



CUTC

Canadian
Universities
Technology
Consortium

**THAI-CANADIAN HRD PROJECT
CUTC-SUT INSTITUTIONAL LINKAGE PROJECT
CIDA PROJECT # 906/14868**

ANNUAL PROGRESS

AND

FINANCIAL REPORT

JULY 15, 1993 to MARCH 31, 1994

**Submitted to:
The ARA Consulting Group Inc.
May, 1994**

**Prepared by:
Ryerson International**

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ANNUAL PROGRESS

AND

FINANCIAL REPORT

Linkage Project Title: Institutional Linkage Project
Canadian Partners: Ryerson Polytechnic University (Canadian
Lead Partner)
Guelph University
University of Waterloo
Technical University of Nova Scotia
Thai Partners: Suranaree University of Technology
Project No.: 906/14868

Report

Covering the Period
July 15, 1993 to March 31, 1994

Submitted to ARA
May 1994

by

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LIST OF CONTENTS

	PAGE NO.
PART 1	
1.1 REPORT SUMMARY	1
PART 2	
2.1 REPORT ON PROJECT MANAGEMENT	5
2.2 REPORT ON PROJECT DELIVERABLES	6
2.3 FINANCIAL REPORTS	16
2.3.1 FOR CIDA FUNDED EXPENDITURES	17
2.3.2 FOR CONSOLIDATED PROJECT EXPENDITURES	21
APPENDICES	

PART 1

1.1 PROJECT SUMMARY

1. Project Start: July 15, 1993 **Finish:** March 31, 1998

CIDA Contribution: \$ 995,484

2. Summary of Project Management

- Quarterly progress and financial reports for the period July 15, 1993 to March 31, 1994 were produced and submitted to the ARA Consulting Group.
- In collaboration with CUTC and SUT partners, the project implementation unit designed and coordinated the delivery of customized training programs for six Thais (2 academic administrators, 2 support personnel and 2 English as a Second Language instructors) in support of Program 1: Institutional Capacity Building.
- One Canadian consultant successfully completed an evaluation of SUT's English language capacity and needs in Thailand.
- One Canadian consultant completed a consultancy in support of the development of the SUT library (due to commitments on other Ryerson Polytechnic University projects in Asia, it was possible for CUTC to split this consultancy into two separate assignments with negligible additional costs to CUTC and SUT).
- As a result of the challenges that SUT has faced related to the start up of a new university, the anticipated project activities in the last quarter of this year were not realized. Through liaison with SUT, CUTC partners and the ARA Consulting Group, it has been decided to postpone all activities scheduled for Quarter 3, Year 1 until Quarter 2, Year 2.
- Collaboration between CUTC and SUT has resulted in the selection of 5 SUT personnel for the next customized fellowship training schedule. SUT has provided CUTC with detailed curriculum vitae

and clearly defined training objectives. It is anticipated that this will assist in ensuring that the training programs for the SUT personnel, and in particular the programs for the various academic administrators, meet the expectations of the individuals and SUT.

3. Progress and Achievement to Date

a) Accomplishments

Through liaison with SUT, CUTC partners, and the ARA Consulting Group, the CUTC Project Implementation Unit has planned, implemented and evaluated the following customized fellowship training programs delivered in Canada and technical assistance consultancies provided in Thailand.

- **Program 1:** Institutional Capacity Building Program

Activity No. A1.11	Provision of customized training in Canada for 2 SUT Academic Administrators
Activity No. A1.31	Provision of customized training in Canada for 2 SUT Support Personnel
Activity No. A1.32	Provision of technical services by 1 Canadian consultant to develop SUT Institutional Support services (this was an unscheduled activity which was implemented at this time due to the opportunities related to other assignments in the region).
Activity No A1.41	Provision of evaluation of SUT English language capacity and needs by a Canadian consultant.
Activity No A1.42	Provision of customized training in Canada for 2 SUT English Language Teachers.

Details of these activities are provided in Part 2 of this report.

- **Program 2:** International Academic Programs

The CUTC project implementation unit gained the full agreement of

CUTC partners on common curriculum of the first-year of the International Engineering and Applied Science programs. The process was facilitated by the presence of the 2 SUT academic administrators at the respective CUTC partner institutions in October-November, 1993.

b) Schedules

As of March 31, 1994, it is apparent that during the past quarter SUT has been occupied with challenges related to the start up of a new university, therefore activities proposed for January 1 to March 31, 1994 have been rescheduled for September to November, 1994.

c) Expenditures

For the period July 15 to March 31, 1994, CUTC budgeted \$222,854 to support the implementation of proposed project activities. Funds expended totalled \$94,665.

4. Progress Toward Achieving Project Objectives and Deliverables**a) Reached**

The CUTC -SUT Institutional Linkage Project is currently in the fourth quarter of the project. As of March 31, 1994 the following two deliverables have been completed:

- Activity A1.41 Evaluation of SUT's ESL Capacity and Needs
- Activity A1.42 Study Tour in Canada for 2 SUT ESL Teachers

b) Scheduled

During the period September-November, 1994, CUTC is scheduled to deliver customized fellowship training programs in Canada for the following SUT personnel:

- 2 Academic Administrators
- 2 Academic Coordinators
- 1 Institutional Support Person

These individuals have been selected by our SUT partners, and their curriculum vitae and objectives for training have been forwarded to CUTC. CUTC partners are currently designing the five training programs.

The Project Steering Committee Meeting to take place in Thailand has been scheduled for the week of November 28, 1994.

Can ARA Help?

No assistance from ARA is requested at this time.

PART 2

2.1 REPORT ON PROJECT MANAGEMENT

2.1.1 Project Managers

Canada: Professor Samih Mikhail, Director, Ryerson International

Thailand: Dr. Sam-Arng Srinilta, Acting Vice-President, Planning and Development, Suranaree University of Technology, Thailand

2.1.2 Project Management Issues/Concerns/Problems and the Actual or Proposed Solutions

The major issues which have arisen during the life of the project are based on effective and ongoing communication between the Canadian and Thai project implementation units. We are attempting to resolve the issue through dialogue with our SUT partners regarding the difficulties faced as a result, and believe that the increased communication observed over the past quarter attests to the success of these dialogues.

2.1.3 Sustainable Institutional Relationship

CUTC and SUT have developed strategies within the project to support sustainable linkages once CIDA funding ends. Examples of this are the Joint PhD and International Engineering and Applied Science programs. The important issue at this early stage of the project is to ensure that the appropriate foundations are laid for the sustainability of these programs.

As previously mentioned, CUTC and SUT are working towards the achievement of these goals and to date have agreed upon a common curriculum for the first year of the International Engineering and Applied Science Programs.

2.2 REPORT ON PROJECT DELIVERABLES**Deliverable No:A1.11****Deliverable Title:Professional Development
for SUT Academic Administrators**

MEASURE	PLANNED (TO DATE)		ACTUAL (TO DATE)		VARIANCE (TO DATE)	
Start Date	October 1993		October 1993		n/a	
Milestone Date A	November 1993		November 1993		n/a	
Milestone Date B	March 1994		n/a		n/a	
End Date	March 1994		March 1994		n/a	
Duration	Oct/93-Mar/94		Oct/93-Mar/94		n/a	
% of activity	100%		50%		n/a	
% of output	100%		50%		n/a	
Funding	\$46,400	100%	\$15,313	33%	\$31,087	67%

Original Budgeted CIDA Contribution:\$46,400**Revised Budgeted CIDA Contributions:\$n/a****Original Budgeted non-CIDA Contribution:\$43,200****Revised Budgeted non-CIDA Contribution:\$n/a****Narrative**

The customized fellowship training programs for two SUT Academic Administrators were delivered at participating CUTC universities according to schedule.

The details of the programs and activity reports were provided in the Quarterly Progress and Financial Report No. 2, October 1- December 31, 1993.

Activity Planned During Next Quarter

No activities under this category are planned for the next quarter.

Anticipated Challenges

The overall challenge of the project at this time is to ensure that based on SUT's status of development that the project implementation timetable does not slip any further than it has. CUTC proposes that with the agreement of SUT it may be possible to increase the level of activity planned for Year 3. (April 1 1995-March 31,1996).

Progress Toward Completion

Two of the four customized fellowship training programs have been delivered to date. It is anticipated that the activity will be completed with the delivery of the remaining fellowships in September 1994.

Changes in the Status in the Next Quarter

As no activity was scheduled for the next quarter there are no changes to the project plan for this activity.

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Deliverable No: A1.31**Deliverable Title Training Support Personnel**

MEASURE	PLANNED (TO DATE)		ACTUAL (TO DATE)		VARIANCE (TO DATE)	
Start Date	October 1993		October 1993		n/a	
Milestone Date A	November, 1993		November, 1993		n/a	
Milestone Date B	April 1994		Awaiting proposed dates from SUT		n/a	
End Date	December 1994		December 1994		n/a	
Duration	Oct/93-Mar/94		Oct/93-Mar/94		n/a	
% of activity	75%		44%		31%	
% of output	75%		44%		31%	
Funding	\$34,800	75%	\$15,173	44%	\$19,627	56%

Original Budgeted CIDA Contribution:\$46,400

Revised Budgeted CIDA Contributions:\$n/a

Original Budgeted non-CIDA Contribution:\$43,200

Revised Budgeted non-CIDA Contribution:\$n/a

Narrative

Two customized fellowship training programs in the following areas were delivered according to schedule:

- Library Automation (1)
- Use of Scientific Equipment (1)

The sequence of institutional attachments for the all programs and activity reports were provided in Quarterly Progress and Financial Report No. 2, October 1 to December 31, 1993.

The English language skills of the participants placed them at a disadvantage in achieving maximum benefit from their training in Canada. CUTC and SUT in consultation with ARA attempted to support our SUT colleagues in overcoming these difficulties through the provision of language interpreters. However, this is not a desirable solution and we have requested that the SUT selection committee carry out an evaluation of the English language skills of all future candidates for their training in Canada.

Activity Planned Next Quarter

The planning of a customized fellowship training program to be delivered in September 1994.

Anticipated Challenges

There are no major challenges anticipated.

Progress Toward Completion

Two programs in support of the development of the SUT Support Services at SUT have been implemented to date.

Changes in the Status in the Next Quarter

None

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Deliverable No: A1.32**Deliverable Title:****Development of
Institutional Support
Units at SUT**

MEASURE	PLANNED (TO DATE)		ACTUAL (TO DATE)		VARIANCE (TO DATE)	
Start Date	April/94		Jan/94		1 quarter	
Milestone Date A	July 1993		November 1993		n/a	
Milestone Date B	March 1995		n/a		n/a	
End Date	June 1995		June 1995		n/a	
Duration	not planned		Jan-Mar/94		n/a	
% of activity	0%		7%		7%	
% of output	0%		7%		7%	
Funding	\$0	0%	\$949	7%	\$949	7%

Original Budgeted CIDA Contribution:\$14,000**Revised Budgeted CIDA Contributions:\$****Original Budgeted non-CIDA Contribution:\$11,800****Revised Budgeted non-CIDA Contribution:\$****Narrative**

Due to commitments on other Ryerson Polytechnic University projects in Asia, it was possible for CUTC to split the consultancy in support of the development of the SUT library into two separate assignments with negligible additional costs to CUTC and SUT. The timing of the visit to SUT also facilitated immediate follow-up to the customized fellowship training program in library automation delivered during October to November 1993.

Activity Planned During Next Quarter

The second half of the consultancy will be planned after further discussions with our SUT partners.

No activity is planned for the next quarter. At the time of writing this report consideration is being given to the delivery of the second half of this consultancy in January - March, 1995.

Anticipated Challenges

None at this time.

Progress Toward Completion

The timing and split of this consultancy has allowed CUTC to gain first hand information on the status of the SUT library and related services.

Changes in the Status in the Next Quarter

Not applicable

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Deliverable No: A 1.42**Deliverable Title:****Study Tour to Canada
for SUT ESL Faculty**

MEASURE	PLANNED (TO DATE)		ACTUAL (TO DATE)		VARIANCE (TO DATE)	
Start Date	Oct.1, 1993		Oct. 1, 1993		n/a	
Milestone Date A	December 1993		December 1993		n/a	
End Date	Dec.31, 1993		Dec.31, 1993		n/a	
Duration	Oct-Dec., 1993		Oct-Dec, 1993		n/a	
% of activity	100%		100%		n/a	
% of output	100%		100%		n/a	
Funding	\$18,400	100%	\$16,581	100%	\$1,819	0%

Original Budgeted CIDA Contribution:\$18,400**Revised Budgeted CIDA Contributions:\$n/a****Original Budgeted non-CIDA Contribution:\$14,753****Revised Budgeted non-CIDA Contribution:\$n/a****Narrative**

The study tour of Canadian institutions and in particular CUTC members for the 2 SUT ESL faculty was delivered according to schedule.Both SUT personnel and their CUTC counterparts were pleased with the outcomes of the study tour the highlights of which are as follows:

- Preliminary design of the ESL curriculum in support of the International Engineering and Applied Science program.
- An overview of the various ESL programs and issues related to curriculum design and delivery of such programs at various institutions in Canada.
- Participation in the Ontario TESL Conference

The sequence of institutional attachments for all programs were provided in the Quarterly Progress and Financial Report No. 2, October 1 to December 31, 1993.

Activity Planned During Next Quarter

This activity has been completed and reported as a deliverable.

