タンザニア国
ダル・エス・サラーム大学プロジェクト
アフターケア調査団報告書

平成4年11月

国際協力事業団
医療協力部

タンザニア国
ダル・エス・サラーム大学プロジェクト
アフターケア調査団報告書

平成4年11月

国際協力事業団
医療協力部

序　　文

わが国は、タンザニア共和国に対する医療協力の一環として、同国の要請に基づき、昭和４６年から４７年までダルエスサラーム大学において、電子顕微鏡を用いた病理学及び解剖学の研究能力の向上を目的としてプロジェクト方式技術協力を実施し、その後昭和４８年から４９年まで、フォローアップ協力を行った。

今般、本プロジェクト終了後１８年を経過したため、新たに移転技術の活性化を図り、これまでの協力の成果をより効果的にするため、短期専門家の派遣、機材の供与を内容とするアフターケア協力を行うことが計画された。

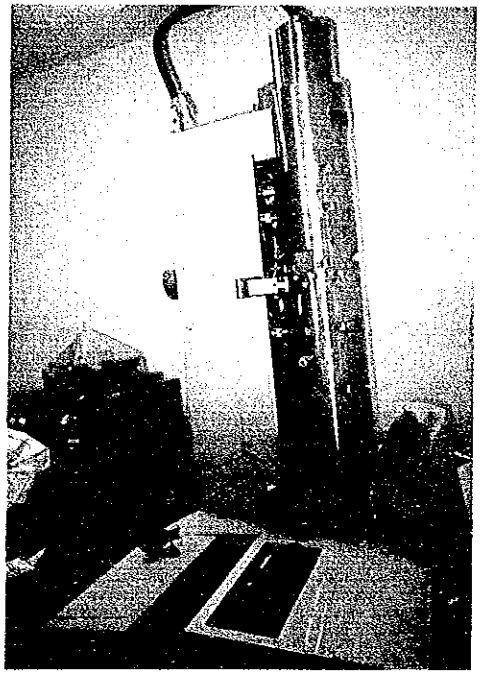
かかる経緯から、わが国は、同大学医学部の関係者との協議を通じ、先方が要望する専門家の派遣分野及び指導内容の詳細と、要望供与機材の内容と使用を確認するため、国際協力事業団を通じ、九州大学医学部の柴田洋三郎氏を団長とするアフターケア調査団を平成４年１０月２０日から同年１０月３０日まで現地に派遣した。本報告書は、右調査団が実施した調査及びその協議内容とその結果につき取りまとめたものである。

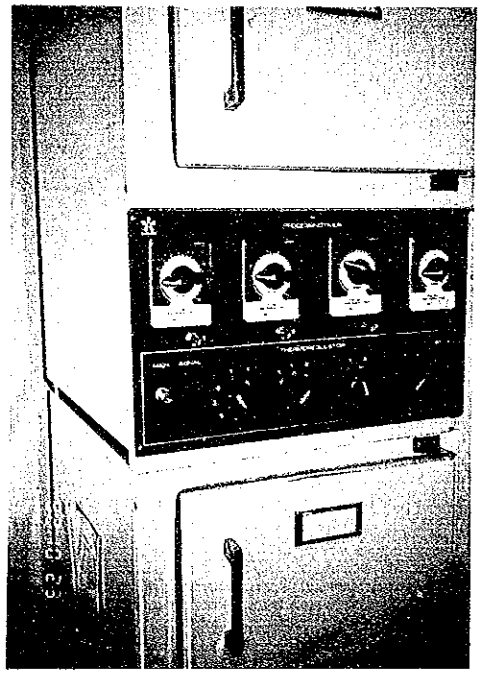
ここに本調査に当たり、ご協力を賜った関係各位に対し、深甚なる謝意を表するとともに、今後とも本件協力事業の成功のため、更なるご支援をお願いする次第である。

平成４年１１月

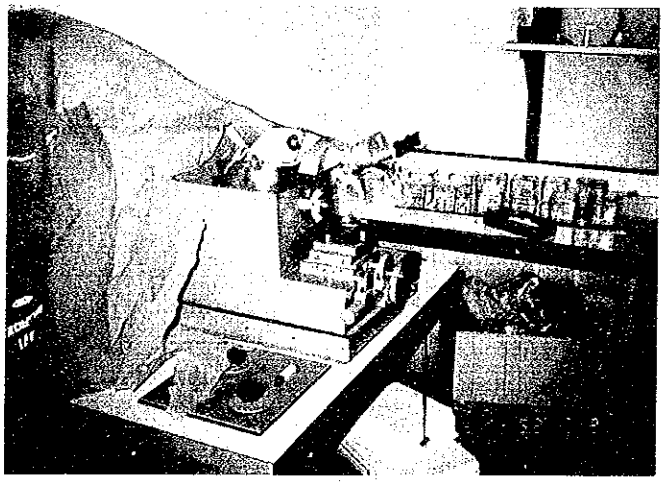
国際協力事業団

医療協力部長　小早川隆敏

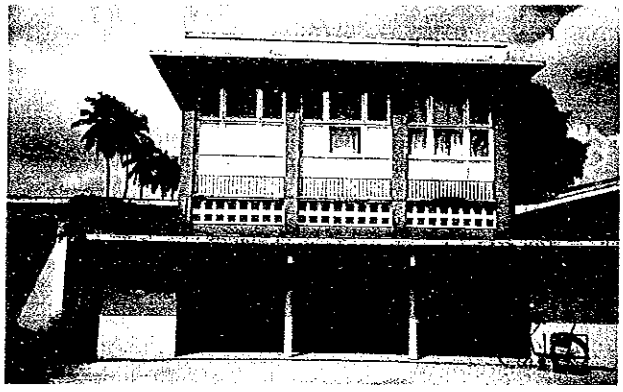




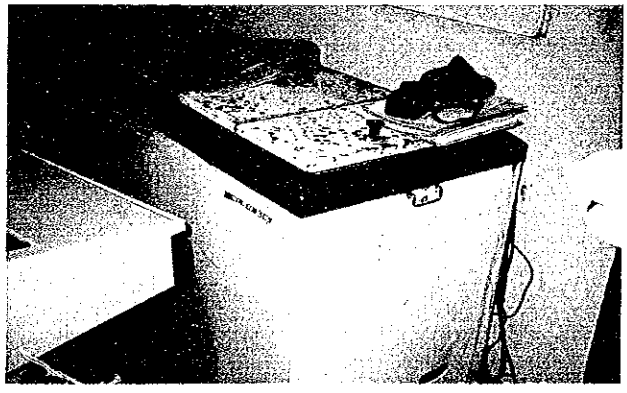
電子顕微鏡



科学技術高等教育省　Dr. Bilal



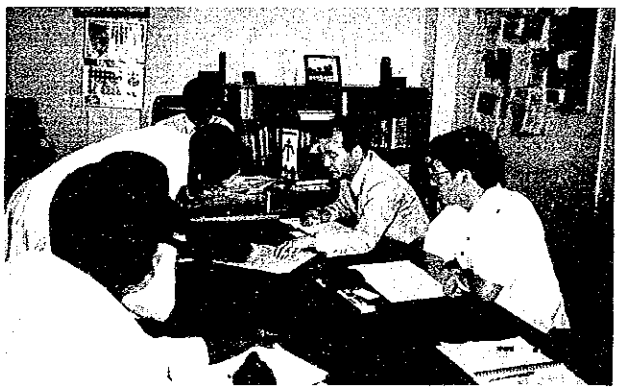
ムヒンビリ　University college
Principal office　正面



解剖学科関係者との協議

ミニッツ署名・交換

ミニッツ署名



ムヒンビリ　Uni. college
Dr. Maselle 及び関係者

目　　次

1．調査団派遣

1－1．調査団派遣の経緯と目的

わが国は、タンザニア共和国に対する医療協力の一環として、昭和４６年から４７年まで、ダル・エス・サラーム大学医学部において、プロジェクト方式技術協力を実施し、その後昭和４８年から４９年まで、フォローアップ協力を行った。本プロジェクトは電子顕微鏡を用いた病理学及び解剖学の研究能力の向上を目的とし、専門家派遣、研修員受入、及び機材供与を実施した。

現在、本プロジェクト終了後約１８年間を経過したところであり、移転技術の再活性化を図るための若干名の短期専門家の派遣、機材の供与などアフターケア協力の実施を行うことはこれまでの協力の成果をより効果的なものとするために極めて有効と考えられる。

このため、今般、同大学医学部のスタッフをはじめとする関係者との協議を通じ、先方が希望する専門家派遣の分野及び指導内容の詳細、また、希望供与機材の内容と仕様の確認を行うため、アフターケア調査団を派遣したものである。

1－2．調査団の構成

氏　名	担当業務	所　属　先
団長　柴田　洋三郎	総　括	九州大学医学部解剖学第二講座教授
団員　守屋　勉	業務調整	国際協力事業団北海道支部

1－3．調査日程

平成４年１０月２０日から平成４年１０月３０日まで（１１日間）

1	１０・２０	火	東京－アムステルダム	移動（ＫＬ８６２）
2	１０・２１	水	アムステルダム	移動（ＫＬ５６３）
3	１０・２２	木	－ダルエスサラーム	移動（ＫＬ５６３） 大使館表敬、ＪＩＣＡ事務所、高等教育省表敬、打ち合せ
4	１０・２３	金		ダルエスサラーム大学ムヒンビリ保健医療カレッジ（ＭＵＣＨＳ）学長表敬　ＭＵＣＨＳ病理学科にて協議
5	１０・２４	土		資料整理
6	１０・２５	日		資料整理
7	１０・２６	月		ＭＵＣＨＳ解剖学科にて協議、

				M／M署名
8	10・27	火		高等教育省、ＪＩＣＡ事務所、大使館報告
9	10・28	水	ダルエスサラーム－	移動（ＢＡ０６８）
10	10・29	木	ロンドン－	移動（ＢＡ００５）
11	10・30	金	東京	移動（ＢＡ００５）

1－4．主要面談者

タンザニア側

1) Dr. S.Y. Maselle	Principal, Muhimbili University College of Health Sciences (MUCHS)
2) Dr. James N. Kitinya	Associate Professor. Dept. of Pathology, MUCHS
3) Dr. E.M. Mgaya	Lecturer, Head of Dept. of Pathology
4) Dr. Robert G. Ngude	Registrar, Dept. of Pathology
5) Dr. H.M. Chande	Resident in Anatomical Pathology, Dept. of Pathology
6) Dr. Praxeda A. Ogweyo	Resident, Dept. of Pathology
7) Dr. Godwin Y. Mniangi	Lecturer in Histopathology, Dept. of Pathology
8) Dr. Henry M. Kibopile	Registrar in Histopathology, Dept. of Pathology
9) Dr. C. Magori	Professor, Head of Dept. of Anatomy & Histology
10) Dr. A.S. Kadvri	Associate Professor, Dept. of Anatomy & Histology
11) Dr. A.O. Gesase	Asst, Lecturer, Dept. of Anatomy & Histology
12) Dr. V.F. Mbonero	Asst. Lecturer, Dept. of Anatomy & Histology
13) Dr. Avelin A.K.L. Maliango	Tutorial Assistant, Dept. of Anatomy & Histology
14) Mr. Charles P. Msuya	Asst, Research Fellow, Dept. of Anatomy & Histology
15) Mr. John Kapela	Embalmer, Dept. of Anatomy & Histololgy

日本側

1) 伊藤　一等書記官	日本大使館
2) 勝見　二等書記官	同上
3) 雲見　所長	ＪＩＣＡタンザニア事務所
4) 勝田　所員	同上

2．要　　約

2－1　ダルエスサラーム大学医学部の現状

ダルエスサラーム大学は、設立時より、この国の高等教育機構そのものであり、タンザニア共和国唯一の大学として、文系・理学部などをもつ本部キャンパスのほか、国立ムヒンビリ病院を母体とする医学部（１９６８年開設）及び約１００㎞離れたMorogoroに所在する農学部などを有していた。しかし、近年その実状にあわせてすでに農学部がソユイネ農業大学として独立し、医学部も４つのFaculty，５つのInstituteをもつＭＵＣＨＳを構成し、近い将来ダルエスサラーム大学から分離独立する予定である。現状の詳細は、大学の発行する公式刊行物を御参照いただきたい。（付属資料９．ムヒンビリ保健医療カレッジ要覧参照）

ムヒンビリ医療センターは、この国唯一全土を管轄する高度医療機関として位置付けられており、１５００床を有する病院看護管理部門とこの国唯一の医療教育研究機関であるＭＵＣＨＳとが併置されている。（附図参照）

ＭＵＣＨＳは現在のマゼレ学長のもと、医学部（５年課程学生数現員２０４名）、歯学部（５年学生数現員３０名）、薬学部（４年　７０名）、看護学部（３年　１７名）の４つの学士課程プログラムと１０の大学院課程を有し、教員は、正教授１１名、準教授２４名、上級講師６０名、講師７３名、助講師４４名、教務員２６名の合計２３８名で構成されている。

国家の緊急要請として、医師絶対数の増加が求められていることから、学生定員の増員が（現在一学年４０名）当面の課題である。しかし、現在の設備、教官数からは大幅の学生増は教育水準の一層の低下をまねくことが危惧されるため、早急に設備の充実をはかることが必要となっている。

2－2　供与器材の現況

約１９年前に我が国の技術協力により、供与された器材は今回の調査によりほぼすべてその所在を確認することができた。

但し、電子顕微鏡本体は配線や配管をすべてとり払われた状態で旧電子顕微鏡室に保管されていた。現在は学生のための展示教育用として使われているとのことであった。これは日本においても同型機種ないし、もっと後発型の電顕が耐用年数を経過して廃棄処理をうけている状況を勘案すれば、最後までよく教育に役立てているという見方もできよう。電子顕微鏡が使用されていないためその運転維持装置類と電顕試料作成専用の一連の研究機材も当然のことながら、稼動状況にはない。真空蒸着器、ウルトラミクローム、給水濾過器、電圧安定装置、ガラスナイフ作製器などがこれに相当する。

しかし、電顕技術のみでなく、他の研究にも転用できる一般的研究機材にはまだ使用されて

いるものも見られた。これらには直視天秤、恒温器３台、冷蔵庫、pHメーター、引き伸ばし写真焼付け装置、ベタ焼き装置、写真水洗器、フィルム乾燥器などである。しかし、光学顕微鏡、蒸留装置、スライド映写機はスペア部分の入手が出来ず使用不能な状況にあった。また、ガラスナイフ用の板ガラス、ゼラチンカプセル、電子顕微鏡用フィルム、などの残りが未使用のまま保管されているのが散見された。

以上の保存状況から判断すると、約２０年前の供与機材はいずれも大切に管理されていたが、本来の使用目的である電子顕微鏡が稼動不能に陥ってからはその多くがほとんど使用されることがないまま保管のみされ続けてきていると推測される。

２－３　各部門の活動状況

1)　病理学教室

タンザニア全国に病理診断を行える施設が４つしかなく、その内２施設は病理医が確保できないため閉鎖されており、のこり１施設も医師が３名しかおらず、本教室でほぼ全土にわたる病理診断を行っており、多忙を極めている。しかしここも総員で医師十数人しかおらず、若い病理医の養成が緊急の課題となっている。

教室内を巡回して気づく点として、技術員が多数いて、熱心に勤務する様子が伺えたが、その使用する器具はまことに貧弱で同情にたえなかった。とくにガラス器具や濾紙など低額だが使用量が多く必須な消耗品類の不足がはなはだしく、繰り返し洗浄し再生して使用している状況である。それら必須の基礎的機材の不足とは対照的に、外国からの援助によるわが国の研究室でも配備されていないような最先端の凍結切片作成装置や、ビデオ顕微鏡、-79度の極低温冷凍庫、マイクロコンピューターなどが整備されていた。年間の教室の予算要求が25,000,000Tsであるのに対して、昨年度の実質配分は4,000,000Tsだったとのことである。このような必要最低限の機材すら十分とは言えない状況で、年間に約1500体の遺体解剖(大部分が警察からの検死解剖で、いわゆる病理解剖は１００体前後）と、2,000件の細胞診、7,000件の病理診断を処理し、さらに学生の教育と大学院生の研修を行っていることから、その質的水準を云々することは酷な状況であろう。

この点は教室の上層部には、よく自覚されており、研究については外国の研究室との共同研究で資料をこちらから持ち込んで、相手の最新機器（たとえば電子顕微鏡)を利用して行えば十分であるという考え方であった。したがって、今回の先方からの供与希望機材がすべて、現地で学生の教育や病理医の養成にすぐに直接に役立つものであることも、このような視点に立った要求だったからであろう。ただし、最近外国の研究室での研修をおえて帰国した中堅・若手の人達は、やはりこの必需品不足による活動水準の低さがこたえるらしく、意見交換の場では繰り返し、今回の技術協力の要望項目である免疫組織化学法の技術の定着と、そのために必要な薬剤（主として特異的免疫標識抗体類）の供与を強く要望し続けた。

その深刻さを目の当たりにし、また実現が可能な金額の範囲であるだけになんとかして先方の要望を実現できる方法はないものかと、おおいに苦慮した。

2) 解剖学教室

本アフターケア調査のもともとのプロジェクトの対象部門であった本教室からは分厚い要望書を提出されて一時は動揺したが、その内情を知るにつれ彼らの要求にも切実なものが含まれていることを確認した。研究用機材は、専用のものは無に等しく、あっても他教室との共用であり、学生教育用の設備も外国からの供与によるものを除き、きわめて貧弱であった。

2－4 アフターケア協力の概要

1) 専門家派遣について

専門家の派遣分野については先方の要望を踏まえ、病理学、解剖学、寄生虫学の3分野、のべ3MM派遣することで合意した。時期については平成5年2月～4月までの間になる予定である。

また、先方の受け入れ体制は、病理学科と解剖学科の2か所となるが、2学科は余り意志疎通が十分でなく、かつ解剖学科の帰国研修員はすでに大学を辞職しているため、帰国研修員のDr. Kitinyaが中核となっている病理学科を受入窓口とする方が、指導業務が円滑に進むと予想されるため、病理学科のDr.Kitinyaを受け入れ責任者とすべきと判断される。

2) 機材供与について

すでに先方から提出されていた機材リストを協議検討した結果、別添2供与機材一覧のとおりの機材に決定した。このうち、大半は病理学科に供与することとなるが、先のプロジェクトで協力相手方であった解剖学科に対しても顕微鏡（TVモニター、ビデオカメラ付き）1台、マイクロコンピューター（プリンター付き）、スライド・プロジェクター1台、顕微鏡用スペアパーツを供与することとした。

3．プロジェクトの当初計画と実績

本プロジェクトは昭和４６年から４７年間で電子顕微鏡の供与と電子顕微鏡操作技術の指導を中心とするプロジェクト方式技術協力を実施し、その後昭和４８年から４９年までフォローアップ協力を行った。（付属資料５・ダル・エス・サラーム大学実施協議議事録参照。）

プロジェクトの実績については下記の実績表、事後現況表、案件別評価情報のとおりである。

専門家派遣　８名

機材供与額　３５，３００千円

国　　名	タ ン ザ ニ ア	プロジェクト名	ダルエスサラーム大学医学部
協 力 期 間	（当初）46～47 （ﾌｫﾛｰｱｯﾌﾟ）48～49	国内協力機関	九州大学
署名年月日	46.12.15	相手国実施機関	
協 力 概 要	タンザニア政府に対する医療協力の一環として、同国の要請にもとづき昭和４６年１月医療協力実施調査団を派遣し、①専門家派遣、②機材供与、③研修員受入れのプロジェクト事業で協力する旨のＲ／Ｄを取り決め、これにもとづきダルエスサラーム大学医学部の解剖学及び組織学の両分野に対し医療協力を実施した。 本プロジェクトは、昭和４９年度にてフォローアップ協力を終了させ、完全終了の予定であったが、以後１年間をフォローアップ調整期間として設定し、昭和５０年度をもって完全終了した。		
終了時評価			

協　　力　　実　　績　　（単位：人又は千円）

年度	調査団				専門家				機材供与		研修員受入
	種別	人数	派遣期間	経費	継続	新規	計	経費	主要機材名	経費	
４５	実施協議	4	46.1.31 ～46.2.19	(3,340)							
４６					-	3			電子顕微鏡	26,002	
４７					1	携 2		4,070	顕微鏡、分離用遠心器	供 381 8,092	
４８	実施協議	(4)	49.1.12 ～ 49.2.1	(4,490)	1	2		3,120		供 575	
４９					-	1		846		供 250	
計											

報告書	事　前	実　施	計画打合	巡回指導	機材修理	ﾌｫﾛｰｱｯﾌﾟ			

TANP71004

国コード　分野コード　プロジェクトNo.

プロジェクト方式技術協力事後現況表

作成 年 月 日
19 91 09 30

156

1. プロジェクト名　和：タンザニア　ダルエスサラーム大学医学部
英：Faculty of Medicine, University of Dar es Salaam

1) 所在地：ダルエスサラーム市

2) 先方関係機関：保健省

3) 我方協力機関：九州大学

2. 1) R/D 等署名日：1971. 2.15　(延長) 19 . .
(F/U) 19 . .

2) 協力期間：1971. 2.15～1974. 3.31
(延長)
(F/U) 1974. 4. 1 ～1976. 3.31

3. 調査団派遣

(報告書登録番号)

1) 実施調査	1971. 1.31～1971. 2.19	
2) 計画打合せ	1974. 1.12～1974. 2. 1	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	
	19 . . ～19 . .	

