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INDUSTRIAL AND COMMERCIAL JOB TRAINING
FOR WOMEN IN MOROCCO

Number 0147

SIXTH QUARTERLY PROGRESS REPORT

July 1981.

america-mideast educational & training services, inc.

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I. EXECUTIVE SUMMARY

The Industrial and Commercial Job Training Project for women in Morocco continues to demonstrate satisfactory progress during the last quarter.

Research activities of the Economist continue to demonstrate a great progress. It is expected that the findings of the Economic survey will be compiled and reported by September 30, 1981. The Economist has been promoting the transfer of research and technical knowledge among the O.F.P.P.T.'s personnel by on-the-job training process. He has also developed a mechanism for an exchange of information between the O.F.P.P.T. and about 50% of all employers in the entire country. In addition, the Economist has prepared and is already supervising a summer internship program for the two U.S. participants studying economics.

The Psychologist's major research project is the analysis of socio-cultural influences on the life pattern of the urban working woman in Morocco and their impact on her vocational training and employment. The Psychologist just began working on this study and will be expected to present the findings by November 1981. Findings of both the Economist's research and the Psychologist's research will be of great importance when tailoring vocational training programs to the needs of future women workers and the Moroccan Labor Market. The Psychologist has completed an analysis of aptitude tests used by the O.F.P.P.T. Applied Psychology Department. She has also prepared and is already supervising a summer internship program for the two U.S. participants studying Psychology.

The Psychologist along with her counterparts provide pre-training outreach to high schools to attract young women to O.F.P.P.T. centers, academic follow-up while in training, workshops and job skills training seminars upon graduation, and on-the-job follow-up.

The length of the internship or on-the-job training for second year trainees fluctuates between two weeks and two months depending upon field of training and each particular enterprise. Most trainees get job offers from the enterprises where they undergo their internships.

In April 1981 the Project Director visited three of the six U.S. participants. The Project Director met with the participants, academic advisors and some teachers where they discussed the participant's academic progress. The Project Director also explained the important role these participants are expected to perform in their national development. All participants are undergoing a summer internship program working with the Project Team in Morocco.

In early June AMIDEAST's Senior Vice President and the Project Director left for Morocco to participate in the mid-project evaluation held in Casablanca. An evaluation report will be submitted by AID/Rabat in the near future.

Along with their counterparts, the training specialists have been involved in designing training programs, designing and installing work laboratories in all centers, conducting teacher training seminars, and training teachers on the use of equipment and audio visual materials. They have also developed two questionnaires, one of which to be filled out by employes after second year female trainees complete their internship. The second questionnaire is designed to be filled out by female trainees in order to get feedback regarding their program. Training specialists will be analysing both questionnaires to be able to modify the program to accomodate the different needs of both industry and trainees.

During this quarter one shipment of equipment and material was received by O.F.P.P.T., one shipment was air freighted, and a new shipment is being prepared to be shipped to casablanca in the near future.

Some difficulties in recruiting female trainees were experienced in Fes. As a result the O.F.P.P.T. suggested transferring the section in Fes to Kenitra as an alternative site. However, at the conclusion of the evaluation and after AID officials visited Fes, the final decision was to keep Fes. The O.F.P.P.T. decided not to make dorm facilities available for females as a result of social and cultural constraints.

It is recommended that a typing specialist in both French and Arabic be made available to the Business Education Section. Peace Corp Volunteers can be of a great help in providing English Language Training to all training sections.

AMIDEAST strongly recommends that three or more women be provided with advanced training in industrial fields in order to be placed at the advisory level within the O.F.P.P.T.

II INTRODUCTION:

This progress report presents all project activities during the last three months - April through June 1981. These activities are presented in Part III of this report. Issues concerning these activities are discussed in Part IV. Recommendations are presented in Part V of this report.

AMIDEAST is very pleased to present its Sixth Quarterly Progress Report on the INDUSTRIAL AND COMMERCIAL JOB TRAINING FOR WOMEN IN MOROCCO.

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III. PROJECT ACTIVITIES

The following activities are presented and discussed in this section:

- A. Activities of AMIDEAST in the field
- B. Activities of AMIDEAST/Headquarters in Washington, D.C.
- C. Activities of the six Moroccan women participants in the U.S.

A. Activities of AMIDEAST in the field

AMIDEAST activities in the field will be discussed as follows:

- 1. Research activities
- 2. Counseling and follow-up activities
- 3. Skill Training Activities

1. Research Activities:

The Economist has planned, designed, organized, controlled and executed all the steps for the ongoing economic survey with the cooperation of the OFPPT's Director, his technical staff and several officials of the Ministry of Plan, Ministry of Labor and Ministry of Industry.

He has already developed a mechanism for an exchange of information between the OFPPT and approximately 50% of all employers in the entire country. This scope is more broad than the one established in the project objectives - Casablanca and Fes.

The Economist has established a reliable computerized research methodology for achieving the project's objectives by carrying out

simultaneously the following:

1. An employment establishment survey designed to obtain current employment data on economic activities, occupational categories and sex;
2. A job vacancy survey designed to obtain information on job vacancies from employers by economic activity, occupational categories and sex;
3. A recruitment channel survey designed to obtain data on what hiring channels are currently used by employers to obtain workers in different economic activities;
4. An employer's attitude survey designed to obtain data on what are the predominant employer's opinions on the employment potential of women in traditionally male jobs and to identify such occupations by economic activity.

It is expected that the findings of these surveys will be compiled in a final report and presented by the Economist by September 30, 1981. These findings will provide guidelines in determining training needs and indicating adjustments to be made to OFPPT's programs in order to respond to the actual needs of the Moroccan Labor Market.

In addition, the Economist has been promoting the transfer of research technical knowledge among the OFPPT's personnel by on-the-job training process. It is believed that Moroccan staff who have participated throughout all the steps of the economic survey can qualify as a specialized research team ready to contribute efficiently and effectively in future research activities if adequate administrative and financial support are provided. Through the economic survey tasks they have acquired accuracy in the use

of the Standard Industrial Classification and the Standard Occupational Classification of all economic activities. Appendix 1 contains a seperate report by the Economist on the advancement of the survey to date.

In addition to full time work on the survey, the Economist has prepared and is already supervising a summer internship for the two U.S. participants studying economics, Ms. Mouna Cherkaoui and Ms. Fatiha Remh (Appendix 2).

The Psychologist has completed an analysis of the aptitude tests used by the Applied Psychology Department at the OFPPT. Appendix 3 indicates the present results of the analysis.

The Psychologist's major research project is the analysis of socio-cultural influences on the life pattern of the urban working woman in Morocco and their impact on her vocational training and employment. Findings of such research will be of great importance when tailoring vocational training programs to the needs of future women workers.

Women who have been living and working for at least two years in Casablanca and Fes will be selected for structured interviews. Their technical training and education will be similar to those women enrolled in vocational training under the auspices of the project. The sample of working women will be recruited via the companies who indicated employing women when responding to the economic survey. Seperate interviews with husbands of married women in the sample will help in understanding the social and economic influence of the husband on the working woman's employment pattern. Secondly, their combined responses on domestic issues will give an idea of how a working couple in Morocco is adapting to a style of living for which traditional role models have not prepared them.

Structured interviews will be conducted with approximately 100 women, and of those married, their husbands will be interviewed separately by male interviewers.

Woman's interview: The structured interview will cover three major areas: background information, social and professional conditions at work, and how her personal life is effected by full time employment. The section on personal life will be different for married and single women. The questionnaire for married women will focus on division of domestic responsibilities - how she and her husband organize their lives outside of work. For those women still single, the emphasis will be on the relationship they have with their parents, and what their plans are for the future. All interviews are expected to last 60 to 90 minutes.

Husband's interview: The men's questionnaire is designed to find the correlation between the husband's and wife's view of her work and career, and their life as a working couple. Thus, he will be asked many of the same questions as his wife concerning the advantages and problems of her work, how they divide domestic responsibilities, who makes financial decisions, and how they utilize their salaries. As much as possible, the husband will be interviewed simultaneously but separately from his wife. His interview should take no more than 60 minutes.

The interviewers: Moroccan men and women who have a bachelors degree (la licence) in the social sciences will serve as trained interviewers for the study. It is important that the interviewers be Moroccan so that either Arabic or French can be used for questgionning. Since subjects may respond differently to an interviewer of the opposite sex, same-sex interviewers will be used throughout the study.

The project Psychologist will train them for one week in general interviewing skills and the recording of responses on the questionnaire. Their performance will be randomly checked during the study to minimize any difference in interviewing method which might bias the results.

The Psychologist plans to present her complete study by November 30, 1981 as was decided during the mid-project evaluation of July, 1981.

The Psychologist has been gathering background information on women trainees through interviews and questionnaires given to all women trainees. The background information will be helpful in selecting research targets for follow-up workshops and counselling programs.

A summer internship program for the two U.S. participants studying Psychology, Ms. Asmaa El Alaoui and Ms. Kouloub Hajoui, has been prepared by the Psychologist. The two U.S. participants will be working with the Psychologist at the OFPPT in Casablanca during this summer. The objectives of the summer internship are the following (Appendix 4).

2. Counseling and Follow-up Activities:

A. Pre-training counselling - outreach to high schools:

The purpose of this outreach is to attract school girls to skilled trades which promise good employment futures. Also, to inform these girls of the wider range of training specialties available within the OFPPT system. The new posters announcing the OFPPT training opportunities which are currently placed in high schools specify both females and males. (Appendix 5).

Once both findings of the economic survey and the psychological study are made available, a more elaborate outreach program will be designed.

B. Academic follow-up while in training:

The purpose of the follow-up is to be able to identify and monitor problems female trainees face while still in training. The Psychologist also monitors academic performance and absenteeism of individual students.

The Psychologist continuously receives semester grades and attendance records, participates in the end-of-semester evaluation of trainees, and provides the proper counselling and follow-up whenever problems are identified.

C. Workshops upon graduation:

Special workshops have been designed to prepare trainees for working life by teaching them how to look for jobs, effective and efficient on-the-job behavior, and how to manage being working wives and mothers.

An employment seeking skills follow-up workshop was conducted during February and April 1981. Another workshop is planned for all graduating sections in June and July.

D. On-the-job follow-up:

This stage is still in the planning process and its purpose is the following:

1. to provide feedback to OFPPT on adequacy of training in meeting job requirements,
2. to keep graduates in touch with each other, share problems and solutions, and participate in counselling sessions conducted with women trainees at OFPPT,
3. to collect data on realities of working life to aid in counselling women trainees,

4. to gain feedback from employers on quality of training in an effort to modify training curricula, and
5. to gain feedback from employers on female employees which will be used in counselling programs.

The Psychologist is awaiting graduation of women trainees, results of research, and for women graduates to gain working experience before initiating the implementation process of this stage.

3. Skill Training Activities:

Industrial Drafting: The design of the Industrial Drafting program has been the primary activity of the Industrial Drafting Specialist during the past quarter. Once he completes designing the program, the Industrial Drafting Specialist will start developing time tables for the different parts of the program. The program has been divided into 6 parts:

- | | |
|----------------------|------------------------------|
| - Drawing | - Applied Physics |
| - Technology General | - Mathematics |
| - Machine Shop | - Technology of Construction |

Two questionnaires have been developed, one of which to be filled out by employers after second year female trainees complete their internships. (Appendix 6). The second questionnaire is designed to be filled out by female trainees to get feedback regarding their program (Appendix 7). The Industrial Drafting Specialist plans to analyse both questionnaires in order to be able to modify the program to accommodate the different needs of both industry and trainees.

The Drafting Specialist has been training Moroccan instructors on how to prepare lesson plans using the pedagogy and methodology of teaching programs he developed earlier. They now prepare their lesson plans, he

reviews these plans with them pointing out strengths and weaknesses. After revising these plans, instructors re-do the lessons which then become part of the program. Still to be completed are corresponding evaluation materials, practical exercises, quizzes, exams, plus a time table for the six parts of the program. Appendix 8 presents materials developed and taught to Industrial Drafting trainees during the third semester.

During the next six months Mr. Callahan intends to accomplish the following:

1. Continue developing the remainder of the program in Industrial Drafting.
2. Teacher training.
3. Assist in placing of graduates in the Industrial Drafting program.

Construction Drafting Training: Construction Drafting continues to be under the directorship of the OFPPT.

Business Education: The Business Education section now has practical work classrooms where students are taken away from theory and placed directly in the everyday operations of a small business, developing their own support and producing concrete results. Appendix 9 represents the Business Education Specialist's report on the conditions of admission and content of program for Accounting and Secretarial Skills.

All the Accounting and Secretarial teachers participated actively in an intensive practical work session week in which they were trained in the use of all equipment and materials. This work session was applied

in the form of a comprehensive Accounting exercise and the daily operations of a small business in which trainees - Accountants and Secretaries - fully participated. Lab work and video taped student dialogues have been introduced in an effort to provide greater student self evaluation.

The chief instructor at the Institute who is responsible for the teacher-trainees has been trained by the Business Education Specialist in the basics of Micro-Teaching techniques and is applying this technique at the first level.

In the Business Education Section we now have an institute with an ESL program including texts, workbooks, efficient and inexpensive language laboratory, and an instructor trained by the business education specialist, to teach the course. We also have another laboratory unit for the exclusive use of the stenography classes in addition to three trained instructors, thereby increasing the speed with which the trainees can take dictation and do transcription.

The Business Education Specialist has developed a questionnaire which will be given to 120 trainee graduates upon their return from the internship experience (Appendix 10). Another questionnaire has been developed and distributed to employers where these trainees were placed. When both questionnaires are completed and analyzed, the Business Education Specialist will modify the program accordingly.

At the request of the Director of the Institute, a major activity will be the duplication of a practical workclassroom at the Fes institute during next fall. This means that the Business Education Specialist will be spending more time in Fes than he has been in the past.

During the next six months the Business Education Specialist intends to concentrate on the following:

1. Follow-up of first graduating class.

2. Duplicate Business Education program in Fes.
3. Continue to work with chief instructor and teacher trainees at the I.N.F.C.C.S.
4. Contribute to the development of a micro teaching lab at Ain Borja.
5. Train two more instructors in ESL at the I.N.F.C.C.S.
6. Train all teachers in the maintenance of Audio Visual equipment.

Electricity/Electronics: During the past quarter, the Electricity/Electronics Specialist has organized working sessions in both Casablanca and Fes where pedagogical concepts relating to lesson preparation and presentation were discussed. He has given lectures on basic electronics concepts demonstrating with audio visual equipment. He has also supervised laboratory sessions providing guidelines on how to maximize the use of the available equipment and components. The Electricity/Electronics Specialist has been training teachers on the techniques of how to plan and present lessons and how to assist and guide trainees in the lab.

In addition to his classroom and teacher training activities, the Electricity/Electronics Specialist has collaborated with the Service Programme in upgrading their curriculum in electronics. Eight units consisting of 6 to 8 modules each were examined and critiqued. (Appendix 11).

The Electricity/Electronics Training Specialist has developed an equipment inventory control list for all electronic materials (Appendix 12). This list will serve to identify equipment in need of repair as well as provide a systematic maintenance schedule.

The design and installation of a laboratory at Ain Borja has been a major contribution of the Electricity/Electronics Specialist during the past quarter. Working with two Moroccan assistants, he personally installed all the wiring and outlets for 18 work stations.

During the next six months the Electricity/Electronics Specialist intends to concentrate on the following:

- Visit other companies in the Casablanca area to try and place graduates of the Electricity and Electronics programs.
- Continue demonstrations of equipment.
- Organize training sessions for instructors.
- Design a program in Electronics for second year students.
- Formulate a program in Industrial Electronics to train students at the technician level.

Female Enrollment at OFPPT: OFPPT receives approximately 25,000 requests for admission from both men and women. Only 11,000 are admitted to OFPPT training centers at both 4eme (10th grade) and 7eme (12th grade) levels. One out of seven applicants usually gets accepted. Female enrollment reaches 10% in all fields and 6-8% in industrial fields.

OFPPT projects to admit 28,000 trainees to its training centers by 1985. At the same time, increasing female enrollment to over 20%. Female enrollment at all OFPPT training centers tends to be encouraging despite earlier problems in recruitment in Fes. Fifty females have applied to the Fes center so far. Special efforts will be made by the Director of Fes center to recruit more girls in general and the Construction Drafting Section in particular. Total enrollment of 250 women is planned for the 1981-82 academic year. Table 1 shows female enrollment for 1979 and 1980.

On the Job Training and Employment: Each year and before trainees take their final examination, the OFPPT organizes on-the-job training in the different industrial and commercial enterprises. Objectives of such training are the following:

Table 1
NUMBER OF FEMALES WHO JOINED TRAINING PROGRAM
IN CASABLANCA AND FES
1979 and 1980

SPECIALITY	C A S A B L A N C A			F E Z		
	1979	1 9 8 0		1979	1 9 8 0	
	1st year	1st year	2nd year	1st year	1st year	2nd year
Industrial Drafting	14	15	14	0	0	0
Construction Drafting	4 A.S. 17 ¹ 7 A.S. 2	19 5	0 2	10 ² 0	0	0
Electricity	14	14	14	13	5	13
Electronics	13	18	13	0	0	0
Accounting	7	14	7	0 ³	2	0
Secretarial Skills	25	23	25	0 ⁴	12	0
TOTAL	92	108	75	23	19	13

1. Graduated June 1980 after one year of training. Four girls were employed as of February 1981.
2. Graduated March 1981 after one year of training.
3. This section started with only four girls; two left program to join teacher training, one transferred to Casablanca, and one dropped out for a full time job.
4. The five girls who started in this section were transferred to Casablanca and are included in Casablanca figure.

1. The discovery of the actual work experience by trainees (structures, organization, constraints, and work environment).
2. The comparison of the methods and techniques taught at the training centers with the procedures in force in the enterprise.
3. The establishment of closer relations between the centers and their economic environment in order to research ways of adapting the training to the requirements of the labor market.

The length of the training periods fluctuates between two weeks and two months. The majority of trainees usually benefit from 3 to 4 weeks of training, whereas the technicians in Constructional Drafting get 3 weeks of training, those of the Industrial Drafting and Electricity/Electronics get 4 weeks, and those of the Secretarial and Accounting get 2 months.

The directors of the training centers play an important part in seeking out internship places in the different enterprises for their trainees. The training specialists along with the instructors are also involved in internship placement.

Trainees are supervised by the chief of service in each office or industry. Upon completion of their internship, trainees are evaluated by the chief of service. The chief of service forwards the evaluation report to the director of each training center who in turn forwards it to the Office of Studies and Development for their analysis. It is evident from previous evaluation records that enterprises were generally satisfied with the OFPPT trainees.

All female trainees were placed in different enterprises for their two months on-the-job training. Twelve out of the 14 female trainees in Industrial

Drafting were placed in industries for 3 weeks of training. Female Electronics trainees were all placed in industries. Female trainees in Electricity were not placed in industries in order to complete their training program at the center.

Business offices and industries that offer on-the-job training for OFPPT trainees have no obligation to pay any wages. However, some do give a token of remuneration.

