



جامعة بنها
كلية الطب البشرى
قسم جراحة العظام

توصيف برنامج

PROGRAM SPECIFICATION

Basic information : معلومات أساسية *

١ - اسم البرنامج : ماجستير جراحة العظام

٢ - طبيعة البرنامج : (multiple)

٣- الأقسام المسؤولة عن البرنامج:

- orthopedic
- anatomy
- Physiology & biochemistry
- pharmacology
- pathology
- microbiology
- General surgery

٤- تاريخ إقرار البرنامج فى مجلس القسم : 5/9/2013

٥- تاريخ إقرار البرنامج فى مجلس الكلية ٣٥٦ : 15/9/2013

٦- منسق البرنامج: الاستاذ الدكتور الحسينى مصطفى

٧- المراجع الخارجى: الاستاذ الدكتور عادل المرشدى (استاذ كلية طب قناة السويس)

Professional information : معلومات متخصصة *

١ - الأهداف العامة للبرنامج :

1- Overall Aims of the Program:

The overall goals of the program are:



- 1-1 to provide the postgraduate student with the medical knowledge and skills essential for the professional practice of orthopedic surgery
- 1-2 to apply the Scientific knowledge essential for the practice of orthopedic surgery and traumatology according to the international standards.
- 1-3 To provide Skills necessary for proper diagnosis and management of patients in the field of orthopedic surgery and traumatology including diagnostic , problem solving , decision making and operative skills.
- 1-4 To provide Ethical principles related to practice in the highly sensitive specialty.
- 1-5 TO Maintain of abilities necessary for continuous medical education.

٢ - المخرجات التعليمية المستهدفة من البرنامج :

2-Intended Learning Outcomes (ILOS):

٢.أ - المعرفة والفهم :

2. a. Knowledge and Understanding:

By the end of the program the graduate should be able to:

2.a.1. describe the normal structure and function of the human musculoskeletal system and its relation to surgical procedures .



2.a.2. Describe the normal growth and development of the human musculoskeletal system.

2.a.3. discuss the abnormal structure, function, growth and development of human musculoskeletal system

2.a.4. highlight the natural history of orthopedic diseases and traumatology problems.

2.a.5. point out the causation of orthopedic diseases and their pathogenesis.

2.a.6. explain methods of fixation of different fracture pattern.

2.a.7. illustrate the clinical picture and differential diagnosis of orthopedic diseases.

2.a.8. recognize the common diagnostic and laboratory techniques necessary to establish diagnosis of orthopedic diseases.

2.a.9. Describe the various recent therapeutic methods/alternatives used for orthopedic

2.a.10 Discuss the knowledge of physiology, pathology and histology that is related to orthopedic diseases and fractures.

2.a.11. point out the knowledge of the general surgery.



2.a.12 discuss trauma management.

2.a.13 describe scientific developments in the field of orthopedic surgery and traumatology that help in community problems saving.

2.a.14 understand Ethical and legal principles of professional practice in the field of orthopedic surgery and traumatology , ethics of medical research.

٢. ب - القدرات الذهنية :

2.b. Intellectual Skills:-

By the end of the program the graduate should be able to:

2.b.1. Identify and analyze the information in the field of orthopedic surgery and traumatology and ranking them according to their priorities.

2.b.2 Solve the problems in the area of orthopedic surgery and traumatology.

2.b.3 analyze researches and issues related to orthopedic surgery and traumatology and related topics (anatomy , physiology , biochemistry , histology , pathology , microbiology , pharmacology and general surgery.

2.b.4 Assess the risk in professional practices in the field of orthopedic surgery and traumatology.

2.b.5 Make professional decisions in light of the available data.

٢. ج . مهارات مهنية وعملية :

2.c. Practical & Clinical Skills:-



By the end of the program the graduate should be able to:

2.c.1 Apply professional skills in the field of orthopedic surgery and

Traumatology ,human anatomy , pathology of the diseases and general surgery

2.c.2 Write medical reports.

2.c.3 Use imaging, electrophysiological and endoscopic data in diagnosis of orthopedic and traumatology problems

٢.د . مهارات عامة :

2.d. General and transferable skills:-

By the end of the program the graduate should be able to:

2.d.1 Present orthopedic cases in seminars effectively.

2.d.2 Use appropriate computer program package for writing reports, presentation and perform statistical analysis.

2.d.3 Assess himself and identify his personal learning needs.

2.d. 4 Obtain information and knowledge from library, internet, conferences, and internet.

2.d.5 Work successfully as a part of a team and effectively manage time.

2.d.6 lead a team in familiar professional contexts

2.d.7 Obtain knowledge continuously and independently in orthopedic surgery and traumatology field.



٣ - المعايير الأكاديمية :

a) Academic Standards of Master Program of Orthopaedic surgery department , approved in department council no (261) date 5 / 6/ 2013, and in faculty council no. (354) date 16 / 6 / 2013.

(ملحق ١)

b. Reference standards (benchmarks) العلامات المرجعية:
المعايير القياسية لبرامج الدراسات العليا (درجة الماجستير) الصادرة عن الهيئة القومية لجودة التعليم والإعتماد (مارس ٢٠٠٩)

Academic reference standards (ARS) , Master Program (March 2009)
, which were issued by the National Authority for Quality Assurance & Accreditation of Education NAQAAE (ملحق ٢)

External reference points/benchmarks are selected to confirm the appropriateness of the objectives, ILOs of the program. (ملحق ٢)

1. The curriculum offered by British Orthopedic Association
<http://www.boa.ac.uk/Pages/Welcome.aspx>

(5): Program structure and contents 4 - هيكل ومكونات البرنامج :

a) Program duration: 4 semesters (2 years)

1st part: - One Semester (6 months).

2nd part: - Two Semester (1 year).

Thesis:- One Semester (at least 6months after 2nd part).

b) Program structure

- **Total hours of program:** 36 credit hours
- **Theoretical:** 10 credit hours
- **Practical :** 9 credit hour
- **Thesis:** 6 hours
- **University and faculty requirements:** 6 hours



- **Logbook: 5 hours**

ب - هيكل البرنامج:

الساعات المعتمدة	الكود	المقرارات	البند
6	Univ 601	متطلبات الجامعة والكلية	
7	1.5	Orth 601	الجزء الأول
	1.5	Orth 602	
	1	Orth 603	
	1.5	Orth 604	
	1.5	Orth 605	
5		كراسة الانشطة	
18	4	Orth 606	الجزء الثاني
	7	Orth 607	
	5	Orth 608	
	2	Orth 609	
36		الاجمالي	

ج: خطة التدريس: Teaching plan

First part (one semester /6 months)



a- Compulsory courses:

Course title	Course code	Number s of teaching hours per week			Total teaching hour/15 weeks
		Lectures	practical	Total/W	
Anatomy	Orth 601	1	1.5	2.5	37.5
Physiology & biochemistry	Orth 602	1	1.5	2.5	37.5
pharmacology	Orth 603	1	1	2	30
pathology	Orth 604	1	1.5	2.5	37.5
Microbiology	Orth 605	1	1.5	2.5	37.5
Total:					180

b- Elective courses: none

Second part (2 semester /12 months)

a- Compulsory courses:

Course Title	Course code	NO. of teaching hours per week			Total teaching hours/ 30 weeks
		Theoretic	practic	Total/W	
General surgery	Orth 606	2	1	3	90 hours



orthopedic	Orth 607	4	9	13	۳۹0 hours
Traumatology	Orth 608	4	3	7	210 hours
Surgical pathology	Orth 609	۱	3	4	120 hours
					Total 960 hours

b- Elective courses: none

٥ - متطلبات الإلتحاق بالبرنامج :

(٥): Program admission requirements:

مادة (٤): يشترط في قيد الطالب لدرجة الماجستير:

(١)

- أ- أن يكون حاصلًا على درجة البكالوريوس في الطب والجراحة من إحدى جامعات ج.م.ع أو على درجة معادلة لها من معهد علمي معترف به من الجامعة بتقدير جيد على الأقل.
- ب- يسمح للحاصل على الدبلوم وفقا لنظام هذه اللائحة وبتقدير جيد على الأقل بتسجيل رسالة لاستكمال درجة الماجستير بشرط ألا يكون قد مر أكثر من ثلاث سنوات على تاريخ حصوله على درجة الدبلوم وبغض النظر على تقديره في درجة البكالوريوس.
- ت- يسمح للحاصل على الدبلوم وعلى خلاف لنظام هذه اللائحة أن يسجل لدرجة الماجستير بشرط أن يكون تقديره في الدبلوم لا يقل عن جيد وبغض النظر عن تقديره في البكالوريوس.

(٢) أن يكون قد أمضى السنة التدريبية أو ما يعادلها (سنة الامتياز)

(٣) أن يتفرغ للدراسة لمدة سنة على الأقل في الجزء الثاني (فصلين دراسيين)

مادة (٥): يكون التقدم للقيود لدرجة الماجستير مرة واحدة في السنة خلال شهري يوليو وأغسطس من كل عام.



