Massachusetts Institute of Technology

TECH TALK

September 15, 1971
Volume 16
Number 11

William Porter Named Dean of Architecture and Planning

Chancellor Paul E. Gray has announced the appointment of Dr. William L. Porter as Dean of the School of Architecture and Planning, effective today.

He succeeds Professor Lawrence B. Anderson who retired in June after serving as Dean of the School for six years.

Professor Porter is an advocate of enhancing the abilities of architects and planners through the use of computers and the analysis of creative thinking. He was largely responsible for the development of the DISCOURSE language, through which users can elaborate on the basic program to make it more responsive to their individual needs.

Last summer Professor Porter was chairman of a study which prepared a proposal outlining future development of the School of Architecture and Planning. It called for a new educational focus based on the interrelationship of three themes: people and places, systems, and policy and design. The proposal has since become a document of understanding for the School.

A School Council will be established, consisting of members from both the Department of Architecture and the Department of Urban Studies and Planning together with some professional consultants. In this way, Dean Porter feels, the School will become more aware of its own inner directions as well as what new problems are arising in the broad general field. Under Dean Porter's leadership, the School will encourage broader participation by other departments and Schools at the Institute in the very complex problems of urban systems and design.

Professor Porter.

--Photo by Alfred Anderson, '71

Dean Porter received the B.A. degree from Yale University in 1955 and the B.Arch. from the Yale School of Art and Architecture in 1957. After serving in the U.S. Army, he was associated with the Louis I. Kahn architectural firm in Philadelphia from 1960 to 1962.

In 1962 Dean Porter came to the MIT-Harvard Joint Center for Urban Studies and for the next two years worked on the Ciudad Guayana development project in Venezuela. From 1964-65 he held a Mellon Fellowship for graduate studies and planning in 1969.

Dean Porter was appointed Assistant Professor of Architecture and Planning in 1968 and became Associate Professor in the Department of Urban Studies and Planning in 1970. He served as a member of the Faculty Advisory Group to Professor William Ted Martin during 1969-70. During the past year he has been a member of the Corporation Joint Advisory Committee, as well as a member of the executive committee of the Department of Urban Studies and Planning.

During the past academic year, Dean Porter was a visiting scholar of the New Hampshire College and University Council and also a visiting critic in the introductory studio of the Urban Design Program at the University of Pennsylvania for the spring semester. He maintains a consulting relationship in urban design and programming with two Cambridge firms.

Dean Porter is the author or co-author of a number of articles published in the profession. He is presently at work with Professor Donald Appleyard of the University of California (Berkeley) editing *Environmental Design in the United States: A Reader*, to be published in Italy.

Dean Porter is a member of the American Institute of Architects and of the American Association of University Professors. He is also a member of the Board of Directors of the Boston Society of Architects.

Dr. and Mrs. Wiesner greet freshmen at the traditional President's tea for the incoming class and their parents. The tea last Sunday capped a busy week of getting acquainted for the Class of '75. Another highlight of the week was the Activities Midway last Friday night where new students could sample the wide variety of extracurricular activities. Other pictures on page 6.

--Photo by Margo Foote

Unemployment Benefits Extended to Institute

On August 10, 1970 President Nixon signed into law a Federal bill that provided for the extension of unemployment compensation coverage to employees of non-profit institutions. Enabling legislation currently before the Massachusetts House will bring this benefit to MIT, effective January 1, 1972.

The Office of Personnel Relations is in the process of analyzing the impact the law will have on the Institute. While many personnel, payroll, and administrative procedures may have to be modified to comply with the law, one thing is abundantly clear: Unemployment Compensation will be expensive. Institute officials presently estimate that this coverage could cost upwards of $1.5 million per year, *the entire amount to be borne by MIT.*

While all MIT personnel except students will be covered under the law, individual benefits actually received by terminating personnel will vary. The determining factors in establishing individual benefits are--the reason for leaving the Institute, the average weekly earnings, and the total wages earned (while covered by the law) during the 12 month period prior to termination.

Personnel who are laid off or otherwise become unemployed through no fault of their own normally begin to receive their earned benefits after a one-week waiting period. Cases involving voluntary termination and discharge are considered by the Division of Employment Security on their individual merits; and claims are allowed or disallowed accordingly.

In allowable cases the present law calls for a basic weekly benefit equal to 50% of the

(Continued on page 2)

New Presidents Featured Sunday

President Jerome B. Wiesner and the presidents of three other Boston area universities will be interviewed on "The New Presidents," a television special Sunday at 10pm on WGBH-TV, Channel 2.

Harvard President Derek Bok, Boston University's John Silber and the University of Massachusetts' Robert Wood will join Dr. Wiesner on the one-hour program. They will discuss higher education, curriculum changes, finances and student unrest in an interview with Channel 2's Louis Lyons and Boston *Globe* Education Editor Nina McCain.

The *Globe* will publish a transcript of the taped program and an accompanying article in its Sunday morning edition.

A Compendium of Courses and Seminars Relating to Public Policy or Science and Technology and Society is included as a supplement in this issue of *Tech Talk*.

Rents Freeze Increases Losses at Northgate

President Nixon's 90-day freeze on wages and prices is aggravating an already serious financial crunch facing the Northgate Community Corporation, according to officials of the real estate affiliate of the Institute.

"Increased operating expenses are the major cause of a large, accumulated deficit and the consequent large rent increases announced before the freeze," according to Frederic W. Watriss, Associate Treasurer of the Institute and Chairman of the Northgate Board of Directors. "Both real estate taxes and utility costs have risen substantially during the past two years, and insurance rates rose 25 percent last year."

"When the rent control roll back took effect in Cambridge and Somerville last January 1, it just capped the situation," Mr. Watriss continued. "Now, with the President's freeze, the projected operating deficit for the 1971-72 year is running at $18,000 a month."

Rents for Northgate apartments were raised approximately ten percent effective with the 1970-71 lease period and tenants paid the new amount from September through December 1970, when rent control took effect. After that, Northgate rolled back its rents to the March 1970 level (the September 1969 lease level), until it could clarify its position under the rent control statute.

"When the Northgate Board met this summer to determine rent levels for the 1971-72 lease year, they were faced with an accumulated deficit of more than $100,000 incurred primarily during the rent control period in Cambridge and Somerville," Mr. Watriss explained. "To prevent a greater deficit, rents were raised

(Continued on page 8)

Northgate Gets Rent Control Exemption from Cambridge

The Cambridge Rent Control Administrator has ruled that Northgate Community Corporation housing units reserved for MIT-affiliated people are exempt from the rent control statute.

Northgate did not seek a ruling for units occupied by persons not affiliated with the Institute.

Northgate's request for a ruling was filed early in June, according to Frederic W. Watriss, MIT Associate Treasurer and Chairman of the Northgate Board of Directors. The ruling was ordered July 30.

The Somerville Rent Control Board has not ordered a similar ruling for the one Northgate building under its jurisdiction.

3 from MIT at Soviet Meet

Three MIT men--Professors Philip Morrison, Marvin Minsky and Bernard Burke--took part last week in an international conference at Byurakan in the USSR which considered the possibility of communication with intelligent life in other worlds.

The meeting, held at the Byurakan astronomical observatory near the Turkish border, was sponsored by the USSR's Soviet Academy of Science and the U.S. National Academy of Science and included some 35 internationally prominent physicists, astronomers, biologists, computer scientists and social and behavioral scientists.

Carol puts finishing touches to her painting of the Ornithopter.
--Photo by Margo Foote

Carol's Brush Captures Her Other Love, Flying

For Carol Fenello, the Department of Aeronautics and Astronautics is a place where she can give full rein to several of her talents.

Right now she's putting the finishing touches on an acrylic painting of a rare, early airplane, which will soon adorn the office of Professor Judson Baron. The picture is an outgrowth of her two loves--art and airplanes.

Carol has been working on the picture for the past six weeks. It is a Soltau Ornithopter, a clumsy looking contraption of 1910, which used flapping wings instead of propellers. She originally found a picture of the Ornithopter in *Jane's All the Worlds Aircraft*. "People here in the department say it could never get off the ground," Carol says. "It never really flew, but it did make a few hops."

Carol was familiar with airplanes long before she came to work for Professor Eugene Covert in Aero and Astro. Her idea for the painting started as a series of etchings for her father, a vice president and former pilot for Eastern Airlines. "I used to live in Miami, which is highly oriented towards the airlines." she recalls. She got her pilot's license at 17. "I used to fly across the Everglades and up and down the Florida coast," she says, "but I haven't done much flying since I came to Boston."

While attending Skidmore College, she took several art courses. She came to MIT following her graduation in 1970 and since then has taken a class in etching at the Cambridge Center for Adult Education.

During her daily routine Carol handles the records of the undergraduates in Aero and Astro. Professor Covert is chairman of the department's undergraduate committee. "But," says Carol, "he hasn't asked me to do a painting for him yet."

TECH TALK

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Please address news and comment to the Editor, Room 5-111, Ext. 3277.

Dr. George Buchi Named Camille Dreyfus Professor of Chemistry

Professor George H. Buchi has been named Camille Dreyfus Professor of Chemistry, Dean Robert A. Alberty of the School of Science has announced.

Professor Buchi has done extensive research in the synthesis and structure of a wide variety of natural products, including terpenes, alkaloids and toxins, and has discovered several new photochemical reactions.

Professor Buchi was born in 1921 in Baden, Switzerland. He received the Diploma in 1945 and the D.Sc. degree in 1947 in chemical engineering from the Eidgenossische Technische Hochschule in Zurich. After three years as a Firestone Postdoctoral Fellow at the University of Chicago, he came to MIT in 1951 as an assistant professor. He was named associate professor in 1956 and professor in 1958. Since 1961 he has held one-year honorary lectureships at several universities.

Professor Buchi is a member of the National Academy of Sciences, a Fellow of the American Academy of Arts and Sciences, a Fellow of the British Chemical Society and a member of the American, German, Japanese and Swiss Chemical Societies. The Swiss Chemical Society awarded him its first Ruzicka Prize in 1957 and the American Chemical Society honored him with the Fritzsche Award in 1958.

Employees Here to Get Unemployment

(Continued from page 1)

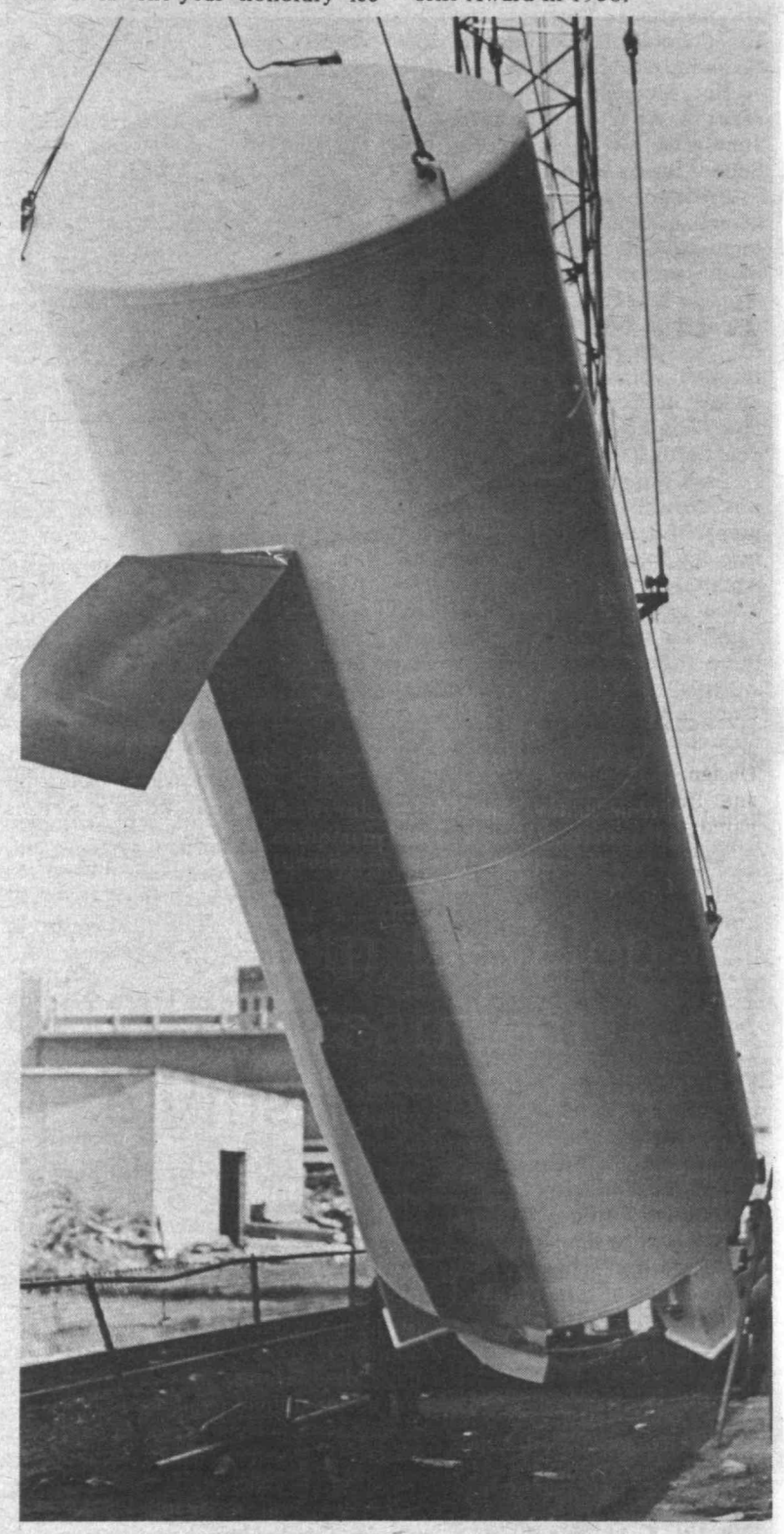
claimant's average weekly income up to a maximum of $69.00 per week. In cases where the average weekly earnings are less than $66.00, this percentage may be modified slightly. An additional allowance of $6.00 for each dependent child under 18 years of age is provided up to a maximum of 50% of the amount of the basic benefit.

The basic law presently provides for the payment of these benefits up to a maximum period of 30 weeks. In no case, however, may the total amount of benefits paid exceed 36% of the wages paid to the claimant (while covered by the law) during the 12 month period prior to the filing of the claim, or 30 times his basic weekly benefit, whichever is less. These basic benefits are extended by the law for an additional period when the level of unemployment in the Commonwealth exceeds 4.5%, as is presently the case. The length of this extended benefit is equal to one half the earned benefit period, with the provision that in no case may the total combined amount of benefits received both earned and extended, exceed 39 weeks. Legislation which has been passed by the General Court will extend the total coverage from 39 to 52 weeks when signed by the Governor.

Mr. Kerry Wilson, formerly with the Center for International Studies, will work with the Office of Personnel Relations to coordinate preparations for the Institute's participation under the new law.

Tech Talk has new telephone extensions. The former extensions are no longer connected in the _Tech Talk_ office, so please use the following numbers:

Editorial office Ext.3277 and 3278
Institute Calendar Ext. 3279
Classified ads Ext. 3270
Telephone extensions in the Institute News Office remain unchanged.



Gigantic liquid nitrogen tank being lowered into place at the Cryogenics Lab.
--Photo by Margo Foote

17-Ton Liquid Nitrogen Tank Installed Behind Cryogenics Lab

A 17½-ton tank for the storage of liquid nitrogen was gently lowered into place behind the Cryogenics Laboratory (Building 41) Friday.

"This will give us a bigger reservoir than we've ever had before," said Robert Cavileer of the Cryogenics Lab. The new tank stands 30 feet high and, when filled with liquid nitrogen, it will weigh more than 52 tons.

Capacity of the tank is 10,500 gallons of liquid nitrogen, an amount which various laboratories around the Institute use up in a month. The two old tanks in the lab's basement held only 1,700 gallons--about a day's supply for large lab users, such as the Materials Center and the Research Laboratory of Electronics.

American Physical Society to Meet Here

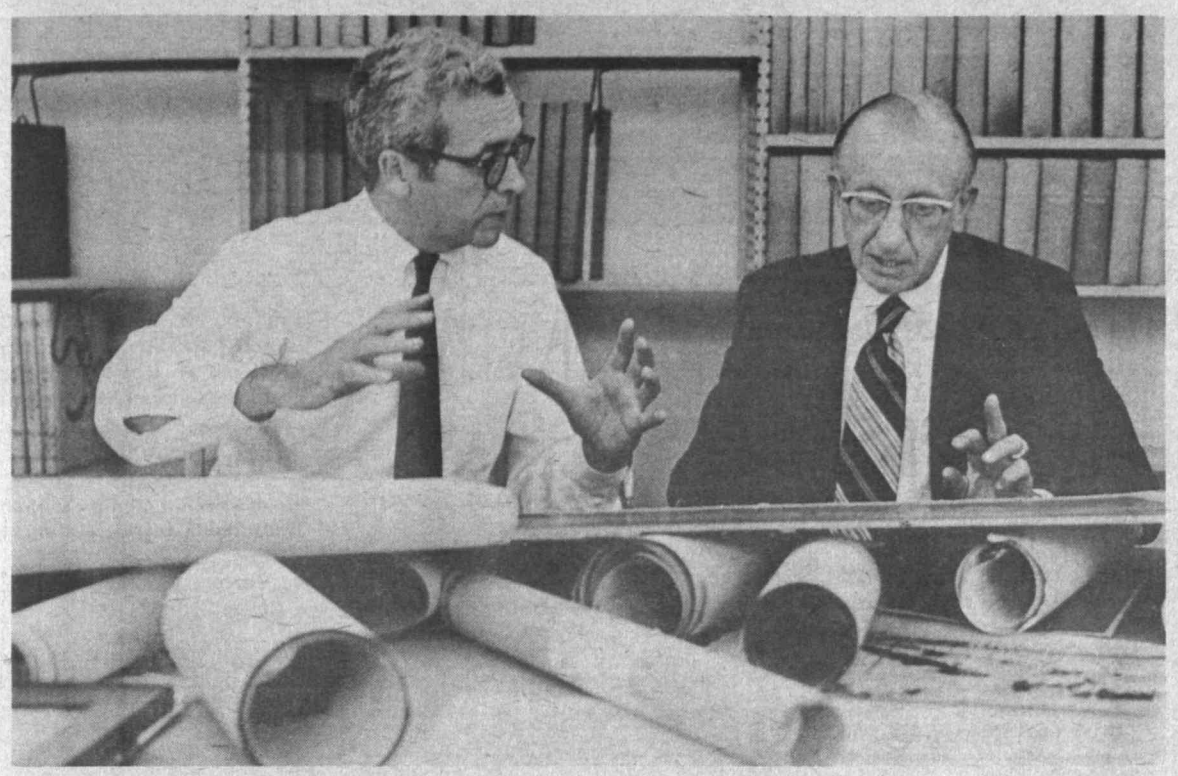
The American Physical Society will hold its 1971winter meeting at MIT December 27-29.