Most business and industries offer trainees jobs while undergoing their on the job training. For example, Sada Electronique and SFRM where 2nd year Electronics women were undergoing their on-the-job training have already offered to hire these women at the end of July 1981.

Four out of the 17 women who graduated June 1980 after one year of training in Constructional Drafting were employed as of February 1981. They were recruited before the initiation of the project at the 4eme (9th grade) level as table 1 shows. Therefore, these girls were not academically prepared for a two year program.

B. Activities of AMIDEAST/Headquarters

AMIDEAST/Headquarters continues to maintain effective channels of communication with team members in order to coordinate and supervise all activities of the project, and to maintain satisfactory liaison with AID/Washington, AID/Rabat and OFPPT.

Shipment number 10 containing instruments for the Electrical/Electronics Section and equipment for the Business Education Section was received by the team during the last quarter. Shipment number 11 containing replacement electronics training equipment, instruction manuals, and additional materials

for the Business Education Section was sent to Casablanca by air freight on June 3, 1981. A twelfth air shipment containing replacement electronic calculators and replacement part of the electronic/electrical equipment is being prepared to be shipped to Casablanca in the near future.

In April 1981 the Project Director visited three of the six participants at the University of Wisconsin/Stout (Appendix 13) and Ball State University (Appendix 14). The purpose of the visit was the following:

1. To discuss with the participants' academic advisors their progress in their academic studies and the participants' planned summer internship with the Team in Morocco.
2. To explain the important role these participants are expected to play in their national development, improving the status of women within the Moroccan economy.

During the discussions with both academic advisors and the participants, the Project Director stressed the importance of the following:

1. Providing a balanced educational experience that offers both academic and practical aspects.
2. Participating with other students both from the U.S. and other developing countries on research papers and case studies.
3. Working on research papers related to important issues in Morocco and focussing such research on the status and role of women in the Moroccan social and economic structures.
4. Attending conferences and seminars related to the participants' fields of study whenever the project budget allows.

AMIDEAST Senior Vice President and the Project Director left for Morocco early June to participate in the mid-project evaluation held in Casablanca. OFPPT General Director and Directors of all training centers, officials from AID/Rabat and AID/Washington, and the Director of AMIDEAST/Rabat participated in the evaluation. The evaluation was held between June 8 and June 22, 1981. An evaluation report will be submitted by AID/Rabat to both OFPPT and AMIDEAST in the near future.

C. Activities of Six Women Participants in the U.S.

AMIDEAST/Headquarters continues to provide guidance and supervise the academic progress of the six women participants.

As indicated in the previous section, the Project Director visited three of the six participants at Ball State University at Muncie, Indiana and University of Wisconsin at Stout.

After completion of their course work for the spring semester, all six participants left for Morocco to undergo a summer internship program at the OFPPT which was designed by the project team. The six participants will spend the summer working with the team in Morocco. They will be returning back to the U.S. to continue their studies by early August 1981.

1. Ms. Asmaa El Alaoui

Ms. El Alaoui is an intelligent and hard working young woman. She has been accepted at the Master's program with a double major in Social Psychology and Counselling Psychology. This will enable her to earn two Master's degrees, one in each field (Appendix 15).

Ms. El Alaoui's advisor, Dr. White is very pleased with her progress. He recommended her very highly for the double major Master's degree.

Last quarter Ms. El Alaoui took the following courses:

Course No.	Course Title	Credit Units	Grade Earned
CPSY 505	Counselling Community	4.0	B
EDAC 529	Psychology and Adult Adjustment	4.0	A
SOPSY 515	Advanced Social Psychology	4.0	B

2. Ms. Nadia Chihani

Ms. Chihani is undergoing a Master's degree program in Vocational Education at the University of Wisconsin/Stout. She has proved to be a very serious and hard working student.

Last semester Ms. Chihani completed the following courses:

Course No..	Course Title	Credit Units	Grade Earned
320-720	Labor Industrial Relations	2.0	A
479-730	Advanced Psychology learning	2.0	A
421-740	Personal Foundation	4.0	A
479-582	Personal Management	3.0	B

Before leaving for Morocco, Ms. Chihani has registered for a summer independent study course. This will enable her to earn two credits while she is in Morocco for her summer internship with the O.F.P.P.T. (Appendix 16).

3. Ms. Malika Benimmas

Ms. Benimmas is also undergoing a Master's degree program in Vocational Education at the University of Wisconsin/Stout. She is a mature and very serious student. She has established an excellent working relationship with her advisor and other teachers. They all spoke very highly of her academic achievement and seriousness.

Last semester Ms. Benimmas completed the following courses:

Course No.	Course Title	Credit Units	Grade Earned
190-739	Introduction to Problems in Industry and Technology	1	B+
320-720	Labor Industrial Relations	2	A
479-730	Advanced Psychology Learning	2	A
421-726	Administration	2	B+

Ms. Chihani has also registered for a summer independent study course. This will enable her to earn two credits while she is in Morocco for her summer internship with the O.F.P.P.T. (Appendix 17).

4. Ms. Mouna Cherkaoui

Ms. Cherkaoui is enrolled at Arizona State University where she is undergoing a Master's degree program in Human Resources Economics. She is a very hard working student who takes her studies very seriously. At present, she is with the other participants undergoing an internship summer program with the team members in Morocco. Ms. Cherkaoui along with Ms. Remh are working together with the project Economist.

Last semester Ms. Cherkaoui completed the following courses:

Course No.	Course Title	Credit Units	Grade Earned
ECON 541	Development of Economic Analysis	3	B
ECON 511	Macroeconomic Analysis	3	B
ECON 408	Math Economics	3	B
ECON 503	International Economic Theory	3	A

5. Ms. Kouloub Hajoui

Ms. Hajoui has been demonstrating a great progress in English Language proficiency. Within one year she managed through hard work and strong determination to be able to handle the English language with no difficulties.

Ms. Hajoui has a very helpful and understanding academic advisor who continuously provides her with constructive guidance and supervision.

Last semester Ms. Hajoui completed the following courses:

Course No.	Course Title	Credit Units	Grade Earned
Educ. 121	Personality Development	3	grades not
Ed. Psych. 247	Group Processes and Procedures	3	reported yet

Ms. Hajoui's advisor, Dr. McSweeney suggested the following course sequence so that Ms. Hajoui will complete the coursework for her degree at the end of the 1982 Summer Session.

Semester	Proposed Course of Study	Credit Units
For Fall 1981:		
Communication Arts 746	Dynamics of Speaking for International Students	3
Ed Psy. 642	Test and Measurement	3
Ed Psy 645	Techniques of Interviewing	3
Ed Psy 661	Life Transitions Counseling	3
For Spring 1982:		
Ed Psy 643	Career and Occupational Information	3
Ed Psy 644	Psychology of Careers	3
Ed Psy 658	Career Conseling Field Work	3
For Summer 1982:		
Ed 603	Research Methodology	3
Ed Psy 659	Career Counseling Field Work	3
Ed Psy 672	Management Techniques for Administrators	3

Ms. Hajoui along with Ms. El Alaoui is working with the project Psycholgist during their summer internship in Morocco. Ms. Hajoui's advisor suggested a work plan that she has to fullfil while in Morocco (Appendix 18). It was agreed that Ms. Hajoui will spend approximately sixty hours while in Morocco preparing a resourse and procedure manual for career guidance for Moroccan women.

6. Ms. Fatiha Remh

Ms. Remh is undergoing a Master's degree program in Human Resources Economics at the University of San Francisco. She has been making a very satisfactory progress in her studies. Ms. Remh is a serious and hard working student. Her language proficiency prior to arriving in the U.S. was a valuable asset that facilitated her both academic and social adjustment in the U.S.

Last semester Ms. Remh completed the following courses:

Course No.	Course Title	Credit Units	Grade Earned
Econ 408	Math Economics	3	grades
Econ 503	International Economic Theory	3	not reported
Econ 511	Macroeconomics Analysis I	3	yet
Econ 541	Development of Economic Analysis	3	

IV. PROJECT ISSUES

1. As a result of difficulties in recruiting female trainees for Arabic Construction Drafting and Secretarial Sections in Fes, the O.F.P.P.T. decided during the mid-project evaluation to discontinue the project in Fes and selected Kenitara as an alternative site. However, at the conclusion of the evaluation and after AID officials visited Fes, the final decision was to keep the project in Fes. It was decided that Fes has a great potential and the new director of the Fes Center will be making special efforts to recruit female trainees.
2. The limited supply of dorm facilities was suggested as a factor not encouraging more women to join the O.F.P.P.T. center in Fes. The O.F.P.P.T. presented the social and cultural obstacles to having dorms for women and decided not to have any dorm facilities for women. A letter to this effect will be submitted to AID/Rabat by the General Director of the O.F.P.P.T.
3. The Business Education Specialist identified the need for a typing Specialist in French and Arabic to provide the proper typing skills for the Business Education Section. He has also identified the need for more English language training.
4. There is a great need for training three or more women in advanced industrial areas such as Engineering and Business. When the six participants return to Morocco they will only be replacing three members of AMIDEAST's six member team.

V. RECOMMENDATIONS

1. It is recommended that a Typing Specialist in both French and Arabic be available to the Business Education Section.
2. Peace Corp Volunteers can be of great help in providing English language training to Business Education Section and/or to all other Sections.
3. The Electricity/Electronics training Specialist suggests that on-the-job training be also provided after trainees complete their first year of training. This would improve and strengthen the trainees exposure to different industries.
4. It is recommended that Moroccan women be sent to the U.S. for graduate training in the following:
 - a. Electrical/Electronic Engineering
 - b. Civil Engineering
 - c. Mechanical Engineering
 - d. Three women or six women and men to receive a one year teacher training in Electricity/Electronics, Drafting and Business Education
5. It is recommended that professional people representing different industries be invited to participate in seminars and workshops for trainees before and after trainees complete their training.

VI. APPENDICES

1. Project Report from Economist
2. Contents and Timetable of Activities of the Training Period
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3. Report of the Relationship Between the Psychological Tests
and Performance in Professional Training
4. Objectives and Evaluation Sheet for the Two Psychology
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6. Evaluation Form For Supervisors of Industrial Drafting
Interns from the O.F.P.P.T. to Fill Out at End of
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7. Evaluation Form for Industrial Drafting Trainees to Fill
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8. Description of Construction Drafting Program
9. Condition of Admission and Status of Business Education
Program
10. Questionnaire for Business Education Interns to Fill
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11. Electricity/Electronics Training Curriculum
12. Sample of Inventory Sheet for Procurement
13. University of Wisconsin/Stout Campus Visit Report
14. Ball State University Campus Visit Report
15. Asmaa El Alaoui El Omari's Course Listing
16. Nadia Chihani's Independent Study Description
17. Malika Benimmas' Independent Study Description
18. Kouloub El Hajoui's Educational Program

PROGRESS REPORT AS OF JULY 7, 1981

by

Carlos J. Gomez

Economist

US/ AID/ AMIDEAST/ OFPPT

The Industrial and Commercial Job-Training
Project for Women in Morocco (0147)

Casablanca, July7, 1981

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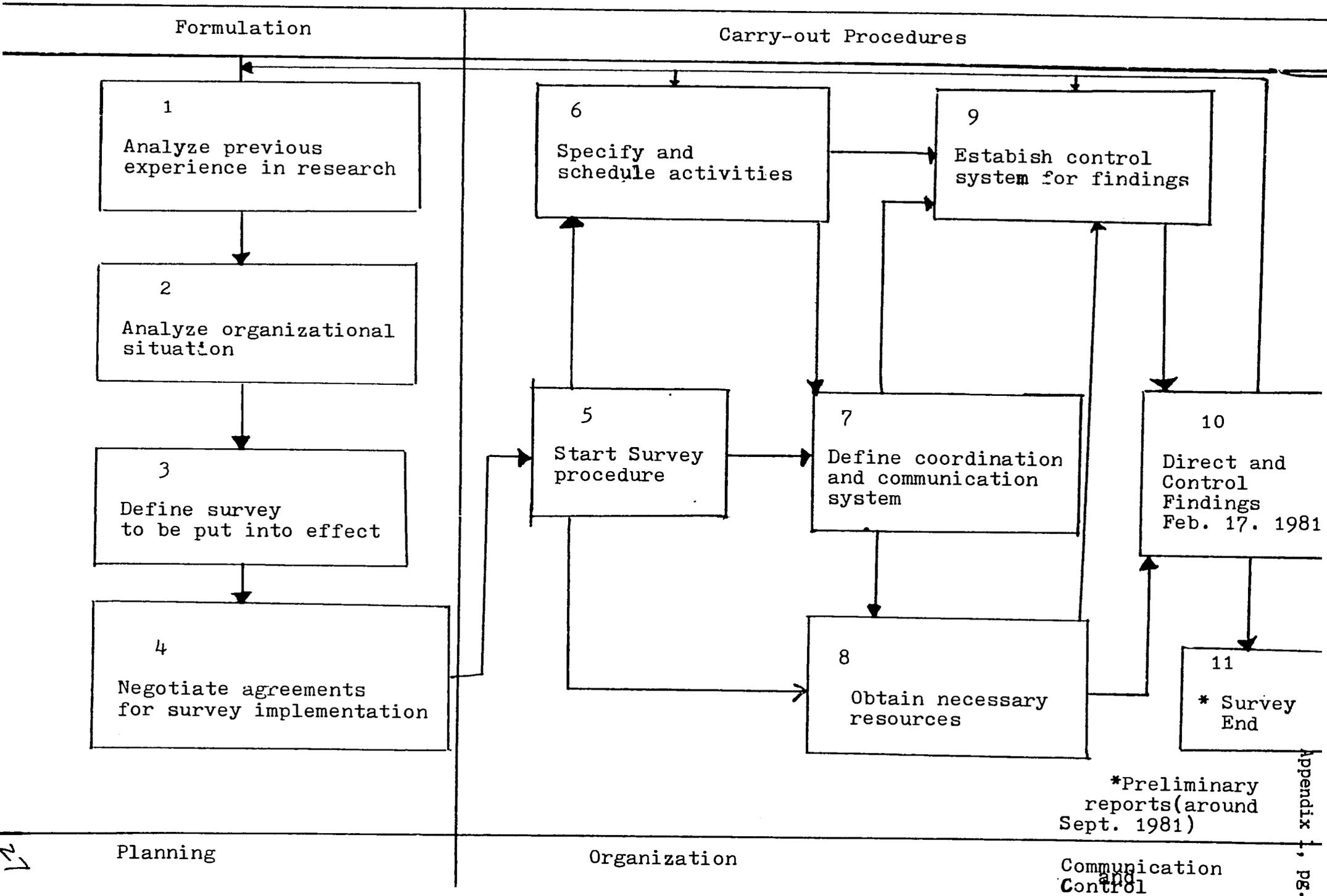
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Survey Contribution

Step-by-Step Survey Procedure



Survey Objectives

The purpose of this survey is to provide OFPPT with viable data concerning the planning, implementation and follow-up of the training programs destined to integrate women into some economic fields (Electricity, Electronics, Construction Drafting and Industrial Drafting, Accounting, Secretarial work etc...)

In order to carry out this objective, the following information needs to be collected:

- 1) Experiences and attitudes of employers as a factor having significant effects on the opportunity for women to get jobs traditionally held by men;
- 2) Companies' sizes according to sex, occupation and economic activity;
- 3) Vacant positions in some occupations according to economic activity and sex;
- 4) Future needs and previsions for companies with regard to qualified female personnel.

Activities Performed under the Responsibility of the Economist
according to the Terms of Work to be accomplished (February 18-July 7)
1981

(Preliminary Report: subject to revision)

Survey of Work Market

Findings of Questionnaires

At this stage of the survey, and after the findings procedure, we can point out, as accomplished activities, the following:

1) Potentially Useful Answers

At this moment, (July 7, 1981) out of a total of 2,675 answers, 2352 of them are useful. Note should be made of the rigorous verification stages implied by the questionnaires changes from one code to the other, and also the transcription (attachment) of several cards which contain compiled data. These verifications are in their latest stages.

An exhaustive up-to-date list of more than 11,800 cards which contain answers from 2,352 questionnaires has already been checked, in addition to corrected errors due to codification, attachment, test and control.

Simultaneously, thanks to the OFPPT General Director's initiative, 76 new questionnaires have been acquired through an on the spot verification of answers made by the Directors of Institutes and Vocational Training Centers in fifteen cities throughout the country.

Correction and reduction of some errors ~~are~~ indispensable for a good result of the survey; a task which asks for a great deal of effort, patience, faith, perseverance and above all, will.

* By the Codification Team(in Casablanca)

Reception, control, revision, codification and other assimilated tasks.

By the Data Processing Team (in Rabat)

Listings, attachment, control, up-dating, tabulation and other assimilated tasks.

By the Bilingual Secretaries Team (in Casablanca)

Transcription of open answers.

2) Sample Size

It is estimated that the Survey sample size would tend towards an equivalent proportion of more than 49% of the answers. This proportion was obtained after having noticed that the entirety of potential addresses is, in reality, smaller than all available addresses. The 7, 541 addresses can, noticeably, be reduced to less than 5, 500. The various aspects of verification procedure (by mail, telephone, or direct visit) confirm this fact.

In order to determine the exact breakdown of answers and non-answers, an exhaustive list containing these facts is in preparation. The contents of this list is the establishment identification number, size and observation. As observations, a few characteristics will be included on the condition of some establishments (for example: main office and branches, unknown addresses, refusal to answer etc...) This list is important for the final evaluation with regard to the proportion of answers by size. This result would serve as a ponderation coefficient which the total employment volume would determine. Once available, the ponderation coefficients by size and the survey findings can, also, be useful to establish some projections on the employment evolution in the country.

3) Verification by Computer *

A test control system, by computer, has been programmed and used for codes verification for more than 11,800 cards included in the 2,253 questionnaires.

* The direct transcribing methods to the computer of questionnaire information on magnetic tapes, without going through cards perforation. With such methods, there can be a saving of 25 to 40 % of the work to be done on the card making

4) Chart Findings by Computer

In order to start, as soon as possible, the interpretation of compiled information, 30 basic charts have been developed. They will, afterwards, provide response results only in absolute value with horizontal and vertical totals. An administrative constraint beyond the Economists control determined this limitation. Results in percentages will be computed by hand.

The 30 charts will be composed of two series of 15 charts each. In one series, findings of each question (15 in total) can be evaluated according to economic activity and geographical area (province) of the establishment.

5) Transcribing of open answers

In order to organize, integrate, and get a precise idea on the opinions of the employers who answered some questions (9,11,16), those opinions are transcribed on individual cards that must carry question identification, questionnaire number, economic activity and respective person's opinions answering this Survey. Indeed, it is the codification methods of open answers which will facilitate the validity of information interpretation.

Note that the Bilingual Secretaries Team, in charge of the transcribing of open answers, is responsible for the research, editing and transcribing, in French, of all presentation (given in French and/or Arabic) written as justifications for answers to questions 9,11, 16. At this moment, there are 9,441 cards already typed for 2,100 questionnaires. The transcribing of cards for about 252 questionnaires still remain to be completed.

