

Annex 3: comparison table of the biomedical engineering courses for three different countries (Korea, UK, Tanzania)

KOREA (YONSEI)			UK (KCL)			TANZANIA (MUHAS)		
No.	Grade Year	Module	No.	Grade year	Module	No.	Grade year	Module
1.	Year 2 (Sophomore)	Human Physiology	1.	Year 1	Computer Programming	1.	Year 1	Mathematical analysis
2.		Circuit Theory				2.		Introduction to Biomedical Engineering
3.		Digital System	2.		3.	Anatomy		
4.		Elementary Circuit Laboratory (1)			4.	Basic Physiology		
5.		Introduction to Bioengineering	3.		5.	Biochemistry		
6.		Biomechanics	4.		6.	Computer Programing Languages		
7.		Anatomy	5.		7.	Computer Application		
8.		Biomedical Signals & Systems			8.	Coordinate Geometry & Basic Statistics		
9.		Probability for Biomedical Engineering	6.		9.	General Physics		
10.		Advanced Computer Programming			10.	Engineering Materials		
11.		Electronic Circuits & Laboratory	7.		11.	Fundamentals of Elect/Mech Engineering		
12.		Organic Chemistry for Biomedical Engineering			12.	Engineering Drawing		
13.		Elementary Circuit Laboratory (2)	8.		13.	Electrical Workshop Technology		
14.		Computer Aided Design			14.	Mechanical Workshop Technology		
15.		Dynamics for Biomedical Engineering	9.		15.	Industrial Practical Training I		

16.	Year 3 (Junior)	Principles Of Medical Imaging (1)	10.	Year 2	Electromagnetism	16.	Year 2	Linear Algebra and Advance Calculus
17.		Digital Signal Processing	11.		Signals & Systems	17.		Signals and Systems
18.		Medical Electronic System	12.		Signals and Image Processing	18.		Applied Physics
19.		Biomedical Data Analysis	13.		Computational Methods	19.		Strength of Materials
20.		Biochemistry	14.		Computational Applied Biomathematics	20.		Fundamental of Electronics Engineering
21.		Biomechanical Engineering				21.		Computer Aided Engineering
22.		Finite Element Analysis	15.		Object-Oriented Programming	22.		Fundamentals of Logic Control
23.		Microprocessor				23.		Electrical Machines
24.		Biomedical Optics Theory & Laboratory				24.		Technical Communication
25.		Medical Image Processing	16.		Biomedical Engineering Professional Issues	25.		Measurement and Instrumentation
26.		Bio-electric Phenomena				26.		Fluid Mechanics
27.		Machine Learning for Biomedical Engineering	17.		Synthetic Anatomy	27.		Control Systems Engineering
28.		Biosensor Engineering				28.		Digital Electronics
29.		Engineering Communication Skills	18.		Introduction to Medical Physics & Clinical Engineering	29.		Thermodynamics
						30.		Microprocessor
30.	Virtual Biomedical Engineering & Laboratory	19.	Health Technology Assessment	31.	Embedded System Design			
				32.	Industrial Practical Training II			
31.	Year 4 (Senior)	CAPSTONE DESIGN	20.	BEng Research Project	33.	Year 3	Differential Equations and Numerical Analysis	
32.		Medical Instrumentation			34.		Digital Signal Processing	
33.		Application of BioMEMS	21.	Medical Imaging	35.	Graphical Programming		
34.		Introduction to Biomedical Optics			36.	Biomaterials		
35.		Bio-materials	22.	Modelling Flow & Transport	37.	Fundamental of Biomedical Instrumentations		

36.		Neural Engineering	23.		Mechatronics	38.		Static and Dynamic of Biological Fluids
37.		Advanced Visual Programming	24.		Machine Learning for Biomedical Applications	39.		Health Information System
38.		Principles of Medical Imaging (2)		40.			Professionalism and Ethics	
39.	3 rd Year (Junior) / 4 th Year (Senior)	Corporate Practice (1)	25.		Advanced Mechanics	41.		Ergonomics
40.		Corporate Practice (2)		42.			Application of Biomedical Instrumentation	
41.		Corporate Practice (3)	26.		Molecular & Cell Biology for Biomedical Engineers	43.		Genetics and Biotechnology
42.		Corporate Practice (4)		44.			Law for Engineers	
43.		Independent Research (1)	27.		Biomechanics & Neurorehabilitation	45.		Health Systems and Development Trends
44.		Independent Research (2)	28.		Bioelectricity	46.		Industrial Practical Training III
45.		Independent Research (3)	29.		Applied Finite Elements	47.	Year 4	Development of Medical devices
46.		Independent Research (4)		48.		Medical Immunology		
				49.	Rehabilitation technology			
				50.	Medical Imaging System			
				51.	Drugs and Diseases			
				52.	Research Project I			
				53.	Theory of Social Development & Critical Issues in Health			
				54.	Microsystem Technology			
				55.	Biomedical Automation and Robotics			
				56.	Quality Assurance in Medical Devices			
				57.	Management and Entrepreneurship for Biomedical Engineers			

		58.		Environment and Safety Engineering
		59.		Research Project II

† YONSEI= College of Health Science and Institute of Biomedical Engineering, Yonsei University in Wonju, KCL= Biomedical Engineering BEng, Kings College London, MUHAS= Unit of Biomedical Engineering, Department of Physiology, School of Medicine, Muhimbili University of Health and Allied Sciences