1.	School	**Rehabilitation sciences**
2.	Department	**Prosthetics and Orthotics**
3.	Program title (Arabic)	**بكالوريوس في الاطراف الاصطناعية والاجهزة المساعدة**
4.	Program title (English)	**BSc in prosthetics and orthotics**

5. Components of Curriculum:

The curriculum for the bachelor's degree in prosthetics and orthotics consists of (141) credit hours distributed as follows

Number	**Type of requirement**	**credit hours**
First	University requirements	**27**
Second	School requirements	**24**
Third	Speciality requirements	**90**
Total		**141**

6. Numbering System:

A- Department number

Number	**Department**
1	Physiotherapy
2	Occupational therapy
3	**Prosthetics and Orthotics**
4	Hearing and speech therapy

B- Course number

Domain number	Domain title	Domain number	Domain title
0	Functional anatomy	5	Orthopaedic
1	Upper extremity	6	Clinical placement
2	Lower extremity	7	Projects and special topics
3	Spinal	8	Others
4	practicum		

C- Course number consists of 7 digits

School		Department		Level	Serial number	
1	**8**	**0**	**3**	**2**	**2**	**1**

Compulsory Requirements (18 Credit Hours)					
No.		**Course No.**	**Credit Hours**	**Prerequisites**	**Notes**
1	**Military Science**	**2220100**	**3**		
2	**National Culture**	**3400100**	**3**		
3	**Learning & Research Skills**	**3400101**	**3**	**3202099**	
				3201099	
				1932099	
4	**Communication Skills**	**3400102**	**3**	**3400101**	
5	**Introduction to Philosophy and Critical Thinking**	**3400103**	**3**	**3400101**	
6	**Human Civilization**	**3400104**	**3**		
7	**Campus Life and Ethics**	**3400105**	**(Zero credit; one-hour weekly meeting)**		

First: University Requirements:

Preparation Program Requirements

All students admitted to the university must apply for a degree examination in Arabic and English and the computer is prepared or approved by the university to determine their level. Based on the results of the examinations, either the student will study one or more of the requirements of the preparatory program

(0 - 15 Credit Hours)

No.		Course No.	Credit Hours	Prerequisites	Notes
1	Basics of Arabic	3201099	3		Pass/Fail
2	Arabic Languages Skills	3201100	3	3201099	Pass/Fail
3	Basics of English	3202099	3		Pass/Fail
4	English Language Skills	3202100	3	3202099	Pass/Fail
5	Basics of Computing	1932099	3		Pass/Fail

Electives

(9 Credit Hours)

Elective courses: (9) credit hours to be chosen from the first, second and third groups mentioned below. The student has to choose one course from each of the groups.

(First Group)

No.		Course No.	Credit Hours	Prerequisites	Notes
1	Great Books	3400107	3		
2	Islam and Current Issues	0400101	3		
3	Manners & Humanitarian Values	3410100	3		
4	Jordan: History and Civilization	2300102	3		
5	Jerusalem	3400108	3		

Electives

(Second Group)

No.		Course No.	Credit Hours	Prerequisites	Notes
1	Legal Culture	1000102	3		
2	Environmental Culture	0300102	3		
3	Physical Fitness Culture	1100100	3		
4	Islamic Culture	0400102	3		
5	Health Culture	0720100	3		

Electives
(Third Group)

No.		Course No.	Credit Hours	Prerequisites	Notes
1	Entrepreneurship & Creativity	3400109	3		
2	Foreign Language	2200103	3		
3	Electronic Commerce	1600100	3		
4	Social Media	1900101	3		
5	Appreciation of Arts	2000100	3		
6	Special Subject	3400106	3		
7	Administrative skills	1601105	3		
8	My Skills	3400110	3		

Second: School courses: distributed as follows:

A. Obligatory school courses: (24) credit hours

B. Elective school courses: ( ) credit hours

A. Obligatory school courses: (24) credit hours:

Course Number		Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
0304101	General biology I	3	-	3	-
1802131	Psychology of Rehabilitation	2		2	-
0342103	General physics for life sciences	3	-	3	-
0501107	Physiology I	2	-	2	0304101
0502107	Anatomy of head , neck & thorax	2	2	3	0304101
1801381	Bio-Statistics for rehabilitation students	2	-	2	-
1804340	Research methods in rehabilitation sciences	3	-	3	-
1802447	Management & Leadership	3	-	3	-
1902103	Computer Skills for medical facilities	3	-	3	-

B. Elective school courses: ( ) credit hours:

Course Number		Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		

Third: Specialty courses: (90) credit hours distributed as follows:

B. Obligatory specialty courses: (90) credit hours
C. Elective specialty courses: ( ) credit hours

A. Obligatory specialty courses: (90) credit hours:

Course Number		Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
0502108	Anatomy of Extremities	2	2	3	0304101
0301101	Calculus I	3		3	-
0501108	Physiology II	2	-	2	0501107
0504207	Pathology	1	-	1	+ 0502108 0501107
180325**0**	Orthopedics	3	-	3	0504207 Or Concurrent + 0502108
0904131	Engineering Graphics	2	2 Hand drawing 2 Computer	3	None
0703102	Professional writing	2		2	none
1803181	Fundamentals of prosthetics and orthotics I	2		2	None
1833180	Introduction to Prosthetics and Orthotics Practical Skills I		4	1	None
1803182	Fundamentals of prosthetics and orthotics II	3		3	Successful completion of 1803181
1803183	Introduction to Prosthetics and Orthotics Practical Skills II		4	1	Successful completion of 1833180
1833100	Biomechanics for Prosthetics and Orthotics students	3		3	1803182 or concurrent
1833220	Lower Extremity Prosthetics for below knee amputations	2		2	+0502108 +1833100