6) Conversion from the Code used by the Ministry
For Employment Surveys to area-studies code for
National Data

In order to facilitate data comparability among Survey findings on the OFPPT job market and obtained results and/or in order to get, in the future, by employment surveys and national data area studies, it is necessary to establish a conversion system for listings of approximately 2,352 establishments that participated in the survey. In other words, the two codification systems, used by the Ministry of Planning designed to evaluate the employment situation and national data, have already been adapted as survey codes by OFPPT. This fact will, greatly facilitate the interpretation of findings.

7) Some other Activities

Parallel to the accomplished activities designed to facilitate the prompt usage of the Job Market Survey findings, we can also add the following:

a) Preparation of Technical Documents

The following technical documents have been prepared:

- for the trainees orientation
- Format of full-time training programs in Economics of Human Resources at OFPPT. (June 1st, 1981).
- For the USAID Mission evaluation (Washington and Rabat for the first twenty months of the Project with regard to the Industrial and Commercial Job Training for Women in Morocco USAID/AMIDEAST/OFPPT.

- Recapitulation of problems and recommendations during the course of the first twenty months: October 6th 1979 to June 5th 1981 (8 Juin 1981)

b) Trainees Orientation (Moroccan counterparts)

- Ms. Lalla Mouna Cherkaoui
Economics of Labor, Arizona State University Ariz. USA
- Ms. Fatiha Remh
Economics of Human Resources, University of San Francisco,
San Francisco, California, U.S.A.

both trainees participating in the Industrial and Commercial Job/Training for women in Morocco Project (0147) - USAID/AMIDEAST/OFPPT, will be provided with the following information (from June 1st to July 17th, 1981) according to the OFPPT General-Director's recommendations:

- Information on responsibilities skills pertaining to the continuation and expansion of Project activities.
- Further training on the evolution of human resources in connection with economic, social and institutional circumstances in Morocco.

Work Objective and Economist's Attributions for a six-month period: July-December, 1981.

1. Complete last stages in data analysis during July 1981
 - a) Revision, codification, verification
 - b) Saisie
 - c) Control test for correction and
 - d) Tabulation Programs (30 charts of results) for data analysis.
2. Complete preliminary reports within the framework of the Economist's contract (approximately September-October 1981) on the following points:

- a) Survey Findings on Job Market
- b) Methodologies used in the Survey on the Job Market
- c) Conclusions and recommendations derived from findings.

The prompt undertaking of this attribution is strictly tied to the speedy preparation of the whole basis charts which will show the results of several variables to study in the 15 questions of the Job Market Survey in two series: One, through economic activity and geographic area (province) of the establishment; and the other through economic activity and the establishment size.

3. Elaboration and implementation of an action program in order to develop the institutionnalization of recommendations derived from the findings of the Job Market Survey; and approved by the OFPPT General-Director (November-December 1981). Above all the recommendations already proposed in the document entitled: "Recapitulation of Problems and Recommendations during the Course of the First Twenty Months - October 6, 1979 - June 5, 1981. (June 8, 1981)"

OBSERVATION: The following elements contributed to the success of this Survey:

- Signature under NO 17-5-80 of C.O.C.D.E.G.;
- Agreement between OFPPT and the Census Bureau of the Ministry of Planning with regard to the computer use (May 22, 1981)
- Administrative Logistic Support from the OFPPT General Directorship, full cooperation of the Director's Census Office at the Ministry of Planning and from US/AID/ADIDEAST.

Survey Contribution

The implementation of this survey will help reinforce the efficiency of training programs at OFPPT.

1) Provide a better chance to the woman in the Job Market

Actually, there is a shortage of qualified working women. Thanks to OFPT training programs, employers will, from now on, have the possibility to hire women. Furthermore, at termination of the survey, OFPPT will be able to spread its findings in order to sensibilize employers about the problem of female employment.

2) Employers participation in decision making with regard to training policy

The survey will indicate suggestions from employers concerning jobs identification traditionally reserved to men, but which also can be filled by qualified women.

3) Justification for an appropriate placement and orientation action within OFPPT.

Survey findings will lead OFPPT to provide necessary efforts for the orientation and placement of young-girls, it will train.

4) Survey Expansion

Findings of the present survey will serve as basic data for other research projects in the field of job-market analysis.

5) Human Resources Development

These findings will also serve a start basis for the planning and putting into practice of other actions susceptible to contribute to a better development of women training in the various economic activity sectors.

6) Reinforcement of the job-market Potentials

As a consequence of the introduction of new action programs (Placement, orientation, development of training programs for women), it is possible that, in the future, the job market becomes better organized and more operational for the promotion of a better productivity level in various sectors of the economic activity of the country. Likewise, the intersectorial mobility of manpower will be better apprehended.

7) Global Contribution to Economic Development

Survey findings will serve as a reference in view of the increase of the number of qualified women, which, in its turn, will promote other activities pertaining to the social and economic development of the country. This will contribute to the decrease of under-employment and unemployment, and will result in an increase of production of goods and services. In general, the industrial, commercial and other sectors will benefit from multiplying effects of various situational factors caused by woman employment.

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Contents and Time-table of the Activities of the Training Period Plan of the full-time Continued Education
in Economy of Human Resources at the O.F.P.P.T.

ACTIVITY	Responsible Personnel	Date of activity		Nature of training
		Beginning	End	
<p>1. Furnish the orientation of development of the knowledge about the aspects of the evolution of the human resources as regards the economic, social and institutional aspects of Morocco</p> <p>-----</p> <ul style="list-style-type: none"> - As regards the aspects of economic evolution <ul style="list-style-type: none"> - domestic gross product per capita - the sectorial evolution of production (increase of primary, secondary and tertiary activities) - Consumption by household - Investments - Foreign trade - Financing of the growth - The demographic, cultural, sanitation and family characteristics 	<p><u>USAID/AMIDEAST</u></p> <p>Economist of Human Resources</p> <p><u>OFPPT</u></p> <p>Chief of the Department of Research and Development (Counterpart of the Economist of Human Resources of the project)</p>	06/01/81	07/31/81	Theoretical and Practical

Contents and Time-table of the Activities of the Training Period Plan of the full-time Continued Education
in Economy of Human Resources at the O.F.P.P.T.

ACTIVITY	Responsible Personnel	Date of activity		Nature of training
		Beginning	End	
<ul style="list-style-type: none"> - The institutional framework - The means of planification - The means of professional training <li style="padding-left: 20px;">The role of the OFPPT - The means of research used for the recruiting of the personnel - The Labor Market - The structure of the economic activity of the employers, of the employees, of the independent workers, of family assistance, of the unemployed - The professional structure of the employers, of the employees, of the independent workers, of family assistance, of the unemployed - The establishments (the economic activity, the size, the geographic location) 	<p align="center"><u>OFPPT</u> <u>OFPPT</u></p> <p>Chief of the Department of Research and Development (Counterpart of the Economist of Human Resources of the project)</p>	06/01/81	07/31/81	Theoretical and practical

Contents and Time-table of the Activities of the Training Period Plan of the full-time Continued Education
in Economy of Human Resources at the O.F.P.P.I.

ACTIVITY	Responsible Personnel	Date of activity		Nature of training
		Beginning	End	
<ul style="list-style-type: none"> - Regarding the requirements of professional training according to the present status of the qualified and non-qualified personnel - The means of evaluation <ul style="list-style-type: none"> - The available information <ul style="list-style-type: none"> = Census - Inquiries - The methods of evaluation <ul style="list-style-type: none"> - Preparation of inquiry - Gathering of date - Analysis of the results - The inquiry as to the requirements of professional training of the female personnel <ul style="list-style-type: none"> - Results - Methodology <p>2. Informing about the manner of assuming the responsibilities inherent to the continuation and the expansion of the activities of the Project.</p> <p>3. Evaluation of the results of the training periods by the trainees</p> <p>4. Report of the Training Periods by the Economist of Human Resources</p>	<p><u>USAID/AMIDEAST</u></p> <p>Economist of Human Resources</p> <p><u>OFPPT</u></p> <p>Chief of the Department of Research and Development (Counterpart of the Economist of Human Resources of the project)</p>	01/06/81	07/03/81	Theoretical and practical

CONNECTION BETWEEN PSYCHO-TECHNICAL TESTS
AND PERFORMANCE IN VOCATIONAL TRAINING

June 1981

In order to establish a connection between selective psycho-technical tests and performance in vocational training, a schedule has been established at AID sections and First-year level in Casablanca: Electronics (I.N.F.C.T.), Electricity (Hay Mohamedi), and Industrial Design (Hay Mohamedi).

The Second Quarter results have been compiled according to the Applied Psychology Department (S.P.A.) in September 1980. Out of 43 trainees enrolled in the three sections, 24 (56%) got a "favorable judgement" from S.P.A., 15 (35%) got a "reserved judgement", 3 (7%) of the trainees were not supervised by S.P.A., and 1 (2%) was repeating her class-year (see chart 1).

The outcome of these results reveals that 96% of all trainees who got a "favorable judgement" from S.P.A. reached a passing grade of 12/20 in their respective sections during the Second Quarter. Besides, 37% of trainees with a "reserved judgement" from S.P.A. have also reached their passing grade. The "reserved judgement" produces a weaker result than a "favorable judgement" which justifies the decrease of the probability of success with women trainees who were admitted with a "reserved judgement". Out of the 3 trainees who did not go through S.P.A., none has reached a passing grade. Similarly, the one who repeated her year did not pass as well (Chart II).

In conclusion, among the 24 trainees with a "favorable judgement", only one failed; among the 15 with a "reserved judgement", 4 failed; all 3 who did not take the psycho-technical tests failed, in addition to the one who was repeating her year. In light of these results, credit should be given to the role played by S.P.A. in its selection process of trainees for vocational training.

Chart I: Size of trainees enrolled in the three AID sections, (first-year, industrial section) according to S.P.A.

	<u>Number of Trainees</u>
"Favorable judgement"	24
"Reserved judgement"	15
Candidates who did not go through S.P.A.	3
Candidate who repeated her year	1
Total of the three sections	43

CHART II
 TRAINEE RANKS IN THE THREE AID SECTIONS ACCORDING TO S.P.A.

Trainee ranks with an overall grade of 12 (Trainee ranks with a failing grade)	<u>Ranks in the Second Quarter Section</u>		
	<u>Electronics</u> 18 trainees	<u>Industrial Design</u> 13 trainees	<u>Electricity</u> 12 trainees
"Favorable judgement" from S.P.A.	1 2 3 4 5 8 12 13 14	1 2 3 4 8 9 10	1 2 3 4 6 7 9 (10)
"Reserved judgement" from S.P.A.	6 7 9 10 11 (15) (16) (17)	5 6 7 11	5 8 (11)
Did not go through S.P.A.		(12) (13)	(12)
Trainee who repeated her year	(18)		

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OBJECTIVES AND TRAINING EVALUATION FORM

OF THE TWO U.S. PSYCHOLOGISTS TRAINEES

June - July 1981

OBJECTIVES	MEANS	OBSERVATIONS	
		At three weeks	At end of training
1) Information on O.F.P.P.T.	<ul style="list-style-type: none">- Discussion on background information- Visits of various departments and offices		
2) Information on the AID Project	<ul style="list-style-type: none">- Attendance of evaluation meetings- Discussions with each team member about his job and office		
3) Integration to S.P.A.	<ul style="list-style-type: none">- Get informed on the work of each staff member working in the office (discussing)- Reception of young candidates- Respect S.P.A. work hours, like all employees (absence? delay?)		
4) Familiarize themselves with the Psychologist's work	<ul style="list-style-type: none">- Conduct group discussions- Animate role-playing- Circulate a questionnaire on group trainees follow-up- Develop objectives and evaluation forms for interventions- Participate in the selection process of vocational training candidates		
5) Professional behavior	<ul style="list-style-type: none">- Respect implementation deadlines of work- Dress properly at work at S.P.A.		

GP

OBJECTIVES AND TRAINING EVALUATION FORM

OF THE TWO U.S. PSYCHOLOGISTS TRAINEES (cont.)

OBJECTIVES	MEANS	OBSERVATIONS	
		At three weeks	At end of training
6) Professional Initiative	<ul style="list-style-type: none">- Be prepared for meetings (paper, pen, necessary materials, punctuality)- Take notes and get organized for any given task (make appointments, plan) during S.P.A. meetings with training officers- Get organized and seek advice from appropriate officers in order to carry out project assigned at the american university- Realizations		

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CONTRIBUTION OF THE APPLIED PSYCHOLOGY DEPARTMENT
FOR THE TRAINING PROJECT OF THE TWO U.S. EDUCATED
PSYCHOLOGY STUDENTS

OBJECTIVES

MEANS

Information on O.F.P.P.T. and
A.I.D. Project

Discussions with O.F.P.P.T. and
A.I.D. staff members

Familiarization with Expert's work

- Conduct group discussions
- Animate role playing

- Learn the selection process of
Vocational training candidates

With the Project Psychologist,
co-animate work sessions for
Second-year trainees

Participate in the selection of
candidates (A.I.D.)

Research

- Distribute and participate in the
trainee's follow-up questionnaire
- Learn speech and animation skills

- Conduct structured discussions

Distribute follow-up questionnaire
to Second-year trainees

During their survey participation on
the working woman

مكتب التكوين المهني وانعاش الشغل

التكوين المهني يؤهل ختيات وختيان السنة الرابعة

في القطاع الصناعي : الميكانيك العام - الكهرباء العامة - ميكانيك السيارات
ميكانيك الصيانة - ميكانيك آلات الفلاحة - التبريد والتكييف -
كهرباء الصيانة - الراديو والتلفزة - اللقائيات - الرسم الصناعي
صنع الهياكل - التلحيم - الخرط - التفريز - صنع المطبلة

في القطاع المعماري : البناء - النجارة الخشبية - النجارة المعدنية - الترميم
الرسم المعماري - التدفئة المركزية .

في القطاع التجاري : الضرب على الآلة الكاتبة - مساعد في الحاسبة

مدة التكوين : سنة أو سنتان حسب التخصص
يحصلون إثرها على : شهادة التأهيل المهني

النظام الداخلي مضمون بالمجان لمن لا يقطن بمدينة المركز

ترسل طلبات الترشيح الى أقرب مركز للتكوين المهني، قبل 20 يونيو 1981
مصحوبة بالوثائق التالية :

- طلب التسجيل وشهادة مدرسية
- ظرفان يعملان عنوان المرشح وطوابع بريدية

مكتب التكوين المهني وانعاش الشغل

تلاميذ السنة السابعة بمختلف شعبها

بإمكانكم أن تصبحوا :
مرشدين أو تقنيين

في القطاع التجاري : المحاسبة - كاتبة الادارة

في القطاع المعماري : الرسم المعماري - النجارة الخشبية

النجارة المعدنية - الترخيص
رئيس الأشغال في البناء

في القطاع الصناعي :

الصناعة الميكانيكية - ميكانيك السيارات
والالات الفلاحية - البناءات الحديدية
التبريد والتكييف - الكهرباء العامة

اليكترونيك والراديو والتلفزة - التلقائيات - الرسم الصناعي

مدة الدراسة : سنتان

تحصلون بعدها على : - شهادة تقني
شهادة مرشد التكوين المهني

التلاميذ المرشدون سيتقاضون منحة

النظام الداخلي بالمجان مضمون لمن لا يقطن مدينة المركز

يحتوي الملف على الوثائق الآتية

- طلب التسجيل - شهادة مدرسية - طرفان يحملان طوابع البريد وعنوان المرشح

وتبعت قبل 20 يونيو 1981 الى :

مكتب التكوين المهني وانعاش الشغل

الدار البيضاء 05

مصلحة علم النفس ، 50 زنقة سرجان ماجنو عين البرجة

Ministère du Travail et de la
Formation Professionnelle

OFFICE DE LA FORMATION PROFESSIONNELLE
ET DE LA PROMOTION DU TRAVAIL

Elèves de Niveau 4eme A.S.

Préparez votre avenir, devenez :

OUVRIERES QUALIFIEES – OUVRIERS QUALIFIES

dans l'une des familles professionnelles des secteurs suivants :

SECTEUR INDUSTRIEL : MECANIQUE GENERALE - MECANIQUE AUTO - MECANIQUE D'ENTRETIEN-MECANIQUE AGRICOLE-TOURNAGE-FRAISAGE ELECTRICITE GENERALE-ELECTRICITE D'ENTRETIEN-FROID ET CLIMATISATION - AUTOMATISME - RADIO TELEVISION TOLERIE CHAUDRONNERIE-SOUDURE-CARROSSERIE AUTO DESSIN INDUSTRIEL

SECTEUR BATIMENT : MAÇONNERIE - MENUISERIE BOIS - PLOMBERIE SANITAIRE MENUISERIE METALLIQUE - DESSIN BATIMENT CHAUFFAGE CENTRAL

SECTEUR COMMERCIAL : DACTYLOGRAPHES - AIDES COMPTABLES

DUREE DE LA FORMATION : UN à DEUX ans selon les spécialités

DIPLOME DELIVRE : Certificat de Qualification Professionnelle

INTERNAT POUR LES NON - RESIDANTS

ENVOYEZ VOTRE CANDIDATURE AVANT LE 20 JUIN 1981 AU
CENTRE DE QUALIFICATION PROFESSIONNELLE DE VOTRE VILLE

DOSSIER :

- 1 Demande d'Inscription
- 1 Certificat de Scolarité
- 2 Enveloppes timbrées portant votre adresse

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Ministère du Travail et de la
Formation Professionnelle

OFFICE DE LA FORMATION PROFESSIONNELLE
ET DE LA PROMOTION DU TRAVAIL

Elèves de Niveau 7eme A. S.

Pensez à votre avenir, devenez :

INSTRUCTEURS — INSTRUCTRICES
TECHNICIENS — TECHNICIENNES

SECTEUR COMMERCIAL :

A Casablanca, Fès et Rabat

COMPTABILITE - SECRETARIAT DE DIRECTION

SECTEUR BATIMENT :

A CASABLANCA

DESSIN BATIMENT CHEF D'EQUIPE GROS - ŒUVRES
MENUISERIE BOIS - MENUISERIE METALLIQUE - PLOMBERIE

SECTEUR INDUSTRIEL

A CASABLANCA

FABRICATION MECANIQUE - MECANIQUE AUTOMOBILE &
AGRICOLE CONSTRUCTION METALLIQUE - FROID ET
CLIMATISATION - ELECTRICITE GENERALE - ELECTRONIQUE
RADIO - TELEVISION - AUTOMATISME - DESSIN INDUSTRIEL

DUREE DE LA FORMATION : DEUX ANS

DIPLOMES DELIVRES

Diplôme d'Instructeur de la Formation Professionnelle
Diplôme de Technicien

AVANTAGES IMMEDIATS :

INTERNAT POUR LES NON - RESIDANTS
BOURSES POUR ELEVES - INSTRUCTEURS

ENVOYEZ VOTRE CANDIDATURE AVANT LE 30 JUIN 1981 A L'ADRESSE SUIVANTE :

OFFPPT/SPA. 50, RUE SERGENT MAGINOT, AIN BORDJA - CASABLANCA 05

DOSSIER :

- 1 Demande d'Inscription
- 1 Certificat de Scolarité
- 2 Enveloppes timbrées portant votre adresse

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C.Q.P. HAY EL MOHAMMADI

QUESTIONNAIRE

The aim of this questionnaire is that of evaluating our program of Industrial Design. This information will help us to better adapt the training of the trainees to the requirements of the enterprises. We would like to have your opinion about the instruction of the trainees regarding the following points. Mark with an X the appropriate box and if you were no required to do that type of work, mark with an X the box (not requested).

