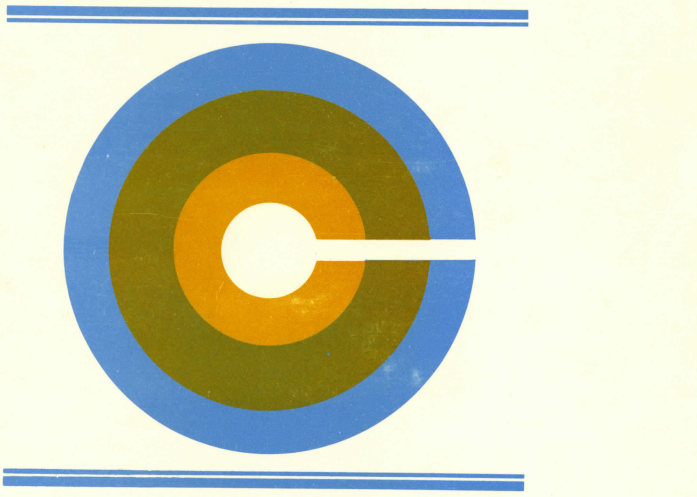
REPORT

on the

PROGRAM REVIEW

of the

WELDING PROGRAM



Cariboo College

REPORT

on the

PROGRAM REVIEW

of the

WELDING PROGRAM

OFFICE OF INSTITUTIONAL RESEARCH & EVALUATION

MAY, 1989

SUMMARY

The Welding Program is recognized by employers for providing students with excellent welding skills. Job placement ratings for graduates of the Welding Program are very good with over 75% of the students who responded to the questionnaire employed in welding-related jobs.

The principal recommendations in this report deal with the format and delivery of instruction. The present instructional format of the Welding Program is not satisfactory to either students or instructors. The Program Evaluation Committee therefore recommends block intake for C Level students, a reduction in student/instructor ratio and a reduction in the clerical duties presently performed by one Welding Instructor.

The Program Evaluation Committee also recommends the re-implementation of the three month Welder/Fabricator course run in Spring, 1988, but cancelled this Spring because of poor registration. The Program Evaluation Committee endorses the statements in the Five Year Plan with respect to professional development and equipment replacement.

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PROGRAM EVALUATION COMMITTEE

(April 18 & 19, 1989)

COMMITTEE CHAIRPERSON	**Jack Bradshaw** Instructor, Mathematics
FACULTY REPRESENTATIVE	**Kurt Zwingli** Chairperson, Food Training
EXTERNAL REPRESENTATIVE	**Randy Maduik** Manager, Industrial Equipment Co., Kamloops
PROGRAM RESOURCE PERSON	**Nick Martin** Instructor, Welding
PROGRAM REVIEW CO-ORDINATOR	**Alastair Watt** Co-ordinator, Institutional Research & Evaluation
DEAN, TRADES & INDUSTRIAL TRAINING	**Earl Bloor** **(ex-officio)**
INSTITUTIONAL RESEARCH & EVALUATION CLERK	**Carol Davy**

INTRODUCTION

The Program Review process was undertaken for the Welding Program over the period December, 1988, through May, 1989. Initial data were solicited from the Divisional Director in December, 1988. Questionnaires were mailed to faculty on January 24 and to former students on January 26, 1989. Advisory Committee and employer surveys were distributed February 9 and 10, 1989, with telephonic followup for the Advisory Committee, employer and former student categories running from February 20th to March 21, 1989. Current student surveys for the Kamloops Campus were administered on February 21, 1989, with the Williams Lake Welding C class being surveyed on March 21. The cut-off date for all responses was April 3, and the Committee met to analyze and deliberate on the data on April 18-19, 1989.

BACKGROUND

The Welding Program at Cariboo College was started in 1972. A general welding program was offered with requirements of a Grade 10 minimum or Grade 12 in the Industrial Program, and applicants at least 18 years of age. Welding Upgrading was offered to those with at least 12 months' welding employment, and additional specialty welding courses were also provided. In 1983, the program was restructured to offer Welding Certification under levels C, B and A as well as a Welding Technician Program. By 1985, although the Welding Technician Program had been cancelled because of lack-lustre registrations, the three levels of certification (C, B, A) remained, and the whole program had shifted from a fixed intake, instructor-driven format to one of continuous intake and competency-based learning.

METHODOLOGY

A wide variety of methods and materials was used to conduct the review process.

Standardized questionnaires were sent to the Welding Program Advisory Committee members, employers, faculty, former students, and current students.

Dr. Earl Bloor, Director, Trades and Industrial Training Division, provided historical and descriptive data on the program and a variety of materials in support of the review process:

Course outlines for the following:

WELDING C
WELDING B
WELDING A

The Registar's Office provided the following:

Welding Admissions Package
Program Capacity/Demand Information

The Institutional Research Office generated the Grades Distribution Summary.

DISCUSSION

The following observations may be made about the survey questionnaire responses.

1. **Advisory Committee**

   Six out of nine, or 67% of the Welding Advisory Committee members responded to the questionnaire. This is below normal rates of response for Advisory Committee surveys, which usually are at or close to 100%.

2. **Employers:**

   Eight out of 21, or 38% of Employers responded to the questionnaire. This is a disappointing response rate, but is still sufficient for valid inferences to be drawn from the data.

3. **Faculty:**

   All three Faculty, or 100%, responded to the Faculty questionnaire.

4. **Current Students:**

Normal welding intakes contain up to 40 F.T.E.'s in Kamloops, 12 at Williams Lake. At peak enrollment periods -- for example, December, January and February -- registrants may exceed the F.T.E. ceiling. The in-class surveys conducted on the Kamloops welding class on February 21, 1989 and on the Williams Lake class on March 21 captured a total of 40 responses--27 in Kamloops, 13 in Williams Lake. This means we have a 77% response rate for the total potential pool--67.5% in Kamloops and 108% in Williams Lake.

5. **Former Students:**

The 250 former Welding Program students who attended Cariboo College between September, 1983 and August, 1988 were surveyed between January 26 and April 3, 1989. Eighty responded for a response rate of 32%--a heartening figure which indicates a high level of interest in the program among former students. For vocational programs that have been reviewed, this response rate is one of the best yet, outstripping Electronics, (18%), equalling Carpentry (32%--but with almost four times the number of respondents), and being surpassed only by Practical Horticulture (38%). (However, the 80 responses from Welding former students were far in excess of the 34 for Horticulture.) Statistically valid inferences may be drawn from the former student data.