٦ - القواعد المنظمة لإستكمال البرنامج :

مادة (٦): تتولى لجنة الدراسات العليا بالكلية عن طريق لجنة تشكل لكل تخصص من أعضاء مجلس القسم التابع له المادة والقسم المانح للدرجة وضع البرنامج التفصيلي للمقررات فى حدود الساعات المعتمدة الواردة باللائحة وعند الاختلاف يتم الاسترشاد بمقررات جامعة القاهرة ومقررات الشهادات العالمية الاوربية والامريكية يعتمدها مجالس الأقسام ثم يقرها مجلس الكلية وتشمل هذه الساعات محاضرات نظرية ودروس عملية وتدريب اكلينيكي ومحاضرات وندوات مشتركة.

مادة (٧): يشترط فى الطالب لنيل درجة ماجستير التخصص فى أحد الفروع الاكلينيكية والعلوم الطبية الأساسية:

- أ- حضور المقررات الدراسية والتدريبات الاكلينيكية والعملية والمعملية بصفة مرضية طبقا للساعات المعتمدة.
- ب- أن يقوم بالعمل كطبيب مقيم أصلى أو زائر لمدة سنة على الأقل فى قسم التخصص بالنسبة للعلوم الاكلينيكية.
- ت- أن ينجح فى امتحان القسمين الأول والثانى.
- ث- اجتياز الطلب لثلاث دورات فى الحاسب الآلى (دورة فى مقدمة الحاسب – دورة تدريبية متوسطة – دورة فى تطبيقات الحاسب الآلى) وذلك قبل مناقشة الرسالة.
- ج- اجتياز اختبار التوفيل بمستوى لا يقل عن ٤٠٠ وحدة وذلك قبل مناقشة الرسالة.
- ح- أن يقوم باعداد بحث فى موضوع تقره الجامعة بعد موافقة مجلس القسم ومجلس الكلية ينتهى باعداد رسالة تقبلها لجنة التحكيم.

٧ - وسائل تقييم مخرجات التعلم المستهدفة من البرنامج :

٧- Students Assessment methods:

م	الطريقة	ما تقيسه من مخرجات التعلم المستهدفة
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To assess knowledge and understanding & intellectual skills: 2.a.1-2.a.8. and 2.b.1-2.b.9.	Written examination	1
To assess knowledge and understanding, intellectual skills & General & transferable skills 2.a.1-2.a.8., 2.b.1-2.b.9., 2.d.1-2.d.10.	Oral examination	2
To assess knowledge and understanding, intellectual skills & practical and clinical skills and General & transferable skills: 2.a.1-2.a.8., 2.b.1-2.b.9., 2.c.1-2.c.5. and 2.d.1-2.d.10.	Practical & clinical examination	3
To assess: Knowledge & understanding: 2.a.1, 2.a.3, 2.a.6 Intellectual skills: 2.b.4, 2.b.8, 2.b.9 Practical & clinical skills: 2.c.2, 2.c.3, 2.c.5 General & transferable skills: 2.d.1, 2.d.2, 2.d.4, 2.d.6, 2.d.7	Thesis discussion	٤

Final exam.

First part

إجمالي	الدرجة				الاختبار	المقرر
	إكلينيكي	عملي	شخصي	تحريري		
١٥٠			٥٠	١٠٠	اختبار تحريري مدته ثلاث ساعات + اختبار شخصي	التشريح و المسولوجي
١٥٠			٥٠	١٠٠	اختبار تحريري مدته ثلاث ساعات + اختبار شخصي	الفسيولوجي و الكيمياء الحيويه
١٥٠			٥٠	١٠٠		الفارماكولوجي
١٠٠				١٠٠	اختبار تحريري مدته ثلاث ساعات	البحريا
١٥٠			٥٠	١٠٠	+ اختبار شخصي و عملي	الباثولوجي الجراحية
٧٠٠	إجمالي الدرجة					



Second part

إجمالي	الدرجة				الاختبار	المقرر
	عملي	إكلينيكي	شفهي	تحريري		
٤٠٠		٥٠	٥٠	٣٠٠	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي + اختبار إكلينيكي	الجراحة العامة
1200		600	300	300	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي + اختبار إكلينيكي + عمليات	امراض العظام و الاصابات
1600						إجمالي الدرجة

٨ - طرق تقويم البرنامج :

٨- Evaluation of Program:

Evaluator	Tools	sample
Internal evaluator (s) مقيّم داخلي	Focus group discussion Meetings	<u>report</u>
External Evaluator (s) مقيّم خارجي	Reviewing according to external evaluator checklist report.	<u>report</u>
Senior student (s) طلاب السنة النهائية	questionnaires	<u>50%</u>
Alumni الخريجون	questionnaires	<u>50%</u>



Stakeholder (s) أصحاب العمل	questionnaires	<u>All sectors</u>
Others طرق أخرى	none	

استراتيجيات التعليم و التعلم علي مستوى البرنامج:

1. استراتيجية التعلم النشط. **Active learning**
2. استراتيجية التعليم المبني على المخرجات. **Outcome-based learning**
- استراتيجية التعليم المبني على حل المشكلات

الملحقات :

- ملحق ١: المعايير القياسية العامة لبرامج قطاع الدراسات العليا.
- ملحق ٢: **Benchmarks** (المعايير المرجعية الخارجية)
- ملحق ٣: مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير العامة، والمعايير المرجعية الخارجية
- ملحق ٤: توصيف المقررات التابعة للبرنامج.
- ملحق ٥: **Program–Courses ILOs Matrix**

We certify that all information required to deliver this program is contained in the above specification and will be implemented. All course specification for this program are in place.

Program coordinator:

Name: **اد الحسينى مصطفى**

Signature & date:

Head of department:

Name: **اد صلاح شوقى**

Signature & date:



ملحق 1 :المعايير الأكاديمية لقسم جراحة العظام/كلية طب بنها

برامج الماجستير

١- موصفات الخريج

- خريج برنامج الماجستير فى جراحة العظام يجب أن يكون قادرا على :
- ١-١ اتقان اساسيات ومنهجيات البحث العلمى فى مجال جراحة العظام و مواكبة التطور السريع فى هذا المجال
 - ٢-١ القدرة على تشخيص جميع انواع امراض العظام و التحليل لدقيق لمعرفة تشخيص المرض
 - ٣-١ الربط بين مواد التشريح و الباثولوجى و الفسيولوجى مع جراحة العظام
 - ٤-١ متابعة و معرفة الأبحاث العلمية الحديثة و المشاكل المواجهة لجراحة العظام
 - ٥-١ القدرة على مواجهة المشاكل الجراحية و سرعة اتخاذ القرار المناسب لحلها
 - ٦-١ اتقان نطاقا واسعا من المهارات الجراحية و العمليات المتنوعة فى مجال جراحة العظام.
 - ٧-١ التواصل بفاعلية وقيادة فريق عمل فى قسم الطوارئ
 - ٨-١ اتخاذ القرار فى ضل المعلومات المتاحة عن الحالة المرضية
 - ٩-١ توظيف الموارد المتاحة بكفاءة وتنميتها والعمل على ايجاد موارد جديدة
 - ١٠-١ الوعى بدوره فى تنمية المجتمع والحفاظ على البيئة و معرفة مشاكل المجتمع المحيط و العمل على ايجاد حلول لها.
 - ١١-١ التصرف بما يعكس الالتزام بالنزهة والمصداقية والالتزام بقواعد المهنة
 - ١٢-١ الالتزام بالتنمية الذاتية المستمرة ونقل علمه وخبراته للآخرين

2- المعايير القياسية العامة

١-٢ المعرفة والفهم :

- بأنتهاء دراسة برنامج الماجستير يجب ان يكون الخريج على فهم ودراية بكل من :
- ١-٢-١ النظريات والاساسيات من المعارف فى جراحة العظام والمجالات ذات العلاقة(كالتشريح ، الباثولوجى)
 - ٢-١-٢ دوره اتجاه المجتمع و مدى تأثيره على المجتمع المحيط به.
 - ٣-١-٢ الحديث من المعارف فى جراحة العظام
 - ٤-١-٢ المبادئ الاخلاقية والقانونية للممارسة المهنية فى جراحة العظام

- ٢-١-٥ مبادئ واساسيات العمليات الجراحية فى مجال جراحة العظام
٢-١-٦ اساسيات ومنهجيات واخلاقيات البحث العلمى وادواته المختلفة

٢-٢ المهارات الذهنية :

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على :
٢-٢-١ تقييم المعلومات المتاحة عن المريض و استنباط العلاج المناسب للحالة المرضية
٢-٢-٢ مواجهة أى مشاكل طارئة تحدث اثناء علاج المرضى و خصوصا بالطوارئ
٢-٢-٣ الربط بين مواد التشريح و الباثولوجى بما يخدم جراحة العظام.
٢-٢-٤ كتابة رسائل علمية و ابحاث عن طريق الانترنت فى مجال العظام.
٢-٢-٥ تقييم مخاطر العمليات الجراحية الغير مناسبة للحالة المرضية
٢-٢-٦ التخطيط لتطوير اداءه فالعمليات الجراحية
٢-٢-٧ اتخاذ القرارات فالعمليات الجراحية الطارئة بصورة تساعد على نجاح العملية

٢-٣ المهارات المهنية

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على :
٢-٣-١ اتقان جميع انواع رد الكسور و التعامل مع حالات الطوارئ
٢-٣-٢ كتابة و تقييم الروشتات العلاجية و معرفة المفيد و الضار منها للمريض
٢-٣-٣ القيام ببعض العمليات الجراحية بمفرده و اخرى تحت اشراف الاستشاريين.

