

DEAN'S OFFICE
UNIVERSITY OF UTAH
COLLEGE OF ENGINEERING

MEMORANDUM

TO: Distribution

DATE: 23 May 1983

FROM: Noel de Nevers

SUBJECT: Dean's Search

All of you have been interviewed by our Committee as potential candidates for the Dean's position. The committee has decided to expand the list of interviewees and invited Professors Boyd, DeVries, Durney and Jacobsen to be interviewed as well. This decision was made before any of you had been interviewed and reflects our decision that a wider list of candidates should be interviewed before we make our recommendation.

I am sending you this memo so that you will not be surprised if you hear this from others.

cc. Dean's Search Committee Members

Distribution:

✓ J. D. Andrade
G. J. Dvorak
R. W. Grow
H. R. Jacobs
J. D. Seader
R. E. Stephenson

10 May 1983

TO: ✓ J. D. Andrade
G. J. Dvorak
R. W. Grow
H. R. Jacobs
J. D. Seader
R. E. Stephenson

FROM: Noel de Nevers *nde 7*



SUBJECT: Dean's Search

The College of Engineering Dean's Search Committee hereby invites each of you to be interviewed as a potential nominee for the position of Dean of the College of Engineering. Accepting our invitation to be interviewed does not indicate that you are an avowed candidate for the position, nor that you have agreed to accept it if offered. Our assignment from the Academic Vice President makes it clear that we should present a list of two or three candidates, whom we consider the best qualified persons in the College to hold that position, irrespective of whether or not those persons wish the position or have agreed to accept it.

We hope you will accept our invitation to be interviewed. We are attempting to set up a suitable schedule. Marvel will contact you soon to try to assign a suitable time. We expect that each interview will take about 1/2 hour.


Copies of your vita, from the Deans' Office files, will be distributed to each of the committee members before the interview. If you wish to prepare additional information for each of the committee members to review before the interview, please do so; Marvel will copy and distribute it.

We plan to begin each interview by asking the interviewee the following questions:

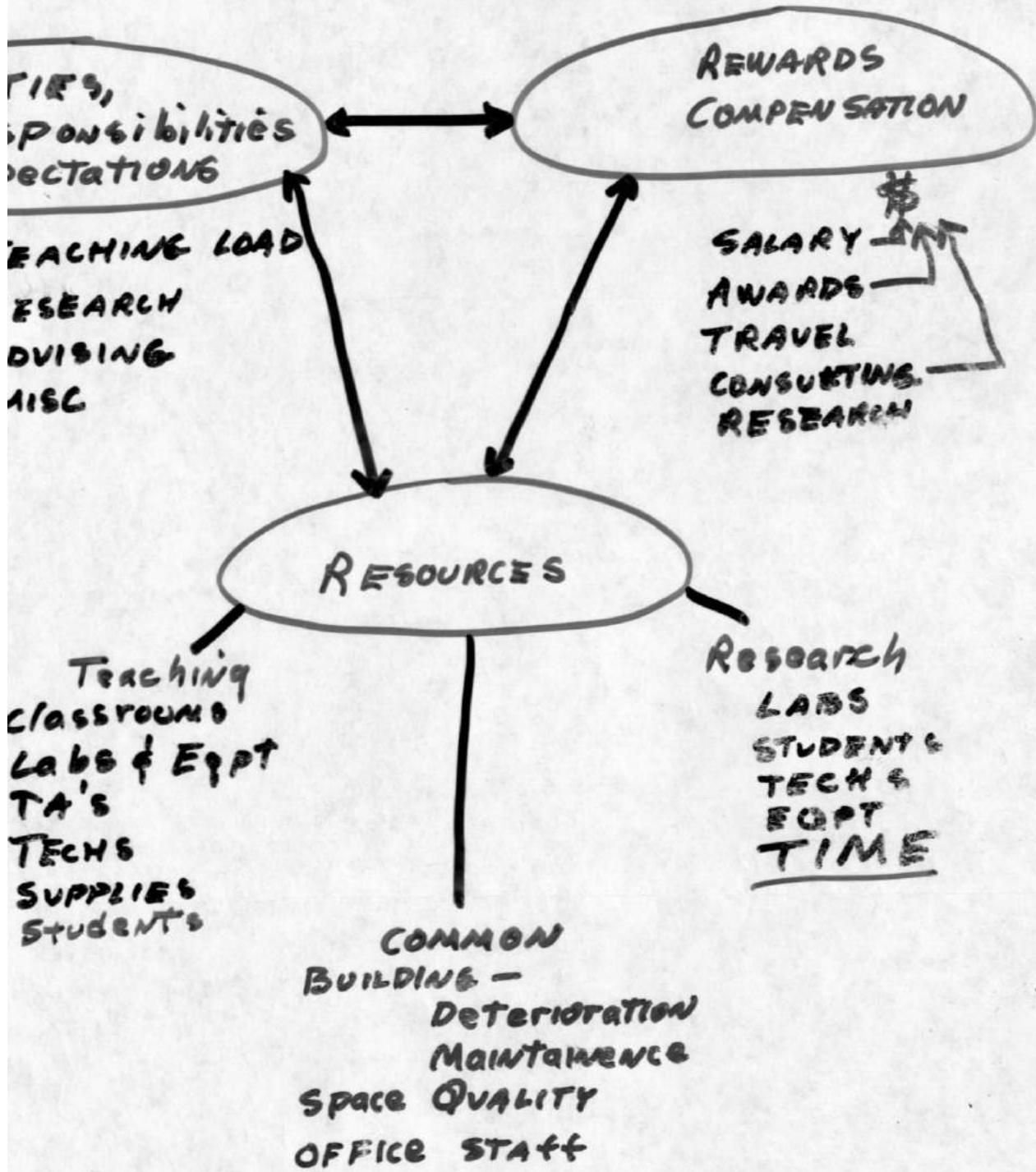
1. What would be your top agenda item for the College of Engineering for the next five years? } Morale 
2. How would you go about attempting to accomplish it?
3. What would your second agenda item be? } Future / Goals / Priorities / Long range
4. What is your view of the relative roles of teaching and research in the College of Engineering in the next five years? }  name