The program for the meeting will include sessions focusing on such contemporary topics as energy resources, nuclear power, reactor safety, cosmic physics, nuclear physics, solid state physics and electron and nuclear physics.

The organization solicits papers in all areas of physics for presentation at the meeting. Interested authors should send their papers by October 15 to:

W. W. Havens, Jr.
The American Physical Society
335 East 45th Street
New York, N.Y. 10017

For further information, call the APS Committee, Physics Department Headquarters (Room 6-113), Ext. 4801.



Professors Douglas and Hartley sort through historical material in the archives.

Early MIT History, Student Art to be Featured Inaugural Exhibits

Among the coming inaugural events will be two special exhibitions, both scheduled to open on September 27.

"Retrospect: MIT 1861-1916," prepared by Richard Douglas, head of the Humanities Department, will be on display in the corridors immediately outside of Hayden Gallery, while "Visual Design Experiments by Science and Engineering Students," prepared by Robert Preusser of the Architecture Department, will be on exhibit along the first floor corridors of Building 7.

"Retrospect" is a pictorial history of the Rogers and Maclaurin era, which saw the founding and construction of Boston Tech on Boylston Street, Boston, and the planning and building of the present campus. It is the second exhibition of its kind. No trace of the first, held during the dedication of the Maclaurin building in 1916, remains. However, Professor Douglas thinks that "Retrospect" is very similar to its predecessor both in scope and material.

Central to the exhibition are collections of the architectural plans for the two campuses. On display are original beaux-arts drawings (cir. 1861) of the Boston Rogers Building by the architects Jonathan and William G. Preston, which, along with plans for buildings that were never constructed have been lent to MIT by the Boston Public Library. Renderings for the original Cambridge buildings, designed by the late Welles Bosworth, '89, are now on their way from France. Mrs. Bosworth has had them with her in Paris since 1936 and has recently donated them to the Institute.

Old photographs, etchings, newspaper clippings and blow-ups describe and illustrate early student life, the construction of the campuses, various banquets and festivities. The 1916 dedication ceremonies, which included the transportation of the Institute's Charter across the Charles River on the *Bucentaur*, a replica of a Venetian barge, a three day pageant featuring, among a cast of hundreds, Evil, Temptation and Knowledge, and alumni banquets across the country where the guests listened to the dedication speeches over the newly invented telephone are captured in great detail.

The material for this exhibit has been researched and collected by Professor Douglas and Warren Seamans, his administrative aide. The works have come from the Institute Archives and News Office, the Boston Public Library, the *New York Times*, Stone and Webster Engineering Company and private collections as well as other sources.

"Visual Design Experiments" is a photographic documentation of artworks executed by undergraduates in Professor Preusser's Design course. He compiled this show from "Art and Technology" an other of his exhibits that is now in its second year of touring English colleges. The MIT exhibit will mark its first American showing.

The exhibition, comprised of about one hundred photographs, is divided into six categories: *Exploiting the Accidental; Experimental Processes; Material, Tools and Techniques; Optical Phenomena; Light-Color and Movement* and *Electronic Data Processing*. Two of the experiments included are computerized chess moves and various shape deformations from mirroring light and color in highly reflective surfaces of various curvatures.

In describing his course, Professor Preusser said, "rather than perform with media and skills traditional to the fine and applied arts, students explore the visual form possibilities inherent in their own specializations. Challenged in this way, the engineering students employ industrial material and tools and techniques whereas science majors capitalize on physical processes, natural forces and optical phenomena."

The works that have evolved from this class have been widely exhibited and written about, most recently in an article on computer-generated art that appeared in the September 13, 1971 issue of *Newsweek*.

Professor Preusser is also an artist. He has received numerous awards for his own works, many of which are displayed in museums, galleries and private collections.

Former MIT Star Wins Sailing Cup

Terry Cronburg, MIT Class of 1966 and a former All American sailing great during his undergraduate days, is still proving his mastery of the seas.

Cronburg and Tech crew mates Sandy Warrick '72 and Steve Cucchiaro '74 representing the MIT Nautical Association won one of sailings biggest prizes, the Prince of Wales Cup, at the North American Match Race Championships. Held the first week in September at the Southern Yacht Club in New Orleans, the North American Match Race Championships pitted the eight National Regional Champions against each other.

After a full week of head-on competition, Cronburg and his Tech crew raced a 28 foot Soling to a final top skipper point total and the Prince of Wales Cup. But for Cronburg, it didn't take just a week to win the North American Match Race title.

It started two summers ago on the Charles River when Terry defeated the community boating representative, thus qualifying him for the Massachusetts Bay Championships. Cronburg added the Massachusetts Bay title to his credit after several series of match races.

Cronburg moved to the Area A Championships at Portland, Maine, this summer which included skippers and crews from all over New England and the Maritime Provinces. After chalking up another first in his National Regional Championships, Terry now representing New England, moved to New Orleans and the National Crown.

When not sailing, Terry is finishing up his thesis for his Ph.D. in physics.

Cornell to Hold New Professorship

Professor C. Allin Cornell has been named the first holder of the newly-created Career Development Chair in the Department of Civil Engineering, President Jerome B. Wiesner has announced.

The new professorship was provided through the generosity of an anonymous donor. It will be awarded on a rotating basis to untenured associate professors in civil engineering in recognition of outstanding accomplishments in teaching and research.

"We are grateful to the donor for making possible an innovative way to recognize the truly exceptional young faculty member early in his career," Dr. Wiesner said in announcing the establishment of the chair. "It is especially appropriate that this chair will be associated with the Department of Civil Engineering, our oldest engineering discipline. The chair will provide an extraordinary means of expanding our support to a field of engineering so important to the Institute and society."

Professor Cornell's specialty is the application of probability and statistics theory to various civil engineering problems, particularly in the area of structures. His pioneering work in using probability analysis in the design process has enabled designers to estimate reliability and risk accurately.

Professor Cornell has also made significant original contributions to the mathematical modeling of earthquake ground motions and their effect on structures. In particular he has used his theories to predict the risk to important structures from earthquakes. Designers around the world now use his methods in planning tall buildings and nuclear power plants.

The co-author of *Probability, Statistics and Decision for Civil Engineers*, Professor Cornell also contributed to *Seismic Desing for Nuclear Power Plants*. He is the author or co-author of many article published in leading professional journals, and has served extensively as a consultant to industry and government.

A native of Mobridge, South Dakota, Professor Cornell attended Stanford University where he received the A.B. degree in 1960, the M.S. in 1961 and the Ph.D. in 1964. After serving on the teaching staff there, he joined the MIT faculty in 1968 as Assistant Professor of Civil Engineering and Ford Postdoctoral Fellow. He has been a visiting professor at the National University of Mexico and during the last academic year was a visiting associate professor at the University of California, Berkeley.

Professor Cornell received the 1971 Huber Research Prize of the American Society of Civil Engineers of which he is a member. He is also a member of the American Concrete Institute, the Institute of Mathematical Statistics, the Seismological Society of America, the Mexican Society of Earthquake Engineering, Phi Beta Kappa and Sigma Xi.

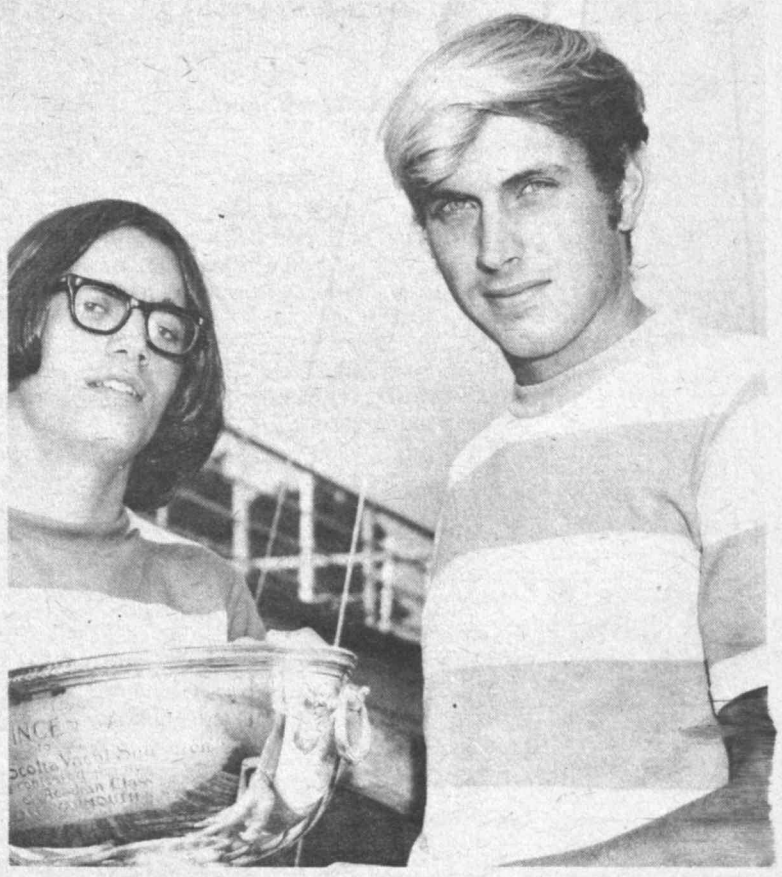
Foreign Study Petitions Due

The application deadline for 1972-73 Fulbright-Hays foreign study grants is approaching. Interested graduate students must file applications with Dean Harold Hazen, foreign study advisor, by Friday, October 8.

In addition to full grants, which provide round-trip transportation, tuition and maintenance to any one of 29 countries for one academic year, two other types of grants are available--U.S. Government travel grants to 12 countries, and maintenance and tuition awards to 14 countries offered by foreign governments, universities and private donors.

General eligibility requirements are U.S. Citizenship, a bachelor's degree or its equivalent, langauge ability, and good health. Except for specific awards, applicants may not hold or expect to receive the Ph.D. degree before the beginning of the grant. Preference is given to applicants between 20 and 35 years of age.

More information and application forms are available in Dean Hazen's office, Room 10-303, Extension 5243.



Victorious Terry Cronburg, G, right, holds Prince of Wales Cup with crewmember Steve Cucchiaro, '74.

THE INSTITUTE CALENDAR

September 15 through September 24, 1971

Send notices for September 22 through October 1 to the Calendar Editor, Room 5-111, Ext. 3279 by noon, Friday, September 17.

Events of Special Interest

English Conversation Classes for Foreign Wives**
Registration will be held on Thursday, September 23, 10am-12noon. Emma Rogers Room (Room 10-340). Classes available at all levels of ability. Sponsored by Technology Matrons, classes will meet regularly on Tuesday and Thursday mornings. No academic credit is offered. Fee is $15 for 18 sessions. Child care provided for pre-school children. For more information, call Mrs. J. Francis Reintjes, 484-3595, or Mrs. Herman Meissner, 729-5323.

Corporation Joint Advisory Committee (CJAC)
First meeting of the 1971 fall term. Agenda will be discussed. Thursday, September 23, 7:30pm. Bush Room (10-105). This is an open meeting--everyone is welcome to attend.

The Future of the International Payments System *
Round table discussion sponsored by the Sloan School of Management and the Economics Department. Guest Speaker is **Dr. Guido Carli**, Governor, Bank of Italy. Panel includes **Professor Franco Modigliani**, chairman; **Professor Paul Samuelson**, Sterling Professor of Economics, Yale University. Friday, September 24, 2:30-4:30pm. McDermott Hall (Green Building, Room 54-100).

Inaugural Events

Monday, October 4
12:30pm **Education Research Center Seminar**
"The Evaluation Problem." Bush Room.

Tuesday, October 5
8:30pm **The Dance Company of the National Center of Afro-American Artists ***
Kresge Auditorium.

Wednesday, October 6
2:00pm **Rogers Committee Report**
Panel discussion on undergraduate education. Room 9-150.
8:30pm **Inaugural Concert ***
MIT Symphony Orchestra and the MIT Choral Society. Kresge Auditorium.

Thursday, October 7
10:00am **Research Panel Discussion**
Provost Walter A. Rosenblith, chairman. Kresge Auditorium.
2:00pm **Education Panel Discussion**
Chancellor Paul E. Gray, chairman. Kresge Auditorium.
4:30pm **Inaugural Ceremony ***
Chairman of the Corporation Howard W. Johnson, presiding. Rockwell Cage.
7:30pm **Mandarin Play**
Chinese Student Club. Kresge Little Theatre. Repeated on October 8 and 9.

Monday, September 27
6:15pm **Alumni Advisory Dinner**
Faculty Club.

Tuesday, September 28
10:00am **Hayden Gallery Exhibit**
Opening of "The Contemporary Views of Man." Alfred Leslie, Wayne Theibaud, Philip Pearlstein Exhibit. Hayden Gallery, through October 31.

Thursday, September 30
2:00pm **Education Research Center Seminar**
"Laboratory-Based Mathematics." Bush Room.

Friday, October 1
5:00-6:30pm **Community Reception**
Great Court or, in case of bad weather, duPont Gymnasium.
8:00pm **LSC Movie**
"Women in Love." Room 26-100.
8:30pm **Drama Workshop Production**
Two one-act plays, including "Out at Sea" by Slawomir Mrozek. Selection of second play pending. Kresge Little Theatre.

Saturday, October 2
8:00pm **LSC Movie**
"Patton." Room 26-100.
8:30pm **Drama Workshop Production**
Two one-act plays, including "Out at Sea" by Slawomir Mrozek. Selection of second play pending. Kresge Little Theatre.

Seminars and Lectures

Wednesday, September 15

The Gap Between Experiment and Theory in Crystal Growth from the Melt
Professor A. Witt Department of Metallurgy and Materials Science Ceramic Seminar. 11am, Bush Room (10-105).

Nonlinear Optics and Double Resonance in Solids *
Professor I. Yacobi, Hebrew University. Francis Bitter National Magnet Laboratory. 4:15pm, 2nd floor conference room, Magnet Lab. Tea and coffee served at 4pm.

Thursday, September 16

Application of Lamb Edge Mode Theory in the Analysis of Explosively Generated Infrasound **
Joe W. Posey, research assistant. Department of Mechanical Engineering, doctoral thesis presentation. 2pm, Room 3-343.

Friday, September 17

Wackenroder Reaction--Recovery of SO_2 from Stack Gasses *
V. Desai, graduate student, Department of Chemical Engineering. 2pm, Room 24-121.

Fire Spread Over Flat Fuel Surfaces *
J. P. Jones, graduate student, Department of Chemical Engineering. 3pm, Room 24-121.

Tuesday, September 21

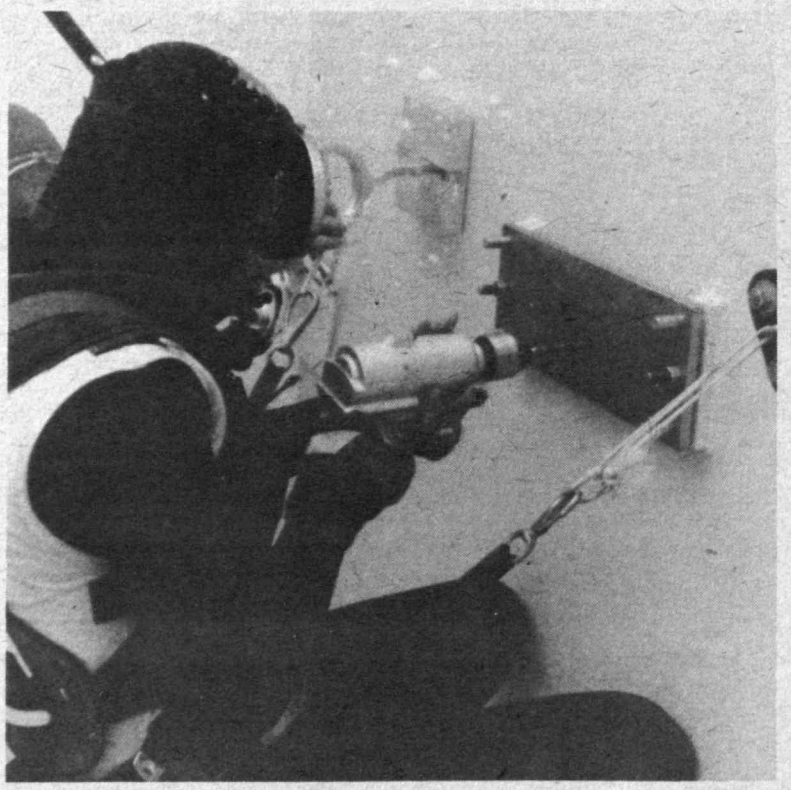
Structures in Environments: Computer-Aided Analytical Techniques
M. D. Pope, Lincoln Laboratory. 3:30pm, Lincoln Laboratory Cafeteria. Open to Lincoln personnel only.