٢-٤ المهارات العامة والمنتقلة :

- بانتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على :
٢-٤-١ التواصل مع اعضاء الفريق الطبى بصورة تخدم المريض و تحسن من الأداء العلاجى.
٢-٤-٢ استخدام اجهزة الكمبيوتر بالعمليات الجراحية
٢-٤-٣ التقييم الذاتى و التعليم المستمر و تطوير الأداء العملى للجراحات
٢-٤-٤ استخدام المصادر المختلفة للحصول على المعلومات و المعارف من ابحاث و رسائل علمية و الانترنت

- ٥-٤-٢ تقييم اداء الفريق الطبي المعاون له و تقويمهم.
- ٦-٤-٢ العمل مع فريق طبي متكامل و القدرة على قيادة فريق طبي اثناء الطوارئ
- ٧-٤-٢ ادارة الوقت بكفاءة
- ٨-٤-٢ التعلم الذاتى والمستمر

(Benchmarks) ملحق ٢

Specialist Training in Trauma and Orthopaedics 2010

Editors: David Pitts, Prof. Angus Wallace, Prof. Nick Clarke, Lester Sher, Mike Reed



2 © BOA 2010
Editors

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OCAP Steering Group

British Orthopaedic Trainees Association

Trauma & Orthopaedic SAC

Intercollegiate Surgical Curriculum Project for material in the early years and Professional behaviour and leadership skills sections

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Questions, Comments, Updates

Questions and feedback are welcomed. They should be addressed in the first instance to David Pitts or Prof. Wallace via admin@ocap.org.uk

PMETB: What is a Curriculum?

A statement of the intended aims and objectives, content, experiences, outcomes and processes of an educational programme including:

a description of the training structure [entry requirements, length and organisation of the programme including its flexibilities, and assessment system],

a description of expected methods of learning, teaching, feedback and supervision

The curriculum should cover both generic professional and specialty specific areas.

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TABLE OF CONTENTS

1. PREFACE TO THE 2010 CURRICULUM	4
2. INTRODUCTION	2-1
3. EARLY YEARS CURRICULUM FROM ISCP	3-1
4. INTERACTION WITH OTHER SPECIALTIES	4-1
5. T&O ENTRY REQUIREMENTS TO ST3	5-1
<i>A) FEATURES OF JOBS AND EXPERIENCE TO PREPARE FOR ENTRY</i>	<i>5-1</i>
<i>B) SPECIFIC KNOWLEDGE/SKILL REQUIREMENTS</i>	<i>5-3</i>

C) OVERVIEW AND PRIORITIES	5-3
D) DETAILED REQUIREMENTS	5-4
E) ASSESSMENT EVIDENCE REQUIRED	5-4
6. OVERVIEW OF CURRICULUM	6-1
7. SELECTION AND RECRUITMENT	7-1
A) ENTRY REQUIREMENTS FOR RUN THROUGH TRAINING	7-1
B) ENTRY PROCESS (EARLY YEARS)	7-2
C) ENTRY INTO LATER YEARS OF TRAINING	7-3
D) INTRODUCTION TO T & O PRIOR TO ENTRY	7-3
E) ARTICLE 14	7-3
8. SYLLABUS.....	8-1
A) OVERVIEW	8-1
B) APPLIED CLINICAL KNOWLEDGE SYLLABUS (TRAUMA & ORTHOPAEDICS)	8-5
C) APPLIED CLINICAL SKILLS	8-17
D) PROFESSIONAL BEHAVIOUR & LEADERSHIP SKILLS	8-28
9. LEARNING OPPORTUNITIES	9-1
A) LEARNING AGREEMENT	9-1
B) MODELS OF LEARNING	9-2
C) INDIVIDUALS IN THE WORKPLACE	9-4
D) DEANERY/PROGRAMME	9-5
E) EXTERNAL RESOURCES	9-6
F) STAGES OF LEARNING	9-6
10. ASSESSMENT & FEEDBACK	10-1
A) INTRODUCTION	10-1
B) THE LEARNING AGREEMENT	10-2
C) THE INSTRUMENTS OF ASSESSMENT	10-2
D) LOGBOOK	10-5
E) OCAP ONLINE	10-8
F) FORMAL TESTS OF KNOWLEDGE RELEVANT TO THE TRAINING OF A SURGEON	10-9
G) FEEDBACK.....	10-9
H) APPEALS	10-11
I) THE END POINT OF TRAINING	10-11
J) KEY ROLES IN ASSESSMENT.....	10-12
K) BLUEPRINTING AND SAMPLING OF ASSESSMENT TO THE CURRICULUM-ACHIEVING INTEGRATION	10-13
L) TRANSITION TO LIFELONG CONTINUOUS PROFESSIONAL DEVELOPMENT AND RECORDING PRACTICE IN A PORTFOLIO	10-14
11. EXIT CRITERIA	11-1
12. MANAGEMENT OF QUALITY ASSURANCE (QA) OF PROGRAMME	12-1
A) GMC SANCTIONED VISITS	12-1
B) GMC QUALITY ASSURANCE.....	12-1
C) LOGBOOK MONITORING	12-1

D) TRIANGULATION BACK TO EXAMS	12-2
E) EDUCATIONAL MONITORING	12-2
13. FACULTY DEVELOPMENT	13-1
14. FURTHER WORK AND DEVELOPMENT	14-1
15. APPENDICES	15-1
A) SAMPLE ASSESSMENT TOOLS	15-1
B) REFERENCES	15-7
C) OCAP: PROCESS & PROGRESS (ADDITIONAL INFORMATION)	15-8
D) OCAP: SAMPLE TOOLS	15-9
E) INTEGRATED CLINICAL AND ACADEMIC TRAINING IN TRAUMA AND ORTHOPAEDIC SURGERY	15-28
F) BLUEPRINT SAMPLES FOR EXAM DEVELOPMENT.....	15-30
G) ST1-2 LEARNING AGREEMENT FORM	15-32
H) OCAP ONLINE SCREENSHOTS	15-38
I) FREQUENTLY ASKED QUESTIONS	15-39
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In September 2006 the first Trauma and Orthopaedic (T&O) competence based curriculum was approved by PMETB. Since that time there have been a number of changes that have impacted T&O, many of which are ongoing. Attempts are still being made to unify the OCAP and ISCP curricula together with their respective online delivery systems. It is because of these ongoing changes and uncertainties that T&O wish at this time to submit an interim curriculum. This document will be submitted, with PMETB's agreement, in 2009.

T&O is a large surgical specialty (approximately one third of the surgical workforce) and as such faces particular difficulties with short lead times for change. Discussions earlier in 2009 lead T&O to believe that its curriculum could be resubmitted without change. It became clear very recently that the T&O curriculum would have to be adapted to include the newly developed early years component of the ISCP curriculum. The final version of this curriculum was not received until September 4th 2009. A further final version was provided on September 16th. It is this version which has been included in our 2010 curriculum. A further final version was provided on September 20th but work was already underway on the previous version. This timetable has allowed only limited discussions with the BOA Training & Curriculum Committee. The SAC as a whole has yet to discuss the new curriculum as a whole.

In the attempt to provide PMETB with an updated curriculum in such a short time frame there has been no opportunity for wider discussion with either the T&O Specialist Advisory Committee or the Training and Curriculum Committee of the British Orthopaedic Association. Under these circumstances it is inevitable that there will be problems (heading style, inconsistencies or other typos) within the document, we apologise for this in advance.

The ISCP early years' material has been included without amendment except to delete syllabi relating to other specialties.

The Professional Behaviour and Leadership Skills syllabus of ISCP has also been included, replacing the previous syllabus adapted from Psychiatry in the 2006 curriculum.

Where possible we have included the ISCP material but have also tried to maintain the integrity of the T&O

curriculum in such a way that trainers and trainees will continue to feel ownership of it and pride in it as they have in the past.

The 2006 T&O curriculum was produced in the climate of —run throughll training being the future model. We now have the situation where numerous early years models have appeared. We hope that in our efforts to blend the best of the 2006 curriculum with newer elements there are no confusions or inconsistencies.

