

MARIAN UNIVERSITY COLLEGE

A CONSTITUENT COLLEGE OF ST. AUGUSTINE UNIVERSITY OF TANZANIA



CURRICULUM FOR ALL UNDERGRADUATE PROGRAMMES

2016/2017

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FACULTIES

Faculty of Natural and Applied Sciences

The Faculty of Natural and Applied Sciences comprises the Departments of Biological and Marine Sciences, Chemistry and Environmental Sciences, Mathematics and Statistics, Physics and Electronics. It offers three-year degree programmes leading to the award of Bachelor of Education (Science) and Bachelor of Science in Mathematics and Statistics. The Faculty also offers Diploma in Primary Education. The Faculty is committed to offering courses with a strong practical component, ensuring all students develop confidence and competence in the full range of practical skills. Fieldwork skills are considered to be an important part of these practical skills in Science Education and therefore fieldwork will be carried out as a core part of many departments/units taught by the Faculty.

Faculty of Computing and Informatics

The Faculty of Computing and Informatics comprises of the Department of Computer Science and Department of Information Technology. It offers a three-year degree programme leading to the award of Bachelor of Science in Computer Science. The Faculty also offers Short Courses, Certificate, and Diploma programmes in Computer Science and Information Technology (IT).

Faculty of Social Sciences and Entrepreneurship

The Faculty of Social Sciences and Entrepreneurship at MARUCO offers academic subjects and common courses that are meant to equip students with a wide range of knowledge and the ability to think critically. For the academic year 2017/2018, the faculty is expected to offer a Bachelor of Art with Education degree programme to students majoring in Geography and English only. The Faculty comprises of the Departments of Education and Training, Geography, Language and Linguistics, Innovation and Entrepreneurship, Philosophy and Ethics, Hospitality and Tourism Management.

PROGRAMME AND COURSE DESCRIPTIONS

BACHELOR OF EDUCATION (SCIENCE)

FIRST YEAR

COURSE CODE	COURSE NAME	SEMESTER	UQF CREDIT
GENERAL CORE COURSES			
GST 101	Basic Computer Applications	1	6
GST 102	Communication and Study Skills	1	6
EDUCATION COURSES			
EDU 101	Introduction to Educational Psychology	1	8
EDU 102	General Teaching Methods	1	8
EDU 103	Philosophy of Education	2	10
EDU 104	Educational Media and Technology	2	10
BIOLOGY COURSES			
BIO 101	Animal form and Classification	1	8
BIO 102	Introduction to Biochemistry	1	8
BIO 103	Cytology and Cell Physiology	2	10
BIO 104	Introduction to Microbiology and Mycology	2	10
CHEMISTRY COURSES			
CHE 101	Basic Analytical Chemistry	1	8
CHE 102	Physical Chemistry 1	1	8
CHE 103	Systematic Inorganic Chemistry	2	10
CHE 104	Basic Organic Chemistry	2	10
GEOGRAPHY COURSES			
GEO 101	Physical Geography	1	8
GEO 102	Climatology	1	8
GEO 103	Spatial Organizations	2	10
GEO 104	Surveying, Cartography and Map Analysis	2	10
MATHEMATICS COURSES			
MTH 101	Foundations of Analysis	1	8
MTH 102	Calculus I	1	8
MTH 103	Linear Algebra	2	10
MTH 104	Calculus II	2	10
PHYSICS COURSES			
PHY 101	Mechanics	1	8

PHY 102	Electromagnetism	1	8
PHY 103	Vibrations and waves	2	10
PHY 104	Optics	2	10

SECOND YEAR

COURSE CODE	COURSE NAME	SEMESTER	UQF CREDITS
GENERAL CORE COURSES			
GST 201	Social and Professional Ethics	1	6
GST 202	Development Studies	1	6
EDUCATION COURSES			
EDU 201	Chemistry Teaching Methods	1	8
EDU 202	Biology Teaching Methods	1	8
EDU 203	Physics Teaching Methods	1	8
EDU 204	Mathematics Teaching Methods	1	8
EDU 207	Geography Teaching Methods	1	8
EDU 121	Teaching Practice I	1	10
EDU 209	Research Methods	2	10
EDU 210	Education Assessment and Evaluation	2	10
EDU 211	Curriculum Development	2	8
BIOLOGICAL COURSES			
BIO 201	Introduction to Ecology	1	8
BIO 202	Introduction to Immunology and Parasitology	1	8
BIO 203	Plant Systematics	2	8
BIO 204	Introduction to Genetics and Molecular Biology	2	8
CHEMISTRY COURSES			
CHE 201	Descriptive Chemistry of Transitional Metals	1	8

