WEEF Proposals Fall - 1995

Title	Discipline	Value	Contact
Magnetic Flowmeter	Chem	$9,004	R. Frankle
Additional Chem Eng. Watster Computers	Chem	$23,690	A. Bruce
Memory Upgrades(10)	Civil	$5,000	Michael Herz
Networking Upgrade	Civil	$3,000	Michael Herz
Portable Planimeters(2)	Civil	$1,592	Ken Bowman
UV/VIS Spectrometer	Civil	$2,902	Bruce Stickney
Field Spectrometer	Civil	$2,965	Bruce Stickney
Portable pH/Ion Meter	Civil	$850	Bruce Stickney
Upgrade of Machines Lab	E&CE	$6,870	C. Canizares
Spectrum Analyzer Plug-In	E&CE	$2,018	Ed Spike
Digital Multimeters	E&CE	$1,600	Paul Hayes
Upgrade to circuits lab	E&CE	$6,975	Eric Praetzel
Autobode System	E&CE	$5,135	W. Ott
Laser Printer for Undergrad Lab	E&CE	$7,250	Ed Spike
Environmental Eng. Lab	Env. Eng	$37,000	G.E. Schneider
14 17" Monitors for Helix	Gen E	$14,361	W. Wilson
Ultrasonic Cleaner	Mech	$1,441	Dr. D.C. Weckman
Modification to rm. E1 2536	Mech	$5,000	R. Pick
Fast Watstar Network	Mech	$11,800	M. Kaptein
Debating Championships	S.P.	$500	Rod Cave
Formula SAE	S.P.	$3,140	Todd Malloy
Concrete Toboggan B	S.P.	$2,500	Chris Weech
Midnight Sun	S.P.	$3,000	Dave Walsh
Improvements to teaching labs	Sys. Des.	$5,126	G. Metzker

WEEF Proposal Form

Fall 1995

Proposal Title: Magnetic Flowmeter

Submitted by: R. Frankle Phone number: 6161

On Campus Address (if available): Rm 1516 EL

Description of Proposal:

Install a Flowmeter into existing Non-Newtonian Flow Behavior experiment in the Fluids Lab for CHEM ENG 025-EL Presently the flow is measured by collecting in a beaker, weighing and timing

Benefits of the Proposal (including number of students and department(s) affected):

Simplified operation of the experiment by direct flow measurement. Approximately 40 students per term would benefit

Cost Breakdown of Proposal (please include partial funding option if desired):

See attached Quotation from Omega Engineering

1pc FMG 706, 1pc DPF64 possible

Implementation Schedule for Project:

To be installed during Winter-term 1996

Additional Information:

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

>>>>>>>> Q U O T A T I O N <<<<<<<<

OMEGA CANADA , INC.
976 Bergar Street, Laval, Quebec H7L 5A1
(514)856-6928 FAX (514)856-6886

UNIV OF WATERLOO
FACULTY OF ENGINEERING
DEPARTMENT OF CHEM ENGR
WATERLOO, ONTARIO
CANADA CD N2L 3G1
FAX To R FRANKLE
FAX No. (519)746-4979

Date 10/13/95
Quote No. Q510979074
Your No. R FRANKLE

In response to your inquiry we are pleased to submit the following:
(Terms) NET 30 Pending credit approval (F.O.B.) LAVAL

Item No.	Qty	Description	Est. Ship Date A.R.O.	Net Unit Price	Total Amount
1)	1	FMG-705 WAFER MAG FLOWMETER	8 Week	4,132.00 EA	4,132.00
2)	1	FMG-710 WAFER MAG FLOWMETER	8 Week	4,132.00 EA	4,132.00
3)	2	DPF64 METER W/2 SEP. 10A SPDT RELAYS	5 Week	370.00 EA	740.00

THIS QUOTATION IS VALID FOR 30 DAYS TOTAL AMT 9,004.00

Please refer to the QUOTE# Q510979074
when placing this on order.

FAX From FRANK ROSSI

Omega Canada, Inc. offers this quotation in accordance with published terms, conditions, limited liability, and warranty statements as reflected in our handbooks. Omega Canada cannot be held responsible for customer imposed requirements unless agreed to in writing in the body of this quotation.

November 1, 1995

Derek Tokarski
WEEF Executive Director
Waterloo Engineering Endowment Fund
University of Waterloo
Waterloo, Ontario
N2L 3G1

Dear Sir:

Enclosed you will find the proposal from the Department of Chemical Engineering concerning funding from the Waterloo Engineering Endowment Fund for the fall term of 1995. Our request is for the allotment of $23,690 for the addition of ten (10) Pentium Watstar computers to be located in E1-2532. The details of this request are enclosed within this document for your information.

Financial assistance that is offered to purchase equipment of any kind is appreciated by all Chemical Engineering students, both on and off stream. All WEEF assistance is valued, and this proposal, if financed, would enable the Chemical Engineering Department to contribute to the pedagogical standards that the University of Waterloo is famous for.

If you have questions regarding the specifics of this proposal, please contact me by phone (X 5275), by electronic mail (arbruce@wedge), or in person (E2-1318 E).

Sincerely,

Andrew Bruce
Third Year Chemical Engineering Student
Department of Chemical Engineering

/AB:ab
Enclosure

WEEF Funding Proposal - Fall 1995

Department of Chemical Engineering

Proposal Title: **Additional Chemical Engineering Watstar Computers**

Submitted by: **Andrew Bruce**

Electronic Mail: **arbruce@wedge**

Home number: **884-7439**

Campus Ext: **5275**

Description of Proposal:

This proposal involves requesting funds for ten (10) Pentium computers for in E1-2532. There are only eight (8) computers in this room, the breakdown of the hardware follows:

Computers	Processor	Ram	HD	Run Windows?
2	486	8MB	No	Yes
3	386	8MB	50	Yes
1	286	2MB	No	No
2	286	1MB	No	No

The technology of the newest 386's is six years old. These computers are old, slow, and unreliable, and the three 286's can be used for little

more than checking e-mail and co-op job postings (via telenet access). These computers do not meet the standards that the University of Waterloo is known for, especially since the Watstar room Helix (EL 108) will be upgraded to Pentiums shortly.