QUESTIONNAIRE DATA

The following trends were detected in the questionnaire responses:

Advisory Committee Survey

Six of the nine Advisory Committee members responded to the survey. They indicated that attention should be given to:

i) instructional staff returning to industry for a period of time to upgrade their skills;

ii) the inclusion of fabrication skills in the curriculum;

iii) emphasizing the following skills in the curriculum: oral and written communication, problem solving, mathematics and computation;

iv) provision of more direction on how the Advisory Committee can help in the public relations, promotional and market-analysis aspects of the Welding Program.

Employer Survey

Only eight of the 21 employers surveyed responded to the questionnaire. The general trends noted in the responses were as follows:

i) graduates possessed good welding skills and knowledge;

ii) employers, however, would like more graduates with fabrication skills and more intensive training in blueprint reading-- 62% of the respondents felt that there were not enough qualified welder/fabricators to meet their needs;

iii) the eight responding employers employ on an average two Cariboo College Welding graduates each;

iv) responding employers felt generally they had good communication with the Cariboo College Welding Department.

Faculty Survey

i) There is general dissatisfaction among the faculty with the self-paced model of instruction. Faculty feel that the continuous intake/competency-based format results in the following:

- lack of emphasis on oral and written communication skills;
- lack of development of team work, social skills, and positive work habits and attitudes among the students;
- a lack of quality performance, time management and work ethic among the students;
- inadequate provision for practical experience for students under the current dispensation;
- a perceived discrepancy between course objectives and evaluation procedures.

Other concerns expressed by the faculty were:

ii) inadequate time available for faculty to participate in curriculum development; (c.f. STRENGTHS #4)

iii) lack of communication with appropriate businesses and industries; (c.f. employer satisfaction)

iv) a sense of inadequate operating and capital funding for the program;

v) a sense that Counselling was not fully familiar with the intricacies of the Welding Program;

vi) a perception that the College Bookstore charges excessively for Welding textbooks.

Current Student Survey

Kamloops Campus:

The following items elicited dissatisfied responses:

i) extent of career counselling by faculty;

ii) assurance about job opportunities on graduation;

iii) availability of instructors outside class time;

iv) quality and appropriateness of audio-visual materials;

v) availability of instructors for help and demonstrations on the shop floor.

Most comments from the surveys indicate :

i) that there should be a lower student/instructor ratio;

ii) that the equipment and tools are old and in need of repair;

iii) that more classroom instruction is desired.

Williams Lake Campus:

i) Williams Lake students were more satisfied with the program and instruction than those at Kamloops. They ranked survey items higher than did Kamloops respondents by differentials ranging from 0.2 to 1.00;

ii) they expressed a desire for a Welder/Fabricator course in Williams Lake;

iii) they expressed dissatisfaction with
- the size of the welding shop;
- the availability of tools and equipment;
- the quality of the text and other printed materials.

Former Student Survey

Students were generally satisfied with the Welding Program and instruction. Comments from former students tended to re-iterate those of current students with regard to

- unavailability of instructors on the shop floor;
- unsatisfactory equipment;
- poor texts;
- inappropriate audio-visual materials.

Some former students felt that the addition of a fabrication module or course to the Welding Program would increase students' employability upon graduation.

TABULAR SUMMARY OF QUESTIONNAIRE DATA

Welding Program

The categories and quantities of responses are tabled below:

Recipient	# Sent	# Completed and Returned	% Return
Advisory Committee	9	6	67%
Employers	21	8	38%
Faculty	3	3	100%
Students: Current:			
Kamloops:	27	27	100%
Wm. Lake:	13	13	100%
Former:	250	80	32%
TOTAL	323	137	42%

Returned by Post Office (all years)	48	19%
Non-Respondents	122	49%

As at APRIL 3, 1989

ADMISSIONS DATA AND PERFORMANCE STATISTICS

Admission Requirements:

Level "C"
Grade 10 minimum (Grade 12 preferred)
Pretest required
Chest X-ray
Successful medical
Applicants should be in good physical condition

Levels "B", "A" and Testing
Applicants must have a "C" ticket for Level B
Applicants must have a "B" ticket for Level A
Successful medical
Chest X-ray
Applicants must have written proof of a minimum of one year industrial welding experience
Applicants should be in good physical condition

Program Capacity/Program Demand over past five years:

Program Capacity: 40 (Kamloops); 12 (Wm. Lake)

YEAR	APPRENTICES	A	B	C	UPGRADE	TOTAL
1984/85	51	5	17	-	84	157
1985/86	44	10	24	-	13	91
1986/87	49	17	24	-	2	92
1987/88	64	2	24	5	-	95
1988/89	20	4	12	41	-	77
FIVE YEAR TOTAL						512

Gender Ratio (female to male):