CRITERIA OF EVALUATION		Very Good	Good	Passable	Poor	Not req
Accuracy of design						
Quality of strokes						
Quality of writing						
Quality of dimensioning						
Knowledge of rules of design						
Knowledge of gearing						
Knowledge of bearings						
Technological knowledge	of construction					
	general					
	of manufacture					
	professional					
Knowledge of applied mech.	Statics					
	Kinetics					
	Dynamics					
	Material stress					
Knowledge of professional calculation						

Initials of the responsible for the training period and rubber stamp of the enterprise

Overall evaluation of the trainee

C.Q.P. HAY EL MOHAMMADIQUESTIONNAIRE

The aim of this questionnaire is that of evaluating our program of Industrial Design. This information will help us to train in a better manner the future trainees. We would like to have your opinion regarding the training received by you as regards the following points (see below table). Mark with an X the appropriate box.

CRITERIA OF EVALUATION		Very Good	Good	Poor	Very poor
Execution of design					
Knowledge of strokes					
Knowledge of writing					
Knowledge of dimensioning					
Knowledge of the rules of design					
Knowledge of gearing					
Knowledge of bearings					
Technological knowledge	of construction				
	general				
	of manufacture				
	professional				
Knowledge of applied mech.	Statics				
	Kinetics				
	Dynamics				
	Material stress				
Knowledge of professional calculation					

You have spent one year of training at Ain Borja and one year of training at the C.Q.P. Hay El Mohammadi. Explain:

- (1) The difference between these two trainings.
- (2) The difference of the entire training and the training period in the enterprise.

I Généralités

Définition : On appelle roulement un ensemble de pièces inséré entre deux organes mobiles l'un par rapport à l'autre et destiné à remplacer un glissement par un roulement.

Constitution d'un roulement : Un roulement comporte donc :

1. Des éléments de roulement : billes sphériques, rouleaux cylindriques ou tronconiques, aiguilles, etc.
2. Une cage, destiné à maintenir les éléments de roulement à leur écartement et à empêcher tout frottement entre eux.
3. Deux bagues (ou rondelles pour les butées), portant les chemins de roulement extérieur et intérieur. Les éléments de roulement et les bagues sont en acier de grande dureté (100 C2, 100 C6, 100 CD7), les cages sont en laiton, en acier doux, en alliage léger ou en matière plastique.

Conditions d'emploi : Trois facteurs importants interviennent dans la construction et le choix des roulements.

1. Capacité de charge, ou intensité de la charge soit à l'arrêt, soit en mouvement.
2. Direction de la charge, charge radiale pure, charge axiale pure, ou charge radiale et axiale simultanées.
3. Sollicitation résultant d'une déformation de l'arbre. Un arbre pouvait subir un allongement sous l'effet d'une augmentation de la température, et une flexion, sous l'effet des forces et couple auxquels il est soumis.

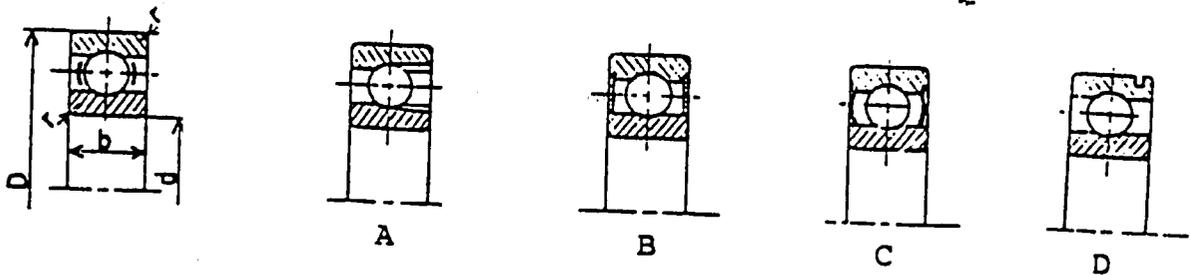
Classification des roulements

1. D'après la forme de l'élément de roulement : roulements à billes, à rouleaux, à aiguilles, etc.
2. D'après les mouvements relatifs des 2 bagues : roulements rigides ou roulements à rotule.
3. D'après la direction de la charge principale : roulement ou butées.

.../...

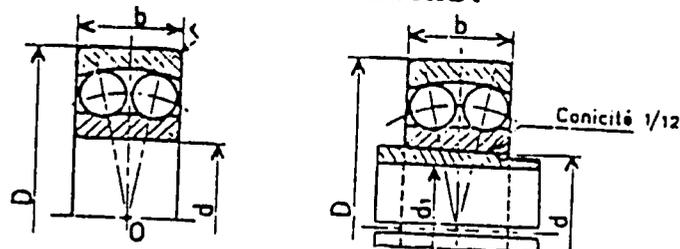
II- Différents types de roulement

1. Roulements rigides à une rangée de billes (type BC). Ces roulements ont une capacité de charge importante dans le sens radial et dans le sens axial. Il faut une coaxialité parfaite de l'arbre et du moyeu. Possibilité d'une grande vitesse de rotation.
Exemples : moteurs électriques de petite et moyenne puissance, boîte de vitesse, pompes, machines textiles, etc.



- Fig (1a) Roulement avec les encoches de remplissage.
 (1b) Roulement protégés par flasque.
 (1c) Roulements protégés par jointe.
 (1d) Roulement avec rainure pour ségment d'arrêt.

2. Roulements à rotule sur double rangée de billes (type BS) charge radiale importante, mais plus faible que celle des roulements rigides, faibles charge axiale. Possibilité d'une grande vitesse de rotation. Ces roulements peuvent fonctionner d'une manière satisfaisante même si l'arbre et le moyeu ne sont pas parfaitement alignés. Emploi : car d'un mauvais alignement de l'arbre et du bâti, résultant notamment d'une flexion de l'arbre (arbres longs ou fortement chargés)
Exemple : paliers de transmissions.



- Fig (2) Roulement avec alésage droit et conique, pour montage sur monchon de serrage.

3. Roulement à billes à contact oblique. Elles supportent des charges radiales et des charges axiales importantes, les roulements à une seule rangée de billes ne supportent que les charges axiales dans un seul sens, montés par paire, en opposition, ils supportent les charges axiales dans les deux sens. Les roulements à double rangée de billes supportent également les poussées axiales dans les deux sens: grande vitesse de rotation.
Exemple : moteurs électriques à axe vertical, paliers de butée de pompe, roues avant l'automobile, etc.

Type BT

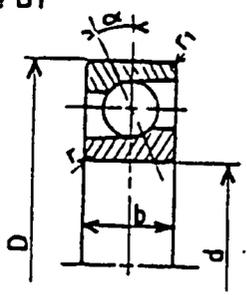


Fig (3a)

Type BG

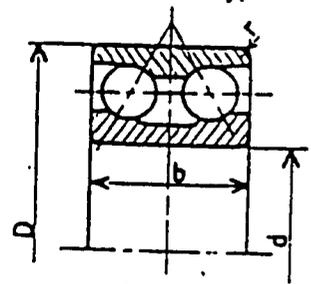


Fig (3b)

4. Roulements à rouleaux cylindriques. Ces roulements supportent des charges radiales très importantes mais aucune charge axiale. Ils permettent un léger déplacement axial de l'arbre par rapport au logement. Ils conviennent pour de grandes vitesses de rotation. Ils exigent une très bonne coaxialité des portées de l'arbre d'une part, et des alésages des logements d'autre part. Ils résistent bien aux chocs.
Exemple : Moteurs électriques d'assez grande puissance, turbo-compresseurs, ventilateurs, boîtes de vitesses, etc.

Types RU

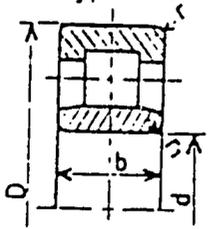


Fig (4a)

RN

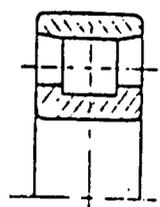


Fig (4b)

RT

RT

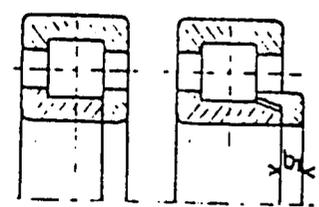


Fig (4c)

Fig (4a) l'épaulement sur la bague extérieure seulement.
Fig (4b) l'épaulement sur la bague intérieure seulement.
Fig (4c) l'épaulement sur les deux bagues.

5. Roulements à rotule sur deux rangées de rouleaux.

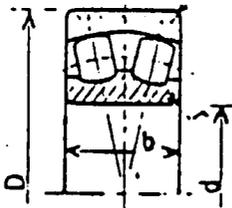


Fig (5)

Même principe que les roulements à rotule sur billes, mais charges beaucoup plus élevées, par contre, vitesses plus faibles. Ils s'accommodent d'un mauvais alignement de l'arbre et du moyeu. Emploi ; arbre fortement chargé, exemple : boîtes d'essieux pour locomotive et wagons, patiers de laminatoire, de broyeurs, de concasseurs etc.

6. Roulement à rouleaux coniques

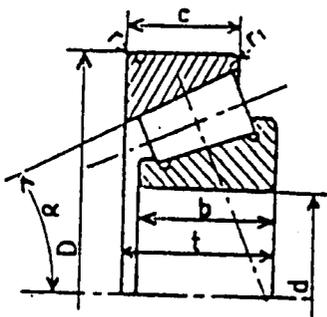
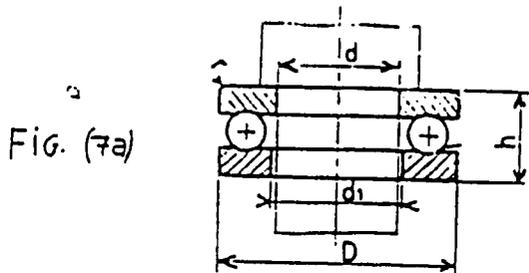


Fig (6)

Même principe que les roulements à billes à contact oblique, mais charges plus élevées et vitesse plus faibles, ces roulements se montent par paires, en opposition, pour résister aux poussées axiales dans les deux sens. Nécessité d'une bonne coaxialité de l'arbre et du moyeu. Emplois : charge radiale et axiale importante, exemple : roues et pont arrière d'automobile, roues folles et wagonnets, réducteurs de vitesse, etc

7. Butées à billes simple effet



Les billes sont placées entre 2 rondelles sur lesquelles sont creusés les chemins de roulement. Ces butées ne supportent que les poussées axiales et dans un seul sens-vitesse de rotation modéré, nécessité d'une bonne perpendicularité entre l'arbre et la surface d'appui.

Buttés à billes, à double effet

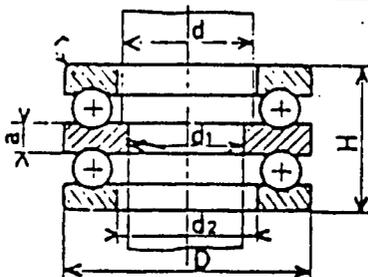


Fig (7b)

Elles comportent 2 rangées de billes et 3 rondelles, la rondelle médiane étant solidaire de l'arbre, elles supportent les poussées axiales dans les 2 sens. Emploi : picots, crapaudines, paliers de butées, etc.

O.F.P.P.T

C.Q.P
HAY EL MOHAMMADI

ROULEMENTS

(E)

TECHNOLOGIE
DE
CONSTRUCTIONButées à rotule sur rouleaux

Type IS

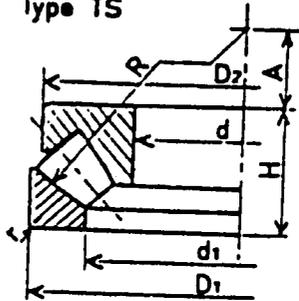


FIG. (7c)

Charge axiale très élevée, mais dans un seul sens, charge radiale limitée, possibilité d'orientation à la mise en place, pour remédier au défaut de perpendicularité de l'arbre par rapport à la surface d'appui vitesse moyenne. Emploi : picots fortement chargés, exemple : turbine, points roulants, grues, etc.

8. Roulements à aiguilles

Les roulements à aiguilles supportent des charges radiales importantes sous un encombrement relativement réduit. Ils conviennent pour de grandes vitesses de rotation. Ils exigent une très bonne coaxialité des portées de l'arbre et aussi des alésages des logements. Ils résistent bien aux chocs. Emploi : galets de cames, têtes de bielles, axes d'articulation, etc.

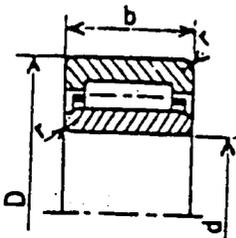


Fig (8a)

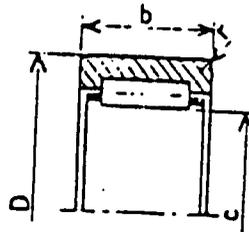


Fig (8b)

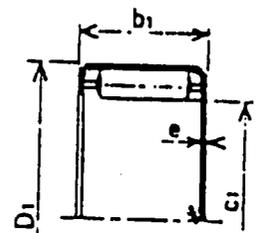


Fig (8c)

- Fig (8a) Roulement avec bague intérieure et extérieure
 Fig (8b) Roulement avec bague extérieure seulement.
 Fig (8c) Douilles à aiguilles en tôle mince et dure.

III- Choix d'un roulement

Il résulte d'une comparaison entre les conditions de fonctionnement : intensité et direction des efforts, vitesse de rotation, possibilité de flexion de l'arbre, encombrement, etc, et les propriétés particulières de chaque roulement.

1. Choix du type de roulement

A. Effort radial seul

Arbre court et rigide : roulements à billes, simple ou doubles ou roulement à galets cylindriques (galets pour fortes charges et grandes dimensions).

Arbre long ou fortement chargé, ou mauvais alignement des paliers :

Roulements à rotule sur billes, ou à rotule sur rouleaux suivant la charge.

Faible encombrement : roulement à aiguilles.

B. Effort radial important, poussée axiale faible ou modérée :

Roulement à billes à gorge profonde, roulements à billes à contact oblique.

C. Effort radial et axial importants : roulements à rouleaux coniques, ou roulements et butée.

D. Effort axial seul : Butée simple ou double.

2. Choix des dimensions : Le catalogue de roulements donne la capacité de charge statique (C_0), la capacité de charge dynamique (C) et la vitesse maximale de rotation (N) en tr/mn de chaque roulement, pour choisir un roulement, il faut donc connaître C , C_0 et N .

A. Capacité de charge statique C_0 : C'est la charge maximale qui peut être supportée au repos par le roulement, ou à vitesse très faible, par convention, c'est la charge qui provoque, au contact bague-élément roulant, une déformation totale permanente égale à $1/10^4$ du diamètre de l'élément roulant.

B. Capacité de charge dynamique C : Elle est liée à la durée de vie du roulement, la capacité de charge C donnée par le catalogue est celle qui permet à 90 % des roulements fonctionnant dans les mêmes conditions d'atteindre une durée de fonctionnement de un million de tours, soit $(10^6/60 N)$ heures (N étant le nombre de tours par minute). Si la charge appliquée au roulement est supérieure à C , la durée théorique sera inférieure à 10^6 tours, et inversement, suivant la durée de fonctionnement que l'on envisage pour le roulement, on peut donc choisir C plus ou moins grand, cette durée va de 12 à 20 000 h pour les moteurs électriques, de 20 à 30 000 pour les machines-outils et de 40 à 60 000 pour les machines assurant un service ininterrompu.

.../...

O.F.P.P.T

C. Q. P

HAY EL MOHAMMADI

ROULEMENTS

(G)

TECHNOLOGIE
DE
CONSTRUCTION

Soit L la durée théorique en millions de tours et P la charge équivalente que nous définissons ci-dessous, la relation entre L et C est :

$L = (C/P)^3$ pour les roulements à billes, et

$L = (C/P)^{10/3}$ pour les roulements à rouleaux.

La charge équivalente P est une force fictive qui tient de la charge radiale F_r et de la poussée axiale F_a , x et y étant des coefficients qui varient suivant le type de roulement, on a la relation.

$$P = w.F_r + y.F_a$$

Pour une charge radiale pure, on a bien entendu $P = F_r$, et pour une charge axiale pure $P = F_a$.

C. Marche à suivre

Nous supposerons connus le diamètre de l'arbre d , la vitesse de rotation N , les forces F_r et F_a . Choisir la durée de fonctionnement théorique, calculer la charge équivalente P , en déduire la capacité de charge dynamique C (pour faciliter les calculs, les catalogues donnent la valeur de C/P pour les différentes valeurs de L). Choisir sur le catalogue le roulement correspondant au même diamètre d'arbre et dont la capacité de charge dynamique est supérieure à celle qu'on vient de calculer, vérifier la charge statique C_0 et la vitesse de rotation maximale.

