1. Awarding Institution	2. Teaching Institution	3. Faculty/Department	
University of Greenwich October University for Modern Sciences & Arts	October University for Modern Sciences and Arts	Biotechnology	

4. Final Award	5. Programme Title and approved endorsements:	6. Qualification Level as defined by the UK Framework for Higher Education Qualifications		
B.Sc. (Hons) Biotechnological Sciences (UoG) BSc. Biotechnology (MSA)	Biotechnology SCEU Approval (12/8/2009)	**4**	**5**	**6**
				√

7. Accredited by:	8. UCAS Code:	Programme Type		
Supreme Council for Egyptian Universities	N/A	**Single Major: √**	**Double Major:**	**Joint Major:**

9. Maximum/ Minimum Period(s) of Registration			
F/T - 4 Years- 8 years max. /4 years min. (140 Credits)	P/T - N/A	SW- N/A	D/L- N/A

10. Programme Code	11. Last Revision date for Programme Specification
B.Sc. (Hons.) P (11493)	November 2015

12. External Reference Points, e.g. subject benchmark statements and professional body requirements

The following reference points were used in designing the programme:
1- Supreme Council for Egyptian Universities (SCEU) Regulations.
2- QAA guidelines for programme specifications.
3- National Authority for Quality Assurance and Accreditation of Education (NAQAAE)
4- Programme Academic Reference Standards (ARS).

13. Entry Requirements

1. The applicant acquiring the previously determined Entry-score set by Supreme Council for Egyptian Universities
2. Passing MSA English placement Exam with a score not less than level 90
3. Submitting authenticated original certificates and documentation for the applicant that adhere to the governments' specifications and regulations

14. Educational Aims of the Programme and Potential Career Destinations of Graduates [Maximum 150 words]:

The BSc degree for biotechnology aims to provide a coherent, extensive, multidisciplinary study to have graduates prepared with the ideal foundation in the scientific community, through high quality teaching, scholarship and research, as well as the necessary skills and abilities to invade the challenging Biotechnological industries, and a strong will and motivation directed towards a pivotal role in the improvement of the quality of life

The aim is to prepare bright young scientists for a challenging career in medical, pharmaceutical, agricultural, industrial and environmental biotechnology. The career opportunities for biotechnology students are very promising in research, production, development and manufacturing such as genetic counselling, clinical molecular diagnostic laboratories pharmaceutical industry, biotech industry, crops genetics and tissue culture, food industry, forensic sciences, bioinformatics, environmental agencies, and academic careers.

15. Summary of Skills Development for Students within the Programme [Maximum 150 words]:

The students' skills are greatly developed through the well-designed programme that offers them several opportunities to enhance their skills through multiple channels. Field trips and summer trainings are provided to further enhance the students' knowledge basis, and understanding of the different fields made available, and to provide them with some specialized practical abilities that may not be offered in the lab. Certain courses that involve writing including the projects the students submit give them a set of skills related to problem solving, data and textual analysis, effective communication (in group projects), as well as presentation and evaluative skills.

16. The programme provides opportunities for students to achieve the following outcomes:

A. Knowledge and understanding of:

The graduates of Biotechnology programme should be able to demonstrate knowledge and understanding of:
- A.1. Core and associated sciences related to biotechnology,
- A.2. Fundamentals of biotechnological practices,
- A.3. Value of biotechnological applications on quality of life and the involved risks and biohazards,
- A.4. Lifelong and self-learning strategies for continuous improvement,
- A.5. Ethical, legal, and social issues associated with biotechnology,
- A.6. Strategies of digital learning and basics of programing,
- A.7. Global and cultural diversity issues in accordance with biotechnology,
- A.8. Basis of general and bio-statistics.