We remain of the view clearly enunciated in our 2006 submission that the principal focus for aspiring Trauma and Orthopaedic trainees in the early years of training should be traumatology. We likewise consider that those surgeons passing through our discipline en route to other specialty careers should take from our specialty insights into the care of the injured.

We anticipate that the next phase of our curricula development will be the clarification of syllabus, competencies and a guide to specialist practice. Successful completion of such modules would signify skills that might support a special interest practice.

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a) FOREWORD

What do we expect of the Trained Trauma and Orthopaedic Surgeon?

The Specialist Advisory Committee (SAC) in Trauma and Orthopaedic Surgery has already defined the Standard at which a surgeon would be assessed as having completed their training and at which they might be deemed ready for the award of the Certificate of Completion of Training (CCT).

“A surgeon with CCT will have been trained in the generality of Orthopaedics and Trauma when they have been assessed as having completed the competencies laid out in the Orthopaedic and Trauma curriculum. The syllabus is for the generality of Trauma and Orthopaedics and this will be assessed in the summative Intercollegiate Specialty Board Exam which trainees must have completed by the end of their training. This will form part of the trainee’s portfolio which will also include workplace based assessments, the evidence of previous learning agreements and ARCP/RITA assessments. The Portfolio will be assessed in its entirety at the final ARCP/RITA G assessment prior to the recommendation of the award of the CCT.

Towards the end of training in the generality of the discipline the overwhelming majority will have begun to develop a subspecialty interest prior to CCT. This will continue post CCT and is likely to be formally assessed in a subsequent peer review process.

Such an individual will then be able to join and lead a multidisciplinary team which will receive, assess and definitively manage the majority of patients who need emergency treatments. They will provide a similar service for a range of common Orthopaedic conditions. In both Trauma and Orthopaedic services they will recognise the need to refer rarer and prescribed conditions for more specialised definitive management.”

PMETB presented the partners involved in the organisation and delivery of training with the challenge to develop and introduce a competency based curriculum in which the knowledge, attitudes and skills required for a trainee to be judged as worthy of a CCT are explicitly defined and assessed.

In this document we in Trauma and Orthopaedic surgery present our curriculum. The methods, syllabus and processes to deliver that curriculum are outlined together with assessment tools necessary to ensure that the

trainees enrolled in T&O surgical training from 2007 onwards can demonstrate that —The Standard —has been achieved.

The Trainees in Trauma and Orthopaedics have been familiar for several years with the tools of competency assessment laid out in the Orthopaedic Competency Assessment Project. Those tried and tested tools have now been further developed and used to support the delivery and assessment of the syllabus. Trainees and Trainers alike should have confidence in processes involved and view the —New Curriculum as an opportunity to further standardise training throughout the United Kingdom ensuring a very high quality of CCT recipient. This document is inevitably just the beginning of the next phase in Trauma and Orthopaedic education. We intend to build and strengthen the process of training and assessment as the lessons from the introduction of this new curriculum emerge.

For the future we hope that all concerned, especially the Public and Patients, will welcome this initiative as being in the best interests of those receiving Trauma and Orthopaedic care and ensure that only those appropriately supervised and trained surgeons deliver that care throughout the UK.

Clare Marx, Tony Banks, Lester Sher, David Rowley, David Pitts

September 2006

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b) SCOPE & PURPOSE

Purpose

This Curriculum is produced to guide Orthopaedic training in the UK by providing accessible information for both the trainee and the trainer, who are seen as its primary audience. The Curriculum aims to make the links between the surgical education process as a whole and assessment processes in particular absolutely clear. It is written bearing in mind that all of its proposals must be feasible in the present workplace not just in an aspirational future. Although the Curriculum is a technical document written primarily for a professional orthopaedic audience it also seeks to provide transparent guidance for all, in particular the general public and patients.

Target Audience

There are a number of Stakeholders for whom this document has been created:

- Validating bodies
- Collaborating groups
- Training Programme Directors
- Trainers
- Trainees
- Employers

It is written for a professional audience, accessible to the general public / anyone who has a role in T & O Training.

Guiding Principles

During the development of the Orthopaedic Competence Assessment Project (OCAP, see historical overview Section 2-5) tools and methodology in T&O initial interviews with trainers and trainees gave rise to a series of guiding principles. These principles informed the OCAP programme and have now been adopted to underpin the design process of the new orthopaedic curriculum.

A radical alternative

—A problem cannot be solved by the same technology used to create it!l (Einstein).

In the current surgical training environment there have already been major changes that radically affect the amount of time and resources available. Designing a curriculum that merely revised the existing paperwork was never an option. It was clearly necessary from the beginning to provide a clear structure to what, in many cases, was an unstructured activity.

In designing the materials and delivering the curriculum we have tried to learn from our experience and that of others. Historically we observed in the JCHST Competence Working Party that there were difficulties moving forward that were attributable as much to change management and innovation issues as to the actual content of the assessment task. The curriculum has been designed with the intention of gaining as much support from the Orthopaedic community as possible in order to facilitate the innovation process.

Competence focused

The acquisition of operating experience is an important factor in surgical training and so any curriculum to be used—in the workplace should be competence focused. Competence may be defined simply as

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—... an individual's ability to perform in the workplace to the required standard ... competences are the descriptions of the constituent parts of performance which answer the question 'what do people have to do to be effective in various parts of their job?'ll1

There are debates about the nature or meaning of the word competence. One conceptual standpoint states that a competence is simply a demonstrable ability to do something, using directly observable performance as evidence. Another understands competence as being a: „holistic integration of understandings, abilities and professional judgments, where 'competence' is not necessarily directly observable, rather it is inferred from performance'2.

The integration of these two aspects acknowledges a much greater level of complexity within surgical competencies and avoids the problem that individuals may well be able to demonstrate that they can 'do' something, but that does not necessarily mean that they understand what they are doing or why until they give evidence for it.

Within our particular competence model we must look not only for the three key domains i.e. knowledge, skills and attitudes, but also for the unique combination of those domains in areas such as professional judgement. The development of professional judgment is a key outcome of surgical training, and allowance must be made to maintain the dynamic tension between the separate aspects of competence in an attempt to allow a clear assessment of whether a trainee possesses sufficient competence in individual skill areas to prove competence in professional judgement.3

Flexible and easy (intuitive) to use

Each programme, and every trainer, will wish to retain a degree of individuality, whether of organization (4, 6 or 8 month attachments) or specialty selection. It is intended that the curriculum design will be able to recognise this, whilst providing a consistency of standard and outcome.

Able to adapt to new developments (open architecture)

The curriculum should not be such a 'finished product' that it cannot benefit from work that will not reach maturity before it is already in use. Many innovations, especially in social technology settings, have a lengthy gestation period. From the beginning, every effort has been made to ensure that the curriculum's architecture

is sufficiently open to allow synergy with new developments. A full integration of the orthopaedic curriculum with the orthopaedic e-logbook, for example, is work in progress.

Adaptable to a variety of contexts

Each programme delivers its orthopaedic service (and training) in an entirely different —geographyll. If trainees are to be taught in the work place then the curriculum tools must in some way take into account this difference between the work places in which they are being assessed. These workplaces differ not only in the facilities for education but also in the length of attachments, frequency of supervised sessions and attitudes to training and teaching (naturally some of these factors vary within each centre and between trainers). T & O has tried to limit the effect of these differences by creating a —delivery mechanismll (from the OCAP) which is currently facilitating the implementation of the curriculum.

¹ Standards in Competence Framework, UK Cabinet publication

² Michael Eraut. Developing Professional Knowledge and Competence. Falmer. 1994:172-181

³ these notes on competence are adapted from work originally written by D. Pitts for the ISCP in consultation with Danae Goodsman

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One element of the trainee"s portfolio

Much surgical training happens in midst of service delivery and is therefore subservient to the needs of the patient. This may severely limit the window of opportunity during which skills may be observed, articulated and evaluated. The hospital environment, where many trainers do not have their own office space and distractions abound, is hostile to finding time and space to meet and talk. Most surgeons join the profession to perform surgery. They acknowledge the need to train but appreciate the evaluation of training to be part and parcel of service delivery.

With these factors in mind we have tried (within the curriculum) to keep materials and systems straightforward and sympathetic to the paucity of time in rapidly changing settings within which to learn complex concepts and tools.

Driven by the trainee

We have put responsibility into the hands of those who hold largest stake in seeing training happen – the trainees themselves! The T&O curriculum requires (and enables) the trainee to take the initiative and responsibility for their own training. The trainer is still the senior partner in the enterprise but the curriculum (through OCAP) provides tools to guide the trainee in getting the best from their trainer in a mutually supportive and mature relationship.

Useable, valid and reliable

From the beginning we have borne in mind that the materials need to satisfy these three criteria. All are thorny issues made more complex in a setting where service, which quite rightly has the patient as its focus, is the primary learning environment.