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Deliverable No: A4.21**Deliverable Title:****Canadian Management
Team and Project
Implementation unit**

MEASURE	PLANNED (TO DATE)		ACTUAL (TO DATE)		VARIANCE (TO DATE)	
Start Date	July 15/93		July 15/93		n/a	
Milestone Date A	n/a		n/a		n/a	
Milestone Date B	n/a		n/a		n/a	
End Date	Mar. 31/94		Mar.31/94		n/a	
Duration	July 15/93-Mar.31/94		July 15/93-Mar.31/94		n/a	
% of activity	20%		20%		0%	
% of output	20%		20%		0%	
Funding	\$34,320	20%	\$34,320	20%	\$0	0%

Original Budgeted CIDA Contribution:\$160,800**Revised Budgeted CIDA Contributions:n/a****Original Budgeted non-CIDA Contribution:\$107,200****Revised Budgeted non-CIDA Contribution:n/a****Narrative**

In consultation with CUTC institutions, SUT and ARA, the CUTC project implementation unit designed , implemented and evaluated six customized fellowship training programs, and delivered 2 technical assistance consultancies during Year 1 of the project.

Agreement on common curriculum for the first year of the International Engineering and Applied Science programs has been reached by CUTC and SUT Engineering and Applied Science Faculties.

The required quarterly progress and financial reports were submitted to ARA.

On Friday January 28, 1994 the Project Implementation Unit met with CIDA Project Monitor and representatives of the Executing Agency at Ryerson. The outcome of the meeting was positive and CUTC looks forward to a similar meeting to be scheduled during Year 2 of the project in which all CUTC ILOs may participate.

Activity Planned During Next Quarter

The planning and delivery of the customized fellowship training programs scheduled for delivery during the period September 12 to November 30, 1994.

Anticipated Challenges

CUTC anticipates that it will be necessary to reschedule activities planned for Quarter 3, January 1- March 31, 1994 for implementation in Years 2 and 3, to avoid the slippage of the overall timing of the project.

Progress Toward Completion

Ongoing management of activities and financial disbursements for the life of the project.

Changes in the Status in the Next Quarter

None.

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Deliverable No: A4.33**Deliverable Title:****Project Management
and Coordination**

MEASURE	PLANNED (TO DATE)		ACTUAL (TO DATE)		VARIANCE (TO DATE)	
Start Date	July 1, 1994		October 1, 1993		2 quarters	
Milestone Date A	n/a		n/a		n/a	
Milestone Date B	n/a		n/a		n/a	
End Date	Sept.30, 1997		Sept. 30, 1997		n/a	
Duration	July 1994-Sept. 1997		Oct. 1993-Sept. 1997		2 quarters	
% of activity	0%		4%		4%	
% of output	0%		4%		4%	
Funding	\$0	0%	\$2,488	4%	\$2,488	4%

Original Budgeted CIDA Contribution:\$55,200

Revised Budgeted CIDA Contributions:\$n/a

Original Budgeted non-CIDA Contribution:\$32,00

Revised Budgeted non-CIDA Contribution:\$n/a

Narrative

Ongoing liaison with CUTC institutions, SUT and ARA is required for the successful and efficient implementation of project activities.

Activity Planned During Next Quarter

The continuation of project management related activities.

Anticipated Challenges

CUTC anticipates that it will be necessary to reschedule activities planned for Quarter 3, January 1- March 31, 1994 for implementation in Years 2 and 3, to avoid major slippage of the overall timing of the project.

Progress Toward Completion

The project implementation timetable will be discussed further with the CUTC partner institutions and ARA once the timetable has been clarified with our SUT partners. This will be a major agenda item for the Project Review Committee meeting scheduled for November 1994.

Changes in the Status in the Next Quarter

None.

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2.3 FINANCIAL REPORTS

2.3.1 FINANCIAL REPORTS
FOR
CIDA FUNDED EXPENDITURES

THAI CANADIAN HRD PROJECT
Linkage -- CUTC & SUT
Project Number #L3004-91063
CIDA # 906/14868

CIDA FUNDED EXPENDITURES
Fiscal Year Summary
As at March 31, 1994

	JULY-SEP Actual	OCT-DEC Actual	JAN-MAR Actual	FY Total Actual/Budget	FY Budget	VARIANCE	Project Total Budget
Program 1							
Fees	5,400	8,690	8,100	22,190	82,800	(60,610)A	135,000
Travel	17,156	17,315	450	34,921	82,000	(47,079)A	122,400
Other	0	0	0	0	0	0	0
Subtotal	22,556	26,005	8,550	57,111	164,800	(107,689)	257,400
Program 2							
Fees				0		0	120,600
Travel				0		0	216,000
Other				0		0	0
Subtotal	0	0	0	0	0	0	336,600
Program 3							
Fees				0	5,400	(5,400)	5,400
Travel				0	9,600	(9,600)	13,000
Other				0	0	0	0
Subtotal	0	0	0	0	15,000	(15,000)	18,400
Program 4							
Fees	10,720	13,400	10,200	34,320	32,160	2,160	175,200
Travel	1,486	1,002	0	2,488	6,520	(4,032)	86,760
Other	335	289	122	746	4,374	(3,628)	21,870
Subtotal	12,541	14,691	10,322	37,554	43,054	(5,500)	283,830
Total Program	35,097	40,696	18,872	94,665	222,854	(128,189)	896,230
Inflation Provision							80,754
GST applicable to CUTC and CIDA items.							18,500
Total							995,484

Footnotes:

- A. Variance due to delay in receipt of financial reports from CUTC partners, payments to be made in Year A1.21, training for two trainees to be rescheduled after discussion with SUT.
A1.31, actually received two trainees, only budgeted for one.

THAI CANADIAN HRD PROJECT
Linkage - CUTC & SUT
Project #L3004-91063
CIDA #906-14868

CIDA FUNDED EXPENDITURES
Contract Summary
As at March 31,1994

	1993/94 Actual	1994/95 Budget	1995/96 Budget	1996/97 Budget	1997/98 Budget	Total Actual/Budget	Contract Value	Variance
Program 1								
Fees	22,190	52,200				74,390	135,000	(60,610)A
Travel	34,921	40,400				75,321	122,400	(47,079)A
Other	0	0				0	0	0
Subtotal	57,111	92,600	0	0	0	149,711	257,400	(107,689)
Program 2								
Fees		46,800	33,300	33,300	7,200	120,600	120,600	0
Travel		44,200	44,200	64,600	63,000	216,000	216,000	0
Other		0	0	0	0	0	0	0
Subtotal	0	91,000	77,500	97,900	70,200	336,600	336,600	0
Program 3								
Fees		0				0	5,400	(5,400)
Travel		3,400				3,400	13,000	(9,600)
Other		0				0	0	0
Subtotal	0	3,400	0	0	0	3,400	18,400	(15,000)
Program 4								
Fees	34,320	39,360	32,160	39,360	32,160	177,360	175,200	2,160
Travel	2,488	19,600	22,800	19,600	22,800	87,288	84,360	2,928 B
Other	746	4,374	4,374	4,374	4,374	18,242	24,270	(6,028)C
Subtotal	37,554	63,334	59,334	63,334	59,334	282,890	283,830	(940)
Total	94,665	250,334	136,834	161,234	129,534	772,601	896,230	(123,629)

Footnotes:

A. Delay in receipt of financial reports from CUTC partners, payments to be made in Year 2, qtr 1.

A1.21, training for two trainees to be rescheduled after discussions with SUT.

A1.31, actually received two trainees, only budgeted for one.

B. Technical Advisor travel in Canada required, not originally planned.

C. Actual expenses less than budgeted.

THAI CANADIAN HRD PROJECT
Linkage - CUTC and SUT
Project #L3004-91063
CIDA #906-14868

CIDA FUNDED EXPENDITURES
Deliverable Status
As at March 31, 1994

Deliverable	Current Quarter			Project to Date			Estimated Expenditures to Completion
	Jan-Mar/94 Actual	Jan-Mar/94 Budget	Variance	Actual Exp. to Mar 31/94	Budget Exp. to Mar 31/94	Variance	
1. Institutional Capacity Building Program							
A1.11 Training Academic Administrators	3,600	23,200	(19,600)	15,313	46,400	(31,087) A	15,313
A1.21 Training Faculty Members	0	37,600	(37,600)	0	56,400	(56,400) A	56,400
A1.31 Training Support Personnel	4,500	23,200	(18,700)	15,173	34,800	(19,627) A	26,773
A1.32 Institutional Support Services	450	0	450	949	0	949 B	14,949
A1.41 Evaluate ESL Needs	0	0	0	9,095	8,800	295	9,095
A1.42 Study Tour ESL	0	0	0	16,581	18,400	(1,819)	16,581
A1.43 ESL Course Thailand	0	0	0	0	0	0	10,600
Program 1 Sub-total	8,550	84,000	(75,450)	57,111	164,800	(107,689)	149,711
2. International Academic Program							
A2.11 Academic Program Planning			0			0	84,800
A2.12 Curriculum Implementation			0			0	108,800
A2.21 Selection Supervisors/PHD			0			0	35,000
A2.23 PHD Research			0			0	70,000
A2.24 Thesis Defense			0			0	29,000
A2.31 Work Placements - Canada			0			0	9,000
Program 2 Sub-total	0	0	0	0	0	0	336,600
3. University-Industry Linkage Program							
A3.11 Training Co-op Program		11,600	(11,600)		11,600	(11,600)	0
A3.21 Industrial Training Framework		3,400	(3,400)		3,400	(3,400)	0
A3.31 SUT Expo		0	0		0	0	3,400
Program 3 Sub-total	0	15,000	(15,000)	0	15,000	(15,000)	3,400
4. Project Management							
A4.21 Canadian Management Team	10,200	10,720	(520)	34,320	34,320	0	162,960
A4.31 Project Review Committee - Thai	0	0	0	0	0	0	28,000
A4.32 Project Review Committee- Can	0	0	0	0	0	0	20,000
A4.33 Project Management	0	3,260	(3,260)	2,488	12,190	(9,702)	55,648
A4.41 Communication/Support	122	1,459	(1,337)	746	4,374	(3,628)	18,242
Program 4 Sub-total	10,322	15,439	(5,117)	37,554	50,884	(13,330)	284,850
Total	18,872	114,439	(95,567)	94,665	230,684	(136,019)	774,561

Footnotes:

A. Variance due to delay in receipt of financial reports from CUTC partners. Payments to be made in Year 2, qtr 1.

A1.21, training for two trainees to be rescheduled after discussion with SUT.

A1.31, actually received two trainees, only budgeted for one.

B. Decision taken to deliver 50% of technical assistance consultancy due to feasibility of having second consultant visit at this time.

2.3.2 FINANCIAL REPORT
FOR
CONSOLIDATED PROJECT EXPENDITURES

THAI CANADIAN HRD PROJECT
Linkage - CUTC and SUT
Project #L3004-91063
CIDA #906-14868

CONSOLIDATED PROJECT EXPENDITURES
Deliverable Status
As at March 31, 1994

Deliverable	Current Quarter			Project to Date			Estimated Expenditures to Completion
	Jan-Mar/94 Actual	Jan-Mar/94 Budget	Variance	Actual Exp. to Mar 31/94	Budget Exp. to Mar 31/94	Variance	
1. Institutional Capacity Building Program							
A1.11 Training Academic Administrators	25,200	44,800	(19,600)	58,513	89,600	(31,087) A	58,513
A1.21 Training Faculty Members	0	80,800	(80,800)	0	121,200	(121,200) A	121,200
A1.31 Training Support Personnel	26,100	44,800	(18,700)	47,573	67,200	(19,627) A	69,973
A1.32 Institutional Support Services	450	0	450	949	0	949 B	13,849
A1.41 Evaluate ESL Needs	0	0	0	17,195	16,900	295	17,195
A1.42 Study Tour ESL	0	0	0	30,981	32,800	(1,819)	30,981
A1.43 ESL Course Thailand	0	0	0	0	0	0	21,900
Program 1 Sub-total	51,750	170,400	(118,650)	155,211	327,700	(172,489)	333,611
2. International Academic Program							
A2.11 Academic Program Planning			0			0	175,200
A2.12 Curriculum Implementation			0			0	2,620,800
A2.21 Selection Supervisors/PHD			0			0	64,500
A2.22 PHD Courses Provided			0			0	600,000
A2.23 PHD Research			0			0	169,000
A2.24 Thesis Defense			0			0	85,000
A2.31 Work Placements - Canada			0			0	183,000
A2.32 Work Placements - Thailand			0			0	140,000
Program 2 Sub-total	0	0	0	0	0	0 0	4,037,500
3. University-Industry Linkage Program							
A3.11 Training Co-op Program		22,400	(22,400)		22,400	(22,400)	0
A3.21 Industrial Training Framework		12,900	(12,900)		12,900	(12,900)	0
A3.22 Industrial Enterprise Training							101,400
A3.31 SUT Expo		0	0		0	0	12,900
Program 3 Sub-total	0	35,300	(35,300)	0	35,300	(35,300)	114,300
4. Project Management							
A4.11 Thai Program Implementation	6,900	6,900		20,700	20,700		103,500
A4.21 Canadian Management Team	17,347	17,867	(520)	55,760	55,760	0	270,160
A4.31 Project Review Committee - Thai	0	0	0	0	0	0	51,600
A4.32 Project Review Committee- Can	0	0	0	0	0	0	29,600
A4.33 Project Management	0	3,260	(3,260)	2,488	12,190	(9,702)	87,648
A4.41 Communication/Support	1,403	2,740	(1,337)	4,590	8,218	(3,628)	37,462
Program 4 Sub-total	25,650	30,767	(5,117)	83,538	96,868	(13,330)	579,970
Total	77,400	236,467	(159,067)	238,749	459,868	(221,119)	5,065,381

Footnotes:

A. Variance due to delay in receipt of financial reports from CUTC partners. Payments to be made in Year 2, qtr 1.

A1.21, training for two trainees to be rescheduled after discussion with SUT.

