IMPLEMENTATION OF P.L. 96–480
STEVENS-WYDLER TECHNOLOGY INNOVATION
ACT OF 1980

HEARINGS
(Including an analysis of the Hearings prepared for the Subcommittee by the
Congressional Research Service)

BEFORE THE
SUBCOMMITTEE ON
SCIENCE, RESEARCH AND TECHNOLOGY
OF THE
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SCIENCE AND TECHNOLOGY
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Mr. Brown. Our next witness this morning is Dr. Narinder Kapany, who is director of the innovation center at the University of California at Santa Cruz.

We welcome you, Dr. Kapany, and regret any delay that our schedule may have caused you. I notice you’ve been a faithful attender of yesterday’s session as well as today’s. You’re a hard man not to notice. [Laughter.]

Dr. Kapany. Well, I was trying to be inconspicuous, Mr. Brown. Obviously I didn’t get away with that.

Dr. Brown. We welcome you particularly because you come immediately at least from my own State of California and the great University of California system. I’m glad to have some contributions from California and it’s great university to the thrust of this hearing, and having read your testimony, I am aware of the importance of what you have to say in connection with the thrust of the Stevenson-Wydler Act. We welcome you.

[The biographical sketch of Narinder Kapany follows:]

TESTIMONY OF NARINDER S. KAPANY, DIRECTOR, INNOVATION CENTER, UNIVERSITY OF CALIFORNIA AT SANTA CRUZ

Mr. Kapany. Mr. Chairman, I wish to thank you and your committee for the invitation to present my views in these hearings. I am pleased to share with you today what I believe to be an important and in fact unique approach to improved productivity in the United States. What I would like to say is simply summarized: America’s faltering positions in technological innovation, entrepreneurship, and productivity can in no small measure be addressed by a well-conceived program directed at college students. The essence of this program is the training of these students in the fundamentals of innovation and entrepreneurship and involving them in its implementation. In this regard, our college youth warrant particular attention, for the following reasons:

First, their contributions can be large, and on a time scale as short as that for any other approach;

Second, by creating an environment of interaction with the business and industrial communities, they will be motivated toward innovative and entrepreneurial careers;

Third, our program at University of California at Santa Cruz, which has involved students from a wide range of disciplines, has attracted national and international attention and requests for assistance in emulating our center. The soil is exceedingly fertile;

Fourth, if boldly conceived and effectively managed, even a modest government program would have large impact; and

Fifth, it takes only awareness and a small amount of attention to attract minorities and women college students to these activities.

I must now elaborate on these statements and explain my confidence. Since my background in technology and business plays an important role in my thinking, with your permission, I would like to describe that first.

As is perhaps evident, I am a Sikh. I was born in Punjab, India. After my graduation in India I went for postgraduate studies at the
Imperial College of Science and Technology in London. My Ph. D. thesis was one of the original publications in the field of fiber optics—which has resulted in significant developments in medical instruments for viewing internal organs in the body, and is now expanding into the field of fiber optics communications.

I came to the United States with my wife in 1955 to do research at the University of Rochester, Rochester, N.Y. It was in the year 1960 that I started my own company to develop modern optics technology and products. We worked in the fields of lasers, fiber optics, optical thin films, and so forth. In the early 1960’s I was involved in the development of the laser for retinal detachment, night vision device components, fiber optics devices, and optical thin films. While running this company I was involved in acquiring six other companies in the United States and Europe, and also took my company public.

In the 1970’s I became actively involved in agriculture, real estate, and a number of new start-up companies. Currently, along with my activities at the university, I have a corporation, Kaptron, Inc., which is developing products in the fields of fiber optics communications and laser arthroscopy. Additionally, I am actively involved in Sikh cultural affairs.

Our technologically innovative society and free enterprise system has been very good to me. I am eager to help its reinvigoration.

In 1979 I was invited to spend an academic quarter at the University of California at Santa Cruz as “Regents Professor.” I became so impressed with the potential for helping college students develop careers, that I continued my association with the university. While considering how best to use my background and contacts in the business and industrial community, I became aware of the National Science Foundation’s innovation center program. I am sure you have been told of at least some of their successes. I have seen them first-hand. The program is clearly an effective and important activity. At this point I would like to sympathetically mention some of the problems and limitations of their present innovation center program.