Validity

Questions of validity (truth) may be addressed in several different ways. Does the implementation of the whole system make a valid improvement in the outcomes of training? Are the index procedures selected for assessments a valid choice? Is the internal structure of each assessment valid in terms of the measures of performance it proposes?

A major problem in this area is the lack of previous measures of training effectiveness. The OCAP process

came into being because there was no objective measurement of surgical competence at present. It is impossible to make comparison with anything other than examination results, which only measure a limited area of intellectual competence. Validity remains the key however, and extensive efforts have been made to find answers in this area, not only by detailed validation of index procedures and Procedure Based Assessments but also by keeping the Curriculum in such close proximity to the workplace that face validity is maximised.

Reliability

The curriculum should be understood by all (or most) in the same way. Efforts have been made to base the curriculum firmly in accepted practice so that a firm foundation of agreement can be laid for the future.

Trainers will have to demonstrate competence in the use of the curriculum over time.

Usability

The circumstances in which the curriculum will be used dictate that this area is of primary concern. —It might be valid and reliable but can you use it in a practical situation? Efforts have been made to ensure that the curriculum can be used in real life contexts within the constraints of time, user skills and attitudes.

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Holistic in approach

The Competence Working Party guidelines, resonating with PMETB's own later guidance incorporated —generic skills such as communication and teamwork into our thinking from the start. It was clear from conversations with training directors that many problems encountered amongst trainees had their roots in the area of personal effectiveness. In the past many of these problems were not identified until year 3 or 4 of training but it is desirable that they are recognised at a much earlier stage in order to ensure a solution. This also raised the problem of the trainers' ability in this area. For this reason materials have been included that will help both sides to develop their awareness and competence in these vital skills.

Formative and summative

The notion of a summative assessment where a trainer (possibly external) observes a trainee's performance in a pass/fail scenario was rejected at an early stage after two pilots. On one hand there seemed to be insurmountable logistic and resource problems but more importantly training in the workplace is an ongoing activity and assessment should resonate with its formative nature. It was decided that all workplace assessments should be formative, giving feedback to the trainee to inform and guide their future performance. It was noted, however, that such assessments would, as a whole, be a useful summary of the trainee's ability to learn and progress. The successful completion of a PBA for example is not seen as a license to operate in that procedure but as a single component of a wider assessment of the trainee's ability to learn operative procedures and perform them on a variety of patients with differing degrees of severity and complexity in their condition.

Electronic application

It has been clear from the beginning that to gather data from a workplace based curriculum requires electronic application to facilitate this. Sadly the levels of IT —literacy encountered in OCAP pilots were highly variable and, more importantly, access to IT resources in NHS Trusts is extremely patchy (according to 2006 OCAP data). We have therefore sought to demonstrate the possibility of an easy transfer to a digital system whilst maintaining a paper-based system as the primary resource in these early stages while agreements are reached.

c) DEVELOPMENT PROCESS FOR THE ORTHOPAEDIC CURRICULUM

Creation of the new Orthopaedic Curriculum could legitimately be seen as evolutionary based on consensus within the profession. The present work builds on substantial foundations laid over a period of years by a variety of individuals.

Pre 2001

At this point the orthopaedic curriculum documents were in the form of the BOA's —blue bookll, syllabus of Clinical Knowledge which has formed the foundation for the present Applied Clinical Knowledge syllabus. This was agreed after extensive consultations by the Education Committee of the BOA in partnership with the Specialist Associations. At this point a number of experiments were already underway on the use of Learning Outcomes and development of Learning Agreements although very little had been produced in a coordinated form. Experimental developments in competence assessment had been undertaken as early as 1994 (Pitts, Ross 1994) and in the latter part of this period, following on from the Bristol enquiry, the JCHST formed a Competence Working Party under the Chairmanship of Professor Galasko.

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2001 – 2006

The *JCHST Competence Assessment Working Party* met for a three year period under the chairmanship of Prof Galasko. Its recommendations were accepted in 2002:

1. That surgical competencies should include the following:

a) Generic or transferable

Communication skills

Teaching / learning skills

Personal effectiveness

Management skills

b) Clinical

Knowledge of basic sciences

Knowledge of theoretical clinical sciences

Knowledge of clinical skills

Decision-making

Surgical skills

Post-operative management

Research

2. That all trainees should be assessed by means of a portfolio containing the following elements:

Learning agreements, which should be drawn up by trainers and trainees, which pay due deference to the experience of the trainees and the facilities available from the training

A research portfolio which should follow the current JCHST guidelines dealing with personal research, assessment of the research of others and evidence of audit

An operative log book which should demonstrate learning through reflection on complications experienced

An accumulation of performance-based objective assessments derived from ward, clinic and operative exposure concentrating on the most common operations performed

A reflective diary of meetings attended and locally delivered educational events

A competence map linking the methods of delivery, assessment and curriculum content, to ensure no serious gaps

3. That a number of experiments should be encouraged in order to develop materials to support the portfolio process.

The *Orthopaedic Competence Assessment Project* was established in December 2002 through industrial sponsorship with the aim to

—Improve the quality of Higher Surgical Training in orthopaedics through the introduction of a competence based portfolio of coaching and assessment tools.

The project brought together materials (and expertise) already in various stages of development and implementation, assembling them as a coherent whole in order to further develop both the materials and the skills needed to use them effectively. The project team, working together with the British Orthopaedic Association and the T & O Specialist Advisory Committee, has now produced a competence based portfolio of educational tools which have been piloted and validated. This body of work has formed the basis of orthopaedic higher surgical training UK-wide since August 2005

The *Intercollegiate Surgical Curriculum Project* (ISCP) began its work in 2003, and since then, the Department of Health has funded two subsequent ISCP project phases, including, a national pilot of the changes proposed – which commenced in September 2005. Orthopaedics has contributed extensively to this project whenever the opportunity has arisen and the Procedure Based Assessment tools originally developed in orthopaedics have formed the model for all specialties. By Spring 2006 the ISCP had failed to deliver a usable curriculum for T & O, which created the need to produce the September 2006 curriculum.

2006

An editorial group was convened by the Chair of the Orthopaedic SAC to draw together the work that had been done through both OCAP and the BOA to create a fit for purpose Orthopaedic Curriculum to be submitted for PMETB approval. This working group drew together material from a number of sources to create the 2006

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document which formed a focus for considerable discussion, debate and refinement following its approval by PMETB.

2006-2010

Despite many attempts at dialogue the relationship between the ISCP and T& O has still to reach a satisfactory conclusion. The most recent set of discussions are underway to resolve differences and unify the two systems but funding for T&O's curriculum (OCAP) still remains spasmodic with the BOA being the most consistent means of ongoing support.

It is still hoped that the appropriate funding will be identified for the Orthopaedic Curriculum to be regularly reviewed through a specially created sub-committee of the SAC. This group will review material and debate on an ongoing basis throughout the year with a yearly face to face meeting at which amendments to the Curriculum will be ratified and a new document issued if necessary. Membership of this group will be decided by the Orthopaedic SAC and will include representatives from the BOA and the British Orthopaedic Trainees Association as well as a lay member.

This 2010 curriculum has been produced as an attempt to begin to bridge the gap and may hopefully provide a platform for further collaboration.

A curriculum for the early years of surgical training

d) PREFACE

This is a competence based curriculum. Its focus is on the trainee's ability to demonstrate knowledge, skills and professional behaviours that they have acquired in their training (specified in the syllabus) through observable behaviours. It is not time-defined and allows these competences to be acquired in different time frames in some training programmes than in others, depending upon the structure of that programme. There are certain milestones or competency points which allow trainees to benchmark their progress. A critical competency point is ST3 at which point, in practice, trainees will make a clear commitment to one of the nine SAC defined disciplines of surgery.

This document contains the curriculum which must be completed in order to meet the entry requirements of ST3 irrespective of the training route followed. The document contains, amongst other things, the syllabus of the core skills, knowledge and professional behaviours which that are required of successful candidates in the MRCS examination. In addition, this curriculum refers to other requirements and assessments demanded of surgeons wishing to proceed into ST3.

The syllabus is achievable via different training programmes which vary between Post Graduate Deaneries.

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EARLY YEARS TRAINING AND THE CORE CURRICULUM –

e) OVERVIEW

Doctors who aspire to a career in surgery will choose, during their training, to specialise in one of the nine SAC defined surgical specialties, namely:-

- cardiothoracic,
- general surgery,
- neurosurgery,
- oro-maxillo-facial surgery (OMFS),
- otolaryngology,
- paediatric surgery,
- plastic surgery,
- trauma and orthopaedics (T&O)
- urology,

The curriculum for each of these specialties is competency based and the number of years taken to achieve the competencies is merely indicative. There are way points:

entry to surgical training - CT1 or ST1

entry to entirely specialised training - ST3

exit at CCT within one of the nine defined surgical disciplines.