A1.31, actually received two trainees, only budgeted for one.

B. Decision taken to deliver 50% of technical assistance consultancy due to feasibility of having second consultant visit at this time.

THAI CANADIAN HRD PROJECT
Linkage - CUTC & SUT
Project #L3004-91063
CIDA #906-14868

CONSOLIDATED PROJECT EXPENDITURES
Contract Summary
As at March 31, 1994

	1993/94 Actual	1994/95 Budget	1995/96 Budget	1996/97 Budget	1997/98 Budget	Total Actual/Budget	Contract Value	Variance
Program 1								
Fees	172,390	129,000				301,390	362,000	(60,610)A
Travel	56,621	62,300				118,921	166,000	(47,079)A
Other	0	0				0	0	0
Subtotal	229,011	191,300	0	0	0	420,311	528,000	(107,689)
Program 2								
Fees		366,000	949,500	913,500	598,000	2,827,000	2,827,000	0
Travel		113,700	436,700	252,100	168,000	970,500	970,500	0
Other		0	200,000	32,000	8,000	240,000	240,000	0
Subtotal	0	479,700	1,586,200	1,197,600	774,000	4,037,500	4,037,500	0
Program 3								
Fees		6,000		18,000	36,000	60,000	81,000	(21,000)
Travel		6,900		15,800	31,600	54,300	68,600	(14,300)
Other		0		0	0	0	0	0
Subtotal	0	12,900	0	33,800	67,600	114,300	149,600	(35,300)
Program 4								
Fees	76,460	86,300	78,300	86,300	78,300	405,660	403,500	2,160
Travel	2,488	35,600	32,600	35,600	32,600	138,888	136,400	2,488 B
Other	4,590	7,810	7,810	7,810	7,810	35,830	39,050	(3,220)C
Subtotal	83,538	129,710	118,710	129,710	118,710	580,378	578,950	1,428
Total	312,549	813,610	1,704,910	1,361,110	960,310	5,152,489	5,294,050	(141,561)

Footnotes:

A. Delay in receipt of financial reports from CUTC partners, payments to be made in Year 2, qtr 1.

A1.21, training for two trainees to be rescheduled after discussions with SUT.

A1.31, actually received two trainees, only budgeted for one.

B. Technical Advisor travel in Canada required, not originally planned.

C. Actual expenses less than budgeted.

THAI CANADIAN HRD PROJECT
Linkage -- CUTC & SUT
Project Number #L3004-91063
CIDA # 906/14868

CONSOLIDATED PROJECT EXPENDITURES
Fiscal Year Summary
As at March 31, 1994

	JULY-SEP Actual	OCT-DEC Actual	JAN-MAR Actual	FY Total Actual/Budget	FY Budget	VARIANCE	Project Total Budget
Program 1							
Fees	18,000	69,490	84,900	172,390	233,000	(60,610)A	362,000
Travel	21,656	24,915	10,050	56,621	103,700	(47,079)A	166,000
Other	0	0	0	0	0	0	0
Subtotal	39,656	94,405	94,950	229,011	336,700	(107,689)	528,000
Program 2							
Fees				0		0	2,827,000
Travel				0		0	970,500
Other				0		0	240,000
Subtotal	0	0	0	0	0	0	4,037,500
Program 3							
Fees				0	21,000	(21,000)	81,000
Travel				0	14,300	(14,300)	68,600
Other				0	0	0	0
Subtotal	0	0	0	0	35,300	(35,300)	149,600
Program 4							
Fees	24,766	27,447	24,247	76,460	74,300	2,160	403,500
Travel	1,486	1,002	0	2,488	0	2,488	136,400
Other	1,616	1,571	1,403	4,590	8,218	(3,628)	39,050
Subtotal	27,868	30,020	25,650	83,538	82,518	1,020	578,950
Total Program	67,524	124,425	120,600	312,549	454,518	(141,969)	5,294,050
Inflation Provision							80,754
GST applicable to CUTC and CIDA items.							18,500
Total							5,393,304

Footnotes:

A. Variance due to delay in receipt of financial reports from CUTC partners, payments to be made in Year 2, qtr 1.

A1.21, training for two trainees to be rescheduled after discussion with SUT.

A1.31, actually received two trainees, only budgeted for one.



CUTC

Canadian
Universities
Technology
Consortium

**THAI-CANADIAN HRD PROJECT
CUTC-SUT INSTITUTIONAL LINKAGE PROJECT
CIDA PROJECT # 906/14868**

**SEMI-ANNUAL PROGRESS
AND
FINANCIAL REPORT NO. 12
YEAR 5, FOR THE PERIOD
APRIL 1 to SEPTEMBER 30, 1997**

**Submitted to:
The ARA Consulting Group Inc.
October 1997**

**Prepared by:
Ryerson International**

**RYERSON
INTERNATIONAL**

350 Victoria Street
Toronto, Ontario
Canada M5B 2K3
Tel: (416) 979-5026
FAX: (416) 979-5352

SEMI-ANNUAL PROGRESS

AND

FINANCIAL REPORT

Linkage Project Title:	Institutional Linkage Project
Canadian Partners:	Ryerson Polytechnic University (Canadian Lead Partner) Guelph University University of Waterloo Technical University of Nova Scotia
Thai Partners:	Suranaree University of Technology
Project No.:	906/14868

Report No. 12

Covering the Period
April 1, 1997 to September 30, 1997

Submitted to ARA
October 1997

by

Ryerson International
Ryerson Polytechnic University
380 Victoria Street
Toronto, Ontario
M5B 2K3
Phone (416) 979-5000, ext 7310
Fax (416) 979-5352

LIST OF CONTENTS

PART 1	PAGE NO.
---------------	-----------------

1.1 REPORT SUMMARY	1
---------------------------	----------

PART 2

2.1 REPORT ON PROJECT MANAGEMENT	6
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2.2 REPORT ON PROJECT DELIVERABLES	7
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2.3 FINANCIAL REPORTS	
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APPENDICES

Appendix A: **A 2.12 c): Curriculum Implementation of the International Applied Science and Engineering Undergraduate Programs - teaching and supervision assignment by faculty members from CUTC institutions.**

Appendix B: **A 2.5: Academic Research Exchange for Thai Faculty**

Appendix C: **A 2. 32 b): Co-op Program: Canadian Students in Thailand**

PART 1

1.1 REPORT SUMMARY

1. **Project Start:** July 15, 1993

Finish: March 31, 1998

CIDA Contribution:	\$ 995,484
Canadian Institutional Contribution:	\$ 601,605
Thai Institutional Contribution:	\$ 3,931,345
Other Sources of Funding:	\$ 432,535
Total Project Budget:	\$ 5,960,969

Project Description

This is a project of institutional linkage and technical cooperation to support the institutional development and capacity building of Suranaree University of Technology (SUT) through: (a) customized training programs in Canada; (b) technical assistance services in Thailand; and (c) joint academic and scholarly initiatives in both countries.

The project also involves the development and implementation of a number of innovation, joint academic initiatives including: (a) an English as a Second Language (ESL) Centre; (b) and international applied science and engineering undergraduate program; (c) a joint Ph.D. program; and (d) a co-op student exchange program.

The project incorporates a number of programs to strengthen university-industry linkages for both CUTC institutions and SUT including: (a) short upgrading programs for personnel from Thai enterprises; and (b) participation of Canadian and Thai industries and enterprises in a technical and commercial exposition supported by the Thai government at SUT in 1995.

2. Summary of Project Management

- The 4th Project Review Committee (PRC) meeting was held in Halifax at DalTech, Dalhousie University on April 3 and 4, 1997. This activity was included as part of the narrative report in the 4th Annual Report for the period: October 1 to March 31, 1997.

- Dr. Stalin Boctor, Technical Advisor to the Canadian Project Implementation Unit met with Dr. Tavee, SUT, August 27, 1997 to discuss:
 - The agenda for the Quality Assurance Workshop to be held at SUT in November 1997;
 - Twinning programs between Ryerson, DalTech/Dalhousie University and SUT;
 - The agenda for the 5th PRC meeting.
- The 5th PRC meeting was scheduled on February 23-24, now proposed to be on March 2, 3 1998 in Thailand, pending SUT's final approval.
- Ryerson International coordinated the program activities with the other CUTC partner universities, prepared contracts and travel for consultants, research and training activities for the period.

3. Progress and Achievement to Date

a) Accomplishments

Through liaison with SUT, CUTC partners, and the ARA Consulting Group, the CUTC Project Implementation Unit has planned, implemented and evaluated the following activities in Program 2.

Program 2: International Academic Programs

Stalin Boctor met with Dr. Tavee on August 27, 1998 to review the remaining project activities, the program for the Quality Control Workshop scheduled for November 10-11, 1997, the agenda for the 5th PRC meeting, and the proposed Industrial Seminars.

Program 3: University-Industry Linkage Program

Activity: A 3.23: Additional Industrial Seminars - Thailand: No project activity was scheduled for this period. Two industrial seminars are planned for January and February 1998.

Program 4: Project Management

Project Management and coordination of activities continue to be executed according to the projections for Year Five.

b) Schedules: All project activities are targeted for completion prior to the close of the project on March 31, 1998.

c) Expenditures

For the period April 1 to September 30, 1997 \$283,070 was budgeted to support the implementation of proposed project activities. Funds expended totalled \$239,072

4. Progress Toward Achieving Project Objectives and Deliverables**a) Reached**

The CUTC -SUT Institutional Linkage Project is currently in the 12th quarter of the project. As of September 30, 1997, the following activities have been completed:

- Activity A 2.12 c) Curriculum Implementation, Prof. Peter Barta, Circuits I, January 5 to April 11, 1997
- Activity A 2.5 Academic Research Exchange for Thai Faculty
5 academic research visits completed from May to September 1997
- Activity A 2.32 b) 5 Canadian students completed 16-week work placements in Thailand: (*completed*)
 - i. 1 September 1 to December 31, 1996
 - ii. 1 January 1 to May 31, 1997
 - iii. 3 May 1 to August 31, 1997

b) Scheduled:

- Activity A 2.12 d) 2 Canadian Consultants, University of Guelph, Food Technology.
 - *Dr. Doug Goff*: 14 weeks
September 1 to December 15'97
 - *Dr. John Deman*: 7 weeks
September 30 to November 30'97
- Activity A 2.23 1 Canadian Consultant: *Dr. Al Taweel*, DalTech Dalhousie University, 7 day consultancy late January 1998. Follow up supervision of Post Graduate Ph.D candidate.
- Activity A 2.25 Post Doctoral Research Fellowships for Thai

- Activity A 2.25 Post Doctoral Research Fellowships for Thai Professors at CUTC Universities:
 - *Dr. Sureelak Rodtong, (complete)*
February 10 to July 12, 1997
University of Guelph, (22 weeks);
 - *Dr. Chongchin Polyprasert*
January to December 1997, DalTech-Dalhousie University (47 weeks);
 - *Dr. Somprasong Suttayamully*
July 28 to December 31, 1997
DalTech-Dalhousie University (22 weeks);
 - *Dr. Arjuna Chaiyasena*
September 15 to January 15, 1998
University of Guelph (18 weeks).
- Activity A 2.31b) 16-week Work Placements for Thai Students in Canada at CUTC Institutions:
 - *completed: Mr. Juckrit Somrug,*
Mr. Mungkorn Wiriyaakhoop
January 13 to April 18, 1997,
DalTech/Dalhousie University.
 - *in-process: Ms. Maneephan Keerati-urai*
May 29 to December 19, 1997 and...
Ms. Pijika Timsuksai,
September 23 to December 19, 1997,
University of Guelph.
- Activity A 2.4 Workshop on Post Graduate Engineering Programs and Quality Control: 6 CUTC participants (4 DalTech/Dalhousie University, 1 Ryerson Polytechnic University, 1 University of Waterloo.
 - President Claude Lajeunesse, Ryerson Polytechnic University, guest speaker
(non project expense)

- Activity 3.23

Additional Industrial Seminars in Thailand:
2 workshops planned by DalTech/Dalhousie
University -

- January 1998: *Watershed Resource Management*, 2 speakers
- February 1998: *Industrial Safety and Quality Assurance*, 2 speakers (1 DalTech, 1 Ryerson)

Can ARA Help?

No assistance from ARA is requested at this time.

PART 2**2.1 REPORT ON PROJECT MANAGEMENT****2.1.1 Project Managers**

Canada: Dr. Samih Mikhail, Director, Ryerson International, Ryerson Polytechnic University, Canada

Thailand: *Dr. Tavee Lertpanyawit, Vice Rector, Academic Affairs, Suranaree University of Technology, Thailand
* *effective October 1, 1996*

2.1.2 Project Management Issues/Concerns/Problems and the Actual or Proposed Solutions

The Project Review Committee Meetings and Mini-PRC meetings continue to facilitate the planning and implementing project activities on schedule. Both CUTC and SUT project partners have been flexible and responsive to identified needs within the planned project activities.