4. 背景・経緯

タンザニア政府に対する医療協力の一環として、同国の要請にもとづき昭和46年1月医療協力実施調査団を派遣し、R／Dを取り決め協力を開始した。

5. 協力概況

		計画 (IUS=)	終了時実績 (IUS=)	特記事項 (追加予算他)
①事業実績	日本側全経費	百万円	51 百万円	
	相手国側全経費	百万円	一百万円	
	専門家派遣	人 M/M	8 人 一 M/M	
	カウンターパート配置	延べ 人	延べ 一 人	
	来日研修員	人 M/M	一人 一 M/M	
②関連協力事業	開発調査	報告書提出 (19 .)		
	単独機材供与	19 . .	百万円	
	単発専門家派遣	19 . . ～19 . . 人	M/M	
	研修員	19 . . ～19 . . 人	M/M	
	JOCV	19 . . ～19 . . 人	M/M	
	無償資金協力	19 . . . E/N署名	億円	
	有償資金協力	19 . . . L/A締結	億円	
③他の供与国・国際機関による関連協力				

6. プロジェクトの目的及び終了時達成状況

目的	終了時達成状況
日本側供与の電子顕微鏡の利用によって、ダルエスサラーム大学医学部の解剖学および組織学の両分野に対し医療協力を行う。	本プロジェクトに対する協力は、電子顕微鏡の供与、日本人専門家の派遣、研修員の受入れ等により行われ、昭和49年度にてフォローアップ協力により完全終了の予定であったが、以後1カ年のフォローアップ調整期間により完全を期し昭和50年度末に終了した。

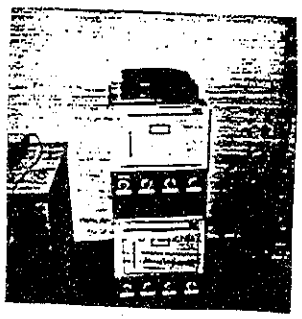
7．プロジェクト現況

	①調査時期：1990. 3.19. JICA ケンニア事務所	② 調査時期：19	③ 調査時期：19	特 記 事 項
組 織	医学部そのものは健在であり、協力時のカウンターパートも退職者1名を除き幹部として活躍している。			事務所所見(1990.3) 「タ」側は新式の顕微鏡供与を望んでいるが、事務所としては、日本人技師の派遣により現在ある顕微鏡の補修可能性をチェックした上で、オペレーターを日本で研修させることを第一に考えている。
施 設	真空ポンプ装置等は古くスペアパーツがないため使用されていない。			
資機材	写真引伸機、冷蔵機、オーブン等は、現在使用されているが、肝心の電子顕微鏡をはじめ真空乾燥機等は故障で使用されていない。			
効 果	カウンターパートを含む3名の医師が電子顕微鏡による研究で学位を取得した。			

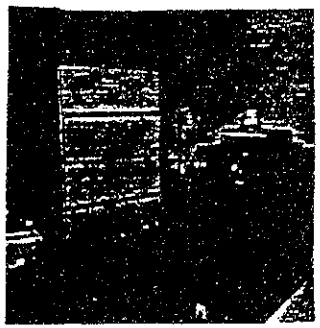
(参考) 関 係 写 真 等

ミクロトーム(REICHERT-JUNG)

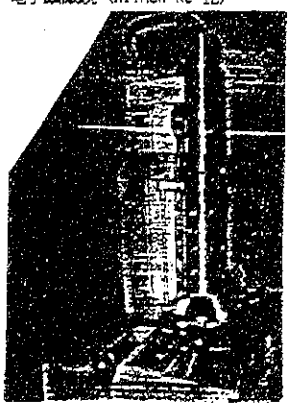
重合用オーブン



ディフュージョンポンプ（制御装置）



電子顕微鏡 (HITACH NU-12)



別紙：他機関による評価結果概要、新聞・雑誌等掲載内容

1. 他機関による評価結果概要

2. 新聞・雑誌記事等

3. その他関連資料

関連写真　5　枚

4. 組織図

有　(無)

案件別 評価情報

1989年度　医療協力部

作成日 1992年 3月18日 Page: 52

対象案件	案件ｺｰﾄﾞ	TANP71004	国名	ﾀﾝｻﾞﾆｱ	分野	保健医療	協力形態	プロ技	協力期間	71.02.15 ～ 76.03.31	
	関係機関	先方 - 保健省								ﾌｫﾛｰｱｯﾌﾟ	有
		我が方 - 九州大学								ｱﾌﾀｰｹｱ	無
	案件名	ダルエスサラーム大学医学部									
	案件概要										
調査団	調査団ｺｰﾄﾞ	2089TANP71004	評価調査種別	事後現況			調査者	事務所			
	報告書名										

評価ｺｰﾄﾞ	効果・問題点		段階	評価内容	詳細内容	報告書記述
120401	効果発現	相手側	実施	組織・体制の整備強化が実現（組）		医学部そのものは健在である。
120403	効果発現	相手側	実施	増員・人材の定着（組）		協力時のC／P も1名を除き幹部として活躍している。
220405	問題点	相手側	実施	技術力・保守能力の不足（機）		電子顕微鏡は故障で使用されていない。
220406	問題点	相手側	実施	スペアパーツ・消耗品の補給システムが確立していない（機）		真空ポンプ等は部品がなく使用されていない。

4．調査結果

① １０／２２（木）ＰＭ２：００～ＰＭ３：００　日本大使館表敬：

（伊藤一等書記官
勝見二　〃）

「タ」国に於ける日本の経済援助の大きな柱は「経済インフラの整備」及び「農業分野」で前者は現在ダルエスサラーム市内の幹線道路の整備を実施しており後者はキリマンジャロ山腹で実施している米作灌漑プロジェクトが本年度で終了予定である。

小規模なプロジェクトとしては「タ」国の現況に鑑み、Basic Human Needs（ＢＨＮ）に係わるプロジェクトを実施又は計画中であり、一例としてはマラリア撲滅計画が第四期に入っており、又野生生物の保護を中心とした環境分野プロジェクトの実施を計画中である。大使館としては「タ」国に於けるＮＧＯ活動の支援を中心とした小規模無償スキームを利用して新たなＢＨＮプロジェクトを捜している。

ムヒンビリ　メディカルセンターについては４億～５億円程度の機材無償供与を検討中であるが、ハード面（建物）の協力ではなく、既存の病院に対するソフト面（人的）でのサポート、例えば風土病（マラリア、エイズ、肝炎）や Primary Healthcare を専門とする日本人医師の派遣が可能であれば同センター内でプロジェクトとして展開を考えてゆきたい。

② １０／２２（木）ＰＭ３：００～ＰＭ４：００　科学技術高等教育省表敬：

（次官．Dr. Mohammed G Birai）

今回の調査につき大変感謝している。１８年前に供与していただいた電子顕微鏡（Eiectron　Microscope）は病理学科に於ける分析力が弱いこと、スペアーパーツの入手が困難であること、保守技術レベルが低いこと、及び技術者が不足している等の理由から充分使われていない状況にあるのは残念である。

高等教育省としてもムヒンビリ保健医療カレッジと協力し、神経組織面の研究を実施しているが、機材操作、保守に関する技術が充分でない点に問題があるので今回供与していただく機材については日本での技術訓練を考えていただければありがたい。

③ １０／２２（木）ＰＭ４：００～ＰＭ５：００　ＪＩＣＡタンザニア事務所にて協議

（雲見所長、勝田所員）

ダルエスサラーム大学ムヒンビリ保健医療カレッジは近隣諸国の中ではレベルは高いほうではあるが、機材、薬品、消耗品が慢性的に不足しているので、今回の調査で現状をみてもらい予算に余裕があれば消耗品等の供与も考えてもらいたい。

④ １０／２３（金）ＡＭ９：００～ＡＭ９：３０　ムヒンビリUniversity College

校長表敬（Dr. S. Y. Maselle）

１８年前に供与された電子顕微鏡は、７９年まで本校にて稼働していた。本校は１年前に若干の組織変更を行い、現在４学部(Medicine, Pharmaceutical Science, Nursing, Dentist)５研究所(Developmental Studies, PHC and Continuing Education, Public Health, Alliedlth Health Sciences, Traditional Medicine)から成っており、(別添組織図参照)３、４年後には Bachelar Programme を設置し、総合大学化を計画している。又、本校では欧米大学との研究協力がさかんに行われており、ノルウェー、スウェーデン、オランダ、アメリカ、カナダにスタッフを研修に送り込んでいる。日本との関係は九大、長崎大、広島大と個々のつながりはあるが、Formal Channel には至っていないので、今後調査研究分野で息の長い協力を希望する。

⑤ １０／２３（金）ＡＭ９：３０～ＡＭ１２：００ 病理学科調査・協議：

ⅰ）供与機材の状況：

７１年に供与した電子顕微鏡は７９年までは稼働していたがその後故障した由、同顕微鏡の耐用年数は１０年程度であること又「タ」国でのスペアパーツ調達等保守技術レベル（保守部門ありスタッフ６名ドイツＧＴＺの援助を受けドイツ系機材の修理を実施）を勘案すれば充分利用してきたと言える。又、電顕に付随するその他の供与機材についても Questionnaire Item 2 にあるように現在稼働している品目もあるがほとんどは耐用年数を超えたり、修理不能となっているが、備えにこれは本体の電顕が耐用年数を超えたためと考えられる。なお電顕の処理について同科としては機能しなくなったといえども学生の実習に役立てたく今後も処分せずしばらくは利用してゆく意向である。

ⅱ）ムヒンビリ メディカルセンターの予算：

「タ」国の会計年度は毎年７月から始まり６月に終了する。９２年度承認された同センターの予算は約7,805 billion T. shilling でこの内同カレッジ教育費に約25％の1. 95billon T. S.が当てられ（人件費を除く）、残り７５％が病院運営及びカレッジも含めたスタッフの人件費に当てられている。

ⅲ）スタッフ及び学生数：

○アカデミックスタッフ数： （詳細は別添大学要覧参照）

Full Professor	１１
Associate Pr ofessor	２４
Senior Lecturer	６０
Lecturer	７６
Assistant Lecturer	４４
Tutorial Assistant	２６
計	（２４１）

○学生数

（Under graduate　学部学生）

	Medicine	Dentistry	Pharmacy	Nursing
1	５３	１０	２３	7
2	４１	7	１８	3
3	４６	6	１７	7
4	２７	2	１２	
5	４０	5		
計	２０７	３０	７０	１７

（Post graduate 大学院生）

Haematology
Blood
Transtueam

	Medicine	Surgery	Psychiatry	Obstetrics Gyraecology	Pathology	
1	0	2	0	0	1	0
2	5	5	2	2	0	0
3	4	4	1	1	1	1
計	9	１１	3	3	2	1

⑥　１０／２３（金）ＰＭ２：００～ＰＭ４：００　解剖学科調査・協議

１０／２６（月）の午前中に予定されていた解剖学科との協議が急遽くり上がり１０／２３の午後となった。日本出発時には解剖学科との話し合いが計画になかったため、どのような要望が出されるか多少戸惑いがあったが、Assistant Professor C. Magoriより同学科の活動状況等の説明を受け別添プロポーザル参照、現在同学科では顕微鏡がないため他学部（Department of Physiology）より借りている状況を知り、又１８年前のプロジェクトの実施学科であった経緯などを聞き、同学科に対し若干の機材（顕微鏡、ＴＶモニター、ビデオカメラ付１台、マイクロコンピュータープリンター付１台、スライドプロジェクター１台、顕微鏡用スペアーパーツ）を供与することとした。

⑦　１０／２６（月）ＰＭ３：３０　ミニッツ署名

（柴田団長＆Dr. S. Y. Maselle）

ミニッツ署名にあたり短期専門家の技術分野を病理学と解剖学の２分野に整理し、派遣期間も最大で３Ｈ／Ｍである旨先方に説明、了承を得た。供与機材品目リスト及び仕様等は別添一覧表のとおり。

⑧　１０／２６（月）ＰＭ４：３０～　ＪＩＣＡタンザニア事務所報告

（雲見所長、勝田所員）

ＪＩＣＡ事務所に対しては特に現地調達機材の中で仕様及び値段が不明なものがあるので、帰国後のフォローをお願いした。

⑨　１０／２７（火）ＡＭ９：００～　科学技術高等教育省及び

大使館報告

高等教育省には特に正式要請書（Ａ１及びＡ４フォーム）の遅滞なき提出をお願いした。

付属資料１　協議議事録（M／M）

THE MINUTES OF DISCUSSION BETWEEN THE JAPANESE AFTERCARE SURVEY TEAM AND THE AUTHORITIES CONCERNED OF THE UNITED REPUBLIC OF TANZANIA ON THE AFTERCARE PROJECT FOR MUHIMBILI UNIVERSITY COLLEGE OF HEALTH SCIENCES OF THE UNIVERSITYOF DAR ES SALAAM

The Japanese Aftercare Survey Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Dr. Yosaburo Shibata, Professor, Faculty of Medicine, Kyushu University, visited the United Republic of Tanzania from October 22, 1992 to October 28, 1992 for the purpose of working out the details of the Aftercare Project for the Muhimbili University College of Health Sciences of the University of Dar es Salaam (hereinafter referred to as "the Project").

During its stay in the United Republic of Tanzania, the Team exchanged views and had a series of discussions with the Tanzania authorities concerned in respect of the desirable measures to be taken by both governments for the successful implementation of the Project.

As a result of the discussions, both parties agreed to recommend to their respective governments the matters referred to in the documents attached hereto.

Dar es Salaam, October 26, 1992.

Prof. Dr. Yosaburo Shibata
Leader
Aftercare Survey Team
Japan International Cooperation
Agency
JAPAN

Prof. Dr. S.Y. Maselle
Principal,
Muhimbili University
College of Health Sciences
Dar es Salaam,
TANZANIA.

ATTACHED DOCUMENT

I. COOPERATION BETWEEN BOTH GOVERNMENTS

1. The Government of Japan and the Government of the United Republic of Tanzania will cooperate with each other in implementing the Aftercare Project for the Muhimbili University College of Health Sciences of the University of Dar es Salaam (Project), and thus contributing to strengthenig the activities of the Departments of Pathology and Anatomy of the Muhimbili University College of Health Sciences of the University of Dar es Salaam,Tanzania.

2. The Project will be implemented in accordance with the Tentative Schedule of Implementation which is given in Annex I.

II. DISPATCH OF JAPANESE EXPERTS

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense services of the Japanese experts as listed in Annex II through the normal procedures under the technical cooperation scheme of the government of Japan.

2. The Japanese experts referred to in 1 above will be granted in the United Republic of Tanzania the privileges, exemptions and benefits no less favorable than those accorded to experts of third countries or of other international missions working in the United Republic of Tanzania.

III. PROVISION OF MACHINERY AND EQUIPMENT

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense such as machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project listed in Annex III through the normal procedures under the technical cooperation scheme of the Government of Japan.

2.The Equipment will become the property of the Government of the United Republic of Tanzania upon being delivered C.I.F. to the Tanzania authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for the implementation of the programme in consultation with the Japanese experts referred to in Annex II.

IV.MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE UNITED REPUBLIC OF TANZANIA.

1. The Government of the United Republic of Tanzania should make necessary arrangement for requesting the dispatch of Japanese experts and the provision of the Equipment as mentioned in II. III above by submiting the application forms (Form A-I and form A-4) as soon as possible through the proper channel.

2. In accordance with the laws and regulations in force in the United Republic of Tanzania, the Government of the United Republic of Tanzania should take necessary measures to provide at its own expense supply or replacement of the machinery, equipment, instrument, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than those provided through JICA under III above.

3.In accordance with the laws and regulations in force in the United Republic Tanzania, the Government of the United Republic of Tanzania should take necessary measures for tax exemption, custom clearance, and internal transportation of the Equipment as mentioned III above as soon as it arrives at the ports of disembarkation.

4.In accordance with the laws and regulations in force in the United Republic of Tanzania,the government of the United Republic of Tanzania should take necessary measures to meet all running expenses necessary for the implementation of the Project.

5.The Government of the United Republic of Tanzania, should allocate the necessary number of suitably qualified personnel corresponding to each Japanese expert to be dispatched by the Government of Japan as specified in Annex II for the effective and successful transfer of technology under the Project.

6.The Government of the United Republic of Tanzania, should make any other necessary arrangement to contribute positively to the convenience of the successful implementation of the Project.

V.CLAIMS AGAINST JAPANESE EXPERTS

The Government of the United Republic of Tanzania, undertakes to bear claims, if any arises, against the Japanese experts engaged in the project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the United Republic of Tanzania except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VI. TERM OF COOPERATION

The technical cooperation programme mentioned in this Attached Document will be implemented before the end of April 1993 (within Japanese fiscal year 1992).

ANNEX I: TENTATIVE SCHEDULE OF IMPLEMENTATION

YEAR	1992										1993		
MONTH	3	4	5	6	7	8	9	10	11	12	1	2	3
DISPATCH OF THE SURVEY TEAM								><					
DISPATCH OF JAPANESE EXPERTS													><
PROVISION OF EQUIPMENT												><	><

JAPANESE EXPERTS: One to three personnel in the field of Anatomy and/or Pathology will be dispatched.

Dispatch of experts on supplemental technical guidance will be subject to the condition of budget and possibility of the recruitment of the experts.

ANNEX II JAPANESE EXPERTS

In order to implement the programme, the following Japanese experts will be dispatched to render such technical guidance as follows.

1. Short-term experts (one to three months) in the field of:

(1.) Anatomy

(2.) Pathology

2. Scope of technical guidance:

(1.) Anatomy

To train Tanzania counterpart personnel and transfer necessary technology on the above field for supplementing the technology during the term of cooperation of the University of Dar es Salaam Project.

(2.) Pathology

To train Tanzanian counterpart personnel and transfer necessary technology in immunohistochemistry using PAP and ABC methods for diagnosis of infectious, parasitic and commom neoplastic diseases in Tanzania, during the term of cooperation of the University of Dar es Salaam Project.

ANNEX III PROVISION OF EQUIPMENT.

Equipment that will be requested by the United Republic of Tanzania to be provided by the Government of Japan through JICA will be as follows;

Item 1. a) Olympus binocular microscopes BH2 series, with accessories 11 units

b) One video camera with TV monitor and photomicrographic attachment. 1 unit

d) BH2-KP Polarising attachment 1 unit.

Item 2. BH2 Olympus microscope with BH2-MDO multiviewing attachment. 1 unit

Item 3: Tissue Processor with vacuum impregnation: 1 unit

Item 4: Rotary Microtomes: 3 units

Item 5: Tissue Embedding Centre 1 unit

Item 6: Room Air condtioners 6 units

Item 7: Floatation out Baths for use with mircotomes 3 units

Item 8: Autopsy set instruments

a) Katoman dissecting instruments 3 units

b) Electric circular skull saws 3 units

Item 9 : Hot Plates to be used with microtomes 3 units

Item 10: Photocopier 1 unit

Item 11: Oven for incubation of specimens 1 unit

Item 12: Slide Projector 1 unit

Item 13 Micro computor with Printer 1 unit

Item 14: Electric Stabilisers 5 units

Item 15: Other necessary spare parts for maintaining the equipment

付属資料２．供与機材一覧

◎タンザニア国ダルエスサラーム大学ムヒンビリ保健医療カレッジ供与機材一覧

番号	機　材　名	仕　様	メーカー名	数量	備　考
1	双眼顕微鏡＋付属品 (Binocular Microscope) 簡易偏光装置 (Polarising Attachment) ビデオカメラ ＴＶモニター	BHT-111 BH2-KP PM10ADS-1 OV100-1	オリンパス 〃 〃 〃	１１ 1 1 1	
2	ディスカッション顕微鏡 ＋付属品、消耗品 (Trinocular Microscope)	BHS-MDO-1	〃	1	
③	真空自動固定包理装置 (Tissue Processer with Vacuum impregration)	VIP 1000 Bench Model 220-240V/50-60Hz	Ames	1	現地調達 (現地購入先) International Service GmbH Tonzania P.O.BOx2214(Mameni St Uparga)Dares Saloam Telfax 51-46438
④	回転式ミクロトーム (Rotary Microtomes)	Accu-cut Rotary Microtomes	Ames	3	
⑤	ティシュエンベディング コントル(Tissue Embedding Centre)	System 4588 220 VAC	Ames	1	現地調達
⑥	ルームエアコンディショナー Room Air Conditioner	1.5hp　3台 2.0hp　3台	National	6	現地調達 別添配置図参照 カタログなし
7	パラフィン伸展器(湯溶式 (Floatation out Baths)	PS-M	サクラ精機	3	
8	病理解剖セット (Autopsy Instrument sets) 電動式・骨手術器 (Electric circulor skull saw)	ｶﾄﾏﾝKDI-II M-200	村中医療機 〃	3 3	
9	パラフィン伸展器 (Hot Plate)	PS-52C	サクラ精機	3	
10	コピーマシン (Photo Copier)	Canon NP 1215 Desk Top 220/240V 50/60HZ	キャノン	1	現地調達 ※購入先 COMTECH INTERNATIONAL LTD. P.O.Box 6648 Tel37340
１１	孵　卵　器 (Oven for Incubation of Specimens)	IF-151	サクラ精機	1	
⑫	スライドプロジェクター	KINDERMANN tele focus 66	KINDERMANN	1	現地調達 ※購入先 Achslis Tanzanyika LTD. P.O.Box 9003 PuguRoad Dares Salaam Tel64516

番号	機　　材　　名	仕　　様	メーカー名	数量	備　　考
⑬	マイクロコンピューター プリンター付 (Micro computer with Printer)	Entry-Level work station M300-25 DM324SL printer	オリベッティー 〃	1 1	現地調達 ※購入先 DATE MACHINES Ltd. P.O.Box 5449 Dores Salaam Tel 051-64263
⑭	電圧安定装置 (Electric Stabilizer)			3	現地調達： 仕様、価格不明 当初item1、3、5、10、13に必要と考えていたが、3と5については内蔵されているとわかり、数量は「3」となった。
15	その他必要なスペアパーツ等：				antibody（抗体液）及び顕微鏡用スペアーパーツ（別添希望リスト参照）

付属資料３．クエスチョネア及びタンザニア側回答

QUESTIONNAIRE FOR THE AFTERCARE PROGRAMME
FOR MUHIMBILI UNIVERSITY COLLEGE OF HEALTH SCIENCES
OF THE UNIVERSITY OF DAR ES SALAAM
IN THE UNITED REPUBLIC OF TANZANIA

October, 1992

To :the authorities concerned of the Government of the United Republic of Tanzania
From:Japan International Cooperation Agency (JICA)

Ⅰ. Concept of the Aftercare Programme

The Aftercare Programme is one of the Technical Cooperation Programmes implemented by the Japan International Cooperation Agency (hereinafter referred to as "JICA") in order to promote the effective values of the projects which have been already finished, by extending supplementary technical cooperation within the following scope;

1. Supplementary technical cooperation within the scope of the Record of Discussions (hereinafter referred to as "R/D")

(1)by dispatching short-term (approximately one month) experts
(2)by providing necessary machinery and equipment

Note: Training of counterpart personnel in Japan is not included within the scope of the Aftercare Programme.