D. Exemple : Choix d'un roulement rigide à une rangée de billes pour $d = 30$ mm, $N = 400$ tr/mn, $F_r = 300$ daN, $F_a = 0$, $L = 20\ 000$ h, soit 480 millions de tours à 400 tr/mn. Puisque $F_a = 0$, on aura : $P = F_r = 300$ daN.

$$C/P = \sqrt[3]{480} = 7,83, \text{ d'où } C = 300 \times 7,83 = 2\ 350 \text{ daN.}$$

A cette valeur correspond le roulement 30 BC03, pour lequel on a :
diamètre extérieur = 72, épaisseur = 19, $C = 2\ 160$,
ou le roulement 30 BC04, pour lequel on a :
diamètre extérieur = 90, épaisseur = 23, $C = 3\ 250$

UNITÉS GÉOMÉTRIQUES			
Désignation	Unité de base	Symbole	Autres unités
LONGUEUR	mètre	m	millimètre (mm) micron (μ)
AIRE	mètre carré	m ²	millimètre carré (mm ²)
VOLUME	mètre cube	m ³	millimètre cube (mm ³)
ANGLE PLAN	radian	rd ou rad	degré (°) minute (')
UNITÉS de MASSE			
MASSE	kilogramme	kg	gramme (g)
UNITÉS DE TEMPS			
TEMPS	seconde	s	heure (h) minute (mn ou min)
UNITÉS MÉCANIQUES			
VITESSE	mètre par seconde	m/s	km par heure (km/h) m par minute (m/mn)
ACCÉLÉRATION	mètre par seconde par seconde	m/s ²	
VITESSE ANGULAIRE	radian par seconde	rd/s ou rad/s	tour par seconde (tr/s) tour par minute (tr/mn)
MASSE VOLUMIQUE	kilogramme par mètre cube	kg/m ³	
FORCE	newton	N	déca-newton (daN)
ÉNERGIE TRAVAIL QUANTITÉ de chaleur	joule	J	watt-heure (wh) calorie (cal) thermie (th)
PUISSANCE	watt	W	milliwatt (mW)
CONTRAINTÉ PRESSION	pascal	Pa	pascal ou newton par mètre carré (N/m ²)

TRANSMISSIONS			r : raison
ARBRES: récepteur; moteur			N : no. tr/mn
(fig. 1-2-3-4-5-6-7-8-9-10-11-12)			Z : nb. dents
			D : diamètre
① aligné	② ≈ aligné	③ non aligné	
④ $r = \frac{N_2}{N_1} = \frac{D_2}{D_1}$	⑤ $r = \frac{N_2}{N_1} = \frac{D_2}{D_1}$	⑥ $r = \frac{N_2}{N_1} = \frac{Z_2}{Z_1}$	
⑦ $r = \frac{N_2}{N_1} = \frac{Z_1}{Z_2}$	⑧ $r = \frac{N_2}{N_1} = \frac{Z_1 \cdot Z_3}{Z_2 \cdot Z_4}$	⑨ $r = \frac{N_2}{N_1} = \frac{Z_2}{Z_1}$	
⑩ $r = \frac{N_2}{N_1} = \frac{Z_2}{Z_1}$	⑪ $r = \frac{N_2}{N_1} = \frac{Z_1}{Z_2}$	⑫ $r = \frac{N_2}{N_1} = \frac{Z_2}{Z_1}$	
⑬ $E = P \cdot b$	⑭ $F = P$	⑮ $F = P/2$	
⑯ $F = P \cdot n$	⑰ $F = P \cdot \frac{D}{d}$	⑱ $F = C \cdot \frac{D}{2\pi r}$	

ARBRES DE TRANSMISSION
(fig. 1 à 12)

Cas de transmission du mouvement circulaire entre deux arbres :

- Arbres alignés : liaison par manchon ou par plateaux d'accouplement.
- Arbres parallèles : liaison par poulies et courroie (grande distance) ou par engrenage (faible distance). La transmission par roues à chaînes est peu employée depuis l'utilisation des courroies trapézoïdales pour distance moyenne.
- Arbres non parallèles : liaison par courroie, par engrenage ou par joint spécial.

Poulies et courroies (fig. 4, 5, 6).
Montage des courroies (droite, croisée).

Rapport des vitesses : $\frac{N_1}{N_2} = \frac{D_2}{D_1}$
— perte par glissement $\approx 2\%$.
Poulies étagées : les 2 sont identiques avec les diamètres en progression arithmétique.
Calcul de la longueur théorique d'une courroie droite :

$$L = [1.57 (D + d)] + 2E + \frac{(D - d)^2}{4E}$$

D et d : diamètres. E = entraxe.

Engrenages cylindriques (fig. 7, 8, 9).

Rapport des vitesses (en nb. de tr/mn) = rapport inverse du rapport des nb. de dents.
Train ou équipage de roues dentées : raison (rapport des vitesses extrêmes) :

$$r = \frac{N_2}{N_1} = \frac{Z_1 \cdot Z_3 \cdot Z_5}{Z_2 \cdot Z_4 \cdot Z_6}$$

= produit nb. de dents roues menantes
= produit nb. de dents roues menées

Autres entraînements par dents.

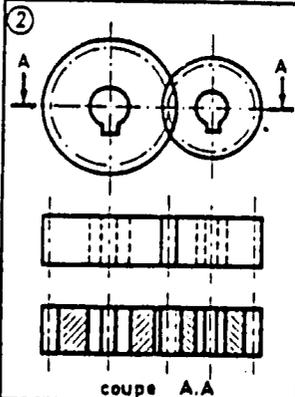
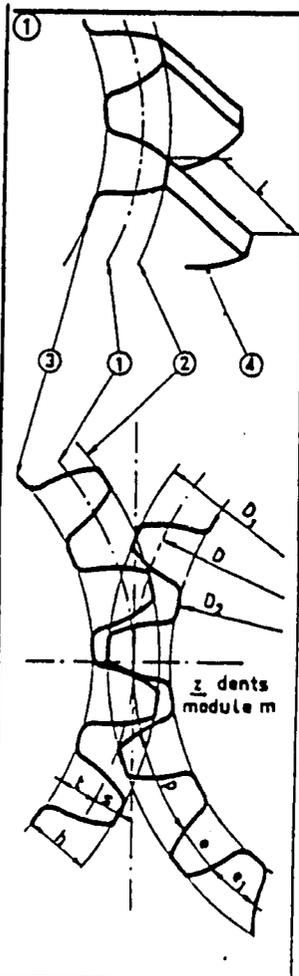
- Engrenage cylindrique à denture hélicoïdale (fig. 10);
- Engrenage conique (fig. 11);
- Transmission par chaîne;
- Système roue et vis sans fin (fig. 12).

La formule $\frac{N_1}{N_2} = \frac{Z_2}{Z_1}$ est valable.

MACHINES SIMPLES

- Levier (fig. 13).
- Poulie fixe (fig. 14).
- Poulie mobile (fig. 15).
- Palan (fig. 16).
- Treuil (fig. 17).
- Vérin (vis-écrou) (fig. 18).

Dans ces exemples, le frottement ayant été négligé, les travaux mécaniques dus aux déplacements de P et de F sont égaux, ce qui s'écrit $W_p = W_f$.



coupe A.A

ENGRENAGES CYLINDRIQUES à denture droite
Vocabulaire.

- Engrenage : ensemble de deux roues dentées dont l'une entraîne l'autre par la denture (fig. 2).
- Cylindre primitif : cylindre fictif par rapport auquel la denture est partie en saillie, partie en creux; les cylindres primitifs des deux roues d'un engrenage sont tangents.
- Cercle primitif (1, fig. 1) : section droite du cylindre primitif; diamètre D .
- Cercle de tête (2, fig. 1) : cercle passant par les sommets de toutes les dents; diamètre D_1 .
- Cercle de pied (3, fig. 1) : cercle passant par les fonds de tous les creux; diamètre D_2 .
- Profil (4, fig. 1) : ligne limitant le contour de la dent; essentiellement constitué de deux arcs de développante de cercle.

Proportions, relations diverses.

Nombre de dents : z

Pas p (fig. 1) mesuré sur le cercle primitif :

$$zp = \pi D$$

Module m : longueur conventionnelle (quotient du pas par le nombre π) servant de base au calcul des dimensions des dentures :

$$p = \pi m \quad D = zm$$

Saillie (fig. 1) $s = m$

Creux (fig. 1) $t = 1,25 m$

Hauteur de dent (fig. 1) $h = s + t = 2,25 m$

On tire de là $D_1 = (z + 2)m$

$$D_2 = (z - 2,5)m$$

Largeur de denture (fig. 1) $L = 10 m$ dans les cas usuels.

Pour un engrenage :

distances d'axes $0,5 (D + D') = 0,5 (z + z')m$

$$\text{rapport de vitesses } \frac{N}{N'} = \frac{D'}{D} = \frac{z'}{z}$$

Représentation (fig. 2) :

Dessiner chaque roue :

- en coupe axiale, avec deux dents diamétralement opposées, non coupées;

- en vue extérieure, comme une pièce non dentée, limitée au cylindre de tête, avec cercle primitif en trait mixte fin.

Cas d'un engrenage : les dessins des deux roues se superposent en partie.

Modules normaux (en mm).

Série principale : 0,5 - 0,6 - 0,8 - 1 - 1,25 - 1,5 - 2 - 2,5 - 3 - 4 - 5 - 6 - 8 - 10 - 12 - 16 - 20 - 25.

Série secondaire : 0,55 - 0,7 - 0,9 - 1,125 - 1,375 - 1,75 - 2,25 - 2,75 - 3,5 - 4,5 - 5,5 - 7 - 9 - 11 - 14 - 18 - 22.

Définition préliminaire de la vitesse moyenne d'un mobile: un cycliste roule sans arrêt de A vers D sur une route dont le profile ABCD est tel que $AB = BC = CD = 800$ mètres.

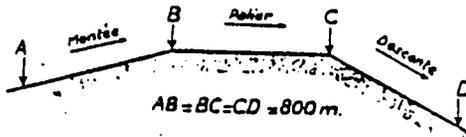


Fig. 1. — La vitesse moyenne pendant le voyage de A en D est le quotient de l'espace total parcouru par le temps mis à le parcourir.

Il monta avec peine la cote AB, roule avec plus de facilités sur le palier BC et descend la cote CD à vive allure. Supposons qu'il ait mis:

- 4 minutes pour aller de A en B.
- 2 minutes pour aller de B en C.
- 1 minute 30 s pour aller de C en D.

- 1) Les distances égales AB, BC, CD sont parcourues en des temps inégaux: le mouvement n'est donc pas uniforme, il est dit varié.
- 2) La distance totale AD = 2400 mètres a été parcourue en 7 mn 30 s ou 450 secondes.
Ce cycliste avait parcouru le même espace s'il avait conservé pendant ces 450 secondes un mouvement uniforme de vitesse.

$$V = \frac{2400}{450} = 5,33 \text{ m/s.}$$

Ce nombre mesure la vitesse moyenne du cycliste pendant les 7 mn 30 s considérées.

Généralisons: La vitesse moyenne d'un mobile dans un intervalle de temps déterminé est la vitesse d'un mobile Fictif qui, d'un mouvement uniforme parcourrait le même espace dans le même temps.

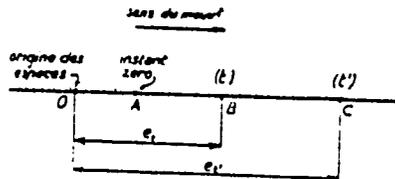


Fig. 2.

Considérons le cas d'une trajectoire rectiligne soient :
et l'espace parcouru à l'instant t.
et l'espace parcouru à l'instant t par un point mobile sa
vitesse moyenne entre les instants t et t' est donc pas
définition

$$V \text{ moy} = \frac{et' - et}{t' - t}$$

.../...

Mouvement d'une bille sur un plan incliné

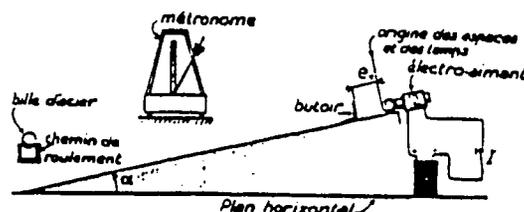


Fig. 3. — Pour faire les mesures, on abandonne la bille (ouvrir l'interrupteur I) à l'instant d'un battement du métronome.

I - Expérience

- 1) La bille d'abord retenue par un électro aimant est abandonnée à l'instant où l'on perçoit un battement du métronome. Par tâtonnements, réglons le butoir de telle sorte que la bille vienne le frapper 1 seconde après son départ. Mesurons l'espace parcouru : soit $e_1 = 0,10$ m.
- 2) Reconnaissons l'expérience en plaçant le butoir à des distances telles que la bille l'atteigne 2, 3, 4 ..secondes après le départ. Soient e_1, e_2, e_3 les espaces parcourus correspondant. Dressons le tableau des résultats obtenus.

DURÉE DU MOUVEMENT	ESPACES PARCOURUS
$t_1 = 1$ seconde	$e_1 = 0,10$ mètre
$t_2 = 2$ —	$e_2 = 0,40$ —
$t_3 = 3$ —	$e_3 = 0,90$ —
$t_4 = 4$ —	$e_4 = 1,60$ —
$t_5 = 5$ —	$e_5 = 2,50$ —
.....

II- Interprétation des mesures

- 1) Le mouvement n'est pas uniforme car l'espace parcouru n'est pas proportionnel au temps.
- 2) Divisons chaque espace par le carré du temps mis à la parcourir:

$$\frac{e_1}{t_1^2} = \frac{0,10}{1^2} = 0,10 \qquad \frac{e_2}{t_2^2} = \frac{0,40}{3^2} = 0,10$$

$$\frac{e_3}{t_3^2} = \frac{0,90}{2^2} = 0,10 \qquad \frac{e_4}{t_4^2} = \frac{1,60}{4^2} = 0,10$$

Tous les quotients obtenus sont égaux à 0,10.

.../...

Généralisons : Si la bille parcourt un espace e_t en un temps t .

- Nous avons toujours $\frac{e_t}{t^2} = 0,10$.

- Ce que nous écrivons encore $e_t = 0,10 t^2$.

Cette formule exprime que : l'espace parcouru par le centre de bille est proportionnel au carré du temps mis à le parcourir.

Le nombre 0,10 est le coefficient de proportionnalité désigné par la lettre (a), donc la loi du mouvement s'écrit :

$$e_t = at^2.$$

Vitesse-moyenne de la bille dans un intervalle de temps déterminé

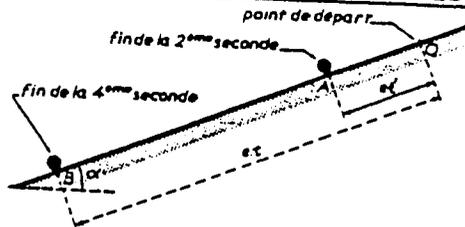


Fig. 4. — Quelle est l'expression de la vitesse moyenne entre l'instant t et l'instant t' ?

D'une manière générale, si e_t est l'espace parcouru par la bille au temps t , $e_{t'}$ l'espace parcouru au temps t' la vitesse moyenne dans l'intervalle $(t'-t)$ a pour valeur :

$$V_{moy} = \frac{e_{t'} - e_t}{t' - t} = \frac{at'^2 - at^2}{t' - t} = a \frac{t'^2 - t^2}{t' - t} = a(t' + t)$$

Vitesse de la bille à un instant t , ou vitesse instantanée

Dans l'expérience précédente, nous avons trouvé $a=0,10$

La vitesse moyenne entre 2 instants t et t' est donc :

$$V_{moy} = 0,10(t' + t)$$

Calculons sa valeur numérique dans un intervalle de temps compris entre la 2ème seconde ($t=2s$) et un instant t' de plus en plus voisin.

Intervalle:	1s ($t=2, t'=3$)	$V_{moy} = 0,10(2+3) = 0,50m/s$
Intervalle:	0,1s ($t=2, t'=2,1$)	$V_{moy} = 0,10(2+2,1) = 0,41m/s$
Intervalle:	0,01s ($t=2, t'=2,01$)	$V_{moy} = 0,10(2+2,01) = 0,401m/s$
Intervalle:	0,001s ($t=2, t'=2,001$)	$V_{moy} = 0,10(2+2,001) = 0,4001m/s$

Nous remarquons qu'à mesure que l'intervalle de temps $(t'-t)$ diminue, la vitesse moyenne pendant cet intervalle de temps se rapproche de la valeur de 0,40 m/s, c'est pourquoi nous dirons que la vitesse à l'instant 2, soit V_2 est 0,40m/s.

La vitesse à l'instant t est : $V_t = a(t+t) = 2.a.t$.

Conclusion :

La vitesse de la bille croît proportionnellement au temps.
C'est la loi de la vitesse.

O.F.P.P.T

C Q P

HAY EL MOHAMMADI

MOUVEMENT RECTILIGNE
UNIFORMEMENT ACCELERE
(D)

MECANIQUE
APPLIQUEE

Accélération du mouvement

Calculons la vitesse instantanée de la bille aux instants 1s, 2s, 3s, 4s....etc. Nous obtenons :

$$V_1 = 2 \times 0,10 \times 1 = 0,20 \text{ m/s.}$$

$$V_2 = 2 \times 0,10 \times 2 = 0,40 \text{ m/s}$$

$$V_3 = 2 \times 0,10 \times 3 = 0,60 \text{ m/s}$$

$$V_4 = 2 \times 0,10 \times 4 = 0,80 \text{ m/s}$$

La vitesse augmente pendant chaque seconde de 0,20 m/s.

On appelle accélération l'augmentation de la vitesse par unité de temps...

Dans le cas étudié, elle est constante, uniforme et c'est pourquoi le mouvement du centre de la bille est dit uniformement accéléré.

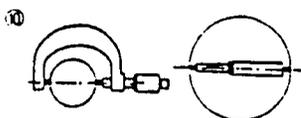
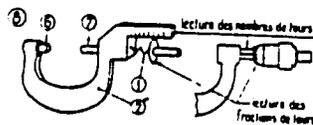
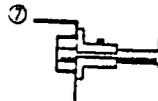
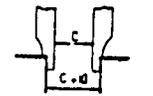
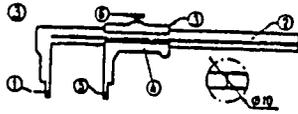
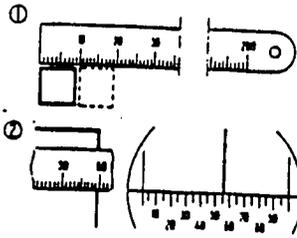
Nous désignons habituellement l'accélération par la lettre grecque γ (gamma)

Dans l'exemple ci-dessus, $\gamma = 0,20 \text{ m/s par seconde}$, ce qu'on écrit $0,20 \text{ m/s/s}$ ou encore $0,20 \text{ m/s}^2$.

Remarque : La valeur de l'accélération est :

$$\gamma = 2 a$$

$$0,20 = 2 \times 10.$$



RÈGLES GRADUÉES

— Rigides (règle) ou souples (réglet).
— Lecture rapide mais difficile et peu précise entre deux divisions.

Faire coïncider le trait zéro (ou mieux le trait dix) et l'origine de l'objet à mesurer; lire au bout de l'objet (fig. 1).

Utilisation : traçage, contrôle rapide à ± 0.2 .

Perfectionnement. L'adjonction d'un microscope à réticule gravé de 100 divisions sur 1 mm (avec grossissement optique $\times 100$) permet de lire à 0,01 mm près (fig. 2 on lit 39,56).

Application : contrôle du déplacement des chariots de machine-outil.

CALIBRE A COULISSE (ou pied).

Calibre réglable gradué à touches parallèles en acier inoxydable et bords trempés (fig. 3).

(1) Bec fixe; (2) Règle; (3) Coulisse; (4) Vernier; (5) Bec mobile; (6) Vis de blocage.

Le vernier (fig. 4) (au dixième, au vingtième ou au cinquantième) permet d'apprécier la valeur d'une mesure comprise entre deux divisions de la règle.

Lecture sur vernier au 1/50 (fig. 4).

1. Lire le nombre entier de mm en A (à gauche du zéro du vernier) sur la règle.
2. Le trait du vernier en face d'un trait de la règle indique le supplément décimal (0,02 par intervalle).

Utilisation : modérer le serrage.

Fig. 5. Mesure extérieure (bords bien engagés);

Fig. 6. Mesure intérieure (ajouter 10 mm);

Fig. 7. Mesure de profondeur (pied spécial).
Entretien : éviter les chocs, suiffer légèrement, tenir propre.

MICROMÈTRE (ou palmer).

Calibre réglable par vis (fig. 8 et 9).

(1) Vis; (2) Cè; (3) Tambour fixe; (4) Tambour tournant; (5) Bouton de friction; (6) Touche fixe; (7) Touche mobile (solidaire de la vis).
Les touches sont en acier trempé dur ou en carbure.