17. The programme provides opportunities for students to develop the following skills:

B. Intellectual skills (Cognitive Skills)

The graduates of Biotechnology programme should be able to:
- B.1. Assess and evaluate the impact of biotechnological applications on quality of life,
- B.2. Interpret data from different biotechnological disciplines and synthesize creative solutions,
- B.3. Evaluate biotechnological products, in field and/or laboratories, with reference to standards,
- B.4. Formulate hypotheses, and design scientific experiment in the field of biotechnology,
- B.5. Formulate goals and objectives, utilizing biotechnological information and data, for quality planning,
- B.6. Use innovative and creative problem-solving approaches in multi-disciplinary situational analysis,

C. Subject practical skills (Professional Skills)

The graduates of Biotechnology programme should be able to:
- C.1. Employ the theoretical knowledge and skills in practices in different biotechnological domains,
- C.2. Operate and maintain equipment with reference to standards,
- C.3. Perform biotechnological techniques safely in sterilized environment,
- C.4. Use molecular biology and genetic engineering procedures and techniques according to standards,
- C.5. Monitor, Retrieve, Categorize, analyse and evaluate relevant data from literature, using information technology, bioinformatics and library resources.

D. Transferable/key skills (Communication Skills)

The graduates of Biotechnology program should be able to:
- D.1. Communicate effectively using variety of media, with fluent discussion.
- D.2. Collaborate effectively within team and set priorities,
- D.3. Demonstrate effective time and resources management,
- D.4. Demonstrate skills for lifelong learning, self-learning and self-evaluation,
- D.5. Adopt a creative attitude in an ethical and scientific approach,
- D.6. Use software and digital data-basis effectively,

Graduate Attributes

Scholarship and Autonomy:
1. Have an informed understanding of the disciplines and be able to interact critically with the institutional structures of the respective fields.
2. Analyze and critically appraise published literature and research.
3. Think independently, creatively, and analytically and engage in as well as appreciate the disciplines of investigative research.
4. Demonstrate curiosity and responsiveness to challenges and draw conclusions through their persistence and ability to take an initiative.
5. Apply and appreciate the significance of general and biological statistics.

   The above stated points will be accomplished by the structure of the programme; the programme design includes feedback from the market and stakeholders to enhance the learning process and prepare the students for the professional environment. This can also be accomplished through the research courses (SEM301, BT301, & SEM302) which develop the abilities to apply analytical, planning, biological and operating skills to solve interaction problems and find solutions to

improve the standard of living. The senior year graduation projects (RS400, RS401), prepare for life after graduation. Students are sent off to multiple disciplines of the science whether Industrial Biotechnology, Environmental Biotechnology, Agricultural Biotechnology (Plant or animal), Medical Biotechnology, Pharmaceutical Biotechnology. Thus, they are enabled to Interact critically with the institutional structures within which Biotechnology research takes place. Lastly, and through sampling the elective courses such as Molecular Drug Design, Forensics, Stem Cell Technology, and Environmental Biotechnology, students in Biotechnology can specialize in any of those related disciplines upon graduation, which opens up career paths for MSA graduates other than Molecular methods.

Cross Cultural and International Awareness:

6. Work effectively with professionals from other disciplines and in response to challenges. They should also respond efficiently to problems, and be able to create opportunities.
7. Be able to acquire new knowledge and skills directly relevant to many aspects of modern employment
8. Effectively communicate with peers and mentors from diverse backgrounds, and appreciate the significance of sustainable behavior.
9. Manage available resources efficiently even in unfamiliar situations.
10. Develop skills that will help their continuing development as lifelong learners.
11. Communicate in more than one language and thus could work in multi-national establishments globally.
12. Adopt an ethical attitude and approach.

The students are exposed to different cultures and backgrounds; thus, they are able to extract information from other countries as well as their own, and understand professionally oriented regulations. They have multiple offers for training sessions and workshops abroad, (India, Dubai, UK, USA, Saudi Arabia, and other African regions) where they work with supervisors from other countries. The students can also receive a summer training option once they complete their sophomore year at the University of Greenwich where they work cooperatively with their British counterparts. Courses such as BT411, MARK401, and BT401 also help in the implementation of these attributes since they teach the students ethics, international safety regulations and their rights internationally. The students' participation in international conferences and competitions specifically fulfils item 7 in the attributes, as they are offered the chance to communicate effectively with peers of diverse backgrounds.

Creativity and enterprise:

13. Attain prominent communication skills, while taking into account the variance in audiences.
14. Grab hold of opportunities made available
15. Generate novel concepts for solving research issues.
16. Recognize and effectively respond to unfamiliar issues as well as exploit emerging technologies.
17. Make an effective contribution to society through providing novel career opportunities, and enhancing current ones.
18. Contribute to the development of research through reflective practice and innovation.