After we hear the interviewee's answers to these questions, we will ask whatever other questions seem suitable.

cc. Committee members

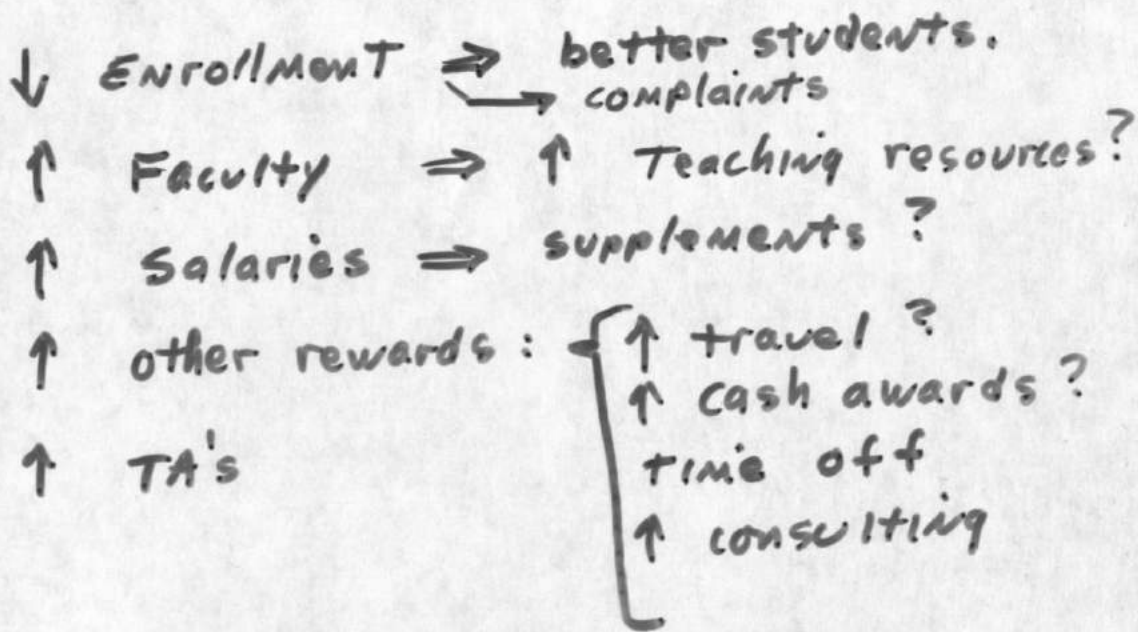


MORALE/ EXCELLENCE



2.

PARTIAL SOLUTIONS



Salary Sources:

PARK Bldg - campus comparisons?
Legislative Supplement
Overhead Kickback
Corporate Supplements
Gov't "
Foundation "
Private Gifts

3. What does the
College want to be in 5 yrs?

Dept 3 4 5 year plans

Interdept Programs

Technologies:

Fundamentals

Applications

Well known — 'old'

known — 'now'

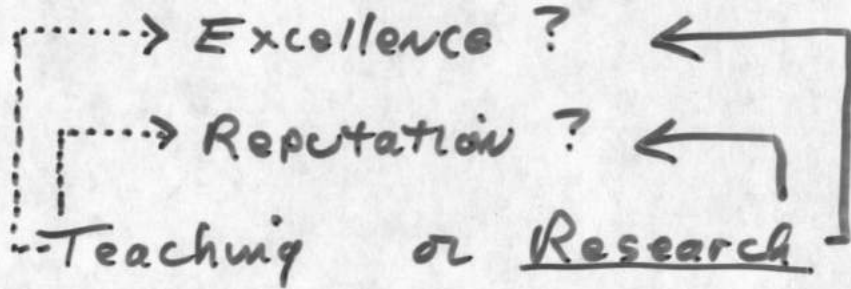
Poorly known — 'near
future'

"UNKNOWN" — far
future

Teach future technologies &
Applications?

4.