Impression from a Sabbatical Year: Gottingen, Nantes and Leningrad *
Professor F. Leehey, Professor of Naval Architecture. Department of Ocean Engineering Seminar. 4pm, Room5-234. Coffee session in Room 5-314 at 3:30pm.

Congenital Hemolytic Anemia: Red Cell Metabolism and Survival *
Dr. David Nathan, Harvard Medical School. Biology Seminar Committee. 4:30pm, Room 6-120.

Wednesday, September 22

Working in the Ocean *
MIT Sea Grant Program. One-day symposium on recent ocean engineering developments and problems. 8:30am-5:30pm, Kresge Auditorium. Luncheon reserved tickets, $5 per person. Advance registration required, no fee. Registration forms available in the Sea Grant Office, Room 3-282, Ext. 7041.



A diver holds himself in position to work by means of a belt and two storage magnets. He is drilling a tes specimen with a pneumatic impact wrench.

First Order Heat Flow and ... Stability in Plane-Front Solidifi...
Professor R. L. Coble. Departm...
Ceramic Seminar. 11am, Bush R...

Friday, September 24

A Simulation of the Separation ... Bounded Control Volume unde... Field *
J. Porter, graduate Student, ...
12noon, Room 24-121.

Measurement of Flamability and ...
F. Wong, graduate student, Dep...
Room 24-121.

Student Meetings

New Right Coalition Meeting **
Gordon Nelson, speaker. Wedn...
1-103.

MIT Club Notes

Baker House SPAZ Jogging Club ...
Jogging around BU and Harvard ...
Second Floor West.

Nautical Association **
Basic Sailing Shore School. R...
throughout the fall, 5:15pm, MIT...

Outing Club *
Every Monday and Thursday, 5p...

MIT/DL Duplicate Bridge Club **
Every Tuesday, 6pm, Student Ce...

Science Fiction Society *
Every Friday, 5pm, Student Cent...

MIT Dramashop **
First meeting to welcome fresh...
September 17, 8pm, Kresge Litt...
ments.

Beginning-of-the-Year Party **
The Musical Theatre Guild (for...
Sullivan Society). Informal gat...
discuss plans for the new Guild...
are on the agenda. Prospectiv...
Saturday, September 18, 8pm. ...
Kitchen. Further information: Je...

Book of the Week *
Informal discussion over dinner ...
Slater. Tuesday, September 21, ...
next to the exit). Anyone who ...
Snell, Ext. 4922.

Scuba Club Pool Session **
MIT Scuba Club. Wednesday, Sep...

Musical Theatre Guild **
Auditions and organization of t...
of *The Pirates of Penzance*. Mo...
21, 22, 23, 8-11pm. Kresge R...
call 354-7795 or 876-0613.

Music

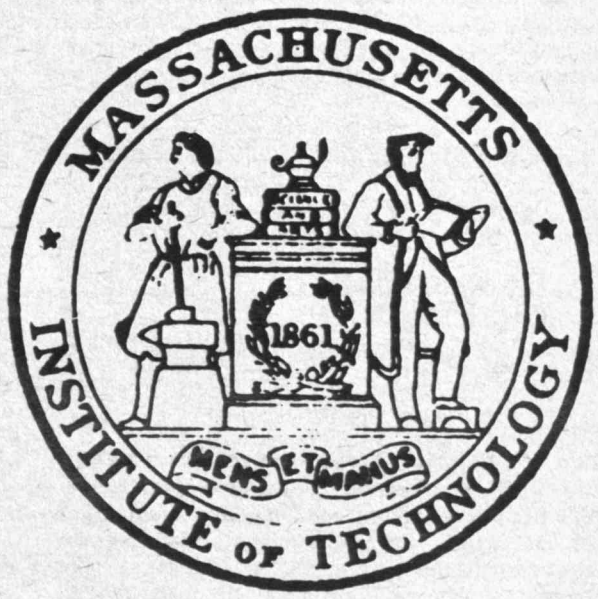
Flamenco Guitar Recital *
The MIT Classical Guitar Societ...
Vo Ta Han, and dancer Delia V...
Kresge Little Theatre. $1.25 adm...

Theatre and Sho...

Coffee House Theatre *
MIT Community Players. "Day...
by Floyd Barbour, and "A Sligh...
to Friday, September 15-17, 8p...
House). Admission $1.50. For ...
4720.

SUPPLEMENT

Compendium of Courses and Seminars Relating to Public Policy or Science and Technology in Society



First Term 1971

The Compendium follows the description of courses listed in the M.I.T. Bulletin, General Catalogue Issue. This is not a complete listing; for additional references refer to:

The M.I.T. Bulletin, General Catalogue Issue, 1971-1972

Directory of Undergraduate Research Opportunities, First Term 1971

Undergraduate Seminars, listed in *The Freshman Handbook*, 1971-1972

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Civil Engineering — Course I

1.17 ANALYSIS OF PUBLIC SYSTEMS (A)
Prof: R. L. Keeney
Prereq: 1.07 or 6.28 or 18.303
Year: G(1) 3-0-6

Discussion and critical analysis of applications of operations research techniques in the public domain. Topics include air traffic control, hospitals, health, education, police systems, air pollution control, post offices, fire department operations, libraries, court systems, transportation facilities. Seminar presentations by Institute faculty and invited guests with experience in public systems. Term project for each student: critical summary of the relevant work in a public systems area in which he chooses to concentrate. Additional requirement: a written proposal to study a particular problem in that area (which may or may not be continued in following terms).

Time: Rec. MW 3:30-5 Rm. 1-135

1.20 TRANSPORTATION LABORATORY
Prof: M. L. Manheim, E. R. Ruiter
Prereq: --
Year: U(1,2) 2-6-4

Laboratory experience with the properties of transportation systems and their effects on urban and regional development. Students formulate experiments based upon readings and discussions of current transportation problems. Emphasis on formulation of hypotheses about properties and effects of different types of transportation systems; planning of experiments to test these hypotheses; analysis of results; and development of recommendations for changes in transport systems plans and policies. Experiments performed using computer programs developed by the Urban Systems Laboratory which simulate the behavior of transport systems. (Prior experience with computers useful, but not required.)

Time:

Lab. Sec. 1	MW 9-12	Rm. 1-134
Sec. 2	TR 11-12	Rm. 1-277
Sec. 3	TR 1-4	Rm. 1-135

1.201 ANALYSIS OF TRANSPORTATION SYSTEMS I (A)
Prof: M. L. Manheim, W. M. Pecknold
Prereq: --
Year: G(1) 3-0-6

Introduction to the transport systems problem: transportation innovations, changing patterns of demand, changing social values. Framework for analysis: decision makers and their options, social and economic impacts of transportation. Prediction problem: demand forecasting, modelling transportation technologies, network flow and analysis. The decision problem: evaluation of impacts. Technology: basic physics of transportation, major technologies, the transportation production function. Basic transportation problems: urban, megapolitan transportation, transportation and economic policy. Exercises; a major student case study. (Primarily for incoming graduate students with diverse backgrounds.)

Time:

Lec.	TR 9-11 (alt. wks.)	
Rec. Sec. 1	TR 9-11	Rm. 1-135
Sec. 2	TR 9-11	Rm. 1-132
Sec. 3	TR 9-11	Rm. 1-242
Sec. 4	TR 9-11	Rm. 1-277

1.80 ISSUES FOR SURVIVAL
(1.101) *(Revised: Unit Change)*
Prof: W. W. Seifert, M. J. Holley, Jr.
Prereq: --
Year: G(1) 3-0-6

Exploration of the major threats to man's survival (e.g., pollution of the environment, population growth, resource depletion, devastating war). Objective examination of each threat; identification of what is factually known and what ought to be determined. Definition, to the extent possible, of absolute bounds; calculation of time in which bounds will be reached if present trends persist with only minor modifications. Consideration of major changes, in the form of technological breakthroughs or altered social attitudes, or both, which may remove or alleviate the threats. (For advanced undergraduate and graduate students.)

Time:

Lec.	TR 1	Rm. 3-270
Rec.	R 2	Rm. 1-246

1.811 LEGAL AND SOCIAL ASPECTS OF ENVIRONMENTAL QUALITY I (A)
(New) *Prof:* M. S. Baram
Prereq: --
Year: G(1) 3-0-6

Social values and legal doctrines relevant to environmental quality will be reviewed. Critical analysis of the legal system and other mechanisms of social control – public agencies, legislatures, citizens groups and Nader raiders, technological peer groups, professional and industrial associations. Recent proposals for technology assessment, scientific and industrial responsibility, and ecological action explored in this context. Discussion and readings focus on several specific environmental quality problems: e.g., water pollution, noise pollution, power plants, etc. Final paper. Readings include court cases, legislation and its background, journal and review articles from several disciplines, and readings from humanistic sources. Guests invited to ensure that a full spectrum of values and issues are presented.

Time: *Rec.* *TR 11:30-1* *Rm. 1-353*

Mechanical Engineering — Course II

2.23 ENVIRONMENTAL POLLUTION SEMINAR
Prof: J. B. Heywood, J. A. Fay
Prereq: --
Year: U(1) 3-0-6

A study of the problems of air and water pollution from many points of view: scientific, engineering, management, economic, and political. Selection of topics from the following: global pollution of air and water, urban air pollution, pollution from automobiles and power plants, politics and economics of pollution, solid and liquid waste disposal, pesticides, thermal pollution, eutrophication of lakes, noise. Content and format varying from year to year. Field trips and guest lecturers. An Undergraduate Policy Seminar for juniors and seniors.

Time:

Lec.	TR 1	Rm. 5-234
Rec. Sec. 1	F 12	Rm. 1-242
Sec. 2	F 1	Rm. 1-242

Metallurgy and Materials Science — Course III

3.12 INTRODUCTION TO ELECTRON OPTICS AND ELECTRON MICROSCOPY
Prof: E. E. Ogilvie
Prereq: 8.02, 18.02
Year: U(1) 4-3-5

The course introduces students to the field of electron optics and familiarizes them with lab equipment.

Time:

Lab – To Be Arranged		
Rec.	MTRF 11	Rm. 13-401

Architecture — Course IV

4.158 USER AND COMMUNITY INVOLVEMENT IN HOUSING
Prof: H. H. Harms
Prereq: --
Year: U&G(1) 4-0-4

Overview of theory and practice of community participation in housing. Study of different types of user involvement in housing and planning and the impact on the environment and users. Comparison of case projects and their political context.

Time: To Be Arranged

4.160 URBAN SETTLEMENT DESIGN IN DEVELOPING COUNTRIES (A)
(New) *Prof:* H. Caminos
Prereq: 4.155
Year: G(1) 0-15-20

Program on housing and urban settlements for developing countries with emphasis on Latin America. The aim is to develop and clarify the social, economic, and physical determinants of environmental design. Design problems are confronted at every scale, from the element of construction to the complete urban community. The intent of this work is to develop planning norms and standards within a dynamic and rapidly changing physical and social context.

Time: Des. TWRF 2-6 Rm. E21

4.163 URBAN DESIGN II (A)
Prof: J. Beinart
Prereq: 4.162
Year: G(1) Arr.

Alternative environments for higher education – an investigation of emerging concepts in the planning of facilities for higher education and the development of models for the design of facilities within existing and new urban contexts.

Time: MWF 2-5 Rm. 9-513

Chemistry — Course V

5.22J EMPL (ENVIRONMENTAL MEASUREMENTS PROJECTS)
(New) *(Same Subject as 8.16J 20.03J)*
Prof: Chemistry Staff, J. G. King, C. Cooney
Prereq: --
Year: U(1)

Environmental Measurements Project Laboratory (EMPL) is an interdisciplinary science course (5.22J, 5.23J, 8.09J, 8.10J, 20.03J, 20.04J) which addresses the basic disparity between a desire "to do something" about environmental problems on the one hand and the all too frequent lack of necessary underlying scientific data and understanding on the other hand. Involvement in EMPL means working on an individual measurements research project which is related to an environmental problem. Projects can be suggested by students or staff or can be selected from a list of projects already suggested, tried or in progress. Typical projects range, for example, from determining the NTA content in available household detergents to developing novel methods for counting waterborn bacteria.

There are no formal prerequisites, but naturally the more laboratory or tinkering experience you have had the better. If you want a more detailed look at typical measurements projects, or more information in general, see either Dr. James C. Weaver (26-317, x4194) or Dr. Charles L. Cooney (16-299, x3108).

Time: To Be Arranged

Electrical Engineering — Course VI

6.508J THE NUCLEAR ARMS RACE AND ARMS CONTROL – TECHNOLOGY, MANAGEMENT AND GOVERNMENT POLICY
(New) *(Same Subject as 17.841J)*
Prof: G. W. Rathjens, J. P. Ruina
Prereq: --
Year: G(1) 3-0-6

The decision making process relating to national security is based on the interaction of technological assessments with political and economic judgments. Both the development of nuclear weapons systems and disarmament considerations must take into account existing and projected technology. The course will include a critical examination of the decisions to develop ballistic missiles, AMB, MIRVs, etc. It will also review the Nuclear Test Ban Treaty and SALT. To the extent possible experts who have played key roles in the topics covered will be invited to give guest lectures.

Time:

Lec.	W 3-5	Rm. E53-220
Rec. – To Be Arranged		

Physics — Course VIII

8.165J EMPL (ENVIRONMENTAL MEASUREMENTS PROJECT LABORATORY) I
(New) *(Same Subject as 5.22J and 20.03J)*
Prof: J. G. King, Chemistry Staff, C. Cooney
Prereq: --
Year: U(1) To Be Arranged

Environmental Measurements Project Laboratory (EMPL) is an interdisciplinary science course (5.22J, 5.23J, 8.09J, 8.10J, 20.03J, 20.04J) which addresses the basic disparity between a desire "to do something" about environmental problems on the one hand and the all too frequent lack of necessary underlying scientific data and understanding on the other hand. Involvement in EMPL means working on an individual measurements research project which is related to an environmental problem. Projects can be suggested by students or staff or can be selected from a list of projects already suggested, tried or in progress. Typical projects range, for example, from determining the NTA content in available household detergents to developing novel methods for counting waterborn bacteria.

There are no formal prerequisites, but naturally the more laboratory or tinkering experience you have had the better. If you want a more detailed look at typical measurements projects, or more information in general, see either Dr. James C. Weaver (26-317, x4194) or Dr. Charles L. Cooney (16.299, x3108).

Time: To Be Arranged

Urban Studies and Planning — Course XI

11.01 THE PLANNING PROCESS
(11.10) *(Revised: Unit Change)*
Prof: L. Rodwin
Prereq: ––
Year: G(1) 3-0-6
Evaluation of current developments in the field of urban studies and planning with special emphasis on housing, the planning process, and the uses of research. Areas of specialization in the Department and evolving views on the role of the planner are also examined.

Time: Lec. T 3-5 Rm. 5-232
Rec. – To Be Arranged

11.02 PERSPECTIVES ON URBAN ISSUES
(11.105) *(Junior Colloquium)*
Prof: Staff
Prereq: 11.05, 11.07
Year: U(1) 3-0-6
Colloquium in Urban Studies which examines the ways in which "urban problems" are dealt with and the ways in which society sets priorities for dealing with these problems. Various formulations of urban policy are analyzed in relation to the machinery for policy-making and with regard to the content of various academic disciplines. The intent of the colloquium is to examine different ways of thinking about urban issues rather than to present a comprehensive body of knowledge. (Restricted to Course XI Juniors.)

Time: Lec. T 3-5 Rm. 2-349
Rec. – To Be Arranged

11.04 MODELS AND THE METROPOLIS
(11.19)
Prof: A. Fleisher
Prereq: 18.01 and 18.02 or the equivalent
Year: U(1) 4-0-8
The class will discuss the principles and characteristics of modelling in the social sciences and examine, in detail, current tries at reducing the metropolis to systematics.

Time: Lec. T 9-11 Rm. 9-351
Rec. To Be Arranged

11.07 ECONOMIC ISSUES IN URBAN PLANNING
(11.60)
Prof: J.R. Harris
Prereq: 14,01, 14.02
Year: U(1) 3-0-6
Economic, social and technological factors which affect the functions and physical environment of the city. Analytical techniques for predicting the effect of alternative policies on the growth and structural change of metropolitan areas with respect to economic, spatial, and employment characteristics. Urban fiscal relationships. Economies of scale in providing urban services, demand for public services, sources of tax revenue, and distributional implications of alternative tax expenditure policies.

Time: Rec. – To Be Arranged

11.11 COMPONENTS OF THE URBAN ENVIRONMENT
(Revised: Unit Change)
Prof: J. T. Howard
Prereq: ––
Year: U(1) 4-0-8
Physical nature and characteristics of the urban environment and its component parts. Land uses for residences, commerce, industry, institutions, etc. Circulation elements: streets, expressways, transit, parking. Physical structure and relationship of parts of city and regional development. (Enrollment restricted to Juniors, Seniors and Graduate Students.)

Time: Lec. TR 1-3 Rm. 4-370

HOUSING, COMMUNITY DEVELOPMENT AND URBAN ECONOMICS

11.20 INTRODUCTION TO HOUSING PROBLEMS
(11.24) *(Revised: Unit Change)*
Prof: L. C. Keyes
Prereq: 11.05, 11.11 or 14.01
Year: U(1) 3-0-6
The meaning and scope of housing problems. The focus is on the interdisciplinary nature of housing problems – their sociological, political, economic, and architectural components – as well as on the emergence of public policy in the housing area and the social and political context from which the elements of that policy have emerged.

Time: Lec. R 7-9pm Rm. 3-270
Rec. To Be Arranged

11.22 THE CONSTRUCTION OF HOUSING (A)
(New)
Prof: Q. Mills
Prereq: 11.20, 11.21
Year: G(1) 2-0-7
This seminar is concerned with the structure and operation of the residential construction industry. Topics will include the industrial organization of residential building, the structure of housing markets, the role of housing in aggregate economic policy, the labor market, construction site management, and other aspects of the production process.