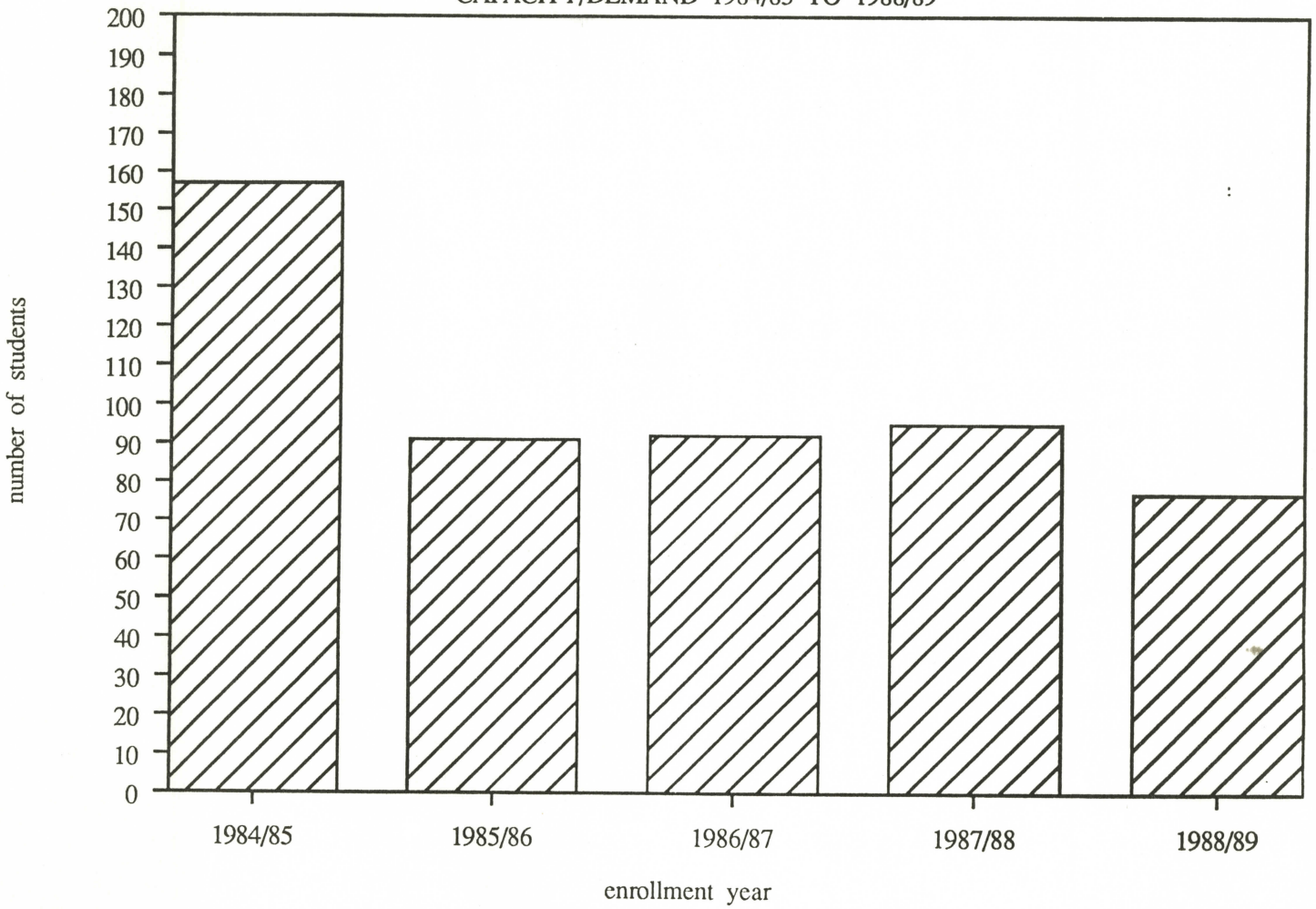
The ratio of female to males taking a Welding program at Cariboo College between 1983 and 1988 was 3:250, or 1.2%. The National percentage of females employed in welding occupations, according to Statistics Canada, is 4%.

Attrition over the past two years
(October, 1987 to March, 1989)

Level	# Graduated	# Not Completing	% Attrition
Apprentice	10	1	10%
C	24	10	42%
B	16	2	12.5%
A	8	1	12.5%
Total	58	14	24.0%

WELDING PROGRAM

CAPACITY/DEMAND 1984/85 TO 1988/89



PLACEMENT DATA

Types of Employment:

There are numerous welder categories depending, on the type of welding equipment and techniques used, the nature of the final product, and the degree expertise required. Accordingly, there exist designations such as arc welders, gas welders, combination welders, submerged arc welders, resistance welders, pressure vessels welders, welder-fitters, solderers and flame cutters. Generally, Level C certification prepares a welder for general construction employment and Level B for maintenance and pipe industry employment, while Level A qualifies the welder as a journeyman employable in pulp mills and mines.

Training is usually by apprenticeship program or on-job experience. In most cases, a minimum Grade 10 education is required; in other cases, such as welder-fitters, who are required to read printouts and lay out their work, employers expect a higher level of general education. A skilled welder with experience may advance to an inspecting or supervisory job.

Placement Mechanisms:

There are no formal placement procedures. Program Review estimates that 61 out of 80 former student respondents, or 76.3%, are employed full-time, and a further 4, or 5%, part-time, for a total of 81.3%. Of these, 43, or 53.8%, reported being in welding occupations, a further 18, or 22.6%, in allied or related work, and only 6, or 7.5%, in non-training related work.

Current Salaries:

In 1987, Vancouver area welders earned between $13.58 and $19.70 per hour in unionized jobs and $12.00 to $16.30 per hour in non-unionized jobs. Maintenance welders (journeymen) in Edmonton earned between $12.30 and $16.80, and in Calgary, between $12.40 and $17.60. Production welders (journeymen) in Edmonton made between $10.50 and $14.70 per hour, and in Calgary, between $12.50 and $17.30 per hour.

The National Graduate Survey reported that 1982 community college graduates working in this occupational area two-years after graduation earned an average of $15,500 in 1984. But these data are considerably behind the times: Former Welding students of Cariboo College report average earnings of $2,713 per month or $32,556 per year, ranging from a monthly high of $7,500 to a low of $1,200. (The impressive top-end salary is accounted for by substantial overtime and possibly Northern employment.)

Job Opportunities Projection:

Welding is typical of the trades in general, where workers have been experiencing only sporadic periods of full employment due to the economic downturn.

Technological change may impact substantially on employment growth. For example, the increased use of robots in manufacturing plants will reduce the demand for welding machine operators. Similarly, the use of small explosive charges to bond large-diameter pipes may reduce the numbers of pipe-line welders, if this technique (high-impact welding) becomes widely adopted. As well, programmable cutting machines will slow employment growth among manual flame cutters.

However, based on projections for manufacturing, services and construction, the outlook is for an above-average employment growth of 1.7% over the next eight years. New job openings over the 1987-95 period are projected at 13,000, while replacement openings will account for 32,000 positions, for a total of 45,000 job openings over the next eight years.

Further Education Opportunities:

Cariboo College offers the provincial curriculum at the apprenticeship level and at levels C, B, and A, thus providing a "ladder" for those who wish to proceed to journeyman level. In addition, upgrading courses to Pressure Welding Certification are offered. Of those continuing their studies at other institutes, three reported attending B.C.I.T. and two Northern Lights College at Dawson Creek. A total of 15 out of 80 respondents are currently undertaking, or have since leaving Cariboo College undertaken further studies in a post-secondary institute, but apart from the B.C.I.T. and Northern Lights preferences mentioned above, there is no discernible pattern of preference.