					1833201 or concurrent
1833241	Clinical Practicum in Lower Extremity Prosthetics for below knee amputations I		4	1	1833220 or concurrent
1833221	Below knee Orthoses	3		3	**1833201**
1833243	Clinical Practicum in Below knee Orthoses I		4	1	**1833221** or concurrent
1803284	Diagnostics for prosthetics and Orthotics students	2		2	0504207+ 0703102 or concurrent
1833343	Clinical Practicum in below knee Orthoses II		4	1	Successful completion of 1833243
1803285	Non Communicable Disease	2		2	None
1833242	Clinical Practicum in Non Communicable Disease		4	1	1803285 or concurrent
1833322	Above knee Orthoses	3		3	1833221
1833347	Clinical Practicum in above knee Orthoses		4	1	1833322 or concurrent
1833470	Evidence Based Practice	2		2	1803284 + 1833360
1803244	Clinical Practicum in Lower Extremity Prosthetics for below knee amputations II		4	1	Successful completion of **1833241**
1833360	Clinical Placement in Lower Extremity Prosthetics for below knee amputations		8	2	Successful completion of 1803244
1833323	Lower Extremity Prosthetics for above knee amputations	3		3	1833220
1833346	Clinical Practicum in Lower Extremity Prosthetics for		4	1	1833323 or

	above knee amputations				Concurrent
1833361	Clinical Placement in below knee orthoses		8	2	Successful completion of 1803343
1833462	Clinical Placement in above knee orthoses		8	2	Successful completion of 1833347
1833463	Clinical Placement in lower extremity prosthetics for above knee amputations		8	2	Successful completion of 1833346
1803471	Advanced treatment processes for Lower Extremity Prosthetics and Orthotics Clinical practice	2		2	1833470 or concurrent
1803475	Graduation Project I*	1		1	Successful completion of 100 credit hours + 1803374
1803476	Graduation Project II*	2		2	1803475
1833472	Perspectives in assistive technology	2		2	1803471
1803465	Prosthetics Clinical Placement General		8	2	Successful completion of 1833360 +Successful completion of 1833463
1833464	Orthotics Clinical Placement General		8	2	Successful completion of 1833361 + Successful completion of 1833462
1833473	Lower Extremity Clinical Case Study Project	2		2	1833472 or concurrent

1833210	Upper Extremity Orthoses	1		1	1833100
1833240	Clinical Practicum in Upper Extremity Orthoses		4	1	1833210 or Concurrent
1833201	Gait analysis	4		4	**1833100**
1833330	Spinal Orthoses	2		2	+1803250 1803284
1833344	Clinical practicum in Spinal Orthoses	1	4	1	1833330 or concurren t
1833311	Mechanical upper extremity prostheses	2		2	1833220
1833345	Clinical Practicum in Mechanical upper extremity prostheses		4	1	1833311 or concurrent
1833407	Advanced Spinal Orthoses	2		2	1833330
1833448	Clinical Practicum in advanced Spinal orthoses		4	1	1833407 or Concurrent
1833312	Electrically powered Upper Extremity Prostheses	2		2	1833311
1833349	Clinical Practicum in Electrically powered Upper Extremity Prostheses		4	1	1833312 or Concurrent

Project duration is three semesters where the final mark is assigned after completion of graduation project II course.

B. Elective specialty courses: ( ) credit hours:

Course Number		**Contact Hours**		**Credit Hours**	**Pre-requisite**
		Theoretical	**Practical**		

Fourth: Courses offered by other faculties and departments ……

Course Number		Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
0502108	Anatomy of Extremities	2	2	3	0304101
0301101	Calculus I	3		3	-
0501108	Physiology II	2	-	2	0501107
0504207	Pathology	1	-	1	0502108 + 0501107
0904131	Engineering Graphics	2	2 Hand drawing 2 Computer	3	None
0703102	Professional writing	2		2	none
0304101	General biology I	3	-	3	-
1802131	Psychology of Rehabilitation	2		2	-
0342103	General physics for life sciences	3	-	3	-
0501107	Physiology I	2	-	2	0304101
0502107	Anatomy of head , neck & thorax	2	2	3	0304101
1801381	Bio-Statistics for rehabilitation students	2	-	2	-
1804340	Research methods in rehabilitation sciences	3	-	3	-
1802447	Management & Leadership	3	-	3	-
1902103	Computer Skills for medical facilities	3	-	3	-