II . Implementation of the Aftercare Programme for Muhimbili Univeristy College of Health Sciences of the University of Dar es Salaam in the United Republic of Tanzania.

JICA plans to implement the Aftercare Programme for Muhimbili University College of Health Sciences of the University of Dar es Salaam (hereinafter referred to as University) in the United Republic of Tanzania in the Japanese fiscal year 1992 and to send an Aftercare Survey Team on October 1992.

The purpose of the Team is to survey the present situation of the University and to work out the details of the Aftercare Programme through a series of discussions with the authorities concerned of the Government of Tanzania.

In order to make the activities of the Survey Team as effective as possible, JICA needs to get relevant data and detailed information on the present situation of the University by asking some questions mentioned below. It would be highly appreciated if the authorities concerned of the Government of Tanzania prepare relevant information in advance.

III . Questions for the Implementation of the Aftercare

1. Request for the supplementary technical cooperation

(1) Themes within the scope of R/D which need supplementary technical cooperation by the Japanese short-term experts and the detail contents of the duty for the experts

(2) Present situation of equipment which were donated at the former Project.

*Please indicate if there is unused equipment because of break-down or other reasons, and describe its present situation.

(3) Name of the machinery and equipment need to be provided in order to transfer the technology on those themes;

*Please describe whether the machinery and equipment can be purchased in Tanzania or not

*Please describe whether the spare parts for those equipment can be purchased in Tanzania. If not, please describe where and how do you procure them.

(4) Plan for assignment of Tanzanian counterpart personnel for the Aftercare Programme;

*Please mention the number, name, age of the counterpart personnel, their present position and their qualifications

3. Organization in charge of implementation of the Aftercare Programme

(1) Present organization chart, function and staff assignment of the University.

(2) Present activities of University.

(3) Relations with other governmental organizations, which will support the Aftercare Programme

4. Other related items

(1) Budgetary condition of University and perspective of its defrayal of local cost expenses for the implementation of the Aftercare Programme.

e.g. *expenses for the internal transportation of the machinery and equipment to be provided by Japan

*expenses for the supply of machinery, the equipment and other materials necessary for the Aftercare Programme other than those provided by Japan

*all the other running expenses for the Aftercare Programme

(2) Present positions and activities of the former counterpart personnel of the Project

RESPONSES TO QUESTIONNAIRE FOR JICA AFTERCARE PROGRAMME FOR MUHIMBILI UNIVERSITY COLLEGE OF HEALTH SCIENCES, UNIVERSITY OF DAR ES SALAAM.

Themes for Record of Discussion that need supplementary technical cooperation, by Japanese short term experts.

1. The Department of Pathology has three main functions - Service to patients, teaching and research as earlier detailed in our project proposal. It is in the area of research strengthening that supplementary technical cooperation by Japanese short term experts is being requested for. This is aimed at enabling the department to train effectively more pathologists up to the Masters level.

   The main emphasis of the research strengthening and collaboration is in the use of immunohistochemistry in the diagnosis of infectious and neoplastic diseases.

2. Present situation of equipment which were donated at the former project: Below is a list of that equipment and its status at the moment:

DESCRIPTION	QUANTITY	STATUS
1. Electron Microscope component parts.	1 set	broken, obsolete and beyond repair
2. Vacuum evaporator	1	
3. ultramicrotome with accessories		needs repairs in order to function
accessories		
4 Filter for water supply be repaired	1	damaged, may probably
5. Automatic voltage stabiliser	1	
6. Direct reading balance	1	
7. Others		
8. Equipment for Dark room:		
Photoenlarger	1	Working
Autograzing machine	1	not working
Slide projector	1	beyond repair
Autoprint washer	1	not working
Auto film washer	1	not working

3. A list of equipment that is currently needed with details of type, supplier and maintenance capability are enclosed separately.

4. A list of Tanzanian Counterpart Personnel for the Aftercare Programme in Pathology is shown below:

1. J. K.Shaba	57	MBChB, PhD, MRC Path	Professor.
1. J.N. Kitinya	48	MBChB,M.Med, D. Med Sci.	Asso. Professor
3. E. M. Mgaya	46	MD ,M.Med, MSci.	Lecturer
4. E.E. Kaaya	38	MD, MSci	Lecturer
5. G. Y Mntangi	46	MD,DCP, M: Phil	Lecturer
6. H. Mwakyoma	40	MD, MSci	Lecturer
7. M.P. Mbonde	42	MD, Specialist Path.	Lecturer
8. H. Chande	40	MD	Resident
9. H. Kibopile	40	MD	Registrar
10. R. G. Ngude	32	MD	Registrar
11. Ogweyo		MD	Resident

3. Organisation in charge of implementation of the Aftercare Programme:
i) Organisation Chart:

Universityof Dar es Salaam -	Vice Chancellar
College of Health Sciences Medical Centre	Principal + Director General
Faculty of Medicine	Dean
Department of Histopathology	Head and other staff as shown above

ii) Present activities of University (College) include:

Teaching at undergraduate and postgraduate level
Research into Health problems in Tanzania.
Curative services to patients as the College is situated in the National Referral Hospital.

iii) Other Governmental Organisations which will support the Aftercame Programe

Ministry of Health
Ministryof Science, Technology and Higher Education.

4. Other related items

i) The college and Medical Centre will meet local costs for implementation of the aftercame project such as
-Port charges
-transportation
-installation
-Running and maintenance costs
-supply of other equipment not supplied by Japan as the need arises.

ii) Present position and activities of former counterpart personnel of the Project is shown below.

Present Positions of Former Counterpart Personnel of Project.

Name		Present Address
1. J.Karashani	Professor	University of Zambia
2. J.N.Kitinya	Associate Professor	Muhimbili University College
3. M. Mvungi	Technician	Botswana
4. Marijani	Technician	Muhimbili University College
5. F. Hafidh	Technician	Nairobi.

MUHIMBILI UNIVERSITY COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF HISTOPATHOLOGY

Postal Address

Telephones: 051 26211 EXT. 463/460 — P.O. BOX 65002,

Telex: 41505 MUHMED TZ — DAR ES SALAAM.

Telefax: 255 51 46229 — TANZANIA.

Ref. No MAH/JM.1/I/10 Date: 13/10/1992

Dear Mr. Kumomi,

We have noted with great appreciation your letter Ref. No .JICA/537/92 of September 15, 1992 concerning supply of equipment to our Pathology Department. Below are details of availabillty and types of the equipment you listed in your letter.

Item 1.a) Binocular Microscopes .We prefer Olympus Binocular Microscope BH2 series with accesories. 10 units.

b) BH2 - KP Polarising Attachment 1 unit

Item 2. BH2 - Olympus microscope with BH2 - MDO multiviewing attachment for five persons 1 unit

These are not available locally, but our workshop can offer after sales service and maintenance. We prefer that these are supplied from Japan.

Item 3: Tissue Processor with vacuum impregnation:
Ames Catalogue No. 4621B V.I.P. 1000 Bench model. 1 unit.
Supplier: Bayer International Service GmbH Tanzania,
P. O. Box 2214, 213 Mawenl Street, Upanga,
Dar es Salaam. Telefax 51 - 46438.

After Sales service and spares available locally through this office.

Item 4: Rotary Microtome:
Ames catalogue No. 4571 Accu-cut Rotary microtome with accessories
3 units

Suppller: as for item 3 above

Mr. M. Kumomi,
Resident Representative,
JICA Tanzania Office,
P O Box 9450,
Dar es Salaam.

Item 5: Tissue Embedding Centre
Ames Catalogue No. 4588 tissue embedding console system(with thermal, dispensing and cryo consoles).
Supplier: as for Item 3 above. 1 Unit.

Item 6: Room Air Conditioners:
220/240u 60/50Hz Split type Room air conditioners for 18,000 BTU 6 Units.
Toshiba/National/Hitachi etc, are available locally through shops:

Item 7: Floatation out Baths
Karl-Kolb catalogue No. 428 250 for 220/240v 50/60 Hz 3 Units.
No Sales representative available, Our workshop can make repairs and service.. Should be bought from Europe or Japan.

Item 8: Autopsy Set instruments
a) Katoman Dissecting instruments set. KDI - 11 81 - 6001 3 sets.

b) Electric Circular skull saw
(Mizuho Gibbus) cutter M - 1 (05 - 001 - 00) for 220/240 v 50/60 Hz. 3 Units.

These are not available locally, and should be bought from Japan.

Item 9: Hot Plates:
Karl - Kolb catalogue No 274 - 590 220v, 50/60 Hz with temperature adjustable between 30 to 110°C 3 Units.

Not available locally, should be purchased from Europe or Japan. Service and repair facilities available. locally.

Item 10: Photocopier:
Canon NP 1215 Desk top for 220/240v, 50/60 Hz 1 unit.

Not available locally. Should be supplied from Japan. Service and repair facilities available.

Item 11: Oven:
Karl - Kolb catalogue No. 332 - 700 220/240 v, 60/50 Hz Temperature range 5 - 180°c. 1 unit

Not available locally. Should be supplied from Europe or Japanese equivalent. Service and repair facilities available.

Shipping Instructions: To expedite clearance through customs at the port of arrival the goods should be shipped to:
Muhimbili Medical Centre (Att. Dr. E. Mgaya/J. Kitinya)
Central Pathology Laboratory,
P. O. Box 65002,
DAR ES SALAAM. TANZANIA,

Sincerely Yours,

Prof. J. N. Kitinya/Dr. E.M. Mgaya
Department of Pathology.

4．病理学科アフターケアー協力プロポーザル

TITLE: A PROJECT PROPOSAL TO CONSOLIDATE THE PATHOLOGY DEPARTMENT IN MUHIMBILI WITH ASSISTANCE FROM JAPAN INTERNATIONAL COOPERATION AGENCY.

INTRODUCTION:

The department of Histopathology (Pathology) of the Faculty of Medicine, in the recently formed Muhimbili University College of Health Sciences of the University of Dar es Salaam, in conjunction with the department of Anatomy, benefitted from Japanese aid in the grant of an Electron Microscopy unit and training of several people starting from the early 1970s.

However soon after the project was wholly handed over to the University, several problems became apparent namely that;

a) Frequent malfunctioning of the machine and the limited ability of the University to procure spares.
b)The lack of a service engineer in the country or in East Africa meant that an engineer had to be flown in from Japan or Europe each time there was a malfunction.

c)The high cost of consumables for the unit and the sophisticated nature of the research required for its use rendered it less useful.

Because of these factors, the machine completely broke down from 1978, and it seems that this machine Hitachi HU- 12 is now out of production and spares are no longer available. During visits by several teams from JICA to our department. it became clear that an electron microscopy unit is not a high priority at the moment.

DEPARTMENTAL ACTIVITIES:

The department's activities include;
i) Diagnosis of patients' biopsies. This is done for patients who are admitted in Muhimbili and also for patients from the district, regional and consultant hospitals. from which we receive specimens for examination. Currently some of the doctors in the department have to share a microscope because there are not enough.

ii) Teaching the science of pathology (causes and changes in body structure due to disease) to medical and dental undergraduate students and also to post graduate students in pathology.up to Masters degree level.Although the needs for pathologists is big in this country (two pathology laboratories at Mbeya and Mwanza are now closed because there is no pathologist to work there !), the department can only admit two candidates each year. This is because of lack of facilities. This lack of facilities also makes it impossible to train students up to the doctoral (PhD) level..At the moment this has to be done in collaboration with other Universities.

iii) Research and Research training in various aspects of human disease. The main emphasis now is on infectious diseases and on common cancers in this country.. This activity of the department is again derailed by the lack of facilities.

Therefore the department is very pleased to note that the government of Japan through JICA is willing to help in strengthening its infrastructure and emphasizes that;

1. This is a University department, and any equipment obtained through JICA will belong to the department and University.

2. A longer term collaboration with one or two Universities in Japan in research and training should be explored, initially with the team of experts who will come to Dar es Salaam later this month, later with the University in Japan that will be identified.

USES OF THE GRANT:

After discussions within the department, it was agreed that the grant be used in the purchase of equipment and in the short term training of some of the technical staff in the department.

I The department proposes that this year's grant be used in the purchase of equipment. that will enable it to expand the intake of pathology trainees and improve its research capability This list is given in the order of priorities.

1. Olympus Binocular Microscopes, Standard BH2 - with D Achromat objectives and one BH2 - XP Polariser. 10 Units.
The microscope is the pathologists main tool. He uses this to examine specimens to identify parasites or to recognize cancer.These units will enable the department to expand the intake of Masters students from the current two to about five or six per year.so that enough pathologists can be produced in the country.

2. BH2 Olympus Microscope with MDO Multiviewing attachment 1 Unit.
This is a microscope that is used for the simultaneous examination of a specimen by five persons and will be used in small group discussions when teaching students.

3. Tissue .Processor with Vacuum impregnation. SAKURA VRX - 23 1 Unit

4. Rotary microtomes for profile C Knives
MILES INC catalog No. 4551 3 Units

5. Tissue TEK Embedding Centre
Karl Kolb Catalog No. 428 - 050 or equivalent 1 Unit

6 Room air conditioners.(Hitachi/National/Sanyo are locally available)
6 Units.
The equipment that is being requested through this project is delicate and requires air conditioning in order to prolong its life. These will be on stand by when the central cooling system is malfunctioning, which is very frequent..

7. Floatation out baths for use with the microtomes
Karl Kolb catalog No. 428 - 250, 3 Units

8. Autopsy set surgical instruments each with a circular saw 3 Sets

9. Hot plate to be used with microtomes 3 Units

10 Rank Xerox Photocopier 1 Unit.
This will be useful in preparing teaching materials to students and for preparing conference papers for publication. This helps to disseminate knowledge.

11. Oven for incubation of specimens 1 Unit

II. Training of two Technicians for 4 to 6 months in Japan. This is aimed at general improvement of the technical ability of the department and especially its research capability.

a). 1. Histochemistry of carbohydrates, mucins, cytoplasmic granules, neural tissue and nucleic acids.

2. Immunohistochemistry.

Such training will improve the quality of teaching materials, as well as the preparation of research materials

b) Mortuary dissection techniques - The present AIDS epidemic demands proper protective methods by the staff working in the mortuary, where undiagnosed cases may pass through. In addition proper dissection technique will improve the diagnosis of diseases and in the preparation of teaching materials.

Prepared by Prof. JN Kitinya and Dr. EM Mgaya.
Department of Pathology.

Copy: Principal, Muhimbili University College.

付属資料５．ダル・エス・サラーム大学プロジェクト実施協議議事録（Ｒ／Ｄ）

RECORD OF DISCUSSIONS
BETWEEN THE JAPANESE MEDICAL COOPERATION SURVEY MISSION AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF TANZANIA

The Japanese Medical Cooperation Survey Mission headed by Dr. Masaatsu Koike visited the Republic of Tanzania from 2nd to 17th February 1971 and had discussions with the authorities concerned of the Government of the Republic of Tanzania concerning the medical cooperation between the two countries.

The following is the Record of Discussions.

1. Medical cooperation between the Japanese Government and the Tanzanian Government will be promoted with main emphasis on the cooperation concerning the plan for educational and research work utilizing an electron microscope at the University of Dar es Salaam.

2. In accordance with the laws and regulations in force in Japan, Japanese cooperation will be extended in the form of dispatch of experts, receiving of trainees and supply of equipment upon receipt of Application Forms A.1, A.2, A.3 and A.4 from the Tanzanian Government.

3. Follcwing experts will be dispatched to the University of Dar es Salaam by the Japanese Government.
   (1) One engineer for installing equipment to be donated by the Japanese Goverrment and one expert in electron microscopy for a few months after arrival of the equipment to the University of Dar es Salaam.

(2) Such other academic experts, (Anatomist, Microbiologist, etc.), as may be requested by the University of Dar es Salaam over a protracted period, initially for two years subject to extension by mutual agreement.

4. For the setting of the electron microscope and the other necessary instruments, the Japanese experts will give instructions to Tanzanian technicians selected by the University of Dar es Salaam on the use of instruments provided to the University.

5. The Tanzanian researchers and technicians will be accepted at the expenses of the Japanese Government for the purpose of technical training in Japan and they will be provided with such facilities as are deemed to be necessary for the researchers and technicians to pursue their studies in the field of electron microscopic research scheme.

6. So that the electron microscope will be well used and maintained smoothly, it is hoped that the Japanese experts will ensure that a Tanzanian participant will master the techniques of electron microscope in the shortest possible time.

7. The main necessary equipment for educational and research work utilizing and electron microscope on the attached list will be donated by the Japanese Government at the first stage.

8. Faculty of Medicine, The University of Dar es Salaam will take full responsibility for the management and the operation of the instruments.

9. The Tanzania side explained that the electron microscope will be used for the plan of educational and research work of the University of Dar es Salaam especially, for anatomic research, biomedical research and teaching at the Faculty of Medicine.

10. The house for the electron microscope has been already constructed and the air conditioning unit will be installed for adjustment of suitable room temperature and humidity by the Tanzania side.

11. The Japanese side requested that on arrival of the Electron Microscope in Dar es Salaam, immediate action should be taken for custom clearances and domestic transportation from the port of Dar es Salaam to the University, in order to keep the electron microscope and other instruments in good condition.

12. The above-mentioned cooperation will be carried out subject to the following conditions:
    (1) The Tanzanian Government issue necessary permits to the Japanese experts to engage in medical and other related activities under the present cooperation project within the frame work of existing regulations in Tanzania.

(2) The Japanese experts be granted in the Republic of Tanzania privileges, exemptions and benefits (including accommodation and transportation facilities) no less favourable than those granted to the experts of any of the third countries under similar circumstances.

(3) The Japanese experts be exempted from any liabilities in respect of any accident that may arise with the bona-fide discharge of their duties, as they are under the supervision and responsibility of the Tanzanian authorities.

13. In order to carry out the medical research effectively, both sides agreed to the exchange of available information and collaboration in the electron microscopic research project.

14. The supply of spare parts and after-service shall be guaranteed by the Japanese Government for the first 2 years. Spare parts when needed, necessary steps to supply them shall be taken promptly by Japan, and a Japanese Engineer will be made available to install the spare parts or repair the machine. After that the University will be fully responsible.