STRENGTHS OF THE PROGRAM

The Program Evaluation Committee identified the following strengths in the Welding Program:

1. Former students and employers are generally satisfied with the level of skills achieved in the program. Seven out of eight employers who responded to questionnaires would hire Cariboo College welding graduates in the future. The eighth employer required fabricating skills, which are not included in the present Welding Program.

2. Welding graduates are generally working at welding related jobs. Seventy-six percent of the former students who responded to the questionnaire are working at a job which uses their welding training.

3. All the welding programs in the Province use a common curriculum. This allows students the flexibility of completing the three levels C, B and A at different colleges in the Province.

4. Nick Martin, one of the Welding instructors, has participated in the re-write of the level C curriculum. The revised curriculum will be implemented this Fall and should eliminate some of the anomalies in the existing one.

AREAS WHICH CAN BE IMPROVED (WITH RECOMMENDATIONS)

This section highlights areas of the Welding Program which the data suggest can be improved. The accompanying recommendations are priorized, with format and delivery being at the top of the list.

1. Format and Delivery

The instructional format of the Welding Program changed in 1984 from block intake, group instruction to a continuous intake, competency based model. At the same time, student/teacher ratio increased to 20:1. It is the opinion of students and faculty that the present instructional format is not working. Students have expressed a desire for more classroom instruction and greater availability of instructors in the welding shop. The faculty feel that the combination of continuous intake, increased student/teacher ratio and demands on instructor time resulting from the establishment of the Learning Resource Centre and Testing Centre in the welding shop have all contributed to reducing their effectiveness as teachers. The instructors believe that the re-introduction of block intake for C Level students would enhance their effectiveness by reducing the number of times a process must be demonstrated, making it easier for group instruction and allowing more instructor time to handle individual student problems. The instructors also feel that block intake with increased classroom or group instruction will foster:

- improved writing and communication skills
- the development of team work and social skills
- the development of positive work habits and attitude
- the development of appropriate job-related skills.

Earl Bloor, Dean, Trades and Industrial Training, strongly advocates the concept of a continuous intake, competency based format of instruction; however, he recognizes the need for instructor commitment to this method of instruction for success.

The TRAC Evaluation, Phase III Report (March, 1986) states:

"Institutions should be permitted to train students using procedures best suited to local circumstances, with specific options to choose between:

a) Open-entry vs Lock-step Courses
b) Individualized vs Group Instruction" (III.2)

Another point to note is that revised course material for the Level C program will be implemented this September. The revised course material contains no audio-visual support and requires more instructor demonstrations, which makes it more difficult to implement on a continuous intake format.

Given these factors, the Program Evaluation Committee recommends

(a) **that block intake for Level C Welding students be implemented, the mechanics of implementation to be left to the Welding Department and the Dean of Trades and Industrial Training;**

(b) **that, given the higher degree of maturity found among Level B and A Welding students and the Apprentices, and given their greater need for flexible access to their educational training, the Level B and A and the Apprenticeship courses continue to operate on a continuous intake basis;**

(c) **that the student-instructor ratio be reduced to 16:1.**

The Committee believes that the competency-based instructional model should be persevered with for the following reasons:

- the regularization of C level intakes will induce a more cohesive "class " atmosphere in the shop;
- the new curriculum will encourage the instructors to engage in more group activities and class demonstrations.

2. Curriculum

Advisory Committee members, employers and former students all expressed a need for a fabrication course in the Welding Program. Employers, especially smaller shops, require welders with fabrication skills. Accordingly, the Program Evaluation Committee recommends

(a) **that the Welding Program re-implement the three month Welder/Fabricator course run in Spring, 1988, the format, length, timing and curriculum of this course be at the discretion of the Welding Department and the Dean of Trades and Industrial Training.**

Considerable concern was expressed by the Welding Advisory Committee, the faculty and the external representative about the level of mathematics, writing and reading comprehension skills demonstrated by Welding graduates. Accordingly, the Program evaluation Committee recommends

(b) that the Welding faculty adjust their program curriculum so as to accommodate a minimum of three (3) hours per week for upgrading or practice in mathematics, reading comprehension and writing skills;

(c) that the Welding faculty initiate the requirement of monthly written reports from their students;

(d) and that the Welding faculty explore the possibilities of involving their program in the Writing Across the Curriculum initiative to be implemented this Fall.

Given the concern expressed by faculty about the lack of productivity, time-management skills and work ethic displayed by some of their students, the Committee further recommends

(e) that, to simulate workplace conditions and enhance the above-mentioned skills and attitudes, the Welding faculty investigate accepting projects sub-contracted to them by local welding shops (the latter to provide the materials).

3. Faculty Renewal

The Advisory Committee members expressed the desirability of instructional staff upgrading their skills by returning periodically to industry. In view of this, the Program Evaluation Committee

endorses the recommendations in the Five Year Plan on Professional Development for Vocational staff, specifically--

to establish a plan for the systematic renewal of each division's staff. Each member, in consultation with his/her immediate supervisor, will generate and maintain a development plan for consecutive three year periods which takes into account both the staff person's needs and the division's needs for that period. The plans will consider instructional, technological, organizational and personal developmental needs...(E.01.S3.1); and

to organize industrial work experience terms for career and vocational staff members (E.02.S16)--

and urges the Welding Department to implement such plans forthwith.

The Committee further recommends

that, to enhance College/industry relations and professional development, the Welding Department periodically invite welders from local shops to update them on technological developments in the field.

4. Instructor Utilization

The overwhelming concern of present and former students was the lack of instructor assistance in the welding shop. Factors which have contributed to this problem include:

- the increase of student/instructor ratio to 20:1 at some points in the year;
- the instructors' periodic need to supervise inexperienced students using cutting equipment, thus leaving only one-man coverage in the shop;
- the amount of time spent by one instructor on clerical duties resulting from the transfer of Learning Resources and Testing Facility into the welding shop.

The problem will be partially alleviated by the implementation of block intake for C Level students. However, the time spent by instructors on clerical duties must be reduced: the Program Evaluation Committee is of the opinion that instructors are hired to instruct, and not to devote their time to clerical matters more appropriately handled by a clerk. Accordingly, the Program Evaluation Committee recommends

that either clerical assistance be supplied to the Welding Program or that the Learning Resources and Testing Facility for Welding be returned to the Learning Resource Centre.

If the latter suggestion is implemented, the problem of lack of instructor control could be addressed by designating specific times during which welding students may take exams.