2.1.3 Sustainable Institutional Relationship

CUTC and SUT have developed strategies within the project to support sustainable linkages once CIDA funding ends. Examples of this are:

1. Joint PhD and Research Programs. This activity will be further supported and strengthened through the "Royal Golden Jubilee Ph.D. Awards", starting June 1999. Many Ryerson and DalTech professors are presently preparing their documents for submission to SUT to facilitate the matching of graduate study co-supervisors.
2. Potential for a twinning arrangement between Suranaree University, DalTech/Dalhousie University and Ryerson in regular Thai engineering programs. Selected qualified students from SUT's regular engineering programs will receive financial subsidy awards to allow them to come to CUTC partner universities. Those students would have completed two academic years at SUT. They will spend one year in "intensive" ESL training, while completing some bridging courses. They will then complete the remaining two academic years in the CUTC Canadian university and obtain two bachelor degrees, one from Canada and one from SUT.
3. CUTC partner universities have made contact with other universities in Thailand to build mutual interest with SUT in establishing stronger international linkages in engineering and science.

2.2 REPORT ON PROJECT DELIVERABLES

Deliverable No: A2.12 c) Deliverable Title: Curriculum Implementation of the International Applied Science and Engineering Undergraduate Programs - teaching and supervision assignments by faculty members of CUTC institutions

Narrative

Dr. Peter Barta, 14 week course delivery *Electric Circuits I* January 5 to April 11, 1997.

See Report - Appendix A

Activity Planned Next Quarter

Activity completed. No activity scheduled for next quarter.

Anticipated Challenges

This was the final activity delivered. In March 1997, SUT advised that all remaining activity planned for the International Applied Science and Engineering Undergraduate Program was to be cancelled.

Progress Toward Completion

This activity is now complete

* * * * *

Deliverable No: A 2.32 b)**Deliverable Title: Provision of 16 week Work
Placements and Supervision for Canadian
Students in Thailand****Narrative**

Five Canadian students have each completed a 16-week work placement in Thailand as follows:

Mr. Jon Soehl, Technical University of Nova Scotia

September 1 to December 31, 1996

Babcock Hansa, Korat

Teaching: Word, Excel, AutoCAD, Quality Assurance

Christine Van Luyk, University of Guelph

January to May 31, 1997

Cassava and Starch Technology Research Institute

Kasetsart University, Bangkok

Laura Thomas, University of Guelph

May 1 to August 31, 1997

Seagate Technology (Thailand) Ltd.

Korat

Environmental Engineer Trainee

Richard Berrigan, DalTech, Dalhousie University

May 1 to August 31, 1997

Hypermedia Publishing Limited, SUT

multi-media software development tools

Mr. Bruce Fleming, Industrial Engineering, DalTech, Dalhousie University

May 1 to August 31, 1997

Sanguan Wongse Industries Co. Limited

Korat

See Reports - Appendix C

Progress Toward Completion

Activity completed

Deliverable No: A2.5 Academic Exchange for Thai Faculty**Narrative**

5 Academic Research visits to CUTC universities were made by Thai faculty from Suranaree University of Technology:

Dr. Tassanee Sukosol *June 7-27, 1997*
University of Guelph, Department of Food Science

Dr. Neung Teamroong *May 11 to 22, 1997*
Dr. Manu Omakupt *May 11 to 24, 1997*
University of Waterloo
University of Guelph
DalTech, Dalhousie University

Dr. Pairote Sattayatham *September 1-15, 1997*
University of Waterloo, Department of Applied Mathematics

Dr. Virul Mangclaviraj *September 1-13, 1997*
University of Waterloo
University of Guelph
University of Toronto
McMaster University

See Reports - Appendix B

Progress Toward Completion

Activity completed

2.3 FINANCIAL REPORTS

THAI CANADIAN HRD PROJECT
Linkage - CUTC & SUT
Project #L3004-91063
CIDA #906-14868

CIDA FUNDED EXPENDITURES
Contract Summary
As at September 30,1997

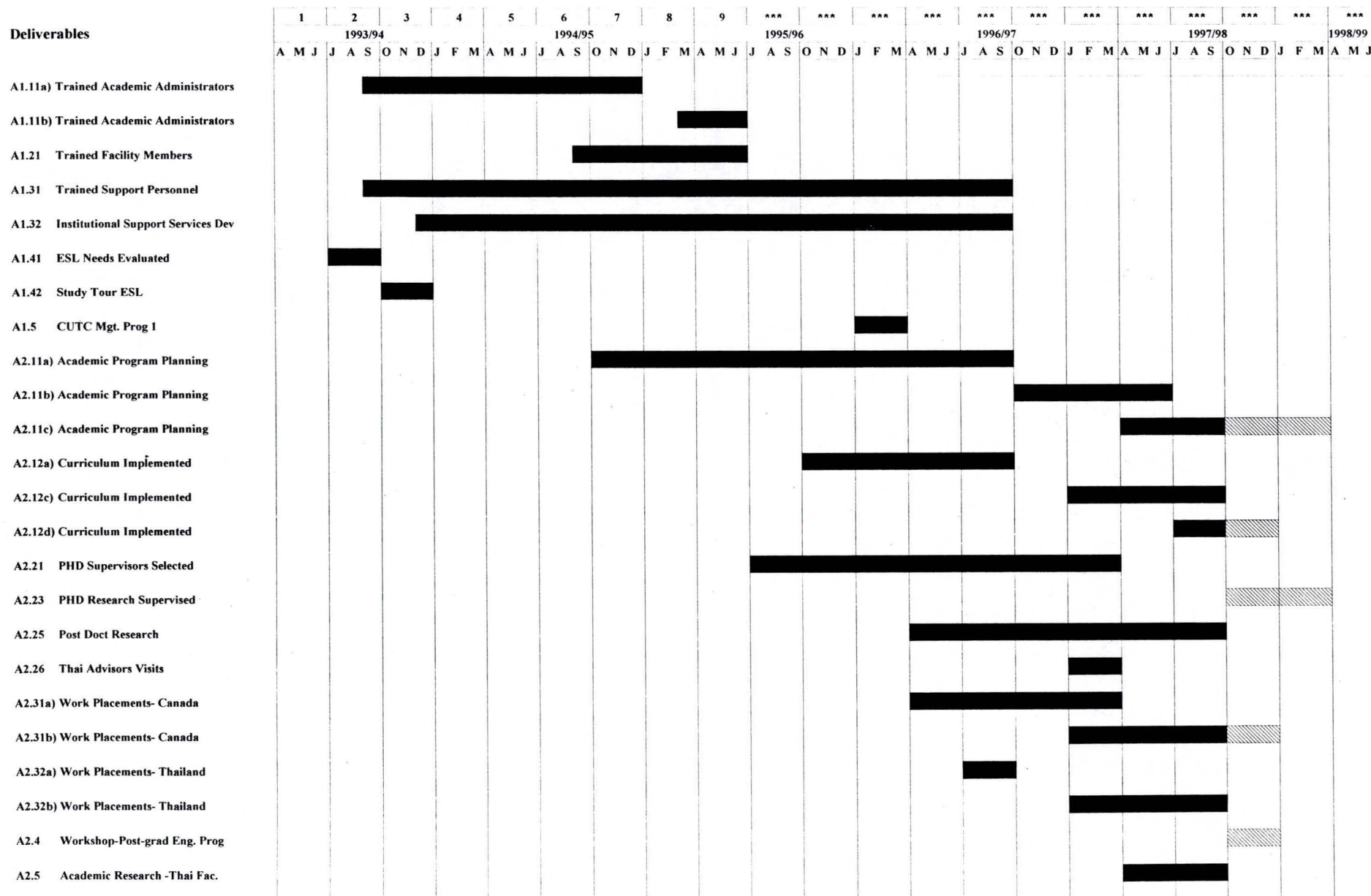
	1993/94 Actual	1994/95 Actual	1995/96 Actual	1996/97 Actual	1997/98 Actual/Budget	Total Actual/Budget	Contract Value	Variance
Program 1								
Fees	22,190	27,540	23,532	45,380		118,642	118,642	0
Travel	34,921	24,815	42,580	19,300		121,616	121,616	0
Other	0					0	0	0
Subtotal	57,111	52,355	66,112	64,680	0	240,258	240,258	0
Program 2								
Fees		3,600	5,400	25,320	39,600	73,920	73,920	0
Travel		3,662	11,187	103,553	138,926	257,328	257,328	0
Other		0		4,640	7,222	11,862	11,862	0
Subtotal	0	7,262	16,587	133,513	185,748	343,110	343,110	0
Program 3								
Fees		0	2,700	12,600	4,500	19,800	19,800	0
Travel		0	4,534	28,175	15,100	47,809	47,809	0
Other		0				0	0	0
Subtotal	0	0	7,234	40,775	19,600	67,609	67,609	0
Program 4								
Fees	34,320	35,759	37,561	34,416	45,202	187,258	187,258	0
Travel	2,488	11,895	19,597	38,144	63,899	136,023	136,023	0
Other	746	1,672	914	4,121	13,773	21,226	21,226	0
Subtotal	37,554	49,326	58,072	76,681	122,874	344,507	344,507	0
Total	94,665	108,943	148,005	315,649	328,222	995,484	995,484	0

Deliverable	Current Half Year			Project to Date			Estimated Expenditures to Completion	Delivery Completed
	Actual Apr-Sept/97	Budget Apr-Sept/97	Exp. Variance	Actual Exp. to Sept.30/97	Budget Exp. to Sept.30/97	Exp. Variance		
1. Institutional Capacity Building Program								
A1.11a) Training Academic Administrators (4)	0	0	0	36,789	36,789	0	0	Mar/95
A1.11b) Training Academic Administrators (1)	0	0	0	5,276	5,276	0	0	May/95
A1.21 Training Faculty Members	0	0	0	50,524	50,524	0	0	May/95
A1.31 Training Support Personnel	0	0	0	81,557	81,557	0	0	Oct/96
A1.32 Institutional Support Services	0	0	0	8,936	8,936	0	0	Oct/96
A1.41 Evaluate ESL Needs	0	0	0	9,095	9,095	0	0	Dec/93
A1.42 Study Tour ESL	0	0	0	16,581	16,581	0	0	Feb/94
A1.5 CUTC Additional Mgt Activities	0	0	0	31,500	31,500	0	0	Apr/96
Program 1 Sub-total	0	0	0	240,258	240,258	0	0	
2. International Academic Program								
A2.11a) Academic Program Planning	0	0	0	24,172	24,172	0	0	Oct/96
A2.11b) Academic Program Planning	0	0	0	16,709	16,709	0	0	Apr/97
A2.11c) Academic Program Planning	7,557	21,681	14,124	7,557	21,681	14,124	14,124	
A2.12a) Curriculum Implementation	0	0	0	21,840	21,840	0	0	Oct/96
A2.12b) Curriculum Implementation	0	0	0	0	0	0	0	Cancelled
A2.12c) Curriculum Implementation	3,914	3,000	(914)	5,609	4,695	(914)	0	Oct/97
A2.12d) Curriculum Implementation	6,680	0	(6,680)	6,680	0	(6,680)	6,120	Dec/97
A2.21 Selection Supervisors/PHD	0	0	0	15,835	15,835	0	0	Apr/97
A2.23 Ph.D Research	0	0	0	0	0	0	6,900	
A2.25 Post Doct. Research Fellowships	20,277	19,240	(1,037)	45,315	44,278	(1,037)	14,485	Dec/97
A2.26 Thai Advisors visit to Canada	0	0	0	8,073	8,073	0	0	Apr/97
A2.27 Collaboration co-supervisors	0	0	0	0	0	0	0	Cancelled
A2.31a) Work Placements - Canada	0	0	0	16,000	16,000	0	0	Apr/97
A2.31b) Work Placements - Canada	4,000	4,000	0	8,000	8,000	0	8,000	Dec/97
A2.32a) Work Placements - Thailand	0	0	0	16,000	16,000	0	0	Oct/96
A2.32b) Work Placements - Thailand	12,000	12,000	0	20,000	20,000	0	0	Oct/97
A2.4 Workshop-Post-grad. Eng Prog/Control	0	0	0	0	0	0	51,100	Dec/97
A2.5 Academic Research Ex. Thai Faculty	24,367	15,750	(8,617)	24,367	15,750	(8,617)	0	Oct/97
Program 2 Sub-total	78,795	75,671	(3,124)	236,157	233,033	(3,124)	100,729	
3. University-Industry Linkage Program								
A3.11 Training Co-op Program	0	0	0	7,234	7,234	0	0	May/95
A3.21 Industrial Training Framework	0	0	0	3,775	3,775	0	0	Oct/96
A3.22 Training Seminars by Canadian Consult.	0	0	0	33,225	33,225	0	0	Oct/96
A3.23 Additional Ind. Seminars in Thailand	0	13,067	13,067	0	13,067	13,067	25,857	
A3.31 Monitor Co-op Students	0	0	0	3,775	3,775	0	0	Oct/96
Program 3 Sub-total	0	13,067	13,067	48,009	61,076	13,067	25,857	
4. Project Management								
A4.21a) Canadian Management Team -yr 1	0	0	0	34,320	34,320	0	0	Mar/95
A4.21b) Canadian Management Team -yr 2	0	0	0	35,759	35,759	0	0	Mar/95
A4.21c) Canadian Management Team -yr 3	0	0	0	32,881	32,881	0	0	Mar/96
A4.21d) Canadian Management Team -yr 4	0	0	0	34,416	34,416	0	0	Mar/97
A4.21e) Canadian Management Team -yr 5	14,640	19,001	4,361	14,640	19,001	4,361	23,362	
A4.31 Project Review Committee - Thai	0	0	0	22,298	22,298	0	0	Dec /95
A4.311 Project Review Committee - Thai	0	0	0	0	0	0	25,560	
A4.32 Project Review Committee- Can	(34)	12,780	12,814	24,458	37,271	12,813	0	Apr/97
A4.33a) Project Management	0	0	0	24,144	24,144	0	0	Oct/96
A4.33b) Project Management	1,504	22,769	21,265	7,377	28,642	21,265	19,035	
A4.33c) Project Management	0	0	0	0	0	0	25,000	
A4.41 Communication/Support	1,327	6,887	5,560	8,779	14,338	5,559	12,445	
Program 4 Sub-total	17,437	61,437	44,000	239,072	283,070	43,998	105,402	
Total	96,232	150,175	53,943	763,496	817,437	53,941	231,988	