First of all, these innovation centers were expected to become self-supporting within 5 years from income derived from companies they spawned. This is an unrealistic time scale. Unfortunately, such quantitative measures of success loom large, and the harderto-assess, but actually more important effects on people tend to get overlooked.

Second, the success of the present innovation center program is often difficult to distinguish from what might otherwise be expected from the business and engineering schools to which the NSF innovation centers have been limited. Because of this limitation, each of the present innovation centers has significant university expertise in business and technology to draw upon. But that coin has another side. Because of the considerable academic expertise on campus, they do not experience the pressure to develop a fruitful interaction between the university students and the business/industrial community.

Unfortunately, we now see redirection of innovation center funds to safer cooperative research programs. While these are almost sure to succeed, they will have modest impact, at best, on a nation-
al scale because they cannot hope to achieve the leverage of the program described here.

Could one not be a bit bolder? Our country's productivity problems are serious. With Government support, they may benefit more from a new and direct approach to the problems. A more motivation-oriented approach, more broadly addressed, with increased interaction across the walls of academe, could have a much greater impact, and with a relatively small expenditure.

We have been experimenting with a pilot version of such a program at the University of California at Santa Cruz. We have worked to develop motivations and skills for innovation and entrepreneurship in a wide range of students, not just those in business and engineering. We have engaged students in the analysis and planning of actual technical and nontechnical business ventures. This combination of tutorial and practical activity has involved the extensive participation of a substantial number of outstanding members of the business and industrial community. Some students have been inspired to establish their own companies. Some have become highly entrepreneurial and innovative employees of existing companies. It should be noted that entrepreneurial skills, while rare, are extremely useful and valued within even large established companies.

The center at Santa Cruz has developed with the enthusiastic support of the student body, administration, faculty, and local community. I believe our experience enables us to answer some critical questions:

First, is the stimulation of innovation and entrepreneurship appropriately addressed more broadly than just to that small fraction of students enrolled in business and engineering schools? Will it be effective with the larger number of other students?

Second, are the needed talents and resources available to a general campus, and where could they come from?

Third, how expensive would an effective program have to be? How expensive to the Government?

Fourth, how much impact would such a program have, and with what leverage?

First, the question about the appropriate student audience for such programs. In spite of the prominent role of engineering and business skills in modern technological enterprise, a cursory examination of the most important innovations and entrepreneurial endeavors reveals that people with science and liberal arts backgrounds have played a major role. Perhaps targeting only that 18 percent of college students enrolled in business or engineering is unnecessarily limiting. After all, exposure to technological innovation and to entrepreneurship is already present in their environments. The greatly expanded enrollment in business and engineering today is, to some extent, because students believe that these are the safe paths to the high-paying, secure jobs. Young people with perhaps unrecognized entrepreneurial inclinations might be more readily found in that 40 percent of college students majoring in the sciences or liberal arts. While most of them are headed for private sector careers, they are boldly keeping their options open. Their extensive background in scientific and/or communication abilities seems to compensate for some lack of business training.
The above hypothesis is confirmed by our experience. Students in the liberal arts and sciences are flocking to our pilot program in numbers greater than it can handle. Incidentally, minorities and women are well-represented. The students' accomplishments have been outstanding. By their own assessments and by their subsequent activities, the impact of the program at Santa Cruz has been impressive. This response is also a result of what is happening on a national scale. The shift in attitudes on the part of young people today, who now want to participate in and contribute to the system, is legitimate grounds for considerable optimism. In retrospect, that “turning off” and “dropping out” of a good fraction of our bright young people in the past may have been a significant contributor to our economic malaise. We missed a lot of enthusiastic young people in the business world. We would be seriously remiss if we failed to recognize the importance of the present improved trend, and neglected to take advantage of it. The answer to my first question, as to whether the stimulation of innovation and entrepreneurship should be broadly addressed to college students, is a resounding “yes.”

Where will the academic resources for a center on a general campus come from?

The activities in science and economics, even applied science, seem to be more than adequate on most general campuses. I suspect that most schools also have many faculty with industrial and business backgrounds which would be useful for an innovation center. As one example of many possible, Bruce Rosenblum, the professor of physics who became associate director of our center, is the former head of the general research group of a large electronics company.