5. Equipment

Students and Faculty have expressed a need for replacement of old and out-dated equipment. Due to budget restrictions in the recent past, equipment has not been up-dated. It was also suggested that a pattern cutter should be purchased for use in the Welder/Fabricator module. Accordingly, the Program Evaluation Committee

urges the implementation of the five-year cycle of equipment replacement in the Trades and Industrial Training Division (outlined in the Five Year Plan -- see APPENDIX F), whereby the Welding Department will benefit from an estimated capital infusion of $131,000.00.

Further, the Program Evaluation Committee recommends

that the Welding Department examine the need for a pattern cutter for the Welder/Fabricator module, and if necessary include this equipment in its updated capital budget request for 1990.

6. Facilities

Concern was expressed about the size of the welding shop in Williams Lake in relation to the number of students enrolled. Accordingly, the Program Evaluation Committee recommends

that the Williams Lake Program Advisory Committee examine the need for larger facilities and make a recommendation to the Dean of Trades and Industrial Training on how to address this problem.

7. Advisory Committee

After a five-year hiatus, the Welding Program Advisory Committee has recently been re-established. This committee could play a role in promoting and publicizing the Welding Program and in providing information on the state of employment opportunities in the welding field. Therefore, the Program Evaluation Committee recommends

that the Vice President and the Dean, Trades and Industrial Training, clarify the terms of reference governing Program Advisory Committees so that the Welding Program's Advisory Committee clearly understands that its mandate includes the promotion of the Welding Program and the provision of information on employment opportunities for Welding graduates.

8. Marketing

Given some concerns expressed by faculty about the quality of students admitted to the Welding Program, the Program Evaluation Committee recommends

that the Welding Department make the time and the effort to promote their program more vigorously than in the past by improving their high school liaison, especially with Industrial Arts students, rather than expect marketing to be directed from the Divisional level.

9. Records

During this review, both the Office of Institutional Research and the Trades and Industrial Training Division experienced problems in extracting data from the record system on enrolment patterns, completion rates, etc. Accordingly, the Program Evaluation Committee recommends

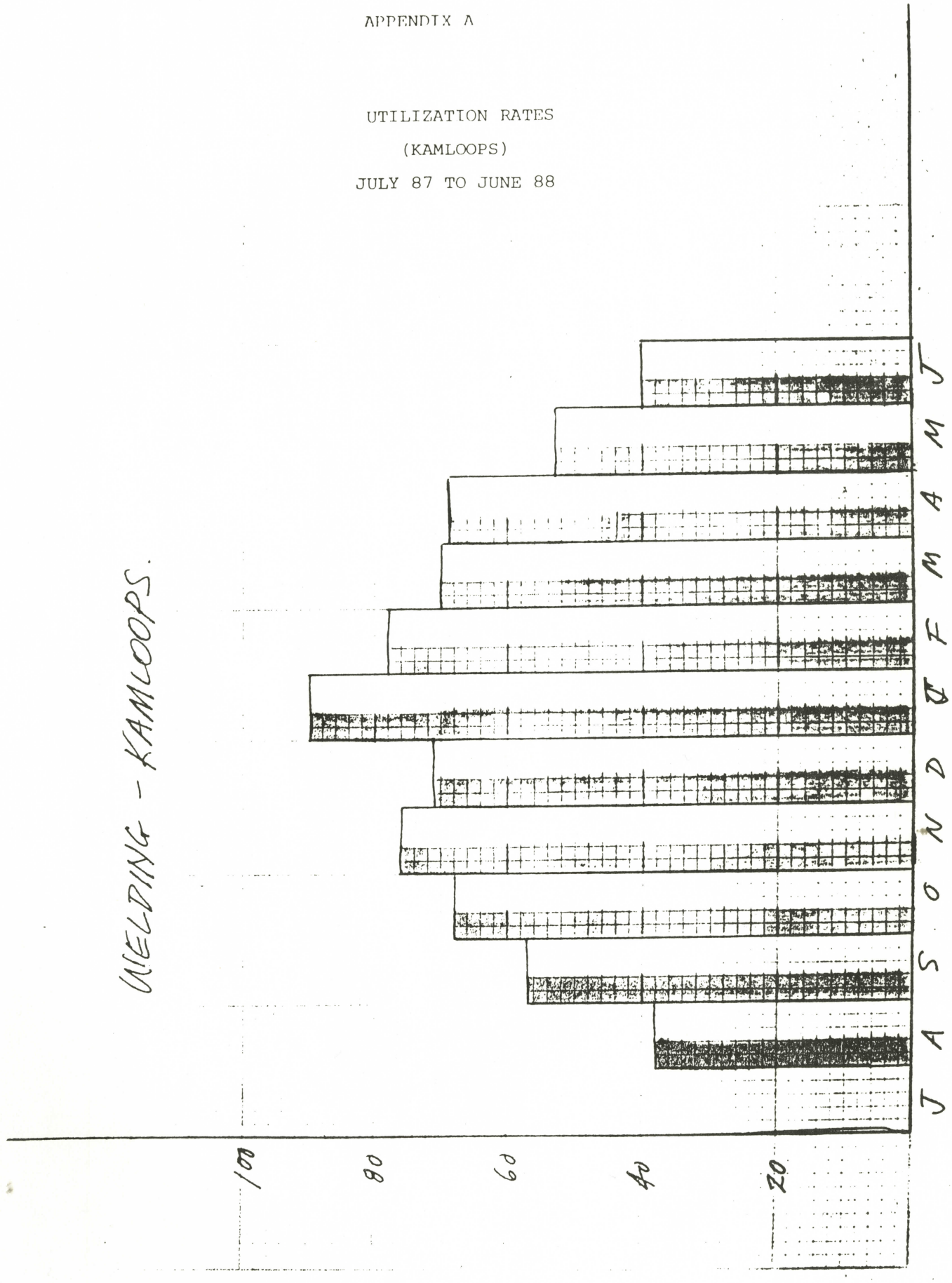
that the Dean of Trades and Industrial Training direct the Welding Program records system to be restructured so as to record admissions at all four discrete levels within the program (Apprenticeship, WELD C, WELD B, WELD A), and to retain records of the students' progress at all levels attempted.

