negotiable instruments, as well as the business associations of agency, partnership, and companies.

90.361, 90.461 Finance

An investigation of different methods of raising funds for new and existing businesses, corporate and non-corporate. Business risk and uncertainty. Analysis of the importance of financial institutions. Business promotion. Security analysis. Capital budgeting. Decision-making analysis. Surplus, dividend, and reserve policy. Business failure.

90.362 Public Health Law

An examination of the legal system which serves our society, followed by a detailed look at certain areas of substantive law which the public health technologist is likely to come in contact with in carrying out his duties. Special attention will be given to selected public health legislation.

90.364 Financial Intermediaries

The functions and economic significance of the major financial institutions in the economy that make funds available to consumers, business, and governments. The course covers such institutions as banks, credit unions, trust and loan companies, finance companies, mortgage companies, and various government lending agencies. Analysis of each institution and the part it plays in providing short, intermediate, and long-term credit needs of the users of funds.

90.365 Money and Banking

The study of money and money substitutes, the supply of currency, the creation of credit. The functions and uses of money. Practices, policies, functions, and services of commercial banks. Regulation and control of the banking system. Economic and social importance of the banking system.

90.373, 90.473 Advertising and Sales Promotion

Introduction to advertising and sales promotion. Psychology of advertising, preparation of copy, layout, media selection, strategy, and campaign planning. Organization for sales promotion.

90.374, 90.474 Marketing Research

The purpose of this course is to teach the student how to make the most effective use of marketing research in business. The course first examines the principal areas in marketing where research can be most useful. Detailed analysis is then made of the steps involved in a research programme. The various research organizations and agencies in Canada are surveyed in relation to the types and kinds of work they do. Students will be required to carry out a total research project as a practical exercise.

90.476 Sales Management

General principles of sales management. Emphasis is given to the human resource, with stress placed on selection, assimilation, training, and supervision; also examination of sales research, planning, organization, and analysis is made. The course finishes with a discussion of sales management ethics.

90.379 Food Merchandising

This course examines the development of the supermarket, the factors that influenced the development and growth of the supermarket industry; supermarket operations, buying and selling techniques, margins, expenses, and profits; layout fixturing and display; the place of the supermarket in the food distribution industry.

90.381 Communication Systems

Study of the physical methods of communication, including mail, telegraph, telephone, radio, and television.

90.383 Wholesaling

To examine the place of wholesaling in over-all marketing picture; to assess the importance of the various forms of wholesaling; an integrated management approach to the operations of a wholesale business. Also includes the nature of planning, the establishment of policies and programmes in marketing, procurement, finance, and personnel.

90.384 Retailing

An examination of the various facets of retailing such as store location, layout, design; store operations; planning and managing the sales attack; retail selling; the various types of retail distributors, their strengths and weaknesses, adaptation to the rapid pace of change.

90.385 Fashion and Æsthetics

Principles of line and design, proportion; fabrics, colour; history of fashion, fashion cycles.

90.386 Imports and Exports

A study of the mechanics of international trade; foreign exchange rates; balance of international payments; tariff duties on imports, import quotas; European Common Market characteristics. Product-distribution-promotion mix for export markets of Canadian industry with emphasis on U.S.A. market influences. The economic, cultural, and political considerations involved in adapting fundamental domestic marketing techniques to foreign conditions.

90.387 Market Planning

This advanced course in marketing is designed to augment the work done in the introductory marketing course. Students will study intensively the marketing concept and the role of marketing management, the dynamic aspects of the Canadian markets, the problems and analytical processes of product planning and development. Extensive use is made of case studies and assignments to simulate business conditions as closely as possible.

90.488 Transportation and Materials Handling

The field of transportation and storage is an integral part of the distribution system. This course will investigate the Canadian transportation systems, warehousing and other storage, and the materials-handling techniques associated with transportation and storage in our complex distribution system.

90.390 Introduction to Work Study

A 40-hour single-term appreciation of fundamental work-study techniques. Emphasis on the method-study techniques with minimal time on work measurement. Basic approaches to problem solving and simplification of work in order to effect improvement through product improvement, reduced labour content, and reduced cost.