However, a most important resource comes from outside the university. The utilization of this valuable resource turns out to be a new key to substantial university/industry interaction. Because of our desire to involve students with the entrepreneurial process, we invited several outstanding members of the business community to participate in our program. We received such enthusiastic response, that we were able to be highly selective. We chose accomplished people who were also excellent communicators and experts willing to prepare extensive materials on the topics we wished developed for our students. TRW's Simon Ramo, for example, prepared a 58-page text as background for his talks. The participation by these visitors often includes considerably more than lectures and discussions. It is possible to bring real business into the classroom and the classroom into the business to provide an important experience for a broad range of students.

The secret of teaching entrepreneurship turns out to be having outstanding and perceptive entrepreneurs interacting with the students. At Santa Cruz, we are now in the process of organizing and consolidating this participation of the business community with an industrial associates program, for companies affiliated with our center. The success of the university/industry interaction component of the center has exceeded even my own optimistic expectations. I have no doubt that many campuses are in a position to tap a similar resource.
My third question was, how much would a Government program cost?

A successful center on a medium sized campus could operate effectively with an annual budget of $300,000 assuming the teaching salaries were provided as the university's contribution. Once the center was successfully operational its funding would increasingly come from other sources. Industrial organizations associated with the center will be more than willing to contribute modestly to acknowledge the advantages to them as well as the broader value of the center. A longer term source of funding will be through income from companies whose development the center has materially assisted. The need for governmental support should decline to zero over a period of about 7 years.

Each center could develop quite independently of the others, each adjusting to its own environment. Even a very small number of centers could operate effectively. If we were to start three or four centers a year, the eventual long-term cost to the Government would rise to only $4 million per year, and there would be time to evaluate the program well before even that level of expenditure was reached.

If centers for innovation and entrepreneurship are so good, why don't universities just go ahead and do it with their own funds?

There are two problems: A dollar problem and a people problem. Funding shortages today are forcing cutbacks in existing academic programs. An expenditure for something outside the university's traditional responsibilities will be looked upon cooly. The people problem is at least as serious. Helping or encouraging students—especially nonbusiness students—to develop entrepreneurial skills and to have them develop working relationships involving the people and the actual operations of the business community is hardly in the university tradition.

As you know, it is hard for the universities to do the untraditional—even if the institutional leaders wish they could. Universities are not likely to initiate centers on their own. However, it is very much in the university tradition to be aware of successful projects at other institutions. A program with strong appeal to students, in this student-short era, will surmount considerable tradition-based resistance.

I now come to the most crucial question: "What impact will these centers have?"

Consider three views, expanding from the individual campus to universities in general to the national economic scene. In a typical center, approximately 200 students each year would have at least significant involvement (one course/business workshop) with a solid exposure to the business community's people and concerns. This experience usually will be much more than the students' previous contact with business and industry. Virtually all will enthusiastically report substantially influenced career goals. Approximately half of these will continue to complement their other course work with center activities in subsequent years. Perhaps during a given academic year 300 students would have substantial involvement. The impact of this program will actually extend far beyond that. This novel undertaking will be talked about extensively on campus. Students tend to have a respect for such innovations
Thank you again for the opportunity to present my perspective.

In my view, there are several key points to consider in addressing the issue of climate change and its impact on agriculture.

Firstly, it is important to recognize the role that agriculture plays in contributing to greenhouse gas emissions. This is particularly true in tropical and subtropical regions, where agriculture is a major source of carbon emissions.

Secondly, there is a need to develop and implement sustainable agriculture practices that can help to reduce these emissions. This could include the use of more efficient farming techniques, the adoption of crop rotation and intercropping, and the use of renewable energy sources such as solar and wind power.

Finally, it is essential to involve the local communities in the development and implementation of these sustainable agriculture practices. This could include providing training and support to farmers, and involving them in the decision-making process.

In conclusion, while there are challenges to be faced, I believe that by working together, we can develop a more sustainable and resilient agriculture system that is able to meet the needs of the future.

Thank you again for the opportunity to share my thoughts on this important issue.
The final course in CIED's three-course sequence will be offered every Spring Quarter. The prerequisites for this course are Economics 16 and 17. In this course, students will concentrate on a specific innovation and the development of a new start-up venture based upon it. This will involve in-depth market research, financial planning, and the preparation of a comprehensive and realistic business plan. In most cases this will require close collaboration with outside inventor/entrepreneurs. Economics 18 may therefore be structured as an independent field project rather than a formalized class.