Fifth: Advisory Study Plan

First year

First Semester			Second Semester		
Course No.	**Name of Course**	**Credit hours**	**Course No.**	**Name of Course**	**Credit hours**
0342103	General physics for life Sciences	3	0502108	Anatomy of Extremities	3
0304101	General biology I	3	0501107	Physiology I	2
1803181	Fundamentals of prosthetics and orthotics I	2	1802131	Psychology in Rehabilitation Sciences	2
1833180	Introduction to Prosthetics and Orthotics Practical Skills I	1	0301101	Calculus I	3
1902103	Computer skills for medical facilities	3	1803182	Fundamentals of prosthetics and orthotics II	3
0904131	Engineering graphics	3	18031102	Introduction to prosthetic and orthotic practical skills II	1
	University requirement	3		Biomechanics for prosthetics and orthotics students	3
Total		**18**	**Total**		**17**

Second year

First Semester			Second Semester		
Course No.	**Name of Course**	**Credit hours**	**Course No.**	**Name of Course**	**Credit hours**
0502107	Anatomy of head, neck & thorax	3	1833221	Below knee orthoses	3
0504207	Pathology	1	1833243	Clinical practicum in below knee orthoses I	1
0501108	Physiology II	2	1803284	Diagnostics for prosthetics and orthotics students	2
1833201	Gait analysis	4	1803244	Clinical practicum in lower extremity prosthetics for below knee amputations II	1
1803250	Orthopedics	3	1803285	Non communicable disease	2
1833210	Upper extremity orthoses	1	1833242	Clinical practicum in orthotic intervention for non communicable disease	1
1833240	Clinical practicum in upper extremity orthoses	1	0703102	Professional writing	2
1833220	Lower extremity prosthetics for below knee amputations	2		University requirement	3
1833241	Clinical practicum in lower extremity prosthetics for below knee amputations I	1		University requirement	3
Total		**18**	**Total**		**18**

Third year

First Semester			Second Semester		
Course No.	**Name of Course**	**Credit hours**	**Course No.**	**Name of Course**	**Credit hours**
1833322	Above knee orthoses	3	1833323	Lower extremity prosthetics for above knee amputations	3
1833347	Clinical practicum in above knee orthoses	1	1833346	Clinical practicum in lower extremity prosthetics for above knee amputations	1
1833330	Spinal orthoses	2	1833407	Advanced spinal orthoses	2
1833344	Clinical practicum in Spinal orthoses	1	1833448	Clinical practicum in advanced spinal orthoses	1
1833311	Mechanical upper extremity prostheses	2	1833312	Electrically powered upper extremity prostheses	2
1833345	Clinical practicum in mechanical upper extremity prostheses	1	1833349	Clinical practicum in electrically powered upper extremity prostheses	1
1801381	Biostatistics	2	1833361	Clinical placement in below knee orthoses	2
1803343	Clinical practicum in below knee orthoses II	1	1804340	Research methods	3
1833360	Clinical Placement in Lower Extremity Prosthetics for below knee amputations	2		University Requirement	3
	University requirement	3			
	Total	**18**		**Total**	**18**

Fourth year

First Semester			Second Semester		
Course No.	**Name of Course**	**Credit hours**	**Course No.**	**Name of Course**	**Credit hours**
1833470	Evidence based practice	2	1802447	Management & Leadership	3
1833462	Clinical placement in above knee orthoses	2	1833472	Perspectives in assistive technology	2
1833463	Clinical placement in lower extremity prosthetics for above knee amputations	2	1803465	Prosthetics clinical placement general	2
1803471	Advanced treatment processes for lower extremity prosthetic and orthotic clinical practice	2	1833464	Orthotics clinical placement general	2
1803475	Graduation project I	1	1833473	Lower extremity clinical case study project	2
	University requirement	3	1803476	Graduation project II	2
	University requirement	3		University requirement	3
	University requirement	3			
Total		**18**	**Total**		**16**

Course Description

Course Number 0304101	General Biology I	Credit Hours 3
Prerequisite: none		
Internal structures of the cell, molecules of the cell, metabolism, respiration and photosynthesises, cell-cell signalling, cell division, Mendelian inheritance, molecular biology of the gene, DNA technology, clinical signals in plants and animals, phylogeny and systematic introduction to ecosystems.		

Course Number 1802131	Psychology in rehabilitation sciences	Credit Hours 2
Prerequisite: none		
This course discusses the psychosocial aspects of disability (congenital, physical, mental and long term disabilities) commonly encountered in rehabilitation settings. The course will help students communicate with patients in a therapeutic manner. In addition, students will learn how to consider important factors that may affect intervention planning and implementation in all rehabilitation fields for children and adults.		

Course Number 0342103	General physics	Credit Hours 3
Prerequisite: none		
Motion in straight line, motion in two dimensions, Newton's laws of motion, statics, work, energy, and power, linear momentum, temperature and the behaviour of gases, thermodynamics, thermal properties of mater, electric fields, electric potentials, direct currents.		

Course Number 0501107	Physiology 1	Credit Hours 2
Prerequisite: 0304101		
This course is designed to introduce the students to the physiology of bodies' systems including the cardiovascular, respiratory, nervous, muscular, skeletal and endocrine systems. The course begins with the basic concepts of physiological control and homeostasis. It focuses on the contribution of the above systems on the general functions of the human body with special focus on the musculoskeletal system.		