Teaching / Research

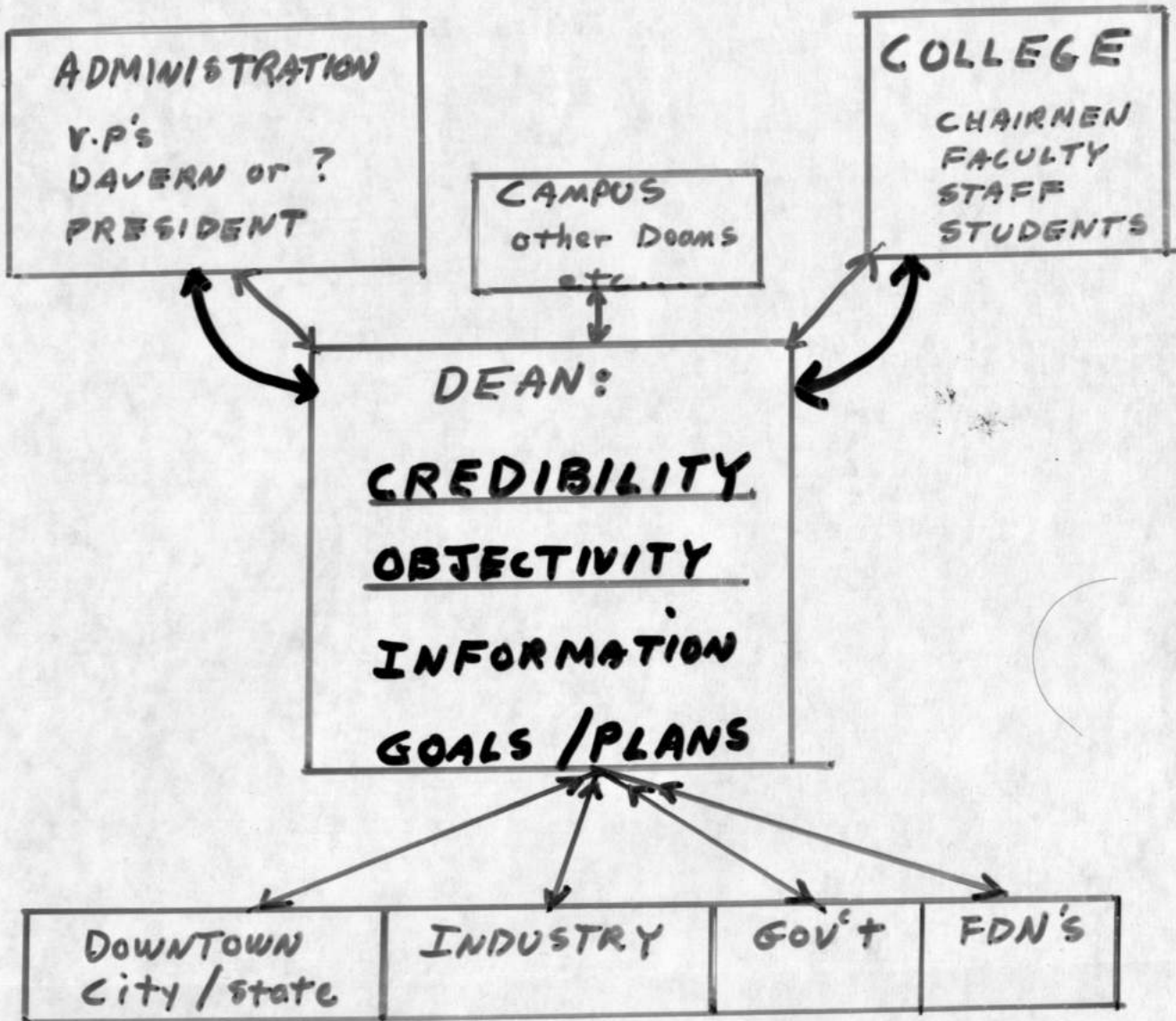


- College must be strong in research in all Dept's.
- MOST faculty should be involved in good research.

↑ Teaching → ↓ Research
↓ " → ↑ "

Each individual has an optimum balance

BUT ALL MUST TEACH



DEAN Must Effectively Represent College

MUST be CREDIBLE
 OBJECTIVE
 INFORMED
 PERSUASIVE

①

②

Methods

1. Top agenda item

↓ teach load

↓↓ student enrollment

↑ faculty

↑ rewards

→ salary \$

→ cash Awards/Recognition

→ consulting
→ travel

→ ↑ t ⇒ ↑ research.

③

2. Item # 2

Improved resources

not new bldgs -
remodeling
office staff
tech staff
eqpt -

better resp \$
bigger piece of pie
corporate \$
Dev \$

④

teaching

research

BALANCE

excellence

nat'l/int reputation ⇒
\$ attraction -
stud attraction
PR etc.....

emphasize res & teaching?
teaching only slots?
maintain teach loads?

?

Work / Duties

1. How ↓ teaching load
More faculty / TA's
less students

More faculty means \$ → ^{new} position, not existing positions

less students → better quality in U.D. classes
↳ problems with using in LD
where do extra students go? cleaner

Weber - Utah Tech

complain → legis → more \$

Adv: better students → excellence

complaints ⇒ more muscle for new \$

2. Research: success of resources - mainly ↓ teach load.

Rewards

Salary \$ — convince admin more \$ needed
contrast w/ Coll of Sci?

- a) U of U.
- b) Legislative supp
- c) Overhead kickback? Dean's Office Proposals / Fund.
- d) Dev. Funds → Corporate
→ Funds
→ Govt?

