

PORTUGAL UNIVERSITY
International Education and Research
International Programs in Agriculture



PORTUGAL UNIVERSITY
INSTITUTES
DEVELOPMENT PROJECT

(Contract AID/NE-C-1701)

REPORT ON
SHORT-TERM STAFF ASSIGNMENT

Submitted by
DH. HASSAN M. BEHERY
School of Textiles
Clemson University
Clemson, South Carolina

May 14-June 30, 1985

PDMM-745

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT

Report on Short-term Staff Assignment

INTRODUCTION

Purdue University's contract with the Agency for International Development (AID), entitled "Portugal University Institutes Development Project," states that Purdue shall provide technical advice and assistance to the Government of Portugal to develop and strengthen three of its university institutes under Prime Contract No. AID/NE-C-1701. One of the three institutes is the Instituto Universitario da Beira Interior (IUBI) at Covilha.

Purdue University is to assist the University Institutes in the achievement of the following objectives:

1. Establish sound teaching programs.
2. Develop analytical capabilities required to assess regional development needs and establish regional development priorities.
3. Determine regional development needs and constraints and set priorities to serve as a base for planning and implementation of applied research programs.
4. Establish an organizational structure, operational mechanism and links required to provide institutional support for regional extension activities.

5. Establish and operate teaching/learning resource centers which will collect, process, and disseminate information.
6. Develop community outreach activities.

The activities specifically required for IUBI included the following:

A. Textile Area

- Textile Technology
- Fiber Physics
- Textile Chemistry

B. Business Administration/Regional Planning Area

- Agribusiness
- General Business
- Regional Planning

C. Teaching/Learning Resource Center

The author has been contracted by Purdue University as a consultant to perform work or services on the terms and conditions outlined in the contract dated March 29, 1985. This report covers the activities rendered as part of the technical assistance in the areas outlined above. The activities comprised of offering a course on fiber physics, three seminars to the industry, and one seminar to the Air Force Academy and Engineers. It also comprised discussions on research projects and programs being undertaken by the faculty of IUBI.

AREA OF CONSULTANCY

The major objective of the consultancy was to serve as a short-term advisor at IUBI and to offer a short course on the latest developments in textile technology for the faculty of IUBI and graduating seniors in the Textile Department. The activity also included helping to organize and participate in one or two seminars for area industries on the latest technology and problems relating to defects in quality of textile products.

OBJECTIVES OF THE CONSULTANCY

The specific objectives of the consultancy were as follows:

1. Course on Fiber Physics

A continuation of the previous series of lectures on the subject of fiber physics was requested to be offered to the faculty and graduating seniors at IUBI.

2. Seminars for the Industry

Three seminars were planned for the area industries on the latest technology and the problems relating to the defects in yarn qualities.

3. Seminar for the Air Force Academy

A special seminar was requested to be presented at the Air Force Academy on the application of geotextile materials in civil engineering constructions.

4. Research

The assignment was also requested to include discussion of research projects and programs being undertaken by IUBI faculty.

DURATION OF THE ASSIGNMENT

The assignment was to be performed during the period of May 14, 1985 through June 30, 1985.

IDENTIFICATION OF PORTUGUESE COUNTERPARTS

Due to the diversity of the activities during this assignment, several of IUBI faculty worked as counterparts in the various areas. The following is a summary of these activities and the counterpart faculty in each.

- Deitori Joao Paulo Domingues aided in coordinating the activities for the course on "Fiber Physics."
- Engineer Mario Figueiredo Nunes was the counterpart in organizing all the seminars and the conference on "Geotextiles." He also worked on the interpretation.
- Professor Manuel Jose dos Santos Silva participated in all activities concerning the discussions on the research projects and programs.

ACCOMPLISHMENTS DURING THE CONSULTANCY PERIOD

1. Course on "Fiber Physics"

A course on "Fiber Physics" was offered to the faculty and graduating seniors. This was a continuation of a previous short course given on the same subject. An outline of the 10 classes is shown in Appendix A of this report. A total of three hours per week was presented. Out-of-class discussions were also carried out ranging on the average of five hours per week.