Please contact Dennis Herman if more information is required regarding the present 8 computers that are located in E1-2532.

The proposed specifications, which are similar to the specifications of the new Helix computers, are:

100MHz Pentium (8MB RAM),	$1110
15" Super VGA monitor,	$0470
400MB Hard Drive,	$0200
1MB PCI Video Card,	$0100
Mouse,	$0030
Cable connection,	$0050
10MB/s Standard Ethernet network card.	$0100
	$2060
Tax	x1.15
Final Unit Cost	**$2369**

Benefits of the Proposal:

All students enrolled in Chemical Engineering/Environmental Engineering at the University of Waterloo would benefit from the increased computing resources. The benefits of this WEEF funded proposal would also directly affect all on-stream engineering students.

Chemical/Environmental students normally forced to use the public Watstar resources would have the opportunity to use the facilities exclusively for them, and as a result, greater public Watstar system availability would result.

Cost Breakdown of Proposal:

10 @ $2369 = $23,690

Implementation Schedule for Project:

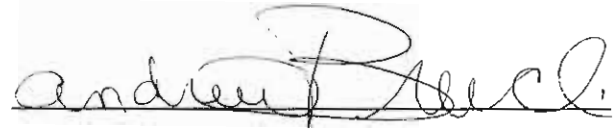
Immediately.

Additional Information:

Dennis Herman has volunteered to champion this project. He will be responsible for implementing and purchasing the hardware. He can be reached at X2947, dherman@chemical or E1-2505.

Please note that partial funding of this project would be acceptable, and would allow for the purchase of less than 10 Pentium computers.

Submitters' Signature:



Andrew Bruce

Nov 1/95.

Date

WEEF FUNDING PROPOSALS FALL 1995
DEPARTMENT OF CIVIL ENGINEERING
SUMMARY (Usage/Cost)

Area	Equipment	Amount	Course(s)	Students P.A.
WATSTAR Computing Facility	Memory Upgrades (10 workstations)	$5,000	All Civil Undergraduates and students from other Departments taking Civil courses	750
	Networking Upgrade	$3,000	All Civil Undergraduates and students from other Departments taking Civil courses	750
Geotechnical/Water Resources Labs	Portable Planimeters (2)	$1,592	Civ.E.486 (Hydrology) Civ.E. 300 (Project 1) Civ.E. 400 (Project 2)	150-200
Water Resources/ Environmental Engineering Labs	UV/VIS Spectrophotometer	$2,902	Civ.E. 375 (Water Quality Engineering);Civ.E. 472 (Wastewater Treatment);Civ.E. 300 (Project 1); Civ.E. 400 (Project 2); Env.E. Courses	275-300
	Field spectrophotometer	$2,965	Env.E. 126 (Concepts 2); Civ.E. 472 (Wastewater Treatment); Civ.E. 300 (Project 1); Civ.E. 400 (Project 2); Env.E. Courses	140-175
	Portable pH/Ion Meter	$ 850	Civ.E. 126 (Concepts); Civ.E. 375 (Water Quality Engineering); Civ.E. 472 (Wasterwater Treatment); Env.E. Courses	275-300
TOTAL:		$16,309		

(In order of priority)

General Note: The Department of Civil Engineering is willing to contribute partial support depending on the WEEF contribution.

WEEF Proposal Form
Fall 1995
DEPARTMENT OF CIVIL ENGINEERING

Proposal Title: Memory Upgrade - WATSTAR Undergraduate Computer Facility

Submitted by: Michael Herz, Ralph Korchensky

Phone Number: 3411 (Herz), 2104 (Korchensky)

Position: Computing Technologists **Date of Submission:** 95.10.22

Description of Proposal: Memory upgrade from 8 Mb to 16 Mb/workstation in the WATSTAR Undergraduate Computer Facility for 10 workstations. To date, 10% of the workstations have been upgraded to 16 Mb and are extensively used by our students. This is part of Civil's continuous computer upgrading program.

Benefits of the Proposal: Students in all Civil Engineeering/Environmental Engineering courses (750 students p.a.) would benefit from the increased system performance.

Cost Breakdown of Proposal: Approx. 10 @ $500 = $5,000.

Implementation Schedule: Immediately.

Would partial funding to the cost estimate provided above be acceptable? YES

Submitters' Signatures: _____ Date: 10.23.95.

M. Herz, R. Korchensky

Department Approval

Every proposal must be reviewed by the appropriate Department Head. This is done to insure that the departments are well informed, and have the opportunity to voice their opinion about proposals being presented to the WEEF Funding Council.

The following section is to be completed by the appropriate Department Head.

Name: Dr. J. Roorda
Position: Chair, Civil Engineering
Phone: Ext. 2672

Proposal approved: Roorda Dated: Oct 23/95
J. Roorda

If this proposal has not been approved, please indicate the reasons below:

WEEF Proposal Form
Fall 1995
DEPARTMENT OF CIVIL ENGINEERING

Proposal Title: UV/VIS Spectrophotometer

Submitted by: Bruce Stickney **Phone Number:** 2908

Position: Technologist, Water Resources /Environmental Engineering **Date of Submission:** 95.10.22

Description of Proposal: The proposed replacement would have a multifunction digital display with an analog output compatible with existing data acquisition equipment for continuous monitoring. These instruments are widely used for colourimetric analyses and in our courses for visible tracer studies in reactor characterization.