Research
TIME
Seed Money
Labs
Grad students

<u>Awards</u>	Teaching Research	} # Awards	Salary suppl.
<u>Recognition</u>			(local) — gifts
<u>Consulting</u> (↑ time?)			(national) — in res. & travel, misc buy books/computer
			— Chairman & Dean

Teaching

ns - new bldg ?

bs - remodeling ?

- salary offices

uni - salary offices

staff

Research

Decent Research Labs
Grad Stud. Offices.

Res Eqt

Res Technicians



General

↓ stud pop n ⇒ ↓ bldg are & ↓ detent.

↑ maintain

↑ sanitat services

Quality - air handling etc =

office staff secretarial

Fac office

College of Eng'g
Internal Issues

1. Admin Organizⁿ & Policies

Assoc. Deans.
Admin Asst - office staff
Brian — - Accounting
Other. — Conf. Rms — all of them.
Xerox machines

2. Space - inventory of present use.

~~2~~ College-wide facilities?
dark rooms
machine shops
electronic shops
Other

3. Budgets - inventory of present alloc.

Estimate of needs & costs given enrollment
Limit considerations - both UG & Grad.

Reallocation :

Position ?
Budgets ?
Staff ?

4. Course streamlining

Joint offerings ? / teaching labs ?
Joint faculty

5. Research Resources

college wide facilities - IR
existing - ESCA
New ?

Maintenance / Air handl - computer - common maint contracts

Seed Money

Eqpt \$

Labs / space

Grad students

Dean - Davern
Thoughts/Ideas

General:

1. Commitment to College of Energy - new president? Resource Reallocation: Enrollment Limits → Excellence.
2. Attraction of Energy with Campuses - ~~Delta~~ College Programs - " " Apts? Liberal Educ. Chem/phys/math - Science College Business/Law An ~~injection~~ ~~of~~ ~~the~~ ~~campus~~ Public ~~of~~ ~~the~~ ~~campus~~ Local industry - industrial leaders. Specialty industry Partners Consulting

Specifics

1. Enrollment Patterns. Limits → Excellence. Position - Faculty and Staff (Technician) Related Resources - Space (Budget or subvention) Faculty Staff → enrollment Rewards → Salary ↑ (departmental?) ↑ consulting? Awards (step down) Grants of Travel & other
3. Space New Classroom bldg - Energy input AEB - maintenance / financial Femo doubling Security (cont'd) -

3. Space (cont'd)

Energy Res. Center? Computer Center? other?

Revised / overlaid. Seed \$ (10K → 25K?)

Budgets proposed. to research building load. Egt maintenance (incl air cond, computer...)

Overhead reimbursement? In use - Sec., phone, proposal prep, visits, maintenance ... All overlaid returned to college for funding > next year

" for College - wide programs (with Dept, with college) " for Dean office program

4. Teaching Budgets/Resources

Egt/staff / supplies \$ scale w/enrollment base + ? % (w/c maintenance) + ? % (grad. enrollment)

↑ Staff for labs, ... ↑ position ⇒ ↓ S:F ratios

5. Dean's Office

Contingency \$? # for released firm's hierarchy to assist Projects: a) New Classroom bldg. b) Energy Res. Center (and. Lab) c) some return/maint of M EIS d) PR - Bull Bds in AEB. e) College Area Programs -

... cont'd

7. Development Office

1/2 + reason specifically for expansion (\$ millions?)

8. PR Office

9. Patent/Broker

someone to advise of legal barriers, patents, licensing, etc.

10. Policies

Can Dean Mallicate positions w/in college?
" " budgets " " ?
" " " " " " ?
" " " " " " ?
Space assigned to " " ?

Dean - ? for Deane

Commitment ✓

V.P.'s

New Prov. dist

Enrollment Limit ± (what activities do you really have)

b) Faculty & other Resources

esp. STAFF, Lab

Fac Rewards

a) Salary

b) Conscripti

c) Awards

d) Quotas M.

e) Travel.

Space:

Now classroom → no office but teach. lab

new building for office in M.E.S.?

Enrollment → few offices

old Prov. office → MSE

Computer center?

Research / Awards

Seed \$ - ITC → α (see \$)

admin staff budget base + α (see \$)

Overhead reimbursement to college

Egpt Maint - incl computer/cas con.

~~Admin~~
Proposal Prep -

Deans Office

College Budget ~ 4.5M.

D.O. " < 300K

Dean Salary (4100 (No Colatana))

+ 36,100 (yr 6 yr)

G. Hill 26,000 + 6000 — (3000) then 52K

E. H. Durstman ~ 23,4K

TA DeLigt's CE (MEL CS

PR - DeP

Dev. Office

Dean's Office (cont'd)

Authority to reallocate positions
w/in college?
Authority to hire?
Authority in space?
\$ for Dept Chair suppl.
\$ for Assoc Dean "

Mountain Transmitted
Security

Other
Auth release
Liberal educ

now 2k
now 1-2k

Speak To

1/14/71
1/20/71
1/25/71

Dept of Past Deans (Assoc Deans) / Dean's Office
Classroom & Past Learning / Director of Camp Colla ...

Faculty who are leaving w/hi prob of
leaving w/in 12 months (get from Chairman)
All former Assoc Faculty who will not be
are this summer

All other faculty
Admin Staff (Admin Dept / Exec. Sec.)
Tech Staff - Chas Tech & Supervision
Maintenance & Maint Staff.