ST (Speciality Training) competencies refer to a type of training where the speciality element is integrated with the core element of skills, knowledge and professional behaviours from the start. CT (core or generic training)

assumes trainees enter a period where they may be exposed to a variety of specialities which may or may not be directly relevant to their ultimate speciality choice. It is possible for any trainee to transfer from one to another speciality discipline of surgery provided they a) meet their educational milestones in the core and b) satisfy all the speciality requirements for ST entry in the specialty of their choice. The different training schemes offered by the Post Graduate Deaneries meet different educational needs and permit trainees to make earlier or later final career choices based on ability and preference.

The start of ST3 is a key competency point when candidates demarcate their training from the more generic, to the more specialised route.

Currently all nine surgical specialties have separate curricula, which each envisage 7-8 indicative years of training from ST1/CT1. These curricula were conceived and written before 2007 within the context of 'run through' training as proposed by MMC. However, within the early years of training, much of the content of these different curricula is common. The intention of this document is to capture the commonalities and delineate the speciality differences laid down in the first two levels of competency defined as ST1 and ST2 in these speciality curricula.

It is important to emphasise that it is essential that candidates must achieve both core and specialty specific competencies to be eligible to compete at the ST specialist entry competency level. The core competencies reflect the competencies that ALL surgeons must demonstrate, while the specialty specific competencies reflect the early competencies relevant to an individual speciality.

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f) PURPOSES

The purposes of early year's surgical training are:-

1. To provide a broad based initial training in surgery with attainment of core knowledge, skills and professional behaviours relevant to the practice of surgery in any specialist surgical discipline. This is defined within the core syllabus (which is also the syllabus of the MRCS).
2. In addition it will provide early speciality training such that candidates can select one on the nine surgical speciality options and demonstrate that they have the knowledge, skills and professional behaviours to enter specialty training at ST3 entry level (see below) in that surgical specialty. The specialty specific elements are laid out in the specialty specific curricula, and for convenience abstracted in this document. These speciality elements (except in otolaryngology – see 3) are NOT tested in the MRCS but through WPBAs in the first instance, and subsequently through the Intercollegiate Specialty FRCS examinations, which are taken towards the end of specialty training. Additionally candidates will be continuously assessed on the contents of the core curriculum and their specialty specific slots through workplace based assessments (WPBA) and structured reports from Assigned Educational Supervisors which in turn contribute to the Annual Assessment of Competency Progression (ARCP); this includes the competencies expected of all doctors including surgeons to meet their obligations under Good Medical Practice (GMP) in order to remain licensed to practice.

CANDIDATES WHO WILL BECOME SURGICAL TRAINEES

Candidates will be selected after completion of Foundation competencies or their equivalents into either run through ST1 or generic/themed CT1 posts. They will then have to achieve agreed milestones in terms of College examinations and local ARCP arrangements in Deaneries which will include the described work place

based assessments. Entry to ST3 will only proceed if the competencies described in this document are achieved, irrespective of the training system, be it run through or generic/themed training.

ENTRY REQUIREMENTS

The specifications required of a person wishing to enter surgical training are laid out below.

Section 3-4 © BOA 2010

Person Specification

Application to enter Specialty Training at ST1/CT1 in any discipline

Essential When Evaluated⁴

Qualifications MBBS or equivalent medical qualification Application form

Eligibility Eligible for full registration with the GMC at time of appointment

Eligibility to work in the UK

Application form

Evidence of achievement of Foundation competences by time of appointment in line with GMC standards/ Good Medical Practice

Application form

Interview/Selection centres⁵

Is up to date and fit to practise safely Application form

References

All applicants to have demonstrable skills in written and spoken English adequate to enable effective communication about medical topics with patients and colleagues demonstrated by one of the following:

a) that applicants have undertaken undergraduate medical training in English; or

b) have the following scores in the academic international English Language Testing System (IELTS) – Overall 7, Speaking 7, Listening 6, Reading 6, Writing 6.

If applicants believe they have adequate communication skills but do not fit into one of these examples they must provide supporting evidence

Application form

Interview/Selection centre

Meets professional health requirements (in line with GMC standards/Good Medical Practice)

Application form

Pre-employment health

screening

Fitness To Practise Ability to provide a complete employment history

No more than 51 weeks in surgery (not including Foundation modules),

Application form

Language Skills ALL sections of application form completed FULLY according to written guidelines

Application form

Health Be able to practice as laid out in maintaining good health in GMP

g) THE TRAINING PATHWAY

From the trainee's perspective, he or she will be able to undertake surgical training via differing routes depending on which training scheme they choose or are selected for, within a School of Surgery in one of the Postgraduate Deaneries in the United Kingdom.

1. For those trainees who are certain of their speciality choice, and who choose to enter —run through training, competitive entry into ST1 will be possible with run through training in their chosen speciality to CCT, where this is offered by the speciality. This is currently the only route by which trainees can undertake training in neurosurgery (Their early years training programme must ensure they have sufficient exposure to the generality of surgery to address the demands of sitting the MRCS). Such a route still demands that in addition 4 'when evaluated' is indicative, but may be carried out at any time throughout the selection process 5 A selection centre is a process not a place. It involves a number of selection activities that may be delivered within the Unit of Application.

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to speciality specific competencies, the core competencies common to all surgeons are attained before entering ST3 and these will be assessed through the MRCS, WPBAs and satisfactory ARCPs.

2. For those trainees who are either uncertain of their chosen speciality, or who are unable to gain entry to runthrough training, a period of generic surgical training will be necessary. During this period they will attain core surgical knowledge, skills and professional behaviours, while sampling a number of surgical specialties and making a decision as to their preferred speciality or specialties. It will be necessary in addition to attaining core competencies to ensure that they —top up their speciality specific competencies to make them eligible to enter ST3 in their chosen speciality. They will then seek to enter specialty training at the entry ST3 level by competitive entry. Open competition will test candidates against SAC defined competencies for an entry ST3 trainee.

This model has a number of possible variants. It might be possible to teach core completely within a generic programme followed by speciality top up training later on in order to reach speciality entry ST3 level. Another variant would organise generic training along a theme which supports both core and an element of speciality specific competencies contiguously. In these situations many trainees may pass straight from CT2 to ST3 in their chosen discipline if selected. In practice, it is envisaged that generic surgical training will run over an indicative timescale of up to 3 years (CT1-3) with many exiting at CT2 and others at CT3..

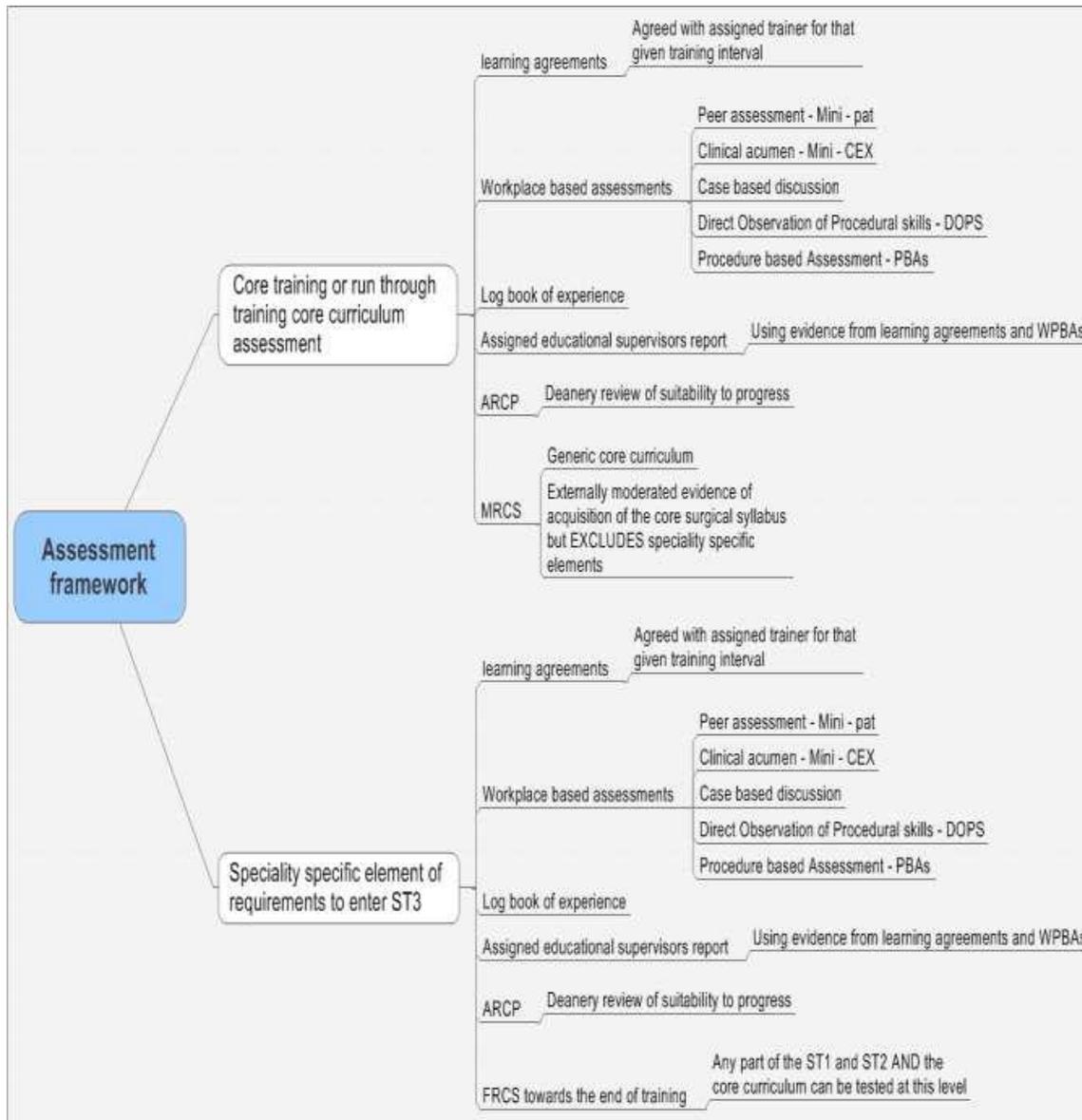
3. Some early years trainees may wish to pursue an academic surgical career and will devote a significant proportion of their time to additional academic pursuits including research and teaching. For the majority this will lead (later in specialised training) to a period of time in dedicated research, resulting in the award of a higher degree in a scientific area related to their chosen speciality. For others who wish to revert to full time clinical training, this will also be possible, providing that the relevant clinical competencies are achieved.