90.391 Work Study I

An introduction to the principles and application of method study in business and industry. subjects include work content, productivity, problem solving, selection of study areas. Techniques of record include activity (work) sampling, work distribution, outline and flow process charting. Plant layout and materials handling. Motion economy. Work simplification.

90.396 Systems Analysis/Fortran (Alternating)

Introduction to the principles and techniques of systems analysis: gathering data, systems design, flow charting, documentation, procedures, card and form design, controls, audit trails. The use of a high-level language (Fortran IV) in solving business and statistical problems involving internal sorting, table look-up and binary search. Case study: design of a total information system.

90.404 Applied Statistics

An extension of 90.204. The computer will be used as a tool to perform the more extensive calculations. Some new topics will be introduced, including forecasting, regression analysis, and linear programming.

90.410 Business Engineering Problems

This course will require the application of knowledge gained in other courses to the solution of business problems. The lecture series will familiarize the student with systems used in industry in such areas as scheduling, materials handling and plant layout, inventory management, estimating, and transportation. Students will be required to do basic research to collect information for project assignments as well as to solve case studies.

90.412 Industrial Organization and Operations

Study of the various departments of a business enterprise, their objectives, functions, and relationship to each other in a systems sense. These will include sales, purchasing, engineering, production, product research, personnel, accounting, administrative services. Each of these areas will be supported through case analysis.

90.424 Personnel Administration

An introduction to the fundamentals of personnel management, including personnel procedures, tools and records, job description, recruiting, interviewing, testing, selection, orientation, training, wage and salary administration, promotion and transfers, benefits, and morale.

90.425 Industrial Relations

An introductory analysis on the fundamental issues and facts of labour-management relations. Special emphasis is given on development of collective bargaining, grievance procedures, contract negotiations, mediation and arbitration.

90.427 Manpower Selection and Placement

This subject provides the student with a capability in dealing with problems of selecting and placing individuals both within business enterprises as well as in industry generally. The subject will cover such items as testing, interview techniques, and various other assessment methods.

90.434 Managerial Policy

An analysis of business policy formulation designed to give the student practice, experience, and confidence in handling business situations, including those of a complex nature where basic policy decisions are necessary to assist in problem-solving. Typical business cases will be selected from the fields of finance and control, personnel, production, marketing, and general management for study and discussion. Determination of an acceptable course of action will be followed by the development of a proposed scheme of implementation.

90.443 Management Accounting

The management accountant's role; internal control; annual report; income determination; price level problem; income tax; budgets; profit planning; aids for sales management; aids for production management; data processing; decision making; compensation policy.

90.450 Computer Programming

Continuation of 90.350, Computer Programming; exercises employing the full resources of the on-site I.B.M. System /360. Tape and disk programming for sequential, index sequential and direct file organization. Input/output control system, operating system; use of standard utility, sort/merge, and auto test programmes. Assembler macro language.

90.452 Business Computer Programming

An introduction to problem-oriented computer programming using Cobol programming language. Standard accounting applications will be flowcharted, programmed, and tested by the student on an I.B.M. System /360 computer.

90.460 *See* 90.360.

90.464 The Money Market

A study of the demand for and the supply of short-term funds. Analysis of various money-market instruments such as government securities, bankers' acceptances, short-term notes, commercial paper, and other money-market instruments.

90.466 Security Analysis

Techniques and principles of security analysis; valuation of securities. Analysis of investment risks. Investment policy for individuals and business firms.

90.472 Merchandising

Techniques employed in assortment planning; sources of consumer and merchandise information; stock controls, buying and selling calendars, pricing; buying, buying organizations; assortment appraisals.

90.474 Marketing Research

Principles and practices of marketing research, with emphasis on basic methods and techniques, sources and interpretation of data, and presentation of results.

90.481 Transportation

An introductory study of modern means of transportation in all fields of business activity.