THAI-CANADIAN HRD PROJECT
PROJECT IMPLEMENTATION SCHEDULE

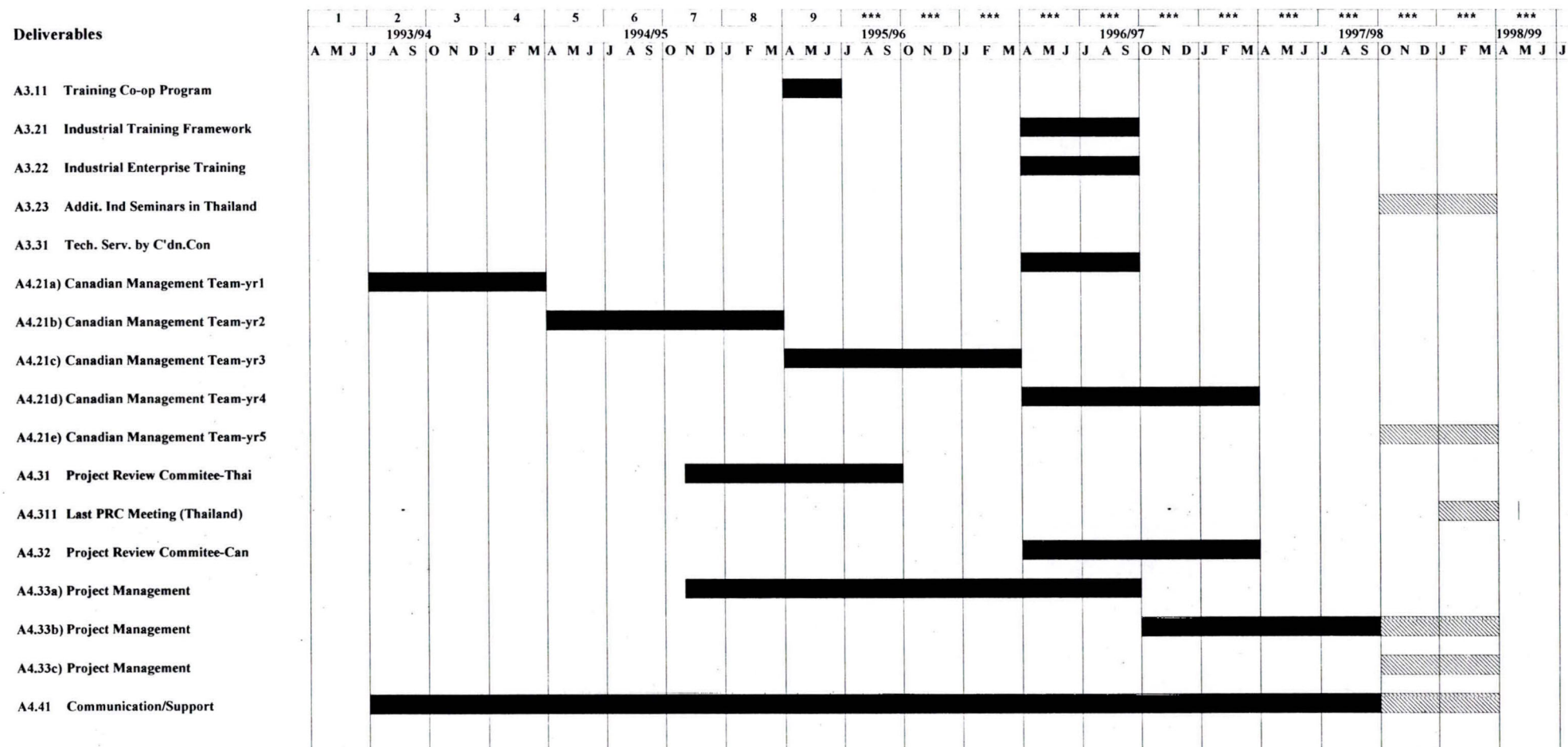
LINKAGE-CUTC & SUT
PROJECT NUMBER - L3004
START: JULY 15/93 FINISH: MARCH 31/98

Planned Actual



LINKAGE -CUTC & SUT
PROJECT NUMBER - I3004
START: JULY 15/93 FINISH : MARCH 31/98

Deliverables



APPENDIX A

ACTIVITY A.2.12 c)

***Curriculum Implementation of the International Applied Science and
Engineering Undergraduate Programs - teaching and supervision assignment by
faculty members from CUTC institutions***

**Professor Peter Barta
January 5 to April 11, 1997**

REPORT

ACTIVITY REPORT
International Undergraduate Program
Suranaree University of Technology
Nakhon Ratchasima, Thailand
December 26, 1996 - April 30, 1997
By Peter G. Barta, P. Eng., Consultant

My assignment was to deliver a fourteen-week course on electric circuits to a class originally assumed to number about ten students. Students successfully completing their trimester would continue their studies at a Canadian university. There were to be four lecture hours and two laboratory hours per week. The language of instruction was to be English. The starting and finishing dates of the contract were, respectively, January 5, 1997 and April 11, 1997.

My wife and I arrived at SUT in the evening of December 25, 1996. The next morning I had a meeting with Dean Tavee Lertrpanyavit and Professor Sarawut Sujitjorn. I was given a timetable and shown around the academic area of the campus. I was also assigned an office in the Institute of Industrial Technology. Due to timetabling constraints, I was given 3.5 lecture hours and 3 laboratory hours per week. This would have meant a total of 49 lecture hours and 42 laboratory hours over 14 weeks. However, classes did not begin until January 13 and with various holidays and official cancellations, I only had a total of 38.5 lecture hours and 36 laboratory hours, or the equivalent of 11 weeks of net teaching time. On the assumption that my students would, in a few months' time, have to face a second-year course load at Ryerson or elsewhere, I decided to follow, as nearly as possible, the first-semester electric circuit course currently offered at Ryerson. On January 13, I submitted a detailed course outline to Dr. Sarawut. From Ryerson, I had carried with me nine packages for the students, each consisting of the textbook (Boctor: Electric Circuit Analysis, 2nd ed.) and the accompanying lab manual (Ghorab and Prabhu). Before classes began, I was informed that one of the expected nine students had failed the December exams and thus became ineligible to register. One more student withdrew for personal reasons and so, on January 13, I faced a class of seven students.

I expected my students to be interested in and committed to a program leading to an electrical engineering degree. I also expected them to have a working knowledge of English and an interest in studying abroad. While they were very pleasant and likable young people, I was to be disappointed in all of the above expectations. Though they indicated that they had understood what I was saying, their spoken and written English was near zero. As for motivation, another student quit about two weeks into the term. He discovered that he really wanted to become an accountant and left the university. A little later, one of the remaining students, with a marginal GPA, requested transfer into the regular, Thai language course. His request was granted. Earlier, he had allegedly believed that the international program was easier to pass. A third student, whose real interest was in food science, tried to withdraw (to prepare herself for the entrance exam to another university) but was counselled by her adviser to stay. Absenteeism, lateness, failure to do homework and a general lack of discipline continued to make things difficult. On the positive side, the students' mathematical background had appeared adequate.

The course involved the introduction of many new and difficult concepts. For the first six weeks or so, I prepared and distributed a vocabulary sheet for each lecture. I felt it was part of my

job to teach technical English as applied to the subject. I believe I managed to get most of the material across, using diagrams, equations and body language. I started slowly, covering only four of 11 chapters by mid-February. To motivate attendance, I gave a 10- or 15-minute quiz at the beginning of classes, twelve in all. These had a significant weight in the marking scheme. In retrospect, however, it may have been a mistake not to collect and mark homework as well. There was a 90-minute midterm test on March 7, 1997. This was preceded by voluntary tutorials and results were reasonably good. Subsequently, two-hour tutorials were held every Thursday afternoon, when the students had no scheduled classes. Average attendance at these tutorials was about 2.5 students. Some compromises had to be made. I decided to skip Chapter 7 and to move Chapter 5 to the end of the course.

Laboratory, too, was off to a slow start. It had taken about four weeks for the students to learn the use of the basic instruments and to develop the beginnings of what one may call engineering sense. The students seemed to like the lab and there was very little absenteeism there. Mr. Prapol Jarataku (electronics engineer for the Centre for Scientific and Technological Equipment) and his staff provided excellent technical support throughout the term. We often had to improvise due to the lack of equipment prescribed by the lab manual. (We had to skip Experiment 9 due to a lack of meter movements). Hopefully, improvisation itself may have contributed to the students' "engineering sense". Instead of some special lab equipment, we used ordinary, commercial components. Students had to learn the resistor colour code and the importance of power ratings. This should give them a good start in their future electronics lab. The last two labs were devoted to the use of the oscilloscope and of signal generators. These labs were also used to study capacitive and inductive transients. A practical lab test was held on April 8. Note: I was given one hour per week of extra lab time to compensate for the half-hour deficit in the allocated lecture time. However, allocating lab time for lectures had proved impractical, with the exception of March 4, when I had to make up for cancellations the previous week. On that day, the class met in the lecture room and the whole time was devoted to theory and problems.

The 3-hour final examination on April 24 was attended by all five students. Results were dismal but, blended with the term marks and the lab marks, the final grades were one B, three C's and one D. It should be noted here that the Ryerson grades corresponding to SUT's B, C and D are C+, D and F.

In mid-February, a high-level budget meeting at SUT decided to terminate the International Undergraduate Program. This meant that the May trimester would be cancelled. The news was a serious blow to morale, both for myself and for the students. Dr. Stalin Bactor was visiting SUT at the time. A meeting was called at the Centre for International Affairs. Dr. Sarawut, Dr. Bactor, Ms Mantana, four students and myself were present. All students indicated to Dr. Bactor that they were interested in going to Canada. A short time later, however, I was told that two students had requested transfer to the regular stream. In my opinion, three of the students stood a fair chance of making it in Canada. However, by the end of the term, only two were still interested. An interview with Ms Mantana was arranged for them after the exams but they failed to show.

If the success of this program is measured by the number of Thai students successfully transferred to Canadian universities, I must report failure. However, I have reason to believe that

my students profited from the experience and those of them who eventually choose to study electrical engineering will have an advantage. As for myself, the experience was invaluable and one of the highlights of my life. I had an opportunity to become familiar with the landscape, culture and people of a very interesting country about which I had known very little.

Before I make any recommendations, I attribute the lack of success to the following factors:

(a) The number of students recruited into the program has been too small. Almost everyone I talked to agreed that 40 students should be the minimum. A successful international program is said to be run by a Bangkok university, with about 60 students. Recruiting such numbers into the program from the Khorat area alone would be very difficult.

(b) Counselling and selection of students for the program appears to have been inadequate. Since the program was expensive and unsubsidized, the main requirement, other than a minimal GPA, was rich parents.

I believe that international exchanges enrich the life and knowledge base of the participants and are therefore worth pursuing. Based on my experience, I have the following recommendations.

1. Let students finish their first year in their own language. If possible, the first-year curriculum should include English as a second language.

2. After the final exams, the best students (those above some specified GPA) should receive letters outlining the costs and benefits of studying in an English-speaking country. Those expressing an interest would be invited for an interview with their program director and an official of the Centre for International Affairs. The interviewers should probe for emotional stability, degree of commitment to the chosen studies and general maturity. Financial help, possibly in the form of loans, should be offered to outstanding students of insufficient means. (It should be noted here that the North-East of Thailand, where Khorat is located, is the poorest region of the country).