Benefits of the Proposal: Several of these units are used and this would be the same as two others in the laboratory, simplifying instruction in the operation and results retrieval. The unit would be used in Civ.E. 375 (Water Quality Engineering) and Civ.E. 472 (Wastewater Treatment) (approx. 275 students p.a.). The continuous monitoring capability would be especially useful in Civ.E. 472 due to the duration of the experiments (e.g. 7 days). This acquisition would bring all of our spectrophotometers up to current standards.

Cost Breakdown of Proposal: The proposed unit is a Milton-Roy Spectronic 20D (complete with flow-thru Cell HACH #45215) - $2,902.

Implementation Schedule: Immediately.

Would partial funding to the cost estimate provided above be acceptable? YES

Submitter Signature: ______________ Date: 10/23/95
B. Stickney per B. [illegible]

Department Approval

Every proposal must be reviewed by the appropriate Department Head. This is done to insure that the departments are well informed, and have the opportunity to voice their opinion about proposals being presented to the WEEF Funding Council.

The following section is to be completed by the appropriate Department Head.

Name: Dr. J. Roorda
Position: Chair, Civil Engineering
Phone: Ext. 2672

Proposal approved: Roorda Dated: Oct. 23/95
J. Roorda

If this proposal has not been approved, please indicate the reasons below:

WEEF Proposal Form
Fall 1995
DEPARTMENT OF CIVIL ENGINEERING

Proposal Title: Field Spectrophotometer

Submitted by: Bruce Stickney **Phone Number:** 2908

Position: Technologist, Water Resources /Environmental Engineering **Date of Submission:** 95.10.22

Description of Proposal: This is a portable unit widely used for Project work because of its capability of use in field measurements. It operates on batteries or on-line current and can then be used on a bench in the lab. There is currently one of these units in our laboratory and this would give us a second much needed unit to handle the demand.

Benefits of the Proposal: Students in Env.E. 126, Civ.E. 472 and project courses Civ.E. 300/400 (approximately 140 students p.a.) would use this equipment almost exclusively for their colourimetric analyses. This unit is compatible with another unit, which is often in use, and would not require using different instruments for field and laboratory use.

Cost Breakdown of Proposal: $2,965.

Implementation Schedule: Immediately.

Would partial funding to the cost estimate provided above be acceptable? YES

Submitter Signature: B. Stickney Date: 10/23/95

Department Approval

Every proposal must be reviewed by the appropriate Department Head. This is done to insure that the departments are well informed, and have the opportunity to voice their opinion about proposals being presented to the WEEF Funding Council.

The following section is to be completed by the appropriate Department Head.

Name: Dr. J. Roorda
Position: Chair, Civil Engineering
Phone: Ext. 2672

Proposal approved: Roorda Dated: Oct 23/95
J. Roorda

If this proposal has not been approved, please indicate the reasons below:

WEEF Proposal Form
Fall 1995
DEPARTMENT OF CIVIL ENGINEERING

Proposal Title: Portable pH/Ion Meter

Submitted by: Bruce Stickney **Phone Number:** 2908

Position: Technologist, Water Resources /Environmental Engineering **Date of Submission:** 95.10.22

Description of Proposal: This is a portable unit which makes it ideal for pH measurements in the field. The unit also allows for the use of an Ion Selective Electrode making it a dual function meter (tracer studies). The meter is also capable of datalogging 50 pts at time intervals.

Benefits of the Proposal: Students in Civ.E. 375 (Water Quality Engineering) would use this in several Water Quality labs (approx. 150 students p.a.). Also students in Civ.E. 126 (Civil Engineering Concepts) and Civ.E. 472 (Wastewater Treatment) (approx. 150 p.a.) will use the meters for laboratory and project use.

Cost Breakdown of Proposal: $850.

Implementation Schedule: Immediately.

Would partial funding to the cost estimate provided above be acceptable? YES

Submitter Signature: Bruce Stickney Date: 10/23/95

B. Stickney

Department Approval

Every proposal must be reviewed by the appropriate Department Head. This is done to insure that the departments are well informed, and have the opportunity to voice their opinion about proposals being presented to the WEEF Funding Council.

The following section is to be completed by the appropriate Department Head.

Name: Dr. J. Roorda
Position: Chair, Civil Engineering
Phone: Ext. 2672

Proposal approved: Roorda Dated: Oct. 23/95

J. Roorda

If this proposal has not been approved, please indicate the reasons below:

WEEF Proposals Fall 1995

from
Electrical and Computer Engineering Department

The individual proposals have been looked at by the department and the department chair. The proposals presented below have been assessed as worthwhile, assigned a priority, and summarized for your convenience.

Priority	Project	Price
1	Upgrade of Machines Lab	6,870. *
1	Spectrum Analyzer Plug-In	2,018.
2	Digital Multimeters	1,600. *
3	Upgrade of 1st & 2nd Year Circuit Lab	6,975. *
4	Autobode System	5,135.
5	Laser Printer for Third Floor Undergrad Labs	7,250.

Note:
* - Partial funding possible, see actual proposal.

WEEF Proposal Form

Fall 1995

Proposal Title: UPGRADE OF MACHINES LAB

Submitted by: Claudio Canizares Phone number: Ext. 5355

On Campus Address (if available): DC-2733, E&CE Dept.

Description of Proposal:
Introduce digital simulation and measurement in the machines lab, to improve the lab and bring it up to date. These labs have changed very little in the last decade or so, and it is about time to start making some significant changes for the benefit of the students.