Time: Rec. M 3-5 Rm. E52-074

11.251 ISSUES AND STRATEGIES IN COMMUNITY DEVELOPMENT
(New)
Prof: M. King, F. Jones
Prereq: ––
Year: G(1) Arr.
Current issues in community development: tactics, experiences and alternative strategies. (Primarily for those enrolled in the Community Fellows Program; others admitted by permission of the instructor.)

Time: Rec. M 9-12 Rm. 9-355

11.261 URBAN ECONOMIC ANALYSIS I (A)
(11.67J) *(Same subject as 14.573J)*
Prof: J. Harris
Prereq: 14.03 and 14.06 or 14.03 and 14.05; 11.44 would be desirable
Year: G(1) 3-0-6
Patterns and processes of growth and structural change within metropolitan areas. The land use market and the spatial structure of the metropolitan community. The housing market; demand and supply, growth, aging, and renewal. The urban transportation system and its problems. Models of the metropolis. In each of these topics, emphasis on the resource allocation process, its efficiency and implications for income distribution.

Time: Rec. TR 10:30-12 Rm. E52-156

11.271 URBAN LAND DEVELOPMENT (A)
Prof: Philip David
Prereq: ––
Year: G(1) 2-0-7
This course treats the management problems involved in developing many kinds of real estate, ranging from multifamily housing, office buildings, hotels and motels, to shopping centers, industrial parks, residential subdivisions, recreational facilities, urban renewal projects, and new towns. It approaches real estate as a commodity determined by market and demographic forces and subject to unique financial requirements. It takes an integrated management approach to such diverse problems as determining the optimal use and price of land, the market or demand for the kind of space being developed, the design and type of structure to be put on the land within the framework of zoning and building codes, and the minimum rent levels.

The course studies in detail urban land development from various viewpoints including the developer; financial institutions as investors and managers of real estate holdings; individuals considering real estate as an investment medium; government and other agencies involved in urban planning; and businessmen concerned with city planning and redevelopment.

Time: F 2-4 Rm. 9-355

11.31 URBAN LANDSCAPE (A)
(Revised: Unit Change)
Prof: K.A. Lynch
Prereq: ––
Year: G(1) 2-0-7
The city and its components as direct, personal, sensuous experience; view, movement, light, sound, climate, space, visible activity; identity, spatial and temporal images, meaning and development. Field observation and seminar discussions.

Time: To Be Arranged

11.33 ENVIRONMENTAL PROGRAMMING (A)
(Revised: Unit Change)
Prof: W.L. Porter
Prereq: 11.11, 11.30 or 11.31
Year: G(1) 2-0-7
Seminar on ways in which human purposes can be translated into explicit and testable requirements for large scale environmenta. Conceptual, human, social, managerial, technological and design factors influencing the translation process. Special emphasis on the sensory, psychological and esthetic functions of environments. Examples of environmental programming drawn from such areas as public facilities and service systems, and residential environments.

Time: Rec. R 11-1 Rm. 5-232

11.351 PSYCHOLOGY OF THE ENVIRONMENT (A)
(11.34) *(Revised: Unit Change)*
Prof: M.C. Potter
Prereq: 9.70 or the equivalent
Year: G(1) 2-0-7
Applications to environmental planning and design of methods and findings in psychology. Discussion of perception, attention, memory, thinking, inter-personal attitudes and behabior, needs and values. Use of experimental, observational, and survey methods in a series of exercises in environmental assessment.

Time: To Be Arranged

11.391 EMERGING LIFE-STYLES AND THEIR HABITATS
(11.371)
Prof: K. Linn
Prereq: ––
Year: G(1) Arr.
Investigation of experimental free-schools, cooperative enterprises, and urban and rural communes, involving learning from and working with such communities. Focus on the imperative to explore alternatives to the development of competitive character structures; aggressive, totalitarian societies; and war.

Time: T 6-10pm Rm. 7-345

11.41 METROPOLITAN PLANNING IN DEVELOPING COUNTRIES (A)
(New)
Prof: R. Gakenheimer
Prereq: ––
Year: G(1) 3-0-6
The nature of metropolitan urban structures in developing countries. Discussion of urban problems with an emphasis on analytical strategies, the development of planning methods, and the evaluation of programs.

Time: Lec. R 3-5 Rm. 7-403
Rec. To Be Arranged

11.421 URBAN SETTLEMENTS, SQUATTERS, AND SOCIAL CHANGE (A)
(11.461)
Prof: J. Turner
Prereq: 11.05 or 11.07; 11.11 or 11.20
Year: G(1) Arr.
Lectures and seminars on the urban accomodations of the low-income sectors in urbanizing countries and the formation of squatter settlements. Examination of the principal social, economic, and physical determinants of housing and settlement forms and development procedures in the context of a transitional economy.

Time: Rec. 7-9pm Rm. 9-355

11.43 SOCIAL ASPECTS OF DEVELOPMENT (A)
(11.575) *(Revised: Unit Change)*
Prof: L. Peattie
Prereq: 11.05, 11.21; or 11.55
Year: G(1) 2-0-7
Seminar discussion of the social and cultural aspects of economic development: urbanization, changing systems of social stratification, urban family structure, and the concept of a "culture of poverty". Treatment of the themes so as to show a sense of the social and cultural transformations implied by economic development and how "social problems" may be thought about in terms of their technical, economic, and institutional parameters.

11.451 CASE STUDIES IN NATIONAL AND REGIONAL PLANNING
(New)
Prof: J.R. Harris
Prereq: ––
Year: G(1) 3-0-6
Discussion of current approaches and problems dealing with national and regional planning in developing countries. Weekly seminars led by Fellows in the Special Program in Urban and Regional Studies (SPURS) and invited speakers. Independent study and preparation of presentations by individual students or teams of students. (Admission by permission of the instructor.)

Time: Lec. T 1-3 Rm. 9-355
Rec. To Be Arranged

11.501 SOCIAL POLICY
(11.51) *(Revised: Unit Change)*
Prof: M. Rein
Prereq: ––
Year: G(1) 3-0-6
The course will examine different conceptions of social policy but will give special attention to issues of distribution and redistribution. These issues will be examined in a number of different fields, such as: income transfers, medical care, social services, manpower training, education and housing. After reviewing each of these sectors, an attempt at an overall assessment of the relationship between social policy and income distribution will be made based on empirical studies in the United States and selected advanced industrial societies in Western Europe. In addition to a review of issues of distribution, attention will be given to problems of citizen participation, coordination, evaluation and social change. The course will conclude with an interpretation of the limits and the future of social policy.

Time: Lec. W 9-11 Rm. 10-275
Rec. – To Be Arranged

11.511 URBAN PLANNING AND SOCIAL POLICY (A)
(11.55) *(Revised: Unit Change)*
Prof: B. Frieden
Prereq: 11.01 and 11.05 or 11.501
Year: G(1) 2-0-7
Approaches to complex urban problems involving both social institutions and the physical environment, drawing on methods of urban planning and social welfare planning. Evaluation of strategies for dealing with problems of poverty, housing, social service delivery, health care, income maintenance. Review of recent experiences and consideration of alternative policies. (Offered jointly with the Florence Heller Graduate School for Advanced Studies in Social Welfare, Brandeis University.)

Time: Rec. R 1-3

11.52 DELIBERATE SOCIAL CHANGE IN THE CITIES I (A)

(11.591)

Prof: D. A. Schon
Prereq: 11.09 or 11.501
Year: G(1) Arr.

Study of theories and strategies of social and institutional change in urban settings, case studies in the formation of community corporations, urban development corporations, the advocate planning role, the neighborhood health center as a means to social change, low-income housing. Examination of relationships between social and technological change. Word toward a theory of social change, taking account of the stance and role of the change-agent, the institutional forms involved, and the special areas of concern.

Time: Rec. M eve. 7-9 pm Rm. 7-403

11.53 EDUCATIONAL POLICY AND THE COMMUNITY (A)

(New)

Prof: L. R. Peattie
Prereq: 11.05, 11.501
Year: G(1) Arr.

The seminar examines some basic issues in educational policy and planning, especially as they have emerged in various national educational strategies, and analyzes a number of attempted or proposed strategies for altering the American educational system. (Enrollment limited.)

Time: Rec. T 1-3 Rm. 9-529

11.571 URBAN LEGAL ISSUES

(11.701) *(Revised: Unit Change)*

Prof: W. Doebele
Prereq: 11.05, 11.07 or 11.11
Year: U(1) 2-0-7

Seminars on the legal process and the application of legal solutions to the problems of urban society. Focus varies from term to term, ranging from legal assistance in the "war" against poverty to zoning, and the law of land use, urban renewal, and housing code enforcement.

Time: Lec. F 12-2 3-270

11.581 INSTITUTIONAL CHANGE IN URBAN AMERICA (A)

(11.851)

Prof: R. H. Fogelson, M. Rein
Prereq: 11.05, 11.501, or 11.522
Year: G(1) Arr.

A seminar on institutional change in urban America from roughly 1890 to the present. Topics: centralization, professionalization, and bureaucratization of the police, schools, welfare, and other urban institutions. First semester: readings and discussions. Limited enrollment; Instructor's permission required.

Time: Rec. T 3-5 Rm. 7-403

11.711 COMMUNITY AND REGIONAL PLANNING METHODS

(11.01)

Prof: P. Herr
Prereq: ——
Year: U(1,2) Arr.

Studies and practice in the methods and processes of community and regional planning. Examination of current methods of planning and decision making, development of new ones, and their practical field application. Course combines seminar and field work formats, with readings and discussion keyed to ongoing involvement of the class in a real community planning program.

Time: Rec. MWF 2-5 Rm. 7-404

11.712 COMMUNITY AND REGIONAL PLANNING METHODS (A)

(11.03)

Prof: P. Herr
Prereq: 11.711 or equivalent experience
Year: G(1,2) Arr.

Course content same as 11.711.

Time: To Be Arranged

11.75 POLICY ANALYSIS AND DECISION THEORY

Prof: M. O'Hare
Prereq: ——
Year: G(1) 2-0-7

Review of basic literature in decision theory and policy analysis. Exploration of approaches to policy-making, quantitative analysis of policy decisions, systems approaches to public policy analyses.

Time: To Be Arranged

11.87 ANALYSIS OF PUBLIC SYSTEMS

Prof: R. L. Keeney
Prereq: 1.07 or 6.28 or 18.303
Year: G(1) 3-0-6

Discussion and critical analysis of applications of operations research techniques in the public domain. Topics include air traffic control, hospitals, health, education, police systems, air pollution control, post offices, fire department operations, libraries, court systems, transportation facilities. Seminar presentations by Institute faculty and invited guests with experience in public systems. Term project for each student: critical summary of the relevant work in a public systems area in which he chooses to concentrate. Additional requirement: a written proposal to study a particular problem in that area (which may or may not be continued in following terms).

Time: Rec. MW 3:30-5 Rm. 1-135

11.901 RESEARCH SEMINAR: HEALTH SERVICES PROJECT PLANNING LABORATORY (A)

(New)

Prof: E. Mishler (Harvard Medical School)
Prereq: 11.01
Year: G(1) or Advanced U Arr.

The laboratory will focus on problems of health planning and health care delivery. This year, emphasis will be placed on two problem areas: (a) the relationship of the family to the health system; (b) the physician-patient relationship. Essentially, we shall be concerned with the ways in which certain characteristics of these two micro-social units both affect and are affected by different types of health care systems. We will examine how different assumptions about families and the reciprocal roles of patients and physicians enter into decisions made by health planners. What would be the consequences, for example, of focusing on the family as the health unit rather than on the individual? What alternatives are feasible to the current model of primary care that involves a particular relationship between physician and patient?

The central work for students will consist of the development of field projects around these issues. Empirical studies will be emphasized, with special attention to interviewing and field observations in different health care settings. Hopefully, small groups of students could work together on different projects. The aims would be to generate information and analyses that could be useful to community groups and to health planners. Basic course content will be drawn from theory and research in the social sciences that has particular relevance to health; this material will serve as background for particular projects. Projects actually undertaken will be determined by student interest, the availability of necessary resources and competences, and suitable arrangements with appropriate agencies. The course director is a social psychologist; other faculty will be brought into the course on a consulting basis.

Time: To Be Arranged – Contact Dr. Mishler (232-2690)

11.941 MANPOWER PLANNING (A)

Prof: A. Solomon
Prereq: ——
Year: G(1) Arr.

Analysis of manpower development strategies, job training and new career programs, labor market analyses. Review of federal manpower programs, techniques of program analysis.

Time: To Be Arranged

11.942 ORGANIZATIONAL ANALYSIS (A)

Prof: F. Sampson
Prereq: 11.05
Year: G(1) 3-0-6

Studies of the sociology and theory of organizations, analysis of bureaucracies. Approaches to the study of complex organizations.

Time: To Be Arranged

Economics — Course XIV

(WHILE ALL COURSES LISTED RELATE TO ECONOMIC POLICY, THE STARRED (*) COURSES ARE MORE DIRECTLY CONCERNED WITH THE PROBLEMS OF TECHNOLOGY IN THE ECONOMY.)

14.01 ECONOMIC PRINCIPLES I

Prof: R. M. Solow
Prereq: ——
Year: U(1,2,S) 3-0-6

Introduction to fundamental economic concepts and analysis, economic interdependence and the operation of a mixed economy, the determinants of the over-all levels of economic activity, fiscal and monetary policy and international trade and payments. Current economic problems.

Time: See Class Schedule

14.02* ECONOMIC PRINCIPLES II

Prof: R. W. Crandall
Prereq: 14.01
Year: U(1,2) 3-0-6

Continuation of 14.01. The composition and pricing of output of particular industries, supply and demand analysis and competition and monopoly. Current economic problems.

Time: See Class Schedule

14.03* PRICES AND PRODUCTION

Prof: R. W. Crandall
Prereq: 14.02
Year: U(1) 3-0-6

Basic theory, partial and general, of the firm, household production and markets, treated at the intermediate level. Emphasis on applications, such as cost-benefit analyses, price regulation, technical change, and income distribution.

Time: Rec. MWF 10 Rm. 2-240

14.115* ECONOMICS AND FINANCE: PRINCIPLES AND POLICIES II

Prof: P. N. Rosenstein-Rodan
Prereq: 14.114
Year: G(1) 3-0-6
(Restricted to Sloan Fellows)

Continuation of 14.114.

Time: Rec. Sec. 1 MW 9-10:30 Rm. E53-220
Sec. 2 MW 10:30-12 Rm. E53-220

14.116* ECONOMICS AND FINANCE: PRINCIPLES AND POLICIES III (A)

Prof: M. A. Adelman
Prereq: 14.115
Year: G(1) 3-0-6
(Restricted to Sloan Fellows)

Continuation of 14.115.

Time: Rec. Sec. 1 TR 10:30-12 Rm. E52-174
Sec. 2 TR 1-2:30 Rm. E52-174

14.271* PROBLEMS IN INDUSTRIAL ECONOMICS (A)

Prof: R. W. Crandall
Prereq: 14.04
Year: G(1) 3-0-6

Small and large enterprises in the American economy; market structures; degrees of monopoly and competition; requisites of public policy.

Time: Rec. MW 3-4:30 Rm. E53-212

14.39* ECONOMIC RESEARCH SEMINAR

Prof: Staff
Prereq: 14.04, 14.06, 14.30
Year: U(1) 2-0-10

Introduction to research procedures in economics in preparation for thesis. Students to prepare reports on research topics.

Time: Rec. Sec. 1 W 1-3 Rm. E52-363
Sec. 2 T 1-3 Rm. E52-394
Sec. 3 R 1:30-3:30 Rm. E52-363

14.43* PUBLIC FINANCE

Prof: P. A. Diamond
Prereq: 14.04, 14.06
Year: U(1) 3-0-9

Effects of government revenue and expenditure programs on the level and distribution of economic activity; intergovernmental fiscal problems; relationship of fiscal to other economic policies.

Time: Rec. TR 3-4:30 Rm. E52-156

14.463 MONETARY ECONOMICS II (A)

Prof: D. K. Foley
Prereq: 14.122, 14.452
Year: G(1) 3-0-6

General equilibrium theory of money, interest, prices, and output; portfolio problems, cost of capital, and the effects of monetary phenomena on investment and accumulation of wealth with special reference to problems arising from uncertainty.

Time: Rec. TR 2:30-4 Rm. E52-151

14.471* FISCAL ECONOMICS I (A)

Prof: P. A. Diamond
Prereq: 14.121, 14.451
Year: G(1) 3-0-6

Examination, both theoretic and quantitative, of governmental fiscal institutions and behavior: the budget process, taxation, expenditure, pricing, and debt activities.

Time: Rec. TR 1-2:30 Rm. E52-151

14.51 URBAN ECONOMICS

Prof: R. E. Grieson, M. D. Edel
Prereq: 14.02
Year: U(1,2) 3-0-6

Analysis of selected economic problems of urban areas in the United States. Metropolitan growth and suburbanization. Housing, markets, segregation and urban renewal. Transportation systems. Ghetto economic development. Scale, finance and decentralization of public services. Development of methodological approaches through discussion of policy issues.

Time: Lec. MW 3-4:30 Rm. 16-310

14.573J* URBAN ECONOMIC ANALYSIS I (A)

(Same Subject as 11.262J)

Prof: J. R. Harris
Prereq: 14.03 or 14.06, 14.04, 14.05
Year: G(1) 3-0-6

Patterns and processes of growth and structural change within metropolitan areas. The land use market and the spatial structure of the metropolitan community. The housing market; demand and supply, growth, aging, and renewal. The urban transportation system and its problems. Models of the metropolis. In each of these topics, emphasis on the resource allocation process, its efficiency and implications for income distribution.