2. Seminars

Three seminars were presented to the area industries. The topics suggested by the counterpart were the following:

- Quality in Spinning Mills
- Yarn Defects
- Shuttleless Weaving

Copies of the "Seminar Notice" in English and Portuguese are included in this report as Appendix B, as well as a copy of the Portuguese announcement of the seminars which was mailed to the local industries.

The seminars were well attended and a list of the participants is also provided in Appendix B.

3. Seminar for the Air Force

A seminar on the application of Geotextile to the civil engineering constructions was requested to be presented to the Air Force Academy and civil engineers in the Air Force. An abstract of the

seminar is included as Appendix C. The seminar was held on June 18, 1985, at the Academy and was very well received. A letter of appreciation was received from the Commander of the Air Force Academy and is also included in Appendix C.

4. Research

Several meetings were held with Dr. Santos Silva and Engineer Mario Nunes to discuss their activities on the research projects they are undertaking. These covered three research activities:

- a) Application of laser technology in studying the fiber orientation of nonwoven webs.
- b) Shuttleless loom manufacturing project.
- c) Wrap-yarn and hollow-spindle spinning technology.

The discussion on research activities also included the research area suitable for Eng. Mario Nunes to pursue his Ph.D. studies.

Other Activities

1. Participated in interviewing Eng. Jose Frederico Garcia, a prospective candidate, who is a mechanical engineer graduate to be appointed on the faculty of IUBI and participate in the AID/Portugal project as a long-term trainee in pulp and paper engineering. A report was submitted to Reitor Morgado with the recommendations.
2. Took part in the general meeting between the Clemson delegation and counterparts and chaired by Reitor Morgado. The purpose of the meeting was to develop procedures and logistics by which a

- mutual cooperation between IUBI and Clemson University could be continued after the termination of the program, especially in the areas of graduate studies and research activities.
3. Provided the books used in teaching and seminars to IUBI library. Also, several other books were donated. A list of the books received by the IUBI librarian is provided in Appendix D.
 4. A recommendation of study library on cassette tape for pulp and paper engineering was submitted to Reitor Morgado. This study library is prepared by TAPPI (Technical Association of Pulp and Paper Industry) in the USA. Fourteen different topics are prepared for this study library.
 5. Presented a report for a study on the development of post-graduate program at IUBI. The report was presented to Reitor Morgado. Due to the length of the report (20 pages), it is not included in this report. A copy will be provided upon request.

IDENTIFICATION OF PROBLEMS ENCOUNTERED

IUBI had shown a noticeable progress in achieving its mission. The amount of effort put in developing the institute is obvious and effective. The only problems encountered are the lack of the faculty. Reitor Morgado is working diligently to satisfy this need by developing a post-graduate program at IUBI as outlined in the report submitted by the author. The other problems are the equipment and the further physical facilities which will be needed for the growth of the institute.

RECOMMENDATIONS FOR SOLVING PROBLEMS

The author recommends further extension of the program which is understood to be under consideration. Also, further financial support is recommended. This could be obtained through other agencies.

DAILY ITINERARY DURING THE CONSULTANCY

A daily itinerary of activities during this consultancy is provided in Appendix E of this report.

APPENDIX A

Schedule for Fiber Physics Course
22 May - 27 June, 1985



Instituto Universitário da Beira Interior

SCHEDULE
FOR
FIBER PHYSICS COURSE
22 MAY - 27 JUNE, 1985

DATE	TIME	TOPICS	REFERENCE (TEXT. BOOK)
22.MAY.85	16:30-17:30	ELASTIC RECOVERY	CHAPTER 15
23.MAY.85	14:30-16:30	TIME EFFECTS	CHAPTER 16
29.MAY.85	9:30-10:30	EFFECTS OF IRREGULARITY	CHAPTER 14
30.MAY.85	14:30-16:30		
5.JUNE.85	9:30-10:30	SAMPLING	CHAPTER 2
13.JUNE.85	14:30-16:30	FIBER LENGTH AND IT'S TECHNICAL SIGNIFICANCE	CHAPTER 3
19.JUNE.85	9:30-10:30	ELECTRICAL PROPERTIES	CHAPTERS 19,20,21
20.JUNE.85	14:30-16:30		
26.JUNE.85	9:30-10:30	FIBER FRICTION	CHAPTER 24
27.JUNE.85	14:30-16:30		

APPENDIX B

Seminar Notice (English and Portuguese)

Seminar Announcement

List of Seminar Participants

SEMINAR NOTICE

SPEAKER: PROF. DR. HASSAN M. BEHERY
PROFESSOR OF TEXTILES
CLEMSON UNIVERSITY, CLEMSON, S.C.

