COURSE TITLE: BIOMECHANICS, WORKSHOP MANAGEMENT, CLINICAL SCIENCES, AND CLINICAL PRACTICE

		MARKS	
STUDY HOURS:	**90+180**	**THEORY**	**120**
PAPER :	**01**	**PRACTICAL:**	**30**
Term :	**4th**	**TIME :**	**03HRS**

COURSE CONTENTS — STUDY HOURS (Theory +Practical)

A. Bio-Mechanic — **30+60**

A1. Introduction

A1.1 Terminology
A1.2 Definitions
A1.3 Planes and axes

A2. Unit ii: human locomotion.

A2.1 Definition of commonly used concepts
A2.2 Characteristic of the normal human gait cycle

A3. Design and Production of Lower Limb Orthosis

A3.1 Generalities
A3.2 Location of anatomical and mechanical axes

A4. Classification of Orthotic Devices for the Lower Extremity

A4.1 Fixed position orthosis
A4.2 Corrective orthosis
A4.3 Compensation orthosis
A4.4 Extension orthosis

A5. Orthoses For Pathologies Of Neural Motoric Function Of Lower Extremity

A5.1 Pelvis
A5.2 Knee
A5.3 Foot and ankle
A5.4 Nocturnal positional orthosis

B. Workshop Management — **30+60**

B1. Introductions
B2. Managers' skills
B3. Planning, The 7 D scheme
B4. Stock control
B5. Ordering
B6. Storing
B7. Issuing
B8. Controlling
B9. Finance
B10. Budgeting
B11. Cost calculation

B12. Invoicing, receipting and accounting
B13. Clinic management: appointment systems, record keeping
- B13.1 Property management
- B13.2 Management of conflicts
- B13.3 Continuous Assessment

C Applied Accounting

C1 Control of inventories
C2 Determination of the cost and margin of different services
- C2.1 Legal
- C2.2 Fiscal aspects

C3 Determination of direct and indirect costs
C4 Calculation of depreciations

D. Clinical Sciences **30+60**

D1. Rehabilitation
- D1.1 Concept
- D1.2 Philosophy and definition
- D1.3 Objectives
- D1.4 Stages of the rehabilitation process
- D1.5 Importance of the multidisciplinary teamwork
- D1.6 Role of the orthotic-prosthetic professional
- D1.7 Community Based Rehabilitation Strategies (CBR)

D2. Disability
- D2.1 Concept and definition
- D2.2 Classification
- D1.3 Effective International Norms
- D1.4 Disability rights

D3. Technical Aids For People With Disability
- D3.1 How to choose the appropriate orthotic support
- D3.2 Selection approaches
  - D3.2.1 Environment
  - D3.2.2 Physical activities that the person carries out
- D3.3 Basic knowledge of ergonomics

D4. Orthotic Procedure
- D4.1 Patient examination;
- D4.2 Measurement and casting;
- D4.3 Cast rectification;
- D4.4 Dynamic alignment, fitting and delivery.
- D4.5 The clinic team, functions and members;
- D4.6 Prosthetics and orthotics personnel;
- D4.7 Ethical considerations;
- D4.8 Prosthetics and orthotics care systems

RECOMMENDED BOOKS:

Bio Mechanic:

- Hanger Herbert Blair Lower Limbs Prosthetic New York, 1982, O, 557P
- Michael W.Whittle, Gait Analysis, An introduction, 1993, Bullerworth Heinemann Ltd. X, 230P
- Margareta Nordin, Victor H. frankle, Basic biomechanics of the Muscloskeletal System, Philadelphia and London, Lea and Febiger 1994.
- I.A. Kapandji, The Physiology of Joints, Volume I and II, New York, Churchill Livingston, 242P and 268P
- Advanced Biomechanics Orthotics and Prosthetics

Workshop Management:

- Weihrich H, and Koontz. H., Management, New York, Mc, Graw-Hill Inc, 1993,XXXVI, 744P