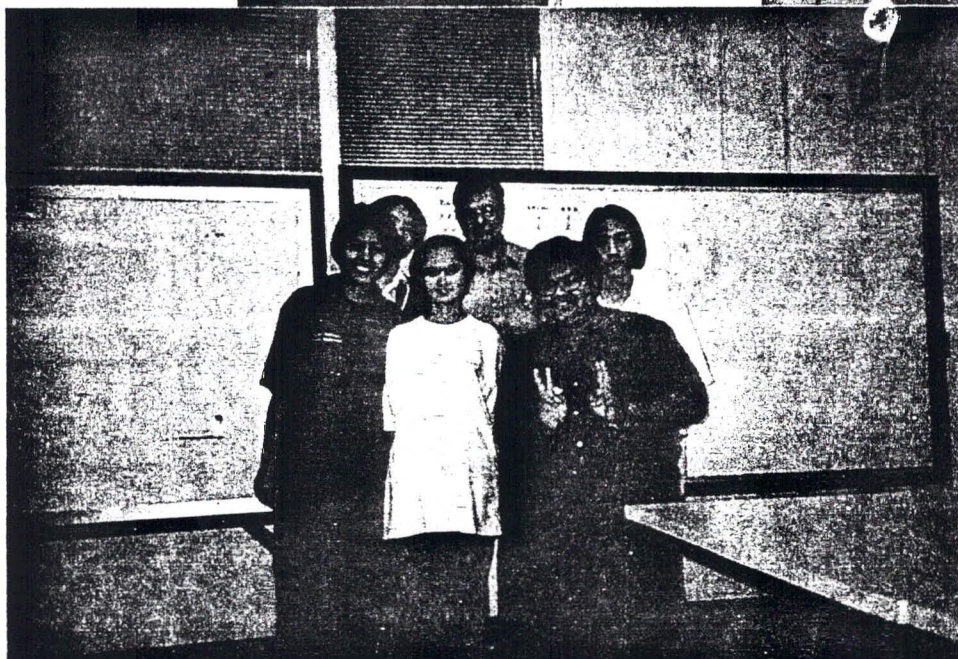
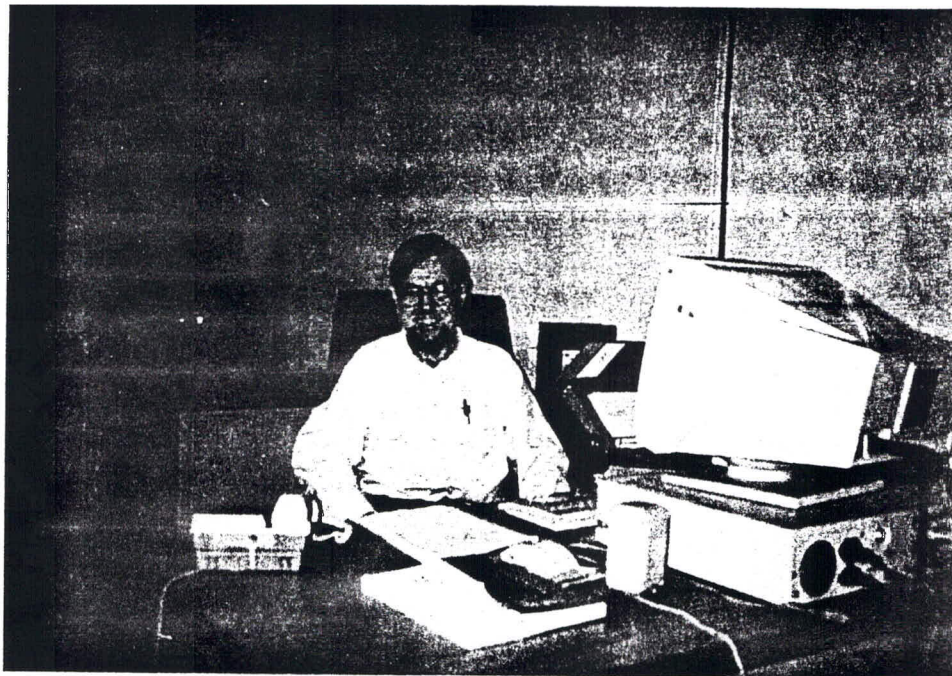
3. Successful applicants would be advised to take a total-immersion English course before beginning their studies abroad. Such a course could be taken in the target country (such as Canada) itself or in a nearby country where the use of English is common, such as Malaysia, Australia, etc. It is important that the student take this course outside Thailand, as an individual, rather than as part of a Thai group. Students would begin their studies in the target country as soon as their English was deemed adequate. Students should be aware that this preparation could cost them a semester and possibly more.

4. If numbers warrant, an English-language program, similar to the present one, could be offered at SUT in *second year*. In this case, students would begin their foreign studies in third year. Co-operation of all universities of the North-East in launching such a program would make sense.

A note of thanks is in order to everyone at SUT we were in contact with. Everything was done to make us feel at home, safe and comfortable. We had a very pleasant and spacious house to live in. Our requests for repairs, transportation, etc. were met almost as soon as we made them. My office at the university was comfortable and supplied with everything, from staples to a computer with Internet access. We had access to tasty and inexpensive food. We made many good friends. Special thanks are due to Ms Mantana Thammachoti (better known as Pin) who saw

to our needs at Cenintaf and Ms Maneerat Thumpong and her colleagues, who helped me at the office throughout the term. Finally, I want to thank Ryerson International, Dr. Stalin Boctor and the SUT administration for making this great adventure possible.

Toronto, May 28, 1997



APPENDIX B

ACTIVITY A 2.5

Academic Research Exchange for Thai Faculty

REPORTS

- **Mr. Manu Omakupt**
- **Dr. Neung Teaumroong**
- **Dr. Tassanee Sukosol**
- **Dr. Pairote Sattayatham**
- **Dr. Virul Mangclaviraj**

A 2.5 Academic Research Exchange Dr. Tassanee Sukosol

Scientific Visit

Department of Food Science
University of Guelph

Assoc. Prof. Dr. Tassanee Sukosol
Assistant Rector for Academic Affairs
Acting, chair of Research Department, Institute of Science
Suranaree University of Technology
Nakhon Ratchasima, Thailand.

The aim of this visit was to earn more knowledges and ideas in food technology. In Thailand, many food industries export fresh frozen meat, chicken and prawns which need standard quality control. One important problem is over limit microbial contaminations of foods. The rapid detections of microorganisms in foods are required. The modern methods for microbiological analysis of foods such as bioluminescence, immunological techniques, gene probes and other emerging technologies should be used to detect microorganisms before exportation. Salmonella, one of the microorganism that was not allowed to present in export foods. Many informations on modern methods for the microbiological analysis of foods, especially Salmonella detection wave discussed.

Host : Dr. Mansel Griffiths
Food Science
University of Guelph

Duration : June 7, 1997 - June 27, 1997
(3 weeks)

Activities : Discuss and exchange the ideas with Professor and
professional scientists in

1. Food Science Department, University of Guelph
 - Dr. Mansel Griffiths
Topic : Salmonella detection in food
 - Dr. Jinru Chen
Topic : Lux gene in bacteriophage to detect Salmonella
 - Dr. Heidi Shraft
Topic : Biofilm of viable but non culturable bacteria.
 - Dr. Dong Goff
Topic : Dairy products
2. Health agriculture Canada (HAL)
 - Dr. Roger Johnson and Dr. Case Poppe
Topic : Immunological methods for Salmonella detection.
3. OMAFRA
 - Dr. Stephanic de Grandis
Topic : Automatic bacterial analyzers.
 - Dr. Joseph Odumeru
Topic : Lab service division
 - Dr. Shu Chen
Topic : PCR for Salmonella Detection.
4. Attend the conference of American and Canadian Society of Dai
5. Attend the conferences of Food Science Department
6. Observe the Ph.D. oral examination
7. Search the literatures in central library

UNIVERSITY of GUELPH

CENTRE FOR INTERNATIONAL PROGRAMS

15 August 1997

Mary Jane Curtis,
Supervisor, Administration,
Ryerson International,
Ryerson Polytechnic University,
350 Victoria Street,
TORONTO, ONTARIO.
M5B 2K3

Dear Mary Jane,

Dr. Tassanee Sukosol completed her three-week research attachment at the University of Guelph on June 27. During this period she focussed on food quality central technologies in the Department of Food Science under the general direction of Professor Mansel Griffiths. The other activities she managed to undertake are shown in her own report which is attached. *A lpc*

Also enclosed is Invoice 174299 for \$2,775 (\$2,700 + \$75 Red Car).

With kind regards.

Sincerely,



J.C.M. Shute,
Director.

JCMS:jw
encs.

Report of Dr. Pairote Sattayatham
on his visit to the
Department of Applied Mathematics
University of Waterloo
(1-15 September, 1997)

September 10, 1997

Dr. Mary Jane Curtis
Project Coordinator
Ryerson International, Canada

Dear Dr. Curtis:

I would like to thank you very much for your invitation and very effective coordinating. I reached the Waterloo Inn on September 1, 1997 around 9:00 p.m. without any difficulty. I met Professor G. Schneider and Professor F.O. Goodman, they gave me a very warm welcome. I have received your money order for \$600 and emergency health insurance package.

The objective of my visit here is to meet professors who might be interested in a collaboration with the Department of Mathematics at Suranaree University of Technology (SUT) as cosupervisors. If this program works, some Ph.D. students at SUT will have a change to do research with their cosupervisor at the University of Waterloo for a period of 1 year under the grants of the Thai Government.

I would like to report on my work from September 2-5 and 8-12 at the Department of Applied Mathematics, University of Waterloo.

1. September 2, 1997

Morning Session: I met Professor F.O. Goodman and he kindly introduced me to Professor E.R. Vrscay, who will assist me during my visit here. He also provided me with an office in the Mathematics and Computer Building.

Afternoon Session: At 2:30 p.m. I met Professor R.B. Simpson, who is presently working in the area of finding the solution of partial differential equations. After a short period of discussion I learned that he is interested in writing a computer program to find the solution. This area is a little bit far from the main research at SUT, which emphasizes the method of construction of the solution. However, we agreed to keep in touch via mail and email in order to continue our discussions.

2. September 3, 1997

Morning Session: At 10:00 a.m. I met with Professor D. Siegel. We talked about some research in Potential Theory and Dynamical Systems of chemical kinetics. We agreed to write and hold further discussions via email.

Afternoon Session: There was no appointment scheduled, so I went to visit the Davis Centre Library.

3: September 4, 1997

Morning Session: At 10:00 a.m. I met with Professor K.O. Geddes. We talked about research in Partial Differential Equations and Computer Algebra. There is one professor in my department at SUT (Professor Meleshko) who works in this area. We discussed collaboration between Professor Geddes and Professor Meleshko in December of this year when both will be attending the same conference in Bangkok, Thailand.

Afternoon Session: No appointment scheduled.

4. September 5, 1997

There were no appointments scheduled, so I went to the library.

5. September 8, 1997

Morning Session: I met with Professor X.Z. Liu. We talked about research in Dynamical Systems. I have a professor in my department (Dr. Chaiyasena) who also works in this field. I obtained several of Professor Liu's papers for him, hoping that we can collaborate later.

Afternoon Session: As 1:30 p.m. I met with Professor S. Sivaloganathan. He works in Computational Fluid Dynamics. He showed interest in collaborating with Professor Moshkin (at SUT) who also works in this area.

6. September 9, 1997

Morning Session: At 11:00 a.m. I met with Professor R.H. Bartels. We discussed collaboration in spline. Professor Bartels would like to delay making a decision for approximately 9 months due to personal reasons.

7. September 10-12, 1997

I had no appointments and spent most of the time in the library.

In conclusion, I can say that my visit to the Department of Applied Mathematics has been successful at one level. There are some professors who are interested in this kind of collaboration (e.g. Professor Liu, Professor Geddes, Professor Sivaloganathan).

Finally, I would like to thank the SUT-CUTC project, Dr. Mary Jane Curtis, Professor Gerry Schneider, Professor Frank O. Goodman, Professor E.R. Vrscaj, and Ms. Ann Puncher, for their assistance with my visit.

Sincerely yours,

Pairote Sattayatham

Pairote Sattayatham
Chair, School of Mathematics
Suranaree University of Technology, Thailand

cc: Professor Gerry Schneider
Professor Frank O. Goodman

CENTRE FOR INTERNATIONAL PROGRAMS

FAX: 519-767-0756

TO: Mary Jane Curtis

DATE: 25 July 1997

FROM: Jim Shute
Director

EXT: 6909

SUBJECT: TRAINING REPORTS

Mary Jane, I attach my reports on training contracts for Mr. Manu Omakupt, Dr. Neung Teaumroong, and Dr. Sureelak Rodtong.

JCMS:jw
att.


.....

REPORT ON TRAINING COMPLETED

1. On May 13 and 14, 1997, a two-day program was arranged at the University of Guelph for Mr. Manu Omakupt, Director of the SUT Technopolis, and Dr. Neung Teaumroong, Technopolis Coordinator. As the attached schedule indicates, the two visitors spent time in the Office of Research, Guelph Food Technology Centre, Department of Environmental Biology, Office of Open Learning, and Independent Study. They also met with Dr. Doug Goff, Department of Food Science. Dr. Goff will be teaching and consulting at SUT later this year.
2. From February 10 to July 12, 1997, Dr. Sureelak Rodtong undertook a 22 week post-doctoral research project in dairy cow mastitis in the Laboratory Services Division of the University of Guelph (the Agriculture and Food Laboratory Services Centre of the Ontario Ministry of Agriculture, Food and Rural Affairs prior to its merger with the University of Guelph in 1996-97). I attach Dr. Sureelak's report which includes her research timetable and a copy of her research findings. She and her supervisor, Dr. Stephanie De Grandis, plan to present this research at a scientific meeting in Thailand later this year, as well as to continue their research collaboration beyond 1997.



CENTRE FOR INTERNATIONAL PROGRAMS

*Visit to the University of Guelph
May 13, 14, 1997*

*Mr. Manu Omakupt
Director of Technopolis*

*Dr. Neung Teaumroong
Technopolis Coordinator*

*Suranaree University of Technology
Thailand*

Itinerary

Tuesday, May 13

<i>09:00-10:00</i>	<i>Dr. Jeremy Gawen, Director, Business Development, Office of Research</i>
<i>10:00-11:30</i>	<i>Mr. Peter Ozols, Guelph Food Technology Centre</i>
<i>11:45</i>	<i>Lunch with Dr. Jeremy Gawen</i>
<i>13:00-14:00</i>	<i>Dr. Gordon Surgeoner, Department of Environmental Biology</i>

Wednesday, May 14

<i>09:00</i>	<i>Dr. Bill Culp, Chair, Independent Study</i>
<i>09:10</i>	<i>Tour of Independent Study</i>
<i>09:30-11:30</i>	<i>Ms. Sandra Pitts, Office of Open Learning</i>
<i>12:00</i>	<i>Lunch at the University Club accompanied by Ms. Sandra Pitts and Dr. Doug Goff, Department of Food Science</i>

6 pages including this page

No.

Date

/ /

To Ms. Mary Jane Curtis
Project Co-ordinator
Ryerson International
Ryerson Polytechnic University
FAX (416) 979-5352

September 12, 1997

Dear Ms. Mary Jane Curtis

Herewith please find a summary report on my professional visit in Canada between September 1-13, 1997. Due to well co-ordinated programs the visits to Universities concerned are quite informative. I am grateful to all parties and individuals for the thoughtful arrangements which make my visit to Canada memorable and successful. I look forward to closer co-operation between Canadian and Thai Universities in future.