Mr. Walgren, Dr. Kapany, we certainly appreciate your background and the direct experience you've had with this particular program.

The Chair will recognize Mr. Shamansky.

Mr. Shamansky. Thank you, Mr. Chairman.

Dr. Kapany, I was fascinated by your testimony, but the word "entrepreneurship" I find a little elusive. There was a fad some years ago about "creativity," which was pretty nebulous. Does your center offer a degree in entrepreneurship? Or do you only offer courses?

Dr. Kapany. First of all, I should tell you that our center is just completing its second year as a pilot program. Right now we are giving a series of courses. The first of these courses is called "Innovation and Entrepreneurship for the 1980's." The object of this course is to inspire and introduce students, all with varying backgrounds and academic majors, to the world of innovation and entrepreneurship. This course is then followed by two other courses which go into these areas in more depth.

Now with regard to your comment that the word "entrepreneurship" may be becoming a fad: I would like to say that there is no ambiguity in its definition—as is the case for the word "creativity." Furthermore, entrepreneurship is ingrained in the American heritage and the system of free enterprise. We are trying to simply rekindle it and make it more pertinent to today's complex economy and society.

Let me give you an example. Our second course, called "entrepreneurship," concentrates primarily on the evaluation of an innovation, market research, financial analysis, and organization of a venture. In all of our courses, the students are divided into workshop groups. The groups are make-believe companies with an elected president, a vice president of finance, vice president of marketing, technical vice president, and vice president of manufacturing. In the second course we actually bring real innovations and real businesses into the classroom. Sometimes we work on helping businesses that seem to have potential but which are faltering.

Mr. Shamansky. That are faltering?

Dr. Kapany. That are faltering, for one reason or another. But most of them are just in the planning stage. Last quarter we had four workshops. Two of these were on companies already in existence: One called EDUCOMP, which is developing computer software for educational purposes; and another called INSPECTRON, which has a robotic device for testing the packaging of various products. The remaining two workshops involved the comprehensive planning of new companies based on two innovative product concepts. The two existing companies had been in operation for about 2 years or so, but they did not have thorough business plans. It seemed that they had good innovations—so our students went out, and did extensive market research, evaluated the innovations from not only a technical standpoint but also from a market standpoint, and then developed comprehensive business plans—approximately 150-200 page business plans—which the entrepreneurs are now taking out to try to raise money and get their companies moving.
Mr. Shamansky. Dr. Kapany, how does that differ essentially from the case method as used at business schools?

Dr. Kapany. Well, there are a number of basic differences. First of all, this is not a business school. So it is addressing a different audience, a much broader student audience. Second, this is not a case method, in which you look at the case history of a company, some years after the fact. This is actually working with entrepreneurs on new innovations and ventures.

Mr. Shamansky. Well, in that sense it's a lab course.

Dr. Kapany. It's a laboratory. It's bringing the businesses into the classroom and taking the classes into real businesses.

Mr. Shamansky. Have any of your students started their own businesses?

Dr. Kapany. Four companies have been started and, as I said, we have only just completed our second year of operation.

Mr. Shamansky. Given the short time period that you've been involved, are any of the students in businesses, other people's businesses?

Dr. Kapany. Yes they are—and that is an extremely important point. In fact, one of the statements that we often make to our students in the introductory lectures is that entrepreneurship does not only mean that you start your own company; there's a lot of entrepreneurship to be done in existing corporations. Furthermore, we emphasize that a vast majority of the students should probably never be starting a new company—only a small minority will or should do so.

Mr. Shamansky. Could you operate your center effectively without Federal money?

Dr. Kapany. Eventually, yes. In the last 2 years it has been funded by the Chancellor's discretionary funds with very limited resources. There has been a lot of student enthusiasm, staff hard work, and support by the business community. However, Federal funds are essential for the first 7 years or so. Thereafter, the center could become self-sufficient.

Mr. Shamansky. Let me ask you this. How is this any different than saying we want to teach a person how to think?

Dr. Kapany. Well——

Mr. Shamansky. Which is not bad. I'm not deprecating that.

[Laughter.]