Time: Rec. TR 10:30-12 Rm. E52-156

14.581 INTERNATIONAL ECONOMICS I (A)
Prof: J. N. Bhagwati
Prereq: 14.04, 14.06
Year: G(1) 4-0-8

Theory of international trade and applications in commercial policy.

Time: Lec. TR 1-2:30 Rm. E52-365
Rec. – To Be Arranged

14.63 LABOR RELATIONS
Prof: J. E. Annable
Prereq: ––
Year: U(1,2) 3-0-6

An introductory analysis through an integrated social science approach, of the institutions which have developed in response to "human resource problems." The growth structure, and objectives of management and organized labor groups, collective bargaining as part of a dynamic accommodation process between organizations that have economic, political, and social characteristics.

Time: Rec. Sec. 1 MWF 9 Rm. 2-132
Sec. 2 MWF 10 Rm. 2-333

14.64* LABOR ECONOMICS AND PUBLIC POLICY
Prof: M. J. Piore, D. Q. Mills
Prereq: 14.02 or 14.63
Year: U(1,2) 3-0-6

Particular applications of the analytical tools developed in prerequisite subjects to two aspects of the industrial relations scene: (1) the economics of collective bargaining, problems presented by wage determination at firm, industry, and economy levels; and (2) the development of public policy on the rights and obligations of employers, unions, and workers. (Permission of instructor.)

Time: Rec. MWF 2 Rm. 2-139

14.671J* LABOR ECONOMICS (A)
(Same Subject as 15.671J)
Prof: M. J. Piore, C. A. Myers
Prereq: 14.64 or 15.663
Year: G(1) 3-0-6

Primary emphasis on the determination of wage levels and wage differentials through an analysis of labor supply and labor demand, as affected by economic as well as by institutional factors. The impact of unions on both wage and non-wage elements of collective bargaining in the light of the characteristics and objectives of particular unions. Other special topics growing out of recent research in labor economics.

Time: Lec. T 10-12 Rm. E52-365
Rec. – To Be Arranged

14.691J RESEARCH SEMINAR IN INDUSTRIAL RELATIONS (A)
(Same Subject as 15.691J)
Prof: C. A. Myers
Prereq: 14.671J or 14.672J
Year: G(1) 3-0-6

Discussion of important areas for research in industrial relations, frameworks for research, research techniques, and methodological problems. Centered mainly on the thesis research of advanced graduate students.

Time: Lec. T 1-2:30 Rm. E52-450
Rec. – To Be Arranged

14.71 ECONOMIC HISTORY
Prof: P. Temin
Prereq: 14.02
Year: U(1) 3-0-6

Survey of growth in the American and European economy in the nineteenth and twentieth centuries. Topics including the economic effects of governmental policies, the causes and effects of technical change, the role of specific institutions, the economic causes of political conflicts. Content varying from year to year with emphasis usually on the United States.

Time: Rec. TR 1-2:30 Rm. E52-074

14.731 AMERICAN ECONOMIC HISTORY (A)
Prof: P. Temin
Prereq: 14.121
Year: G(1) 3-0-6

Basic survey of the beginnings of American industrialization, emphasizing a quantitative approach and the period from 1760 to 1860. The nature of the colonial economy, economic problems of political independence, factors inducing the growth of industry (and specific industries), problems of antebellum agriculture and slavery.

Time: Rec. TR 10:30-12 Rm. E52-151

14.74 ECONOMIC GROWTH AND DEVELOPMENT
Prof: M. D. Edel
Prereq: 14.02
Year: U(1) 3-0-6

Analytical treatment of the problems of economic growth and development combined with comparative studies of the growth of advanced and underdeveloped economies. Considerations of policy measures to promote economic development and growth.

Time: Rec. TR 11-12:30 Rm. 1-107

14.771 PROBLEMS OF ECONOMIC DEVELOPMENT (A)
Prof: P. N. Rosenstein-Rodan
Prereq: 14.772
Year: G(1) 3-0-6

Applications of development theory. Studies of structure of less-developed economies, technological constraints, interaction of foreign trade and internal development, international financial problems.

Time: To Be Arranged

Management — Course XV

15.188 LABOR-MANAGEMENT RELATIONS AND PUBLIC POLICY (A)
Prof: D. Q. Mills
Prereq: 15.184
Year: G(1) 3-0-6

Brief survey of the background of labor law, followed by analysis of the nature of the collective bargaining process, its major issues and points of contention. Discussion of selected problems in public policy. (Restricted to Sloan Fellows.)

Time: Rec. Sec. 1 M 1-2:30 Rm. E52-220
Sec. 2 M 1-2:30 Rm. E52-365
Lec. W 2:30-4/ 3-4:30 Rm. E52-461

15.337 SEMINAR ON COMMUNICATION PROBLEMS IN SCIENCE AND TECHNOLOGY (A)
Prof: T. J. Allen
Prereq: 15.311
Year: G(1) 3-0-6

Utilization of scientific and technological information by research and development "problem solvers." Nature of the flow of information in science and technology. The "publication explosion" and the system's response to it. Role of the professional societies in dissemination of information. Impact of bureaucratic organization on flow of information. Problems of information flow between science and technology. Transfer of technology among nations.

Time: Rec. T 10-12 Rm. E52-153

15.663 LABOR MANAGEMENT RELATIONS
Prof: D. Q. Mills
Prereq: ––
Year: G(1,2) 3-0-6

Structure and functioning of management and unions in handling of industrial relations; union policies; problems likely to arise. Reconciliation of union and management policies. Public policy in labor-management relations. (Restricted to Sloan School of Management graduate students; others admitted only by permission of instructor.)

Time: Rec. Sec. 1 MW 9-10:30 Rm. E52-160
Sec. 2 MW 10:30-12 Rm. E52-160

15.793 STUDIES IN PUBLIC OPERATIONS MANAGEMENT (A)
(New)
Prof: P. R. Kleindorfer
Prereq: 15.761
Year: G(1) 3-0-6

This course studies the efficient production and delivery of goods and services in the public sector. Background topics in economic approaches to cost-benefit studies are considered. The use of systems analysis and model-based planning and control are discussed for various planning levels. Information systems issues are highlighted. Program budgeting and control are introduced. Concepts are illustrated by case studies in various application areas.

Topics Covered: Cost Benefit Studies
Model-Based Planning and Control

Time: Rec. MW 1-2:30 Rm. E52-160

15.826 MARKETING ISSUES IN PUBLIC SYSTEMS (A)
(New)
Prof: J. D. C. Little, G. L. Urban
Prereq: 15.812
Year: G(1) 3-0-6

Politicians, government agencies, hospitals and, in fact, most institutions serving the public have marketing-like problems. They have one or more clienteles which they serve and communicate with about service.

The goal of the seminar is to explore the application of management science and behavioral science to the relationship between public organizations and their clienteles. Specifically, how can an organization design, communicate, and distribute its services so as best to serve the public. Emphasis will be on normative applications of information systems and models to specific problems. Areas to be considered will include family planning, political campaigns, citizen feedback systems, medical systems, and others as may be suggested by the seminar.

Lectures, readings, and discussions will be used to survey each issue in each area. Students may be called on to make a special report on a topic of interest to the seminar. A major project will be required of each student. Projects may be related to family planning in Atlanta, fall election campaigns, marketing in the black community, MIT low cost housing project, or other appropriate subjects.

Time: Rec. TR 1-2:30 Rm. E52-160

15.872 PRINCIPLES OF DYNAMIC SYSTEMS I (A)
Prof: J. Heinze, D. L. Meadows
Prereq: 18.03
Year: G(1) 3-0-9

The philosophy and computer simulation tools of System Dynamics will be taught in the context of several issues related to population growth and environmental deterioration.

Time: Rec. MW 10:30-12 Rm. E52-161

15.969J THE NUCLEAR ARMS RACE AND ARMS CONTROL–TECHNOLOGY, MANAGEMENT AND GOVERNMENT POLICY
(Same Subject as 17.841J)
Prof: G. W. Rathjens and J. P. Ruina
Prereq: ––
Year: –– 3-0-6

The decision making process relating to national security is based on the interaction of technological assessments with political and economic judgments. Both the development of nuclear weapons systems and disarmament considerations must take into account existing and projected technology. The course will include a critical examination of the decisions to develop ballistic missiles, ABM, MIRVs, etc. It will also review the Nuclear Test Ban Treaty and SALT. To the extent possible experts who have played key roles in the topics covered will be invited to give guest lectures.

Time: Rec. – To Be Arranged
W 3-5

Aeronautics and Astronautics — Course XVI

16.605 POTENTIAL FLOW AND AIRFOIL THEORY
Prof: Staff
Prereq: ––
Year: U(1) Arr.

Green's function in aerodynamics. Distribution of singularities: sources, doublets, vortices. Two-dimensional thin airfoil theory in incompressible flow; Jonkowski transformation and Glauert's solution of lifting problem. Interpretation and applications. Jonkowski airfoils and generalizations: Theodorsen's method. Prandtl-Glauert-Gothert rule for subsonic compressibility effects. Three-dimensional lifting surface theory. Large aspect ratio limit: prandtl lifting-line theory with interpretation of results. Reciprocity theorems. Low aspect ratio limit: Jones theory and interpretations. Slender body theory. Two-dimensional supersonic airfoil theory; Ackeret theory versus shock-expansion approximation. Elements of method of characteristics. Introductory examples of three-dimensional supersonic lifting surface theory. Evvard's method. Nonsteady supersonic airfoil theory.

Time: Lec. TR 11 Rm. 33-422
Other hours consult dept. (33-320)

Political Science — Course XVII

17.13 CRITIQUES OF TECHNOLOGICAL SOCIETY
Prof: C. Schaefer
Prereq: 17.02
Year: U(1) 3-0-6

An analysis of some of the different critical perspectives on post-industrial society. The examined viewpoints will range from traditional humanism to new left. The works of Freud, Ellul, Juenger, Harrington, Mumford and Cohn-Bendit will be included. A term paper will be required.

Time: Lec. R 3-5 Rm. E53-216
Rec. – To Be Arranged

17.35 POLITICS OF COMMUNITY ORGANIZATION
Politics of Poverty and Community Action
Prof: M. Lipsky
Prereq: ––
Year: U(1) 3-0-6

Co-taught first semester with Community Organizer Bill Pastreich, former chief organizer of the Massachusetts Welfare Rights Organization. The course will focus on the inter-action between theory and practice in Community Organizations of the poor.

Time: Lec. T 9-11 Rm. E53-216
Rec. – To Be Arranged

17.41 GOVERNMENT, POLITICS, AND TECHNOLOGY
Prof: E. B. Skolnikoff
Prereq: ––
Year: U(1) 4-0-8

An examination of the impact of science and technology on political structures and processes; the major public policy issues that technological advance poses for governments; the ways in which science modified patterns of political activity and institutions; the role of the scientists in political decision making.

Time: Lec. T 3-5
Rec. – To Be Arranged

17.42 CONGRESS AND POLICY FOR SCIENCE AND TECHNOLOGY
(New)
Prof: E. Daddario
Prereq: --
Year: U(1) 3-0-6
Development of the role of Congress in determining national policy, especially in relation to science and technology. Emphasis on the workings of the Congress, Executive/Congressional relations, the problems of determining national policy for science, and especially a critical evaluation of "technology assessment."

Time: Lec. M 1-3 Rm. E53-216
Rec. – To Be Arranged

17.830 DEVELOPMENT OF GENERAL WAR SYSTEMS AND STRATEGIES (A)
Prof: W. W. Kaufmann
Prereq: 17.58 or 17.880
Year: G(1) 3-0-6
Analysis of major U.S. decisions concerning U.S. general war systems and strategies in the postwar period. Emphasis on the technological, strategic, political, budgetary, and environmental factors that have affected these decisions. Examination of the role of innovation and analysis in the evolution of general war systems and strategies. Consideration of alternative postures and budgets.

Time: Lec. F 9-11 Rm. E53-212
Rec. – To Be Arranged

17.838 PRINCIPLES OF SYSTEMATIC POLICY ANALYSIS (A)
Prof: G. W. Rathjens
Prereq: --
Year: G(1) 3-0-6
Systems analysis of policy choices. Cost-benefit analysis and related techniques. Political and bureaucratic constraints on analytical procedures. The role of judgment in problem formulation and in the selection of cost and benefit criteria.

Time: Lec. W 9-11 Rm. E53-338
Rec. – To Be Arranged

17.841J THE NUCLEAR ARMS RACE AND ARMS CONTROL–TECHNOLOGY, MANAGEMENT AND GOVERNMENT POLICY (A)
(New) *(Same Subject as 6.508J)*
Prof: G. W. Rathjens and J. P. Ruina
Prereq: --
Year: G(1) 3-0-6
The decision making process relating to national security is based on the interaction of technological assessments with political and economic judgments. Both the development of nuclear weapons systems and disarmament considerations must take into account existing and projected technology. The course will include a critical examination of the decisions to develop ballistic missiles, AMB, MIRVs, etc. It will also review the Nuclear Test Ban Treaty and SALT. To the extent possible experts who have played key roles in the topics covered will be invited to give guest lectures.

Time: Lec. W 3-5 Rm. E53-220
Rec. – To Be Arranged

17.850 SCIENTIFIC DEVELOPMENT AND GOVERNMENT POLICY (A)
Prof: E. B. Skolnikoff
Prereq: 17.21
Year: G(1) 3-0-6
History of development of science and technology in the American government, especially post-war. Current science policy issues, with emphasis on allocation of resources, government/private sector relations, decision-making machinery in government and role of scientists and engineers. First section of a two-part sequence (see 17.855). Each may be taken separately by special permission. (Open to qualified undergraduates.)

Time: Lec. T 3-5
Rec. – To Be Arranged

Nutrition and Food Sciences — Course XX

20.03J ENVIRONMENTAL MEASUREMENTS PROJECTS LABORATORY
(Same Subject as 5.22J and 8.16J)
Prof: C. Cooney, Chemistry Staff, J. G. King
Prereq: --
Year: U(1) Arr.
Environmental Measurements Project Laboratory (EMPL) is an interdisciplinary science course (5.22J, 5.23J, 8.09J, 8.10J, 20.03J, 20.04J) which addresses the basic disparity between a desire "to do something" about environmental problems on the one hand and the all too frequent lack of necessary underlying scientific data and understanding on the other hand. Involvement in EMPL means working on an individual measurements research project which is related to an environmental problem. Projects can be suggested by students or staff or can be selected from a list of projects already suggested, tried or in progress. Typical projects range, for example, from determining the NTA content in available household detergents to developing novel methods for counting waterborn bacteria. There are no formal prerequisites, but naturally the more laboratory or tinkering experience you have had the better. If you want a more detailed look at typical measurements projects, or more information in general, see either Dr. James C. Weaver (26-317, x4194) or Dr. Charles L. Cooney (16.299, x3108).

Time: To Be Arranged

Humanities-Course XXI

21.08 HUMANITIES SENIOR SEMINAR
(Revised: Unit Change)
Prof: R. Lamson
Prereq: For Course XXI Students Only
Year: -- 3-0-9
The Humanities Senior Seminar, entitled Art and the Community, deals with the aesthetic and cultural responsibilities of cities, particularly the Boston and Cambridge area. Seven cultural institutions of the city will be studied by the students, who will also take part as the seminar progresses in the activities of those institutions. The seminar will study the policies of the community in respect to art and examine the responses of the community to established programs. It will also try to suggest possible programs that might be instituted. Each student will join a discussion group devoted to one of the cultural institutions and prepare a paper within that field.

Time: Rec. M 2-5 Rm. 14E-304

21.415 TECHNOLOGY AND ECONOMIC GROWTH
Prof: R. S. Woodbury
Prereq: One first-year Hum. sequence
Year: U(1) 3-0-6
Growth of technology in the modern world in its relationship to economic and social change. Craft technology; industrialization–invention, origins of mass production and interchangeable parts, power sources, transportation, mechanization of agriculture, technology and large-scale enterprises, new industries.

Time: Rec. TR 2:30-4 Rm. 2-131

21.416 SCIENCE AND TECHNOLOGY IN THE AMERICAN ENLIGHTENMENT
(New)
Prof: B. Hindle
Prereq: One first-year Hum. sequence
Year: U(1) 3-0-6
A study of American attitudes toward scientific achievement and technological improvement examined as deliberate goals of the men who made the American Revolution and founded the Republic. Examination of their actual achievement in science and in the formation of institutions related to science in the generation of such men as Jefferson and Franklin. Relationship of these conditions to the simultaneous introduction of the technology of the Industrial Revoltuion.

Time: Rec. T 10-12 Rm. 4-156
R 10-11

21.489 THE FAMILY IN TECHNOLOGICAL SOCIETY
Prof: D. H. Bell
Prereq: One first-year Hum. sequence
Year: U(1) 3-0-6
Focus on the family as a changing institution in Western technological society. Special attention to various theories of family life and structure and to the possible future of the family. Analysis of various contemporary approaches to family re-organization (communes, family therapy, etc.). In addition, students will be expected to focus upon their own families as historical artifacts and to do research on the structure and development of their family lives. (Permission of instructor required.)

Time: Rec. – To Be Arranged

21.941J ETHICAL AND SOCIAL ISSUES IN BIO-MEDICINE
(Same Subject as 7.09J)
Prof: R. Wertz, S. Leff & F. Ausubel
Prereq: One first-year Hum. sequence
Year: U(1) 3-3-6
Examination, using case studies, of the ethical and social implications of the development and application of bio-medical science and technology. Consideration of the following issues: experimentation with human subjects, death and organ transplantation, women and medicine, behavior control, mental health and illness, genetic engineering, allocation of resources. Laboratory work in psycho-socio research and clinical observation.

Time: Lab. R 2-5 Rm. 14N-325
Rec. F 2-5 Rm. 14E-307

SEMINARS AND SPECIAL STUDIES

Undergraduate Seminars

For additional references see
The Freshman Handbook 1971-1972
Section 7 page 12.