COURSE TITLE: APPLIED COMMUNICATION, CLINICAL PLACEMENT AND PROFESSIONAL PRACTICE

		MARKS	
STUDY HOURS:	**90+180**	**THEORY**	**120**
PAPER :	**2**	**PRACTICAL:**	**30**
Term :	**4th**	**TIME :**	**03HRS**

COURSE CONTENTS

STUDY HOURS (Theory +Practical)

A. Communication **60+30**

A1. What is Communication?
A2. Importance of good communication.
A3. Verbal and non – verbal communication.
A4. Barriers to communication.
A5. Aspects of effective communication.
A6. Communication in organisations.
A7. Types of leadership.
A8. Importance of leadership in groups.
A9. Functions of leader.
A10. Qualities of a good leader
A11. Groups and types of groups.
A12. Group dynamics.
A13. Problem solving on groups
A14. Importance and procedures of meetings
A15. Conducting meetings

B. Clinical Placement **30+30**

B1. Rationale:
A key component to producing fully competent graduates is practice in a clinical setting. By placing, students in a functioning clinical service and requiring them to provide real patients with treatment will allow them to fully develop their theoretical and practical skills. They will also become familiar with a clinical setting including referrals, record keeping, appointment systems, liaising with other health professionals, etc.

B2. Aims:
At the end of the placement students will be competent in treating the full range of disabilities requiring P&O devices.
Students will become familiar with the operation of a functioning clinic

B3. Assessment
Each device produced will be assessed by lecturing staff, the average mark from all devices produced will be used to calculate a mark for the clinical placement.

B4. Expected Clinical Placement Production

Device	# required
Foot Orthotic	5
AFO	10
Knee Orthosis	2
KAFO	10
HKAFO	1
Total devices	28

C. Professional Practice II 120

C1. Production of Different Types Of Orthotic Devices

Module 1: Knee Ankle Foot Orthotics
Module 2: Knee Orthotics
Module 3: Hip Knee Ankle Foot Orthotics

C2. Module 4: Knee Ankle Foot Orthotics

C2.1 Introduction to Knee ankle Foot Orthosis
C2.2 Types of Knee joint, indication, contraindication and advantage & disadvantage
C2.3 Conventional KAFO (using ALIMCO components).
C2.4 Plastic KAFO with and without knee joints.
C2.5 Prefabricated KAFO with knee joints (orthotic components)
C2.6 Fabrication a ischial & non ischial weight bearing KAFO
C2.7 Fabrication and assembling of different types of accessories used in KAFO (Back strap, genu-valgum /genu-varum strap and different types of kneecaps).
C2.8 Simple repair and maintenance of the orthosis.

C3. Module 5: Knee Orthotics

C3.1 Knee cage(Polypropylene)
C3.2 Gaiters
C3.3 Mermaid splint (using Al/PVC)
C3.4 Prefabricated(Elastic/Neoprene KO, Elastic Neoprene with side bars and
C3.5 Joints, OAK brace)

C4. Module 6: Hip Knee Ankle Foot Orthotics

C4.1 Conventional HKAFO (using ALIMCO)
C4.2 P.P. HKAFO
C4.3 Types of Hip joint
C4.4 Fabrication of pelvic band, padding patterns and assembling
C4.5 Fixation of hip joint and pelvic band to any kind of KAFO
C4.6 Bilateral HKAFO(Lecture)
C4.7 Demo. of pelvic harness

RECOMMENDED BOOKS:

Prosthetics and Orthotics Practice:

- Douglas G. Smith, John W. Micheal, John H. Bowker - Atlas of Amputations and Limb Deficiencies
- Surgical, Prosthetic and Rehabilitation Principal.
- Bertram Goldberg, John D. Hsu, Atlas of Orthoses and Assistive Devices.
- G. Fitzlaff, S. Heim. Lower Limb prosthetic components, Design, Function and Biomechanical Properties, Dortmund, Verlag Orthopaedic Technik, 2002, 131P
- S. Heim, Practical Manual Part I. II, III, Germany, GTZ, 1983

Prosthetics and Orthotics International, The Journal of the International Society of Prosthetics and Orthotics