15. The contents in this record will be implemented after they are duly approved by the respective Governments.

Dar es Salaam
February 15, 1971

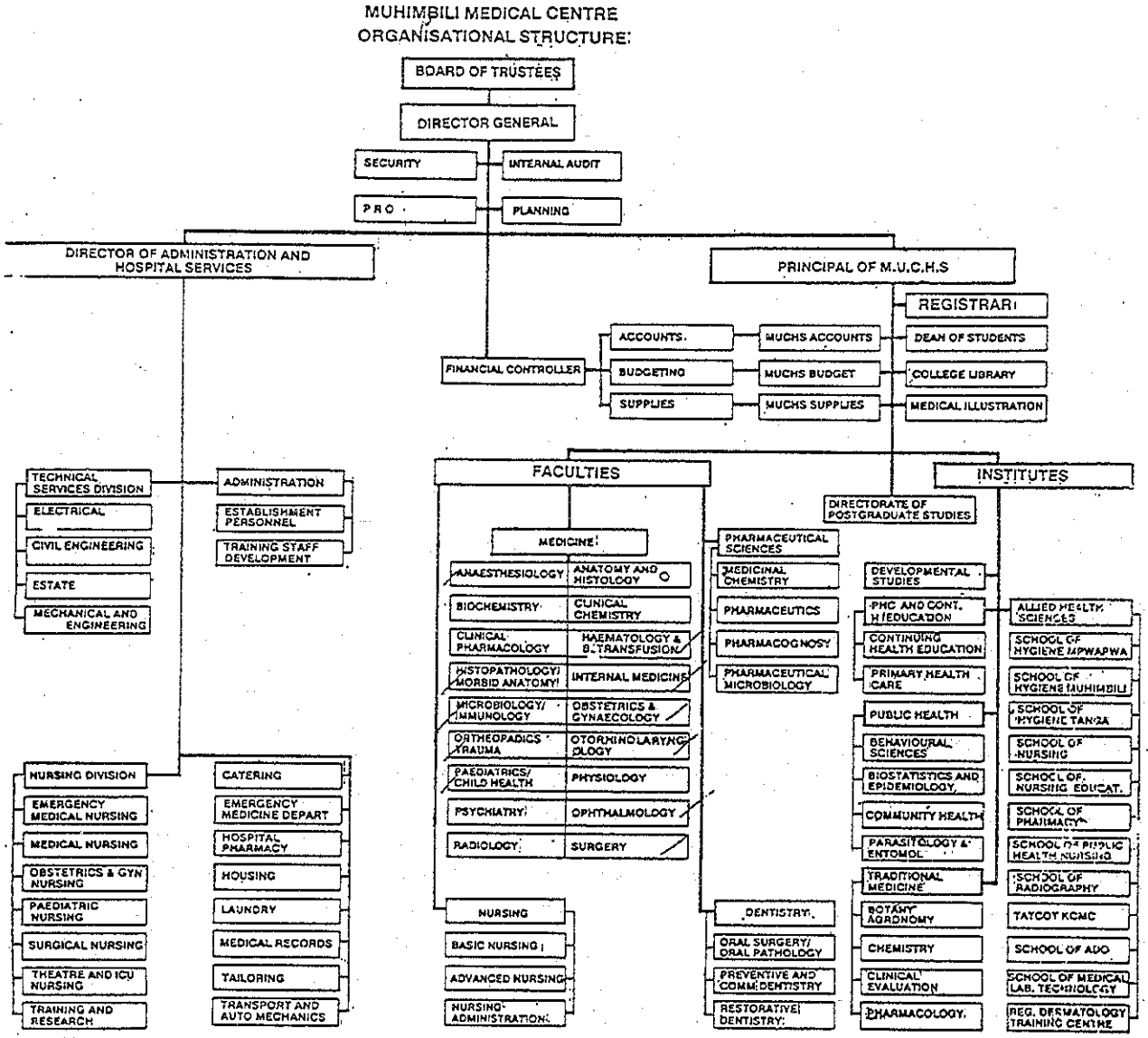
Dr. Masaatsu Koike	Pius Msekwa
Head of the Japanese Medical	Vice-Chancellor
Cooperation Survey Mission	University of Dar es Salaam

LIST OF EQUIPMENT

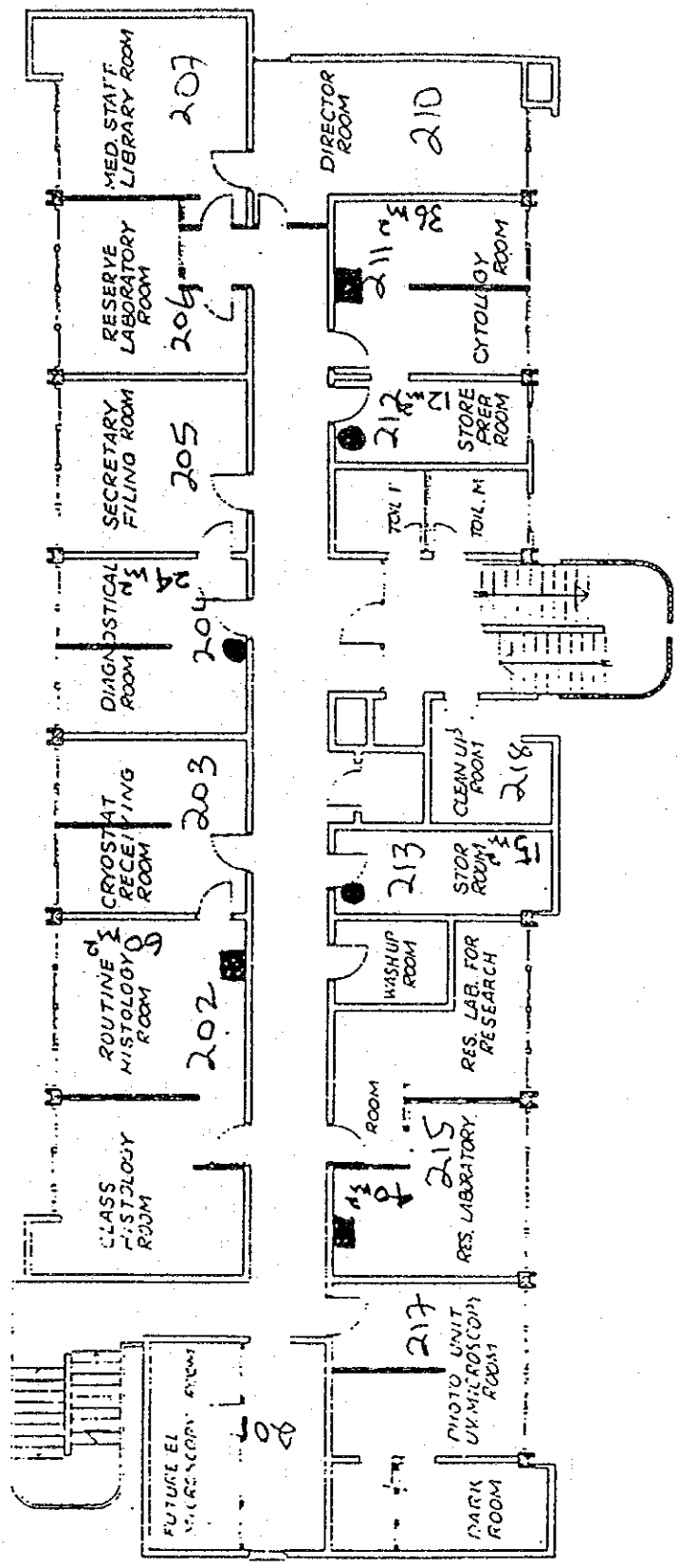
Description of Goods		Quantity
I. Equipment and Miscellaneous for Electron Microscope Room		
1. Electron Microscope (Component Parts)		1 set
(1) Electron Microscope	1	
(2) Power Supply (Cabinet)	1	
(3) Reference Resister Unit	1	
(4) High Voltage Transformer Unit	1	
(5) Fore Pump	2	
2. Vacuum Evaporator		1
3. Ultramicrotome		1 set
(1) Microtome	1	
(2) Light source	1	
(3) Binocular Light Microscope	1	
4. Filter for Water Supply		1
5. Automatic Voltage Stabilizer		1
6. Direct Reading Balance		1
7. Others		
8. Spare Parts for Electron Microscope		1 set
(1) Filament		
(2) Cassette		
(3) Magazine		
(4) Diffusion Pump Oil		
(5) Apperture Plates for Electron Lens		
(6) Others		

II.	Equipment and Miscellaneous for Dark Room	
	1. Photoenlarger	1
	2. Autograzing Machine	1
	3. Elescope Film	400 doz.
	4. Slide Projector	1
	5. Autoprintwasher	1
	6. Autofilmwasher	1
	7. Others	
III.	Equipment and Miscellaneous for Specimen preparation	
	(A) Chemical Reagents for Specimen Preparation	1 set
	1. Osmic acid	
	2. Gelatine Capsule	
	3. Silica Gel	
	4. Epoxy Resin	
	5. Ethanol	
	6. Others	
	(B) Tools for Specimen Preparation	
	1. Oven for Resin Polymerization	3
	2. PH Meter	1
	3. Glass Knife Maker	1
	4. Light Microscope	1
	5. Glassplate for Microtome Knife	
	6. Refringerator	1
	7. Autostill (Incl. Ion Exchange Resin)	1 set
	8. Shock Absorber for EM	1 set

6．ムヒンビリ・メディカル・センター組織図



付属資料 7．病理学科部屋配置図



付属資料 8．アフターケア調査団に関する新聞記事

10/27 タンザニア Daily News

Japan gives 650m/- equipment to Muhimbili Varsity

By *Daily News* Reporter

JAPAN through its International Co-operation Agency (JICA) will dispatch three experts in pathology and anatomy to work on an improvement project at the Muhimbili University College of Health Sciences.

A statement issued by the Embassy of Japan yesterday said JICA would also provide binoculars, microscopes, tissue processor and rotary microtomes worth 650m/-.

The donation, a follow-up to an earlier one 17 months ago, is under technical co-operation between Tanzania and Japan.

The agreement to that effect was signed by Principal of the Muhimbili University, Professor A. S. Maselle, and leader of a Japanese team strengthening the University, Professor Tosaburo Shibata.

The project aims at strengthening the activities of the departments of pathology and anatomy, the statement added.

付属資料 9．ムヒンビリ保健医療カレッジ要覧

Muhimbili University
College of Health Sciences

SENIOR OFFICERS OF THE COLLEGE

Principal
S.Y. Maselle, *M.B.Ch.B.*(E.A.), *Dip.Bist.*(London), *M.R.C.*, Path (UK)

Office of the Registrar

Registrar
R.A.Lema, *M.B.Ch.B.*(E.A.), *F.R.C.*, Path (UK)

Directorate of Postgraduate Studies

Director
P. C. Masesa, *M.B.Ch. B* (E.A), *Dipl., Biol., Ph.D.* (Edin.)

Dean of Students
F. Kidenya, *Cert. Educ.* (Mpwapwa), *Dipl. Educ.* (Australia), *B.Educ.* (Exeter)

COLLEGE LIBRARY

Head of Department
C.A. Magembe, *B.A.(Ed)*(Dar)., *Dip.Lib.*(Wales), *Dip. in Pop. Studies*, N.A. Axon.

PRINCIPAL ADDRESSES

Postal Address	Telephone
PRINCIPAL	
P.O.Box 65001,Dar es Salaam	46163 27081 26211
Telefax 051-255-46163	
Telex MUHMED 41505 TZ	
Telegraphic Address - UNIVMED	
REGISTRAR	
P.O. Box 65005, Dar es Salaam	37691
Fax 055 255 46229	26211 Ext. 271
FACULTY OF MEDICINE	
P.O.Box 65001,Dar es Salaam	27081 Ext.209-213
	26211 Ext. 419
FACULTY OF PHARMACY	
P.O.Box 65013,Dar es Salaam	27081 Ext. 291
FACULTY OF DENTISTRY	
P.O.Box 65014,Dar es Salaam	26211 Ext.478
FACULTY OF NURSING	
P.O.Box 65004,Dar es Salaam	26211 Ext.250
INSTITUTE OF TRADITIONAL MEDICINE	
P.O.Box 65001,Dar es Salaam	26211 Ext.213-214
INSTITUTE OF ALLIED HEALTH SCIENCES	
P.O.Box 65005,Dar es Salaam	26211 Ext.271-272
INSTITUTE OF PUBLIC HEALTH	
P.O.Box 65001,Dar es Salaam	27081 Ext.245
INSTITUTE OF DEVELOPMENT STUDIES	
P.O.Box 65001,Dar es Salaam	27081 Ext.210
INSTITUTE OF PRIMARY HEALTH CARE AND CONTINUING EDUCATION	
P.O.Box 65001,Dar es Salaam	27081

DIRECTORATE OF POSTGRADUATE STUDIES	
P.O. Box 65001, Dar es Salaam	27081
COLLEGE LIBRARY	
P.O.Box 65001,Dar es Salaam	27081 Ext.265
	26211 Ext. 222
STUDENTS ORGANIZATION (DARUSO)	
(Muhimbili Campus)	
P.O.Box 65003,Dar es Salaam	26211 Ext.242
MUHIMBILI BANKERS	
The National Bank of Commerce	
Muhimbili Branch	
P.O.Box 9780,Dar es Salaam	27081
MUHIMBILI AUDITORS	
Tanzania Audit Corporation	
P.O.Box 580,Dar es Salaam	22937
MUHIMBILI SOLICITORS	
Tanzania Legal Corporation	
P.O.Box 2203,Dar es Salaam	22114

INTRODUCTORY NOTE

The Muhimbili University College of Health Sciences is a constituent College of the University of Dar es Salaam. It has facilities for postgraduate, undergraduate and allied health science students who pursue the certificate, diploma and degree courses offered by the University of Dar es Salaam. The College consists of four (4) Faculties and five (5) Institutes.

FACULTIES

Faculty of Dentistry
Faculty of Medicine
Faculty of Nursing
Faculty of Pharmacy

INSTITUTES

Institute of Allied Health Sciences
Institute of Development Studies
Institute of Public Health
Institute of Traditional Medicine
Institute of Primary Health Care and Continuing Health Education

CERTIFICATES, DIPLOMAS AND DEGREE FOR WHICH COURSES ARE OFFERED

Certificate in Medical Laboratory Technology (CMLT)
Diploma in Medical Laboratory Sciences (DMLS)
Diploma in Prosection (DP)
Diploma in Environmental Health Sciences (DEHS)
Diploma in Environmental Health Sciences (DHES)
Diploma in Diagnostic Radiography (DDR)
Diploma in Orthopaedic Technology (DOT)
Diploma in Pharmaceutical Sciences (DPS)
Advanced Diploma in Dermatology
Advanced Diploma in Nursing Education
Doctor of Medicine (M.D)
Bachelor of Science in Nursing (B.Sc. Nursing)
Bachelor of Pharmacy (B. Pharm)
Doctor of Dental Surgery (D.D.S)

Postgraduate Diploma in Public Health (D.P.H.)

Master of Science in:
Tropical Disease Control (M.Sc. (TDC))
Neurosurgery (M.Sc. (Neurosurgery))
Oral Surgery (M.Sc. (Oral Surgery))
Ear, Nose, and Throat (M.Sc. (ENT))

Master of Medicine in:
Anaesthesiology (M.Med (Anaesthesiology))
Anatomical Pathology (M.Med. (Anat. Pathology))
Community Health (M.Med. (Comm. Health))
Haematology (M.Med. (Haematology))
Internal Medicine (M.Med. (Medicine))
Microbiology (M. Med. (Microbiology))
Obstetrics & Gynaecology (M.Med. (Obs/Gynaecology))
Ophthalmology (M. Med. (Ophthal))
Paediatrics (M. Med. Paediatrics)
Surgery (M.Med. (Surgery)

Master of Dentistry in
M. Dent (Oral Pathology)
M. Dent (Restorative Dentistry)
M. Dent (Oral Surgery)

Master of Pharmacy (M. Pharm.)
Doctor of Philosophy (Ph.D)

Courses offered by Faculties and Institutes of the College

Faculty of Medicine:
Doctor of Medicine (M.D.)
Master of Medicine in:
Anaesthesiology (M.Med Anaesthesiology)
Anatomical Pathology (M.Med. Anat. Pathology)
Haematology (M.Med. Haematology)
Internal Medicine (M.Med. Medicine)
Microbiology (M.Med. Microbiology)
Obstetrics/Gynaecology (M.Med. Obs/Gynaecology)
Ophthalmology (M.Med. Ophthal.)

Paediatrics/Child Health (M.Med. Paed./Child Health)
Surgery (M.Med. Surgery)

Master of Science in:
Neurosurgery (M.Sc. Neurosurgery)
Ear, Nose and Throat (M.Sc. ENT)
Orthopaedics/Trauma (M.Sc. Orthopaedics/Trauma)

Doctor of Philosophy (Ph.D.)

Faculty of Dentistry:
Doctor of Dental Surgery (DDS)
Master of Dentistry in
Oral Pathology (M.Dent. Oral Pathology)
Restorative Dentistry (M.Dent. Restorative Dentistry)
Oral Surgery (M.Dent. Oral Surgery)

Doctor of Philosophy (Ph.D.)

Faculty of Nursing:
Bachelor of Science in Nursing (B.Sc.N.)
Doctor of Philosophy (Ph.D.)

Faculty of Pharmacy:
Bachelor of Pharmacy (B.Pharm.)
Master of Science (M.Sc.)
Master of Pharmacy (M.Pharm.)
Doctor of Philosophy (Ph.D.)

Institute of Allied Health Sciences:
Certificate in Medical Laboratory Technology (CMLT)
Diploma in Medical Laboratory Sciences (DMLS)
Diploma in Environmental Health Sciences (DEHS)
Diploma in Prosection (DP)
Diploma in Diagnostic Radiology (DDR)
Diploma in Orthopaedic Technology (DOT)
Diploma in Pharmaceutical Sciences (DPS)
Advanced Diploma in Nursing Education (ADNE)
Advanced Diploma in Dermato-Venereology (ADDV)

Institute of Public Health:
Diploma in Public Health (DPH)
Master of Science in Tropical Disease Control (M.Sc. TDC)
Master of Medicine in Community Health (M.Med. Comm. Health)

Entrance Requirements for M.D., D.D.S., and B. Pharm. Degree Courses

1. M.D. and D.D.S.

1.1 Advanced/Principal level passes at C grade or higher in Physics, Chemistry and Biology/Zoology in the Advanced Certificate of Secondary Education (A.C.S.E.E.) (Tanzania) or equivalent; a pass in Mathematics will be an advantage.

1.2 Equivalent qualifications:
An appropriate Diploma/Certificate/Degree with credit level pass as well as "O" Level credits in Chemistry, Biology and Physics or Mathematics. In addition, where the Diploma Certificate is not classified, the grades/marks obtained at the first sitting of the examination should be made available to determine the candidate's potentiality for University studies.

2. B. Pharm.

2.1 As for M.D. and D.D.S., the Principal level passes withstanding Physics and Biology/Zoology must not be below D, and Chemistry not below C.

2.2 Equivalent qualifications: As for M.D. and D.D.S.

3. Medical Studies consist of a six year programme, five leading to the M.D. degree at the University, and a year's internship at an approved hospital. The first three years of the University courses, while largely academic, include field and community training. The next two years are largely practical and consist of intensive training in rotation clerkships and Community Health Training.

4. Dental Studies consist of a six year programme, five leading to the D.D.S. degree at the University, and a year's internship at an approved hospital. The first three years of the University courses, while largely academic, include field and community training. The next two years are largely practical and consist of intensive training in clinical rotations in different departments including community health training.

5. Pharmacy training consists of a four year course leading to the B.Pharm. degree of the University of Dar es Salaam.

6. Nursing training consists of a four year academic programme leading to the Bachelor of Science degree in Nursing of the University of Dar es Salaam. The first two years combine both theory and Field work experience in Community Health Nursing.

   Training for the equivalent entrants will consist of 3 years for Nursing Certificate holders and 2 years for Diploma in Nursing Education holders. All Students who are A level entrants will proceed through the four years course. The equivalent entrants will follow appropriate course only of the second, third and fourth years.

7. Student's progress is assessed by frequent tests during the academic session and at the end of the academic year. Up to 50% of the total marks is based on the results of the annual examinations, the other 50% from the continuous assessment tests.

8. A course in Communication Skills for Medicine (CL 103) is offered to all undergraduate students during the First Year. The course aims at improving students ability to learn through the medium of English and to communicate effectively in areas of medical specialization. For further details, see the relevant section on the Communication Skills Unit.

Examinable subjects in the Faculty of Medicine

1. M.D. Degree

1.1 End of 1st Year:
   1. Anatomy/Histology
   2. Behavioural Sciences
   3. Biochemistry
   4. Physiology
   5. Development Studies

1.2 End of 2nd Year:
   1. Clinical Physiology
   2. Epidemiology/Biostatistics
   3. Microbiology/Immunology
   4. Parasitology/Entomology
   5. Development Studies

1.3 End of 3rd Year:
   1. Pathology

   2. Pharmacology

1.4 End of 5th Year:
   1. Community Medicine
   2. Medicine
   3. Obstetrics/Gynaecology
   4. Paediatrics/Child Health
   5. Psychiatry
   6. Surgery

Examinable subjects in the Faculty of Dentistry

2. D.D.S. Degree

2.1 End of 1st year:
   1. General and Oral Anatomy
   2. Basic and Oral Physiology
   3. Biochemistry
   4. Behavioural Sciences
   5. Development Studies

2.2 End of 2nd Year:
   1. General and Oral Pathology
   2. General Pharmacology
   3. Microbiology/Immunology/Parasitology/Entomology
   4. Epidemiology and Biostatistics
   5. Development Studies

2.3 End of 3rd Year:
   1. Phantom Course
   2. Medicine and Surgery
   3. Dental Materials

2.4 End of 5th Year:
   1. Cariology and Operative Dentistry
   2. Prosthodontics and Periodontology
   3. Pedodontics and Orthodontics
   4. Community and Preventive Dentistry
   5. Oral Surgery

Examinable subjects in the Faculty of Pharmacy

3. B.Pharm Degree

3.1 End of 1st Year:
1. Medicinal Chemistry
2. Pharmaceutical Microbiology
3. Pharmaceutics
4. *Biostatistics/Mathematics
5. Physiology/Anatomy
6. *Development Studies

3.2 End of 2nd Year:
1. Biochemistry
2. Medicinal Chemistry
3. Pharmaceutics
4. Pharmacognosy
5. Pharmaceutical Microbiology/Parasitology
6. Development Studies
7. Pharmacy Practice

3.3 End of 3rd Year:
1. Pathology, Epidemiology
2. Medicinal Chemistry
3. Pharmacology
4. Pharmacognosy
5. Pharmaceutics
6. Pharmacy Practice

3.4 End of 4th Year:
1. Pharmaceutics
2. Pharmacology
3. Medicinal Chemistry
4. Pharmacognosy
5. Pharmacy Practice
6. Project

Examinable subjects in the Faculty of Nursing:
4.1 Direct Entrants
1. Communication Skills
2. Biochemistry
3. Sociology
4. Psychology
5. Anatomy

6. Philosophy
7. Development Studies

4.2 End of Second Year:
1. Principles of Nursing
2. Pharmacology
3. Biostatistics
4. Developmental Psychology
5. Microbiology
6. Nutrition
7. Development Studies

4.3 End of Third Year:
1. Nursing Care of Adults
2. Principles of Drug Administration
3. Educational Psychology
4. Maternal and Child Health Nursing
5. Community Health Nursing
6. Communicable Diseases/Epidemiology
7. Mental Health/Psychiatric Nursing

4.4 End of Fourth Year
1. Mental Health/Psychiatric Nursing
2. Paediatric Nursing
3. Nursing Leadership
4. Trends in Nursing and Health Care System
5. Curriculum Development
6. Research Project
7. Principles and Methods of Teaching

Examination Subjects Equivalent Holders of Certificate in Nursing
5.1 End of Second Year:
1. Pharmacology
2. Biostatistics
3. Microbiology
4. Nutrition
5. Maternal & Child Health Nursing
6. Mental Health/Psychiatric Nursing
7. Community Health Nursing

8. Communicable Diseases/Epidemiology
9. Development Studies

5.2 End of Third Year:
1. Educational Psychology
2. Paediatric Nursing
3. Nursing Leadership
4. Trends in Nursing and Health Care System
5. Curriculum Development
6. Research Methodology
7. Principles and Methods of Teaching

Examination Equivalent Holders of Diploma in Nursing Education

6.1 End of Second Year:
1. Pharmacology
2. Biostatistics
3. Microbiology
4. Nutrition
5. Maternal & Child Health Nursing
6. Mental Health/Psychiatric Nursing
7. Paediatric Nursing
8. Nursing Leadership
9. Trends in Nursing and Health Care System
10. Development Studies

Examination Regulations in the Faculty of Medicine and Faculty of Dentistry

First Year

1.1 Candidates who fail in one or two subjects, or those who fail in three subjects provided the third subject is Development studies, may on the recommendation of the Faculty Board be allowed to sit a supplementary examination in the failed subject(s) before the beginning of the next academic year.