Dr. Kapany. Well, you know, thinking is necessary in learning every subject. You have to think in physics, in chemistry, or in history. Similarly, you have to think in entrepreneurship and innovation, too. Thinking is an essential requirement for all forms of learning. But these courses are not only limited to thinking; they also include doing and practical learning. It is being involved, and rubbing your shoulders with successful role models. I will elaborate: Students that have not been exposed to business environments have an image in their heads of these successful entrepreneurs. For example, they have a certain image of a bank president, a venture investor, or president of a company. When these people are brought into the classroom and through intimate interaction, their image is reduced to human scale. We have observed a change in the students' attitudes, to one of, "If he can do it, I can do it too." I think that's really one of the very important motivational factors.
Nature of the Course

This is a more advanced version of CIED's first course, "Innovation and Entrepreneurship for the 1980's" (Economics 16). It is the second in a planned sequence of three courses offered by the Center for Innovation and Entrepreneurial Development.

The course is designed for students who envision careers in business or industry and would like one or two courses fairly directly applied to that goal. It is the next step for students who have taken Economics 16, and who would like to pursue the topics covered in that course in more depth. We believe we can package many of the essential aspects of several courses offered in business schools in this course for students with the proper background. Courses of a similar nature have been developed at a number of schools in the last few years and have been exceedingly well received.

Economics 17 will equally emphasize market research, financial planning, and the organization of a venture.

Format

There will be twenty two-hour lectures and ten or more approximately two-hour "laboratory" sessions. Experts from outside the University will present approximately eight lectures on particular topics and will meet with student groups. The laboratory sessions will be organized with groups of about five students working together on extended projects under faculty supervision.

Work to be Evaluated

The student laboratory groups will make mid-term and end-of-the-quarter presentations on their projects. Students will submit papers on each of the three main topics as it relates to their chosen innovation. Attached is the course outline.

Mr. Shamansky. Mr. Chairman, I have just one terribly important question. My terribly important question is, I was fascinated by your—is it inspector? That’s the name of it?

Dr. Kapany. Yes.

Mr. Shamansky. Have you ever heard of a company called Trontron?

Dr. Kapany. Trontron? No.

Mr. Shamansky. Well, everything ends with “tron” these days. [Laughter.]

I thought if we got a name that hasn’t been used we could call it Trontron and be done with it. [Laughter.]

Thank you, Mr. Chairman.

Mr. Walgren. Thank you, Mr. Shamansky. Mrs. Heckler?

Mrs. Heckler. I would just like to pursue the issue that Mr. Shamansky raised. Would not the province of your subject matter better be placed in a business school than at the university? I find that somehow this seems to be an adjunct or supplement to business education in general. And why should there be a differentiation in the availability of courses?

Dr. Kapany. Well, I think that’s a very good question. The role of business schools in preparing students for middle management careers in existing businesses is widely recognized. However, the country also badly needs new innovative and entrepreneurial talents to counter the problems of lagging productivity, unemployment, and poor balance of trade. I’m sure that most people here have read the recent cover page articles in Time magazine, the Wall Street Journal, and other publications emphasizing the problems of business schools. I think that the kind of activity we are talking about is a complement to what business schools or engineering schools are doing. We are trying to address an audience of liberal arts and science students that represents about 40 percent of the total students in this country. If you’re going to limit these activities just to business and engineering majors, you’re limiting the audience to only 18 percent.

Mrs. Heckler. You’re talking about 200 students in one class.

Dr. Kapany. Well, no, I’m not just talking about that; I’m talking about students with considerably varying backgrounds. If you look at the statistics of successful entrepreneurs in this country, you’ll find a significant proportion of them do not come from business schools or engineering schools. So to advocate that the only course left for a student to get into the business world is through a business school is unnecessarily limiting.

Mrs. Heckler. Do you offer credit for these courses?

Dr. Kapany. Yes; they’re all credit courses.

Mrs. Heckler. How many hours does one require?

Dr. Kapany. Very good. There are 20 lectures per quarter. Each lecture is 2 hours. In addition to the classroom activity, they are expected to do homework, ranging from about 4 to 8 hours a week. Furthermore, they work in the workshops, make-believe companies, on their own time. So it’s a substantial commitment of their time.

Mrs. Heckler. Is the homework reading homework or is it some kind of internship experience?
Dr. Kapany. It's both. It's both reading and working on very specific problems.

Mrs. Heckler. How do they find the opportunity? Does the college establish contacts with the business world?