Yours sincerely

Virul Manglavi
(Virul Manglavi)

No. 1

Date / /

Summary Report

on

Professional Visit to Universities in Canada

by

Virul Mangalaviraj, under CUTC-SUT HRD Project

Sept 1, 1997 Arrival in Canada, stay at Waterloo Inn

Visit University of Waterloo

Sept 2, 1997

Morning Program : Welcomed by Professor Garry Schneider and program orientation

- Visit High Voltage Laboratory briefing by Dr. Shesha Jayaram and Mr. N. Terry Weldon, Dept. of Electrical and Computer Engineering.

Access to following facilities: sterilization of water through high energy electron beam, perforation of plastic sheet with corona discharge, electrostatic precipitation in flue gas (joint project with McMaster Univ.), generation of HV pulse for electron beam sterilization of beverage, insulation testing with high electric field intensity, facilities for teaching in high voltage and electric machines.

Afternoon Program

- Visit mechanical engineering laboratory briefing by Dr. Sanjeev Bedi.

Access to following facilities: robotics laboratory for single arm robot in welding and machining, manufacturing process laboratory in tribology for new materials, fatigue testing of oil pipe, inspection of flexible wind tunnel in fluid mechanics laboratory, metrology laboratory and electron microscope laboratory.

Sept. 3, 1997

Morning Program

- Visit the Center for Wireless Communication briefing by Prof. Jon.W.Hack, Director of the Center, on the research fields : digital processing for signal compression, protection of transmitted information through channel coding technique, communication networking

Afternoon Program

- Visit the Department of Electrical and Computer Engineering briefing by Prof. S.K. Chaudhuri, chair of the department. Access to microwave research laboratory on microwave power transmission and development of microwave components, microwave teaching laboratory, electronic laboratory, electric circuit laboratory.

Visit University of Toronto (Stay at Clason Essex Park Hotel)

Sept. 4, 1997

Morning Program Welcomed by Dr. Mark Deacon, Assistant Director, Research Marketing and program orientation.

- Visit SLOWPOKE Reactor briefing by Dr. R.G.V. Hancock, Director of SLOWPOKE Reactor, on operation and application of SLOWPOKE Reactor in neutron activation analysis

Afternoon Program

- Visit Professor Kawaji, Department of Chemical Engineering, Discussion on nuclear engineering education in the University of Toronto
- Access to Isotrace, Accelerator Mass Spectrometer, for high sensitivity analysis of materials in geology, materials science, medicine, archaeology and physics, briefing by Dr. Liam Kieser

-
- Access to Electron Microscopy Laboratory, Department of metallurgy and materials science. briefing by Fred Neub, manager of Electron Microscopy Laboratory

Sept. 5, 1997

Morning Program

- Visit Dating Mass Spectrometry Laboratory briefing by Dr. P. E. Smith on ^{40}Ar - ^{39}Ar dating technique

Afternoon Program

- Visit the main library of the University of Toronto searching books on electrodynamics
- Visit University Book Stores

Sept. 6 - 7, 1997 : Free time in Toronto

Visit McMaster University

Sept. 8, 1997

Morning Program

- Visit McMaster Nuclear Research Reactor briefing by Dr. Mitchel P. Butler, Chief Reactor Supervisor, on the operation and application in nuclear researches
 - Visit the tandem accelerator laboratory briefing by Dr. Jim Stank on research activities in accelerator laboratory
 - Visit the Center for Neutron Activation Analysis briefing by Alice E. Pidmuczny, manager of the Center, on nuclear instrumentation, counting system and rabbit transfer system
 - Briefing by S. Staniek on Health Physics activities in the University campus
-

Afternoon Program

- Exchange ideas on Nuclear Education Programme and Nuclear Power Program with Prof. Archie Harms, Prof. Luke Chan, Prof. Dick Tomlinson and Elise Herzig, Director Commercial Operations
- Briefing on nuclear engineering education in McMaster University especially on Health and Radiation Physics and Medical Physics by Professor David R. Chettle and Prof. Bill Prestwich
- Meeting with graduate students on medical physics and health physics. Discussion on fields of study and research.

Sept. 9, 1997 : Travel to Guelph. Stay at College Inn Hotel

Visit University of Guelph : Sept. 10, 1997

Morning Program : Welcome and program orientation by Prof. Jim Shute

- Visit Electron Microscope Laboratory, Department of Botany, briefing by Lewis Melville, manager of Electron Microscope Laboratory, on scanning and transmission electron microscopes training and research

Afternoon Program

- Visit Analytical Electron Microscope Laboratory briefing by Bob Harris, manager of Electron Microscope Laboratory, on x-ray microanalysis and maintenance of electron microscopes.
- Demonstration of Confocal Microscopy by Lewis Melville

Sept. 11, 1997

Morning Program

- Guelph city tour and Elora village tour guided by Lewis Melville

Afternoon Program

- Visit Laboratory Services of the University of Guelph briefing by Andrew Moore, Head of Analytical Microscopy Laboratory, on the application of analytical electron microscopes, confocal microscopy, infrared microscopy
- Visit Dr. George Harauz, Department of Molecular Biology and Genetics. Briefing on the use of electron microscopy and computation technique in molecular biology research.

Sept-12, 1997

Morning Program

Visit the Department of Physics. Welcome and program orientation by Prof. R. Kenneth Jeffrey, Chair of the Department of Physics

- Visit materials analysis laboratory for SNO Project (Sudbury Neutrino Observatory) briefing by Dr. P. Jagam on the development of detectors and counting system for ultra low background counting.
- Research laboratory tour guided by Prof. Jeffrey: Laser beam scattering from biological specimens, NMR research and x-rays diffraction on biological samples.
- Visit Prof. P. R. Hallet on Physics teaching in the University of Guelph. Tour physics teaching laboratories, Quiz Lab and evaluation method.

Afternoon Program

- Visit PIXE (Proton Induced X-Ray Emission) Lab. Briefing by W. J. Teedale on elemental analysis of biological and mineral samples.
- Visit Prof. Innes K. Mackenzie. Briefing on the characterization of materials using gamma ray backscattering from positron annihilation.
- Visit Prof. J. Law for physics teaching modules through electronic multimedia and SNO Project.

END

APPENDIX C

ACTIVITY A 2. 32 b)

**CO-OP PROGRAM
CANADIAN STUDENTS IN THAILAND**

REPORTS:

- **Jon Soehl**
- **Christine Van Luyk**
- **Laura Thomas**
- **Richard Berrigan**
- **Bruce Fleming**

SUT-CUTC Co-op Exchange Program

September 1997- Update

Submitted by: DalTech formerly The Technical University of Nova Scotia

Thai Student Exchange

- Guelph has hired three Thai students since September 1996 under the program.
- DalTech has hired three Thai students since September 1996 under the program. One from September to December 1996 and two from January to April 1997.

Canadian Student Exchange

- Two DalTech students worked in Thailand from May to August 1997
- One Guelph Student worked in Thailand from May to August 1997
- There have been no applications from students at Waterloo.

Overall the program was a great success. Both the Canadian and Thai students benefitted greatly from the cross cultural exchange and from the practical work experience and both DalTech and Guelph benefited by establishing what we hope will be a long term relationship for co-op exchanges with Thailand.

Both DalTech and Guelph plan to continue with the exchange program and have hired Thai students for the September to December 1997 work term outside of the program.

The Thailand Experience
Submitted by Jon Soehl
Technical University of Nova Scotia

January 13, 1997

SEP - DEC 31/96 THAILAND

BABCOCK HANSA, KHORAT

Globalization of markets has resulted in an increasing demand for engineers to work in developing countries. With one of the world's fastest growing economies, Thailand has become an attraction for many foreign investors. The differences between Thailand and Canada vary from modest to extreme. Adjustment to the new lifestyle is essential to succeed in the work place.

Adapting to an environment in which an unknown language is predominantly spoken proved to be one of the greatest challenges. Thai has five tones compared with only three in English, as a result there are many words in Thai which may sound identical to the untrained western ear. At first, attempts to learn and speak the language may be frustrating, but after two months and lots of practice, conversation with the locals is possible as well as enjoyable and rewarding.

I lived on the outskirts of Thailand's second largest city, Khorat. Located in the northeast, Khorat is an emerging center for metals and automotive manufacturing. The company for which I worked, Babcock Hansa, began production of steam boilers in month 1996. Babcock Hansa was established from a partnership between Hansa International from Thailand and Babcock Omnical from Germany. The boilers are produced from the designs of Babcock Omnical according to the German TRD standard for steam boilers.

Most of the work I did was computer-related. For the modern facilities at Babcock Hansa the knowledge of computers was comparatively low. I spent time teaching employees various programs including Word, Excel, and AutoCAD. One of my primary responsibilities was drafting and designing using AutoCAD. Several of the drawings involved changes of the original German blueprints and translation of the text to English. To ensure the high level of quality at which the boiler's had to be manufactured I established a Quality Assurance system. This entailed creating a number of documents and creating a MS Access database to store and organize data.

The work atmosphere was pleasant. Although the gap between the rich and the poor is so large in Thailand the interaction of the management and the laborers at Babcock Hansa was superior. The respect which the workers have for the management and vice versa makes for a healthy work environment.

Although, at times, the work was difficult, it was rewarding. A western educated engineer has the potential to make several contributions to engineering in Thailand. Do not expect pressure to work hard; you should be self-motivated and find things to do on your own.

Fortunately in my leisure time, I had opportunities to do some traveling. However, most of the time I was content to be absorbed by the fascinating Thai culture. The differences between Canada and Thailand amazed me from start to finish - the culture shock was nothing short of exhilarating. One of the greatest lessons I have learned is to appreciate what I have; Thailand has so little compared to Western standards, yet the people seem so much happier. A keen sense of adventure, an open mind and a willingness to learn from the culture can help to make living and working in Thailand the experience of a lifetime.

CULTURAL EXCHANGE

CO-OP WORK TERM, BANGKOK, THAILAND

by Christine vanLuyk

Description: A co-op work term was completed at Kasesart University in Thailand from January - April 1997. The term was completed under the supervision of Dr. Klanarong and in conjunction with Suranaree University in Nakhon Rathchasima.

Purpose of Work Term: The work experience was part of my Biochemistry Co-op degree at the University of Guelph and combined laboratory research with cultural enrichment.

Project Description:

Although much research has been documented concerning applications of potato, corn, rice and wheat starch, little research has been conducted concerning cassava starch. Since cassava root is a major crop of Thailand, the goal of the starch unit at Kasesart University is to conduct research and document the properties of cassava starch stressing the industrial importance and application of these properties. One such application is the hydrolysis (a two step-process: liquefaction and saccharification) of starch to sugar (glucose, etc.) solutions of various dextrose equivalencies. The purpose of my particular research project was to study the activity of five commercial enzymes (alpha-amylases) involved in the liquefaction of cassava starch. The optimal conditions (i.e. pH and temperature) for maximal enzyme activity were examined and applied to find the V_{max} and K_m of each of the commercial enzymes. From this data, the commercial enzyme, which would be most suitable (in terms of enzyme activity and cost) for industrial hydrolysis (liquefaction) of cassava starch to sugar solutions could be determined. The project also investigated the properties of glucoamylase, which is used in the saccharification of cassava starch.

Research was also conducted to study the potential of directly hydrolyzing milled cassava instead of cassava starch. If this proves possible, cassava starch would not have to be extracted prior to hydrolysis and this would create much more efficient industrial production of sugar solutions. As well, this would create increased work (and revenue) for rural farmers who would be able to process cassava to chips and obtain a higher profit for this product. (Currently farmers sell the raw products at lower prices to be processed industrially, favoring big businesses rather than rural farmers.) The findings of this study suggest that there is a potential for the utilization of milled cassava.

Biochemical Experience:

The following techniques and test were used:

- HPLC
- Spectrometric analysis of sugar solutions (starch hydrolyzed to varying degrees with enzymes)
- Polarimetry was used to measure percent starch in milled cassava samples
- Dextrose equivalency tests of sugar solutions were conducted

* A work term report is available upon request.

Cultural Experience:

Thailand is truly the "Land of smiles" and it was an experience that I will never forget. My first tour of Bangkok was filled with colorful Thai dances, spectacular temples and dazzling lights. Although Bangkok may have seem a bit overwhelming in the beginning, it didn't take long to adjust the "hustle and bustle" of city life and enjoy the experiences which it has to offer. This is definitely a city that "never sleeps". The streets are lined with vendors of all sorts offering anything from clothing to housing needs and a wide variety of delicious foods. There is practically nothing that is not easily attained!

I arrived on the eve of December 31st and was met by a co-worker, Wan. I stayed with his Wan and his sister for about one month and then moved to an apartment, which was much closer to the university. My co-workers were excellent hosts and tour guides and made sure that I was always "happy". They also showed many wonderful sites in Thailand and welcomed me into their lives.

I immediately fell in love with the spicy food of Thailand and have many favorites (Som tom, Pad Thai, etc.) of which I am trying to make suitable Canadian versions! I was also able to do a quite a bit of travelling while I was in Thailand. I visited quite a few places, from the mountains in northern Thailand to the beaches in southern Thailand. The gold palaces and ancient ruins were highlights. I exercised caution when traveling and encountered no major problems. The Thai people were anxious to help me and to ensure that I enjoyed by visit in Thailand. My memories of monkeys, coconuts, tropical fish, pineapple, Thai hospitality and spicy Thai food will always be a part of me.