Sem. 026 "POT, ACID & BOOZE"
Prof: P. P. Lele, M.D.
Prereq: --
Year: U(1) --
Too much emphasis has been placed these past several years on the moral and legal arguments concerning drugs and alcohol. In this seminar these contemporary problems will be discussed factually – "like it is." The well established facts of the actions of drugs primarily affecting the nervous system – psychedelics, hallucinogens, stimulants, depressants, narcotics – will be stated and discussed unemotionally and without moralizing. There will be no sermons or preaching. Pharmacological and toxicological facts pertaining to medical use and abuse of alcohol and drugs as treatment for neuropsychiatric disorders will be presented. Field trips to view patients undergoing actual treatment will be arranged. Hopefully a new perspective as to the effects both pro and con of drugs and alcohol in clinical, psychiatric and social use will be obtained.

Time: To Be Arranged

Sem. 031 X-RAY AND ELECTRON OPTICS
Prof: R. E. Ogilvie
Prereq: --
Year: -- --
Introduces students to the field of electron optics and familiarizes them with lab equipment.

Time: To Be Arranged

Undergraduate Policy Seminars

The purpose of the Undergraduate Policy Seminar Program is to enhance the relevance of a technical education to contemporary life, by analyzing the application of multidisciplinary techniques to current social and national problems. Credit is granted for these courses, which are open to all undergraduates except freshmen. Interested students should contact the office of the professor offering the seminar for the time and place of seminar meeting. Acceptance will be generally a first-come/first-serve basis, with a usual limit of 20 students per seminar.

SEM 41.01 THE RECYCLING OF MATERIALS
Prof. M. B. Bever x3323
Rm. 13-5066
Prof. R. W. Crandall x2662
Rm. E52-353
Consideration of the role of the recycling of materials in the conservation of resources and the disposal of waste with some attention to the pollution effects of primary and secondary production processes. The factors essential to the formation of public policy will be examined from a technical and economic perspective.

SEM 41.02 THE CHANGING STRUCTURE OF GRADUATE EDUCATION
Dean Sanborn Brown x5386
Rm. 1-134
Graduate education is under a great deal of pressure to respond effectively to the requirements of modern society. Seminar will discuss various models of postbaccalaureate education which might be viable on the contemporary American scene and the role of learned academies, research institutes, open universities and the general problems of continuing education. M.I.T. and guest lecturers.

SEM 41.03 ENVIRONMENTAL POLLUTION SEMINAR
Prof. Heywood x2243
Rm. 3-339
Prof. Fay x2236
Rm. 3-248
A study of the problems of air and water pollution from many points of view: scientific, engineering, management, economic and political. Selection of topics from: global pollution and air and water, urban air pollution, pollution from automobiles and power plants, politics and economics of pollution, solid and liquid waste disposal, pesticides, thermal pollution, eutrophication of lakes, noise. Field trips and guest lecturers.

SEM 41.04 LIFESAFETY IN BUILDINGS
Prof. R. C. Jones x7181
Rm. 1-170
The need for increased emphasis on lifesafety considerations in building design. This seminar will develop performance criteria for lifesafety in housing and other buildings, and will investigate trade-offs between alternate ways of achieving such performance. Policy will be developed on the cost-effectiveness of lifesafety features in buildings.

SEM 41.05 TECHNOLOGY AND SOCIETY: ETHICAL AND SOCIAL ISSUES IN BIO-MEDICINE
Prof. R. Wertz
Prof. F. Ausubel
Prof. S. Leff 232-2690
Joint Harvard/M.I.T. Urban Studies

Examination, using case studies, of the ethical and social implications of the development and application of biomedical science and technology. Consideration of: experimentation with human subjects, death and organ transplantation, women and medicine, behavior control, mental health and illness, genetic engineering, allocation of resources.

SEM 41.06 ENGINEERING AND PUBLIC POLICY
Prof. W. H. Matthews x1997
Rm. 26-169

Introduction to major issue areas encountered by engineers assuming an active professional role in national policymaking and planning, as well as in the development and application of technology. Issues will be examined in relation to concepts of integrative planning, technology assessment and environmental management.

SEM 41.07 MACRO-ENGINEERING AND SOCIAL CHANGE
Prof. Sheridan x2228
Prof. Davidson x4522
Prof. D. Wilson x2237

A survey and discussion of the history and theory of macro-engineering. The course will examine "feasibility studies" and the capabilities of present institutions in the evaluation and realization of macro-programs. Also, the seminar will consider the background and prospects of "social engineering": how the engineer of the future can best prepare himself for leadership in major programs designed to implement deliberate social decisions. There will be three case studies and student teams will develop and defend projects of their choice.

SEM 41.08 OPPORTUNITIES FOR RESEARCH IN LIFE SCIENCES FOR PHYSICISTS AND MATHEMATICIANS
Prof. E. H. Stanley x1745
Rm. 13-2122

Consideration of topics through seminars, films, laboratory visits and discussions of actual research projects.

SEM 41.09 THE SST – A CASE STUDY IN PUBLIC DECISION-MAKING
Prof. Trilling x7481
Rm. 37-447
Prof. Simpson x3756
Rm. 33-412A

The seminar will examine the special features of the aerospace and air transport industries, in particular high technical and economic risk and relations with governmental organizations. It will trace the history of the development of the SST, consider some of the alternatives for growth of air transport, and examine critically the economic and public policy issues raised within the industry, government and the general public.

SEM 41.10 MARKETING ISSUES IN PUBLIC SYSTEMS
Prof. Urban x6616
Rm. E53-353

The application of management science and behavioral science to the relationship between public organizations and their clientele. Emphasis will be on normative applications of information systems and models to specific problems. Areas to be considered: family planning, political campaigns, citizen feedback systems, medical systems, and others suggested by the seminar.

SEM 41.11 AUDIO-VISUAL MEDIA IMPACT ON PUBLIC OPINION
Prof. M. White x4424
Rm. W31-310
Mr. W. Soverns, Jr. 354-3862

Workshop developing a series of slide-tape presentations aimed at influencing public opinion, with choice of topics open to student. Study of mental, physical and emotional means by which audio-visual presentations control audience response. The gathering of images, the recording and mixing of sound tracks, and the sequencing and presenting of the work. PREREQUISITE 4.051.

SEM 41.12 USER AND COMMUNITY INVOLVEMENT IN HOUSING
Prof. Harms x7822
Rm. 5-415

Overview of theory of community participation in housing and comparison of case projects.

SEM 41.13 NUTRITION, NATIONAL DEVELOPMENT AND PLANNING
Prof: A. Berg
Prereq: ––
Year: 1971 Arr.

Nutrition, National Development and Planning is designed to equip the student with a better understanding of the broad policy and program ramifications of nutrition work in developing countries. The course will examine the importance of malnutrition as an impediment to national growth – and weigh alternate programs to overcome it. Seminars will explore the economics of other sectoral goals (agriculture, education, employment), the linkages between nutrition and the population problem, the political and social implications of nutrition programs, the design of a program to meet the local need, the role of industry, the use of a systems approach in problem solving, the operational considerations in launching a new program, and the differences between theory and reality in development work abroad.

Persons enrolled in the course will participate in the International Conference on "Nutrition, National Development and Planning" to be held at M.I.T. October 19-21, 1971.

Visiting Professor Berg is a former Deputy Director of Food for Peace and Chief of Food and Nutrition, U.S. AID Mission to India, 1966-1970.

Time: T 7:30 pm

SEM 42.07 USER AND COMMUNITY INVOLVEMENT IN HOUSING
Prof: H. H. Harms
Prereq: ––
Year: –– Arr.

Overview of theory and practice of community participation in housing. Study of different types of user involvement in housing and planning and the impact on the environment and users. Comparison of case projects and their political context.

Time: To Be Arranged

Environmental Project Laboratory

Interdisciplinary

See Below ENVIRONMENTAL MEASUREMENTS PROJECT LABORATORY
Prof: J. C. Weaver
Prereq: ––
Year: U Arr.

Environmental Measurements Project Laboratory (EMPL) is an interdisciplinary science course (5.22J, 5.23J, 8.09J, 8.10J, 20.03J, 20.04J) which addresses the basic disparity between a desire "to do something" about environmental problems on the one hand and the all too frequent lack of necessary underlying scientific data and understanding on the other hand. Involvement in EMPL means working on an individual measurements research project which is related to an environmental problem. Projects can be suggested by students or staff or can be selected from a list of projects already suggested, tried or in progress. Typical projects range, for example, from determining the NTA content in available household detergents to developing novel methods for counting waterborn bacteria.

There are no formal prerequisites, but naturally the more laboratory or tinkering experience you have had the better. If you want a more detailed look at typical measurements projects, or more information in general, see either Dr. James C. Weaver (26-317, x4194) or Dr. Charles L. Cooney (16-299, x3108).

Time: To Be Arranged

Environmental Studies at MIT

Interdisciplinary

Environmental programs for M.I.T. students are available through an increasing number of academic departments and research laboratories. Although no separate degree programs exist at either the undergraduate or graduate level, many departments offer educational and research opportunities in those aspects of the environment which are closely related to their own disciplines. A variety of opportunities exist for students who want to tailor-make their environmental studies – from an occasional elective subject to a coherent specified or unspecified degree program.

To help students pursue these opportunities, several academic departments have designated one faculty member as their "Environmental Advisor." Students interested in discussing elective subjects, minor programs, degrees and thesis topics should contact the department headquarters for the name of the Environmental Advisor. For further information on environmental studies, contact Dr. Louis Menand, III, Assistant to the Provost, or Professor Peter S. Eagleson of the Department of Civil Engineering.

Unified Science Study Program

The USSP is intended for freshmen and sophomores who want to assume a major share of the responsibility for planning, carrying out and evaluating their own education. With the help of an advisor chosen from the program faculty, a student develops a plan for his semester's work. He may decide to spend much of his time working on a project, study a single subject in depth, work on self-paced courses, participate in informal seminars, or do lab work. Some activities may take a student off-campus into the field, community, laboratories, or other schools; the facilities and courses of the rest of M.I.T. are also available to the student. We have on the premises a PDP-7 computer, bio-chemistry lab, a shop, an electronics lab, a mathematics lab, a library and student space.

Evaluation and Records

It is crucial to one's education that he know how well he is doing. In the USSP the student has the opportunity to help develop evaluation methods which suit his individual needs more fully than conventional examinations. The student's record will consist of his own documentation of his intellectual pursuits.

Advisors

A student and his advisor design the student's program, methods of evaluation and record keeping. The advisor helps the student locate people inside and outside of M.I.T. who can be most helpful in guiding him. He meets with the student frequently and keeps informed about the student's progress.

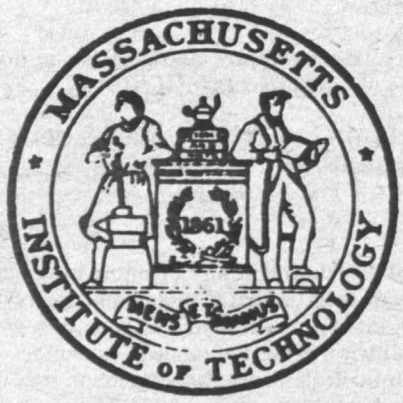
Summary

The USSP is intended for those students who prefer to learn the natural and social sciences as they relate to tangible situations and materials. The program can be helpful to those students who have not yet narrowed their interests to a specific discipline and to those interested specifically in multidisciplinary problems. The USSP places unusual responsibility on the student for his own education and may not be appropriate for those who prefer a more structured and conventional mode of education.

For additional information see Lucy Hoague, Room 20C-105, x6345.

ADDITIONAL COPIES OF THE COMPENDIUM OF COURSES AND SEMINARS RELATING TO PUBLIC POLICY OR SCIENCE AND TECHNOLOGY IN SOCIETY, FOR THE FIRST TERM 1971, ARE AVAILABLE IN THE INFORMATION CENTER, ROOM 7-111.

Compendium of Courses and Seminars Relating to Public Policy or Science and Technology in Society



First Term 1971

egregation Model to Delineate

Metallurgy and Materials Science
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inary Particulate Suspension in a
Influence of a Centrifugal Force

ment of Chemical Engineering.

njury Potential of Fabrics *
t of Chemical Engineering. 3pm,

September 15, 7:30pm, Room

es. Daily, 10:45pm, Baker House

every Monday and Thursday
g Pavilion.

dent Center Room 473.

oom 473.

om 421.

nd other new members. Friday,
atre. Entertainment and refresh-

Tech Show and the Gilbert and
of old and new members to
hments, singing, slides and tapes
members especially welcome.
night. McCormick Hall Country
Meldman 876-0613.

Pursuit of Loneliness by Philip
7:15pm. Lobdell (in the corner
ad the book is welcome. James

r 22, 8pm. Alumni Pool.

al staff for November production
hrough Thursday, September 20,
l Rooms. For more information,

turing guitarists Mya Maung and
Sunday, September 19, 8:15pm.

" and "Anthony and Cleopatra"
e" by Harold Pinter. Wednesday
rsty Ear (basement of Ashdown
ation and reservations, call Ext.

Dance

International Folk Dancing *
MIT Folk Dance Club. Every Sunday, 7:30pm. Student Center Sala de Puerto Rico.

Modern Dance Technique Class **
Elementary/Intermediate. Every Monday, Wednesday and Friday, 5:15pm. McCormick Gym.

Balkan Dancing *
MIT Folk Dance Club. Basic/Intermediate/advanced. Every Tuesday, 7:30pm. Student Center Room 407. For more information, call Jane Weiman, 876-5609.

Square Dance Club *
Every Tuesday, 8pm. Student Center Room 491. For information call 491-4768.

Modern Dance Class **
MIT Dance Workshop. Intermediate/Advanced. Every Thursday, 7pm. McCormick Gym.

Israeli Folk Dancing *
MIT Folk Dance Club. Every Thursday, 7:30-11pm. Student Center Room 407. Basics taught from 7:30-8pm.

Friday Afternoon Dance Break *
MIT Folk Dance Club. International folk dancing on the oval lawn in front of Kresge. Every Friday, 12-1pm.

Exhibitions

Seymour Lipton: Recent Sculpture *
20 Sculptures of the past five years, of nickel, silver or bronze on Monel metal. Sponsored by the MIT Committee on the Visual Arts, courtesy of Marlborough Gallery, N.Y. Drawings on exhibit in the Hayden Lobby; sculpture in Heyden Gallery and Courtyard. 1-5pm. daily through September 19.

Main Corridor Exhibitions*
Presented by students and Departments. Buildings 7, 3, 4, 8.

Deep-Ocean Mining *
Material from Sea Grant Project Office. Hart Nautical Museum, Building 5 First Floor.

Steamboat Design *
Details of Robert Fulton's steamboat "North River" and other early American steamboats. Hart Nautical Museum, Building 5, First Floor.

Athletics

Women's Varsity Sailing *
NEWISA Single-handed Championships. Saturday, September 18, 9:30am. Lower Charles River Basin.

Marksmanship Course *
MIT Pistol and Rifle Club. Course in basic pistol marksmanship. Five consecutive Thursdays beginning September 23, 6:30-8:30pm. Pistol Range in DuPont Gymnasium. $10 fee covers pistols, ammunition and targets. Limited to the first 20 adult applicants. Call Harold Sulahian, Ext. 3989, to sign up.

Varsity Baseball *
Massachusetts Bay Community. Friday, September 24, 3:30pm. Briggs Field.

Religious Services and Activities

MIT Hillel Rosh Hashanah Services
Traditional: Sunday, September 19, 6:15pm; Monday, September 20, 8:30am. with Minchah at 6:30pm. and Ma'ariv at 7:30pm; Tuesday, September 21, 8:30am. with Minchah at 6:30pm, followed by Ma'ariv. All Traditional services held in Kresge Auditorium.
Reform: Sunday, September 19, 8pm, and Monday, September 20, 10:45am. All Reform services held in the Sala de Puerto Rico, Student Center.

Christian Bible Discussion Group *
Every Thursday, 12:15pm. Room 20B-031. For information call Professor Schimmel, Ext. 6739.

Islamic Society Prayers
Every Friday, 12noon. Student Center Room 473.

MIT Hillel Religious Services
Every Friday at 7:30pm. and every Saturday at 9am. MIT Chapel.

Roman Catholic Mass
Every Sunday, 9:15am, 12:15 and 5:15pm. MIT Cahpel.

Christian Worship Service *
Every Sunday, 11am. MIT Chapel.

The Chapel is open for private meditation from 7am. to 11pm. every day.

Don't Forget

Law School Admission Test
The Law School Admission Test will be given on Saturday, October 16. Closing date for registration is Friday, September 24. Copies of the Law School Admission Bulletin containing application forms are available of Stanley M. Jacks, pre-law advisor, Room E52-443D. This test will not be given again until December 18.

Informal Spanish Class **
Will include elementary Sapnish conversation (beginners welcome), plus lectures and slides on art history and music. Some guest lecturers. 1½ hours a week. To sign up, call Connie DeFusco, Ext. 7115, or leave name and phone number in Room 56-510.

National Teacher Examinations
Test dates for the National Teacher Examinations have been announced by the Educational Testing Service. The tests will be given at Boston University, Boston College and the University of Massachusetts/ Amherst on January 29 and April 8, 1972. Information and registration forms are available in the Student Placement Burear, Room E19-455, Ext. 4733, or directly from National Teacher Examinations, Box 911, Educational Testing Service, Princeton, New Jersey 08540.

Adult Education
The Cambridge Center for Adult Education is now accepting mail registration for the Fall Term beginning September 27 through December 11. Scholarships are available. For more information and a free course booklet, call 547-6789 or visit the Center at 42 Brattle Street, Cambridge.