This variety of routes to learning and training are desirable as this will cater for a diversity of wants and needs of potential surgeons of the future, through offering choice and flexibility. It also permits Schools and Deaneries to offer variety in their teaching and learning styles which will provide them with a unique imprimatur which will appeal to different trainees in different ways.

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h) THE ASSESSMENT FRAMEWORK

This is detailed in a later section and shown diagrammatically in the diagram below.



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i) OUTCOME

The outcome of early years training is to achieve the competencies required of surgeons entering ST3. These competencies include:

Competence in the management of patients presenting with a range of symptoms and elective and emergency conditions as specified in the core syllabus for surgery.

Competence in the management of patients presenting with an additional range of elective and emergency conditions, as specified by the specialty syllabus for levels ST1 and ST2.

Professional competences as specified in the syllabus and derived from Good Medical Practice documents of General Medical Council of the UK.

Having met the outcomes of this curriculum a surgical trainee will be able to

Perform as a member of the team caring for surgical patients.

Receive patients as emergencies and review patients in clinics and initiate management and diagnostic processes based on a reasonable differential diagnosis.

Manage the perioperative care of their patients and recognise common complications and either be able to deal with them or know to whom to refer.

Be safe and useful assistant in the operating room

Perform some simple procedures under minimal supervision and perform more complex procedures under direct supervision

Guidance regarding the requirement for MRCS and the ARCP Outcome

Core programmes

Trainees without the MRCS are not eligible for ST3 irrespective of their overall ARCP performance.

If trainees reach the end of CT2 without the MRCS, they cannot proceed unconditionally to CT3.

Trainees who have already made 4 attempts at MRCS Part B (OSCE) will fail their CT2 ARCP and will have to leave the programme (*ARCP recommendation 4 shown below*).

If trainees at CT2 have MRCS Part B (OSCE) attempts remaining the choices to be made are:

a.) If they have met all their other educational milestones except MRCS, they could carry the requirement to pass MRCS to CT3. They must use every opportunity to pass the MRCS in that year i.e. use up their remaining opportunities. Failure to pass the MRCS during this period would result in failing the CT3 ARCP (*Recommendation 4*).

b.) If they have made reasonable progress in their other educational milestones but have other identified weaknesses, they could repeat CT2₁ (*ARCP Recommendation 3*) but must use every opportunity to pass the MRCS. Failure in the MRCS after repeating CT2 would be a failing of the CT2 ARCP (*Recommendation 4*).

c.) At any time a candidate with significant weaknesses should consider leaving the programme after appropriate counselling.

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Run through programmes

Trainees without the MRCS are not eligible to proceed to ST3 irrespective of their overall ARCP performance.

Trainees who have already made 4 attempts at MRCS Part B by the time they finish ST2 will fail their ST2

ARCP (*Recommendation 4*) and will have to leave the programme. If they have MRCS Part B (OSCE) attempts remaining, trainees at the end of ST2 without the MRCS may repeat ST2 (*ARCP Recommendation 3*) and use up all their remaining attempts at MRCS.

† **Note:** Candidates repeating a year in the core or run through route will have used up their permissible year of remediation laid out in the Gold Guide (<http://www.mmc.nhs.uk/pdf/Gold%20Guide%202008%20-%20FINAL.pdf>). This means that if they proceed to ST3 they will have no further opportunity to repeat a year, unless their circumstances are exceptional.]

ARCP Outcomes

1. Trainee is achieving progress and competencies at the expected rate
2. Development of specific competencies required – additional training time not required
3. Inadequate progress by the trainee – additional training time required
4. Released from training programme with or without specified competencies
5. Incomplete evidence presented – additional training time may be required
6. Gained all required competencies; will be recommended as having completed the training programme and for an award of a CCT or CESR

Moving from one discipline of surgery to another

In the early years it is possible that a trainee who had started to develop a portfolio consistent with a particular specialist discipline might wish to move to another. One of the strengths of the flexible early years is that it will be possible, depending on the local circumstances to make such changes with an identification of suitable educational credits that may be transferred. This is strictly conditional on a trainee achieving the educational milestones so far agreed for them. Moving from one discipline to another because of the need to remediate in the original discipline would not normally be permitted. All generic credits, for example, possession of the MRCS would be transferable. Those leaving ENT however could not use the DOHNS examination as equivalent to the generic MRCS and for those wishing to enter ENT would be required to sit the part 2 DOHNS examination.

In order to be eligible to move from one discipline to another the following conditions therefore apply:-

1. They would need to achieve a satisfactory outcome in their ARCPs up to that point including all relevant WPBAs.
2. They would have to fulfil the minimum period in the new speciality of their choice in order to progress to ST3 in that discipline
3. They would have to obtain their new position either through open competition in the annual selection round or by an agreed local School or Deanery arrangement should an appropriate vacancy arise. Their right to move would be limited by the particular circumstances appertaining at the time – in particular availability of training positions in their chosen new discipline.
4. They must pass the MRCS (or DOHNS) examination.

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The process in practice would be subject to local negotiations between heads of training and designated training supervisors and the trainee making the request. If the decision to change theme in core programmes occurs early then the effective increase in training time may be minimal. If the decision occurs later or during run through then more time spent in the early years is almost inevitable. The progression to ST3 is in essence competency dependant and this means having the appropriate educational credits whatever time that takes.

Those spending longer having made a change may be subject to limitations on any subsequent period required for remediation, although this ultimately would be a Deanery decision.

A SUMMARY OF THE KEY SYLLABUS MODULES IN THE CORE CURRICULUM THAT ARE REQUIRED OF ALL SURGICAL TRAINEES PRIOR TO ENTRY INTO ST3.

All of this material will be tested in the MRCS but may also be tested in the workplace.

1. Basic Science Knowledge relevant to surgical practice

Anatomy

Physiology

Pharmacology - in particular safe prescribing

Pathological principles underlying system specific pathology

Microbiology

Diagnostic and interventional radiology

These can all be contextualised within the list of presenting symptoms and conditions outlined in module 2.

2. Common surgical conditions

To assess and initiate investigation and management of common surgical conditions which may confront any patient whilst under the care of surgeons, irrespective of their speciality.

To have sufficient understanding of these conditions so as to know what and to whom to refer in a way that an insightful discussion may take place with colleagues whom will be involved in the definitive management of these conditions.

This defines the scope and depth of the topics in the generality of clinical surgery required of any surgeon irrespective of their ST3 defined speciality.

Basic surgical skills

To prepare oneself for surgery

To safely administer appropriate local anaesthetic agents

To handle surgical instruments safely

To handle tissues safely

To incise and close superficial tissues accurately

To tie secure knots

To safely use surgical diathermy

To achieve haemostasis of superficial vessels.

To use a suitable surgical drain appropriately.

To assist helpfully, even when the operation is not familiar.

To understand the principles of anastomosis

To understand the principles of endoscopy

The principles of assessment and management of the surgical patient

To assess the surgical patient.

To elicit a history that is relevant, concise, accurate and appropriate to the patient's problem.

To produce timely, complete and legible clinical records.

To assess the patient adequately prior to operation and manage any pre-operative problems

appropriately.

To propose and initiate surgical or non-surgical management as appropriate.

To take informed consent for straightforward cases.

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Peri-operative care of the surgical patient

To manage patient care in the peri-operative period.

To assess and manage preoperative risk.

To take part in the conduct of safe surgery in the operating theatre environment.