Direct

Problem, Leads, Recommendation
Manual Program

1/15/71

Dean's Office
Your plans - next 3-5 yrs.

Consider Dept Facilities

- Machin Shop
- Other shops
- Dial rm
- Drawing Services / Photo -
- Stockroom
- 411 (and Main)
- Also Dept
- Suit Room
- STEIN / EN / SEM.
- IR
- Raman - Laser
- Polymer Character
- Conf Rooms
- X-rays
- Isotope / Nuclear Counting / Spectra
- Stat / Data Analysis
- Cal / Cam

1/14/71

1/20/71

1/25/71

200 people
20' x 100'
3/4" x 2' x 2'

J A - Deane

PROS
1. with Coll. of Engg for 14 years (since 1969)

2. Tenured full prof at MSE of Bioeng
3. Research collaboration with MSE Bioeng / EE / ME
4. Undergrad & graduate teaching exp.
5. Undergrad Program teaching exp.
6. Served on Univ Senate, Univ Res Comm, Stud-Fac Res Comm, Exec Comm of Univ Senate, Plant Comm, Faculty of the Univ Comm,
7. First Univ Asst Comm.
8. Dist. Res award, 1980; Fulbright Fellow 1979, 1981, 1983, 1985
9. Active Research Program - Funding exp with NIH / NSF / DOE / NSF / and contracts / industry

10. Chairman of Review Dept 1978-81
11. Editor of 1 book, 2 in review
12. ~50 papers, 3 books, 1 patent
13. 11 PhD students, 6 MS
14. Current students ~ MS, 7 PhDs.
15. ~~Dist~~ Suf and lab - founder & director
16. 4 2 years old on July 12 -

17. LESTERS

CON

18. Objective Focus
1. Too young - cost-tie
2. too informal
3. not a professional engineer
4. Make more snap decisions
5. activities peripheral to engg main stream
6. too much of grad educ oriented.
7. involved with Company
8. " " " " Surgery & Pharmacy
9. Substantial?
- D. Too large research program - cost (inc. on deaning)

THE UNIVERSITY OF UTAH

VICE PRESIDENT FOR HEALTH SCIENCES
205 FINE BUILDING
505 LOVE CITY, UTAH 84202
801/581-5800

Dear Joe

Congratulations to you by the University on your appointment as Dean. I cannot imagine more encouraging news for a new President-elect than your appointment. I look forward to working with you -

Regards -
Chase

20 Jun 1983

RECEIVED
University of Utah
JUN 27 1983
Dean's Office
College of Engineering



THE
UNIVERSITY
OF UTAH

DAVID PIERPONT GARDNER
PRESIDENT
202 PARK BUILDING
SALT LAKE CITY, UTAH 84112
801-581-5701

July 7, 1983

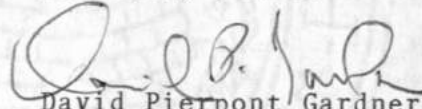
Joseph D. Andrade
College of Engineering
Drill Engineering Building
Campus

Dear Dr. Andrade:

It is a pleasure for me to inform you that the University's Institutional Council has approved your appointment as Dean of the College of Engineering, effective July 1, 1983.

I appreciate your willingness to accept this important administrative responsibility. I trust that you will find this assignment to be a rewarding part of your academic career.

Sincerely yours,


David Pierpont Gardner
President

*I am delighted with your appointment and
appreciate your willingness to serve. All on best
David*

RECEIVED
University of Utah

JUL 7 1983

Dean's Office
College of Engineering

June 13, 1983

MEMORANDUM

To: Faculty and Staff, College of Engineering
From: Cedric I. Davern, Vice President for Academic Affairs

I am pleased to announce that I am recommending to the President and the Institutional Council the appointment of Professor Joseph D. Andrade as the new Dean of the College of Engineering, effective July 1, 1983.

I would like to take this opportunity to thank all of you for the considerable help you have given to me directly and indirectly in the decision making process.





THE UNIVERSITY OF UTAH

INSTITUTE FOR BIOMEDICAL ENGINEERING
(AN INTERCOLLEGE INSTITUTE) AND
DIVISION OF AGRICULTURAL ORGANISMS
DEPARTMENT OF SURGERY
WILLEM J. KOLFF, M.D., PH.D.
DISTINGUISHED PROFESSOR OF
MEDICINE & SURGERY AND DIRECTOR
SALT LAKE CITY, UTAH 84142
PHONE: (801) 581-4296

June 15, 1983

Joseph D. Andrade, Ph.D.
Dept. of Bioengineering
2059-MEB
University of Utah

Dear Joe:

I am delighted! Finally, some people have shown some common sense and good judgment. I am also immensely pleased that in the beginning, I had a little to do with supporting your coming here. This has been a most rewarding experience.

Good luck! If there is anything in which I can help you, please let me know.

Sincerely yours,

WILLEM J. KOLFF, M.D., Ph.D.