1.2 Candidates who pass a supplementary examination shall be awarded a grade C in the re-examined subject. Those who fail the supplementary examinations, except in Development Studies, will be discontinued.

1.3 Candidates who fail in more than two professional subjects, shall be discontinued.

1.4 No candidate will be allowed to repeat the first year of the course except in very exceptional circumstances.

Second Year

2.1 Candidates who fail in one or two subjects may be allowed to sit a supplementary examination before the beginning of the next academic year. Candidates who fail in three or more subjects shall be discontinued.

2.2 Candidates who pass a supplementary examination shall be awarded a grade C in the re-examined subject.

2.3 Candidates who fail the supplementary examination in one subject only in Medicine or Dentistry, may be allowed to repeat the year.

Third Year

3.1 There will be University Examinations in Pathology and Pharmacology at the end of the Third Year for M.D. students; and Phantom course, Medicine and Surgery; and Dental Materials for D.D.S. students.

3.2 Candidates who fail in one subject may be allowed to do a supplementary examination before the beginning of the next academic year.

3.3 Candidates who pass the supplementary examination shall be awarded a grade C in the re-examined subject.

3.4 Candidates who fail in the supplementary examination may be allowed to repeat the year on the recommendation of the Faculty Board.

3.5 Candidates who fail in two subjects will be discontinued except that, in very exceptional instances, on the recommendation of the Faculty Board, they may be allowed to repeat the year.

3.6 No candidate will be allowed to repeat the Third Year if he repeated the First and Second Year.

FACULTY OF PHARMACY

Teaching Programme for B. Pharm. course

First Year

Courses Common to All students	*Hours*
Physiology (refer to M.D. syllabus)	248
Biostatistics/Mathematics (refer to M.D. syllabus)	48
DS 100 Development Studies (refer to I.D.S. syllabus)	32

MEDICINAL CHEMISTRY DEPARTMENT

PC 100 Medicinal Chemistry — 205
Physical chemistry, general and analytical chemistry electro chemistry, inorganic chemistry, aliphatic organic chemistry practicals

PHARMACOGNOSY DEPARTMENT

PG 100 Pharmacognosy Practical — 132

PHARMACEUTICS DEPARTMENT — 205

PT 100 Pharmaceutics
Pharmaceutical calculations, solution theory, phase equilibria, rheology
Pharmaceutical application, flow of fluids and practical

PP 100 Pharmacy Practice Practicals — 66

PHARMACEUTICAL MICROBIOLOGY DEPARTMENT

PB 100 Microbiology, — 132
Cell Biology,
elementary bacteriology, microbiology of the environment, disinfection, sterilization, mycology, virology, medical bacteriology
Practicals

Second Year

Courses Common to all students

Biochemistry (refer to M.D. syllabus)

DS 200 Development Studies (refer to I.D.S. syllabus) — 32

MEDICINAL CHEMISTRY DEPARTMENT

PS 200 Medicinal Chemistry — 205
Aromatic organic chemistry, heterocyclic chemistry, special topics in organic chemistry, stereochemistry, organic spectroscopy practicals.

PHARMACOGNOSY DEPARTMENT

PG 200 Pharmacognosy — 132
Studies of crude drugs,
Practicals

PHARMACEUTICS DEPARTMENT

PT 200 Pharmaceutics
Colloidal state, coarse dispersions, suspension, semisolids, fluid-mechanics, heat transfer, mass transfer, evaporation, drying, separations, powder technology.

PP 200 Pharmacy Practice — 66
Practicals

PHARMACEUTICAL MICROBIOLOGY DEPARTMENT

PB 200 Pharmaceutical Microbiology — 132
Immunology, bacterial cell wall chemistry, genetics protein biosynthesis and its inhibition, quality control, protozoology, helminthology, arthropods,
Practicals

CLINICAL PHARMACOLOGY DEPARTMENT

PL 200 Clinical Pharmacology — 205
Autonomic basis of drug action, pharmacokinetics, endocrine pharmacology,
Practicals

Third Year

Courses common to all students

Pathology, epidemiology, (refer M.D. Syllabus) — 187

MEDICINAL CHEMISTRY DEPARTMENT

PC 300 Medicinal Chemistry — 205

Basic considerations, development
of drugs, chemotherapy, pharmacodynamics
Practicals

PHARMACEUTICS DEPARTMENT

PT 300 Pharmaceutics 205
Tableting, radiopharmaceutics, parenterals, aerosols
Practicals

PP 300 Pharmacy Practice 66
Practicals

CLINICAL PHARMACOLOGY DEPARTMENT

PL 300 Clinical Pharmacology 205
Pharmacology of the CNS, antiparasitic chemotherapeutic agents, drug development techniques, pharmacological quality control techniques
Practicals

PHARMACOGNOSY DEPARTMENT

PG 300 Pharmacognosy: 132
Secondary Plant metabolites,
Chromatography
Practicals

Fourth Year

MEDICINAL CHEMISTRY DEPARTMENT

PC 400 Medicinal Chemistry 205
Drugs acting in the CNS, Concepts in drug design, analytical medicinal chemistry, synthetic methods in medicinal chemistry
Practicals.

PHARMACOGNOSY DEPARTMENT

PG 400 Pharmacognosy 132
Pharmacognostical methods, quality control, plant genetics and plant breeding, tissue culture, special topics pesticides of natural origin, chemotaxonomy, Traditional Medicine.
Practicals.

PHARMACEUTICS DEPARTMENT

PT 400 Pharmaceutics 132
Pharmaceutics, biopharmaceutics, distribution, elimination, transport systems, pharcokinetic parameters, dosage regimen
Practicals.

PP 400 Pharmacy Practice 66

CLINICAL PHARMACOLOGY DEPARTMENT

PL 400 Clinical Pharmacology 76
Applied Pharmacology I, Applied Pharmacology II
Applied Pharmacology III.
PR 400 Project begins in 3rd year

FACULTY OF NURSING

Teaching Programme for the full (four years B.Sc. Nursing Course)

First Year

			Credit	*Hours*
NE	100	Communication Skills	5	80
NE	101	Biochemistry	8	128
NE	102	Sociology	6	96
NE	103	Psychology	3	48
NE	104	Anatomy	7	112
NE	105	Physiology	6.25	100
NE	106	Philosophy	3	48
DS	100	Development Studies	2	32
		TOTAL	40.25	644

Second Year

NE	200	Principles of Nursing	11	136
NE	201	Pharmacology	7	112
NE	202	Biostatistics	3	48
NE	203	Developmental Psychology	2	32
NE	204	Microbiology	4	64
NE	205	Nutrition	5	80
DS	200	Development Studies	2	32
		TOTAL	34	544

Third Year

NE	300	Nursing care of adults	8	128
NE	301	Principles of Drug Administration	3	48
NE	303	Educational Psychology	3	48
NE	307	Maternal & Child Health Nursing	8	128
NE	308	Community Health Nursing	7	112
NE	309	Communicable Diseases (Epidemiology)	2	32
NE	310	Mental Health & Psychiatric Nursing	3	48
		TOTAL	34	544

Fourth Year:

NE	410	Mental Health/ Psychiatric Nursing	4	64
NE	411	Paediatric Nursing	4	64
NE	412	Nursing Leadership	6	96
NE	406	Principles and Methods of Teaching	6	96
NE	413	Trends in Nursing and the Health Care System	2	32
NE	414	Curriculum Development	3	48
NE	415	Research Methodology	6	96
		TOTAL	31	496

Teaching Programme for Third Year B.Sc. Nursing course Candidates

Second Year

NE	201	Pharmacology	7	112
NE	202	Biostatistics	3	48
NE	204	Microbiology	4	64
NE	205	Nutrition	5	80
NE	206	Principles of Nursing	4.25	68
NE	307	MCH-Nursing(or)	8	128
NE	410	Mental Health (Psychiatry)		
NE	308	Community Health Nursing	7	112
NE	309	Communicable Diseases (Epidemiology)	2	32
DS	200	Development Studies	2	32
		TOTAL	42.25	676

Third Year

NE	303	Education Psychology	3	48
NE	411	Paediatric Nursing	4	64
NE	412	Nursing Leadership	6	96
NE	413	Trends in Nursing and Health Care System	2	32
NE	414	Curriculum Development	3	48
NE	415	Research Methodology	6	96
NE	416	Principles and Methods of Teaching	6	96
		TOTAL	30	480

Teaching Programme for Second Year B.Sc. Nursing course Candidates

Second Year

NE	201	Pharmacology	7	112
NE	202	Biostatistics	3	48
NE	204	Microbiology	4	64
NE	205	Nutrition	2.5	40
NE	411	Paediatric Nursing	2	32
NE	412	Nursing Leadership	6	96
NE	413	Trends in Nursing and Health Care System	2	32
NE	307	MCH-Nursing		
		OR		
NE	410	Mental Health/ Psychiatry	8	128
NE	415	Research Methodology	6	96
DS	200	Development Studies	2	32
		TOTAL	42	680

POSTGRADUATE STUDIES

Faculty of Medicine

The Faculty has facilities to enable students to undertake advanced work and research for the M.Med., M.Sc. (TDC), M.Sc. (Neurosurgery), M.Sc. (ENT), M.Dent. and Ph.D. degrees of the University of Dar es Salaam.

Regulations for the M.Sc. by Course work and Dissertation

1. This degree may be awarded in any of the Biomedical Science subjects after completion of the prescribed course in the particular subject and such other Faculty disciplines as may be approved by the Faculty Board from time to time.

2. The details of the proposed course shall be approved by Faculty Board.

3. The following shall be eligible to undertake the course leading to the degree.

3.1 Those who have completed the first three years of the M.D. course of the University and have scored a credit or distinction in the subject chosen, and who in the opinion of the Faculty Board have demonstrated high academic performance in all other subjects, provided that those so admitted to the course shall undertake to complete the M.D. course immediately afterwards. The M.Sc. degree will be awarded on the completion of the M.D. degree course.

3.2 any medical, dental or pharmacy graduate of this or any other recognized University who is recommended by the Faculty Board and approved by Academic Board.

4. When taken at this University College, the length of the M.Sc. course shall normally be one academic year.

5. This course may be taken in this or, with prior permission of Academic Board in any other University approved by Academic Board for this purpose, where the College specifically assigns a particular student to take such a course.

6. Examinations:

6.1 The candidates shall sit and pass examinations which will include written papers, practicals and oral examinations conducted by the University where the course is taken.

6.2 The candidate shall submit a dissertation to the college which shall be evaluated by any two or three of the following categories of examiners:

a. An internal examiner of the University where the course was taken.

b. If the course was taken in a University other than the University College of Dar es Salaam, a University College examiner may also evaluate it.

c. An external examiner appointed by Academic Board

The course of study for any candidate may be terminated on the recommendation of the Faculty Board of Medicine if the Board is satisfied that the candidate is not maintaining a B average grade in his continuous assessment.

A candidate who fails at the end of the course of studies may on the recommendation of the Faculty Board of Medicine be permitted to sit for a supplementary examination after a period specified by the same Board.

Conditions for Eligibility of Admission into Postgraduate Courses

1. Candidates will be selected by a Selection Committee consisting of Ministry of Health officials, of Representantives of Faculties/Institutes, the Registrar of the College and whenever possible include the Heads of the Department(s) for which candidates are being selected.

2. Candidates to be considered must provide an up-to-date detailed *curriculum vitae* and their undergraduate transcripts.

3. A short confidential report on each candidate must be made available to the Committee covering the internship period performance in the relevant hospitals, and their performance in the field with relevant organizations since internship.

4. Applications for these courses should be advertised in November of each year, with applications to be sent to the Registrar of the College and a copy to the Ministry of Health.

Regulations for the Master of Medicine Degree

A. REGULATIONS COMMON TO ALL DISCIPLINES

1. The degree may be awarded for successful completion of postgraduate training in the fields of Internal Medicine, Surgery, Obstetrics/Gynaecology, Child Health, Community Health, Haematology, Microbiology, Ophthalmology, Anaesthesiology, and such other fields as may be approved from time to time.

Anatomic Pathology

2. The following shall be eligible to enrol for the degree:

2.1 Any holder of a good Doctor of Medicine (M.D.) degree of this University who complies with the regulations set out hereunder.

2.2 Any good medical graduate of a recognized University who has been admitted to the status of Doctor of Medicine and who complies with the regulations set out hereunder.

3. A candidate for the degree may register for the appropriate course not less than two years after the award of the M.D. degree or its equivalent. One of these two years must be an approved internship and one year in an approved hospital appointment in an up-country station.

4. The prescribed course in each discipline shall be of not less than three calendar years duration but residents will be given one month leave in each calendar year.

5. A candidate may be exempted by the Academic Board from the Part One examination if Academic Board is satisfied that a candidate has passed an examination of equivalent standard.

6. Examinations:

6.1 The examination for the degree shall be set out in the regulations pertaining to the individual disciplines.

6.2 The examinations shall be conducted by a Board of Examiners appointed by the Academic Board on the recommendation of the Faculty Board. The Board of Examiners shall include at least one relevant External Examiner.

6.3 Candidates shall not submit themselves for final examination on more than three consecutive occasions, and thereafter shall do so only at such intervals as shall be determined by the Board of the Faculty.

6.4 If at any stage in the course, a Department recommends that a particular resident is unsuitable to continue with the course, this recommendation will be considered by the Faculty Board and if approved, then by Academic Board.

7. The procedure and fees for registration and for examination shall be the same as those for Doctoral degrees in the University, in force at the material time.

8. Part of the prescribed course may be taken at an approved Institution outside the Faculty of Medicine and Dentistry provided that in each individual case the relevant Faculty Board shall petition the Academic Board for approval and shall be satisfied that such an Academic Board arrangement shall fulfill all the regulations and requirements for this degree. The Academic Board approval will not be needed where it is

specified in the regulations that part of any course shall be taken at an institution outside the Faculty.

B. ADDITIONAL REGULATIONS COMMON TO ALL CLINICAL DISCIPLINES

1. Biomedical Science Core Courses:
There are nine approved Biomedical Science Core courses:
Anatomy
Biochemistry
Clinical Physiology
Epidemiology/Biostatistics
Microbiology/Immunology
Parasitology/Entomology
Pathology (Histopathology, Haematology, Clinical Chemistry and Forensic Pathology)
Pharmacology
Physics and Clinical Measurements.

These will be taught primarily by Biomedical Science teachers, with emphasis on the necessary applied aspects, and shall be integrated with clinical subjects. Each clinical Discipline shall choose THREE approved biomedical Science Core Courses that they consider very important which must be passed by their residents. Students may also be required to attend selected topics in other Biomedical Science Core Courses as directed by the relevant Clinical Discipline.

2. Examinations:
There shall be two University Examinations for the M.Med. Degree:
Part I of the M.Med. examination shall be held at the end of the first year of the course and shall consist of examination in three chosen Biomedical Science Core Courses as well as an examination in the discipline of one's clinical specialty. *Part II of the M.Med. Examination* shall be held at the end of the 3rd year as the Final Examination in the discipline of one's specialty. *No candidate shall be allowed to attempt the Final Examination without passing Part I of the M.Med. Examination*

3. Regulations for Part I of the M.Med. Examination

3.1 Candidates shall, before admission to Part I of the M.Med. Examination, have satisfactorily completed a year of full-time M.Med. course and followed the prescribed Biomedical Science Core Course according to the regulations common to all clinical disciplines.

3.2 Part I of the M.Med. Examination shall include four units i.e. the THREE chosen Biomedical Science Core Courses, each being a unit, and the examination in the discipline of one's specialty forming the fourth unit. The four units shall have equal weighting in the final evaluation of the examination.

3.3 The examination in the Biomedical Science Core Course shall consist of a written and an oral or practical part on each course. The written examination shall be set jointly by the relevant Clinical and Biomedical Science teachers. Clinical Departments shall have the final say on the choice of topics to be examined and on the format to be adopted in the written paper(s), so that examinations are tailored to suit the requirements of individual disciplines.

3.4 Examination in the discipline of one's clinical specialty shall consist of a clinical and oral examination, but there shall be no written part.

3.5 Candidates will have to score an aggregate mark of at least 50% in each of the units to pass Part I to the M.Med. Examination.

3.6 Continuous assessment marks shall be included in the final assessment. Equal weighting of 50% each will be assigned to course work and Final Examination separately.

4. Candidates who fail Part of the M. Med. Examination:
A candidate who fails in one or two units of Part I of the M. Med. Examination shall be allowed to proceed to the second year of the course but will have to sit for a supplementary examination in six months time. Failing the supplementary examination will lead to discontinuation from the course, except in special circumstances, if recommended by the Faculty Board of Medicine and approved by the University Academic Board. A candidate who fails in more than two units of Part I of the M.Med. Examination shall be discontinued from the course.

Regulations for the M.Sc. Degree
The University regulations for M.Sc. degrees will apply. The Muhimbili University College of Health Sciences offers M.Sc. Degrees in ENT, Oral Surgery, Neurosurgery, Tropical Disease Control and other Biomedical Sciences.

MASTER OF SCIENCE IN EAR, NOSE AND THROAT DISEASES (ENT)

This is a two year course consisting of course work, and dissertation at the end of which, candidates sit for examination(s).
The courses are:

Part I
O.L. 601: Consists of teaching in the basic science and the basic principles in Ear Surgery. This course takes 9 months.

Part II
O.L. 602: Consists of teaching in the basic sciences and basic principles in nose, paranasal sinuses and throat surgery. The duration of the course is 12 months.
O.L. 699: Consists of a dissertation based on independent research on an aspect of ENT Surgery. This part of the programme will run concurrently with the course work. The last three months of the two years will be spent in writing up and submitting the dissertation.

COURSE CONTENTS:

O.L. 601
1. The basic anatomy of the external, middle and inner ears.
2. The basic physiology of bearing and balance.
3. Disordered function: hearing loss, balance in imbalance, diagnosis, investigations and management. The diagnosis, investigations and principles of management of ear diseases with emphasis on common conditions. Clinical and Surgical experience in the management of ear diseases (clinics, wards, operating theatre etc.) Rehabilitation of the deaf.

O.L. 602
1. The basic anatomy and physiology of the nose, paranasal sinuses, nasopharynx, oropharynx, hypopharynx and larynx.
2. The diagnosis, investigations and principles of management of common nasal, paranasal sinuses, pharyngheal and llaryngeal diseases.

3. Clinical and Surgical experience in the management of nose, paranasal sinuses, pharynx and larynx (clinics, wards, theatres etc).
4. Diagnosis, investigations and management of head and neck surgical conditions.
5. The principles of management of cancer of the head and neck by surgery, radiotherapy and chemotherapy.
6. Upper earodigestive tracts endoscopy.

O.L. 699: Dissertation - data collection during the course work. Writing up and presentation during the last three months.

EXAMINATIONS

1. The candidate(s) will be assessed by written, clinical/oral examinations as follows:
   a. At the end of OL 601
   b. At the end of OL 602
   c. Final examination at the end of the course.
2. A candidate shall be admitted into the course OL 602 having successfully passed with a B or higher average grade the examinations based on Course OL 601.
3. The course of study of candidates may be determined on the recommendation of the Faculty Board of Medicine and approved by Academic Board if he/she is not maintaining a B average in his/her continuous assessment.
4. To qualify for the award of the degree, the candidate must pass both the final examinations and the dissertation. A candidate who fails the final examination(s) may be permitted to sit supplementary examination(s) as stipulated by the University Regulations.

MASTER OF SCIENCE IN NEUROSURGERY

This is a three year course consisting of course work and dissertation at the end of which the students sit for an examination.

Part I

NS 601 Comprises the teaching of basic sciences, principles of clinical neurology and the principles of operations of the brain: its content levers, spinal cord, peripheral nerves and pituitary gland. The duration of the course is 11 months.

Part II

NS 602 Part II section II - The course work consists of the management of neurosurgical pathology and the principles of operative surgery of main, spinal cord, peripheral nerves and pituitary gland. This part lasts for 22 months.

NS 699 Dissertation

1. Clinical Neurology with emphasis on clinical presentation of neurosurgical pathology. For this part candidates are attached to a Neurology Unit.
2. The anatomy of the head and neck with particular emphasis on the brain cranial nerves and brain coverings.
3. The anatomy of the spine, spinal cord and peripheral nerves.
4. Clinical neurophysiology of the brain, spinal cord and peripheral nerves. Emphasis to be put on brain areas of functional localization, various connecting tracts and neurotransmitters.
5. Formation and circulation of CSF.
6. Surgical pathology of brain, spinal cord, peripheral nerves and pituitary gland:
   a. Inflammatory: abscess granulomas etc.
   b. Neurotrauma
   c. Vascular: aneurysms
   d. Neoplasms, including pituitary adenoms
   e. Degenerative: disc prolapse, etc.
   f. Congenital: hydrocephalus, spina bifida, etc.
7. The diagnosis and investigation of neurosurgical pathology:
   a. Neuroradiological investigations
      Skull/spine X-rays
      Myelography
      Caudography
   b. T.Scan + Scintillography
   c. Angiographic investigations
      Percutaneous carotid angiography
      Arcography
      Vertebral angiography
      Digital subst. Angiography

This unit consists of the management of neurosurgical pathology and the principles of operative surgery of brain, spinal cord peripheral nerves and pituitary gland.