90.389 Consumer Behaviour

An examination of the major principles of human behaviour as they apply to groups, particularly as these principles are observed in business and industrial settings. Areas such as communication, persuasion, prejudice, cultural attitudes affecting group dynamics, and the self-concept are considered.

90.491 Work Study II

A continuation of Work Study I involving work measurement techniques. Performance rating, time study, production studies, predetermined motion—time systems, analytical estimating, the use of standard data. Procedures

analysis with respect to business systems, forms design, office layout, etc. Detailed critical examination of a process or procedure using the systematic approach to effect improvement. The course is supplemented by case problems and projects using techniques learned in both Work Study I and Work Study II.

90.496 Computer Systems

Methods used in the development of business data processing systems for punched cards, disk storage, and magnetic tape. System specification; equipment appraisal, acquisition, and utilization; implementation and control. These techniques will be applied to the solution of advanced management problems. Compiler language: Cobol will be included in this course.

90.497 Engineering Application Programmes

Familiarization with packaged programmes available for standard engineering applications such as COGO, STRESS, general-purpose systems, simulator, mathematical programming system, etc.

BROADCAST COMMUNICATIONS

91.101, 91.201 Elementary Broadcast Technology

An introduction, for Production Option students, to the equipment used in radio and television broadcasting and to the techniques used in the various processes and procedures in the operation of broadcast stations. Starting with the organization of the industry and stations, the student continues with the study of microphones, turntables, control boards, tape recording, and control-room accessories. At the same time, students study the processes of picture transmission, lighting and lighting equipment followed by picture and wave-form monitors, applied optics, the vidicon, image orthicon and plumbicon cameras, film and slide projectors, video switcher and patch panels, video distribution, video tape recording, and colour television. This course leads to actual radio and television production throughout the second year.

91.103, 91.203, 91.303, 91.403 Writing and Sales

Students require a knowledge of modern advertising methods as well as an understanding of the special techniques of writing for the broadcast media. Lectures and workshop sessions give the student a thorough indoctrination in advertising as used in today's marketing plans. Commercials are studied in all aspects, and the problems facing commercial writers in advertising agencies, stations, and retail organizations, as well as in the advertising departments of manufacturers, are compared, studied, and practised. Those with aptitude or talent for writing receive the groundwork for careers in this field.

91.109, 91.209 Introduction to News

The student in this course will be given his first look at the world of "electronic journalism." The course covers a history of news; newsroom organization and operations in radio and television; news writing and editing, news sources and coverage; production of news broadcasts and special-interest features. Introduction to News is preparatory to News in the second year, in which these fundamentals are expanded and students actually work in an operating newsroom within the technology. A good percentage of the time in Introduction to News will be spent in the study of current events to provide the necessary background for a qualified newsman.

91.110, 91.210 Broadcast Production

This first-year subject serves as an introduction and background study in several areas connected with radio and television broadcasting. A study is made of the legislation and regulations under which broadcasting in Canada is governed. A first-term study is also made of the history of the development of broadcasting in this country, from the first steps in radio through to present-day radio and television broadcasting. The student is introduced to the use of music in broadcasting and elementary work in the development of programming. The subject includes work in pronunciation and diction, the use of stress, phrasing and projection as applied to work in the industry. A large amount of laboratory time has been assigned to this subject in first and second terms, to lay the foundation for actual work in radio and television production in second year.

91.111, 91.211 Elementary Broadcast Technology for Technical Option Students

See 91.101, 91.201.

91.201 *See* 91.101.

91.203 *See* 91.103.

91.209 *See* 91.109.

91.210 *See* 91.110.

91.302, 91.402 Production—Radio

Students engage in practical work in radio production; the preparation and presentation of programmes, news broadcasts, remote broadcasts, and special-events coverage, in all phases of production from planning through to the finished product. The student gains practical experience in the use of all studio equipment, as well as remote pick-up equipment and portable recording facilities.

91.303 *See* 91.103.

91.305, 91.405 Contemporary History

The first half of this subject will survey the late 19th century and early 20th century, with special emphasis on those events which provide a background to present world problems. The second half of this subject will survey the events of the past 40 years, with special emphasis on current world problems.