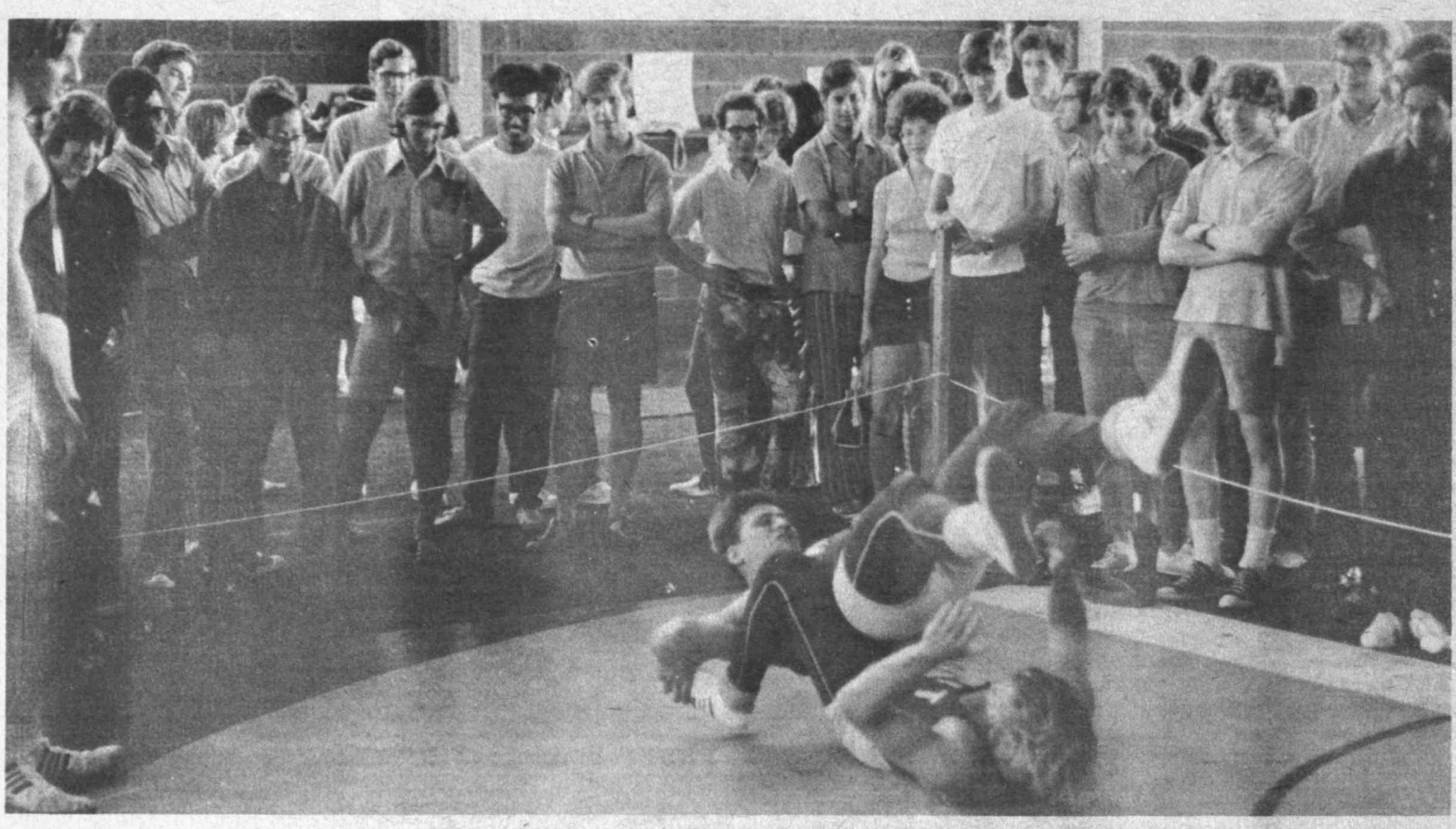
Fulbright-Hays Awards
Application deadline for 1972-73 Fulbright-Hays overseas research and teaching awards is Friday, October 8. Graduating seniors and graduate students interested in applying should contact Dean Harold Hazen in Room 10-303, Ext. 5243, for details and application forms.

IIE Grants
Information and applications for Institute of International Education grants for graduate study abroad are available in the Foreign Study Office, Room 10-303, Ext. 5243. Application deadline is October 8.

NATO Grants
Grants for postdoctoral study in NATO countries are now available. For application materials, write the Division of Graduate Education in Science, National Science Foundation, 1800 G Street NW, Washington, D.C. 20550. Application deadline is October 18, 1971.

Muddy Charles Pub **
Join your friends at the Muddy Charles Pub, 110 Walker Memorial, 10:30am to 7:30pm daily. Ext. 2158.

***Open to the Public**
****Open to the MIT Community Only**
*****Open to Members Only**
†Freshmen interested in departmental program encouraged to attend.



Wrestling, Hot Dogs Favored at '71 Midway

Sporting activities, particularly wrestling, were popular with students at the Activities Midway Friday night. Other students, below, examined one of the Athletic Department's sculls. During the Midway, new students had a chance to discover the enormous range of interests represented on the campus--from science fiction to debating to unicycling. And they also consumed upwards of 2,000 hot dogs.

--Photos by Margo Foote

Musical Theatre Guild Unites Three Groups

Three student groups--Tech Show, the Gilbert and Sullivan Society and the summer Classical Musical Society--have announced their merger as a new student activity, the MIT Musical Theatre Guild.

Membership in the Guild is not limited to students. Anyone in the MIT community can join. A get-acquainted meeting is planned for this Saturday beginning at 8pm in the Country Kitchen at McCormick Hall. Slides and tapes from past performances will provide entertainment. New members interested in joining will be especially welcome.

Members of the three parent groups had expressed interest in forming one activity early in the summer and appointed an interactivity committee to examine the possibility. The Musical Theatre Committee, chaired by graduate student Jeffrey Meldman, discussed the merger with students, faculty and members of the Dean's Office. In August they concluded that a merger was advisable and the MIT Musical Theatre Guild was born.

Mr. Meldman feels that the combined efforts of all three groups will strengthen musical theatre at the Institute. He comments, "All three groups have had difficulties, particularly in competition for talent. The show also suffered from a lack of continuity--they came alive once a year to produce a show, but died as soon as the final curtain was down. Gilbert and Sullivan was hindered by built-in limitations--their choice of productions until recently was limited to works by Gilbert and Sullivan. And the Classical Musical Society was restricted because it was just a summer activity."

The new groups will present two major productions during the academic year. One, still called Tech Show, will be an original musical comedy, written, composed and produced by Guild members. The other will be a Gilbert and Sullivan operetta or a work from the general repertoire of musical theater. And during the summer, a third show will be produced if there is sufficient interest.

Members will be given the chance to become involved in whatever phases of theater appeal to them the most--singing, acting, playing in the orchestra, writing, composing, directing, conducting, choreographing, stage managing, technical directing, designing or building sets and lights or costumes, organizing publicity and ticket sales. Most rehearsals and production work will take place in the evenings and on some weekends, but members can arrange to spend as much or as little time as they wish on productions.

The Guild's 1971-72 season will open in November with Gilbert and Sullivan's *The Pirates of Penzance*. Auditions and organization of the technical staff will be held next Monday through Thursday from 8-11pm in the Kresge Rehearsal Rooms.

For more information about the Guild, call 354-7795 or 876-0613.

Computerized Placement Service Open to Seniors, Grad Students

Seniors and graduate students will have an opportunity this fall to computer-match their job interests against companies looking for people with their qualifications.

MIT is one of 132 colleges and universities participating in a pilot program sponsored by the College Placement Council, a non-profit organization serving the nation's college placement offices. Students will describe their qualifications and job interests on forms which will be fed into a central computer in Minneapolis. Two to three weeks later each student will receive a print-out listing companies which match his interests. The companies, on their side, will receive a brief description of him.

The process is intended to help students identify companies which suit their qualifications and preferences and which may be interested in hiring them. It should help students to decide which companies to interview among those coming to recruit on campus, and which companies to seek out by mail among the much larger number not scheduled to recruit at MIT.

The forms are available at the Career Planning and Placement Office, Room E19-455. They take only a few minutes to complete. The deadline for submitting a form to make use of the program this fall is Friday, October 8. A student who decides to participate can expect to hear from the computer about October 22. He will be under no obligation to the companies which the computer identifies for him. He can ignore any or all of them if he so wishes.

"Whatever one's feelings about computers," says Dean Kenneth K. Weatherall, Director of the Career Planning and Placement Office, "the program seems worth a try." He hopes students will make use of it.

Sea Grant Office to Sponsor Ocean Engineering Meeting

MIT's Sea Grant Program will hold an all-day symposium on recent ocean engineering developments September 22 in Kresge Auditorium.

During the symposium, ocean engineers will describe and analyze various field problems they have confronted. After each talk engineers and scientists from MIT and Woods Hole Oceanographic Institute will lead discussions focusing on recent ocean engineering projects in industry, education and research.

Dr. Alfred H. Keil, Dean of Engineering and Director of Sea Grant, and Willard F. Searle, Jr., Visiting Senior Lecturer, will open the day's discussions at 8:30am.

Commander J. H. Boyd from the Bureau of Naval Personnel will describe the techniques and equipment which the Navy has recently developed for divers. Naval Oceanographic Officer R. F. Busby will evaluate submersibles as tools for underwater surveying work. J. W. Greeley of the Kerr McGee Corporation will discuss advanced designs of offshore drilling platforms. At the luncheon Captain J. W. Boller of the National Academy of Engineering will describe different situations encountered by those doing work in the ocean.

W. G. Sherwood of Alcoa/Ocean Search, Inc. will begin the afternoon talks, focusing on ship-type sea-going platforms as tools in ocean engineering. E. D. Grandle of Raymond International, Inc. will describe some of the problems of working with heavy structures under water. After Mr. Searle speaks on modes of planning for working in the ocean, a panel will open meetings for final comments from the speakers and participants from the floor.

Although the Sea Grant Office will charge no registration fee for the symposium, it requests that participants register in advance. Forms are available on bulletin boards throughout the Institute and from the Sea Grant Office (Room 3-282). Attendance at the luncheon will be limited--any unreserved luncheon tickets will be sold for $5 during registration before the symposium begins. For further information call the Sea Grant Office, Ext. 7041.

Players to Begin 40th Season

The MIT Community Players will open their 40th season with a Coffee House Theatre from September 9-12 and September 14-17. The Players will present three one-act plays, including Floyd Barbour's "Day Work" and "Antony and Cleopatra." Mr. Barbour is a black lecturer in literature at the Institute. The third play, entitled "A Slight Ache," was written by Harold Pinter.

Coffee House Theatre will begin at 8pm in the Thirsty Ear, located in the basement of Ashdown House. Following each performance, the audience will be invited to discuss the plays.

Tickets are $1.50 and may be reserved by calling Ext. 4720.

Health Sciences Enrollment Set

Harvard-MIT Program in Health Sciences and Technology: Information on new courses and application forms for enrollment in "Functional Anatomy and Human Pathology" may be obtained from the office of the Director, 16-512.

Morris Becomes Staff Counselor

Mr. Morris.

--Photo by Margo Foote

Bernard Morris is the newest staff member of the Office of Personnel Relations Training Section. His duties will include counselling and teaching in the Clerical Training Program. The program, designed for men and women who previously had little or no technical training, incorporates on-the-job experience with classroom instruction.

Mr. Morris joined the Training Section staff just two weeks ago. He has worked previously as a systems analyst at MITRE Corporation and at Input-Output Computer Services in Cambridge. His interest and experience in counselling stems from his volunteer work with community youth programs sponsored by Boston's Junior Chamber of Commerce and the Sportsmen's Tennis Association. He admits that computer programming provides a rather unlikely background for vocational counselling, but it will be useful in many areas of the training program.

During the year-long Clerical Training Program, the trainees divide their time equally between classroom instruction and full-time jobs within the Institute. They attend classes in such subjects as English, mathematics, spelling, office procedures, technical typing and accounting. Mr. Morris says, "I'd like to see the program expand to include a class in computer programming, but for now I'll be teaching in some of the areas in which the trainees need special help."

In addition to classroom instruction, the counselors work closely with each trainee-employee and his department supervisor. Together, they discuss job development and job placement, both important features of the program.

Mr. Morris feels that the overall program is successful, but "the success of each trainee depends on many factors--acquiring new skills, learning and liking the job, consistent attendence, self-confidence in the new job, adjustment of personal problems and situations, the hope of job security, prospects of promotion and higher pay scales.

"The number of men and women completing the program is another measurement of success," he says, "but it is only of statistical importance. We're more concerned with the effects this program has on each trainee as an individual person."

MITexchanges 25 residents with Wellesley

MIT and Wellesley College will "exchange" 25 student residents this academic year. Classes get under way for more than 1750 students at Wellesley College on Thursday.

Through the Twelve College Exchange 83 students from other colleges will live and study at Wellesley during the year, while 90 Wellesley students will study at member campuses. Sixty-one of the exchange students coming to Wellesley are men. In addition, 25 MIT men will be in residence and the same number of Wellesley students will reside at MIT. They are among over 400 students from the two institutions who are enrolled in approximately as many courses at MIT and Wellesley through the program of cross-registration now in its third year of operation.

UNITEL Tests Joint TV Links

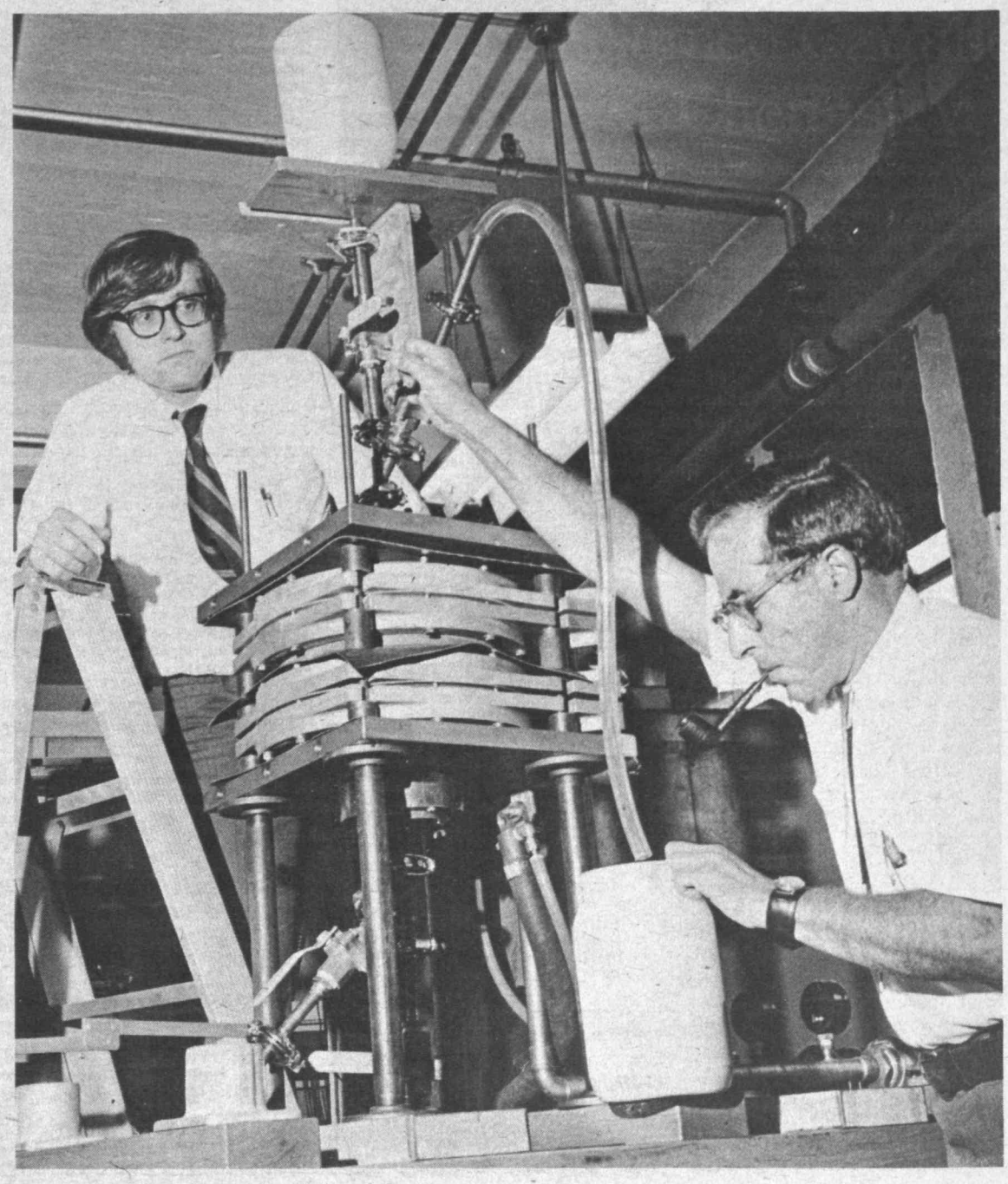
Closed circuit television equipment was set up in the Building 10 lobby earlier this week to perform pattern transmission tests with coaxial cable and microwave links between MIT and Harvard via WGBH-TV.

The routine tests are part of a study by UNITEL, a joint MIT-Harvard organization set up to explore, among other applications of educational technology, closed circuit TV between the two schools. Two-way transmission of test patterns used coaxial connections between Building 10 and the microwave antenna on the roof of Building 9, the microwave link between MIT and WGBH, and coaxial links between WGBH and Harvard's Carpenter Center for the Visual Arts. MIT participants were the Audio Visual Service and the MIT Center for Advanced Engineering Study.

Seyferth Wins Kipping Award

Professor Dietmar Seyferth of chemistry has won the 1972 Frederic Stanley Kipping Award in Organosilicon Chemistry, the American Chemical Society has announced.

The $2,000 award, sponsored by the Dow Corning Corp., recognizes Dr. Seyferth's major works in the synthesis of organosilicon and organometallic compounds.