A series of Seminars is planned to serve as a forum for discussion on the latest technology and the problems relating to defects in quality of Textile Products.

LOCATION: SALA DE REUNIÕES

SUBJECTS:

DATE & TIME

1. QUALITY CONTROL IN SPINNING MILLS

03 JUNE - 18.30H

IDENTIFICATION OF MATERIAL FLOW
ASSESSMENTS OF PRODUCT QUALITY
TESTS AND MEASUREMENTS OF QUALITY
USE & APPLICATION OF Q.C. CHARTS.

2. YARN DEFECTS

14 JUNE - 18.30H

EFFECT OF BLENDS
PROCESSING PARAMETERS
FIBER MACHINE INTERACTION, AND
CAUSES OF DEFECTS.

3. SHUTTLELESS WEAVING

19 JUNE - 18.30H

SURVEY OF SHUTTLELESS WEAVING SYSTEMS
THE CAPABILITIES OF THE DIFFERENT SYSTEMS
HOW TO CHOOSE THE RIGHT WEAVING
PROCESS FOR THE SPECIFIC PRODUCT.

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INSTITUTO UNIVERSITÁRIO DA BEIRA INTERIOR

DEPARTAMENTO
DE
CIÊNCIA E TECNOLOGIA TÊXTEIS

SEMINÁRIO

DIA 3 DE JUNHO DE 1985

AS 17H30

"CONTROLO DE QUALIDADE NAS UNIDADES DE FIAÇÃO"

- IDENTIFICAÇÃO DO FLUXO DE MATERIAL
- CARACTERÍSTICAS DA QUALIDADE DO PRODUTO
- ENSAIOS E MEDIDAS DA QUALIDADE
- USO E APLICAÇÃO DOS MAPAS DE CONTROLO DE QUALIDADE

ORADOR: PROF.DR.HASSAN BEHERY

(UNIVERSIDADE DE CLEMSON-E.U.A.)

NOTAS:

CADA INSCRIÇÃO - 1.000\$00

O SEMINÁRIO REALIZAR-SE-À NA SALA B2/2

COVILHÃ 29/MAIO/1985

INSTITUTO UNIVERSITÁRIO DA BEIRA INTERIOR

DEPARTAMENTO

DE

CIÊNCIA E TECNOLOGIA TÊXTEIS

SEMINÁRIO

DIA 14 DE JUNHO DE 1985

ÀS 17H30

"DEFEITOS DOS FIOS"

- EFEITO DAS MISTURAS
- PARAMETROS DO PROCESSAMENTO
- INTERACÇÃO FIBRAS/MÁQUINAS
- CAUSAS DOS DEFEITOS

ORADOR: PROF.DR.HASSAN BEHERY

(UNIVERSIDADE DE CLEMSON - E.U.A.)

NOTAS:

CADA INSCRIÇÃO: 1.000\$00

O SEMINÁRIO REALIZAR-SE-Á NA SALA B2/2

COVILHÃ, 29/MAIO/1985

INSTITUTO UNIVERSITÁRIO DA BEIRA INTERIOR

DEPARTAMENTO
DE
CIÊNCIA E TECNOLOGIA TÊXTEIS

SEMINÁRIO

DIA - 19 DE JUNHO DE 1985

ÀS - 17H30

"TECELAGEM SEM LANÇADEIRA"

- PANORAMA DOS SISTEMAS DE TECELAGEM SEM LANÇADEIRA
- CAPACIDADES DOS DIFERENTES SISTEMAS
- COMO ESCOLHER O PROCESSO DE TEAR MAIS APROPRIADO
A UM ARTIGO ESPECÍFICO.

ORADOR: PROF.DR.HASSAN BEHERY

(UNIVERSIDADE DE CLEMSON - E.U.A.)