ACTIVITY A2-32

Suranaree University of Technology and University of Guelph Work Exchange Final Report

prepared by: Laura Thomas
date: August 14, 1997

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Introduction

An exchange program between Suranaree University of Technology and the University of Guelph was established to promote relations and the exchange of information between Thailand and Canada. Through the exchange program I was accepted for a work term for the months of May to August, 1997. My reasons for wanting to be a participant include the desire to gain international engineering training and to experience life in a new cultural environment.

Work Placement and Position

Seagate Technology (Thailand) Ltd.
Korat Plant - 90 Moo 9 Mitraphap Road
Tumbol Sungnoen, Amphur Sungnoen
Nakhonratchasima, 30170
Thailand

My position was as an Environmental Engineer Trainee in the Korat Facility Department at Seagate Technology (Thailand) Ltd. I worked directly with another Environmental Engineer on the water and wastewater treatment processes at the Korat plant.

My position at Seagate was very educational in many respects. First of all, I was able to apply my theoretical knowledge from my university studies to practical situations. I learned about all aspects of engineering including design, operation, maintenance, management, budgets and planning. The experience gave me an appreciation of the role and responsibilities of a professional engineer in the workplace. Participating in a team environment gave me the opportunity to work with many individuals who possess a variety of skills and interests in order to come up with solutions to problems. As well, working in a different language helped me to improve my communication skills and find alternative ways to deal with situations.

Cultural Experiences

I think the most interesting aspect of working overseas is the opportunity to experience life in a new culture. I found that Thai people are very welcoming and friendly. I met many individuals who went out of their way to make sure that I was comfortable and happy. I made many friends at the university and at my workplace who helped me adapt to the different lifestyle.

Upon reflection, I realize that I was very naive when I first arrived to Thailand. The culture was very different than what I was used to but I made every attempt to try to assimilate into the new surroundings. I found the Thai social values, customs and daily activities very interesting and confusing at the same time. It took a couple of weeks, perhaps even months, until I felt comfortable with my new lifestyle. I found that patience and a calm manner are essential in order to deal with frustrating situations.

My communication skills have greatly improved. I learned some basic Thai language but not as much as I had hoped because Seagate was very "westernized" and English was the business language commonly used in the workplace. I met several people who desired to learn English so I helped them as much as possible in exchange for Thai language lessons. I found that people were very receptive when they realized that I could speak and understand some Thai (which helped a lot when bargaining with tuk-tuk drivers and vendors at the market).

I travelled around Thailand every weekend with co-workers and another Canadian student. I had the opportunity to visit many places including: Bangkok, Khon Kaen, Nong Khai, Buriram, Phanom Rung, Khao Yai National Park, Ayuthaya, Phi Mai, Dan Kwian, Koh Samet, and Koh Phi Phi. I feel that travelling was one of the best ways for me to experience the Thai culture. There were many interesting and different things to do; ranging from visiting ancient Khmer ruins to making clay pottery to taking river boat rides or just relaxing on the beach.

Problems Encountered

I encountered very few problems throughout my stay in Thailand. The ones that I am about to discuss did not in any way prevent me from enjoying my experience but they may serve as reference for future students.

The salary for student trainees at Seagate was adequate for my living and travelling expenses in Thailand, however, it does not compare to what a student would be earning for a similar position in North America. I am very fortunate to have received funding from the exchange program and my salary was not an issue for me. I feel that in the future it will be difficult to attract Canadian students to participate in the exchange program due to the lack of funding and salary. Many students rely on their summer work to help pay for their upcoming terms of study at university and would not be able to save any money if they desired to work overseas.

I realized when I accepted my position with Seagate that a lot of the work and information would be in Thai language, however, I did not realize how frustrating it can be to not understand or to not be able to actively participate. I managed to finish all of my assigned work ahead of schedule so for a while I had no major projects to work on. Seagate is a very busy company and there a lot of problems to solve but unfortunately I was unable to work productively due to the language barrier. I had to learn to take initiative to find work in order to keep myself occupied.

Suggestions for Future Students

I think that it is an good idea to research in advance the country that you are travelling to. I read as much as possible, attended training sessions and learned some basic Thai phrases before I left Canada. I think that these efforts helped a lot in adjusting to the new culture and environment.

I would also advise students to plan a tentative budget and make sure that they have enough money to cover unexpected costs. Expenses which I did not take into account include: renewing passport visa, cost of work permit and its renewal, airport departure tax, and emergency medical care.

I would also recommend to have several different forms of funds available so it is always possible to access money. American cash, traveller's cheques, Canadian automatic banking cards, and international credit cards are all widely accepted in Thailand. It is also smart to keep photocopied records of all forms of identification and credit cards. A friend was robbed of his wallet in Bangkok and fortunately he had photocopies so it was relatively easy to file a report with the police and the Canadian embassy.

I began to work for Seagate only two days after my arrival and I found that I did not have enough time to recover from jet lag and get used to the new climate. I would request future employers for a few extra days in order to adjust to the new surroundings before beginning the work placement.

Final Recommendations

I would highly recommend this exchange program to university students who desire to gain international work experience. The exchange provides excellent opportunities to receive job training as well as to live in a new cultural setting. I had minimal problems and those that I did encounter were normal situations that could happen to any traveller overseas.

The Thai are very kind and generous to foreigners. University administration and staff, Seagate management and co-workers, students and complete strangers all tried very hard to make my stay as enjoyable and memorable as possible. Seagate Technology provided me with an excellent introduction to engineering which helped me to realize both my personal and professional future goals.

Canada/Thailand Exchange - May to August 1997

submitted by: *Richard Berrigan*
Sept. 2, 1997

Canada/Thailand Exchange May to August 2540 (1997)

submitted by: *Richard Berrigan*

Introduction:

Several universities in Canada, including the Technical University of Nova Scotia, University of Guelph, Ryerson University and the University of Saskatchewan, are involved with a Co-Operative exchange program with Suranaree University of Technology in Nakhon Ratchasima, Thailand.

The purpose of the program is to give the participating students technical working experience in an atmosphere and culture much different from their own.

Duration of Program:

The students worked from the beginning of May 1997 until the end of August 1997.

Participants:

There were three students participating in the summer term at different companies in Nakhon Ratchasima:

Richard Berrigan (TUNS) - Hypermedia Publishing Ltd.

Laura Thomas (U. of Guelph) - Seagate Technologies Ltd.

Bruce Fleming (TUNS) - Babcock Hanssa

Nature of Work:

Hypermedia Publishing Ltd. is a ten month old company located on the campus of the Suranaree University of Technology (SUT). There are seven full-time employees involved in the development of multimedia CDROM's and internet web sites.

Several software development tools were used including Macromedia Director and 3DStudio Max for various projects. These projects included an internet search engine and database update for the Association of Asian Universities and a 3D animation of an automated warehouse system.

Discussion:

The four months I spent working and living in Thailand were fantastic. Working with Thai people was an experience that will never be forgotten. They are very friendly, helpful and always made sure that my work was both challenging and enjoyable.

Although almost all people that I met spoke English to some degree, there were often communication hurdles. These hurdles were overcome by various methods of sign language, picture drawing and frantic look-ups in Thai-English dictionaries. As the months progressed I observed their English greatly improving, along with my Thai language skills.

The whole experience of communication was an invaluable lesson. If you can explain a technical subject to someone who speaks English only as a second language, then you can explain it to anyone.

I lived in the student dorm and had two Thai roommates. This experience of living with the Thai people and observing their everyday life was one of the highlights of the summer. The students were very kind and taught me very much about Thai culture.

Thai food can be very delicious and very different. It was exciting to try different dishes and see how many different ways they can prepare rice.

The adventures continued on the weekend with travels to nearby villages and towns to see ancient ruins, temples, markets and many other things. A different destination every weekend had much of North Eastern and Central Thailand covered by the end of the summer.

Conclusions:

Thailand, the "land of smiles", is a fantastic country with wonderful people. The salary for a student working there is a fraction of what it would be in Canada, but the experience is invaluable.

The technical experience that I received will greatly help me in my future studies and following career. The cultural and travel experiences that I have had have greatly broadened my horizons and shown me a beautiful part of the world that many people will never see.

Memorandum

To: Anne Marie Coolen, Director, Co-operative Education and Career Services,
Daltech

From: Bruce Fleming, 5th year Industrial, 930770

Date: 14/10/97

Re: Thailand Report

The following is a two-page report on my experience in Thailand. It covers some of the cultural differences I experienced as well as my work at Babcock-Hansa Co.

Ltd..Thailand is a country vastly different from Canada in many ways. Differences exist in the people, culture, history, geography, and climate. The cultural differences are not something of which to be scared, simply aware of and most times enjoyed. In the following report I cannot attempt to describe every aspect but can only provide my own view of my experience.

Eating is a good example of cultural differences and even diversity between Canada and Thailand. A typical Thai-style meal is eaten on the floor of the house sometimes outside on the ground on straw mats. The food is generally kept in communal bowls that everybody takes spoonfuls from to place on their own plate. Everybody says that the Thai food is very spicy. Do not disregard this bit of information if you do not eat spicy food on a regular basis but you can get used to it and may even come to relish the spices. While eating meals, the way to sit is on your buttocks with your legs crossed. Although many foreigners may find this hard to do at first, all your efforts to live as they do are greatly appreciated.

If the Thai people laugh at your attempts, do not take it personally. They are a jovial people and take many things in stride. Their attitude towards many accidents and mishaps can be summed up in their saying, "mai bpen rai" which translates as "don't mention it" or "no problem".

The Thai people actually greatly appreciate any customs that you pick up and practice much in the same way that they do. They are often surprised and will often guide you through certain situations. A common example is the entrance to a friend's home. It is respectful and polite to wai in addition to saying "Hello, sir (or ma'am)" to the parents of the home. It is also polite to wai upon leaving and say "Thank you sir (or ma'am)".

The wai is not the easiest custom to learn when to use. It can be used on many different occasions and can often be seen during daily interaction in Thailand. However, to quote a forgotten source, "It is better to return a wai than to initiate one. It is not necessary to return a wai initiated by a child."

Singing songs is a common form of entertainment and many Thai's are fairly

good at it. They sing at any occasion that they can find an excuse for it. Truckloads of people sing (and dance) on an excursion to a "tamboon" ceremony; they sing with or without the karaoke machine at parties the night before weddings. One particular occasion, which I remember quite well, was a procession to a Buddhist temple one Sunday morning. One of the welders from work was taking some time off to study the ways of Buddha for a short time - to become a novice. The people in the procession sung and danced the whole way to the temple.

Upon arriving at the temple, two novices prostrated themselves three times in front of their carriers. The novices got upon the carriers' shoulders and were carried around the temple three times before entering the temple to study. This represents the Triple Gem, the Buddha, the Dhamma (his teaching) and the order of the monks. The way which it was explained to me was that it represents Buddha, the book of Buddha and the temple. I became aware of this insight into the Thai culture a day or two after I was fortunate enough to carry the novice around the temple that very Sunday.

Thailand's history is rich and at times has been turbulent with warfare with neighbouring countries such as Laos. I found one of the great pleasures of travelling in Thailand was doing so with Thai people. They give different insights than tour guides and you can visit places at your own pace. When traveling through Khorat, almost every Thai person points out the Khun Ying Mo monument in the downtown area. This monument is in memory of a great woman who led a military coup to retake the Khorat during the reign of King Rama III and is a common point of interest in Thai history.

There is an immense feeling of satisfaction when you can carry on a small conversation with the Thai people in their own language. In an effort to learn the Thai language faster I took the advice of a friend and left my Thai phrase book in my room. Once I did this I found that I learned the language much more quickly. The learning process is accelerated due to communication and being among Thai's every day. I wrote down words and phrases that people taught me and this way often remembered them later on when I had the chance to use them.

Teaching Thai's English is a little bit harder. This can be attributed to the lack of English speaking people in Thailand. However, many are still eager to learn and can provide much humour during the language exchange. The younger generations of Thai's are more eager to learn the English language than many of their elders. You often hear young children say, "Hello" when you pass by and they sound very enthusiastic when they say it.

Unfortunately the Thai economy had taken a turn for the worse about halfway through my stay in Thailand. This meant that quite a few companies were in financial trouble and it slowed down the large growth in the Thai economy. The typical Thai worker earns approximately \$3000 Canadian per year (a typical bottom end salaried worker may make approximately \$2150 per year). With this in mind it is not hard to imagine why most Thai homes do not have many furnishings.

While working at Babcock-Hansa Co. Ltd. I gained some experience in mechanical design. I was involved in designing a rail and pulley system to move 6-8 tonne sections of conveyors outside of the factory. Mechanical design in the work environment was a new experience for myself. It was insightful to see the certain aspects of my design being used while some aspects were altered during construction. The basic design was used while the floor supervisor altered the design to better suit the function.

Some aspects of my designs were altered in order to suit what materials were made available and cost effective at the time. In many cases first hand experience served better than design principles learned academically. Some of the more mundane projects that I worked on were maintaining proper use of a database and calculating the weight of a boiler.

Thailand has some of the most breathtaking mountainous scenery and rock formations I have ever seen in person or in photographs. There is a great contrast in landscape between those areas of Thailand that are urbanized and industrialized and those, which are still for the most part, rural. Urbanized and industrial zones can be dirty and polluted but the rural areas have beautiful expanses of rice paddies and coconut trees.

It is probably those times I spent travelling with Thai friends to various places that I will remember most fondly. The Thai people are the ones who taught me about their culture, invited me into their homes, whom I ate with, worked with, and played with for four months.