91.309, 91.409 News

News follows the first-year Introduction to News, in which fundamentals are expanded to give professional atmosphere to the training of neophyte "electronic journalists." The students will spend much time refining techniques and actually covering and editing the news. As in the first year, much time will be spent in studying current events as a background to the news as it is happening.

91.312, 91.412 Production—Television

Students engage in the production of television broadcasts, making use of full studio facilities in the production of television commercials, special-events coverage, the taking and editing of film material, and carrying out on-the-job training projects. The laboratories of the Broadcast Communications pro-

gramme consist of a fully operative television station, equipped with all standard apparatus used in the industry, including video tape recorders, full darkroom facilities, sound-on-film as well as silent motion-picture cameras, and three television cameras, including a colour camera chain, and colour monitors.

91.314 Radio and Television Transmission

This subject introduces the student to the fundamental principles of transmission and reception as directly related to broadcasting. This includes AM, FM, FM multiplex radio systems, and monochrome and colour television systems. The theoretical groundwork is laid for the course 91.414, which follows.

91.315, 91.415 Workshop—Television and Radio

Specialized equipment used in modern television and radio stations is studied in detail, and an advanced level of adjustment and maintenance skills is attained.

Emphasis is placed on the extensive use of sophisticated test equipment with an objective of students reaching a proficiency level such that full attention may be directed to the item being serviced and not on how to use the test equipment.

91.402 *See* 91.302.

91.403 *See* 91.303.

91.404 *See* 91.204.

91.405 *See* 91.305.

91.409 *See* 91.309.

91.412 *See* 91.312.

91.414 Workshop

This subject follows directly from 91.314 and is more concerned with practical applications of the theory previously covered. Students practise the adjustment and maintenance of FM multiplex and colour television transmitters and receivers. The student is taught the use of both simple and sophisticated equipment used in the testing of all aspects of transmitter operation. He will become familiar with such instruments as the oscilloscope, sweep generator distortion meter, spectrum analyser, video test signal generator, frequency counter, and other equipment as applied to radio and television transmission systems.

HOTEL, MOTEL AND RESTAURANT MANAGEMENT

92.101 Front Office Management

Front office organization and psychology. Materials, equipment, and supplies used; rooms salesmanship; reservations, registrations, and front office "accounting" for various-size hotels; handling of cash and credit transactions; the night hand-transcript, and the processing of accounts and the night audit on billing-audit equipment; telephone switchboard.

92.102, 92.202 Food and Beverage Management

Background of industry; hygiene and sanitation; meal planning, menu preparation, basic production systems. Identification, sources and selection of foods; purchasing principles and methods; basic food preparation; culinary terminology; food science. Elementary kitchen layout, equipment specification; maintenance, cost of repairs. Service of food in dining-rooms, snack bars, banquet rooms, lounges. Kitchen and service areas labour cost control; food costing and production control. Menu writing and preparation. Organization of catering department; personnel requirements and administration. Wines, dining-room equipment purchase and storage; introduction to convenience foods and new media of food preparation and service.

92.202 *See* 92.102.

92.203 Bar and Rooms Management

Housekeeping organization and duties; control forms used; supplies and equipment used; specifications for purchasing equipment and linen; laundry operations; beer-parlour organization and control; cocktail-lounge organization, glassware, types of beverages, dispensing devices, and control systems.

92.211 English—Speech

Speech construction; types of speeches; speaking before groups; introducing and thanking speakers, chairing meetings, and interviewing. practice in preparation and delivery of talks to groups.

92.302, 92.402 Food and Beverage Management

Advanced food preparation; volume feeding management, menu pricing; kitchen and dining-room interrelation in production and service planning; pre-cost and pre-control, budgeting, standardization, analysis; function and banquet catering, including menu, production, layout, service requirements; special service catering; food processing and production by manufacturers; nutrition, dietetics; equipment purchasing specifications; design and market research; future trends. Organization of a catering department; duties, staffing, work scheduling, responsibilities; function booking; staff training, financial and personnel policies. Steward's department, storage control; china, silverware, glassware, table-linen purchase; specialized food service for hospitals, colleges, institutions, air lines. Environment and atmosphere; management and consultant concept for design and layout; science of food and nutrition for "tomorrow's" operation. Laboratory hours will be devoted to food preparation and dining-room service, as well as design of layout, research on equipment, observation of operations, and analysis of local establishments.