NOTAS:

CADA INSCRIÇÃO - 1.000\$00

O SEMINÁRIO REALIZAR-SE-À NA SALA B2/2

COVILHÃ 29/MAIO/1985

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INSTITUTO UNIVERSITARIO DA BEIRA INTERIOR

DEPARTAMENTO
de
CIENCIA E TECNOLOGIA TEXTÉIS

Uma vez mais no sentido de desenvolver e fortalecer a indispensável cooperação que deve verificar-se entre a Universidade e a Indústria, vai o Departamento de Ciência e Tecnologia Têxteis realizar uma série de 3 Seminários de curta duração, planeados para apresentar e discutir novas tecnologias bem como problemas relacionados com defeitos de qualidade nos artigos têxteis.

Os Seminários serão apresentados pelo Prof. Dr. Hassan Behery, da Universidade de Clemson (EUA), estando prevista tradução simultânea para português.

PROGRAMA:1. Controlo de qualidade em unidades de fiação

Identificação do fluxo de material; características da qualidade dos produtos; testes e medidas da qualidade; uso e aplicação de cartas de controlo de qualidade.

Dia 3/6/85 pelas 17H30

2. Defeitos de fios

Efeito das misturas; parâmetros de processamento; interação fibras-máquinas e causas dos defeitos.

Dia 14/6/85 pelas 17H30

3. Tecelagem sem lançadeira

Panorâmica dos sistemas de tecelagem sem lançadeira; capacidade dos diferentes sistemas; como eleger o sistema de tecelagem correcto, tendo em vista um produto específico.

Dia 19/6/85 pelas 17H30

A quem se destinam ?

A Técnicos intermédios e superiores da Indústria Têxtil, Técnicos de Laboratório; Docentes e Alunos Universitários.

Inscrição:

O valor de cada inscrição é de Esc. 1.000\$00 por participante e por cada Seminário. Para assistir ao(s) Seminário(s), agradecemos o favor de preencher e devolver ao IUBI a ficha de inscrição anexa, acompanhada do valor da inscrição (1 Seminário = 1.000\$00; 2 Seminários = 2.000\$00; 3 Seminários = 3.000\$00).

Caso nessa Empresa/Organismo existam mais pessoas interessadas em assistir agradece-se que façam fotocópia da ficha de inscrição, remetendo uma ficha por participante.

Duração:

Cada Seminário terá, em princípio, um período de exposição de 1 a 1,5 horas, seguindo-se um debate, durante o qual poderão ser colocadas dúvidas e prestados esclarecimentos.

FICHA DE INSCRIÇÃO

NOME : _____

ORGANISMO/EMPRESA : _____

MORADA : _____ TELEFONE : _____

1. Controlo de qualidade nas unidades de fiação (3/6/85)

2. Defeitos de fios (14/6/85)

3. Tecelagem sem lançadeira (19/6/85)

VALE DE CORREIO N.º. _____ CHEQUE N.º. _____ BANCO _____

à ordem de INSTITUTO UNIVERSITÁRIO DA BEIRA INTERIOR - D.C.T.T,

R. Marquês D'Ávila e Bolama

6200 COVILHÃ

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*Instituto Universitário da Beira Interior*LISTA DOS PARTICIPANTES NOS SEMINÁRIOSI CONTROLO DE QUALIDADE EM UNIDADES DE FIAÇÃO - 3/6/85

1. Hassan M. Behery	Univ. Clemson
2. Mário F. Nunes	IUBI
3. Maria José O. Geraldes	"
4. Francisco Franco	"
5. Maria Orvide Pombo	"
6. Manuel Santos Silva	"
7. José António Sario	Soc. T. Antª Roseta, Lda.
8. António Cruz	" " " " "
9. Luis Filipe A. Fazendeiro	JosÉ EstavAs Rápido, Lda.
10. Fernando Neves	" " " "
11. João Pombo Rainha	T. Emidio S. Raposo
12. José Manuel F. Morais	T. Lopes da Costa
13. Luis Gonzaga P. Duarte	" " "
14. Carlos Manuel Mesquita Nunes	C.I.L.
15. António Paulo M. Lopes	J. Batista & Cia., Lda.
16. António Manuel V. Marques	Filubel
17. João Carvalho	IUBI
18. Elísio C. Mota	"
19. Luis Carreiró e Sã	"
20. António José Cardoso	"
21. António Teixeira	"
22. Ana Paula Montezuma	"
23. Carlos Manuel Pedroso	"
24. Ana Paula Aguilár	"
25. José António Fava dos Santos	"
26. Adelina da Purificação Monteiro	"
27. Luis Filipe G. Pereira	"