Benefits of the Proposal (including number of students and department(s) affected):
This will benefit about 500 students attending ME-269, E&CE 261 and E&CE 362, from the E&CE and Mechanical Engineering Departments. The full proposal has support from the Mechanical Engineering Faculty and students from both departments.

Cost Breakdown of Proposal (please include partial funding option if desired):
The proposed equipment is an integral part of a complete update of the lab as seen in the attached proposal. We are asking for 3 PC's with PENTIUM, SVGA, Keyboard, 8MB RAM, 530MB HD & CD, plus token-ring cards to connect to WAT START for a total of $6,870. ($2,290 each).

Implementation Schedule for Project:
These PC's will be used starting January 1996 to add computer simulations to the current labs.

Additional Information:
The complete proposal is attached. So far we have received support from the Engineering faculty ($14,000 from ADF), and the E&CE Dept. ($2,000.), and expect to continue with the help of WEEF.

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: Spectrum Analyzer Plug-In

Submitted by: Ed Spike Phone number: x 3716

On Campus Address (if available): E2-3357

Description of Proposal:
The mainframe exists & can be shared with other existing plug-ins
This plug-in will complement the existing mainframe to allow for a wide frequency spectrum to be view for project and cookbook lab experiments. Also more meaningful demonstrations for the 3B course E&CE 318.

Benefits of the Proposal (including number of students and department(s) affected):
Demonstrations for 3B (180 students) & experiments for E&CE 473, 474 (40 students)
Allows coverage of microstrip device used above 1GHz.
Microstrip technology is employed above 1GHz.

Cost Breakdown of Proposal (please include partial funding option if desired):

HP-8555A RF Spectrum Analyzer Plug-In

Plug In from surplus market with taxes approx $2,018.00

Implementation Schedule for Project:
Scheduled for use January 1996.

Additional Information:
Computer interfacing equipment can be shared with existing test equipment

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: DIGITAL MULTIMETERS

Submitted by: PAUL HAYES Phone number: 3969

On Campus Address (if available): E2- 3345

Description of Proposal:

DIGITAL MULTIMETERS FOR THE ELECTRONICS LAB E2-3347

Benefits of the Proposal (including number of students and department(s) affected):

THE COURSES THAT WILL USE THESE LAB METERS ARE ECE 231 (220 students/yr), ECE 332 (220 students/yr) ECE 438 (80 students/yr) ECE 439 (70 students/yr). THIS WILL ADD TO THE OTHER METERS OF THE SAME TYPE TO HAVE A STANDARD DMM IN THE LAB, FOR EASE OF USE BY THE STUDENTS

Cost Breakdown of Proposal (please include partial funding option if desired):

TWO HAMEG (INSTRUMENTS) DIGITAL MULTIMETERS

2 X HM 8011-3 (DMM) = $1600

Implementation Schedule for Project:

AS SOON AS POSSIBLE - ONE MONTH

Additional Information:

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: Upgrade of the 1st, 2nd year circuits lab

Submitted by: Eric Praetzel Phone number: ext. 5249

On Campus Address (if available): E2-3343

Description of Proposal.

- upgrade and replace failing equipment on the 38 benches of E2-3344 (purchased 1977)

Benefits of the Proposal (including number of students and department(s) affected):

- replace ~~equip~~ old (>15 years) equipment that is failing
- all E&CE students use this lab. for one course in first year and one in second year ≈ 250 students per year in E&CE 100, E&CE 241

Cost Breakdown of Proposal (please include partial funding option if desired):

Kenwood signal generators $480 each x5 = $2400
Kenwood 4125 oscilloscope $915 each x5 = $4575
} Total $6975

Funding a larger or smaller number of units is acceptable

Implementation Schedule for Project:

items placed in lab. when recieved (2→3 weeks)

Additional Information:

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: Additional "AutoBode" system

Submitted by: William Ott Phone number: 6134

On Campus Address (if available): E2-3349

Description of Proposal:
Build additional autobode system to enable ECE-380 students to obtain automated bode plots (frequency response) of electronic circuits under test. At present five systems are shared by twelve work stations. With the double 3B stream at present, there is a backlog waiting for the systems.

Benefits of the Proposal (including number of students and department(s) affected):
Additional autobode system will decrease the waiting time for them during lab periods.

Cost Breakdown of Proposal (please include partial funding option if desired):

1	HP-3557A Gain Phase Meter (used)	3700.00 + tax
1	PR-9102 Raven Printer	186.00 + tax
1	DAS-08 A/D computer card	269.00 + tax
1	cart	250.00 + tax
1	"IBM-XT from "spare"	NIL
1	sine card	250.00 + tax
	Total	$5135.00 (including tax)

Implementation Schedule for Project:
Should be in place by January 1996.

Additional Information:
We expect that the above will sustain the lab for at ~~long time~~ least ten years.

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: Laser Printer for third floor Undergrad Labs.

Submitted by: Ed Spike Phone number: x 3716

On Campus Address (if available): E2-7357

Description of Proposal:
The increased use of the rooms E2-3339, E2-3342, E2-3341 and some portable computer equipment requires more use of the second floor printer.
The printer can be located at a central position on the third floor of Eng II.
Laser Jet LJ-IV MX 10 MB, 17 ppm, 600 dpi, Postscript

Benefits of the Proposal (including number of students and department(s) affected):
Students and staff will save time by not having to run up and down between floors. Laboratory work will progress faster.
Printer problems can be better serviced by the third floor staff.