Dr. Oberteuffer, left, and Dr. Kolm of the Magnet Lab test the device which uses a new magnetic technique for the treatment of sewage water. An actual treatment plant would be many times larger than this model and would include peripheral equipment such as giant tanks, but it would function in much the same way.

--Photo by Bob Lyon

MIT Lab, Local Firm Develop Magnetic Sewage Treatment

A joint project between scientists at the Francis Bitter National Magnet Laboratory and a local engineering firm has produced a new technique that uses magnetism for the treatment of sewage water.

The cooperative project may represent a major breakthrough in waste water treatment, according to researchers at the Magnet Lab and at Magnetic Engineering Associates, Inc. High flow rates and low cost make the new process attractive for the treatment of waste and polluted water.

In the process waste water flows through a special matrix activated by a magnetic field. Small amounts of naturally-occurring or previously added iron compounds make the impurity particles in the water magnetic. The matrix can then trap these particles and separate them from the water.

This magnetic filtration process was first developed by Dr. Henry Kolm of the Magnet Lab. His original device was designed to remove small, weakly magnetic particles from clay. Several such units have been manufactured for the clay industry by Magnetic Engineering Associates.

"The trapping of colloidal particles at high flow rates has never before been possible," says Dr. Kolm. "Conventional mechanical filtration of small particles is inherently slow and subject to clogging, since the small particle must be stopped by an even smaller hole. In magnetic separation the 'filter' is mostly open, so the flow is unimpeded."

Magnetic filtration represents one of the first practical applications of advanced magnet technology. Large, very powerful magnets were first developed for basic physics research and are only now being applied in industry.

MIT Press Lists New Publications

Among the books scheduled for September publication by the MIT Press are:

Middle Ground
Angus MacDonald, '46
$7.95 (hardcover)

Dynamo and Virgin Reconsidered
Lynn White, Jr.
$1.95 (paperback)

Dostoevsky: The Major Fiction
Edward Wasiolek
$2.95 (paperback)

Violence and the Police: A Sociological Study of Law, Custom and Morality
William Westley
$2.95 (paperback)

Films and Feelings
Raymond Durgnat
$2.95 (paperback)

The Acquisition of Syntax in Children from 5 to 10
Carol Chomsky
$1.95 (paperback)

The Economics of Insurgency in the Mekong Delta of Vietnam
Robert Sansom
$2.95 (paperback)

The MIT Press is also distributing *Cambridgeport*, the third volume of the Cambridge Historical Association's Survey of Architectural History in Cambridge.

Counselling Guide Available in 7-111

The *Guide for Undergraduates and Faculty Counselors* is now available to students for the first time in the Information Center (Room 7-111).

The *Guide*, prepared by the Committee on Academic Performance, contains complete information on such subjects as registration, degree requirements, double degree programs, grades and academic standards, as well as various resources available to students.

Danforth Award Applications Due

Seniors can apply now for Danforth Graduate Fellowships in the Graduate School Office (Room 3-134).

The fellowships cover tuition, fees and living expenses, and are renewable for up to four years of graduate study. The foundation awards about 100 such fellowships each year.

The Danforth Foundation has invited MIT to nominate three seniors for the fellowships for the 1972-73 academic year. Applicants should have a serious interest in teaching as a career and should have plans to complete study through a Ph.D. or similar degree.

Each student who wants to apply can do so in three steps. He must register by October 5 to take the Graduate Record Examination given October 23. He must submit an informal application--a one-page essay about himself and his career plans. Danforth Fellows now at MIT will then interview each applicant October 16 in the Graduate School Office. The office will announce MIT's three nominees before November 1.

Freeze Ups Dollar Losses at Northgate

(Continued from page 1)

on the average of about a third over the 1969 levels on these properties.

"In arriving at the rents effective with the September 1971 lease period, we decided to delay any effort to recoup the deficit immediately," he continued. "Hopefully increases in the taxes and operating expenses for this year will be small enough so that the deficit can be recouped over the next few years without imposing additional high rent increases."

Northgate was formed in 1965 to achieve a "controlled inventory of off-campus housing for MIT staff and students," according to Mr. Watriss. An additional purpose, he said, "was to provide some leveling influence on area rental levels by efficient, non-profit, 'below-market' operation.

"Unlike profit-making real estate companies, Northgate rentals are determined only on the basis of operating expenses," he explained. "If operating costs remain stable so will rents. But when costs rise, so must rents." Under the laws of the Commonwealth, Northgate is a Chapter 180 corporation and it is not operated for profit.

In 1966 Northgate began acquiring properties in Cambridge, either by purchase or lease. As the rental market tightened in Cambridge, Northgate's inventory grew to include housing units in Arlington, Medford and Somerville. Altogether there are now some 470 dwelling units operated by Northgate.

More than 350 of the apartments are occupied by MIT-affiliated people. The others house non-affiliated tenants, most of whom were in residence at the time Northgate acquired the properties. There are 39 units rented to public housing tenants under a "leased housing" program agreement with the Cambridge Housing Authority.

Northgate properties cannot avail themselves of the financial advantages of the campus housing facilities for married students and staff, Eastgate and Westgate. Financing for the Campus houses was arranged through low-interest federal loans under the college housing program, while loans for Northgate have had to carry commercial interest rates. In addition, land costs are not included in campus financing but are included in Northgate.

Similarly, the Institute pays an agreed-upon sum, based on annual rental income, for Eastgate and Westgate in lieu of taxes to Cambridge. Northgate, on the other hand, pays full real estate taxes on all of its properties. "During the past two years, Cambridge real estate taxes have risen from $91.40 to $132.40 per $1,000 valuation," Mr. Watriss pointed out. "That's more than 45 percent."

CLASSIFIED ADS

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and extension or room number. Ads may be telephoned only to Ext. 3270, or mailed to Room 5-105. The deadline is 5pm. Friday.

For Sale, etc.

Encyclopedia Americana, new, $250 or best. Weldon x3229 or 265-4427.

Sofa, $30 or best. Jacob x2066 or 491-5732 evgs.

Cassette tpes, 15, used once, 90-120 minutes. $18 or wl sell separately. Call 354-7215.

RCA port tv, $20; wal dr chrs, $10 ea; grocery cart, $4; backpack, $5. Call 868-5831.

Cuckoo clock, $10; Broil King broiler oven, $20; canadian ice skates 2pr boy's or men's lrg, Bauer hockey size 10, $10 ea. Call 265-3493.

Twin beds (2) w/ mat & box, $8 ea. Call 926-4121.

Elec heaters (2) w/fans, $20 ea; wool rug w/ pad, 12'x13', $25; light gr nylon rug 9'x12', $30. Call 876-4160.

Danish mod studio couch, sgl w/ 2 bolsters, hardly used, 4" foam rubber mat, $70 or best. Call 734-6413.

Kanissmen White Star skis, 205cm, nevada bindings. Butler x6128.

Wh k cabinet w/ 5 shelves, 2 drs, $15; new creative play tunnel, $5. Gundersen x6085 or 332-8251.

Chest drawers & dresser, $30. Wendy x6089 or 876-1051.

Blue studio couch/bed w/ foam rubber cushion, $65 or best. Dave x2297 or 492-0547.

Walnut tbles (3) w/ ceramic tile, step tbles (2), coffee tbl, $40 ea. Call 298-5597 evgs.

Tensor metal tennis racket, mfgr's cover included, used one season, $25 or best. Call 864-3914 evgs.

Sofa/bed, bassinet. Call 354-3985.

Chess set 3-D, $40 or best. Bruce x7080.

Snows-stud. wh wall 8:25-14, $20. John x5001.

GE gas dryer, 1 yr old, $100; harv sgl bed frame & mat, $20. Roman x4830 or 232-5367.

Mono hifi amp-preamp, Eico 20 watt, $15, Eico 50 watt, $20. Ben Miller x7363 Linc.

AM radio for car, $15. Call 547-4639 evgs.

Wire wheels (4), 4½"w, 13"diam, from '67 GT6. Spokes need tightening, $50. Shorty x4152.

Birch desk 42"x30", exec condition, $45. Call x3895 or 658-3318.

Port tv 17", floor modl rec player & FM rad, best offer. Call 395-7265.

Canon Pellix SLR camera w/ 1.4 lens, case, filters, $180; Uher port 4 sp mono tpe rcrdr w/ access $260. Call 492-3526.

Sgl bed, mat, sprng, frm, gd cond, $25. Call x5645.

Girl's new coat, sz 12, navy blue tweed, $10; pr 54" fiberglass burlap dark gr drapes (3) $15. Call 662-9757 evgs.

Martin D18 guitar w/ case, $250. Mike x3264.

Nikkor 35mm f/2 lens, $100. Call 547-3654 evgs.

Directors chrs (3) wh w/ blue canvas, 3 for the price of 2; foam mat/couch seat. 36"x72", $8; uncovered down pillows (4), 24" sq. all $20 or $6 ea. Call 354-7215.

Formica top DR tbl w/6 match chrs, exc cond. Tom, 899-3890 after 7pm.

Pr mtd 7.75x14 snows for '62-64 Ford, $25/both. Call x460 Linc.

Coins: 3 '70 proof sets, $8.50 ea or $25 for all. Bill x4956.

Sm refrig/freezer apx. 2'x2'x2', exc cond. w/ lock & 2 shelves, $50 or best. Bill Lee x3785 or 266-2968.

Kitchenaid port dish wash $125; lrg oak desk, $20; gas stove w/ space htr, free. Marcy x5777 or 776-9637 evgs.

Sofa/bed, $15; bl slate blckbrd, 4½'x4½', $5. Call dorm line 9-787, x8109787.

Bl & wh Penncrest tv, 18", gd cond, $25 wl haggle. Jim x2348 or 868-5875 evgs.

Bl & wh Westinghouse 17" tv, exc cond, $30 or w/ UHF conv $32. Ron x2551 or 492-3709.

Apen travel iron, $8; Harrison luggage, 26" pullman, shoulder tote like new $20. Mary x4310.

Rondelle 2x2 slide proj, auto focus, remote control w/ 4 slide trays, $50. Call x3693.

Used Koflach 4 buckle ski boots, m size 9D w/ boot tree, needs 2 new buckles, $12; pr. of stud snows 5.60-15, for VW, mounted on rims, $35. Joan x5262 or x6629.

Ross 16" converta bike, exc cond, $20. Robert x587 Draper 7 or 891-4136.

Pool tbl, 8', 1½ yrs. old, $150. Dan x6160.

Light wgt man's bike, 26", sgl sp, gd cond, $20. Horace x4605.

VW tires (3) 5.60-15, wh w, exc cond, $15 ea. Paul x575 Draper 7 or 731-5640 evgs.

K tbl w/ 3 chrs $35; 2 end tbls $10; metal cot w/ mat $25; chrome canister set $5; etc. Call 232-0484 evgs before 9.

Wh Lapierre 10 sp bike 25", Mafac racer brakes, many extras, $100. Call x2102 or 665-6466 evgs.

Baby items; drape gold sear 62"x95½", $5; w Dior ski pants, size 12 $10; m head stand skis, 6'6" w/ Cupco bindings, $50. Call 862-0312.

Royal safari typwrtr, $15; port prof hair dryer, $10; Graylab universal timer, $20; rotary print wshr, $20; 4x5 film develop tank, $7. Call 926-4279.

Dbl bed, hollywood fr, box, mat, $50; lg home-made spkrs (2), $25 ea. Rick, x469 Draper 7 or 969-2062.

Vehicles

60 Chevy, gd eng, body rot, $50. Judy x6455 or 783-9849 evgs.

61 VW, $100. John x5411.

62 Ford Falcon, snows, new bat, r&h, gd cond. Call x2147 or 661-0758.

63 Chevy Biscayne, $200. Frank x7027.

64 Ford Falcon 2 dr hdtp, 53k dented but many new parts, $200 or best. Call x7180 or 354-0871 evgs.

64 Falcon wagon, rebuilt motor & frnt end, new tires, $325 or best. Call 862-3061.

64 Chevy Impala conv, gd cheap trans, $100. Mike x7001.

64 Peugeot 403, snrf 4d sedan, new bat, 42k, sgl owner, gd cond, $375 or best. Call 862-2287.

65 Chevy Impala, v8 auto, $345. Call x4168 or 661-1665 evgs.

65 Ford Galaxy, pwr str, auto, gd cond. Silvares 876-0286.

65 Ghia needs much but runs, $250. Frailey x4974.

65 GMC Stepvan, 10' body, 20k, btu gas htr, new brks, r, new bat, many new xtrs, $1000. Call 646-3684 evgs.

65 Pontiac Grand Prix, exc mech cond, 4 new tires, 2nd owner, $900. Call 272-0185.

65 VW snrf, rebuilt eng, gd brks, sturdy body, best offer. Call 566-5878 evgs.

66 Chevy Biscayne, stnd, gd mech cond, $300. Ed Leahy x6129.

66 Chevy Impala Super Sport, 60k, $850. John x6762.

66 Ghia, gd cond. Soninx2247.

66 VW van, new eng & tires, $1400. Call x2065.

67 Mustang, burgundy, gd cond, needs left fender. Call x7391.

67 VW, exc cond, snows, r, 54k, $750. Call x7001 or 969-3682 evgs.

68 Datsun 1600 coupe, 18k, $950. Call x1557 or 354-1652 evgs.

68 Opel Kadett, v gd running cond, exc body, snows, $750. Call x7142.

68 Ply conv Sport Fury, exc cond, pwr str, auto, priced for quick sale. Call 649-6780.

68 VW, 47k, exc cond, avail 9/20, $1000. Call 926-2195 evgs.

68 VW fastback, exc cond, r&h, extras, best offer. Call x7675 Linc or 731-8710 evgs.

69 Dodge Charger R/T, road wheels, alarm system, stereo, $1895. Call x7379.

70 Chevelle Malibu v8, air cond, other goodies, $2600 or best. Steve 491-4985 evgs.

70 Dart Swinger 2d hdtp, auto, vinyl & Inter, many extras, 25k, $2000. Call x6395 or 646-5918.

70 VW red sedan sqbk, r, auto, 34k, needs body wk, $1300. Call 492-3654.

70 VW camper w/ pop top, tent, propane stove, snows, $2800. Call dorm line 8-687, x8108687.

60 mod ped bike 49cc run cond, spare parts & manual, $50. Call 924-3340.

66 Honda 50, barely runs, $50 w/ helmet. Maury 492-6983 evgs.

67 Yamaha 250cc street mod, runs well, needs work, $225. Eric 277-2912 evgs.

69 BSA motorcycle 250cc, exc cond, 1.6k, $450. Call x7600.

70 Honda 350 CL, 2.3k, exc cond, $600 or best. Call 887-8379 (Toppsfield) evgs.

71 Suzuki TR250, exc cond, 800 mi, best offer. Mary x2153.

Housing

Camb: 1 br apt w/ lg lr, close to MIT, avail now, $175, furn. free. Call x6866.

Wells Hills: Eng cotswold cottage, 3 br 1½ b, full bsmnt, 2 car gar, lovely landscape, low $40's. Harry x2691 or 235-2410.

Animals

AKC dachshund m, all shots, gd house pet. Call 944-4555 evgs.

Lost and Found

Watch, octagonal blue face w/ roman numerals & rainbow band, wl reward if necessary. Call dorm line 9-246 or x5961.

Wanted

F rmmte as soon as possible for sunny lrg apt near Harv Sq, must be neat, wl have own room. Call x6214.

Avant Guarde issue 3 wl pay. Joe x7039 2pm-5pm.

Ski lodge partners. Joel 491-4755 evgs.

Must find m rmmte for furn apt on Beacon St. park will haggle. Call 261-8813 evgs.

Used leather jeans, size 30/30 or thereabouts. Ron x6288 1-2pm or 492-5936 evgs.

Canoe 17'. Call x368 Draper 7 or 731-5188 evgs.

Housekeeper/sitter, steady, reliable f, gd salary, 3 dys per wk 11-4:30 in Brookl. Call 232-9725 or 232-2283.

Quiet furn rm w/ phone $ priv k, in Camb area for fem. Call 868-2139 evgs.

Driver to move a sm u-haul from Arl to Princeton, N.J. in next 10 days. Call 868-3734 evgs.

F rmmte for lrg Camb apt nr Hrv, $107 + utilities. Call 492-4069 evgs.

Ride daily to & from Chelmsford area 9-5 wl pay. Ann x5685 or 256-0826 evgs.

People, 4-5 for new ski lodge in N.Conway,N.H. For details call before 9/30, x4868 or 491-0423 evgs.

Man's fold bike used. Steve x3628 or 547-0636.

Garage to rent in N.Camb. area. Stefan x1807 or 354-6079.

Miscellaneous

Cent Sq couple seeks others to set up afternoon play group for 3-5 yr old children. Call 876-6562 evgs.

Wl pay $15 + deposit to rent canoe from 10/8-10/17. Karen x5356 or 661-0729 evgs.

Wl swap pr of 14" Chevy wheels for Ford 14" wheels. Tony x5703.

Wl do term paper/thesis typing on IBM Selectric, low rates. Margie x5625.

Foreign (Span) student wife wl babysit in Camb ares or at own home. Ximena 491-0075.

The Graduate Student Council is conducting a survey on how Institute people feel about the quality of medical and dental care on campus. Send comments to Arthur Bass, GSC Office, Room 50-110.

Note to parking sticker swappers: please remember to inform your supervisor and the Campus Patrol of the exchange you have made so that their records accurately reflect your new parking area.

Wl swap Monroe pkg sticker for East or West--anything closer to Bldg.5. Linda x3277 or x3279.

Wl swap West Garage for Albany or East. Tom x5162.

Wl swap Kresge for West pkg. Joan x7050.

Tennis Sign-ups

Information sheets and applications for playing time in the Carr Indoor Tennis Center will be available beginning Monday, September 20 at the equipment desks in duPont Athletic Center and Alumni Pool.