WJK:mj



THE UNIVERSITY OF UTAH

INSTITUTE FOR BIOMEDICAL ENGINEERING
(AN INTERCOLLEGE INSTITUTE) AND
DIVISION OF AGRICULTURAL ORGANISMS
DEPARTMENT OF SURGERY
WILLEM J. KOLFF, M.D., PH.D.
DISTINGUISHED PROFESSOR OF
MEDICINE & SURGERY AND DIRECTOR
SALT LAKE CITY, UTAH 84142
PHONE: (801) 581-4296

June 21, 1983

Dr. Joseph Andrade
College of Engineering
2000 Merrill Engineering Bldg.
University of Utah

Dear Joe:

I have already offered my congratulations with your appointment to Dean of the College of Engineering. They could not have come up with a better choice. You can now use all of your imagination to bring improvement in that College. I would be delighted to help you wherever I can. Particularly, I might be able to find some seed money for you if you need it for something where you do not see a ready source of financing or otherwise. However, I will have to see how the finances will work out this Fall.

I have forwarded your request for temporary leave of absence as Research Associate Professor of Surgery to the Acting Chairman of the Department of Surgery. I would appreciate it if you would stay on as Associate Director for the Institute for Biomedical Engineering. I will try to minimize your involvement in time, but once in awhile, I will need your signature. If it becomes too difficult for you, we will have to grant you a leave of absence there too. You will know when that will become necessary. In that case, I will ask Art Janata to temporarily take your place.

It would not surprise me at all if there will be some pressure from certain sides to minimize the influence and independence of the Institute for Biomedical Engineering. I happen to believe that it is of an advantage to the University to keep it independent and intact. That my successor and I will have to be polite to the Deans of the several schools is a requirement and I think, an advantage.

Best of luck.

Sincerely yours,

WILLEM J. KOLFF, M.D., Ph.D.

WJK:j

RECEIVED
University of Utah
JUN 23 1983

Dean's Office
College of Engineering

Museum wins approval for reaccreditation

The Utah Museum of Natural History has been reaccredited by the American Association of Museums following a review of its services and policies on the 10th anniversary of its original accreditation. Considerations included governance, staffing, support, physical facilities, etc.

Editor, staff take law journal posts



Russell A. Cline, third-year law student from Salt Lake City, is the new editor-in-chief of the Utah Law Review. Other staffers of the quarterly journal are Kelly Vance, Richard Kelley, Robert K. Hilder, Karen Williams McCreary, Scott R. Carpenter, Mark L. Callister and Robert P. Rees.

A new, multifaceted dean for engineering with a 'big picture' outlook

we offer are already totally swamped," he says, "which forces us to begin imposing selection and limitation standards at the end of a student's freshman year."

In February 1982, the University Senate tightened admission criteria for students moving into full major status in mechanical engineering, computer science and electrical engineering. Each of the departments had requested the policy change to meet the serious problems of limited facilities and financial resources alongside staggering enrollment growths.

High school students should heed the warning and equip themselves academically for the strong competition they are certain to face in seeking admission to the University's engineering programs, Andrade emphasizes. His advice: "Take as much science and math as you possibly can. Take high school seriously. Prepare for college by making the best possible academic record that you can."

Although the college enjoys a "very good" national reputation, it is having difficulty attracting and keeping good faculty, Andrade points out.

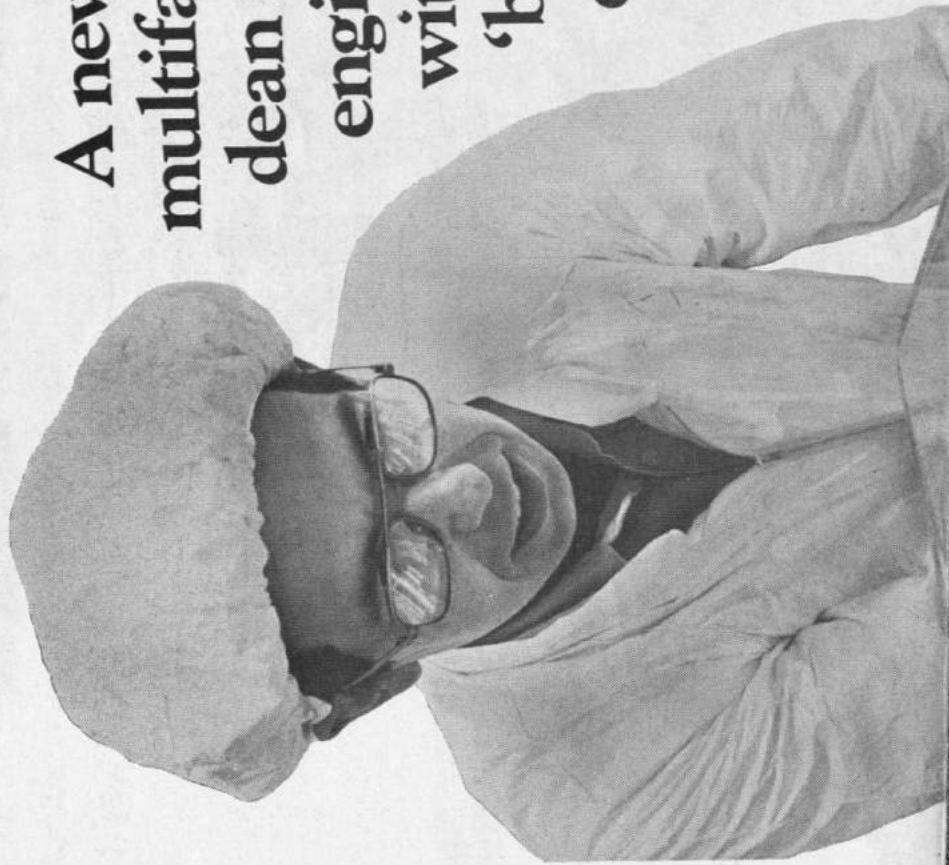
"Industry and other universities are shopping for faculty, and are able to offer high salaries and other incentives. It is imperative that salaries be raised if we hope to be competitive and maintain a first-rate engineering college," he says.