Cost Breakdown of Proposal (please include partial funding option if desired):
LJ-IV-STMX Hewlett-Packard Laserjet Series 4 Si MX $6303.00
This would also complement the second floor Plus Taxes 947.00
laser printer due to failure and etc. $7250
The LJ-IVSI or MX models would require costly options.

Implementation Schedule for Project:
Scheduled for January 1996

Additional Information:
Contact Mr. Roger Sanderson x6184

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

University of Waterloo

Office of the Associate Dean
Undergraduate Studies
Faculty of Engineering

Waterloo, Ontario, Canada
N2L 3G1

519/888-4761
Telex 069-55259
Fax 519/725-9970

Memorandum

To: Waterloo Engineering Endowment Foundation
c/o Engineering Society

From: G.E. Schneider
Associate Dean of Engineering, Undergraduate Studies
Chair, Environmental Engineering Board

Date: November 2, 1995

Subject: Proposal to WEEF for the Fall 1995 competition - Environmental Engineering

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The Environmental Engineering programs (Chemical and Civil branches) are new programs with classes currently progressing through their studies. We have students currently in 1A on campus and students returning to their 2A term in the Winter of 1996. In order to mount these new programs, funds are required for the purchase of laboratory equipment which is not available from existing sources. Both the Civil and Chemical branch Environmental Engineering programs will use this equipment in a laboratory-intensive course, ENV E 330 - Lab Analysis and Field Sampling Techniques (Civil branch), and ENV E 331 - Instrumentation and Analysis methods (Chemical branch). There is a strong element of commonality between these two courses.

The equipment requirements have been prioritized into a high priority "A" list, and a lower priority "B" list; the A list is attached to this proposal and totals $247,000 while the B list, not attached, totals $207,000. The A list is a list of equipment deemed absolutely necessary to mount the program and its associated laboratory experiments.

The Faculty has been actively attempting to collect the necessary funds. To date, we have accumulated $210,000, leaving a shortfall of $37,000 for the A list equipment. The sources of funds collected thus far is presented below:

Chemical Engineering Department	$25,000
Civil Engineering Department	$25,000
Dean of Engineering	$58,613
Allocated Donations from Parents	$60,000
Academic Development Fund	$16,387
Teaching Equipment Fund	$25,000
Total	$210,000

The support of the Environmental Engineering program initiative, I believe, is an excellent project to be supported by WEEF: it is a new initiative; it and its graduates are needed by society; through both branches, both the treatment of environmental problems and their prevention is addressed; the request is of a capital equipment nature for which the equipment will be used extensively into the future; and the request is of a 'one off' nature, in the spirit of *establishing* the program.

I appreciate your consideration of this request and would appreciate any contributions you might be able to make to the remaining $37,000 required to complete the funding of the list A equipment.

If you have any questions concerning this request, please do not hesitate to contact me.

G.E. Schneider
Associate Dean of Engineering
Undergraduate Studies
GES:1142

Environmental Engineering
Equipment List

Item		Cost
ICP Plasma Emission Analyzer (this item was added back on to the list)		$ 75,000
Hach water quality analyzer (3 @ $5,000)		$ 15,000
Total Organic Carbon Analyzer (It was suggested that this item be given priority over the T.O.X. at this time)		$ 35,000
Gas Chromatograph (FID and ECD detectors)		$ 35,000
UV Visible Spectrometer		$ 20,000
	Sub-total	$180,000
Other small items		$ 52,000
EnvE 275 requirements		$ 15,000
	Total	**$247,000**

WEEF FUNDING PROPOSAL FORM

Submitter Information:

Name: *Professor W. Wilson, Engineering Computing*
Phone Number: *885-1211 Ext: 4601*
E-mail Address: *wwilson@watcong.uwaterloo.ca*
Position (ie student, professor): *Associate Dean for Computing*

Proposal Information:

Title: *Install 14 17" monitors in EL 108*
Date: *October 21, 1995*
Type (AE&R or non-AE&R): *A E & R (Academic, Equipment & Resources)*

Description (use the back of this page or additional paper if more space is required):

The PC computers in El 108 (Helix) are old and outdated. Engineering Computing is spending $69,000 to upgrade the 28 386 computers in EL 108 and 16 computers in E2 1302. This money covers the cost of the computers but not the monitors. We are requesting the assistance of WEEF in the purchase of 28 high quality 17" monitors to make this room a first class teaching and general student computing facility. The request is in two stages: 14 17" monitors from WEEF funds this term and 14 from the WEEF funds in the Winter term.

- *14 17" (SVGA) monitors for the Pentium work stations in EL 108.*

Estimated Cost of proposal (please itemize where possible):

Quantity	*Description*	*Unit Price*	*Total Cost*
14	*17" : monitors (DC 619 SVGA) for EL 108*	*$930*	*$13,020*
	TAX		*$1,341*
	TOTAL COST		*$14,361*

Would partial funding to the cost estimate provided above be acceptable? (Y or N) YES

Please list the potential beneflaicries of this proposal (cite courses if applicable, access and availability of the proposed purchases, etc):

- *the EL108 lab is to be upgraded to Pentium machines during the Fall '95.*
- *it is one of the most heavily used PC labs in Engineering and is in constant demand by the students (see bookings in Appendix A)*
- *all undergraduate students using high powered machines for design , analysis, modelling systems will benefit from the use of the Pentiums and the 17" screens*
- *development of course work accessible to all students in Engineering via the Internet will be enhanced using these monitors*
- *high powered CAD and Solid Modelling software which will run on the Pentiums would need the larger monitors for display purposes*
- *graphics illustrations and 3D designs will place heavy demands on the average display system*
- *17" monitors support 1024 x 768 pixels necessary for the many GUI applications*
- *multimedia applications which are becoming commonplace will demand the use of 17" monitors*

Thank you for your proposal. Please submit the **original** copy to the Endowment Director.

