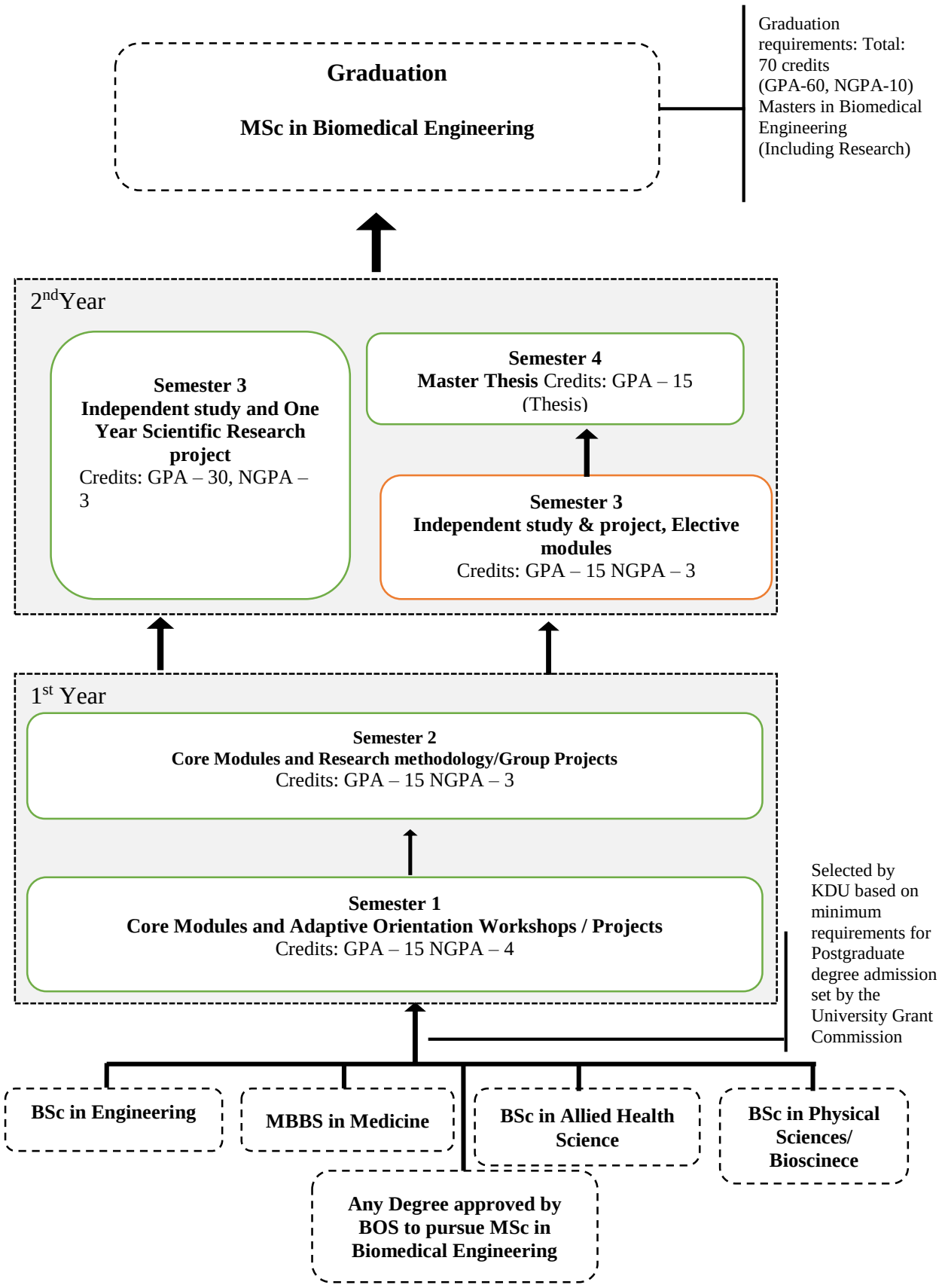

Figure 1: Programme Structure

Curriculum for the MSc in Biomedical Engineering Degree

Semester 1 Modules					
Semester	**Course Code**	**Course Name**	**Credit Value**	**Status (Compulsory /Optional)**	**Existing/ New**
Semester 1	BM5103	**Biomedical Science[1,2,3]**	3	C	New
	BM5113	**Anatomy and Histology**	3	C	New
	BM5123	**Biomedical Instrumentation, Medical Devices, and Safety**	3	C	New
	BM5133	**Advanced Mathematics**	3	C	New
	BM5143	**Biomaterial**	3	C	New
	Adaptive Module (Min. Req. One Module)[2]				
	BA5103	Basic Electronics and Electrical Engineering	3	E	New
	BA5113	Signals and Control Systems	3	E	New
	BA5123	Analog and Digital Electronics	3	E	New
	BA5133	Fluid Mechanics	3	E	New
	Core I (Min. Req. One Module)[3]				
	BC5103	Advanced Bioinformatics (Assignment - mini project)	3	E	New
	BC5113	Micro and Nanofluidic Devices (Assignment - mini project)	3	E	New
	BC5123	Bionanotechnology (Assignment - mini project)	3	E	New
	BC5133	Drug Delivery and Pharmacology (Assignment - mini project)	3	E	New
	BC5143	Sport Medicine (Assignment - mini project)	3	E	New
	Orientation Workshops / Projects (Min. Req. One Project)				
	BW5104	Electrical and Electronic Based Project	4	E (NGPA)	New
	BW5114	Control Systems based Design Project	4	E (NGPA)	New
	BW5124	Computer-based DSP Project	4	E (NGPA)	New
	BW5134	Biomechanics and Prosthetics related Project	4	E (NGPA)	New
Total Credits for Semester 1			**15 – GPA and 4 – NGPA**		

[1]Students from the Electronic, Electrical, Computer and Mechatronics Engineering, should take Biomedical Science Module.

