

TEACHING OF ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT OF SMALL SCALE INDUSTRIES AT REGIONAL ENGINEERING COLLEGE KURUKSHETRA.

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1. INTRODUCTION

Realizing the role of small scale industries in creating larger employment opportunities, distribution of ownership, diversification of management and development of rural and backward areas, the Central Government gave major thrust to the development of small scale industries in India. It was also felt that proper industrial growth and development and export of goods and services could be achieved only by improving the industrial culture in the country. This improved culture based on high technology, innovation and quality products could be brought about by involving a large number of techno-entrepreneurs (scientists, engineers, technocrats) in owning small scale industries especially in hi-tech areas. For this purpose, Government of India has established a network of institutions at various levels to organize training programmes in entrepreneurship development.

The academic institutions are the leaders in human resources development. These institutions especially engineering colleges, can play a very important role in preparing good technical entrepreneurs

(manager-owner-engineer) and entrepreneurs (manager-engineer) through teaching, research, training and creation of manpower in the areas of entrepreneurship. These engineers as owners as well as employees will change the industrial culture in the country as defined above and engineering colleges, thus, would be instrumental in creating an entrepreneurial society as the future belongs to such societies.

In addition to conducting awareness camps, Entrepreneurship Development Programmes and other sponsored programmes of Department of Science and Technology for training, research and consultancy in the areas of entrepreneurship, we have at Regional Engineering College, Kurukshetra introduced a single-semester regular teaching course on Entrepreneurship Development and Management of Small Scale Industries as a part of curriculum for B. Tech. programme.

The paper gives the details of this course, its contents, teaching methodology, integration with other subject units, etc. The feedback of the past students is also reported. It is expected that our experience can be utilized by the administration and faculty of other

technical institutions for planning and organizing such courses in their institutions.

2. COURSE CONTENT

The training modules adopted by Entrepreneurship Development Institutions in India for 6-week Entrepreneurship Development Programmes were taken as the starting point for the design of the course content for the subject on 'Entrepreneurship Development and Management of Small Scale Industries'. The training module was reshaped to suit the preparation of engineering students as innovative entrepreneurs for setting up hi-tech industries. Regional Engineering College, Kurukshetra had designed and conducted a research survey to study the entrepreneurial profiles and special inputs needed for the preparation of suitable teaching course ⁽¹⁾. Special characteristics of the target group coming from different strata of the society, their various inhibitions and motivational levels and the effect of different socio-economic factors on entrepreneurship development were analysed. The constraints inhibiting the engineering students for taking up entrepreneurship as a career, the types of industries preferred by the engineering students in India were also considered for the design of teaching module for the students of engineering colleges.

A course material based on the above studies was prepared and put into practice. The course constitutes class-room lectures, tutorials and field work, product development exercises, formation of groups based on suitable characteristics of the students to undertake joint business ventures and preparation of bankable project reports.

Entrepreneurship Development and Management of Small Scale Industries is a compulsory subject for the

undergraduate students of Mechanical Engineering discipline and is taught in the 7th Semester. The course is available as an open elective to the students of other branches of engineering in the college and is taught in the 8th semester. The broad outlines of the course are given in the Annexure - I. The students are given specialised courses in management, industrial economy, industrial engineering and other related subjects in various semesters. This has been taken care in the design of the syllabus. Help has also been drawn from various case studies ⁽²⁾.

3. TEACHING METHODOLOGY AND PERFORMANCE EVALUATION

The subject coverage in Entrepreneurship Development and Management of Small Scale Industries would demand state-of-the-art knowledge in the diverse fields of industry and management; the faculty has been recruited, therefore, with long and wide industrial experience and training in entrepreneurship development. The lectures are followed by discussions and very active participation by the students. The in-house teaching is supplemented with expert lecturers from entrepreneurs, bankers, industrial consultants, etc. from time to time.

The tutorial work consists of field and factory visits, conducting market survey and research, preparation of opportunity profiles of various regions, bankable project reports. The students have to present their reports to the class and teachers who sit as if experts from the banks, financial and industrial institutions and the students have to justify their data and information and clarify all the doubts raised during the sessions. The final updated reports are submitted for evaluation taking into account all the

points raised in the above discussions.

There is no formal written examination. The students are evaluated on the basis of their tutorial and field work, project reports, selection of innovative and hi-tech products and their presentations before the class.

4. INTEGRATION WITH OTHER SUBJECT UNITS

The course on Entrepreneurship Development and Management of Small Scale Industries has been integrated with other subject units. The students of all branches have to prepare individual or group projects as part of B. Tech. programme. The students are encouraged to take up projects on design, fabrication and prototype development of innovative and hi-tech products over a period of one year. Special awards have been instituted to encourage research and innovation and development of successful products and are therefore encouraged to convert them into bankable project reports for the course on entrepreneurship. It is expected that such students may convert these products into commercial ventures whenever they get an opportunity to launch their own enterprises.

The students of various disciplines undergo Industrial Training for a period of 6 weeks after 4th semester and 8 weeks after 6th semester. This training of 8 weeks after 6th semester can be integrated with entrepreneurship development⁽³⁾. The first 3 weeks will be spent in the college for imparting motivational, managerial and entrepreneurial inputs. The next 4 weeks will be spent in a suitable industry to study the technical and managerial functions and to collect necessary information for the preparation of the report for a selected project. The

last week will be utilized in the institution for the finalization of the bankable project report and for making loan and other applications. This training can be accepted equivalent to Industrial Training as part of B. Tech programme. Initially, these recommendations can be tried on a batch of 25 - 30 students, selected by Achievement Motivation Tests.