The Faculty presents significant levels of knowledge and understanding due to the presence of diverse experiences. Graduates learn to be creative through the research courses of the programme. They are mentally challenged to come up with unique and original conceptions. Through this rigorous process, they are taught to be innovative and resourceful. Additionally, they are drilled to be able to defend their decisions through continuous instruction in their rehearsal tutorials. They develop confidence with graphic and verbal communication and presentation skills in the industrials project course where external experts are invited as critics and the jury system is instructed to be thorough and grill students for information. Through the specialized courses (GEN302, GEN303, GEN301 and BT308) they are equipped with the tools necessary to explore and experiment with new methods and emerging information and technologies. The opportunity to demonstrate creativity is offered in their participation in international conferences, seminars and competitions such as SOLE, where they continuously receive awards and recognition for their exceptional qualities.

18. Teaching, Learning and Assessment Methods related to the programme learning outcomes and skills sets

Programme ILO(s)	Teaching & Learning Methods	Assessment Methods
A.1-A.8	Lectures, Discussions, Case Studies, Recitations, Self-Learning, Group Tutorials, Guided Independent Study, E-learning, Academic counselling	Articles for different audiences, Case studies / Care plans, designing learning materials, Essay, Field report, Multiple choice questions (MCQs), Observation, Short answer questions, Seen Exams

Programme Specifications (D5-Programme Information)

MSA University
October University for
Modern Sciences and Arts
جامعة أكتوبر للعلوم الحديثة والآداب

UNIVERSITY of GREENWICH

B.1- B.6	Seminars, Independent Student Projects, Group Tutorials, Pecha Kucha, Writing, Group Projects	Seen exams, Question banks, Problem sheets, Online discussion boards, Make or design something, Designing learning materials, Book,website, journal article or programme review, Annotated bibliographies, Short answer questions
C.1- C.5	Labs, Group Labs, E-learning, Field Visits	'Doing it' exam, Field report, Grant application, Laboratory books / Reports, Mini-practical, Observation, Selective reports / Sampling reports
D.1-D.6	Pecha Kucha, Writing, Group Projects, Independent Student Projects, Seminars, One to one tutorials	Portfolios / e-Portfolios, Oral presentations, Posters, Research projects / Group projects, *Viva voce*, Simulations

19. Programme Structure: Levels, Courses[1] and Credits				*Awards and Credits*			
Course/ Module Code	**Level**	**Credits**	**Course/ Module Name**	**Contact Hours**		**Core or optional**	**Awards and Credits**
				Theoretical	**Practical**		
BIO_101	Level 1(3)/ Term 1	3	Biology 1 (Botany)	2	2	Core	N/A
BIO_102	Level 1(3)/ Term 1	3	Biology 2 (Zoology)	2	2	Core	N/A
MTH_101b	Level 1(3)/ Term 1	2	Elementary Calculus	2		Core	N/A
CHM101b	Level 1(3)/ Term 1	3	General Chemistry	2	2	Core	N/A
ENG_101b	Level 1(3)/ Term 1	3	English for Academic Purposes	3		Compulsory	N/A
PHY_101B	Level 1(3)/ Term 1	2	Physics	1	2	Core	N/A
CSB_100	Level 1(3)/ Term 1	3	Introduction to Information Technology	2	2	Compulsory	N/A
Total credits		**19**					
Total Contact Hours		**24**					
Course/ Module Code	**Level**	**Credits**	**Course/ Module Name**	**Contact Hours**		**Core or optional**	**Awards and Credits**
				Theoretical	**Practical**		
PHY201B	Level 1(3)/ Term 2	3	Biophysics	2	-	Core	N/A
CHM_102B	Level 1(3)/ Term 2	3	Physical Chemistry	2	-	Core	N/A

Course/ Module Code	Level	Credits	Course/ Module Name	Theoretical	Practical	Core or optional	Awards and Credits
BCHM101	Level 1(3)/ Term 2	2	Biochemistry 1 (Structure and Metabolism)	3	2	Core	N/A
MB102	Level 1(3)/ Term 2	3	Microbiology	2	4	Core	N/A
ENG_102b	Level 1(3)/ Term 2	3	English Language for studying skills	3	-	Compulsory	N/A
CSB_101	Level 1(3)/ Term 2	3	Computer Programming I	2	2	Compulsory	N/A
Total credits		**19**					
Total Contact Hours		**26**					