1. Principles of Operative Surgery: Brain, spinal cord and peripheral nerves:
   a. Scalp incisions
   b. Burr hole/Trepanation
   c. Various forms of Craniectomies
   d. Laminectomies
   e. Principles of Peripheral Nerve Surgery
2. Surgery of the Pituitary Gland
3. Principles of Management of Diseases of the Brain:
   a. Head injury and its complications
   b. Brain inflammatory masses
   c. Aneurysms
   d. Hydrocephalus
   e. Neoplasms
4. Principles of Management of Spinal Cord Pathology:
   a. Cord injuries
   b. Inflammatory masses
   c. Neoplasms
   d. Spina bifida, tethered cord
5. Principles of Management of Interventilateral Disc pathology
6. Principles of Management of Peripheral Nerves:
   a. Nerve grafting
   b. Nerve block
   c. Neurolysis
   d. Neoplasma
7. Pathologic anatomy of Brain Tumours

NS 699 Dissertation

This consists of a dissertation based on independent research on one aspect of Neurosurgery. This will be part of part II of the course and will take approximately one year (part of the 22 months).

Method of Assessment

1. The candidate will be assessed by:

1.1 Part I Examinations (written, practical/oral) at the end of the first part of training.

1.2 Part II Examinations at the end of the training programme:
   a. Written, practical/oral examination
   b. Evaluation of the dissertation

2. The candidate shall be admitted to the subsequent course unit on successfully passing (with a B grade or higher) the exams on preceding course unit
3. The course of study of the candidate may be terminated on the recommendation of Faculty Board of Medicine if the Board is satisfied that the candidate is not maintaining a B average mark in his continuous assessment.
4. To qualify for the award of the Degree, the candidate must pass in both final exams and the Dissertation. A candidate who fails in the final exam may be permitted to sit supplementary exams as stipulated by the University Regulations.

MASTER OF SCIENCE IN TROPICAL DISEASE CONTROL

1. Objectives:

The graduates are expected to be able to:

1.1 Carry out community diagnosis and identification of priority health problems for relevant research and control.

1.2 Carry out scientific investigations on specific aspects related to endemic and epidemic tropical diseases.

1.3 Design, implement and evaluate appropriate disease control programmes in epidemic situations and in endemic areas.

1.4 Mobilize the population in question for community participation in control and/or prevention programmes.

2. Duration of the Programme:

The duration of the programme is two years. During the first year, the candidates do core courses in: Behavioural Sciences, Biostatistics, Community Health, Demography, epidemiology, Microbiology/Immunology, Parasitology/Medical Entomology, Population Studies & Research Methodology. In addition, the candidates are required to do ONE major option in EITHER Epidemiology or Parasitology /Medical Entomology. They also spend up to two months attached to ongoing relevant control/research projects/programmes in Tanzania as appropriate. The second year is devoted to research projects, data analysis and dissertation. Before the candidates start their research projects they are offered additional lectures/tuition on their subjects of specialization/research.

3. Eligibility:

A medical degree is not a prerequisite, but each candidate for the degree of M.Sc. (Tropical Disease Control) must satisfy all requirements specified under the regulations for a Master's degree of the University of Dar es Salaam. These regulations are listed in the University Calendar, and will be adhered to.

4. Examination Regulations:

(To be read in conjunction with general University regulations for higher degrees in all Faculties)

4.1 To qualify for the award of the Master of Science Degree in Tropical Disease Control the candidate shall:

a. Sit and pass written examinations and practicals (in relevant subjects) in the core and optional courses at the end of the first year of study.

b. Submit a dissertation for examination towards the end of the second year of study.

4.2 During the examinations at the end of the first year of study:

a. The written and practical examination will carry 50% of the marks for the subject; the remaining 50% will be allocated to continuous assessment based on at least three tests, seminar presentations and other assignments.

b. Candidates must pass both the written and the practical examinations with a minimum of B grade.

c. A candidate who passes in one part and fails in the other may on the recommendation of the Board of the Institute be permitted to sit for a supplementary examination in the failed part after a period specified by the Board.

d. Candidates who obtain an overall average grade of C or less in both written and practical examinations will be discontinued.

e. Candidates will be allowed to supplement in only TWO failed papers. Candidates failing more than 2 papers will be discontinued.

f. A candidate who fails in the supplementary examination will be discontinued.

4.3 (a) Within the first three months of the second year of study, candidates shall submit, for approval of the Faculty Board of the Institute an outline of the dissertation.

(b) The dissertation shall be submitted three months before the end of the second year of study and shall be defended orally in accordance with the

Regulations for the Submission of Dissertation/thesis for Higher Degrees of the University of Dar es Salaam.

5. Course Structure:

Core Courses:

TD 601* Parasitology/Medical Entomology
TD 602 Microbiology/Immunology
TD 603 Behavioural Sciences/Population Studies
TD 604 Community Health
TD 605 Epidemiology/Research Methodology
TD 606 Biostatistics/Demography

Major Optional Courses:

TD 607* Parasitology/Medical Entomology
TD 608* Epidemiology/Research Methodology
TD 699 Dissertation

Candidates doing TD 601; and similarly those doing TD 608 will not do TD 605.

TD 601 Parasitology/Medical Entomology 100 hours.

Parasitism and other animal associations; parasitic protozoa and associated diseases; malaria, trypanosomiasis and amoebiasis; parasitic helminths and associated diseases; schistosomiasis and amoebiasis; schistosomiasis, hookworm infections, ascariasis, filariasis and cestodiasis; pathology and symptomatology of parasitic infections; diagnostic methods in parasitology; parasitic zoonoses.

TD 602 Microbiology/Immunology 100 hours
Principal groups of bacteria, fungi and viruses of public health importance in the tropics; microbiology of the environment: water, milk, food, air and soil; anatomy, biology and nature of the immune response to microbial infections; microbial ecology; microbiology and immunological methods in the study and control of microbial infections; control and research priorities in microbiology.

TD 603 Behavioural Science and Population Studies 100 hours
Human behaviour in relation to diseases, health and illness; social variables: age, sex and socio-economic status; types of health care resources; utilization of health services; economic and diseases control; health: policies and priorities; cost-benefit and cost- effectiveness analyses; community participation, perception and motivation, values, beliefs and attitudes; communication methods in health education; evaluation in health education; knowledge, attitude and behaviour; group pressure for conformity; social structure and organization; supervision, authority and accountability; performance appraisal; theories and concepts of population control.

TD 604 Community Health 100 hours
Principles of human ecology; natural history of tropical diseases; host-pathogen relationships; malnutrition and environmental factors in relation to disease; organization of health services; primary health care concept; environmental health; water and air pollution; excreta disposal, sewage collection and treatment; solid wastes; occupational health; hygiene; man-made changes in relation to disease and vector populations; immunization.

TD 605 Epidemiology and Research Methodology 100 hours
Epidemiology: history, principles, uses and measurements; scientific method; natural history of diseases and levels of prevention; epidemiological methods: descriptive, analytical, case control, cross-sectional, cohort and experimental studies, survey methods; control of communicable and non-communicable tropical diseases; literature search; report and protocol writing.

TD 606 Biostatistics and Demography 100 hours
Role of biostatistics in epidemiological studies, descriptive statistics; probability, statistical inference, multivariate techniques, distribution theory, population, dynamics, epidemiometric models, designing instruments for data collection, tools, and techniques for data analysis, interpretation of data, validity and reliability of data, exploratory data analysis, use of computers, historical change in world's population, demographic transition, descriptive measures of a

population at a point in time, population pyramids, population growth, mortality, natality and migration, population projections, morbidity, incidence and prevalence, life tables, sources of data and systems of data collection in Tanzania, standardization.

TD 607 Parasitology and Medical Entomology 200 hours
Parasitism and other animal associations; biology of parasitism; parasites: structure and symptomatology of parasitic infections; immunology of parasitic infections; mechanism of parasite survival in the hosts; antiparasitic drugs: modes of action; drug resistance; diagnostic methods in Parasitology; parasitic zoonoses; vectors of parasitic and microbial infections; diptera, siphonaptera, hemiptera, anoplura and acarina; other arthropods of medical importance; vector biology, ecology, bionomics, competence and efficiency; principles and methods of vector control; research methods and techniques in Parasitology; principles and methods in the control; research methods and techniques in Parasitology; principles and methods in the control of parasitic infections.

TD 608 Epidemiology 200 hours
All topics in TD 605 covered at greater depth; simulation studies, retrospective and prospective studies, anthropological and sociological and research methods, Operational Research, design of community and clinical trials.

Regulations for the Ph.D. Degree

1. The following shall be eligible for the degree of Doctor of Philosophy in the Institute of Public Health
1.1 Any Doctor of Medicine (M.D.) of the University of not less than four years standing.
1.2 Any graduate of this or any other recognized University who has been given the status of Doctor of Medicine, and who has held the qualification by virtue of which such admission has been granted for not less than four years.
1.3 Any graduate of this or any other University who holds a recognized graduate degree.
1.4 A candidate for the degree shall be required to pursue at this University, or other place approved by Senate for the purpose, an approved course of special duty or research of not less than two calendar years duration on some subjects of the Biomedical Sciences or the Clinical Sciences or the Community Health Sciences.

2 The common regulations for the degree of Doctor of Philosophy in all Faculties will also be of effect for the degree in this Institute, as will the regulations for submission of theses in the University.

Regulations for the Diploma in Public Health by Course Work and Dissertation (To be read in conjunction with general University Examination Regulations and Regulations for Higher Degrees in all Faculties of the University of Dar es Salaam)

1. The following shall be eligible for registration for the Diploma in Public Health of the University of Dar es Salaam.

1.1 Any Doctor of Medicine (M.D.) of the University who has complied with the regulations set out hereunder.

1.2 Any medical graduate of any other recognized University who has been admitted to the status of Doctor of Medicine and who has complied with the regulations set out hereunder.

2. A candidate for the Diploma may register for the course not less than two years after the award of the M.D. degree or its equivalent. One of these two years must have been passed in an approved internship and the second year in an approved hospital appointment, preferably in an up-country station.

3. The Diploma course shall be of not less than one calendar year duration. Candidates will be given one month leave during the academic year of study.

4. Examination:
To qualify for the award of the Diploma in Public Health a candidate shall be required to:

4.1 Sit and pass the final written, practical and oral examinations listed below or the supplementary examinations if any.

4.2 Submit a dissertation for examination and oral defence before the end of the third week of June. No candidate will be allowed to undertake field data collection for the dissertation unless he has passed in the final or the supplementary examination.

5. The final written, practical, and oral examination will consist of the following:

Paper I Community Health (Written and oral)
Paper II Epidemiology/Biostatistics (Written and oral)
Paper III Behavioural Science (Written and oral)
Paper IV Parasitology/Environmental Sanitation (Written, practical and oral)
Paper V Community Medicine (Take home examination)

5.1 Students must pass in each of the individual papers by obtaining a minimum of 50%.

5.2 Up to 60% of final mark (which determines pass or failure) will be allocated to course work/class tests. The remaining 40% will be based on the results of the final examinations.

5.3 Candidates who fail up to a maximum of two papers may on the recommendation of the Board of the Institute be allowed to sit supplementary examinations in the failed paper(s).

5.4 Candidates who pass the supplementary examination shall be awarded not higher than grade C in the re-examined paper(s).

5.5 Candidates who fail in three or more papers shall be discontinued.

5.6 Candidates who fail any paper in the supplementary examination shall be discontinued.

5.7 No candidate shall be allowed to repeat the Diploma in Public Health course except in very exceptional instances, if so recommended by the Board of the Institute.

6. Dissertation:

6.1 Before the end of the first term candidates for the Diploma shall submit, for approval of the Board of the Institute, a concise outline of the dissertation.

6.2 The candidate shall pretest his/her protocol during the breather between the first and second terms. Based on the findings of the pretest the candidate shall either continue with the field study after the final examination or choose another subject.

6.3 In submitting the dissertation, candidates shall follow the *Regulations for the submission of thesis and dissertation for higher degrees of the University of Dar es Salaam.*

7. A candidate who is required by the Examiners to make minor alterations to his dissertation and who is not required to re-submit the dissertation in a revised form, must make the alterations within a period of three months. If he fails to make the alterations to the satisfaction of the Examiners within the three months, and is not granted an extension of this period by the Academic Board, he will be deemed to have failed the examination.

7.1 The dissertation can be re-submitted in a revised version if the Examiners so recommend;

7.2 No rejected dissertation may be re-submitted under any circumstances in a revised form unless it was so recommended by the Examiners.

7.3 The dissertation recommended for re-submission must be submitted within six months.

8. For the purpose of the oral, practical or written examinations held in connection with the dissertation, the candidate shall be required to present himself at such places as the University may direct and at such times as will be notified to him.

Regulations for the Master of Dentistry (M.Dent.) Degree in Oral Pathology, by Course Work and Dissertations

1. Introduction:
The course is intended to provide a deeper knowledge of oral pathology, a better understanding of the relationship between the laboratory and clinical aspects of oral disease, and to acquaint the student with the methods available for research in oral pathology. The student will use approximately three-quarters of the study time in the laboratory and one quarter in the clinic.

2. Entry Qualifications:
The candidates for admission to the Master of Dentistry Course in Oral Pathology must be holders of the Doctor of Dental Surgery degree of the

University of Dar es Salaam or its equivalent. They must possess a credit pass in Pathology.

3. Course Structure:

3.1 The duration of the course will be at least three academic years.

3.2 The course will be jointly conducted by the Department of Oral Surgery and Oral Pathology of the Faculty of Dentistry and other appropriate departments of the Faculty of Medicine. However, any specified part(s) of the course may be conducted in another University institution approved by Academic Board.

3.3 The course will consist of two parts:
Part I: General and Basic Oral Sciences
This will be conducted in the first academic year and will consist of four subject units.

Laboratory Methods
Biostatistics, Epidemiology and Research Methodology
General Pathology
Oral Pathology
Part II: Laboratory and Clinical Training
This will be of two academic years duration and aims at giving the candidate more experience in Oral Pathology, in more advanced laboratory methods, and in laboratory management.

Part II consists of four subject units
Oral Pathology
Community Dentistry
Practical Training
Dissertation

The candidates will complete, write up and submit their dissertations during this period.

4. Objectives of the Course
The course aims at producing a dental doctor who has specialist knowledge and practical experience in oral pathology. The specialist must be capable of:

4.1 Collecting and processing for examination any specimens for diagnosing oral diseases.

4.2 Conducting clinical and laboratory investigations on patients with oral disorders, as well as planning and satisfactorily implementing treatment.

4.3 Interpreting all results of laboratory investigations in various fields of oral diagnostics.

4.4 Providing consultant level advice in the field of oral pathology to allied professional colleagues and patients.

4.5 Understanding the importance of knowledge and of obtaining new knowledge by conducting research and publishing the results.

4.6 Understanding the pathogenesis of oral and dental diseases and being familiar with the preventive methods and mechanisms which work with individuals and with groups of subjects.

4.7 Training dental and allied professionals in the field of oral pathology.

5. Examinations:
The candidates will be assessed by written, practical and oral examinations.

5.1 To qualify to sit the University examination the candidate must have satisfactorily followed and completed the courses leading to the respective examinations.

5.2 Continuous assessment where applicable will form 50% of the final grade marks.

5.3 The University Examinations:
There will be two university examinations, for Part I and Part II respectively: Part I examination will be held normally at the end of the first academic year of the course; Part II examination will be held at the end of the third academic year of the course.

5.3.1 Part I Examination:
Candidates must have completed four course units satisfactorily to be allowed to sit the examination which will consist of a written paper, a practical and oral examinations.

5.3.2 Part II Examinations:

a. Candidates must have completed the course units for Part II before being allowed to sit the examination, which will consist of a written paper, a practical and oral examinations.
b. Candidates must have submitted the dissertations through the Head of Department before sitting the examination. The dissertation will be an integral portion of the final examination: it will be examined and assessed separately and will be graded.

5.4 The Examinations Grades:
The examination marks will be graded as follows:

Grade	A	B+	B	C	D
Percent	70-100	69-60	59-50	49-40	39-0

The pass mark shall be B grade.

6. General Examination Regulations:

6.1 Part I Examination:

6.1.1 A candidate who obtains a B grade or above in written and practical/oral combination will pass the examination.

6.1.2 A candidate who fails in one or two courses will proceed to the Second Year, but will be required to sit a supplementary examination in the failed subjects provided that he/she has maintained a B average.

6.1.3 A candidate who fails in more than two courses will be discontinued from the course.

6.1.4 The supplementary examination will be held after six months.

6.1.5 A candidate who fails the supplementary examination will be discontinued.

6.2 Part II Examination:

6.2.1 A candidate who obtains a B grade or above in both the written and practical/oral combination passes the examination part.

6.2.2 A candidate who fails the Final examination with a B average will sit a supplementary examination in the failed part.

6.2.3 A candidate who fails the Final examination with less than a B average will sit a supplementary examination in the whole examination.

6.2.4 The supplementary examination will be held after six months.

6.2.5 No candidate will be allowed more than THREE attempts at the Final examination.

6.2.6 Candidates who failed the dissertation will be required to resubmit it in six months.

6.2.7 Candidates who fail the Final examination and the dissertation will repeat the Final Year.

Course Outline

Part One:

OP 601 Laboratory Methods 500hours
Use of microscope and morphometric methods (point counting, etc); fixation, staining methods, special stains; taking-in and tissue processing; microtomy and cryomicrotomy; special techniques: care of laboratory animals, tissue culture, macro and microphotography, immunomorphologic techniques, electron microscopy.

OP 602 Biostatistics, Epidemiology and Research Methodology 100 hours
Basic statistics, experimental design; data analysis and processing; computers and their use; epidemiology; literature search; Cancer registration.

OP 603 General Pathology 200 hours
Cellular injury and repair; fluid and haemodynamic derangements; genetic disorders; immunopathology, infectious diseases; nutritional disorders;

environmental pathology; neoplasis: carcinogenesis and metastases; forensic pathology.

OP 604 Oral Pathology 700 hours
Epidemiology of oral pathological lesions; etiology of oral mucosal lesions and oral cancers; prevention in oral pathology; oral pathology in Tanzania; oral pathology services.

Part Two:

OP 608 Oral Pathology 700 hours
Disturbances of development and growth; pathology of dental hard tissues; benign and malignant tumours; odontogenic cysts and tumours; salivary gland pathology; infections; diseases of the pulp and periapical tissues; injuries and repair; diseases of the bone and joints; diseases of the blood and haematopoetic organs; diseases of the skin; diseases of the nerves and muscles; oral radiology: techniques and diagnostic interpretation; forensic dentistry.

OP 609 Community Dentistry 100 hours
Screening of oral disease; strategies of prevention, planning health care programmes, oral health care systems.

OP 611 Practical Training 600 hours
Microscopical diagnosis of oral lesions, oral pathology laboratory techniques, specific research methods, hard tissue pathology techniques.

OP 699 Dissertation 800 -1600 hours

Regulations for the Master of Dentistry (M.Dent) Degree in Restorative Dentistry by Course Work and Dissertation

1. Objectives of the Programme:
After the postgraduate course and dissertation leading to the degree of Master of Dentistry, the postgraduate student must have internalized the following important aspects:

1.1 The student must be scientifically cultivated in order to understand the importance of knowledge and the importance of obtaining new knowledge.

1.2 The student must know the pathogenesis of oral and dental diseases. The student must also be well familiar with preventive methods and

mechanisms by which these preventive methods work in subjects as well as in different-sized groups of subjects.

1.3 The student must be closely acquainted with the field of Public Health Dentistry in order to be able to plan, to organize, and to evaluate preventive programmes in subjects, and in different-sized population groups.

1.4 The student must know and master the restorative techniques mostly used in Restorative Dentistry.

2. Regulations:

2.1 Subject to approval by the Faculty Board of Dentistry and Academic Board this programme will in whole or in part be carried out by the University of Dar es Salaam and the University of Kuopio, Finland or other University approved by Academic Board.

2.2 The candidate proposed for this programme will be a holder of Doctor of Dental Surgery Degree of the University of Dar es Salaam or its equivalent.

2.3 The regulations governing the award of Higher Degrees of the University of Dar es Salaam will apply.

2.4 On completion of this training programme the successful candidate will be awarded the degree of Master of Science in Restorative Dentistry of the University of Dar es Salaam.

2.5 The course will last for three calendar years, during which time the student must have completed successfully a training programme, which will be divided into:

Part I: Training in Research Methodology and in the topics of Restorative Dentistry (12 months)
Part II: Basic Training in Restorative Dentistry
Part III: Dissertation

3. Examination:
The candidate will be assessed by written, practical/oral examination as follows:

Part I: Examinations (3 units)
Part II: Examinations (4 units)
Part III: Dissertation (1 unit)

4. Regulations for the Examination:

4.1 A candidate shall be admitted to the subsequent course unit on successfully passing with a B average the examination on the preceding course unit.

4.2 The course of study of the candidate may be terminated on the recommendation of the Faculty Board of Dentistry if the Board is satisfied that the candidate is not maintaining a B average grade in continuous assessment.

4.3 The candidate will be required to submit a dissertation concerning independent research on relevant topics in Restorative Dentistry and Dental Public Health in Tanzania with critical evaluation of data published by others on the topic.

4.4 To qualify for the award of the degree, the candidate must pass the final examination and the dissertation. A candidate who fails any of the examinations may be permitted to sit supplementary examination(s) as stipulated by the University Regulations.

5. Study Hours:
The studies will be conducted during forty (40) weeks per year. During each week the candidate spends at least forty (40) hours on lectures, seminars, independent reading, writing and field studies. No more than fifteen (15) hours should be allocated to lectures and seminars each week.