Course Number 0502107	Anatomy of head, neck, and thorax	Credit Hours 3
Prerequisite: 0304101		
This course will cover the anatomy of the head, neck, brain and thorax. It focuses on introducing the different parts of the above mentioned body-sections and their specific structures, functions and relations. The course will cover areas related to the different brain centres and the nervous tracts, through which orders are transmitted from/to the extremities. A special emphasis on functional anatomy and its relation to disabilities that require rehabilitation will be also covered.		

Course Number 1801381	Bio-Statistics for rehabilitation sciences	Credit Hours 2

Prerequisite: none	
This course provides the students with the basic theoretical principles of statistical analysis. The course includes a practical part that will be held in computer laboratories where the students will be using the SPSS software to run some of the statistical tests and practice presenting the data using different charts and diagrams.	

Course Number 1804340	**Research methods in rehabilitation sciences**	**Credit Hours 3**
Prerequisite: none		
This course focuses on introducing the concept of researching in rehabilitation sciences including evaluation of research designs and biostatistics, application of research on clinical practice, methodological considerations, building a hypothesis statement, performing data collection, presenting the results and conclusions. An emphasis on students' involvement in critical appraisal of published articles will be also covered.		

Course Number 1802447	**Management and leadership**	**Credit Hours 3**
Prerequisite: none		
This course discusses the general principles of management and leadership with emphasis on those needed by rehabilitation professionals in healthcare management. Examples of such skills include communication skills with the medical team, crisis management, delegating responsibilities, time management and improving service quality. Also, important skills for resume preparation, job interviews and presentation skills are discussed.		

Course Number 1902103	**Computer skills for medical facilities**	**Credit Hours 3**
Prerequisite: none		
Introduction: forms, controls, properties, methods, event, files, mouse events, click, mouse movement, drag and drop, keyboard events: press, up and down, menus: creation and code writing, dialogue boxes: messages, input, built-in boxes, programming: variables, simple IF, multiple IF, CASE, loops FOR-NEXT. DO-WHILE-UNTIL, arrays, files: random, sequential, binary, procedures and functions, applications using visual basic, introduction to Microsoft access. Weekly practice in lab.		

Course Number 0502108	**Anatomy of extremities**	**Credit Hours 2**
Prerequisite: 0304101		
This course will cover the detailed anatomy of the upper extremities, lower extremities, abdomen, pelvis, and perineum. The lectures and practicum will emphasize on structures, blood supply, nerve supply and functions of different anatomical structures. It will also cover the spinal cord structure and roots.		

Course Number 0301101	**Calculus I**	**Credit Hours 3**
Prerequisite: none		

Functions: domain, operations on functions, graphs of functions; trigonometric functions; limits: meaning of a limit, computational techniques, limits at infinity, infinite limits ;continuity; limits and continuity of trigonometric functions; the derivative: techniques of differentiation, derivatives of trigonometric functions; the chain rule; implicit differentiation; differentials; Roll's Theorem; the mean value theorem; the extended mean value theorem; L'Hopital's rule; increasing and decreasing functions; concavity; maximum and minimum values of a function; graphs of functions including rational functions (asymptotes) and functions with vertical tangents (cusps); antiderivatives; the indefinite integral; the definite integral; the fundamental theorem of calculus ; the area under a curve; the area between two curves; transcendental functions: inverse functions, logarithmic and exponential functions; derivatives and integrals; limits (the indeterminate forms); hyperbolic functions and their inverses; inverse trigonometric functions; some techniques of integration.

Course Number 0501108	**Physiology II**	**Credit Hours 2**
Prerequisite: 0501107		
This course is designed to introduce the students to concepts of nervous, muscular, circulatory, endocrine, reproductive and renal systems function. The course elaborates on the contribution of the above systems on the general wellbeing of the human body.		

Course Number 0504207	**Pathology**	**Credit Hours 1**
Prerequisite: 0501107 + 0502108		
This course will cover cellular pathology, acute and chronic inflammation, tissue repair, hemodynamic disorder and infectious diseases. It will also give an overview of some of the pathological conditions that are commonly seen in Rehabilitation clinics.		

Course Number 1803250	**Orthopaedics**	**Credit Hours 3**
Prerequisite: 0504207 or concurrent + 0502108		
This course covers a wide variety of common orthopaedic and traumatology conditions. Student will learn about such diseases, their aetiology, their pathogenesis, their signs and symptoms. In addition, students will learn about different treatment strategies for such conditions including observational, conservative and surgical intervention. Students will learn how to integrate such information in the treatment plan including prosthetic or orthotic interventions.		

Course Number 0904131	**Engineering graphics**	**Credit Hours 3**
Prerequisite: none		
Drawing equipment and use of instruments. Lettering, Geometric construction, Sketching and shape description. Basic descriptive geometry, Developments and intersections. Axonometric, oblique and perspective drawings, Multiview projection, Principal views, Conventional practice, and sectional views. Auxiliary views. Dimensioning techniques. Parallel: Introduction to computer drawing, Drawing aids, Geometrical construction, and the appropriate commands of text, editing, plotting, sections, layers, pictorial views, and		

dimensioning. Auxiliary views.