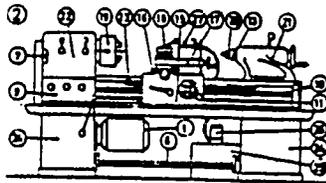
Lecture sur micromètre au 1/100.
1. Lire en (3) le nombre entier de mm (attention aux erreurs de 1 tour ≈ 0.5 mm). Ajouter 0.5 mm à la lecture si le tambour laisse apparaître une division des demimillimètres.

2. Lire en (4), sur le tambour divisé, le supplément décimal (0,01 par intervalle).

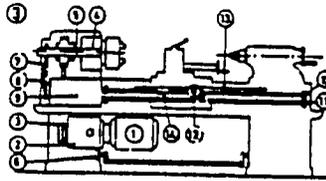
Utilisations (fig. 10). Comme avec le calibre à coulisse, mais plus de précision (possibilité d'étaonnage).



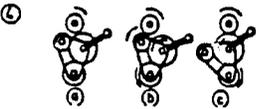
ÉTUDE DU TOUR
Les tours sont des machines-outils à trois mouvements Mc, Ma, Mp (fig. 1). Mc, circulaire appliqué à la pièce. Ma et Mp, rect. appliqués à l'outil.



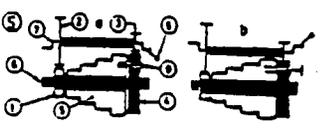
Organes du Mp (fig. 2).
Une vis commande un chariot transversal (16); un autre chariot, orientable (17) permet l'exécution des cônes.
Porte-outil : Tourille carrée (18).
Porte-pièce : (19) Mandrin; (20) Contre-pointe montées sur poulie mobile (21).
Organes-supports :
(22) Poupée fixe; (23) Banc; (24) Pieds.
Arrosage :
(25) Bac; (26) Pompe; (27) Robinet.



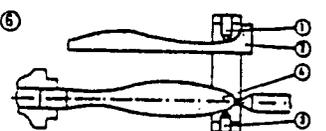
Organes du Ma (fig. 2 et 3).
(7) Inverseur; (8) Réglage des avances et pas (lyre); (9) Boîte d'avances ou de filetages; (10) Vis-mère; (11) Barre de chariotage; (12) Transmission; (13) Crémaillère; (14) Ecrou à mâchères; (15) Trainard.
Organes du Mc (fig. 3).
(1) Moteur; (2) Boîte de vitesses; (3) Courroies; (4) Boîte de vitesses et harnais; (5) Broche; (6) Frein.



Inverseur. Un train d'engrenages permet d'inverser le sens du Ma (fig. 4). Arrêt (fig. 4 a); marche avant (fig. 4 b); marche arrière (fig. 4 c).



Harnais (fig. 5).
En position « harnais » (fig. 5 b), le mouvement reçu par la poulie-cône (5) est transmis à (1) puis à (2) (3) (4); ce dernier est monté sur la broche (6).
En position « valet » (fig. 5 a), le mouvement passe de (5) à (4) dont à la broche (6) par le verrou (7). Les pignons (2) et (3) sont écartés par l'arbre excentré (7).



TOURS SPÉCIAUX
Augmentation du rendement.
Fig. 6. Tour à copier. (1) Palpeur; (2) Gabarit; (3) Outil; (4) Pièce.

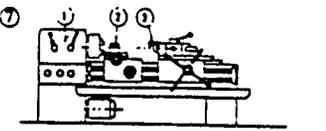


Fig. 7. Tour semi-auto ou revolver. (1) Poupée fixe; (2) Porte-outil transversal; (3) Porte-outil en bout ou de tourille.

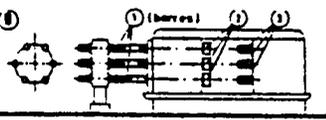


Fig. 8. Tour multibroches. (1) Barres (six); (2) Pinces; (3) Outils.

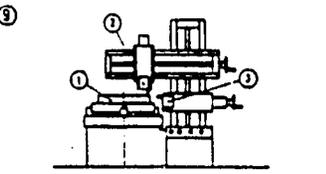
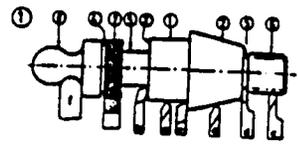


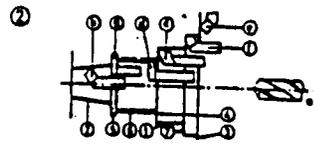
Fig. 9. Tour vertical. (1) Pièce; (2) Porte-outil de traverse et (3) de montant.

TOURNAGE
(B)

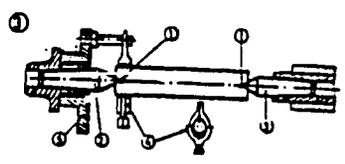
TECHNOLOGIE DE FABRICATION



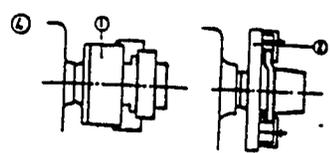
FORMES EXTERIEURES (fig. 1)
(1) Cylindre; (2) Cône; (3) Epaulement; (4) Gorge; (5) Saignée; (6) Filetage; (7) Moulage; (8) Forme.
Outils : (a) à chariot; (b) à raccorder; (c) à fileter; (d) à saigner; (e) couteau; (f) de forme.



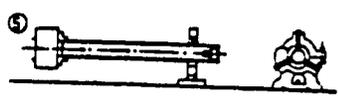
FORMES INTERIEURES (fig. 2)
(1) Cylindre; (2) Cône; (3) Face; (4) Epaulement; (5) Gorge; (6) Filetage; (7) Forme.
Outils : (a) foret; (b) à aléser; (c) à dresser les fonds; (d) à fileter; (e) à dresser; (f) de forme; (g) à gorge intérieure.



TOURNAGE ENTRE POINTES (fig. 3)
La pièce porte des centres (1), qui reçoivent des pointes : fixe (2) et contre-pointe (3). La pièce est entraînée par un toc (4) et un pousse-toc (5) monté sur la broche.
Procédé précis, mais qui ne permet pas le travail en bout ou intérieur.



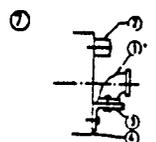
TOURNAGE EN L'AIR (fig. 4)
C'est le tournage sans support fixe du côté contre-poupée. La pièce est tenue et entraînée par un mandrin à serrage concentrique (1) ou à mors indépendants. La pièce peut également être bridée sur un plateau (2).



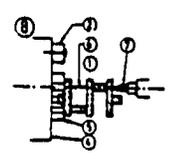
TOURNAGE AVEC LUNETTE
Lunette fixe (fig. 5). Pour travail en bout de pièces longues.



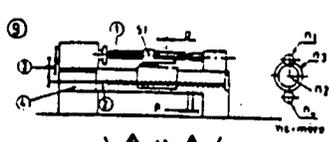
Lunette à suivre (fig. 6). Pour travail sur la périphérie de pièces flexibles.



TOURNAGE A AXES MULTIPLES
Sur équerre (fig. 7). Pour axes concourants ou non, perpendiculaires ou obliques.



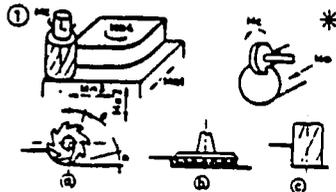
Sur plateau (fig. 8). Pour axes parallèles.
(1) Pièce; (2) Contrepoids; (3) Equerre; (4) Plateau; (5) Montage; (6) Entretoise; (7) Contrepointe.



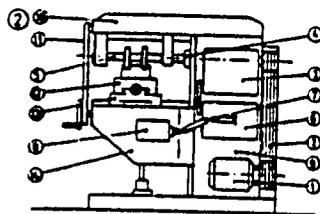
FILETAGE (fig. 9)
La rotation de la pièce (1) et celle de la vis-mère (2) sont synchronisées par un train d'engrenages (3) ou une boîte de filetage (4).
Le filetage se fait en plusieurs passes, dans le même sillon. Cela s'obtient à l'aide d'un « appareil à retomber dans le filet », monté sur le trainard.

Il faut réaliser le rapport $\frac{n_1 \cdot n_3}{n_2 \cdot n_4} = \frac{p}{P}$
p, pas à produire; P, pas de la vis-mère.



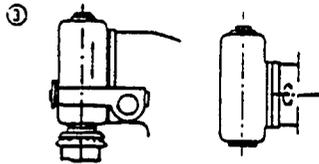


Fraiser consiste à usiner les métaux à l'aide d'un outil tournant appelé fraise, dont l'axe peut être horizontal ou vertical. La fraise peut travailler de profil (fig. 1 a), en bout (fig. 1 b) ou des deux façons à la fois (fig. 1 c).
Sur la fraiseuse, la pièce peut se déplacer suivant trois directions perpendiculaires, tourner, grâce à des accessoires, suivant un axe vertical (plateau circulaire) ou horizontal (diviseur).



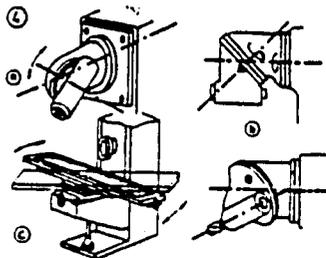
LA FRAISEUSE (fig. 2)

- Organes du M.C :**
(1) Moteur; (2) Transmission; (3) Bolte de vitesse; (4) Broche; (5) Porte-fraie.
- Organes du M.A :**
(6) Bolte des avances; (7) Arbre à cardan; (8) Transmissions et embrayages des mouvements dans les trois directions.
- Organes-supports :**
(9) Bâti; (10) Bras support; (11) Bretelles.
- Organes porte-pièces :**
(12) Table; (13) Chariot; (14) Console.



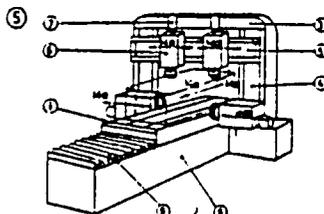
FRAISEUSES VERTICALES

L'axe de la broche est vertical ou orientable dans le plan vertical (fig. 3 et 6).



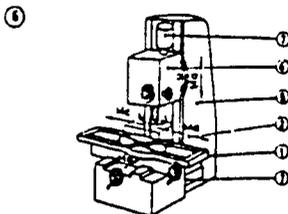
FRAISEUSES UNIVERSELLES

A tête universelle : la tête porte-fraie peut prendre toutes les directions de l'espace par deux rotations perpendiculaires (fig. 4 a) ou par deux rotations à 45° (système Huré, fig. 4 b).
A table orientable (fig. 4 c). Utilisée surtout pour le fraisage des hélices.
A tête et tables orientables.
Fraiseuses à matrices affectées à l'usinage des surfaces variées en dépouille.



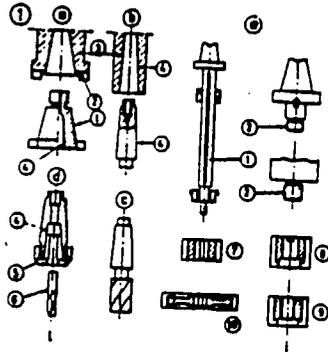
FRAISEUSES SPÉCIALES

- Fraiseuses-Raboteuses (fig. 5).**
Fraiseuses d'opération (fig. 6).
(1) Table; (2) Plateau; (3) Traverse fixe; (4) Montant; (5) Traverse mobile; (6) Tête de fraisage; (7) Moteur; (8) Bâti; (9) Soufflet antipoussières.



FRAISAGE
(B)

TECHNOLOGIE :
DE
FABRICATION



FRAISES

Fixation.

Fig. 1 a. Cône Standard Américain (ASA). Démontage facile; entrainement puissant. Conicité 7/24 (1); (2) Tenons d'entraînement; (3) Broche.
Fig. 1 b. Cône Morse (CM). Centrage et entrainement par cône. Serrage par broche fileté. Débloccage difficile. (4) Cône Morse.

Entrainement de la fraise.

Fig. 1 c. Par cône direct sur fraiseuse.
Fig. 1 d. Par pince : serrage par écrou (5) sur queue cylindrique (6).
Fig. 1 e. Par arbre porte-fraise lisse (1) ou fileté (2).

Forme des fraises.

Fig. 1. (7) fraise à une taille sur la périphérie (fraise-scie à rainurer); (8 et 9) fraise à deux tailles : coupe en bout et sur la périphérie; (10) fraise à trois tailles.

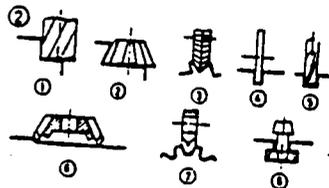
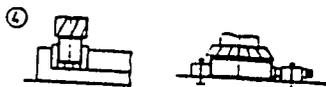


Fig. 2. (1) fraise à deux tailles; (2) fraise conique; (3) fraise biconique; (4) scie; (5) fraise à deux lèvres pour cannelures; (6) tourteau à surfacer; (7) fraise à profil constant détaillé; (8) fraise à rainures.

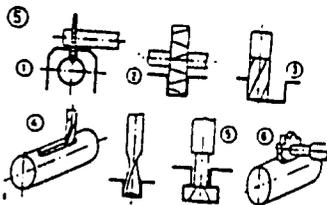


Profilage (fig. 3). La fraise coupe sur sa périphérie: rainures en V (1), contours extérieurs (2) ou intérieurs.

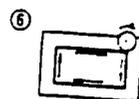


TRAVAUX

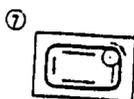
Surfaçage (fig. 4) : Avec fraise en bout (deux tailles) ou tourteau à outils rapportés (grand rendement).



Rainurage (fig. 5). Divers cas : (1) Fente (fraise-scie); (2) Rainure droite : avec fraise trois tailles à denture alternée ou (3) avec fraise deux tailles; (4) Rainure de clavette à bouts ronds avec fraise deux lèvres; (5) Rainure à té; (6) Rainure de clavette Woodruff.



Détourage extérieur (fig. 6) avec fraise deux tailles. Procéder suivant le schéma : rattraper les jeux.



Détourage intérieur (fig. 7) avec fraise deux tailles ou de forme (matrice, moule). Veiller aux déformations des angles par suite d'engagement de la fraise.

ÉTATS DE SURFACE														
obtenus par les différents procédés d'usinage														
Signes de façonnage	▽▽▽			▽▽			▽		S					
	0.025	0.050	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	100	200
Valeur de Ra (en microns)	0.025	0.050	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	100	200
Oxycoupage														
Sciage														
Tournage (ébauche)														
Meulage														
Rabotage														
Perçage														
Fraisage de profil														
Tournage (finition)														
Fraisage de face														
Grattage														
Brochage														
Alésage à l'outil														
Alésage à l'alésoir														
Rectification ordinaire														
Fraisage de face (carbure)														
Taillage														
Tonnefage														
Galetage														
Tournage diamant														
Alésage diamant														
Rectification de précision														
Rodage à la pierre														
Polissage														
Superfinition														
Valeur de Ra (μ)	0.025	0.050	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	100	200

Valeur usuelle
 Valeurs possibles

← Contrôle possible par comparaison viso-tactile

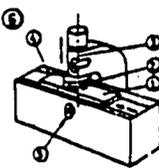
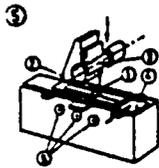
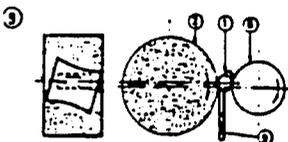
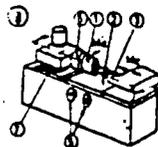
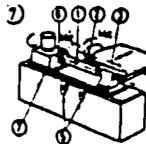


Fig. 5, 6, 7, 8, 9, 11, 12, 13.

(1) Pièces; (2) Meules; (3) Broche porte-meules; (4) Table porte-pièce; (5) Commandes; (6) Poupée porte-pièce; (7) Orientation (cône, pente); (8) Meule d'entraînement; (9) Règle de guidage.



TRAVAUX

La rectification consiste à finir, à la meule, des pièces déjà usinées. Elle peut s'exécuter sur des pièces traitées. Elle fournit une précision élevée (qualité 7 à 2) et un très bon état de surface.

Rectification plane.

• De profil (fig. 1 et 5). Permet l'exécution de surfaces planes par déplacements longitudinal et transversal, et de profils plans ou non (glissières, outils à découper, à fileter, etc.).

• Sur plateau. Meule tangente (fig. 2) et meule en bout (fig. 4). Utilisées pour surfacage de petites pièces en série.

• En bout (fig. 3 et 6). Permet l'exécution rapide de surfaces planes. On utilise souvent des meules segmentées.

Rectification de révolution.

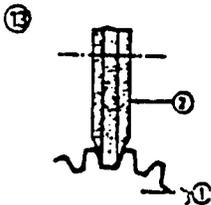
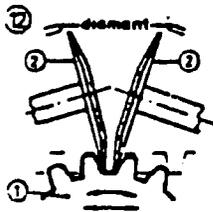
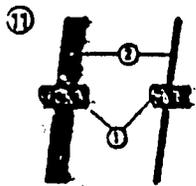
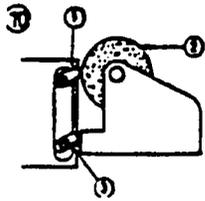
• Entre pointes (fig. 7). Permet l'exécution de tous profils de révolution (cylindres, cônes, profils) sur pièces comportant des centres.

Peut dresser des surfaces planes par orientation de la poupée porte-pièce.

• Intérieure (fig. 8). Permet l'exécution de toutes les formes intérieures (cylindres, cônes) par orientation de la poupée porte-pièce, et de surfaces planes (en bout).

• Sans centres (ou Centerless) (fig. 9). Utilise deux meules, une pour l'entraînement, l'autre pour la rectification; permet de rectifier des pièces cylindriques enfilade ou des profils (cônes, épaulements...) en plongée.

RECTIFICATION
 (B)

TECHNOLOGIE
DE
FABRICATION

Rectifications spéciales.

• Cames (fig. 10). Une came-mère (3) permet de reproduire, sur la pièce (1), le même profil. Un dispositif analogue est utilisé pour la rectification polygonale intérieure.

• Filetages (fig. 11). Sur machine analogue à celle de la fig. 7, mais comportant une meule inclinable à profil multiple pour ébauche, ou simple, pour finition.

• Engrenages. Par meules-assiettes (fig. 12).

Leur face plane, rectifiée au diamant, figure le flanc d'une crémaillère engrenant avec le pignon à rectifier.

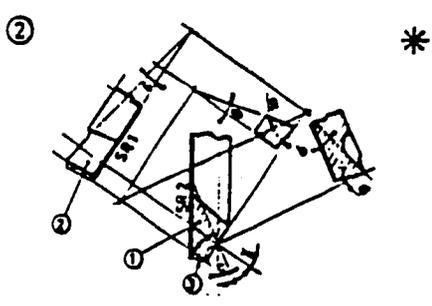
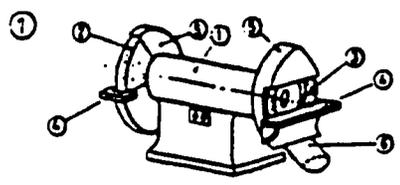
Par meule de forme (fig. 13) : la meule est taillée au profil de l'entre-dent. On utilise, également, des meules filetées engrenant avec le pignon à tailler à la façon d'une vis sans fin.