*Instituto Universitário da Beira Interior*II DEFEITOS DE FIOS - 14/6/85

1. Hassan M. Behery	Univ. Clemson
2. Mário F. Nunes	I.U.B.I.
3. Francisco Franco	"
4. Maria Orvide Pombo	"
5. Maria José Geraldes	"
6. João Paulo Domingues	"
7. Manuel Santos Silva	"
8. José António Sario	S&H. T. Antª Roseta, Lda.
9. António Cruz	" " " "
10. João Pombo Rainha	T. Emidio Raposo
11. José M ^{el}	T. Lopes da Costa
12. Luis Gonzaga Duarte	" " " "
13. Carlos Manuel Mesquita Nunes	C.I.L.
14. Ant. Manuel V. Marques	Filubel
15. Victor Manuel G. Silva	F. M. Alçada, Suc.
16. António M. Lemos Santos	Sotave
17. José Abrantes Serra	"
18. António de Matos	F. Fiacove, Lda.
19. Maria Teresa Loureiro	A. Penteadora
20. Joaquim V. Prata	J. Prata & Filhos, Lda.
21. Humberto M. Morgado	Fisel
22. João Valentim	"
23. Carlos Manuel Amaral	"
24. Júlio J. Serra	"
25. Fernando V. Caetano	"
26. Carlos Silva Rê	"
27. José Fernandes Conde	"
28. José Carlos Henriques	"
29. Vergilio A. V. Melo	"
30. António M. Aguilár	Vilatêxtil
31. Fernando Neves	J. E. Fiadeiro, Lda.
32. Maria Paula Montezuma	I.U.B.I.

*Instituto Universitário da Beira Interior*

33. Adelina da Purificação	I.U.B.I.
34. Luis Filipe G. Pereira	"
35. Carlos Manuel Pedroso	"
36. António José Cardoso	"
37. João Carvalho	"
38. Elísio C. Mota	"
39. António Teixeira	"
40. Joaquim Moura	"

III TECELAGEM SEM LANÇADEIRA - 19/6/85

1. Hassan M. Behery	Univ. Clemson
2. Mário F. Nunes	I.U.B.I.
3. João Paulo Domingues	"
4. Manuel Santos Silva	"
5. Maria José O. Geraldes	"
6. José António Sario	S. T. Ant ^o Roseta, Lda.
7. António Cruz	" " " " "
8. Carlos Manuel M. Nunes	C.I.L.
9. António Manuel M. Santos	Filubel
10. António Paulo M. Lopes	J. Batista & Cia., Lda.
11. Vitor M. G. Silva	F.M. Alçada, Suc.
12. Rui Manuel F. Pereira	C.I.L.
13. Ant ^o Manuel L. Santos	Sodave
14. Vasco Craveiro Castro	"
15. João Prata	A Penteadora
16. Alfredo José Robalo	" "
17. Luis Filipe G. Pereira	I.U.B.I.
18. Adelina P. Monteiro	"
19. Carlos Manuel Pedroso	"
20. António José Cardoso	"
21. Elísio C. Mota	"
22. Ana Paula Aguilár	"
23. Luis Carreirô e Sã	"

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APPENDIX C

Abstract of Seminar Presented at Air Force Academy

Letter of Appreciation from Academy

APPLICATIONS OF GEOTEXTILES
IN ENGINEERING CONSTRUCTION

Seminar to be Presented to
THE AIR FORCE ACADEMY
IN PORTUGAL
18 JUNE, 1965

ABSTRACT

Over the last 15 years, fabrics have been successfully utilized as "Geotextile" material to solve many unusual and complex construction problems. This new development is progressing at a fast rate in Europe and U.S.A. The different areas of applications as constructions tools will be presented. Geotextiles are used in constructions which need separation of materials such as dams, railroad ballast subgrades ; as reinforcements such as used in road constructions, in slope stability, etc.; and also for drainage using fabrics such as pavement underdrain systems, retaining walls, etc. There are several other usages that will be presented in the paper in the areas of erosion prevention, fabrics as porous and impermeable structures. The different types of fabrics and their properties of importance in construction uses will be discussed.