"A first-rate College of Engineering, in addition to providing a quality education for Utah engineering students, is an important factor in the economic development of the state."

Andrade notes that in shopping for

Dr. Joseph D. Andrade, whose academic portfolio includes four faculty appointments, embodies the interdisciplinary approach that he hopes will continue to be a hallmark of the University of Utah College of Engineering.

The college's new dean holds, at age 42, full professorships in bioengineering, materials science and engineering, and pharmaceuticals, and is a research associate professor of surgery. While serving as dean, he will be on leave from his phar-





Mother's 'little helpers' are also little learners

Children who insist on helping or watching may be annoying to parents, but they are actually contributing to their own learning and socialization, according to a University developmental psychologist.

Dr. Barbara Rogoff, associate professor of psychology, says children contribute to their learning by insisting on being involved and being "where the action is."

Children, she says, are good observers. "In many cultures they're

taught to observe without getting in the way," she notes. "In the United States, however, children don't always know how to participate as observers in a situation with adults. Their skills in being unobtrusive may be limited because they aren't often included in adult activities."

Rogoff observed Mayan children in Guatemala between 1974-76 as part of a research project to see how children learn what they know. The girls, she found, were excellent weavers and the boys knew how to farm. Yet, according to her preconceived notion of "teaching," she didn't see parents teaching these skills. When she asked mothers how they taught their daughters to weave, they replied, "We don't teach them. They learn."

"Rather than looking at it as teaching, they look at it as participation," says Rogoff. "The child participates in a great deal of activity and learns from the adult in the process. Yet the adult may not even have instruction in mind."

"Consider how our own preschoolers watch you cook or make things," says Rogoff. "They want to be right there and they want to help. You'll let them do an easy step and help them with the next step until they've mastered it and can do it on their own. Instruction isn't your primary concern. You may just be trying to keep the child from disrupting your cooking, but they learn."

He hopes to strengthen the interaction and collaboration among the seven academic departments now in his charge, partly by encouraging programs and activities that might not otherwise develop. He says engineering is a multi- and interdisciplinary profession.

"In constructing a bridge or building, engineers must concern themselves not only with the structure itself, but with soil problems and with the project's probable impact on the environment and on the people who will be using it," says Andrade, who became dean in July.

He also hopes to involve the college in the University's Liberal Education Program, and he would like to see courses offered that emphasize high technology's overall impact on society.

"Engineering is interdisciplinary in many respects, even though outsiders and many engineers themselves think of engineers as very conservative in their work and focused only in specialized areas," he observes.

Andrade says computer-aided design — a field in which the computer science and mechanical engineering departments are already distinguished — is helping spearhead a revolution in manufacturing while immersing engineering schools in the challenges of robotics and automation.

"Since engineers are playing a crucial role in developing new technology, they should be aware of the problems occurring in the work force and in society itself as a result of this new approach to manufacturing," he says.

A student crunch that has seen the college's enrollment increase more than 50 percent in the past two years has forced most departments to tighten admission criteria so that quality education programs can be maintained. Enrollment jumped from 2,267 in 1980 to 3,369 in 1982.

College-wide criteria that will significantly limit enrollment at the sophomore level are ready to be implemented, according to the dean.

"The sophomore-level prerequisites and engineering background courses that

places to locate high-tech industries require the presence of outstanding local programs in engineering and allied disciplines. An investment in engineering, he adds, pays off in terms of increased economic growth.

A member of the University faculty since 1969, Andrade is widely recognized for his research in biomaterials, particularly the interactions of solid surfaces with biochemicals and living systems.

He established a surface analysis laboratory in the college in 1976 that is aiding research in such diverse fields as biomedical implants, catalysis and metal corrosion. The laboratory has a special spectrometer that researchers use to evaluate the composition of the microscopic outer layers of surface zones on a variety of materials for medicine and industry.

Andrade plans to follow what he calls "the University of California example" by continuing his teaching and research while he is dean. He says his classroom and laboratory time will obviously be limited, but not eliminated.



"A first-rate College of Engineering, in addition to providing a quality education for Utah engineering students, is an important factor in the economic development of the state."

UNIVERSITY OF UTAH Review

(USPS 652-420)

Vol. 17 No. 1 AUG./SEPT. 1983

J. Byron Sims, Editor

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The Review is mailed to parents, graduate students, faculty, staff, alumni and friends of the University. Articles may be reprinted without permission.

Dr. J.D. Andrade Nominated As New U. Engineering Dean

Appointment of Dr. Joseph D. Andrade as dean of the University of Utah College of Engineering will be submitted for approval to the July 6 meeting of the university's Institutional Council, the university announced Friday.

He would succeed Dr. Laurence H. Lattman, who resigned to become president of the New Mexico Institute of Science and Technology.