APPENDIX A

UTILIZATION RATES

(KAMLOOPS)

JULY 87 TO JUNE 88

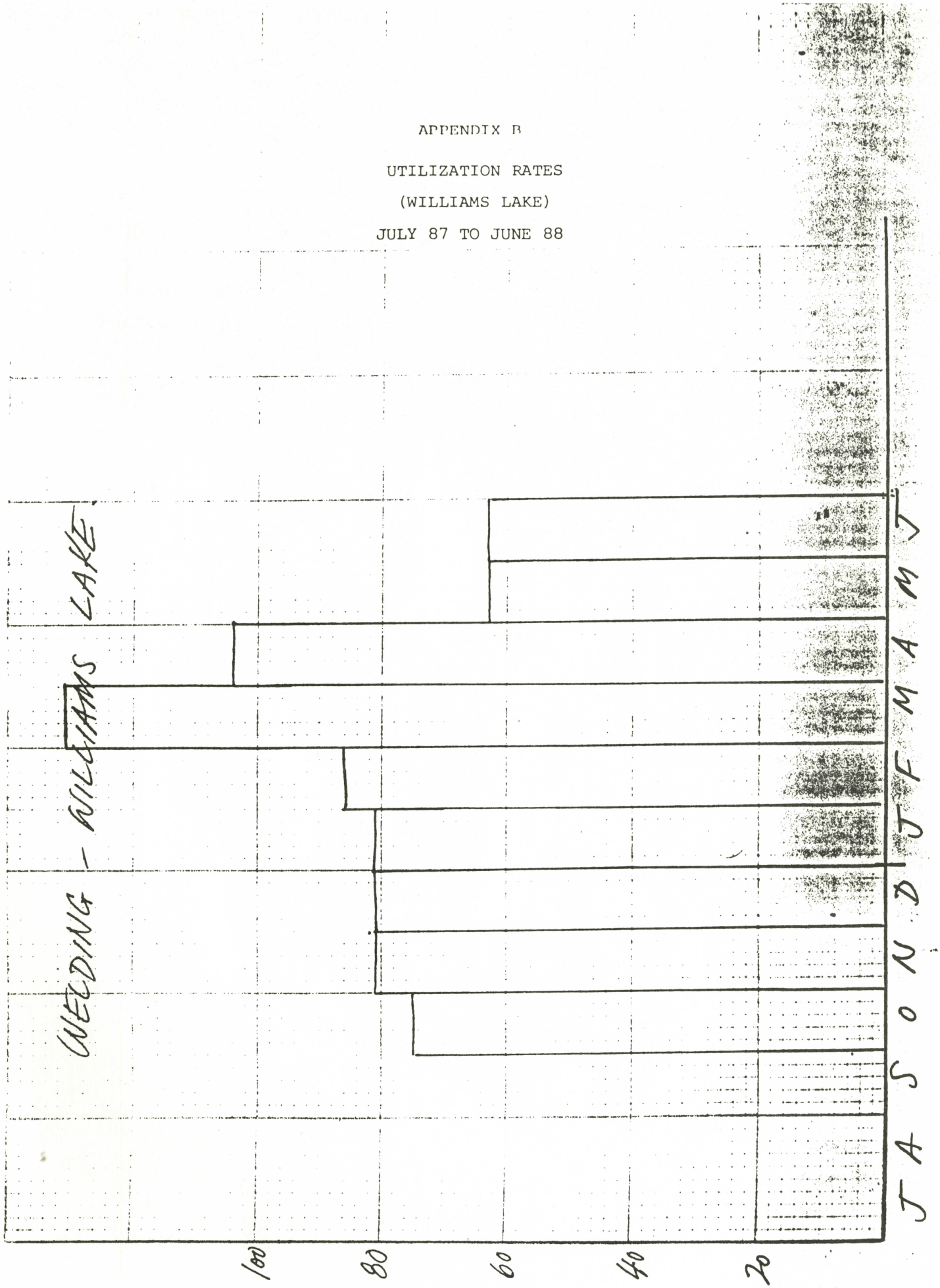


APPENDIX B

UTILIZATION RATES

(WILLIAMS LAKE)