Course Number 0703102	Professional writing	Credit Hours 2
Prerequisite: none		
This course is designed to introduce students to the basic English concepts in health professions and to enable students to practice professional writing. Students will recognize the multiple purposes of documentation and state documentation fundamentals. The professional writing course will help students learn effective strategies for communicating such as hand writing and computer-mediated writing technologies.		

Course Number 1803181	Fundamentals of prosthetics and orthotics I	Credit Hours 2
Prerequisite: None		
This course is designed to provide an introduction into major concepts covered throughout practice in prosthetics and orthotics. Laboratory safety, materials and materials selection, tools identification and selection, professionalism, communication with colleagues and patients, and ergonomics. Classification and properties of metals, plastics, foams, leather, and other materials are introduced and linked to direct applications in devices and components in prosthetics and orthotics.		

Course Number 1833180	Introduction to Prosthetics and Orthotics Practical Skills I	Credit Hours 1
Prerequisite: none		
This course provides basic skills in the field of prosthetics and orthotics including: casting, using plaster, cast modification, drilling, trimming, welding, bending, riveting, cutting and using the different prosthetics and orthotics machinery and tools. In addition, students will learn how to relate the characteristics of the three major types of materials, wood, metal and plastic, to their use in prosthetic and orthotic appliances. Throughout this course students are expected to develop manipulative skills and mastery over the use of these materials to produce an appliance that fits a patient's need.		

Course Number 1803182	Fundamentals of prosthetics and orthotics II	Credit Hours 3
Prerequisite: successful completion of 1803181		
This course focuses on developing skills that are used throughout practice to achieve competencies and best practices for future coursework. Surface anatomy and patient evaluation and introduction to patient education will be covered in this course. Patient evaluation including skin conditions, vascular conditions, muscular condition (MMT), ROM, and deformities will be introduced. Introduction to ethics in healthcare will also be covered in this course.		

Course Number 1803183	Introduction to Prosthetics and orthotics practical skills II	Credit Hours 1
Prerequisite: Successful completion of 1833180		

This course elaborates on the skills that students have learnt in Prosthetics and Orthotics Practical Skills I course. Practically, students will learn how to reflect the theoretical knowledge they have gained through other courses (biomechanics and anatomy) into their skills in building a prosthetic or orthotic device. In addition, building students' skills in critical thinking, critiquing their work, decision making, analysing and evidence-based practice will take place in this course.

Course Number 1833100	**Biomechanics for prosthetics and orthotics students**	**Credit Hours 3**
Prerequisite: 1803182 or concurrent		
This course provides background in musculoskeletal anatomy and principles of biomechanics. In particular, the course is designed to provide the students with an understanding of Newtonian mechanics to human movement analysis. Particular focus will be given to application of stress and strain analysis to biological tissues, analysis of forces in human function and movement, energy and power in human activity. Finally, the course will challenge students' higher thinking capabilities, as they will be asked to design a biomechanical model to solve a problem related to prosthesis and/or orthosis.		

Course Number 1833220	**Lower extremity prosthetics for below knee amputations**	**Credit Hours 2**
Prerequisite: 0502108 + 1833100+ 1833201 (or concurrent)		
This course covers trans-tibial (below the knee) and ankle-disarticulation prostheses. The components (especially prosthetic foot-ankle mechanism), fabrication and the biomechanical principles related to them will be thoroughly described. This course also generally covers lower extremity amputation levels, causes and associated problems. Throughout the course, students' skills in critical thinking, evidence-based practice and decision-making will be strengthened.		

Course Number 1833241	**Clinical practicum in lower extremity prosthetics for below knee amputations I**	**Credit Hours 1**
Prerequisite: 1833220 or concurrent		
Students will be trained on how to accurately assess a patient with below knee amputation. In addition, student will learn the way by which accurate measurements, stump casting, cast modification and socket designing are performed. Students will be then trained on how to assemble the prosthesis and align it correctly to fit patient's needs.		

Course Number 1833221	**Below knee orthoses**	**Credit Hours 3**
Prerequisite: 1833201		
This course covers the different conditions that may affect the foot- ankle complex and require orthotic intervention. Students will learn how to assess patients with such conditions and how to choose between the different available orthotic interventions. In addition, students will learn the biomechanical principles related to these orthoses and how to integrate these principles appropriately when treating a patient. Special emphases will be given on foot orthoses for diabetic foot. Throughout the course,		

students' skills in critical thinking, evidence-based practice and decision-making will be strengthened.

Course Number 1833243	Clinical practicum in below knee orthoses I	Credit Hours 1
Prerequisite: 1833221 or concurrent		
Students will be trained on how to accurately assess a patient with neurological, musculoskeletal, congenital, acquired and rheumatological conditions that affect the functions of the lower extremities (below the knee) and require an orthotic intervention. In addition, students will be trained on how to take measurements, perform casting, and apply the biomechanical principles used to correct a condition through cast modification. Students will also be trained on orthoses fabrication, alignment and tuning to correctly meet the patient's needs.		

Course Number 1803284	Diagnostics for prosthetics and orthotics students	Credit Hours 2
Prerequisite: 0504207+ 703102 or concurrent		
The students will be introduced to the different diagnostic tools such as diagnostic radiography and laboratory tests. Special emphasis will be given to X-ray generation, X-ray film production and X-ray film interpolation. Students' skills in using patient's diagnostics for evidence based-practice will be developed. In addition, students will be introduced to computerized tomography, magnetic resonance imaging and ultrasound diagnostic tools.		