[2]Students from the biology background, should take one adaptive module.

[3] Students from the Biomedical Engineering background should take one core I module.

Semester 2 Modules					
Semester	**Course Code**	**Course Name**	**Credit Value**	**Status (Compulsory /Optional)**	**Existing/ New**
Semester 2	BM5203	**Biochemistry**	2	C	New
	BM5213	**Cell and Tissue Engineering**[4,5,6]	3	C	New
	BM5223	**Biomechanics**	3	C	New
	BM5232	**Advanced Programming and Data Analytics**	2	C	New
	BM5242	**Advanced medical imaging techniques and analytics**	2	C	New
	BM5253	**Hospital Engineering, Safety and Management**	3	C	New
	BM5263	***Research methodology and Group Projects***	*3*	*C (NGPA)*	*New*
	Adaptive Module (Min. Req. One Module)[5]				
	BA5203	Wireless and Data communication	3	E	New
	BA5213	Biomedical Digital Signal Processing	3	E	New
	BA5223	Analog Signal Processing and Filtering	3	E	New
	BA5233	Applied Mechanics (Static and Dynamics)	3	E	New
	Core I (Min. Req. One Module)[6]				
	BC5203	Neuromorphic Engineering (Assignment - mini project)	3	E	New
	BC5213	Micro and Nanofluidic Devices (Assignment - mini project)	3	E	New
	BC5223	Frontiers of Nanotechnology (Assignment - mini project)	3	E	New
	BC5233	Applied Biomedical and Health Informatics (Assignment - mini project)	3	E	New
Total Credits for Semester 2			**15 – GPA and 3 – NGPA**		

[4] *Students from the Electronic, Electrical, Computer and Mechatronics Engineering, should take Biochemistry Module.*

[5]*Students from the biology background, should take one adaptive module.*

[6] *Students from the Biomedical Engineering background should take one core I module.*

Semester 3 Modules

Semester	Course Code	Course Name	Credit Value	Status (Compulsory /Optional)	Existing/ New
	BM6103	**Independent Study& Project (Scientific Writing, Technical Skills, and Competencies)**	3	C (NGPA)	New
	Five Elective Course Modules (3x5=15 credits)[7] or BM6930 Scientific Research (30 credits)[8]				
	Elective 1: Biomedical implants and instrumentation (Select One Module)				
	BI6103	Bioelectronics and Biosensors	3	E	New
	BI6113	Advanced Sensors and Instrumentation	3	E	New
	BI6123	Frontiers of Nanotechnology	3	E	New
	BI6133	Biomedical Implant Devices	3	E	New
	BI6143	Neural implants and Interfaces	3	E	New
	Elective 2: Biomedical Imaging and Radiology (Select One Module)				
	BR6103	Advanced Biosignal Processing	3	E	New
	BR6113	Diagnostic Radiology and Nuclear Imaging	3	E	New
	BR6123	Non-Ionizing Radiation Imaging	3	E	New
	BR6133	Neuroimaging and image analysis	3	E	New
	BR6143	Cardiovascular imaging	3	E	New
	BR6153	Advanced radiotherapy equipment	3	E	New
	Elective 3: Biomedical Data Sciences (Select One Module)				
	BD6103	Data Modeling and Computer Simulation of Physiological Systems	3	E	New
	BD6113	Advanced Bioinformatics	3	E	New
	BD6123	Applied Biomedical and Health Informatics	3	E	New
	BD6133	Neuromorphic Engineering			
	Elective 4: Orthotics & Prosthetic Design (Select One Module)				
	BP6103	Advanced Biomaterials in Prosthetics and Orthotics	3	E	New
	BP6113	Rehabilitation Engineering	3	E	New
	BP6123	Green Technology and Safety (Health, Industry, and Environmental)	3	E	New
	BP6133	Environmental, Occupational Health and Public Safety	3	E	New
	BP6143	Advanced Biomaterials for implants	3	E	New
	Elective 5: Genome, Bioengineering and Neural Engineering (Select One Module)				

	BG6103	Molecular Biotechnology	3	E	New
	BG6113	Bionanotechnology	3	E	New
	BG6123	Neural Signal Analysis	3	E	New
	BG6133	Computational Neuroscience	3	E	New
	BG6143	Neuronavigation systems	3	E	New
Total Credits for Semester 3			**15 – GPA and 3 – NGPA**		

[7]Path 1 - Student can select 5 Elective Modules and Master Thesis with 15 GPA credits.
[8] Path 2 - Student can select one-year full time Scientific Research with 30 GPA Credits

Semester 4 Modules					
Semester	**Course Code**	**Course Name**	**Credit Value**	**Status (Compulsory /Optional)**	**Existing/ New**
Semester 4	BM6915	**Master Thesis (Research Component)**	**15**	**C**	**New**
Total Credits for Semester 4			**15 – GPA**		
Total Credits for MSc Programme			**60 – GPA and 10 – NGPA**		