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FORÇA AÉREA PORTUGUESA
ACADEMIA DA FORÇA AÉREA

Excelentíssimo Senhor
Prof. Dr. Hassan Behery

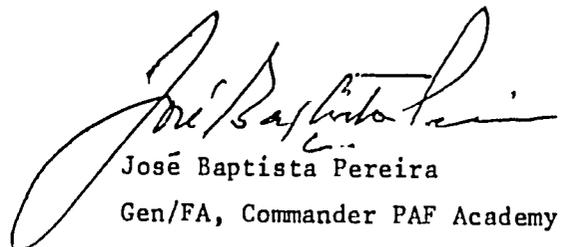
28 June 85

Dear Sir

I would like to extend to you my personal congratulations on the success of the seminar you have given in this Academy on last 18 June 1985.

Once again, thank you for your outstanding lecture. I sincerely hope to meet you in another opportunity.

With best personal regards,



José Baptista Pereira
Gen/FA, Commander PAF Academy

APPENDIX D

Books Supplied to the Library of IUBI



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Instituto Universitário da Beira Interior

MAY 28, 1985

BOOKS
SUPPLIED TO THE LIBRARY
OF IUBI

TITTLE	AUTHOR	NUMBER OF COPIES
1. MANUAL OF NONWOVENS	R.KRĆMA	1
2. CONSTRUCTION AND GEOTECHNICAL ENGINEERING USING SYNTHETIC FABRICS	R.M.KOERNER	1
3. ESSENTIALS OF TEXTILES	M.L.JOSEPH	3
4. STRATEGY FORMULATION & IMPLEMENTATION	A.A.THOMPSON	1
5. MANAGING TECHNOLOGICAL CHANGES	THE TEXTILE INST.	3
6. 1985, NONWOVEN SYMPOSIUM	TAPPI	1
7. DESIGN & USE OF KEVLAR ARAMID FIBER IN COMPOSITE STRUCTURES	P.R.LANGSTON	6
8. TEXTILE FIBERS AND THEIR PROPERTIES	A.A.T.T.	3
9. MAN-MADE FIBER FACT BOOK	M.M.F.PRODUCTERS ASSOCIATION	3
10. THE WORLD CONFERENCE ON WARP SIZING	H.M.BEHERY AND NEIL CAHILL	2
11. DIRECTORY OF AMERICAN WOOL SPINNERS	THE WOOL BUREAU	5

Received

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APPENDIX E

Daily Itinerary During the Consultancy

DAILY ITINERARY DURING THE CONSULTANCY

First Week

Tuesday, May 14 Arrival in Lisbon
Meeting at AID office for briefing.
Meeting with Reitor Morgado at the Ministry of Education to plan travel to Covilha.

Wednesday, May 15 Meeting at the Air Force Academy.
Discussed presentation of a seminar at the Air Force Academy on "Geotextiles" application to engineering constructions.
Returned to Covilha with Reitor Morgado. This provided an opportunity to have the necessary briefings on the different topics concerning the assignment.

Thursday, May 16 Meeting with Dr. Mark McKnew, Deitori J. Lisboa, Deitori A. Frieria Prieria, and Reitor Morgado for courtesy visit.
Meeting with Eng. Mario F. Nunes to discuss proposal for research project for his Ph.D. and arrangements for future plans.
Arranged working space.
Meeting with Deitori Joao Paulo Domingues to discuss the course on "Fiber Physics" with regard to the schedule and the topics to be covered.