Course Number 1833343	Clinical practicum in below knee orthoses II	Credit Hours 1
Prerequisite: Successful completion of 1833243		
This course elaborates on Clinical Practicum in below knee Orthoses I course in which students will go through the process of assessing patients on need of below knee orthoses all through until delivery of the orthoses. Students' skills will be further developed and challenged through being the central focus of the course. In particular, students, under distant supervision, will assess, discuss, decide, fabricate and deliver orthoses to patients. Meanwhile, students should show an evidenced based practice all through this process and should be able to defend their choices.		

Course Number 1803285	Non communicable disease	Credit Hours 2
Prerequisite: None		
This course will illuminate various aspects of non-communicable diseases (NCD) and injures including aetiology, pathogenesis, signs and symptoms. In addition, students will learn about different levels of functional health care, the governmental and non-governmental awareness to the size of the problem imposed by NCD. Moreover, students will learn the risk factors of various NCDs and injury mechanisms and strategies to prevent them. Most importantly, students will learn the orthotic intervention in NCDs		

Course Number 1833242	Clinical practicum in non communicable disease	Credit Hours 1
Prerequisite: 1803285 or concurrent		
Students will be trained on how to accurately assess a patient with Non Communicable Disease (NCDs) including, but not limited to, diabetes, mental illness, stroke, development disorder. This course is aimed to increase the capacity to develop and implement interdisciplinary planning for the prevention and management of NCDs taking into account international recommendation and approaches. In addition, students will be trained on how to manage such a condition with an orthosis (from casting all through to delivering).		

Course Number 1833322	Above knee orthoses	Credit Hours 3
Prerequisite: 1833221		
This course covers the different disorders that can be treated (totally or partially) by an above knee orthoses (KAFO, knee orthosis, hip orthosis, etc). Students will learn how to assess patients with such disorders and how to choose between the different available orthotic interventions. In addition, students will learn the biomechanical principles and ways of integrating such principles when treating a patient. Special emphases on knee orthoses will be given in this course. Throughout the course, students' skills in critical thinking, evidence-based practice and decision-making will be strengthened.		

Course Number 1833347	Clinical practicum in above knee orthoses	Credit Hours 1
Prerequisite: 1833322 or concurrent		
This course aims to provide students with a clinical training on how to fabricate different types of most frequently used above knee orthosis. An emphasis will be given on knee ankle foot orthoses for the treatment of patients with neurological diseases. Students will also learn how to fine-tune such devices to the daily needs of the patients. In addition, the course is focused to build students' capacity in decision-making and evidence-based practice.		

Course Number 1833470	Evidence based practice	Credit Hours 2
Prerequisite: 1803284 +1833360		
This experiential learning subject will support students to answer questions themselves through guided independent research and exploration. Topics will be given to groups who then consider prior knowledge of a topic and then conduct deeper self-directed learning of a topic with support of the staff. Three mini topics will be conducted by the entire class and then group work will be undertaken on more expansive areas with each group working on different relevant topics. The exploration will be guided and promoted by staff in order to produce a deep understanding of the given topic(s).		

Course Number 1803244	Clinical practicum in lower extremity prosthetics for below knee amputations II	Credit Hours 1

Prerequisite: Successful completion of 1833241	
This course elaborates on Clinical Practicum in below knee Prosthesis I course in which students will go through the process of assessing patients on need of below knee prosthesis all through until delivery of the prosthesis. Students' skills will be further developed and challenged through being the central focus of the course. In particular, students, under minimal supervision, will assess, discuss, decide, fabricate and deliver prostheses to patients. Meanwhile, students should show an evidenced based practice all through this process and should be able to defend their choices.	

Course Number 1833360	**Clinical placement in lower extremity prosthetics for below knee amputations**	**Credit Hours 2**
Prerequisite: Successful completion of 1803244		
The aim of the clinical placement is to provide the students with experiences of clinical management and the ability to deliver a well-functioning below knee prosthesis in the clinical environment. Through this course, the students' expertise in clinical service delivery to patients undergoing treatment will be challenged and developed. Last but not least, students' communication skills, professionalism, team work capability, evidence-based practice, critical thinking and work under pressure will be developed		

Course Number 1833323	**Lower extremity prosthetics for above knee amputations**	**Credit Hours 3**
Prerequisite: 1833220		
This course covers different types of trans-femoral (above the knee), knee and hip disarticulation prostheses. Their different components, fabrication techniques and the biomechanical principles related to them will also be covered. Students will learn the science behind building a prosthesis that would very much resemble the functions of a normal extremity. Special emphasis will be given to gait assessment whilst wearing prosthesis and how to control gait deviations, if any, by applying necessary adjustments. Throughout the course, students' skills in critical thinking, evidence-based practice and decision-making will be strengthened.		

Course Number 1833346	**Clinical practicum in lower extremity prosthetics for above knee amputations**	**Credit Hours 1**
Prerequisite: 1833323 or concurrent		
This course covers areas related to equipping the students with a clinical training on how to fabricate different types of frequently prescribed above knee prostheses. This would include accurate assessment of the amputee, taking required measurement and performing different techniques of casting. Students will be then trained on how to assemble the prosthesis and align it correctly on actual patients.		