JULY 87 TO JUNE 88



APPENDIX C

UTILIZATION RATES

ALL VOCATIONAL PROGRAMS

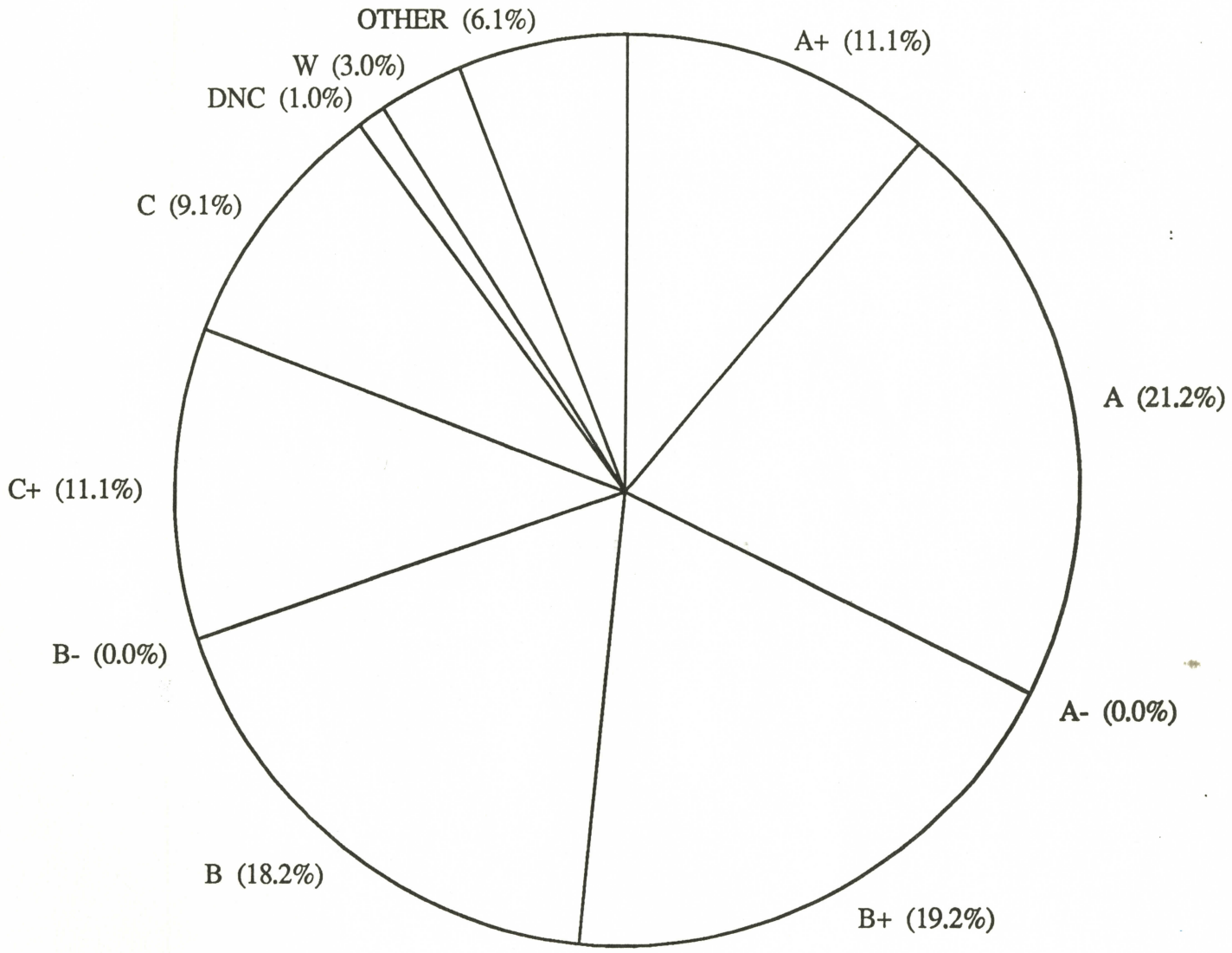
JULY 87 TO JUNE 88

	AUTO	CARP	COMM TR	DIESEL	ELECT	HDUTY	MARINE	PARTSP	WELDING	TRAC WL	WELD WL	
1987												
20	12	5	1	3	0	20	0	24	15	12	0	
AUG	60.00%	25.00%	5.00%	15.00%		100.00%		120.00%	37.50%	60.00%		
420	367	129	53	63	0	491	242	303	482	307	0	
SEPT	87.38%	30.71%	12.62%	15.00%		116.90%	88.97%	72.14%	57.38%	73.10%		
420	402	213	80	98	180	468	306	353	570	374	214	
OCT	95.71%	55.00%	19.05%	23.33%	45.00%	111.43%	91.07%	84.05%	67.86%	89.05%	~~50.95%~~	63.7%
400	390	195	80	100	166	450	280	391	630	376	260	
NOV	97.50%	48.75%	20.00%	25.00%	48.82%	112.50%	87.50%	97.75%	78.75%	94.00%	~~65.00%~~	81.3%
340	319	219	85	93	190	394	225	323	481	302	221	
DEC	93.82%	64.41%	25.00%	27.35%	47.50%	115.88%	82.72%	95.00%	70.74%	88.82%	~~65.00%~~	81.3%
1988												
400	385	260	96	100	187	434	260	395	716	330	260	
JAN	96.25%	65.00%	24.00%	25.00%	44.52%	108.50%	81.25%	98.75%	89.50%	82.50%	~~65.00%~~	81.3%
420	371	285	84	105	199	459	273	411	653	366	288	
FEB	88.33%	67.86%	20.00%	25.00%	43.26%	109.29%	81.25%	97.86%	77.74%	87.14%	~~68.57%~~	85.7%
460	440	271	88	93	151	369	299	476	647	387	393	
MARCH	95.65%	58.91%	17.39%	20.22%	39.74%	80.22%	81.25%	103.48%	70.33%	84.13%	~~85.43%~~	106.8%
380	327	200	114	85	0	241	247	426	525	224	316	
APRIL	86.05%	52.63%	30.00%	22.37%		63.42%	81.25%	112.11%	69.08%	58.95%	~~83.16%~~	103.5%
420	272	125	114	92	0	173	252	403	443	215	210	
MAY	64.76%	29.76%	27.14%	21.90%		41.19%	75.00%	95.95%	52.74%	51.19%	~~50.00%~~	62.5%
440	237	129	132	33	0	117	216	346	348	140	220	
JUNE	53.86%	29.32%	30.00%	7.50%		26.59%	61.36%	78.64%	39.55%	31.82%	~~50.00%~~	62.5%
TOTAL	3522	2031	927	865	1073	3616	2600	3851	5510	3033	2382	
AVG %	83.58%	47.94%	20.93%	20.70%	44.81%	89.63%	81.16%	95.97%	64.65%	72.79%	~~64.79%~~	80.9%

	AUTO	CARP	COMM TRAN	DIESEL	ELECT	HDUTY	MARINE	PARTS	WELD-KAM	W/L TRAC	W/L WELD
60	39	21	24	3	0	48		54	52	24	39
AUG	65.00%	35.00%	40.00%	5.00%		80.00%		90.00%	43.33%	40.00%	81.25%
420	385	178	201	40	301	498		454	531	206	325
SEPT	91.67%	42.38%	47.86%	9.52%	71.67%	118.57%		108.10%	63.21%	77.38%	96.73%
400	381	158	190	38	304	476		499	569	229	281
OCT	95.25%	39.50%	47.50%	9.50%	76.00%	119.00%		124.75%	71.13%	57.25%	87.81%
420	384	219	210	42	336	531		461	739	258	311
NOV	91.43%	52.14%	50.00%	10.00%	80.00%	126.43%		109.76%	87.98%	61.43%	92.56%
340	323	227	170	34	272	434		330	682	228	238
DEC	95.00%	66.76%	50.00%	10.00%	80.00%	127.65%		97.06%	100.29%	67.06%	87.50%
1989											
420	401	288	163	120	336	515		400	677	306	317
JAN	95.48%	68.57%	38.81%	28.57%	80.00%	122.62%		95.24%	80.60%	72.86%	94.35%
400	390	271	148	120	620	498		425	571		321
FEB	97.50%	67.75%	37.00%	30.00%	155.00%	124.50%		106.25%	71.38%		100.31%