Submitter Signature: 
Date: Oct 24/95

Department Approval

Every proposal must be reviewed by the appropriate Department Head. This is done to ensure that the departments are well informedand have the opportunity to voice their opinion about proposals being presented to the WEEF Funding Council. If you are unsure who the appropriate Departmental Head is for yopur proposal, please contact the Endowment Director.

The following section is to be completed by the appropriate Department Head.

Name: *Prof. W. Wilson*
Position: *Associate Dean for Computing*
Phone Ext:: *885-1211 Ext: 4601*

I **DO**/**DO NOT** (circle one) approve of the above proposal.

If this proposal has not been approved, please indicate the reasons below:

Department Head Signature: 
Date: Oct 24/95

WEEF Proposal Form

Fall 1995

Proposal Title: Ultrasonic Cleaner

Submitted by: Dr. D.C. Weckman Phone number: 888-4567 ext. 2861

On Campus Address (if available): Mech. Eng., E2

Description of Proposal:

This is a proposal for purchase of a **replacement for an utralsonic bath cleaner in the materials lab in Mechanical Engineering which has failed and is no longer serviceable.** This unit is used extensively in preparation of metallurgical specimens for cleaning in various solvents.

Benefits of the Proposal (including number of students and department(s) affected):

This unit is used in many undergraduate courses in fourth year mechanical engineering which involve preparation of metallurgical specimens during labs and projects. It is also used for general purpose cleaning of parts for student projects in soap solutions or other degreasing solutions. It will generally benefit all upper year mechanical engineering students.

Cost Breakdown of Proposal (please include partial funding option if desired):

1 - Branson Ultrasonic Cleaner from CANLAB #5210-MTH
Catalog # CA70360-022 $1,441.28

Implementation Schedule for Project:

3 day delivery upon ordering.

Additional Information:

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: MODIFICATIONS TO ROOM E1-2536

Submitted by: R. Pick Phone number: X 3427

On Campus Address (if available): MECHANICAL ENGINEERING

Description of Proposal:

We are planning to improve room E1-2536, a dedicated classroom for Mechanical Engineering, with an audio visual system similar to the Graphics Lab. This would allow the presentation of overheads, video, computer generated output, cable, etc, while retaining the room as a good blackboard lecture facility.

Benefits of the Proposal (including number of students and department(s) affected):

The room would be dedicated to our 2A and 2B classes. It would be available to other departments for courses requiring these visual presentation method, eg. System Design has expressed interest in using it to demonstrate simulation software.

Cost Breakdown of Proposal (please include partial funding option if desired):

The total cost is $70,000. We have raised $4,500 from WEEF (Summer 95) $ 25,000 from the Academic Development Fund, $ 10,000 from Department funds. We have applied to various sources for the remaining funds. We request $5,000 from this WEEF competition.

Implementation Schedule for Project:

We would like to begin the conversion in December 1995. We would hope to complete the project in May, 1996.

Additional Information:

If we are unable to raise $70,000, we can still proceed by using a projection system. While not as desirable as individual monitors (a la graphics lab), it will reduce the cost to approximately $ 45,000.

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: FAST WATSTAR NETWORK

Submitted by: M. Kaptein Phone number: 3026

On Campus Address (if available): E3, 2114

Description of Proposal:

The watstar interconnectivity is based on a 8 bit, 10 Mbps (Megabyte per second) proteon token ring concept. The network has a great deal of difficulty processing windows based software. A solution is to provide 32 bit present day technology in the form of a fast ethernet hub system with improved disk caching techniques.

Benefits of the Proposal (including number of students and department(s) affected):

All students in all streams.

Cost Breakdown of Proposal (please include partial funding option if desired):

(2) 10/100 token ring sub hub concentrators plus 10/100 pci 32 bit ethernet cards, pci boards and swapspace harddisk and wiring plus connectors for the two undergraduate watstar rooms $ 11,800.00.

Implementation Schedule for Project:

as soon as possible

Additional Information:

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: National & North American Debating Championships

Submitted by: Rod Cave Phone number: 725 0067

On Campus Address (if available): Engineering Society · Engineering Communication

Description of Proposal:
Funds to subsidize the participation of engineers at the Canadian and North American Championships for Debating & Public Speaking in the winter term

Benefits of the Proposal (including number of students and department(s) affected):
- students achieve experience with the related communications skills; lack of formal teaching as part of most curriculums mitigated
- recognition for faculty as actively working to address this
- long term goal for people beginning to work on their communication skills

Cost Breakdown of Proposal (please include partial funding option if desired):
$100 per team per tournament as registration fee. teams
National Championship in Ottawa ×2
North American " in Toronto ×3 [illegible]

(does not include transportation, etc.) - $500

Implementation Schedule for Project:
based on interest & performance at SFF, DEC etc (or other debating & public speaking events) allocate subsidy through Engineering Communication directorship

Additional Information:
very few engineers participate on the university debating circuit. I think this is because of a lack of funding & precedent [illegible] this proposal could address

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: FORMULA SAE - FLOWBENCH

Submitted by: TODD MALLOY Phone number: x5904

On Campus Address (if available): E3 2107

Description of Proposal:

FORMULA SAE IS AN ANNUAL DESIGN COMPETITION CONTESTED BY 85 UNIVERSITIES FROM AROUND THE WORLD. WATERLOO HAS COMPETED SINCE 1987 & HAS DONE AS WELL AS FOURTH OVERALL. THE 1996 UW TEAM IS THE LARGEST, MOST ORGANIZED TEAM YET. THE TWO AREAS REQUIRING IMPROVEMENT FOR '96 ARE ENGINE POWER & SUSPENSION EFFECTIVENESS. THIS PROPOSAL WOULD ALLOW WATERLOO TO BE TOP OF THE FIELD IN BOTH AREAS.