6. Scientific Thinking:
Scientific thinking will be emphasized throughout the course. Therefore, the learning will mainly take place in seminars given by the candidates on different relevant topics and less through critical lectures.

7. Research:
At the beginning of postgraduate studies the candidate will learn to plan and to write research proposals. The candidate will collect data needed for the research project and will learn to handle and process data for computers. Special emphasis will be given to writing research reports for scientific journals and scientific meetings.

Course Outline:

Part One: First Year

RD 601 Research Methodology and Philosophy of Science I 1200 hours
Methods of planning, data collection and study design, written and oral communication in practical circumstances, scientific presentation, quantitative methods in planning, study planning biostatistics, epidemiology, basic communication, health eduction.

RD 602 Cariology 200 hours
Oral physiology, oral microbiology, oral biochemistry, chemical and physical structure of mineralized tissues, dental plague, enamel pellicle, pathogenesis of dental caries, incipient caries, prevention of dental caries.

RD 603 Periodontal Diseases 200 hours
Anatomy and biochemistry of the periodontium, tooth, cement, periodontal ligament, gingiva, alveolar bone, connective tissue, periodontal pocket, epithelial attachment, pathogenesis of periodontal diseases; prevention of periodontal diseases.

Part Two: Second Year
RD 604 Oral Biology and Diseases 600 hours
Microbiology of caries and periodontal disease, immunology of caries and periodontal disease, biochemistry of saliva, defence mechanism of oral cavity, wound healing, physiology of dental occlusion, dental anomalies, nutrition and dental caries, clinical prevention of dental caries and periodontal diseases, biology and pathology of oral hard tissues, material science, oral surgery and pathology, orthodontics, prosthodontics.

RD 605 Clinical Practicé 600 hours
Teaching methods in restorative dentistry, phantoms (operative dentistry, periodontics and prosthodontics); teaching methods in clinical treatment (clinical service).

RD 606 Dental Public Health 200 hours
Oral health sociology, health education, personnel management, planning and administration.

RD 607 Research Methodology and Philosophy of Science II 200 hours
Epidemiology and biostatistics, health economics, health policy, study design (clinical trials), diagnostic methods and calibration, reliability and calibration, reliability and validity methods.

Part Three: Third Year
RD 699 Dissertation 800-1600 hours

Regulations for Master of Dentistry (M.Dent.) Degree in Oral Surgery, by Course Work and Dissertation

1. *Introduction*
The course is intended to provide a deeper knowledge of oral and maxillofacial surgery, a better understanding of the basic concepts underlying oral surgical procedures; it will require a high standard of knowledge of the anatomy of the head and neck, of physiological and pathological principles, and of the relevant aspects of general medicine and oral surgery.

2. *Entry Qualifications:*
The candidates for admission to the Master of Dentistry Course in Oral Surgery must be holders of the Doctor of Dental Surgery degree of the University of Dar es Salaam or its equivalent. They must possess a credit pass in Surgery.

3. *Course Structure:*
3.1 The duration of the course will be at least three academic years.

3.2 The course will be jointly conducted by the Department of Oral Surgery and Oral Pathology of the Faculty of Dentistry, Department of Surgery and other appropriate departments of the Faculty of Medicine. However, any specified part(s) of the course may be conducted in another University institution approved by Academic Board.

3.3 The course will consist of two parts:

Part I: Biomedical Sciences:
This will be conducted int he first academic year and will consist of four subjects units:

Pathology
Physiology and Biochemistry
Oral Surgery
Surgical Anatomy

Part II: Laboratory and Clinical Training:
This will be of two academic years duration and aims at giving the candidate more experience in Oral Surgery, in more advanced surgical methods, and in clinical treatment management. The candidates will complete, write up and submit their dissertations during this period. Part II consists of five subjects units:

Medicine, Surgery and General Anaesthesia
Oral and maxillofacial Surgery
Community Dentistry
Practical Training
Dissertation

4. *Objectives of the Course:*
The course aims at producing a dental doctor who has specialist knowledge and practical experience in oral surgery. The specialist must be capable of:

4.1 Conducting clinical and laboratory investigations on patients with oral disorders and making diagnoses, as well as planning and satisfactorily implementing treatment.

4.2 Interpreting all results of laboratory investigations in various fields of oral diagnostics.

4.3 Undertaking surgical or conservative treatment of oral and maxillofacial diseases originating from soft or hard tissues as well as conducting treatment and rehabilitation of maxillofacial traumas.

4.4 Providing consultant level advice in the field of oral surgery to allied professional colleagues and patients.

4.5 Understanding the importance of knowledge and of obtaining new knowledge by conducting research and publishing the results.

4.6 Understanding the pathogenesis of oral and dental diseases and being familiar with the preventive methods and mechanisms which work with individuals and with groups of subjects.

4.7 Training dental and allied professionals in the field of oral surgery.

5. Examination:
The candidates will be assessed by written, practical and oral examinations.

5.1 To qualify to sit the University examination the candidate must have satisfactorily followed and completed the courses leading to the respective examinations.

5.2 Continuous assessment where applicable will form 50% of the final grade marks.

5.3 The University Examinations:
There will be two university examinations, for Part I and Part II courses respectively: Part I examination will be held normally at the end of the first academic year of the course; Part II examination will be held at the end of the third academic year of the course.

5.3.1 Part I Examination:
Candidates must have completed four course units satisfactorily to be allowed to sit the examination which will consist of a written paper, a practical and oral examinations.

5.3.2 Part II Examinations:

a. Candidates must have completed the course units for Part II before being allowed to sit the examination, which will consist of a written paper, a practical and oral examinations.

b. Candidates must have submitted the dissertation through the Head of Department before sitting the examination. The dissertation will be an integral portion of the final examination: it will be examined and assessed separately and will be graded.

5.4 The Examination Grades:
The examinations will be graded as follows:

Marks	Grade	Points
100-70%	A	5
69-60%	B+	4

59-50%	B	3
49-40%	C	2
39-0%	D	1

Pass mark grade shall be B

6. Examination Regulations:

6.1 Part I Examination:

6.1.1 A candidate who obtains a B grade or above in written and practical/oral combination will pass the examination.

6.1.2 A candidate who fails in one or two courses will proceed to the Second Year but will be required to sit a supplementary examination in the failed subject(s) provided that he/she has maintained a B average.

6.1.3 A candidate who fails in more than two courses will be discontinued from the course.

6.1.4 The supplementary examination will be held after six months.

6.1.5 A candidate who fails the supplementary examination will be discontinued.

6.2 Part II Examination:

6.2.1 A candidate who obtains a B grade or above in both the written and practical/oral combination passes the examination part.

6.2.2 A candidate who fails the Final examination with a B average will sit a supplementary examination in the failed part.

6.2.3 A candidate who fails the Final examination with less than a B average will sit supplementary examination in the whole examination.

6.2.4 The supplementary examination will be held after six months.

6.2.5 No candidate will be allowed more than THREE attempts at the Final examination.

6.2.6 Candidates who fail the dissertation will be required to resubmit the dissertation in six months.

6.2.7 Candidates who fail the Final examination and the dissertation will repeat the Final Year.

7. Course Outline:

Part I

OS 602	Pathology General Pathology Systemic Pathology Microbiology	120 hours
OS 602	Physiology & Biochemistry Physiology, Biochemistry, Genetics	180 hours
OS 603	Oral Surgery	800 hours
OS 604	Surgical Anatomy General principles of the anatomy of the human body; anatomy of head and neck; functional anatomy of the masticatory system.	400 hours

Part II

OS 608	Medicine, Surgery and General Anaesthesia Medicine, Sugerry, General Anaesthesia	450 hours
OS 609	Oral and Maxillofacial Surgery Local Anaesthesia, Minor Surgery, Traumatology, Plastic Surgery, Malignant tumblers.	450 hours
OS 601	Community Dentistry Screening of oral diseases; strategies of disease prevention; planning health care programmes; Oral health care systems.	100 hours
OS 611	Practical Training Surgical techniques, specific Oral Surgery operations, research methods.	600 hours
OS 699	Dissertation	800-1600 hours

Regulations for the Master of Dentistry (M.Dent.) Degree in Dental Public Health by Course Work and Dissertation

1. THE COURSE

The course will be jointly conducted by the Department of Preventive and Community Dentistry, the Faculty of Dentistry Department of Epidemiology/Biostatistics or Community Health and other appropriate departments of the Faculty of Medicine. However, any specified part(s) of the course may be conducted in another university institution approved by the Academic Board.

The course will consist of two parts:

Part I: will be conducted in the first academic year and will consist of three units/subjects:

1. Research Methodology and Philosophy of Science, Part I.
2. Oral Diseases
3. Dental Public Health

Part II: will be of two academic years duration and aims at giving the candidate more experience in Dental Public Health and in more advanced methods and in preventive treatment management. The candidates will complete, write up and submit their dissertation during this period. Part II consists of three units/subjects:

1. Community Dentistry
2. Research Methodology and Philosophy of Science Part II.
3. Dissertation

EXAMINATIONS

The candidates will be assessed by written, practical and oral examinations. To qualify to sit the University examination the candidate must have satisfactorily followed and completed the courses leading to the respective examinations. Continuous assessment where applicable will form 50% of the final grade marks.

The University Examinations:

There will be two university examinations, for Part I and Part II courses respectively.

1. Part I examination will be held normally at the end of the first academic year of the course
2. Part II examination will be held at the end of the third academic year of the course.

Regulations for the Examination:

Part I Examinations:

1. Candidates must have completed three courses unit satisfactorily to be allowed to sit the examination.
2. The examination will consist of a written paper, a practical and oral examinations.

Part II Examinations:

1. Candidates must have completed the course units for Part II before being allowed to sit the examination.
2. Candidates must have submitted the dissertation through the head of department before sitting the examination.
3. The Dissertation will be an integral portion of the final examination.
4. Part II Examination will consist of a written paper and oral examinations.
5. The dissertation will be examined and assessed separately and will be graded.

Grade	*Marks*	*Points*
A	70 - 100%	5
B+	60 - 69%	4
B	50 - 59%	3
C	40 - 49%	2
D	0 - 39%	1

The pass mark shall be B grade

GENERAL EXAMINATION REGULATIONS

Part I Examination.

1. A candidate who obtains a B grade or above in written and practical/oral combination will pass the examination.

2. A candidate who fails in one or two units will proceed to the second year but will be required to sit a supplementary examination in the failed subject(s) provided that he/she has maintained a B average.

3. A candidate who fails in more than two units will be discontinued from the course.

4. The supplementary examination will be held after six months.

5. A candidate who fails the supplementary examination will be discontinued.

Part II Examination

1. A candidate who obtains a B grade or above in both the written and oral examination passes the examination part.

2. A candidate who fails the final examination with a B average will sit a supplementary examination in the failed part.

3. A candidate who fails the final examination with less than a B average will sit a supplementary examination in the whole examination.

4. The supplementary examination will be held after six months.

5. No candidate will be allowed more than THREE attempts at the final examination.

6. Candidates who fail the dissertation will be required to resubmit the dissertation in six months.

7. Candidates who fail the final examination and the dissertation will repeat the final year.

PART I

OH 601 Research Methodology and Philosophy of Science 700 Hours
- Methods of planning
- Data collection and study design
- Scientific presentation
- Study planning

- Biostatistics
- Basic communication

OH 602 Oral Diseases 400 hours
- Prevention, treatment and rehabilitation of oral diseases
- nutrition science
- Oral health education
- Cariology
- Orthodontics
- Oral surgery

OH 603 Dental Public Health 500 hours
- Written and oral communication in practical circumstances
- Quantitative methods in planning
- Epidemiology
- Orthodontics
- Oral surgery

PART II:

OH 603 Community Dentistry 600 hours

1. Oral Health Sociology
   - Basics of medical sociology
   - Societal connections of oral health
   - Social anthropology
   - Oral diseases as a social problem

2. Health Education
   - Basics of health education
   - Health Behavior
   - Learning and socialization

3. Personnel Management
   - Ergonomics
   - Basics of social and group psychology
   - Occupational legislation and health

4. Planning and Administration
   - Theory of planning

Quantitative methods of planning
Planning and public health
Constructional planning

OH 605 Research Methodology and Philosophy of Science

1. Epidemiology and Biostatistics: 1,000 hours
   Biostatistics
   Epidemiology
   Basics of data processing
   Independent use of data processing techniques

2. Health Economics
   Principles of economics
   Economic planning
   Oral health economics in different countries
   Efficiency and effectiveness of health services

3. Health Policy
   Oral health policy as a part of general health policy
   Public relations of oral health
   Demand and need for health services
   Nutrition policy

OH 699 Dissertation 800 - 1600 hours

Regulations for the Master of Science (M.Sc.) Degree in Orthopaedics and Traumatology by Course Work and Dissertation

1. Minimum Entry Qualifications:
1.1 Holders of Master of Medicine in Surgery of the University of Dar es Salaam with good academic and professional conduct.
1.2 Holders of a degree equivalent to Master of Medicine in Surgery obtained from other approved Universities.

1.3 Candidates of good academic and professional standing holding a Doctor of Medicine degree and having had experience of not less than three years practice in orthopaedics and traumatology as Registrars will be eligible for the course.

2. Conditions of Eligibility:
Conditions of eligibility for admission into this course will be in accordance with the University regulations for Higher Degrees training as these apply to the Faculty of Medicine.

3. Registration:
3.1 The candidates will be registered for the Degree of Master of Science in Orthopaedics and Traumatology by course work and research leading to a dissertation.
3.2 Candidates will be registered as full time students.
3.3 The duration of the course after registration will be at least two years.
3.4 Part or whole of the course may be pursued in the University of Dar es Salaam or any other University approved by the Academic Board.

4. Course work Evaluation
4.1 Candidates must pursue and complete the course fully and satisfactorily as laid down in the syllabus.
4.2 The course of study may be terminated on the recommendation of the Faculty Board of Medicine if the Board is satisfied that the candidate is not maintaining a B average mark in the continuous assessment.

5. Submission of Dissertation
The dissertation will involve research on a topic of the candidate's interest but duly recommended by the Head of the Department of Orthopaedics and Trauma and approved by the Faculty Board of Medicine.
5.1 To qualify for the award of Master of Science in Orthopaedics and Traumatology, the candidate shall submit in partial fulfillment for the award of the degree, a dissertation before the end of the Final examination.
5.2 At least three months, before submitting a dissertation, a candidate shall, through the supervisor, give notice in writing to the Chairman of the Higher Degrees Committee of the intention to submit the dissertation.
5.3 The dissertation must be accompanied by a declaration by the candidate to the satisfaction of Senate, Academic Board testifying that it is the candidate's own original work and that it has not been submitted for a similar degree in any other University. The dissertation must be submitted in four copies.
5.4 The format, presentation and literary style of the dissertation must be satisfactory. It should bear an abstract not exceeding 300 words indicating the topic investigated, method of study, results obtained and the major conclusions reached.

6. Examination of Dissertation and Degree Award:

6.1 The dissertation submitted to the University College shall be evaluated by two or three of the following categories of examiners:

a. An internal examiner from the University where the course was conducted.

b. If the course was taken in a University other than the University of Dar es Salaam, a University of Dar es Salaam examiner may also evaluate it.

c. An external examiner appointed by Academic Board.

6.2 The examiners' report regarding the dissertation will entail a definite recommendation categorized as follows:

a. The dissertation is passed.

b. the dissertation is passed subject to typographical corrections/minor corrections.

c. The dissertation is not satisfactory and is subject to major corrections and should be re-submitted for re-examination in six to nine months time.

d. The dissertation is rejected outright and the candidate fails the whole examination.

6.3 Should the examiners disagree on the disposal of the candidate with regard to the quality of the dissertation, then one of the following procedures should be adopted:

a. The recommendations of the External Examiner(s) shall be accepted.

b. An additional independent examiner shall be appointed to examine the dissertation.

c. The Medical Faculty shall be requested to appoint a panel from amongst experts deemed competent to examine the candidate orally.

6.4 The final decision on the award of the higher degree shall be made by Senate on the recommendation of the Higher Degree Committee.

6.5 A dissertation rejected by examiners after re-submission shall not be accepted for re-examination again at the University of Dar es Salaam.

7. Examination Regulations and Disposal of Candidates:

7.1 In order to be awarded the Degree of Master of Science in Orthopaedics and Traumatology of the University of Dar es Salaam, the candidate must sit and pass a Final Year examination which will include written papers, practicals and orals. Continuous assessment where applicable will form 50% of the final grade marks.

7.2 Candidates who fail the examination at the end of the course of studies may on the recommendation of the Faculty Board be permitted to sit for a supplementary examination after a period and intervals specified by the Faculty Board but the number of examination sittings shall not exceed three consecutive occasions.

7.3 To qualify for the award of the degree of Master of Science in Orthopaedics and Traumatology the candidate must pass both the course work and the Dissertation.

7.4 The examination marks will be graded as follows:

Grade	*Marks*	*Interpretation*	*Points*
A	70-100%	Excellent	5
B+	60-69%	Very Good	4
B	50-59%	Good	3
C	40-49%	Marginal Fail	2
D	0-39%	Absolute Fail	1

The pass mark shall be B grade.

8. Organization and conduct of the course:

8.1 The course work and preparation for writing up the dissertation work will run concurrently.

8.2 Candidates will be engaged in full-time residency work by apprenticeship in the Orthopaedic/Trauma Department of the Faculty of Medicine in order to acquire and master theoretical and practical skills in Orthopaedics and Traumatology.

8.3 Part of the residency work may be pursued in another hospital recommended by the Department of Orthopaedics/Trauma and approved by the Faculty Board with regard to material resource availability and competent supervision.

8.4 The course will be conducted by lectures, tutorials, seminars, Journal club and attending academic forums such as meetings, symposia and conferences.

8.5 The course work and the dissertation will be designated as Part I and Part II respectively.

Part I:			*Units*	*Hours*
O	601	Anatomy of the Human Body Surface Anatomy, Regional Anatomy, Bone Histology.	2	200
TO	602	Physical Examination of Bones and Joints, Head and neck, Upper extremity, Lower extremity, Spine Pelvis, All joints, Gait.	1	100

TO 603	Orthopaedic Incisions Scalp, neck, upper limb, lower limb, spine, pelvis, approach to various joints	1	100
TO 604	Bone Physiology Calcium metabolism water electrolyte balance, acidosis alkalosis.	1	100
TO 605	Bone Healing Primary bone healing, cortical bone healing, cancerous bone healing, wound healing	1	100
TO 606	Management of Bone Diseases Congenital anomalies, osteomyelitis, arthritides, bone tumours, tuberculosis of joints and spine, poliomyelitis, low back pain syndrome, scoliosis	4	400
TO 607	Traumatology Classification of fractures, management of fractures, management of joint dislocations, complications of fractures, dislocations, hospital infections, pseudarthrosis, resuscitation of multiple injury patient, parental nutrition.	3	300
TO 608	Joints Replacement Techniques Total hip arthroplasty, total knee arthroplasty, other arthroplastic techniques, complications	1	100
TO 609	A-O (ASIF) Techniques for Osteosynthesis External fixation, onlay technique, inlay technique, complications.	2	200
TO 610	Bone Grafting Indications, technique.	1	100

TO 611	Radiology of Bones and Joints Fractures, dislocations, tumours, infections, degenerative conditions, metabolic bone diseases, osteochondropathies, arthritides.	1	100
TO 612	Surgery of the Spine Laminectomy, spondylodesis, Harrington spondylodesis spinal, decompression for T.B.	1	100
TO 613	Hand Surgery Incisions, tendon repair, carpal tunnel syndrome.	1	100
TO 614	Neurosurgery Head injury, craniotomy, craniectomy, peripheral nerve repair, spinal fractures.	1	100
TO 615	Diagnostic Principles in Radiology Bone scanning, ultrasonic technique, tomography, C.A.T. scan. image intensifier	1	10
TO 616	Diagnostic Techniques Arthroscopy, myelography, angiography, arthro graphy, discography.	1	100
TO 617	Arthrodesis Hip, knee, ankle, shoulder, elbow, wrist	1	100
TO 618	Amputations Principles, techniques, re-implantation of severed limb.	1	100
TO 619	Prosthetics and Orthotics Indications and uses, lowerlimb prosthetics, upper limb prosthetics.	1	100

Part II

TO 699	Dissertation	800-1200

REGULATIONS FOR THE MASTER OF MEDICINE IN MICROBIOLOGY (M.MED. MICROBIOLOGY) DEGREE BY COURSE WORK AND DISSERTATION

(To be read in conjunction with general University Examination Regulations and Regulations for Higher Degrees in all Faculties of the University of Dar es Salaam)

1. This is a three year course consisting of in-service training and academic study. This will normally consist of the following three parts the sequence of which may be varied subject to approval by the Board of the Faculty of Medicine.

1.1 A one year programme of course work along the lines of the M.Sc. Microbiology programme of the Faculty of Medicine or its equivalent at this or at some other approved University at the end of which the trainee will sit and pass the part examination.

1.2 One year full time approved appointment giving experience by rotation under supervision in (2nd year) Bacteriology, Virology and Immunology relevant to the practice of Medicine and Public health.

1.3 A further one year full time senior residence appointment giving experience relevant to the practice of Microbiology (3rd year) in East Africa, during which time the required dissertation shall be written in one of the subspecialities of Microbiology and submitted.

2. To qualify for the award of Master of Medicine degree in Microbiology, a candidate shall:-

2.1 Submit a dissertation for examination and oral defence. The dissertation shall be submitted at the end of the third year and shall be of 5,000-10,000 words in length consisting either:-

2.1.1 Independent research observations/investigations on a topic relevant to the practice of Microbiology in East Africa, together with original evaluation of data published by others on the topic.

2.1.2 A review of the literature on a defined topic relevant to the practice of medical Microbiology in E.Africa.

Examination Regulations

There will be two University Examinations for the M.Med. Microbiology degree

3.1 *Part I Examination*

This will be held at the end of the first year of the course and will consist of two sections: Section I consisting of two written papers and section II

to consist of a Practical and an oral examination. Continuous assessment shall constitute 50% of the final marks.