Friday, May 17 Drafted a letter to arrange the seminar at the Air Force Academy.
Attended the first seminar presented by Dr. Gaddis.
Attended a reception between the American delegation and Prof. Ario Lobo Azevedo, Reitor of the University of Evora; Prof. Simoes Lopes, Vice-Rector of the University of Tecnica de Lisboa; and Prof. Morgado and several other faculty from IUBI

Saturday, May 18

Sunday, May 19 Weekend

Second Week

- Monday, May 20
- Worked on preparatiior of material of the first seminar so that it could be translated to Portuguese for the hand-out during the seminar.
- Meeting with Dr. Fiadeiro to arrange the activities. An outline is given in the report.
- Meeting with Joao Lisboa to discuss the secretarial help needed for the short-term advisors.
- Meeting with Prof. Joaquim Gacén and Prof. Josefin Millio from Spain and attended the seminars they presented on "Heat Setting of Polyester Yarns," and discussed their research activities in Spain and their program at IUBI.
- Tuesday, May 21
- Attended the seminar given by Professor Gacén.
- Meeting with Dr. Fiadeiro to schedule the dates of the seminars for the industry.
- Several routine office duties (e.g., writing memos, etc.).
- Attended Dr. Gadis' seminar.
- Wednesday, May 22
- Meeting with Joao Paulo Domingues to discuss the schedule of classes for the "Fiber Physics" course. A plan was developed and a copy is included in this report.
- Contacted AID office in Lisbon to inquire about books shipped from the USA.
- Meeting with Maria Helena Daniel (IUBI Librarian) and Joao Paulo Domingues to discuss an ongoing project at IUBI to catalogue all of the books in the library in a computer.
- Thursday, May 23
- Meeting with Reitor Morgado to participate in interviewing a potential appointee to the faculty and possible long-term trainee in pulp and paper engineering.
- Gave two classes on "Fiber Physics" course.
- Discussed with other short-term advisors topics for the seminar at the Air Force Academy.
- Meeting with Reitor Morgado to discuss Deitori Baia activities at Clemson University.
- Friday, May 24
- Worked on preparation of course and seminars for the industry.

Saturday, May 25

Sunday, May 26

Weekend

Third Week

Monday, May 27

Worked on the first seminar on "Quality Control in Textile Mills."

Collected boxes from the train station and distributed the books to the other short-term advisors.

Went to see the house to be ready for Dr. F. Brown, short-term advisor.

Tuesday, May 28

Attended Dr. Gaddis' seminar.

Prepared list of books for the IUBI library.

Worked on the lectures for the course and the seminars.

Wednesday, May 29

Gave the third class on "Fiber Physics."

Office work and preparation of lectures for the course and seminars.

Thursday, May 30

Meeting with Joao Paulo Domingues and discussed progress of the "Fiber Physics" course.

Started writing the draft for the report on the assignment.

Office work and preparation of lectures for the course and seminars.

Friday, May 31

Worked on preparation of transparencies for the first seminar.

Continued working on preparation of the draft for the report on the assignment.

Office work and preparation of lectures for the course and seminars.

Saturday, June 1

Sunday, June 2

Weekend

Fourth Week

Monday, June 3

Meeting with Dr. F. Brown for a briefing before meeting with Reitor Morgado.

Worked on preparation of second seminar on "Yarn Defect."

Meeting with Reitor Morgado at 2:00 p.m. for about one hour to discuss the outline previously prepared for him for the presentation at the meetings of the short-term advisors. The changes needed were discussed and also the preparation of transparencies. Reitor Morgado decided to have another meeting with Joao Lisboa and Alberto Freira Pereira the following morning on June 4, 1985 at 9:00 a.m.

Presented the first seminar between 5:30 8:00 p.m. The participants were from the industry, IUBI faculty and students. The seminar was well attended and the participants requested more time for discussion and comments.

Tuesday, June 4

Meeting with Reitor Morgado, Joao Lisboa, and Alberto F. Pereira from 9:15 a.m. - 12:15 p.m. The meeting concerned the plans for the future relationship with foreign universities, including Clemson University and other universities in the United Kingdom and Europe. The outline for the presentation was finalized and the transparencies were made.

Wednesday, June 5

Meeting with Reitor Morgado, Joao Lisboa, and Alberto F. Pereira at 9:00 a.m. to discuss final points and revise data and figures to be presented to the short-term advisors. This meeting ended at 10:00 a.m.