CHE 202	Chemical thermodynamics	1	8
CHE 203	Physical Chemistry II	2	8
CHE 204	Descriptive Inorganic Chemistry	2	8
GEOGRAPHY COURSES			
GEO 201	Quantitative Methods in Geography	1	8
GEO 202	Environmental Education and	1	8
GEO 203	Population Geography	2	8
GEO 204	Remote Sensing	2	8
MATHEMATICS COURSES			
MTH 201	Vectors and Vector Mechanics	1	8
MTH 202	Ordinary Differential Equations	1	8
MTH 301	Mathematics Statistics	2	8
MTH 207	Partial Differential Equations	2	8
PHYSICS COURSES			
PHY 201	Thermodynamics	1	8
PHY 202	Analogue electronics	1	8
PHY 203	Quantum mechanics	2	8
PHY 204	Digital electronics	2	8

THIRD YEAR

COURSE CODE	COURSE NAME	SEMESTER	UQF CREDIT
EDUCATION COURSES			
EDU 303	Guidance and Counseling	1	8
EDU 307	Research Project in Education	1	10
EDU 212	Teaching Practice II	1	10
EDU 301	Sociology of Education	2	10
EDU 306	Management of Education and School Administration	2	10
EDU 304	Human Behaviour and Learning*	2	8
EDU 302	Educational Planning and Economics*	2	8
EDU 305	International and Comparative Education*	2	8
BIOLOGICAL COURSES			

BIO 301	Synecology and Environmental	1	8
BIO 302	Animal Physiology	1	8
BIO 303	Mechanisms of Evolution and Diversity of Life	2	8
BIO 304	Plant Physiology and Structure	2	8
CHEMISTRY COURSES			
CHE 301	Coordination Chemistry and Organometallic Compounds	1	8
CHE 302	Electrochemistry	1	8
CHE 303	Instrumental Methods of Analysis	2	8
CHE 304	Advanced Organic Chemistry	2	8
CHE 305	Introduction to Polymer Chemistry*	2	8
CHE 306	Environmental Chemistry*	2	8
CHE 307	Natural Products*	2	8
CHE 308	Chemistry of Heterocyclic Compounds*	2	8
GEOGRAPHY COURSES			
GEO 301	Population and Development	1	8
GEO 302	Geographical Information Systems (GIS)	1	8
GEO 303	Environmental Disaster Management*	2	8
GEO 304	Natural Resources Management*	2	8
GEO 305	Project Planning and Management	2	8
GEO 306	Urban Planning and Management*	2	8
GEO 307	Environmental Policy and Planning*	2	8
GEO 308	Environmental Assessment	2	8
MATHEMATICS COURSES			
MTH 205	Abstract Algebra	1	8
MTH 302	Linear Programming	1	8
MTH 303	Numerical Analysis	2	8
MTH 304	Complex analysis	2	8
PHYSICS COURSES			
PHY 301	Atomic Physics	1	8
PHY 302	Geophysics	1	8
PHY 303	Nuclear physics	2	8
PHY 304	Energy and Environment	2	8

BACHELOR OF SCIENCE IN MATHEMATICS AND STATISTICS

FIRST YEAR

SEMESTER 1

COURSE CODE	COURSE NAME	CREDIT
MTH 101	Foundations of Analysis	8.0
MTH 102	Calculus I	8.0
MTH 105	Introduction to Microeconomics Analysis	10.0
STA 101	Introduction to Statistics and Probability	8.0
STA 103	Sampling Theory and Methodology	8.0
STA 105	Operation Research I	10.0
GST 101	Basic Computer Application Programme	6.0
GST 102	Communication and Academic Study Skills	6.0
TOTAL FOR SEMESTER 1		64.0