WELDING GRADE DISTRIBUTION

BY PERCENT FOR 1988/89



INSTITUTION : CARIBOO

FUNCTION : 01 INSTRUCTION
ACTIVITY : 110 CONVENTIONAL INSTRUCTION
MAJOR PROGRAM : 30 VOCATIONAL

--SYSTEM MEAN--

CLUSTER DESCRIPTION	STAFF	% CHG	PERSONNEL	% CHG	OTHER	% CHG	GROSS	% CHG	STUDENT CT. HR.	REGISTRY TRNG. DAY	GRS $/ SCH	GRS $/ RT DAY	GRS $/ SCH	GRS $/ RT DAY
1100 AGRICULTURE														
AE-86/87	1.0		43,565	7.8	20,453	9.2	64,018	8.3	14,868	2,478	4.30	25.83	5.23	28.42
AE-85/86	1.0		40,399	.8-	18,738	23.4	59,137	5.8	15,066	2,511	3.92	23.55	5.93	30.75
AE-84/85	1.0	23.1-	40,733	2.9-	15,180	9.4	55,913	.2	15,912	2,652	3.51	21.08	5.17	27.98
AE-83/84	1.3		41,942		13,877		55,819		18,768	3,128	2.97	17.84	4.06	24.37
2000 TRAC														
AE-86/87	7.7	10.5-	363,050	12.3-	70,627	29.9	433,677	7.4-	112,920	18,820	3.84	23.04	3.21	18.21
AE-85/86	8.6	16.5-	414,120	17.2-	54,368	1.8-	468,488	15.7-	130,344	21,724	3.59	21.56	6.31	10.59
AE-84/85	10.3	8.4	500,132	34.0	55,371	15.4	555,503	31.9	149,532	24,922	3.71	22.28	5.43	8.66
AE-83/84	9.5		373,293		47,964		421,257		133,296	22,216	3.16	18.96	1.63	9.78
2100 ENGINEERING														
AE-85/86	1.7	15.0-	73,035	10.4-	12,397	8.8-	85,432	10.2-	39,252	6,542	2.17	13.05	4.08	20.10
AE-84/85	2.0		81,533	7.1	13,600	+	95,133	19.9	36,456	6,076	2.60	15.65	4.09	20.37
AE-83/84	2.0		76,099		3,242		79,341		35,064	5,844	2.26	13.57	3.32	19.86
2200 ELECTRICAL/ELECTRONICS														
AE-86/87	6.2	34.8	278,237	29.7	40,816	+	319,053	42.2	94,884	15,814	3.36	20.17	3.47	20.84
AE-85/86	4.6	9.8-	214,604	12.2-	9,813	18.6	224,417	11.2-	67,950	11,325	3.30	19.81	4.87	19.97
AE-84/85	5.1	25.0-	244,485	7.0-	8,272	67.1-	252,757	12.2-	76,326	12,721	3.31	19.86	5.19	21.39
AE-83/84	6.8		262,894		25,120		288,014		91,890	15,315	3.13	18.80	3.47	20.85
2300 MECHANICS														
AE-86/87	1.0	25.0	38,565	56.1	8,170	7.0	46,735	44.5	12,264	2,044	3.81	22.86	4.76	27.37
AE-85/86	.8	11.1-	24,706	29.0-	7,636	15.4-	32,342	26.2-	11,442	1,907	2.82	16.95	8.21	24.82
AE-84/85	.9	50.0-	34,777	53.1-	9,031	9.6	43,808	46.9-	18,270	3,045	2.39	14.38	6.70	21.87
AE-83/84	1.8		74,198		8,241		82,439		37,572	6,262	2.19	13.16	3.59	21.24
2400 METAL TRADES														
AE-86/87	2.8	12.5-	129,584	21.3-	64,796	10.0-	194,380	17.9-	47,646	7,941	4.07	24.47	6.14	34.26
AE-85/86	3.2	3.0-	164,685	2.1-	72,017	8.6	236,702	.9	43,254	7,209	5.47	32.83	9.05	32.17
AE-84/85	3.3	32.7-	168,194	21.2-	66,312	4.1	234,506	15.4-	50,034	8,339	4.68	28.12	7.08	26.69
AE-83/84	4.9		213,468		63,687		277,155		40,470	6,745	6.84	41.09	4.50	26.97
2500 CONSTRUCTION														
AE-84/85	.7	56.3-	31,092	56.5-	5,361	56.5-	36,453	56.5-	5,424	904	6.72	40.32	10.14	22.00
AE-83/84	1.6		71,468		12,332		83,800		10,356	1,726	8.09	48.55	4.18	25.03

APPENDIX E

FIVE YEAR PLAN 1989-1994

EQUIPMENT

TRADES & INDUSTRIAL TRAINING DIVISION

PROGRAM CROSS REFERENCE	EQUIPMENT DESCRIPTION & BRIEF RATIONALE	PLAN YEAR REQUESTED	COST ESTIMATE (DOLLARS)
Equipment for Existing Programs:	FOOD TRAINING		
	- 1 Mixer/Grinder for Retail Meat Processing	90-91	15,000
	- 1 Ice Cream Making Machine	89-90	7,500
	- 1 Sausage Stuffer (Retail Meat Processing)	90-91	7,250
	- 1 Convection Steamer/Oven	90-91	15,000
Equipment for Existing Programs:	ELECTRONICS		
	- 30 Oscilloscoes	89-90	75,000
	- Programmable Logic Controller Lab	89-90	80,000
	- Arc Welding, Fully Configured Robot	90-91	120,000
	- Computer Numeric Controlled Milling Machine	91-92	100,000
	- Computer Integrated Manufacturing Environment	92-93	100,000
	- Equipment for Williams Lake Lab	92-93	75,000
Equipment for Existing Programs:	WELDING		
	- Accessories for 2 CV Power Ssources	89-90	4,000
	- 3 CC/Stick Welding (SMAW) Machines	89-90	15,000
	- 2 CV Power Sources with Accessories	90-91	14,000
	- 3 CC Welding Machines	90-91	15,000
	- As 1990	91-92	29,000
	- As 1990	92-93	29,000
	- 2 CV Power Sources	93-94	10,000
	- 3 CC Welding Machines	93-94	15,000
Equipment for Existing Programs:	MECHANICAL		
	- 1 Used Powershift Transmission	89-90	6,000
	- 1 Used Truck Automatic Trans	89-90	5,000
	- 1 Set Used Drive Axle Ass.'s	89-90	6,000
	- Used D6 Size Crawler Tractor - W.L.	89-90	35,000
	- Used Truck (Kamloops and W.L.)	89-90	20,000
	- Used Forklift, 6000# Kamloops	89-90	10,000

REPORT ON THE PROGRAM REVIEW OF