Course Number 1833361	**Clinical placement in below knee orthoses**	**Credit Hours 2**
Prerequisite: Successful completion of 1833343		
The aim of the clinical placement is to provide the students with experiences of clinical management and the ability to deliver a well-functioning below knee orthosis in the clinical environment. Through this course, the students' expertise in clinical service delivery to patients undergoing treatment will be challenged and developed. Last but not		

least, students' communication skills, professionalism, team work capability, evidence-based practice, critical thinking and work under pressure will be developed

Course Number 1833462	Clinical placement in above knee orthoses	Credit Hours 2
Prerequisite: Successful completion of 1833347		
The aim of the clinical placement is to provide the students with experiences of clinical management and the ability to deliver a well-functioning above knee orthosis in the clinical environment. Through this course, the students' expertise in clinical service delivery to patients undergoing treatment will be challenged and developed. Last but not least, students' communication skills, professionalism, team work capability, evidence-based practice, critical thinking and work under pressure will be developed		

Course Number 1833463	Clinical placement in lower extremity prosthetics for above knee amputations	Credit Hours 2
Prerequisite: Successful completion of 1833346		
The aim of the clinical placement is to provide the students with experiences of clinical management and the ability to deliver a well-functioning above knee prosthesis in the clinical environment. Through this course, the students' expertise in clinical service delivery to patients undergoing treatment will be challenged and developed. Last but not least, students' communication skills, professionalism, team work capability, evidence-based practice, critical thinking and work under pressure will be developed.		

Course Number 1803471	Advanced treatment processes for lower extremity prosthetics and orthotics clinical practice	Credit Hours 2
Prerequisite: 1833470 or concurrent		
This subject support students to consider the overall treatment processes in a holistic patient centred manner. The interaction of different elements of prosthetics and orthotics care will be considered as well as the interaction of prosthetics and orthotics care with other health interventions and patient specific elements will be explored. Building of holistic treatment plans will be undertaken with examples of relevant and realistic case studies that explore challenges to effective care and highlight problem solving, problem anticipation and robust treatment plans. Students will integrate knowledge gained in previous studies in a patient focused manner and will be asked to provide information relevant to various audiences such as the multidisciplinary team and the patients and their careers.		

Course Number 1803475	Graduation project I	Credit Hours 1
Prerequisite: successful completion of 100 credit hours + 1803374		
In part I and after assigning a problem (task or research or project), students will be asked to rely on themselves to find a solution for the problem (which could be practical or theoretical). It is expected from the students to develop the competencies of research, independent work, building a timeframe for performing a project and to be capable to explain and express findings in a scientific, clinical and professional manner.		

Course Number 1803476	Graduation project II	Credit Hours 2
Prerequisite: 1803475		
In part II, students are required to finish the work started in part I. students are required, whenever possible, to use the appropriate and available materials and software to solve the problem. Also, if needed, students are required to simulate the solution, build a prototype and perform all needed measurements, assessments and tests on actual subjects (if possible). The students will be required to write down the findings of the final year project as a complete report (dissertation) according to the department's instructions and standards.		

Course Number 1833472	Perspectives in assistive technology	Credit Hours 2
Prerequisite: 1803471		
This course covers the major disabilities that use assistive technology (AT) and focus at building students' skills in identifying particular features of AT that can help in the treatment of a certain impartment. In addition, the course explores the design, development and use of technology that benefits people with disabilities and older adults. The course combines classroom discussions, presentations by guest lecturers, team and individual projects and site visits to medical facilities.		

Course Number 1803465	Prosthetics clinical placement general	Credit Hours 2
Prerequisite: Successful completion of 1833360 + successful completion of 1833463		
Through this course, the student will have experience in supplying prostheses for lower extremity amputees of different levels in the clinical environment. The aim is to ensure that the students have the skills and basics of patients' assessment, evidence-based prescription, clinical provision of prostheses and manufacturing of prostheses. In addition, higher educational learning objectives, including analyzing a complex case and creating a solution will be emphasized.		

Course Number 1833464	Orthotics clinical placement general	Credit Hours 2
Prerequisite: Successful completion of 1833361 + successful completion of 1833462		
Through this course, the student will have experience in supplying spinal as well as upper and lower extremity orthoses for patients of different pathological conditions in the clinical environment. The aim is to ensure that the students have the skills and basics of patients' assessment, evidence-based prescription, clinical provision of orthoses and manufacturing of orthoses. In addition, higher educational learning objectives, including analyzing a complex case and creating a solution will be emphasized.		

Course Number 1833473	Lower extremity clinical case study project	Credit Hours 2
Prerequisite: 1833472 or concurrent		
This course introduces students to the concept of lower extremity prosthetics and orthotics care through case studies from both developing and developed countries. Real cases will be used to help students develop problem-solving skills in practical situations. In addition, an emphasis will be given to participatory approaches in the rehabilitation team and other factors that affect treatment process such as environmental protection, socio-cultural challenges and the process of community empowerment.		