The meeting with the short-term advisors commenced at 10:00 a.m. A recess for lunch took place at 12:30 p.m. The meeting resumed at 3:00 p.m. until 4:00 p.m. In this meeting, Rector Morgado presented a historic development of IUBI and the future plans within the next three Phases:
Phase 1 for three years (short-term)
Phase 2 for six years (medium-term)
Phase 3 for twenty years (long-term)

Between 2:00 and 3:00 p.m., a meeting was held with Ms. Fernanda Costa Ferreira, who is in charge of the training program at the pulp and paper company Portucel near Covilha. The meeting was to discuss ways and means for cooperative

work between the company and IUBI. A visit was planned for June 24 to meet with the personnel of the company and to discuss a detailed training program.

Gave a class on "Fiber Physics" from 4:00 - 6:00 p.m.

Thursday, June 6

National Holiday

Friday, June 7

Worked on preparation of classes and materials for the seminars.

Saturday, June 8

Weekend

Sunday, June 9

Fifth Week

Monday, June 10

National Holiday

Tuesday, June 11

Meeting with Dr. F. Brown at 9:30 a.m. and discussed points of report and other topics of interest to his assignment.

Meeting with Dr. Santos Silva and Mario Nunes to discuss the research plans for Mario Nunes' Ph.D. degree. Copies of 18 references were given to each on the topic of Laser and Robotic Technology and Application. An outline was drafted and the procedure for application to register for the Ph.D. at IUBI was outlined for Mario Nunes. The co-major advisors for his research work will be Dr. Santos Silva and Dr. Hassan Behery.

Wednesday, June 12

Gave lecture on "Fiber Physics."

Met with Dr. Santos Silva for continuation of previous meeting and discussed the plans for Eng. Mario Nunes' Ph.D.

Met with Dr. Fiadeiro and discussed activity with International Wool Secretariat (IWS) and the Textile Technical Center to be established in Portugal. Also discussed the topics covered in previous meetings with Dr. Santos Silva and Eng. Mario Nunes.

Worked on preparation of seminar (#2) on "Yarn Defects."

Updated the daily activities.

Thursday, June 13 Attended a meeting concerning the establishment of a Textile Technical Center. The meeting lasted from 10:00 a.m. - 3:00 p.m.
Gave a lecture on "Fiber Physics from 3:15 - 5:00 p.m.
Met with Reitor Morgado at 5:15 p.m. to arrange a meeting for the presentation he planned to deliver to the other short-term advisors. Also arranged the plans for the seminar at the Air Force Academy.

Friday, June 14 Prepared handouts and transparencies for second seminar on "Yarn Defects."
Presented "Yarn Defects" seminar from 5:30 - 8:30 p.m.

Saturday, June 15 Weekend

Sunday, June 16 Weekend

Sixth Week

Monday, June 17 Visited De Melo Cutting and Sewing Mill at Santos Tirso (near Porto).

Tuesday, June 18 Travelled to Lisbon at 7:00 a.m. and gave a seminar at the Air Force Academy. Returned to Covilha by 10:30 p.m.

Wednesday, June 19 Gave a lecture on "Fiber Physics."
Meeting with Reitor Morgado to discuss the schedule for his visit to the U.S.
Presented the third seminar on "Shuttleless Weaving."

Thursday, June 20 Meeting with Reitor Morgado
Gave a lecture on "Fiber Physics."
Worked on preparation of report for development of post-graduate program.

Friday, June 21 Worked on the report for development of Post-graduate program.

Saturday, June 22 Weekend

Sunday, June 23 Weekend

Seventh Week

Monday, June 24 Worked on updating daily activity for report on assignment.
Worked on development of post-graduate program.

Tuesday, June 25 Gave a lecture on "Fiber Physics" and worked with students on a final revision lecture for the topics covered.
Continued working on preparation of report for development of post-graduate program.
Prepared questions for the examination for "Fiber Physics" course.

Wednesday, June 26 Final examination of "Fiber Physics" course.
Meeting with Reitor Morgado to present the report on development of post-graduate program. (Dr. F. Brown and Joao Lisboa attended the meeting.)
Attended dinner at Reitor Morgado's home.

Thursday, June 27 Visited the pulp and paper company Portucel to discuss future programs with IUBI. Visit lasted all day.

Friday, June 28 Worked on finalizing the report for development of post-graduate program and presented it to Reitor Morgado.

Saturday, June 29

Sunday, June 30 Weekend. Attended the annual celebration of Air Force Day.

Monday, July 1 Departed Covilha and termination of assignment.