Benefits of the Proposal (including number of students and department(s) affected):

THE FLOWBENCH IS AN INSTRUMENT FOR EVALUATING ENGINE AIR FLOW EFFICIENCY. IT WOULD ALSO BE APPLICABLE FOR SOME ME 569 PROJECTS & ANY STUDENT DOING THEIR OWN ENGINE WORK. PROPER RACING SHOCKS ARE LONG OVERDUE FOR THE FSAE CAR. THEY WILL CERTAINLY BE USED FOR MANY YEARS.

Cost Breakdown of Proposal (please include partial funding option if desired):

SUPERFLOW SF 110 FLOWBENCH	$ 1935.- (US)
EXCHANGE	774.-
4 CARRERA RACING SHOCKS	308.- (US)
EXCHANGE	123.20
TOTAL	$ 3 140.20

Implementation Schedule for Project:

FLOWBENCH & SHOCKS ARE IN STOCK & CAN BE DELIVERED IMMEDIATELY. THE FLOWBENCH IS REQUIRED ASAP.

Additional Information:

THE '96 UW FSAE TEAM CONSISTS OF OVER 30 STUDENTS FROM BOTH STREAMS FROM 1ST TO 4TH YEAR, IN MECHANICAL, ELECTRICAL, & SYSTEMS DESIGN ENGINEERING.

Please submit to the WEEF mailbox in the Orifice by Monday October 23.

WEEF Proposal Form

Fall 1995

Proposal Title: Concrete Toboggan "B", Sharctic Toboggan

Submitted by: Chris Weech / Greg Carli (4A Civil) Phone number: Extension 5122

On Campus Address 4th Year Civil Study Room, E2 1301

Description of Proposal:

The Great Northern Concrete Toboggan Race is an annual design competition involving major universities from across Canada, the United States and Europe. The objective of the competition is to design and construct a toboggan with a concrete running surface, braking and safety system, and capacity for five riders. Entries are judged based on technical presentation, concrete design, braking system design and efficiency, time to complete the course, fastest speed, and team spirit.

Benefits of the Proposal:

The Great Northern Concrete Toboggan Race allows Civil Engineering students to apply many of the concepts developed through the Civil Engineering curriculum. In recent years, U of W has been represented effectively and the competition strengthens U of W Engineering's status and reputation. Traditionally, U of W has entered two toboggans, one from each of the 4th year Civil Engineering streams. The project involves approximately 20-30 fourth year civil students (B society).

Cost Breakdown of Proposal:

A detailed budget for the Sharctic Toboggan is included. The following is the portion we are requesting form WEEF:

Entry Fee:	$1,500
Construction:	$ 750
Toboggan Transportation	$ 250
Total	$2,500

Any partial funding options would also be a benefit to the Sharctic Toboggan.

Implementation Schedule for Project:

The race is being held in Winnipeg from February 8-11, 1995. Design and construction is currently underway and any funds for the construction will be used by January of 1995.

Additional Information:

This year, U of W are the defending champions, having placed first overall at last year's event in Montreal. In the past, the concrete toboggan has been fortunate to receive funding form the Federation of Students However, due to cut backs they may not be able to provide us with significant funds this year. To compensate for this shortfall, we are requesting more from WEEF than we have in years past. It should also be noted that WEEF is only one of our sources of fundraising. Weekly BBQ's, corporate donations, the Engineering Society and personal contributions make up the remaining budget.

SHARCTIC TOBOGGAN BUDGET

Great Northern Concrete Toboggan Race 1996
University of Waterloo Entry

Basic Competition Requirements:

Entry Fee	$1,500
Construction Materials	$750
Toboggan Transportation	$250
Travel (6 @ $265)	$1,590
Accommodation	$360
Uniforms (6@$50)	$300
Promotion	$250
Miscellaneous	$100
TOTAL	**$5,100**

Remaining for Full Team:

Travel (14 @ $265)	$3,710
Accommodation	$840
Uniforms (14@ $50)	$700
TOTAL	**$5,250**

Total Project Budget: **$10,350**

Note: Sharctic Toboggan is seeking funding for only the basic requirements of the Great Northern Concrete Toboggan Race. Costs to send a full team will be funded through personal contributions, weekly BBQ revenues and some corporate donations.

W E E F Proposal Form

Winter 1995

Proposal Title: Midnight Sun Solar Race Car Project
Submitted by: Dr. G. Savage, Dave Walsh, **Phone Number:** x2234
Position (Student, Professor, Organization, etc.): Student Project

Description of Proposal:

The Midnight Sun Project is an ongoing project dedicated to educating the public on the environment, alternative energy sources, mathematics, science, and engineering. It is through this education and through SUNRAYCE, that the University of Waterloo will ultimately succeed in solar car design.

The purpose of the Midnight Sun Project is to enable undergraduates, graduates, staff, and faculty to work on a large scale project. From the criteria and constraints established, the team must then develop designs that could satisfy these limitations. Ultimately, the proposed designs must be critiqued and a final optimal design chosen. SUNRAYCE allows for all these stages to be explored. The final design will then be compared to other universitys' in the SUNRAYCE competition to determine the best overall design and team.

Benefits of the Proposal (including number and department(s) of students affected) :

In order to promote both SUNRAYCE and the Midnight Sun, the project team has performed lectures, talks, and demonstrations to the community and local educational system. As well, Midnight Sun has been in the media, local, national, and international, in both print and electronic form. Promoting education, engineering, and the environment is a strong concern for the project, thus making Midnight Sun the ambassadors of engineering more often than any other engineering project.