SEMESTER 2

COURSE CODE	COURSE NAME	CREDIT
MTH 103	Linear Algebra	10.0
MTH 104	Calculus II	10.0
STA 102	Probability Distributions I	10.0
MTH 106	Basics of Computer Programming	10.0
STA 104	Applied Statistics	8.0
STA 106	Design and Analysis of Experiments	10.0
TOTAL FOR SEMESTER 2		58.0

SECOND YEAR

SEMESTER 3

COURSE CODE	COURSE NAME	CREDIT
MTH 201	Vector and Vector Mechanics	8.0
MTH 202	Ordinary Differential Equations	8.0
MTH 205	Abstract Algebra	8.0
STA 201	Probability Distributions II	8.0
STA 202	Time Series Analysis	8.0
STA 206	Theory of Estimation	6.0
GST 201	Social and Professional Ethics	6.0
FPT 101	Field Practical Training I	10.0
TOTAL FOR SEMESTER 3		62.0

SEMESTER 4:

COURSE CODE	COURSE NAME	CREDIT
STA 205	Non Parametric Tests	10.0
MTH 206	Number Theory	8.0
MTH 207	Partial Differential Equations	8.0
STA 204	Categorical Data Analysis	10.0
STA 203	Regression Analysis	10.0
GST 202	Development Studies	6.0
STA 207	Research Methodology	10.0
TOTAL CORE		60.0

**THIRD YEAR
SEMESTER 5**

COURSE CODE	COURSE NAME	CREDIT
MTH 301	Functional Analysis (Topology)	10.0
MTH 303	Complex Analysis	10.0
STA 301	Operations Research II	10.0
STA 307	Research Project	10.0
MTH 302	Numerical Analysis	10.0
FPT 201	Field Practical Training II	10.0
TOTAL FOR SEMESTER 5		60.0

SEMESTER 6

COURSE CODE	COURSE NAME	CREDIT
MTH 304	Mathematical Information Technology	10.0
MTH 305	Graph Theory	10.0
STA 304	Stochastic Processes	10.0
STA 305	Quality Control Methods	10.0
STA 303	Multivariate Analysis	10.0
TOTAL CORE		50.0
ELECTIVES	At least one	
STA 302	Mathematical Modeling Techniques*	10.0
MTH 306	Non Linear Programming*	10.0
BCS 303	Project Management	10.0

TOTAL ELECTIVES	40.0
TOTAL FOR SEMESTER 6	90.0

BACHELOR OF SCIENCE IN COMPUTER SCIENCE (BSc CS)

FRIST YEAR

SEMESTER 1

COURSE CODE	COURSE NAME	CREDIT
BCS 100	Introduction to Informatics	8.0
BCS 110	Microcomputer Applications	6.0
BCS 106	Calculus	8.0
BCS 101	Computer Architecture	10.0
BCS 104	Discrete Structures	10.0
BPH 113	Social Ethics I	6.0
BSS 110	Development Studies I	6.0
BLG 108	Communication Skills I	6.0
TOTAL FOR SEMESTER 1		60.0

SEMESTER 2

COURSE CODE	COURSE NAME	CREDIT
BCS 102	Introduction to Computer Programming	10.0
BCS 103	Algorithm & Data Structures	10.0
BMS 110	Introduction to Business Management	6.0
BCS 105	Linear Algebra	10.0
BPH 114	Social Ethics II	8.0
BSS 130	Development Studies II	8.0
BLG 128	Communication Skills II	8.0
TOTAL FOR SEMESTER 2		60.0

SECOND YEAR**SEMESTER 3**

COURSE CODE	COURSE NAME	CREDIT
BCS 200	Network Design & Administration I	10.0
BCS 203	Software Engineering	10.0
BCS 207	Structure of Programming Languages	10.0
BCS 202	Operating Systems	8.0
BCS 215	Probability and Statistics	8.0
BMS 222	Small Businesses and Entrepreneurship	6.0
BPT 199	Field Practical Training I	10.0
TOTAL FOR SEMESTER 3		62.0