5. CONCLUSIONS

Launching an engineer - entrepreneur, and that too of the first generation, is a very difficult and challenging task requiring high degree of commitment and skill from the teacher. He should have around personality with long industrial and managerial experience on one hand and high missionary zeal on the other. Luckily, the engineering students have been found highly motivated. On the basis of a research survey conducted on 300 students of various branches of Mechanical, Civil, Electrical, Electronics and Computer Engineering of this college, more than 70 per cent of them wanted to set up their own industries, of course, after 5 years of service to gain experience and confidence⁽⁴⁾. From a separate study conducted on the profiles of successful engineer - entrepreneurs, it was found that on an average they had spent 8- 10 years in employment before setting up their own industries. The teaching of entrepreneur -ship subject can help to reduce this period appreciably but not to zero.

On the basis of feedback received from the past students of the college who had studied the subject of Entrepreneurship Development and Management of Small Scale Industries, it can be stated, without any doubt, that it has created a very strong and positive impact on them. A few of them have set

up their own industries immediately after graduation. Some of them have become better manager- engineers (entrepreneurs) and a seed has been implanted in their minds and most of them feel that they have an alternative career in entrepreneurship available with them and that they can confidently launch their own enterprizes after sometime, whenever an opportunity arises. This course is certainly making contribution towards individual growth as a part of a national drive for human resource development and creation of entrepreneurial society in India.

It is recommended that such courses should be made compulsory for all engineering degree and diploma students so that entrepreneurship can be selected as alternative and fruitful career by some of them. The teaching courses are cost-effective as compared to special Entrepreneurship Development

Programme sponsored by Government agencies.

6. REFERENCES

1. P. V. Gupta, R. K. Singal and G. Lal, 'Entrepreneurial Profiles of Engineering Students for Development of a Training Module', ENDEC World Conference on Entrepreneurship: Challenges for the 21st Century, August 11- 14, 1992, Nanyang Technological University, Singapore.
2. R. K. Singal, 'Meeting the Legal Obligations for Setting up a Small Chemical Plant', 'Udyog Pragati, July- Dec., 1988.
3. R. K. Singal, 'Organizing Entrepreneurship Development Programmes in Educational Institutions- A Report. 'Electrical India, 31st Dec, 89
4. R. K. Singal, 'Technical Entrepreneurship as an Effectiive Remedy for Industrial Sickness in India, ' Proceedings of All India Seminar, Institution of Engineers, Calcutta, Sept., 7- 8. 1990.

ANNEXURE- I

ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT OF SMALL SCALE INDUSTRIES.

A. Lecture Schedule

Sr.No.	Particulars	No. of Hours
1.	Small Scale Industries. Industrial Policy of India; Role, Scope and Performance of Small Scale Industries; Problems of Small Scale Industries; Causes and Remedies of Industrial Sickness ; Operating Environment and Industrial Culture ; Need for Trained Entrepreneurs and Entrpreneurs for Development of Entrepreneurial Society.	5
2.	Entrepreneurship Development. Characteristics of an Entrepreneur; Development of Entrepreneurial Traits; Motivation; AMT; Role of Technical Entrepreneur; Programmes and Institutional	

	Network for Entrepreneurship Development; Case Studies of Successful Entrepreneurs.	5
3.	Planning of a Small Scale Industry. Market Research and Opportunity Profiles; Sources of New Product Ideas, Screening, Feasibility Studies; Project Report Preparation and Appraisal ; Product Demand Forecasting; Socio- Economic Benefits, Market Strategies Technical Feasibility and Financial Viability. Preparation of a Bankable Project Report; Break- even Analysis. Formation of a Firm.	10
4.	Launching of a Small Scale Industry. Promotion of Small Scale Industries by State Govt.; Infrastructure, Resources and Institutional Network Fiscal incentives. Activities Involved in a New Project; Project Planning, Precedence Network Diagram, Schemes, Application Forms and Procedures to apply for Loans, Plots, Sheds, Machinery, Materials, Power Connectoin and Other Utilities.	5
5.	Management of Small Scale Industries	
	5.1 Project Engineering and Management ; Design of Plants and utilities, Electrical and control Systems, Civil and structures, Selection of technology and machinery, materials; Specifications, Tenders, Purchasing, inspection and testing, erection and Commissioning. Construction management; Statutory clearances.	4
	5.2 Finance Management and Accounting Project cost ; Term loans and seed money, Assessment and management of working capital ; Sources of financing ; Financial statement an ratios ; Excise, sales tax, income tax.	4
	5.3 Production and Materials Management. Production planning and control ; Production technologies, productivity, quality control, inventory control.	3

5.4 Personnel Management

Industrial laws ; Recruitment, training and care,
Structures of wages and benefits; Personal
policies and practices; Development of proper work
culture.

3

5.5 Marketing Management

Market survey and market research; planning;
Pricing; Distribution, sales promotion, After sales
service; Advertising; credit policy ; Handling
competition.

4

5.6 Technology Management

Technology forecasting; Technology Development;
Technology transfer, Technology arrangements;
Role of national laboratories; Collaborations.

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B. Fieldwork and Tutorial Schedule

I.	Achievement Motivation Tests and Business Games	5
II.	Market Research and Opportunity Profile Preparation	3*
III.	Field and Factory Visits	*
IV.	Product Selection and Presentation	1
V.	Group Formation and preparation of a Bankable project report	4*
4*		
VI.	Presentation of Project Report	2

* Excluding time required for field and factory visits and home assignments.