Course/ Module Code	Level	Credits	Course/ Module Name	Contact Hours		Core or optional	Awards and Credits
				Theoretical	**Practical**		
GEN201	Level 2(4)/ Term 1	3	Introductory Genetics	2	2	Core	N/A
MTH_201B	Level 2(4)/ Term 1	2	Biostatistics	2		Core	N/A
MB201b	Level 2(4)/ Term 1	3	Immunology	2	2	Core	N/A
BIO201	Level 2(4)/ Term 1	4	Cell Biology and Physiology	3	2	Core	N/A
ENG_201b	Level 2(4)/ Term 1	3	English for Research Purposes	3	-	Compulsory	N/A
BCHM201	Level 2(4)/ Term 1	3	Biochemistry II	2	2	Core	N/A
Total credits		**18**					
Total Contact Hours		**23**					

Course/ Module Code	Level	Credits	Course/ Module Name	Contact Hours		Core or optional	Awards and Credits
				Theoretical	**Practical**		
BT201	Level 2(4)/ Term 2	4	Molecular Biology	2	4	Compulsory Core	N/A
GEN202	Level 2(4)/ Term 2	3	Microbial Genetics	2	2	Compulsory Core	N/A

Course/ Module Code	Level	Credits	Course/ Module Name	Theoretical	Practical	Core or optional	Awards and Credits
BT202	Level 2(4)/ Term 2	4	Cell and Tissue Culture	2	4	Compulsory Core	N/A
BT_204	Level 2(4)/ Term 2	3	Bioinformatics	2	2	Compulsory Core	N/A
BCE_201	Level 2(4)/ Term 2	2	Biochemical Engineering	2		Compulsory Core	N/A
SEM301	Level 2(4)/ Term 2	1	Literature Survey	1		Compulsory Core	N/A

Total credits	17
Total Contact Hours	24

Course/ Module Code	Level	Credits	Course/ Module Name	Contact Hours		Core or optional	Awards and Credits
				Theoretical	Practical		
GEN301	Level 3(5)/ Term 1	4	Molecular Genetics & Genetic Engineering	3	2	Compulsory Core	N/A
BT_301	Level 3(5)/ Term 1	3	Introduction to Biotechnology	2	2	Compulsory Core	N/A
BT_313	Level 3(5)/ Term 1	3	Molecular Biology of Cancer	2	2	Compulsory Core	N/A
BCE_301	Level 3(5)/ Term 1	2	Instrumentation for Biotechnologists	2	-	Compulsory Core	N/A
BT203	Level 3(5)/ Term 1	3	Industrial Microbiology and Fermentation or (Microbial Biotech)	2	2	Compulsory Core	N/A
Elective	Level 3(5)/ Term 1	4	Elective	2	4	Optional	N/A
MB303b	Level 3(6)/ Term 1	4	Advanced Immunology	2	4	Optional	N/A
BT304b	Level 3(6)/ Term 1	4	Food Biotechnology	2	4	Optional	N/A
BT306b	Level 3(5)/ Term 1	4	Environmental Biotechnology	2	4	Optional	N/A

Course/ Module Code	Level	Credits	Course/ Module Name	Theoretical	Practical	Core or optional	Awards and Credits
BT307b	Level 3(6)/ Term 1	4	Nanotechnology	2	4	Optional	N/A
BT312b	Level 3(5)/ Term 1	4	DNA Forensics	2	4	Optional	N/A
Total credits		**19**	Elective (Optional) One is Selected pending term availability*				
Total Contact Hours		**25**					