92.313, 92.413 Hotel and Restaurant Accounting

Internal control of rooms, food and beverage departments; payroll (labour costing) control; food and beverage purchase, storage, and issuing controls; interpretation of financial statements and comparison and analysis of statistical information; leases, franchises, and financing; hotel and motel evaluations; insurance and income tax.

92.314, 92.414 Planning and Design

Fundamental introduction to blueprint reading; contracts; principles of design for hotels and restaurants; departmental layouts, floor plans, and traffic flows; selection of equipment and furnishings; principles of decoration and colour theory; lighting; sources, specifications, and qualities of furnishings, materials, and fabrics.

92.315, 92.415 Advertising and Promotion

Analysis of market in order to establish a sales promotion programme which will contribute to a more profitable operation. Advertising as part of that total programme—the selection and use of the various media available; the techniques and costs involved. The part played by public relations and publicity; the channels available, the techniques and costs. The use of outside personnel such as advertising agencies and public relations consultants. The organization, duties, and methods of the sales department.

92.316 Human Relations

Thought and leadership. Fundamental principles of human relations. Development leading to an understanding of a " belief " relationship. Job analysis, recruiting, interviewing, indoctrinating, training, supervising, managing. Co-ordination of hospitality activities with community—social, charitable, sports, chamber of commerce, organization affiliations. Co-operating with convention bureaux, travel bureaux, and tourists. Management-labour relations.

92.317, 92.417 Law

Contracts—their nature and formation; unlawful contracts, statutes requiring right, reality of consent, misrepresentation, performance, breach, and remedy. Business associations—agency, partnership, and companies. Torts —trespass, negligence, strict liability, nuisance, occupiers and owners of land. Personal property. Reference will be made to the specific Acts covering the hotel industry.

92.320, 92.420 Food and Beverage Accounting

Internal control of food and beverage sales; labour control; food and beverage purchase, storage and issuing controls; interpretation of food operating statements; Leases, franchises, and financing; insurance and taxation. The course will be specifically for food service operations.

92.321 Advertising and Merchandising

Basically the same course as 92.315, 92.415, oriented toward food service operations.

92.322, 92.422 Food Management

Basically the same course as 92.302, 92.402, but with much greater emphasis and more laboratory time concerned with the problems of food production and menu composition.

92.323, 92.423 Food Science and Sanitation

The chemistry of fats, carbohydrates, proteins, flavourings, and colourings. Food additives. Basic nutrition. The causes and prevention of food poisoning, including the æsthetic, moral, and legal responsibilities of those preparing and serving food to the public. The effect of all the above on profit.

92.402 *See* 92.302.

92.412 Engineering and Maintenance

Fundamentals of lighting; acoustics; heating; principles of air-conditioning; passenger elevators; electrical systems; fire prevention and protection; plumbing; swimming pools.

92.413 *See* 92.313.

92.414 *See* 92.314.

92.415 *See* 92.315.

92.417 *See* 92.317.

92.418 French Conversation

A basic, or an advanced, course (depending on the ability of the student) to give some fluency in French conversation. The course will be oriented toward the terms used in the hotel and food business, and will include correspondence. A language laboratory will be available to complement classroom instruction.

92.420 *See* 92.320.

92.422 *See* 92.322.

94.423 *See* 92.323.

92.425 Design and Planning

Basically the same course as 92.314, 92.414, but oriented specifically toward food service operations.

92.426 Law

Basically the same course as 92.317, 92.417, but oriented specifically toward food service operations.

Printed by A. SUTTON, Printer to the Queen's Most Excellent Majesty
in right of the Province of British Columbia.
1967

Printed by A. SUTTON, Printer to the Queen's Most Excellent Majesty
in right of the Province of British Columbia.
1968