Dr. Kapany. CIED has a council of directors consisting of members of the business community. Let me tell you how the center is organized. As the director of the center I report directly to the academic vice chancellor. Furthermore, we have organized a council of directors which consists of 15 individuals. Five of them come from the university, faculty and students, and 10 of them come from outside the campus. These directors are businessmen, successful entrepreneurs, presidents of their own companies, president of a bank, president of a venture capital firm. And they not only advise the center on its planning and activities but also come into the classroom, give lectures, work with the students, and then, of course, if appropriate, provide them with contacts. So we have established a wide network.

Mrs. Heckler. Doctor, would it be possible for you to submit a list of courses that you offer for our record?

Dr. Kapany. I'd be very happy to do that.

Mrs. Heckler. I think that would be a very interesting addition to our record. Now, what is your feeling about the current implementation level of the Stevenson-Wylyer Act under the circumstances of the program that you're presently under?

Dr. Kapany. Well, I gather that there is no funding for the year 1982 and beyond for the innovation center activity. I think that is an utter disaster.

Mrs. Heckler. Do you rely completely on Federal funding? Or do you have other sources of funding?

Dr. Kapany. We have so far been funded solely by chancellor's discretionary funds from the University of California at Santa Cruz. We have submitted a proposal to the National Science Foundation for a year's funding. Whereas we are most optimistic about receiving the one year's funding, beyond that we are going to have to be damn entrepreneurial.

Mrs. Heckler. If the lessons of your courses are effective, you shouldn't have any difficulty.

Dr. Kapany. Well, we'll give it a try. However, as I stated in my testimony, long-term Federal funding would make all the difference.

Mr. Walgren. Thank you very much Dr. Kapany. We certainly appreciate it. There's another vote on the floor and I'm afraid we have to go. I have to go.
"By providing the opportunity to develop a "nuts and bolts" approach to innovation and entrepreneurship, CIED is helping me to expand my creativity into productivity."

Richard Lauler, Keefe College

"The workshop was a very valuable experience in providing the chance to develop certain skills required for starting a business."

Othelo English, Oakes College

"Women have not, in the past, thought of themselves as entrepreneurs in business. This course has helped me realize that it can be done, and it's shown me how to do it."

Jeanne Whitworth, Stevenson College

"This isn't an easy course and it's not for everyone. But for students interested in someday operating their own business, it is a rare opportunity to actually combine learning with real-life experiences."

Jose Torres, Merrill College

"As an independent inventor, I have had a perhaps overly protective view of my own inventions. CIED has shown me the value of creative teamwork, which both enhances my potential and helps make our goal of creating a successful business attainable."

Barry Bossfold, Independent inventor
Innovation and Entrepreneurship for the 1980's

CIED's first course, "Innovation and Entrepreneurship for the 1980's" is offered under the Economics Board as Economics 16. It is intended for the liberal arts and science student who anticipates a career in business or technology and wishes to acquire the business knowledge and skills needed to create successful, rewarding, and fulfilling activities. "Innovation and Entrepreneurship for the 1980's" has been designed to be a single course which, taken in addition to a student's normal program, would provide maximum benefit towards his or her ambitious career objectives.

The course is led by CIED Director Narinder Kapany, who is joined by other Santa Cruz faculty. A fundamental aspect of the course is the participation of a substantial number of outstanding innovators and entrepreneurs from the business community. Participants in CIED's Winter 1980 course included founders of several companies ranging in size from small to multi-billion dollar; internationals, eminent attorneys in business and patent law; and leaders in venture capital and banking.

Group workshops form a major part of the coursework. Students meet in small groups to evaluate an innovation and analyze its technical, market, and financial feasibility. At the end of the quarter they submit a business plan which outlines the development of the innovation into a viable commercial endeavor.

COURSE OUTLINE

Introduction
America's economic problems and the need for innovation and entrepreneurship. Opportunities for individuals in large, small and new companies. Discussion of business concepts and terminology. Discussion and assignment of workshop projects.

The Business Plan
The need for a business plan, its preparation and evaluation. Technological, economic, and societal evaluation of an innovation. Market research: methods and evaluation of techniques.

Protection of an Innovation
Reasons for and extent of protection. Disclosure, reduction to practice; patents, trademarks, copyrights.

Development of an Innovation into a Visible Business Endeavor
Starting new ventures. Problems encountered by entrepreneurs in new or developing businesses. Planning for growth.

Mid-Term: Student Workshop Preliminary Reports

Organizing a Venture

Today's Innovators and Entrepreneurs

Final Exam