Dr. Lattman served as dean of both the College of Engineering and the College of Mines and Minerals Industries.

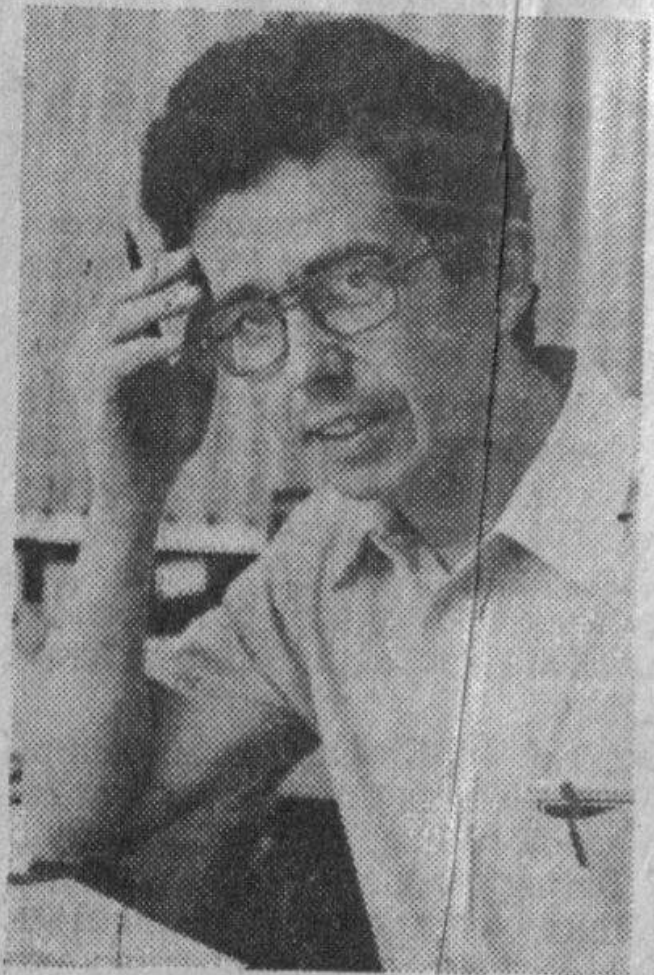
Dr. Andrade, a member of the faculty since 1969, holds faculty appointments in three academic departments.

He is former chairman of the Department of Bioengineering, and recipient of a 1980 distinguished research award.

He is a professor of bioengineering, materials science and engineering, and pharmaceuticals. He is also research associate professor of surgery in the School of Medicine.

He is recognized for research in biomaterials, particularly the interactions of solid surfaces with biochemicals and living systems.

A native of Union City, Calif., he attended the University of Califor-



Dr. Joseph D. Andrade
New College of Engineering Dean

nia at Berkeley, received a B.S. degree in materials science at San Jose State and a doctorate in metallurgy and materials science at the University of Denver.

While working on his doctorate, he was a researcher on implant materials at the University of Denver Research Institute.

University of Utah **NEWS**

University News Service/Department of Public Relations • 308 Park Building • Salt Lake City, Utah 84112 • (801) 581-7931

RELEASE AT WILL

16 June 1983

ANDRADE PICKED TO HEAD COLLEGE OF ENGINEERING

Dr. Joseph D. Andrade, a bioengineer who holds faculty appointments in three academic departments, has been named dean of the University of Utah College of Engineering.

His appointment will be submitted to the Institutional Council for approval at its July 6 meeting. Andrade would succeed Dr. Laurence H. Lattman, who resigned to become president of the New Mexico Institute of Science and Technology.

A member of the University faculty since 1969, Andrade is former chairman of the Department of Bioengineering, and recipient of a 1980 Distinguished Research Award. He is a professor of bioengineering, materials science and engineering, and pharmaceuticals. He is also research associate professor of surgery in the School of Medicine.

Andrade is widely recognized for his research in biomaterials, particularly the interactions of solid surfaces with biochemicals and living systems.

He established a surface analysis laboratory in the College of Engineering in 1976 that is aiding research in such diverse fields as biomedical implants, catalysis and metal corrosion. The laboratory has a

(more)

special spectrometer used by researchers to evaluate the composition of the microscopic outerlayers of surface zones on a variety of materials for medicine and industry.

The National Aeronautics and Space Administration honored Andrade and three other University professors in 1982 for research that has made it easier to study the behavior of living cells in the gravity-free environment of space.

They suggested that cells be placed in containers coated with a special gel to eliminate the electrical charge that makes it difficult to separate the cells for individual study.

A native of Union City, Calif., Andrade has worked as a metallurgist for U.S. Steel Corp., and as a research scientist at NASA's Ames Research Center in California. He was awarded a Fulbright-Hays grant in 1978 to do advanced research at the University of Coimbra in Portugal. In 1974, he was a visiting professor at the Free University of Amsterdam in the Netherlands.

He attended the University of California at Berkeley, received a B.S. degree in materials science at San Jose State and a Ph.D. in metallurgy and materials science at the University of Denver. While working on his Ph.D., Andrade was a researcher on implant materials at the University of Denver Research Institute.

He is a member of the American Association for the Advancement of Science, American Chemical Society, The Society of Sigma Xi, Society for Biomaterials, Biomedical Engineering Society, and the American Physical Society.

###