MEULAGE

- Ébarbage : consiste à enlever les défauts sur des pièces moulées ou forgées (bavures).
 - Meulage : ébauche à la meule.
- Meules : gros grains, assez durs, peu fragiles.

AFFÛTAGE DES OUTILS *

- Finition des faces de coupe.
- Le fini doit être bon. Le métal à couper est toujours très dur et ne doit pas être détrempe par l'opération.
- Meules : grains assez fins, tendres.
- Machines utilisées :
- Le tour (fig. 1) pour meulage et affûtage : (1) Moteur; (2) Meule; (3) Lapidaire; (4) Supports de pièce; (5) Carter; (6) Aspiration des poussières.

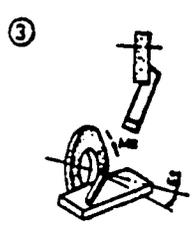


Définition angulaire (fig. 2) :

(1) Face d'attaque; (2) Face en dépouille; (3) Dépouille latérale;

(4) Dépouille; (5) Pente effective de coupe; (6) Obliquité au profil; (7) Obliquité d'arête.

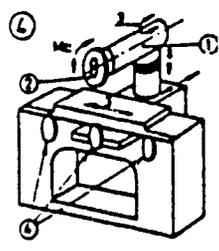
Angles d'affûtage : (8) Pente d'affûtage; (9) Direction.



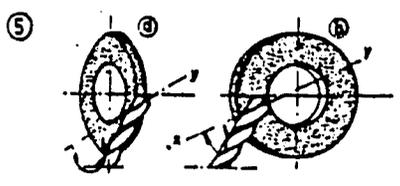
Ordre opératoire de l'affûtage

Outils prismatiques (fig. 3).

Face d'attaque puis face en dépouille. Respecter et contrôler les angles. Polir les faces par pierrage manuel.



L'affûteuse (fig. 4) : (1) Poupée porte-meule; (2) Meule; (3) Mouvements d'avance et de réglage; (4) Commandes.



• Forets (fig. 5). Placer l'arête de coupe dans le plan horizontal contenant l'axe de la meule. Tourner le foret autour de l'axe xy. Petits forets, sur meule (fig. 5a); gros forets sur lapidaire (fig. 5b).



• Burins (fig. 6).



• Tournevis (fig. 7).



• Pointeaux (fig. 8).



• Pointe à tracer (fig. 9).



• Pointes et compas (fig. 10).

Dans tous les cas veiller à ne pas échauffer exagérément la partie meulée. Respecter et contrôler les angles.

Les outils à tranchants multiples (forets, tarauds, alésoirs, fraises, ...) doivent s'affûter sur une machine permettant de respecter les angles et la position des arêtes de coupe.

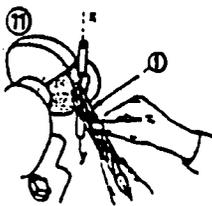
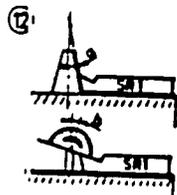


Fig. 11 Affûtage d'un foret monté sur un support (1) tournant (axe xy).

Fig. 12 Contrôle de \hat{a} et de \hat{b} .

DEPARTMENT OF PROFESSIONAL
TRAINING AND OF WORK PROMOTION

NATIONAL BUREAU OF TRAINING OF
ACCOUNTING AND SECRETARIAL STAFF

21 rue d'Avesnes - Bd Mohamed -V
CASABLANCA

CONDITIONS OF ADMISSION TO THE I.N.F.C.C.S.

I) - Student-instructors and Technicians in Accounting and
Secretarial Assistant Accountants

A) Conditions of age and level:

	Student-Instructors and Technicians
Minimum age	17 years
Minimum educational level (Public Instruction)	7th A.S.

B) Registration Records

	Student-Instructors and Technicians (1, 2)
- Application of Registration	1
- Student Certificate	1
- Extract from Certificate and Birth	1
- Photographs of Identity	3
- Stamped self-addressed envelopes	3

(1) The student-instructors must also present, after their admission and prior to the beginning of the courses, a second record containing in addition to the abovementioned documents an extract of police records and a medical certificate attesting to the fact that the candidate is not suffering from any illness.

They must also sign an agreement (in duplicate with legalized signature) that they will serve with the Department of Professional Formation and Work Promotion for a period of 8 years, reckoned from the end of training.

(2) The candidates that do not reside in Casablanca must furnish a Certificate of Domicile in order to benefit from the living-in system.

Other information

	Student-Instructors and Technicians
Beginning of Registration	April
Test of selection and orientation	June - July
Duration of training	2 years (1)
Amount of scholarship (2)	331 DH/month

(1) two months of which are on-the-job training in enterprises;

(2) Scholarships are granted only to student-instructors.

D) Diplomas issued:

The trainees are under continuous pedagogical control. The grades of the year are taken into consideration at the time of the examination of promotion from the first year to the second year, and of the final examination for the computation of the average.

1) Student-Instructors

The student-instructors (in accounting and secretariat) passing the final examination are issued the Certificate of Pedagogical Training and Technical Development: + option: Accounting
+ option: Secretariat

2) Technicians:

The technicians (in accounting and secretariat) passing the final examination are issued the following Diplomas:

- Diplomas of Technician (as Accountant)
- Diplomas of Technician (as Administrative Secretary)

ADDRESS OF THE CENTERS
=====

Technicians and student-instructors

I.N.F.C.C.S., 21 rue d'Avesnes, Bd Mohamed -V-
CASABLANCA

Technicians

- Center de Comptabilite et Secretariat, Avenue Al Majd,
Quartier Industriel B.P. 4553 Akkari - RABAT
- Center de Qualification Professionnelle, Route d'Immouzzar Km 2
FES

II REGIONAL SECTIONS

Typists and Assistant Accountants

A) Conditions of age and of level

	Typists	Assistant Accountants
Minimum age	17 years	17 years
Minimum educational level (Public Instruction)	4th A.S.	4th A.S.

Registration records

	Typists	Assistant Accountants
- Handwritten application	1	1
- Student Certificate	1	1
- Extract from Certificate of Birth	1	1
- Photographs of Identity	3	3
- Stamped self-addressed envelopes	3	3

C/ Other information

	Typists	Assistant Accountants
- Beginning of registration	April	April
- Date of competitive examination	July	July
- Duration of training	1 year	1 year

D/ - Diplomas issued

The trainees are under continuous control. The grades attained during the year are taken into consideration at the time of the final examination for the computation of the average.

The typists that have passed the examination are issued the Certificate of Professional Training option "Dactylography" and the assistant accounts receive the Certificate of Professional Training option "Assistant Accountant."

E/ - Addresses of the Regional Centers

<u>AGADIR</u>	: Chambre de Commerce et d'Industrie
<u>BENI-MELLAH</u>	: Delegation Provinciale du Ministere de Travail et de la Formation Professionnelle
<u>EL-JADIDA</u>	: Chambre de Commerce et d'Industrie
<u>AL AYOUN</u>	: Centre de Formation Professionnelle (Arabic typing)
<u>FKI-BEN SALAH</u>	: Centre de Formation Professionnelle B.P. 75
<u>FES:</u>	: Centre de Qualification Professionnelle, Route d'Immouzzar Km 2
<u>KENITRA</u>	: Centre de Qualification Professionnelle Avenue Mohame- Diouri
<u>MARRAKECH</u>	: Centre de Qualification Professionnelle Rue Djebel Lakhdar
<u>OIJAD</u>	: Centre de Qualification Professionnelle Rue Abderrahmane Dakhil
<u>MEKNES:</u>	: Centre de Qualification Professionnelle Avenue des F.A.R.
<u>SAFI</u>	: Centre de Qualification Professionnelle, Route de Sidi Oussel (pres de la Cie Cherifienns de Textile
<u>TANGIER</u>	: Centre de Formation Professionnelle Rue Saint Saens, Place Mozart
<u>TETOUAN</u>	: Centre de Formation Professionnelle Bd Mohamed -V-
<u>RABAT</u>	: Centre de Comptabilite et de Secretariat Avenue AL Majd, Quartier Industriel B.P. 4553 Akari

- The sections of dactylography are located in the following Centers:

AGADIR, BENI-MELLAH, MARRAKECH, EL JADIDA, TANGIER, RABAT KENITRA, SAFI, MEKNES, FES and FQIH BEN SALAH.

- Those of Assistant Accounts are at: AGADIR, MARRAKECH, EL JADIDA, SAFI, TANGIER, TETOUAN, RABAT, KENITRA, FES, OIJDA.

Some of the centers have a boarding school. Only the trainees not living in the locality may benefit from it.

NOTE: For any request for information, attach a self-addressed stamped envelope.

Specify in your registration application the chosen specialty (Example: Assistant Accountat, Dactylography, Administrative Secretary, Accountant).

IMPORTANT:

One section of Arabic administrative secretaries will ~~was~~ opened last year for the candidates of a 7th year of secondary instruction level (all the series).

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TRAINING AND OF WORK PROMOTION
NATIONAL BUREAU OF TRAINING OF
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I.N.F.C.C.S

21 rue d'Avesnes - BD Mohamed V-
CASABLANCA

TRAINING PROGRAM
(hours/week)

1 - Accountants and student-instructors in Accounting

1st Year

- General accounting	10 hours
- Commercial arithmetic	6 hours
- Commerce	5 hours
- French	7 hours
- General economics	2 hours
- Civil law	2 hours
- Filing	2 hours
- Arabic	2 hours
- General pedagogics (for the student-instructors) . .	2 hours

38 hours

2nd Year

- General accounting (corporative accounting)	8 hours
- Analytical accounting	6 hours
- Financial mathematics	4 hours
- Commerce	4 hours
- Commercial law	2 hours
- Organization of enterprises	2 hours
- Tax law	2 hours
- French	4 hours
- Arabic	2 hours
- Practical pedagogics (for the student-instructors) .	2 hours
- General economics	2 hours
- Labor legislation	2 hours

40 hours

2 - Administrative secretaries and student-instructors in secretariat

1st Year

- Shorthand (Aime Paris and Duployee Codiffee)	10 hours
- Dactylography	8 hours
- French	8 hours
- Filing	2 hours
- Commerce	2 hours
- General accounting	2 hours
- Arabic	2 hours
- General pedagogics (for the student-instructors)	2 hours
- Arabic typing	2 hours
- English	2 hours
	<hr/>
	40 hours

2nd Year

- Shorthand	8 hours
- Dactylography	6 hours
- French	4 hours
- Commercial correspondence	2 hours
- Filing and office equipment	2 hours
- Organization of enterprises	2 hours
- Practical pedagogics (student-instructors)	2 hours
- Labor legislation (administrative secretaries)	2 hours
- Commerce	2 hours
- Civil law and commercial law	2 hours
- General accounting	2 hours
- General economics	2 hours
- Arabic	2 hours
- Arabic typing	2 hours
- English	2 hours
	<hr/>
	40 hours

3 - Assistant Accountants (11 months):

- General accounting	12 hours
- Commercial arithmetic	6 hours
- Commerce	6 hours
- French	10 hours
- Filing	2 hours
- Arabic	2 hours
	<hr/>
	38 hours

4 - Typists (I.N.F.C.C.S. 6 months - Regional Sections 11 months)

- Dactylography	22 hours
- Filing	2 hours
- French	9 hours
- Arabic typing	4 hours
- Arabic	2 hours
	<hr/>
	39 hours

NAME: Section: Date:

QUESTIONNAIRE

- 1 - Position occupied during your training:
- 2 - Name of the enterprise:
- 3 - How many employees? (approximately)
- 4 - Regular working during the week:

Tasks performed during your training period	FREQUENTLY	RARELY	NEVER
1 - Opening the mail			
2 - Answer the telephone and taking of messages			
3 - Receive the visitors			
4 - Work at the switchboard			
5 - Take courses abroad			
6 - Fill out forms by hand			
7 - Take shorthand notes and transcribe them			
8 - Type letters and departamental memos			
9 - Type from drafts.			
10 - Type reports			
11 - Type statistics			
12 - Type agendas, minutes			
13 - Type itineraries, time schedules, etc.			
14 - Type stencils			
15 - Utilization of ink duplicators			
16 - Utilization of alcohol duplicators			
17 - Utilization of photocopier			
18 - Opening of files (records, dossier)			
19 - File documents, letters and reports			
20 - Research of documents			
21 - Keep the accounting books			
22 - Prepare the invoices			
23 - Verify the invoices			
24 - Utilization of calculator			
25 - Utilization of adding machine			
26 - Utilization of invoicing machine			
27 - Preparation of orders			
28 - Preparation of payroll			

FREQUENTLY RARELY NEVER

- 29 - Prepare the checks
- 30 - Make the bank deposits
- 31 - Check the bank account statements
- 32 - Fill out the deposit slips
- 33 - Keep updated an appointment book
- 34 - Receive the merchandise
- 35 - Record the incoming and outgoing stock

Other tasks that you have performed:

Principal tasks during your training period

Conclusions:

- 1 - Were you at ease in your work?
- 2 - Have you trust in yourself?
- 3 - Which is your strong point?
- 4 - Which is your weak point?
- 5 - If you had to start anew your studies, which would be the subject-matter to which you would give preference?
- 6 - From your point of view, which are the courses studied at the Institute that were most beneficial to you?
- 7 - Do you deem the duration of the training period: sufficient - too long - insufficient
- 8 - How were your relations with:
 - a) your colleagues?
 - b) your superiors?
 - c) the public?
- 9 - How did you feel as regards the employees at the place of work?
- 10 - Do you think that the material (equipment) made available to you during the training did allow you to easily adapt to the office work?

COMMENTS

Casablanca, 22 April 1981

To: Director
 Program Section
 O.F.P.P.T.
 Ain-Borja

Object: Radio-T.V. Exam for
 Professional Qualification Certificate

Sir:

We reviewed modules 4 to 11 of the Radio-T.V. course leading to the Professional Qualification Certificate. We would like to share with you our comments:

General Observations

Since we did not review the 3 first modules, we, therefore, assume they cover areas such as Basic Electricity and Electronics Principles, particularly:

- Precautions to take in order to avoid electrocution risks.
- Use of tools.
- Use of measure instruments such as the all-purpose controller, the oscilloscope etc.
- Tuned circuits.
- Filters.
- Thermionic emissions.
- Semi-conductors.

In general, it seems to us that the subject contents are well founded, but a more elaborated text would be welcomed.

Example: Module 8 - Unit 1. Functioning principle of the detector circuit. is composed of a diode (vacuum tube or semi-conductor) and a condenser. The diode purpose is to prevent the flow of half, either inferior or negative, or superior or positive, of the intermediate frequency signal (I.F.), according to the branching nens. The condensator accumulated half of that signal which has gone through the diode and is left only with the slow variations which, precisely, are transmitted signal, low frequency.

Revised Text

The detector-circuit is composed of a diode(vacuum tube or semi-conductor) and a condensator. The diode adjusts the signal allowing only the upper half signal to flow. The superior contour which limits the B.F. signal is called the "signal superior shell", and is identical to the B.F. signal. Notice that, if the diode branching is inverted, only the lower-half signal will end up at the output.

The condenser with a sufficient value, (reminder $X_c = \frac{1}{2\pi f C}$ serves , in short-circuit, or almost), the tension at raised frequency of the diode out-put signal.

As a result, we get at the potentiometer terminals a signal almost identical to the B.F. signal.

Questions

They refer to the questions asked at the end of each unit. In general, they are good, but some of them need to be changed in order to allow the trainee to discover the answer while absorbing a part of the exposed material.

Example: Instead of asking the following question: what types of microphones are most used? We could have asked: how do you distinguish a bond-microphone from a crystal-microphone?

Particular Observations

Module 4

Repairing

The trainee is introduced to this subject for the first time. Therefore, it is imperative to cover the basic and systematic principles of the subject matter.

Example:

- Draw a diagram of a simple system (Fig. 1).
- Explain how to read a synoptic diagram.
- Make a visual inspection of the appliance.
- Feed the system.
- Identify the symptoms by taking note of the variable units effects.
- Deduct probable causes by using previous information.
- Establish a list of probable causes.
- Identify the faulted circuit by referring to the main diagram and to the instruments as well.
- Identify the faulty member.
- Replace the faulty member.

Mention that in some particular cases, some steps can be disregarded.

Module 5

- Explain the "push-pull" amplifier use.
- Define the amplifier stability.
- Establish the connection between tension gain and power gain. Bel and decible.
- Draw a diagram and show how degenerative feed-back is made.

Module 6

- Explain that selection is made with a variable condensor and coil in parallel.
- Set of waves.
- Explain that the formule is $\lambda f = \gamma$
 - λ = wave-length in meters
 - f = frequency in Hertz
 - γ = waves speed propagation in meter/second
300,000,000 m/s

Module 7

- Give an example of the curb I_B versus V_B

Module 8

- Draw a separate curve for B.F. and H.F. signals.

Module 9

- Detail the "electrical motors" diagram.
- Explain the "stroboscopy" phenomenon.
- Provide a list of probable breakdowns and remedies in electrophones.

Module 10

- Recording: Explain how the hysteresis phenomenon is applied in reality.
- Reproduction: Provide more information on how tension is "extracted" from the tape.
- Give a brief outlook on multisound-track tapes.
- Provide a list of probable breakdowns and remedies in tape-recorders.

Module 11

- Explain what "screening" and "crosstalk" mean?
- Explain the physical difference between miniature magnetic heads and others.
- Explain what acoustic short-circuit mean?

We hope you will find these comments useful.

F. Coowar
Electricity-Electronics Advisor

A.I.D.	O.F.P.P.T.	INVENTORY	REF:
Supplier	: Lab Volt	Description:	
	Buck Engineering Co., Inc.		
Address	: P.O. Box 686	Serial #	:
	Farmingdale		
	New Jersey 07727 U.S.A.	Model	:
Telephone	: (201) 681-6200		
Telex	: 132416	Type	:
Representative:		Specifications:	
Address	:		
Telephone	:	Date entered	
		into service:	
Maintenance	:	Warranty	:
Utilization	:	Spare Parts:	
		Center	: Ain Borja

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AMERICA—MIDEAST EDUCATIONAL & TRAINING SERVICES

1717 massachusetts ave., n.w. • suite 100 • washington, d.c. 20036 • (202) 797-7900 • telex: 440160 • cable: amideast

CAMPUS VISIT REPORT

INSTITUTION: University of Wisconsin - Stout DATE OF VISIT: 9-10 April 1981

STUDENT VISITED: Moroccan's Women Training Project:

Malika Benimmas
Nadia Chihani

FACILITIES:

University of Wisconsin - Stout at Menomonie, Wisconsin was founded as a private institution in 1893. Now it is one of 13 publicly supported universities in the University of Wisconsin system. Stout has gained a position of National leadership in educational programs directly related to industry and technology, home economics and business.