Course Number 1833210	Upper extremity orthoses	Credit Hours 1
Prerequisite: 1833100		
This course covers diseases and injuries that affect the normal function of upper extremities. In addition, the biomechanics of upper extremity orthoses, their characteristics, indication of use and prescription criteria will be covered.		

Course Number 1833240	Clinical practicum in upper extremity orthoses	Credit Hours 1
Prerequisite: 1833210 or concurrent		
The aim of this course is to apply theories in practice to derive the appropriate solutions for medical conditions that require upper extremity orthoses. The focus will be on orthoses that are made for patients suffering from neurological, muscular and skeletal conditions. In addition, the students will gain the skills necessary to design and manufacture such orthoses.		

Course Number 1833201	Gait analysis	Credit Hours 4
Prerequisite: 1833100		
This course covers the gait cycle's kinematics and kinetics. In particular, the dynamics of the lower extremities' joints and the muscular control (lower extremities and lower back) during the gait cycle will be covered. Additionally, pathological gait patterns will be covered in this course. Practically, a student will be able not only to differentiate normal from pathological gait pattern but also will be able to classify and diagnose different pathological gait patterns. Finally, the course focuses at building bridges between gait analyses, patient diagnose and orthotics or prosthetics treatment.		

Course Number 1833330	Spinal orthoses	Credit Hours 2
Prerequisite: 1803250 + 1803284		
This course covers the basic anatomy, physiology and biomechanics of the spine. In addition, this course covers, extensively, the different conditions (fractures, herniation, osteoporosis, loose of normal sagittal plane curvatures, etc) that may impose deformational changes on the normal alignment of the spine and thus destroy its integrity. Students will learn the biomechanical principles of applying spinal orthoses. In		

addition, the different strategies used to restrict the vertebral column mobility will be covered. Further, ways of correcting or/and preventing the deterioration on the vertebral column structure using a spinal orthosis will be enlightened. Students will learn how to work in a team to provide the best treatment for the patient. The interdisciplinary teamwork will also be the focus of this course.

Course Number 1833344	**Clinical practicum in spinal orthoses**	**Credit Hours 1**
Prerequisite: 1833330 or concurrent		
Students will be trained on how to accurately assess a patient who requires a spinal orthosis. In addition, students will be trained on how to take measurements, perform casting, and apply the biomechanical principles used to correct a spinal condition through cast modification. Students will be then trained on how to fabricate the orthosis align and tune it correctly to fit the patient's needs.		

Course Number 1833311	**Mechanical upper extremity prostheses**	**Credit Hours 2**
Prerequisite: 1833220		
The course will focus on the fabrication techniques of supracondoylar socket for below elbow amputations that are commonly used for different types of prostheses. In addition, students will be trained on the processes of finalizing body powered and cosmetic prostheses with all harnesses and straps needed.		

Course Number 1833345	**Clinical practicum in mechanical upper extremity prostheses**	**Credit Hours 1**
Prerequisite: 1833311 or concurrent		
The course will focus on the fabrication techniques of supracondoylar socket for below/above elbow amputations that is commonly used for cosmetic and mechanical prostheses. In addition, students will be trained on the processes of finalizing the cosmetic prostheses. The course will also introduce students to Utah dynamic socket and in which they will be trained on fabrication techniques for such socket. Students will be then trained on manufacturing cosmetic prostheses for actual patients and evaluating their fit.		

Course Number 1833407	**Advanced spinal orthoses**	**Credit Hours 2**
Prerequisite: 1833330		
This course covers, in details, scoliosis deformity including aetiology, prognosis, reading different parameters related to scoliosis, diagnose, assessment and treatment. The focus will be on conservative treatment using a spinal orthoses. Different types of spinal orthoses (e.g. Boston, Chenaeu and Charleston), their biomechanics, fabrication techniques and indication of use will be covered. Students will be encouraged to raise their level of thinking in which they will be challenged to use such information in hypothetical situation of patients with different needs.		

Course Number 1833448	**Clinical practicum in advanced spinal orthoses**	**Credit Hours 1**

Prerequisite: 1833407 or concurrent	
The focus in this course will be on manufacturing spinal orthoses that are designed for the management of scoliosis. It provides the students with the skills for making orthoses such as Boston and Charleston braces. In addition, students will learn how to diagnose scoliotic patients and the way for interpolating their relative radiological investigations. Finally, students will learn how to incorporate a multidisciplinary approach and how to create a treatment plan.	

Course Number 1833312	**Electrically powered upper extremity prostheses**	**Credit Hours 2**
Prerequisite: 1833311		
This course covers the theoretical principles of myoelectric controllers that are commonly used to control electrically powered terminal devices. Students will be introduced to the electromyography and the methods of its processing and the different control strategies that can be used to operate a terminal device. Other methods of control for electrically powered prostheses will be also discussed. The course will also focus on pre and post prosthetic training and prosthetic evaluation methods		

Course Number 1833349	**Clinical practicum in electrically powered upper extremity prostheses**	**Credit Hours 1**
Prerequisite: 1833312 or concurrent		
The course will first introduce students to Utah dynamic socket and the process of its fabrication. The course will then focus on the fabrication techniques of myoelectric prostheses. Students will be provided with the basic knowledge and skills on how to train amputees on prosthetic use		