3.2 Candidates should have submitted dissertation not later than three (3) months before commencement of the examination and orally defend it.

3.3 The examination Grades

The examination marks will be graded as follows:-

Percentage:	100-70	69-60	59-50	49-40	39-0
Grade	A	B+	B	C	D

The pass mark shall be B grade.

3.4 After the examinations, at the end of the first and third years of study, disposal of candidates will be as follows:-

3.4.1 Candidates must pass in each of the two sections of the final written and practical/oral examinations by obtaining a minimum of B grade (50%).

3.4.2 Candidates who obtain grades of C or less in one of the sections or in both the written and practical/oral examinations will be required to sit supplementary examination in both sections in six (6) months time.

3.4.3 Candidates who obtain higher than B in either the written or practical oral parts of the examination and fail in the other part will be allowed to sit a supplementary examination in three (3) months time in the section he/she has failed.

3.5 Dissertation

3.5.1 Before the end of the 3rd month of the third year of the course candidates shall submit for approval of the Faculty Board an outline of the dissertation.

3.5.2 In submitting the dissertation, candidates, shall follow the "Regulations for the submission of thesis/dissertation for higher degrees of the University of Dar es Salaam.

3.5.3 A candidate who is required by the examiners to make minor alterations to his dissertation and who is not required to re-submit the dissertation in a revised form must make the alterations within a period of three months failure to which he/she will be deemed to have failed the

examination unless granted an extension of this period by Academic Board.

3.5.4 If the dissertation is recommended for re-submission, the candidate shall do so in a period of three months.

Course Structure:

Part I

MI 601 General Bacteriology 120 hrs

Use of the microscope; bacterial morphology and staining methods. Preparation of culture media, isolation of pure cultures and enumeration of bacteria. Bacterial genetics including phages and typing of bacteria. Sterilization disinfection and chemotherapy, including bacterial nutrition and metabolism.

MI 602 Systematic Bacteriology 180 hrs

Classification, taxonomy and nomenclature of bacteria, including systematic study of all bacteria of medical importance i.e. Gram negative rods, Gram positive rods, Gram negative cocci, spirochaets, mycoplasmas, Rickettsia, Coxiella, Rochalaeria, chlamydia, Gardnerella, Legionella, Mycobacteria, Nocardia and Streptomyces.

MI 603 Bacteriology and Immunology as applied 120 hrs

to Hygiene and Medicine Principal infections including diarrhoeal diseases, respiratory tract infections, meningitic, sexually transmitted diseases, wound/skin infection, food/water borne diseases, and other infections. Practical applications of immunizations included.

MI 604 Virology 90 hrs

General properties of viruses including their classification, isolation from clinical materials and identification. Laboratory methods for diagnosis of viral infections. General properties of viruses including Arboviruses, Picorna virus, Hepatitis viruses, Rabies, Orthomyxo and paramyxo viruses, African haemorrhagic fever viruses, Retroviruses and Oncogenic viruses. Control of vital infections in the community.

MI 605 Immunology 60 hrs

Biology of the immune response, antibodies, antigens, immunogens, antigen antibody reactions including the complement system, hypersensitivity, disorders and immunodeficiency states.

IM 606 Mycology 90 hrs

General properties of fungi and their classification. Superficial, subcutaneous, systemic and opportunistic mycoses including their chemotherapy.

MI 607 Epidemiology/Biostatistics 60 hrs

Basic statistical methods, experimental design, data analysis and processing, and introduction to the use of computers. Introduction to principles and methods of epidemiology in the study of diseases in man. Detailed studies of outbreaks of infections in human populations and interactions between host, pathogen, and environment and ways of controlling these factors.

MI 608 Parasitology and Entomology 60 hrs

Parasitic and vector-borne diseases of importance in East Africa. Life-cycles, pathology, pathogenesis, clinicals, diagnosis, prevention and control will be covered. Among the major parasitic diseases to be covered include malaria, toxoplasma, intestinal protozoa, intestinal helminths, costodes, myiasia, relapsing fevers an fillariasis.

Part II

Full time approved and supervised junior rotation (2nd year) giving practical experience in Bacteriology, Virology and Immunology, relevant to the practice of medicine and Public Health. One year senior residence (3rd year) in the above fields.

MI 699 Dissertation

To be done and completed during the 3rd year; The Dessertation shall have 5,000 - 10,000 words in length.

Certificate and Diploma Courses

Regulations for Entry, Training and Examinations

1. Entry Requirements

1.1 *Diploma in Environmental Health Science (DEHS)*

a. Pre-service: The minimum requirement for admission to the course for the Diploma in Environmental Health Science shall be a Pass in English and a credit in Mathematics and in any two of the following science subjects:

Biology, Chemistry, Physics with Chemistry and General Science at the National Form IV Examination or its equivalent.

b. In-service: candidates must have worked continuously as health assistants/auxiliary for at least three (3) years, must have a favourable recommendation from the Regional Health officer and must have passed a selection test organized by the Ministry of Health (Tanganyika Medical Board).

1.2 *Certificate in Medical Laboratory Technology*

a. Pre-service: The minimum requirement for admission to the course for the Certificate in Medical Laboratory Technology shall be credit passes in Mathematics and in two other science subjects, excluding General Science and Health Science, at the National Form IV Examination or its equivalent.

b. In-service: Candidates must have worked continuously as laboratory assistants/auxiliary for at least three (3) years; must have a favourable recommendation from the Regional Medical Officer or Medical Officer in-charge of the hospital, and must have passed the selection Examination conducted by the Ministry of Health (Tanganyika Medical Training Board).

1.3 *Diploma in Medical Laboratory Technology*

a. In-service: The minimum requirements for admission to the course for the Diploma in Medical Laboratory Technology are as follows: candidates must have obtained the Certificate in Medical Laboratory Technology; they must have spent at least one year (excluding National Service) after obtaining the certificate performing full-time work on the bench in one of the consultant hospitals, regional laboratories or equivalent; and they must have rotated in at least four disciplines with a written document from the Regional Medical Officer or the Medical Officer in charge of the hospital to confirm the rotation.

1.4 *Diploma in Diagnostic Radiography*

a. Pre-service: candidates must be at least 18 years of age and must be a holder of Tanzania National Form Four Examination Certificate or its equivalent with at least D pass in English and credit passes in any three of the following science subjects: Physics, Mathematics, Biology and Chemistry.

b. In-service: candidates must have worked continuously as radiographic auxiliary/assistant for at least three (3) years; they must present a favourable recommendation from the Regional Medical Officer; they must have passed the radiography auxiliary/assistant selection examination conducted by the Ministry of Health (Tanganyika Medical Training Board).

2. Course Offerings:

2.1 The course leading to the award of the *Diploma in Environmental Health Science* is offered at the Schools of Hygiene at Muhimbili Medical Centre, Mpwapwa and Tanga.

2.2 The course leading to the award of the *Certificate in Medical Laboratory Technology* is offered at the School of Medical Laboratory Technology of Muhimbili Medical Centre.

2.3 The course leading to the award of the *Diploma in Medical Laboratory Technology* is offered at the School of Medical Laboratory Technology of Muhimbili Medical Centre.

2.4 The course leading to the award of the *Diploma in Diagnostic Radiography* is offered at the Dar es Salaam School of Radiography, Muhimbili Medical Centre.

3. Course Objectives:

3.1 The training programme for the *Diploma in Environmental Health Science* is designed to enable the students to acquire the necessary skills to operate as Environmental Health Officers and also as an integral part of a health team which provides basic health service. In particular, the Environmental Health Officer will be expected to practise and to solicit the participation of urban and rural communities in environmental health and education.

3.2 The training programme for the *Certificate in Medical Laboratory Technology is* designed to enable the candidate to acquire the necessary skills to perform the routine laboratory tests required for diagnostic purposes in a general hospital laboratory. The candidate should be capable of doing any test in any of the clinical laboratory disciplines.

3.3 The Training Programme for the *Diploma in Medical Laboratory Technology* is designed to enable candidates to do advanced laboratory tests

in their specialty, to prepare them to be able to take charge of a departmental laboratory, and to prepare them to be able to assume overall responsibility for an entire laboratory.

3.4 The training programme for the *Diploma in Diagnostic Radiography* aims at training a person designated as a "DIAGNOSTIC RADIOGRAPHER" who can use different varieties of X-ray machines for the purpose of investigating diseases or body injury in a hospital of any size.

4. Course Structure:

4.1 The Diploma course in Environmental Health Science contains:

a. *Basic Science Subjects*
Physics and Chemistry as applied to public health
Human Anatomy and Physiology
Behavioural Science.

b. *Environmental Hygiene Subjects*
Parasitology of Verminology
Water Supply
Food Technology
Housing: Building materials and construction
Drainage and sewage Disposal
Collection, Treatment and Disposal of Wastes Parasitology
of Helminthology
Communicable Disease Control
Inspection of Meat and of other foods

c. *Public Health Practice and Administration*
Public Health Legislation
Port Health and Internal Health Regulations
Environmental Pollution and Radiation
Occupational Health
Community Health and Health Education
Political orientation
Practical Field Work in Regional Stations

4.2 The Certificate course in Medical Laboratory Technology contains:

a. Basic Science Subjects

Chemistry, Biology (Genetics and Immunology) Applied Mathematics, Physics and Laboratory Instrumentations.
Anatomy and Physiology

b. Medical Laboratory Subjects
Haematology/Blood Transfusion
Microbiology
Parasitology
Clinical Chemistry
Histopathology

4.3 The Diploma course in Diagnostic Radiography is divided into two parts:

Part I — *18 Months*
Anatomy and Physiology
Physics
General Physics with emphasis on electricity; and Radiation Physics.
Hospital Practice and Care of the Patient.

Part II — *18 Months*
Equipment for Diagnostic Radiography
Radiographic Photography
Radiographic Techniques

5. Course Duration:

5.1 *Diploma in Environmental Health Science*

a. Pre-service: the course extends for not less than three academic years of full-time training, consisting of lectures, seminars, demonstrations, practicals and Community Health (urban and rural) with 90% compulsory attendance.

b. In-Service: the selected candidates undergo a 2 year up-grading course offered at Tanga School of Environmental Health.

5.2 *Certificate in Medical Laboratory Technology*
The Certificate course for pre-service student extends for not less than three academic years of full-time training with 90% compulsory attendance.

5.3 *Diploma in Medical Laboratory Technology*
The Diploma course extends for not less than a two year period, after admission to the second year (see 1.3 above).

5.4 *Diploma in Diagnostic Radiography*
The Diploma course extends for a period of not less than three years, split into two parts of eighteen months each, with 90% compulsory attendance.

6. The terms follow those of the Faculty of Medicine.
7. Continuous Assessment:

Diploma in Environmental Health Science:
Aggregate marks from continuous assessment for the whole year shall constitute 50% of the final mark, while the end of year examination shall constitute the other 50%.

Candidates must obtain at least C grade on the total aggregate marks for continuous assessment before being allowed to attempt the end of year University examinations.

For candidates who obtain less than C grade in continuous assessment, a School committee shall recommend when they should appear for the final University Examination. The time extension must not exceed one year. A candidate who fails after an extension of up to one year, shall be discontinued from the course.

Certificate in Medical Laboratory Technology
Diploma in Medical Laboratory Technology
Aggregate marks from continuous assessment for the whole year shall constitute 50% of the final marks, while the other end of the year examination shall constitute the other 50%.

Candidates must obtain at least C grade on the total aggregate marks for continuous assessment before being allowed to attempt the end of year examination. For candidates who obtain less than C grade in continuous assessment, the School committees shall recommend when they should appear for the final University examination. The time extension must not exceed one year. A candidate who fails after an extension of up to one year, shall be discontinued from the course.

Diploma in Diagnostic Radiography

a. Aggregate marks from continuous assessment for the whole year shall constitute 50% of the final marks, while the end of year examination shall constitute the other 50%. Candidates must obtain at least C grade on the total aggregate marks for continuous assessment before being allowed to attempt the end of year University examination. For a candidate who obtains less than C in the continuous assessment the School committee shall recommend when such a student should appear for the University examination. The extension should not exceed one year. A candidate who fails after an extension of up to one year shall be discontinued from the course.
b. Practical Record Book for Residential and Field Work:
The book must be properly completed and signed as such by the teacher responsible in each practical assignment and must be produced by the candidate, when appearing at the oral section of Part II of the qualifying examination. During training not less than 1,500 radiological examinations must be done: 500 assisted and 1,000 unassisted.

8. Examination Regulations:

8.1 *Diploma in Environmental Health Science*
8.1.1 First and Second Year:
a. Candidates must pass the end of year examination in the First and Second year before proceeding to the next year of the course.

b. Candidates who obtain D grade of the aggregate marks will be required to repeat the year.

c. Candidates who obtain less than D grade shall be discontinued from the course.

8.1.2 Final Examination:
a. Candidates must obtain C grade or higher in the practical/oral combination to pass the examination.
b. Candidates who obtain B grade or higher in the written part of the examination and fail the practical/oral combination or *vice versa* will be required to supplement the failed part of the examination after 6 months.

c. Candidates who obtain C grade in the written examination but fail in the practical oral combination or *vice versa* will be required to sit the whole examination after 6 months.

d. Candidates who fail in both the written and oral/practical combination will repeat the year.

e. Candidates are allowed three attempts at the final examination. Candidates who fail at the third attempt shall be discontinued.

8.2 *Certificate in Medical Laboratory Technology*

8.2.1 First Year:

a. Candidates must pass the basic science examination at the end of the first term to be allowed to proceed to the second term. Candidates must pass the end of First Year examination before proceeding to the Second Year.

b. Candidates who obtain D grade in the basic science examination at the end of the first term will be discontinued.

c. Candidates who obtain D grade in the end of First Year examination will be required to repeat the year.

d. Candidates who obtain E grade at the end of First Year examination will be discontinued.

8.2.2 Second Year:

a. Candidates must pass the Second Year examination before proceeding to the Third Year.

b. Candidates who obtain D average grade in the end of the year examination will be required to repeat the year.

c. Candidates who obtain E grade in the end of the year examination will be discontinued.

8.2.3 Final Examination for the Certificate in Medical Laboratory Technology (as in 8.3 below)

8.3 *Diploma in Medical Laboratory Technology*

a. Candidates who obtain C grade and above in the practical/oral combination and C grade and above of the total aggregate marks in the final examination will be deemed to have passed the examination.

b. Candidates who obtain B grade and above in the written examination but fail in the practical/oral combination or *vice versa* will be required to resit the failed part of the examination after 6 months.

c. Candidates who obtain C grade in the written part and fail in the practical/oral combination or vice *versa* will be required to supplement the whole examination after 6 months.

d. Candidates who fail in both the written and practical/oral combination will repeat the year.

e. Failing candidates may be allowed no more than the three attempts. Candidates who fail at the third attempt will be discontinued.

8.4 *Diploma in Radiography*

8.4.1 Preliminary Examination:

a. Candidates must pass the preliminary examination at the end of the first term to be allowed to the second term.

b. Candidates who obtain less than 50% of the aggregate marks are deemed to have failed the examination and shall be discontinued.

8.4.2 Qualifying Examination:

The examination will be in two parts: Part I examination to be held at the end of 18 months, and Part II examination at the end of the 3rd year.
Part I examination will include the following subjects:
Physics
Anatomy and Physiology
Hospital Practice and Care of Patient

a. Candidates must pass in all written examination subjects.

b. Candidates who fail in all examination subjects shall be discontinued.

c. Candidates who fail in any one examination subject will be allowed to proceed to Part II of the course but must supplement in the subject they have failed after 6 months. Candidates are allowed three consecutive attempts at the final.

d. Candidates who fail at the third attempt shall be discontinued from the course.

Part II examination will include the following subjects:
Equipment for Diagnostic Radiography
Radiographic Photography
Radiographic Techniques
Oral and Practical

a. Candidates must pass all written papers and practical/oral examinations.

b. Candidates who fail in any of the papers or practical/oral combination, will supplement in the failed papers after six months .

c. Candidates are allowed only three consecutive attempts. Candidates who fail at the third attempt shall be discontinued from the course.

d. Candidates who fail in 3 subjects will supplement in the failed subjects after 12 months.

9. The Marking System for All Schools:

Grade	*Interpretation*	*Percent*
A	Excellent	75 and above
B+	Very Good	70 - 74
B	Good	60 - 69
C	Satisfactory	50 - 59
D	Fail	45 - 49
E	Poor	44 or less

10. Examiners:

10.1 Panels of Examiners for Schools: Any tutors in the school may be called upon to act as Internal Examiner. An External Examiner will be nominated by the School and recommended by the Institute's Board for the

approval of Academic Board. For the School of Radiography the Panel of examiners shall include:

For part I examination:
A Radiologist
A Radiographer
A Medical Physicist
An X-ray Technician/Engineer

For Part II examination:
Two Radiographers
A Radiologist
An X-ray Technician/Engineer

11. Award of Diplomas and Certificates:
On the authority of Academic Board the University of Dar es Salaam shall issue the Certificates and Diplomas.

12. Accommodation:
All students will be accommodated at the Medical Training Hostel.

13. Application Process:
All applications for Allied Health Science courses shall be directed through the sponsors, to:
The Registrar
Muhimbili University College of Health Sciences
P.O.Box 65001
DAR ES SALAAM
Tanzania.

14. Absence from classes:
Any candidate who shall for any reason be away from classes for more than 3 consecutive months shall be required to repeat the year of study. Absence from classes includes absence by reason of suspension or illness, whether hospitalized or not.

Regulations for the Diploma in Pharmaceutical Sciences

1. Entry Requirements:

a. Pre-service: The applicants must have passed Tanzania Certificate of Education Examination at "O" Level or equivalent and must have obtained

at least THREE CREDIT PASSES which must include Mathematics, Chemistry and English and passes in Biology and one other Science subject.

b. In-service: Must have completed at least Primary Education; have undergone the Dispensing Assistant/auxiliary Course (1-2) years and passed; must have worked satisfactorily for three (3) years; must have favourable recommendations from the employer and must have passed the selection examination conducted by the Ministry of Health and recognized by the University of Dar es Salaam. They must possess satisfactory medical certificates to verify mental and physical fitness to pursue the course.

2. Course Offering:
The course leading to the award of the *Diploma in Pharmaceutical Sciences* is offered at the School of Pharmacy, Muhimbili Medical Centre.

3. Course Objectives:
The training programme for the Diploma in Pharmaceutical Sciences is designed to enable the students to acquire the necessary knowledge and skills to operate as "Pharmaceutical Technicians". They should be able to dispense, compound and manage medical supplies at a hospital level, in a pharmaceutical manufacturing firm, or in a pharmaceutical supplies organization.

4. Course Structure by Year:
First Year
Pharmaceutical Theory
Pharmaceutical Practical
Pharmaceutical Calculations
Anatomy and Physiology
Medical Stores Control
Hygiene/Fundamentals of Dental Health
Dispensing - Muhimbili Medical Centre Pharmacy

Second Year
Pharmaceutical Theory
Pharmaceutical Practical
Pharmaceutical Calculations

Pharmacology
Forensic Pharmacy
Organic Chemistry
Microbiology
Pharmacognosy
Large-Scale Compounding and Stores Control, Muhimbili Medical Centre Pharmacy.

Third Year
Pharmaceutical Theory
Pharmaceutical Practicals
Pharmaceutical Calculations
Pharmacology
Forensic Pharmacy
Essential Drugs Programme (EDP)
Sterile Laboratory - Preparation of Infusions and Ophthalmic Solutions
Field work - three months, detached stations

5. Course Duration:
The Diploma course extends for not less than three academic years of full-time training consisting of lectures, demonstrations, seminars, practicals and workshops with 90% compulsory attendance.

6. The terms follow those of the Faculty of Medicine.

7. Continuous Assessment
a. There will be continuous assessment for each subject course.

b. Continuous assessment will constitute 50% of the marks for the final grade with 50% of the final examination grade also being a component of the course grade.

c. Candidates must obtain at least C grade on the total aggregate marks for continuous assessment before being allowed to attempt end of the year University examinations.

8. Examination Regulations:
8.1 First Year
a. Candidates who obtain C and above in all subjects will pass the end of year examinations.

b. Candidates who fail one or two subjects will be allowed to sit supplementary examination in the failed subjects within two months.

c. Candidates who pass the supplementary examinations will be allowed to proceed to the second year.

d. Candidates who fail more than two subjects or fail asupplementary examination will be discontinued.

e. N6 candidate will be allowed to repeat the first year except on special circumstances recommended by the Board of the Institute and approved by the Academic Board.

8.2 *Second Year*

a. Candidates who obtain C and above in all subjects will be allowed to proceed to the third year of study.

b. Candidates who fail in one or two subjects will sit a supplementary examination in the failed subjects within two months.

c. Candidates who fail in more than two subjects or fail a supplementary examination will be allowed to repeat the year.

d. No candidate will be allowed to repeat the second year twice.

8.3 *Third Year*

a. Candidates who obtain C and above in each subject will be deemed to have passed the Diploma in Pharmaceutical Sciences examination.

b. Candidates who fail in one or two subjects will be allowed to sit a supplementary examination in three or six months on the recommendation of the examiners and approval of the Board of the Institute.

c. Candidates who fail the supplementary examinations or fail more than two subjects will be required to repeat the final year.

d. Candidates who fail in more than two subjects after repeating the final year or fail a supplementary examination after repeating the third year will be discontinued.

e. Successful candidates in a supplementary or repeat examination will be awarded only C as the pass grade.

f. Candidates who pass the final examination for the Diploma in Pharmaceutical Sciences will be awarded the Diploma by the University of Dar es Salaam.

9. The Diploma in Pharmaceutical Sciences will be ungraded.