SEMESTER 4

COURSE CODE	COURSE NAME	CREDIT
BCS 201	Database Design	8.0
BCS 208	Computer Graphics and Multimedia	10.0
BCS 206	PC Diagnostics and Maintenance	10.0
BCS 205	Linux System Administration	8.0
BCS 210	Programming in C	8.0
BCS 213	Compilers	8.0
BCS 214	Theory of Computation	8.0
TOTAL FOR SEMESTER 4		60.0

THIRD YEAR

SEMESTER 5

COURSE CODE	COURSE NAME	CREDIT
BCS 305	Computer System Security	10.0
BCS 300	Systems Analysis and Design	10.0
BCS 304	Professional Practices of Information Systems	8.0
BCS 313	Distributed Systems	8.0
BCS 399	Final ICT Project	10.0
BPT 299	Field Practical Training II	10.0
TOTAL CORE		56.0
BCS 301	Internet Programming and E-Applications	10.0
BCS 303	Project Management	8.0
TOTAL FOR ELECTIVES At least one		16.0
TOTAL FOR SEMESTER 5		72.0

SEMESTER 6

COURSE CODE	COURSE NAME	CREDIT
BCS 302	Database Systems	10.0
BCS 216	Numerical Analysis	8.0
BCS 311	Introduction Artificial Intelligence	10.0
BCS 307	Operations Research	8.0
BCS 315	Network Design & Administration II	10.0
BCS 204	Management Information Systems	8.0
TOTAL CORE		54.0
BCS 209	Advanced Software Engineering	8.0
BCS 310	Computer Simulation and Modelling	8.0
BCS 211	Geographical Information System (GIS)	8.0
TOTAL FOR ELECTIVES		24.0
TOTAL FOR SEMESTER 6		78.0

CERTIFICATE PROGRAMMES

Technician Certificate in Primary Education (2 Year)

NTA LEVEL 4

Na.	COURSE CODE	COURSE NAME	CREDIT
	SEMESTER 1		
1	TET04101	Matendo ya Hisabati na Vipimo	8
2	TET04102	Uchunguzi wa Kisayansi	14
3	TET04103	Lugha na Fasihi	5
4	TET04104	English Communication Skills	14
5	TET04105	Falsafa ya Elimu	14
6	TET04106	Tehama	10
	SEMESTER 2		
7	TET04201	Milinganyo na Namba Mraba	6
8	TET04202	Jografia	8
9	TET04203	Historia na Stadi za Maisha	12
10	TET04204	Misingi ya Stadi za Kazi	10
11	TET04205	Misingi ya Elimu	20

NTA LEVEL 5

SEMESTER 1		
COURSE CODE	COURSE NAME	CREDIT
TET 05101	Seti, Vipimo vya Metriki na Takwimu	8
TET 05102	Sayansi	6
TET 05103	Stadi za Kazi	4
TET 05104	English Literature	14
TET 05105	Saikolojia, Malezi na Unasihi	10
TET 05106	Stadi za Maisha	9
	SEMESTER 2	
TET 05201	Maumbo na Majira ya Nukta	7
TET 05202	Stadi za Ramani na Jiomofiki	4
TET 05203	Historia ya Afrika Kabla na Baada Karne ya 19	3
TET 05204	Siasa, Utamaduni na Utandawazi	3
TET 05205	Kiswahili na Stadi zake	7

TET 05206	Mitaala na Ufundishaji	17
TET 05207	Upimaji na Tathmini	9
TET 05208	Mazoezi ya Kufundisha	20

Certificate in Information Technology (1 Year)

COURSE CODE	COURSE NAME	CREDIT
Semester 1		
CIT 111	Professional Skills for IT and Office Automation	10
CCS 112	Introduction to Computer Hardware and Peripherals	10
CCS 111	Basics in Computer Programming	10
CIT 112	Fundamentals of Information Technology	10
CMT 111	Basic Mathematics	10
CSC 111	English Language Proficiency	10
Semester 2		
CIT121	Computer Repair, Troubleshooting and Maintenance	10
CCS 121	Introduction to Computer Networking	10
CIT 122	Database Fundamentals	10
CCS 122	Introduction to Web Designing and Implementations	10
CCS 123	Fundamentals of Operating System and their Configurations	10
CIT 122	Introduction to Multimedia Systems	10