Within the project team, members can receive academic credit for conducting research, design, and construction of the vehicle. These project courses are Mech 482, Elec 499, SyDe 362, 461, & 462, as well as independent projects through General Engineering. To this date, there have been approximately 40 project courses spanning Engineering and Physics, as well as over **120** students involved at different levels of the project.

The benefit to engineering of a project this size is the fact that it is multi- disciplinary. Engineers from all areas have been involved in the project. In fact, the project should be called a University of Waterloo Project based in Engineering. With this scope, engineering begins to integrate into society.

Cost Breakdown of Proposal (including partial funding options if desired):

The Midnight Sun Team is requesting WEEF to assist in the purchase of the following.

Replacement and procurement of tools for building, modifying and testing solar car.	$1000
Painting and customizing of trailer.	$2000

These items would be used in the present project and would benefit future project.
The Midnight Sun Project would accept partial funding for the above items.

Implementation Schedule for Project:

The Midnight Sun Project is an on-going project that will be completing a strenuous testing schedule this term and will be starting designs for SUNRAYCE 97 in the new year. The workshops are a continuing aspect to the project enabling students to work in the field of their interest.

MEMORANDUM.

To: Members of the Board of Directors the
"Waterloo Engineering Endowment Fund".

From: Guenther Metzker, Lab Director.
Department of Systems Design.

Cc: Prof. K. W. Hipel, Chair, Dept of Systems Design.

Subject: Project proposal for consideration by WEEF, Fall 95 academic term.

Please find attached a proposals with addendum from the Department of Systems Design for your kind consideration.

This proposal is intended to improve the quality of teaching and specifically the "Undergraduate teaching laboratory" in Systems Design. The laboratory equipment preference within this proposals was arrived at in discussions with student representatives, faculty members, the Chair and Associate Chair.

Sincerely,

G.Metzker.

W E E F Proposal Form
Fall 1995

Proposal Title. Improvements of the Dept. of Systems Design teaching Laboratories.

Submitted by: G. Metzker (representant of Systems Design). Phone Number: 5760

Position (Student, Professor, Organization, etc.): Staff, Date of Submission: Oct, 27,1995

Description of Proposal: (2 Items)

The Dept. of Systems Design is continuing to update and enhance the teaching Laboratory and its various components as the relate to the specific laboratory components.

SYDE 192, Digital Logic:
SYDE 292, Analog Signals and Systems:
SYDE 351, Control Systems

For the Signals and Systems Laboratory constituent we will be purchasing Data Acquisition, Signal Conditioning and Interface modules.
We are also upgrading the computing resources for the "Workstations" (see Addendum) and have received a personal gift from one of our Systems Design Engineering graduate, (Year of 1984) towards this goal. We are in need of additional funds to fully furnish all eight (8) Workstations and are hereby asking for the funding of one Workstation Platform.

Benefits of the Proposal (including number and department [s] of students affected) :

The requested equipment will be used in the Systems Design undergraduate Laboratory for all SYDE lab courses and workshops. (SYDE 192, SYDE 292, SYDE 161, SYDE 361, SYDE 461, 462,)

Cost Breakdown of Proposal (including partial funding options if desired):

1.) Power PC Platform with data acquisition and networking capabilities,
Can. $ 4281.00

2.) Power back-up supply for the Watstar file Server,
APU - 1250, 1KW power rating. Can. $ 845.00

Partial funding for all requested equipment is also acceptable.

Implementation Schedule for Project:

If funds are approved, some or all of these components should beput in place during the Winter term.

Department of Systems Design Engineering
Teaching laboratory
Laboratory Infrastructure, (Workstation).

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The Department of Systems Design Engineering uses a common "Workstation" concept for all three undergraduate laboratories courses, which are part of the core curriculum; (SD192 - Digital Logic; SD292 - Signals and Systems; and SD352 - Control Systems).
"A workstation encompasses all the various electronic instruments, a computer workstation and the relevant experimental apparatus and components".

These workstations and the associated peripherals form the backbone for the three laboratory courses. The represent a major part of the hands-on learning experience and are designed to stimulate learning by first hand experience for our undergraduate students.
There are eight (8) workstations which can accommodate up to a maximum of 96 students each term and laboratory sessions are run five days a week (one day is normally used to accommodate holidays or lecture conflicts and make-up time).

These workstations were originally assembled in 1978 and have been upgraded, expanded and new experiments integrated into the course contents on a continuing basis.
A prime example are the new experiments described below, for which WEEF has generously contributed in the previous term.
"New experiments for the fall term,(SD 292)."
The new experiments to be integrated into the course contents this term consist of EPAC (Electrically Programmable Analog Circuit) elements, electro-mechanical and electrical transducers and the appropriate software.(Windows based)
These new experiments embody the concepts of analog multiplexing; amplification; signal conditioning; sampling and filtering using the new EPAC devices.

In late 1989 the department purchased NeXT computers for the laboratory workstation. Although these workstation have performed venerable and are well received by our students, a lack of suitably interfaces as well as software has made these workstation arduous to use. Maintenance and spare parts have also become a problem with NeXT platforms. These workstation are now into their 6th year.
With the advent of windows operating systems , ie (Microsoft Windows) and a proliferation of more suitable application software specifically for laboratories and teaching, ie (EPAC), we find it now necessary to implement new computer platforms.
Since major upgrading of hardware is only possible ever five to seven years, the selection of up to date components is ever so critical.

The improvement in the quality of the laboratory activities is a longer-term commitment by the Department of Systems Design.