Menomonie is in the heart of Wisconsin's vacationland with every winter and summer sport near at hand. Lakes, rivers, and hills enhance the countryside. Students comprise about a third of Menomonie's 12,000 population.

Modern and well-equipped facilities mark Stout's 102 acre campus. In recent years, 14 major facilities have been constructed around the perimeter of the central campus area. A total of 33 labs encompassing 123,900 square feet for technical work in electronics, power, wood, metals, graphic arts, industrial graphics and plastics are available for industrial and vocational education majors.

Sophisticated audio-visual and computer centers serve the entire campus. Research and educational improvement activities coordinated by the Center for Research and Educational Improvement include selected areas related to business and industry, human development, education and home economics. Incorporated within the Center for Research and Educational improvement is the Center for Vocational, Technical and Adult Education, approved jointly by the University and the State Board for Vocational, Technical and Adult Education. Its primary field of activity is research and curriculum development in vocational/technical education.

BOARD OF DIRECTORS

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On campus housing is available but limited and students have to apply for it long before the semester begins. The University provides residence hall accommodations for approximately 2,900 students. Freshmen and Sophmores are required to live in the residence halls as long as space is available. Off campus housing is available around campus and within walking or cycling distance from campus.

PROGRAM

The University offers an English Skills Program, which provides classrooms and offices for non-native speakers in English. The University offers both undergraduate and graduate programs. Thirty-four majors are offered at the undergraduate level in Business Administration, Industrial Education, Industrial Technology, Technical Education, Vocational Education, Liberal Studies, Education, Psychology and Home Economics. The graduate program offers 16 Master's degrees and educational specialists degrees.

COMPOSITION OF STUDENT BODY

Stout has a total enrollment of 7,300 students who came from every state in the U.S. This number includes the 225 foreign students who come from about 42 foreign countries.

SPECIAL SERVICES FOR INTERNATIONAL STUDENTS

There are more than 100 student clubs and organizations on campus, including national fraternities and sororities all of which are open to foreign students. Major entertainment and cultural attractions are available on campus and in nearby (60miles) Minneapolis-St. Paul.

An International Student Office with a Director provides assistance to foreign students in the form of information about immigration and visas, housing, and personal problems. The Office also houses recreation activities and international dinner parties.

Challenges provided by industry being tackled by UW-Stout coeds

Proving that they can make it in a man's world may be less of a problem than you might think for the half dozen or so coeds competing with some 1,200 males in UW-Stout's School of Industry and Technology.

The coeds are preparing for careers in industry and education by studying technical subjects previously off limits for women.

Actually no one had ever said that women couldn't study the technical subjects offered in the school; it just wasn't the thing to do. Now, women are gradually discovering that there are many opportunities for them in the technical areas of business and education.

Herbert A. Anderson, dean of the school, said that changing attitudes may be opening the door to more diversified jobs for women in male-dominated professions. He also noted that most jobs that required heavy lifting have now been

eliminated through automation, thus removing the physical barrier for women.

Barbara Mindis, a senior studying packaging at Stout, said she had no problem in adjusting to classrooms full of men. "I get a lot of help and cooperation," she said, adding, "Many people are even more helpful because I am a girl." Miss Mindis said that she met company officials from the packaging industry who were impressed that there are women interested in the field. She feels that she will have no problem getting a job.

In addition, she has encountered "very little" resentment among male students, adding "There are always going to be some who think a woman's place is in the home."

Creativity

Originally interested in mechanical engineering, Miss Mindis said she chose a career in packaging because it in-

cluded a great deal of creativity. "Often women are more creative than men," she said.

Anderson agrees that this can be true in many instances. "There are girls skilled in mathematics and science that are naturals for the electronics field," he said. "There are girls who do well in creative writing, which couldn't be better for technical writing. There are girls who have terrific skills in design, providing all kinds of opportunities in graphic communication."

Anderson also feels that many women have greater dexterity than men, a real plus for operating sophisticated automated equipment.

He said that he sees no reason why women cannot do well in key technical positions and management jobs. "The only problem is to convince girls that there are career opportunities for them in what was always thought of as a man's domain," he stated.

Julie Zapp, a sophomore studying graphic arts (printing), said she encounters a great deal of surprise in the registration line when she signs up for technical courses.

"Once I was in a bar and a guy asked me what my major was," she said, "When I told him it was industrial technology he couldn't believe it."

Miss Zapp said that she has also been accused of entering her field to meet men. "You do meet guys, but that's not why I'm there," she added. She said that while she may encounter some initial skepticism from men, they accept her "when they find I know what I'm doing."

Made Aware

Charles Kell, who handles recruitment for Stout, says women are made aware of opportunities in industry, during periodic visits to high schools, but when it comes to asking questions about the fields most women "never bring the subject up."

But Kell added, "The business opportunities for women in industry with a technical knowledge are unlimited."

Mrs. Kathryn Sheetz, who is preparing to teach graphic arts in high schools or technical institutes, said she first encountered a certain amount of skepticism from male students. "I think the guys didn't know what I was up to," she stated. But she said that she is now being accepted as "just another student."

Some teachers have been "a little nervous" at first, about having a female in their classes, but she feels they too have now adjusted to her.

Mrs. Sheetz sees no problems for a woman teaching a traditionally male subject, but she added that she may use "a different approach to discipline" if she takes a job teaching high school industrial art classes where most of her students will be men.



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CAMPUS VISIT REPORT

INSTITUTION: Ball State University

Date of visit: 8-9 April 1981

STUDENTS VISITED: Moroccan's Women Training Project:

Asmaa El-ALAOUI

FACILITIES

Ball State University was founded as a state institution in 1918. It is located in a pleasant residential area one mile from the business center of Muncie, Indiana in a fertile agricultural and industrial region of east central Indiana. The population of Muncie is approximately 80,000 and it is located about 200 miles southeast of Chicago and 56 miles north-east of Indianapolis.

Residence halls are available for single graduates and undergraduates. Married student accommodations are more limited, although there are some married student apartments offered by the university and available in the community. Space for such apartments must be reserved a year in advance, and community apartments are very expensive.

PROGRAM

Ball State University offers programs in general education, liberal and applied arts, preprofessional and professional study, and graduate study.

Ball State University is on the quarter system and offers associate, bachelor, master, and doctorate degrees. Bachelor's work is offered in the College of Architecture and Planning, the College of Business, the College of Fine and Applied Arts, the College of Sciences and Humanities, and the Teachers College. Master degrees are offered in 84 fields of study in Architecture, Library Science, Music, Public Administration, Sciences, and Urban and Regional Planning. Doctoral programs are offered in 28 fields of study in Arts, Education, and Philosophy. Some of the Doctoral degrees are offered cooperatively with Indiana University and Purdue University.

BOARD OF DIRECTORS

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 ALBERT J. MEYER • RICHARD H. NOLTE • DWIGHT J. PORTER • R. BAYLY WINDER • NADIA H. YOUSSEF • ALFORD CARLETON, *Emeritus*

COMPOSITION OF STUDENT BODY

Ball State University enrolls approximately 18,000 graduate and undergraduate students. These students come from every state in the U.S. and more than 20 foreign countries. There are approximately 220 foreign students attending Ball State University.

SPECIAL SERVICES FOR INTERNATIONAL STUDENTS

The International House is the center of activity for foreign students and offers host family programs, Christmas Around the World, international dinners, a festival, carnivals, and cross-cultural discussions. The atmosphere at the house is warm and friendly, and it is staffed by experienced and caring persons. The Director of International Student Programs is especially helpful and attentive to student needs.

Samira Harfoush, Ed.D.
Project Director
AMIDEAST/Washington
April 1981

GRADUATE INDEPENDENT STUDY APPLICATION FORM

I. PERSONAL INFORMATION (Please print or type)

- A. Name CHIHANI NADIA Soc. Sec. # 900-00-4820
- B. Mailing Address AMIDEAST 1717 Massachusetts Ave. N.W. Suite 100
(phone: _____)
City: Washington, D.C. State _____ Zip 20036

This is to notify you that you are officially enrolled in Independent Study Course Number 469 - 799 for 2 credits, Semester Summer. Attached is a copy of your stated learning objectives, another copy has been sent to your independent Study Coordinator. Please keep in contact with your study coordinator as he/she will be asked to evaluate you at the end of this semester.

Thank you and good luck!

Philip W. Ruehl, Assistant Dean
School of Industry & Technology

II. BRIEF OUTLINE OF PROPOSED STUDY AND LEARNING OBJECTIVES DESIRED:

The purpose of this section is to cause the students to stop and reflect what they want to achieve from the Independent Study course prior to undertaking it. It should be realized that possibly not all of the objectives stated will be achieved and others not considered may develop. Use separate sheets if necessary.

- A. One short sentence statement of the study. This will be used in developing a course description to be placed on your transcript. (Approximately 10-12 words)

DETERMINE THE ADMINISTRATIVE FUNCTIONS for the "OFFICE LA FORMATION PROFESSIONNELLE ET DE LA PROMOTION DU TRAVAIL" To MINISTER THE NON TRADITIONAL TRAINING PROGRAM FOR WOMEN IN MOROCCO

- B. List the major and minor learning objectives you hope to obtain from this Independent Study. (Be specific as to the skills, knowledge, understandings, attitudes, etc. you hope to develop or improve from the course.)

- DEVELOP A JOB DESCRIPTION OF THE VOCATIONAL SCHOOLS ADMINISTRATIVE
- DEVELOP A LINE STAFF MODEL
- DEVELOP A LIST OF RESEARCHABLE TOPICS.
- LEARN ABOUT THE POSITION OF MANAGING AN INSTITUTION FOR A NON-TRADITIONAL PROGRAM FOR WOMEN

Describe the methods you plan to use to complete the study and achieve the stated learning objectives. How are you going to conduct the study? By observations, books, periodicals, lab research, personal interviews, etc.?

- OBSERVE and WORK IN THE POSITION WE EXPECT TO BE IN
- DISCUSS TOPICS WITH RESPONSIBLES THERE
- REVIEW LITERATURE RELATED TO JOB DESCRIPTION AND LINE STAFF

- D. What are you planning on presenting to your Study Coordinator so that they might best evaluate the learning achieved from this study? (Written report, oral presentation, set of slides, work of art, etc.)

WRITTEN REPORT.

IV. APPLICATION FOR:

- A. Independent Study Course No. 469 - 799 Credit Hours Requested 2
- B. Semester in which: 1. Study will take place S-81
2. You desire to be enrolled S-81
- C. How many other credits are you enrolling in at Stout during period B2 above?
0 On-Campus _____ Extension Credit

V. APPROVAL: Please carefully review Section II and III before approving.

- A. I accept the responsibility for aiding the student to achieve stated learning objectives and evaluating their efforts and results.

Harold Hallin
Signature of Independent Study Coordinator

5/12/81
Date

- B. I confirm that the study relates to our department and is worthy of the credits applied for.

David Gehlbach
Signature of Department Chairperson

5/12/81
Date

- C. The topic learning objectives, methods of approach, and proposed evaluation appear to be appropriate to an Independent Study plan for graduate credit, and I authorize the use of these Independent Study credits in fulfilling requirements of the M. S. Voc S & as elective credit.
(Degree Major) (required, elective, etc.)

Ln
Signature of Director of Graduate Program
(or Graduate "Special Student" advisor)

5/12/81
Date

NOTE: This application, when completed and approved, must be returned immediately to Room 115 Tech Wing, Science and Technology Building, to complete the official registration procedures. Deadline during any enrollment period is midpoint of that period.

GRADUATE INDEPENDENT STUDY APPLICATION FORM

I. PERSONAL INFORMATION (Please print or type)

A. Name MALIKA BENIMMAS Soc. Sec. # 900004817
 B. Mailing Address P.O. Box # 496 235-7885
 City MENOMONIE State WI Zip 54751 (phone)

This is to notify you that you are officially enrolled in Independent Study Course Number 469 - 799 for 2 credits, Semester Summer. Attached is a copy of your stated learning objectives, another copy has been sent to your independent Study Coordinator. Please keep in contact with your study coordinator as he/she will be asked to evaluate you at the end of this semester.

Thank you and good luck!

Philip W. Ruehl, Assistant Dean
School of Industry & Technology

II. BRIEF OUTLINE OF PROPOSED STUDY AND LEARNING OBJECTIVES DESIRED:

The purpose of this section is to cause the students to stop and reflect what they want to achieve from the Independent Study course prior to undertaking it. It should be realized that possibly not all of the objectives stated will be achieved and others not considered may develop. Use separate sheets if necessary.

A. One short sentence statement of the study. This will be used in developing a course description to be placed on your transcript. (Approximately 10-12 words)

DETERMINE FUNCTIONS NECESSARY TO ADMINISTER TRAINING PROGRAM FOR WOMEN IN OFPPT- MOROCCO

B. List the major and minor learning objectives you hope to obtain from this Independent Study. (Be specific as to the skills, knowledge, understandings, attitudes, etc. you hope to develop or improve from the course.)

DEVELOP A JOB DESCRIPTION.
UNDERSTAND AND DISCUSS LINE-STAFF MODEL OF OFPPT.
LIST RESEARCHABLE TOPICS.
DETERMINE THE COURSES APPROPRIATE WITH THE FUTURE POSITION

C. Describe the methods you plan to use to complete the study and achieve the stated learning objectives. How are you going to conduct the study? By observations, books, periodicals, lab research, personal interviews, etc.?

WORK IN THE POSITION.
REVIEW LITERATURE RELATED.
DISCUSS WITH PEOPLE IN OFPPT.

D. What are you planning on presenting to your Study Coordinator so that they might best evaluate the learning achieved from this study? (Written report, oral presentation, set of slides, work of art, etc.)

THE LEARNING FROM THIS STUDY ON OFPPT(OFFICE DE FORMATION PROFESSIONNELLE ET DE LA PROMOTION DU TRAVAIL) WILL BE A WRITTEN REPORT

IV. APPLICATION FOR:

A. Independent Study Course No. 469 - 799 Credit Hours Requested 2

B. Semester in which: 1. Study will take place SUMMER 81

2. You desire to be enrolled SUMMER 81

C. How many other credits are you enrolling in at Stout during period B2 above?

0 On-Campus

0 Extension Credits

V. APPROVAL: Please carefully review Section II and III before approving.

A. I accept the responsibility for aiding the student to achieve stated learning objectives and evaluating their efforts and results.

Harold Halpin

Signature of Independent Study Coordinator

5/18/81
Date

B. I confirm that the study relates to our department and is worthy of the credits applied for.

Richard Dechant

Signature of Department Chairperson

5/18/81
Date

C. The topic learning objectives, methods of approach, and proposed evaluation appear to be appropriate to an Independent Study plan for graduate credit, and I authorize the use of these Independent Study credits in fulfilling requirements of the MS. Ed as elective credit.

(Degree Major)

(required, elective, etc.)

Harold Halpin

Signature of Director of Graduate Program
(or Graduate "Special Student" advisor)

5/18/81
Date

NOTE: This application, when completed and approved, must be returned immediately to Room 115 Tech Wing, Science and Technology Building, to complete the official registration procedures. Deadline during any enrollment period is midpoint of that period.



San Francisco, CA 94117

Educational Psychology/Counseling

School of Education
 Rossi Wing, Lone Mountain
 (415) 666-6868

April 14, 1981

Dr. Samira Harfoush, Project Director
 Moroccan Women's Training Project
 Amideast
 1717 Massachusetts Avenue N.W. Suite 100
 Washington, D.C. 20036

Dear Dr. Harfoush:

I am writing this letter to follow-up on our discussion of the educational program for Ms. Rouhel K. El Hajoui.

During the fall semester of 1980, Ms. Hajoui was enrolled at the World English Center for intensive study of English. She was also enrolled in one three unit graduate course as part of her studies for the master of arts degree in counseling. She received a final grade of B in the course Educational Psychology 143, Introduction to Counseling. At the University of San Francisco the majority of students are expected to receive a grade of B. Under University grading policies a grade of B is described as follows, "The B grade is the conventional passing grade, indicating work that meets the graduate norm. It demonstrates fully acceptable acquisition of basic subject and/or skill mastery".

In this spring semester of 1981, Ms. Hajoui is enrolled for six graduate semester hours of coursework. The courses in progress are Ed Psych 121, Personality Development (three units), and Ed Psych 247, Group Processes (three units). I have reviewed with Ms. Hajoui her progress in these courses and she feels confident she will achieve a B or better in both courses.

I am recommending that Ms. Hajoui enroll for Ed Psych 297, Directed Study for two units during summer session, 1981. I have discussed a study contract with Ms. Hajoui and we are presenting the following for your approval.

Ms. Hajoui will spend approximately sixty hours while in Morocco between June 1 and July 15 preparing a resource and procedure manual for career guidance of Moroccan women. She will spend approximately ten hours per week during these six weeks in compiling the necessary materials and preparing a draft of the manual. A copy of this draft will be mailed to me approximately August 1.

The gathering of resource material will be an important element of Ms. Hajoui's study in Morocco. I am asking her to initiate at this time a listing of major employers of technical, vocational, and clerical workers. I am also asking her to compile a list of educational institutions in Morocco involved in the training of students for careers in technical, vocational, and clerical occupations.

Upon her arrival in Morocco, Ms. Hajoui will arrange for visits to these employers and educators. During her visit she will obtain copies of materials used in the selection and training of employees for the various occupations. Special emphasis will be placed on the current and future opportunities for women to enter fields of work traditionally reserved for men.

These materials will become the basis for the career guidance procedures which will acquaint Moroccan women with expanding employment opportunities and the necessary steps to elect and enter such employment.

For the fall semester, 1981, I am proposing that Ms. Hajoui enroll for the following courses at the University of San Francisco; Communication Arts 746, Dynamics of Speaking for International Students (3 semester hours), Physical Education Activities, hatha yoga (one semester hour), Educational Psychology 645, Techniques of Counseling (3 semester hours), Educational Psychology 661, Life Transitions Counseling (3 semester hours).

I feel that Ms. Hajoui has made sufficient progress in handling graduate work in English that ten units will not be an excessive load. I feel the physical education activities (hatha yoga) are important to increase opportunities for Ms. Hajoui to interact with other University students as well as to provide awareness and experience in formal physical fitness training. The Dynamics of Speaking course will strengthen her proficiency in oral delivery. The two courses in Educational Psychology are important conceptual and skill building areas of her future work in career counseling.

Finally, I have investigated the opportunities for Ms. Hajoui to participate in career counseling conferences and workshops. The letter from Dr. Swan, President of the California Career Guidance Association indicates that the best opportunity for Ms. Hajoui to be involved would be the California Personnel and Guidance Convention at San Diego in February of 1982. The Career Guidance Division will be making a series of presentations during the sessions of the three day convention. I will provide additional information as the topics and content of these sessions are announced later in this year.

I hope this proposal for summer and fall of 1981 meets with your approval. I welcome any suggestions that you may have.

Cordially,


DR. THOMAS MCSWEENEY
ED PSYCH PROGRAM DIRECTOR

TMc/cs
cc: Ms. Rouhel El Hajoui
encl.