Course/ Module Code	Level	Credits	Course/ Module Name	Contact Hours		Core or optional	Awards and Credits
				Theoretical	Practical		
BT308	Level 3(5)/ Term 2	4	Advanced Genetic Engineering: Gene Transfer	2	4	Compulsory Core	N/A
GEN302	Level 3(5)/ Term 2	3	Complex Genome Analysis	2	2	Compulsory Core	N/A
GEN303	Level 3(5)/ Term 2	3	Proteomics & Protein Engineering	2	2	Compulsory Core	N/A
SEM_302	Level 3(5)/ Term 2	2	Industrial Projects	2	4	Compulsory Core	N/A
MARK301	Level 3(5)/ Term 2	2	Management & Marketing in Biotechnology	2	-	Compulsory Core	N/A
Elective	Level 3(5)/ Term 1	4	Elective	2	4	Optional	N/A
BT309b	Level 3(6)/ Term 2	4	Molecular Drug Design	2	4	Optional	N/A
BT310b	Level 3(6)/ Term 2	4	Host plant resistant	2	4	Optional	N/A
BT402b	Level 3(6)/ Term 2	4	Stem Cell Technology	2	4	Optional	N/A
BT322b	Level 3(5)/ Term 2	4	Bioremediation of contaminated sites	2	4	Optional	N/A
GEN304b	Level 3(6)/ Term 2	4	Pharmacogenetics	2	4	Optional	N/A
Total credits		**18**	Elective (Optional) One is Selected pending term availability*				

| Total Contact Hours | 26 | | | | | |

Course/ Module Code	Level	Credits	Course/ Module Name	Contact Hours		Core or optional	Awards and Credits
				Theoretical	Practical		
BT401	Level 4(6)/ Term 1	2	Introduction to Biosafety and Risk Assessment	2	-	Compulsory Core	N/A
MARK401	Level 4(6)/ Term 1	2	Intellectual Property Protection	2	-	Compulsory Core	N/A
BT411	Level 4(6)/ Term 1	2	Regulatory & Ethical aspects of Biotechnology	2	-	Compulsory Core	N/A
Elective	Level 4(6)/ Term 1	4	Elective	2	4	Optional	N/A
RS400b	Level 4(6)/ Term 1	5	Research Project	-	10	Core	N/A
Total credits		15	Elective (Optional) One is Selected pending term availability*				
Total Contact Hours		24					

Course/ Module Code	Level	Credits	Course/ Module Name	Contact Hours		Core or optional	Awards and Credits
				Theoretical	Practical		
MARK402b	Level 4(6)/ Term 2	2	Business Communication	2	-	Compulsory Core	*Honours Degree: BSc. (Hons.) Biotechnology 140 credits*
GEN402b	Level 4(6)/ Term 2	3	Molecular & Genetic Diagnosis	2	2	Compulsory Core	
BT305b	Level 4(6)/ Term 2	2	Animal Cell Biotechnology	2	-	Compulsory Core	
Elective	Level 4(6)/ Term 2	4	Elective	2	4	Optional	
RS401b	Level 4(6)/ Term 2	5	Research Project	-	10	Core	
Total credits		16	Elective (Optional) One is Selected pending term availability*				

Total Contact Hours	26

U.K. Level Equivalent	U.K. Definition of Level	National Level Equivalent
Level 3 (3)	Access to Higher Education Diploma or National Vocational Qualification	(1) 100 Level
Level 4 (4)	Foundation Bachelors or HNC Higher National Certificate	(2) 200 Level
Level 5 (5)	Intermediate Bachelors or HND Higher National Diploma	(3) 300 Level
Level 6 (6)	Bachelors with Honours. Final Component	(4) 400 Level

Programme-Specific Regulations

Programme Duration	Number of Contact Hours			Number of Credit Hours	
	Theoretical	Practical	Total	Compulsory	Elective
4 Years (8 Terms)	96	100	196	127	16

Percentage of Credit Hours of Basic Modules	Percentage of Credit Hours of Social and Humanities Modules	Percentage of Credit Hours of Core Modules	Percentage of Credit Hours of Other Modules (Computer Science, etc.)	Percentage of Credit Hours of Field Training Module	Discretionary Courses
18.5%	10.7%	42.3%	6.4%	7.1%	14%

Methods of Programme Evaluation:			
	Evaluator	Means of Evaluation	Samples
1.	Senior Graduating Students	Surveys, Interviews	80%
2.	Graduates/Alumni	Surveys	70%
3.	Employers	Surveys	60%
4.	External Evaluator	Interviews; External Examiner Form; Surveys	90%
5.	Other	Surveys (Students, Graduates, Stakeholders/Employers, Instructors, Assisting Staff); Interviews (Upper Management, External Examiners/Reviewers)	70%