To assess and manage bleeding including the use of blood products.

To care for the patient in the post-operative period including the assessment of common complications.

To assess and plan perioperative nutritional management.

Assessment and early treatment of the patient with trauma

To safely assess the multiply injured patient.

To safely assess and initiate management of patients with traumatic skin and soft tissue injury

chest trauma

a head injury

a spinal cord injury

abdominal and urogenital trauma

vascular trauma

a single or multiple fractures or dislocations

burns

Surgical care of the paediatric patient

To assess and manage children with surgical problems, understanding the similarities and differences from adult surgical patients.

To understand common issues of child protection and to take action as appropriate.

Management of the dying patient

To manage the dying patient appropriately.

To manage the dying patient in consultation with the palliative care team.

Organ and tissue transplantation

To understand the principles of organ and tissue transplantation.

To assess brain stem death and understand its relevance to continued life support and organ donation.

Professional behaviour

To provide good clinical care

To be a good communicator

To teach and to train

To keep up to date and know how to analyse data

To understand and manage people and resources within the health environment

To promote good Health

To understand the ethical and legal obligations of a surgeon

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THE DETAILED MODULES OF THE CORE SURGICAL SYLLABUS FOR ALL SURGICAL TRAINEES REQUIRED FOR ENTRY INTO ST3

The scope of competence is defined by the list of subjects and topics outlined above. The following panels detail the subjects and topics. The topic list in Module 2 can be cross referenced to any of the other Modules. In particular cross referencing Module 2 with Modules 1 and 4 may be viewed as a blueprint which will be available on the web site.

As has been noted earlier; although the detail of these modules is phrased in terms of knowledge and skill this curriculum is competence based. It is the practical utilisation of knowledge and skill evidenced in behaviour which is the focus. Possession of any knowledge or skill element is insufficient if it is not demonstrated satisfactorily in a professional context.

The appropriate depth and level of knowledge required can be found in exemplar texts tabulated below. We expect candidates to have mastery at the depth within the texts and to be able to make use of that knowledge in the context of surgical practice defined in the Core Surgical Curriculum above.

We desire a professional approach from surgical trainees who will be expected to have a deep understanding of the subjects, to the minimum standard outlined below. It is expected that candidates will read beyond the texts below and to make critical use, where appropriate of original literature and peer scrutinised review articles in the related scientific and clinical literature such that they can aspire to an excellent standard in surgical practice.

The texts are not recommended as the sole source within their subject matter and there are alternative textbooks and web information which may better suit an individual's learning style. Over time it will be important for associated curriculum management systems to provide an expanded and critically reviewed list of supporting educational material.

Topic Possible Textbooks or other Educational Sources

Anatomy [Last's Anatomy: Regional and Applied \(MRCS Study Guides\)](#)

by R.J. Last and Chummy S

Netter's Atlas of Human Anatomy 4th Edition Saunders-Elsevier

ISBN-13-978-1-4160-3385-1

Physiology [Ganong's Review of Medical Physiology, 23rd Edition \(Lange Basic Science\)](#)

Pathology [Robbins Basic Pathology: With STUDENT CONSULT Online](#)

Access by Vinay Kumar MBBS MD FRCPATH, Abul K. Abbas MBBS,

Nelson Fausto MD, and Richard Mitchell MD PhD

Pharmacology [Principles and Practice of Surgery: With STUDENT CONSULT](#)

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)

FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor

[Bailey and Love's Short Practice of Surgery 25th Edition](#)

by [Norman S. Williams](#) (Editor), [Christopher J.K. Bulstrode](#) (Editor), [P. Ronan](#)

[O'Connell](#) (Editor)

Microbiology Principles and Practice of Surgery: With STUDENT CONSULT

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)
FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition
by [Norman S. Williams](#) (Editor), [Christopher J.K. Bulstrode](#) (Editor), [P. Ronan O'Connell](#) (Editor)

Radiology Principles and Practice of Surgery: With STUDENT CONSULT

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)
FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
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Bailey and Love's Short Practice of Surgery 25th Edition

by [Norman S. Williams](#) (Editor), [Christopher J.K. Bulstrode](#) (Editor), [P. Ronan O'Connell](#) (Editor)

Common surgical conditions

Principles and Practice of Surgery: With STUDENT CONSULT

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)
FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor,
Andrew W. Bradbury BSc MB ChB MD MBA FRCSEd Professor, John L. R.
Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks

Bailey and Love's Short Practice of Surgery 25th Edition

by [Norman S. Williams](#) (Editor), [Christopher J.K. Bulstrode](#) (Editor), [P. Ronan O'Connell](#) (Editor)

Surgical Skills Basic surgical skills course and curriculum

Peri-operative care including critical care

ATLS course

CriSP course

Principles and Practice of Surgery: With STUDENT CONSULT

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)
FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor

Bailey and Love's Short Practice of Surgery 25th Edition

by [Norman S. Williams](#) (Editor), [Christopher J.K. Bulstrode](#) (Editor), [P. Ronan O'Connell](#) (Editor)

Surgical care of children Principles and Practice of Surgery: With STUDENT CONSULT

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)
FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor

Bailey and Love's Short Practice of Surgery 25th Edition

by [Norman S. Williams](#) (Editor), [Christopher J.K. Bulstrode](#) (Editor), [P. Ronan O'Connell](#) (Editor)

Care of the dying Principles and Practice of Surgery: With STUDENT CONSULT

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)
FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition
by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan
O'Connell (Editor)

Organ transplantation Principles and Practice of Surgery: With STUDENT CONSULT

Online Access by O. James Garden MB ChB MD FRCS(Glasgow)
FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition
by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan
O'Connell (Editor)

Module 1 Basic sciences

Objective To acquire and demonstrate underpinning basic science knowledge appropriate for the practice of surgery, including:-

Applied anatomy: Knowledge of anatomy appropriate for surgery

Physiology: Knowledge of physiology relevant to surgical practice

Pharmacology: Knowledge of pharmacology relevant to surgical practice centred around safe prescribing of common drugs

Pathology: Knowledge of pathological principles underlying system specific pathology

Microbiology: Knowledge of microbiology relevant to surgical practice

Imaging:

Knowledge of the principles, strengths and weaknesses of various diagnostic and interventional imaging methods

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Module 1 Basic sciences

Knowledge

Applied anatomy:

Development and embryology

Gross and microscopic anatomy of the organs and other structures

Surface anatomy

Imaging anatomy

This will include anatomy of thorax, abdomen, pelvis, perineum, limbs, spine, head and neck as appropriate for surgical operations that the trainee will be involved with during core training (see Module 2).

Physiology:

General physiological principles including:

Homeostasis

Thermoregulation

Metabolic pathways and abnormalities

Blood loss and hypovolaemic shock

Sepsis and septic shock

Fluid balance and fluid replacement therapy

Acid base balance

Bleeding and coagulation

Nutrition

This will include the physiology of specific organ systems relevant to surgical care including the cardiovascular, respiratory, gastrointestinal, urinary, endocrine and neurological systems.

Pharmacology:

The pharmacology and safe prescribing of drugs used in the treatment of surgical diseases including analgesics, antibiotics, cardiovascular drugs, antiepileptic, anticoagulants, respiratory drugs, renal drugs, drugs used for the management of endocrine disorders (including diabetes) and local anaesthetics.

The principles of general anaesthesia

The principles of drugs used in the treatment of common malignancies

Pathology:

General pathological principles including:

Inflammation

Wound healing

Cellular injury

Tissue death including necrosis and apoptosis

Vascular disorders

Disorders of growth, differentiation and morphogenesis

Surgical immunology

Surgical haematology

Surgical biochemistry

Pathology of neoplasia

Classification of tumours

Tumour development and growth including metastasis

Principles of staging and grading of cancers

Principles of cancer therapy including surgery, radiotherapy, chemotherapy, immunotherapy and hormone therapy

Principles of cancer registration

Principles of cancer screening

The pathology of specific organ systems relevant to surgical care including cardiovascular pathology, respiratory pathology, gastrointestinal pathology, genitourinary disease, breast, exocrine and endocrine pathology, central and peripheral, neurological systems, skin, lymphoreticular and musculoskeletal systems

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Module 1 Basic sciences

Microbiology:

Surgically important micro organisms including blood borne viruses
Soft tissue infections including cellulitis, abscesses, necrotising fasciitis, gangrene
Sources of infection
Sepsis and septic shock
Asepsis and antisepsis
Principles of disinfection and sterilisation
Antibiotics including prophylaxis and resistance
Principles of high risk patient management
Hospital acquired infections

Imaging:

Principles of diagnostic and interventional imaging including x-rays, ultrasound, CT, MRI, PET, radiounucleotide scanning

Module 2 Common Surgical Conditions

Objective This section assumes that candidates have general medical competencies consistent with a doctor leaving Foundation in the UK. It also assumes an ongoing commitment to keeping these skills and knowledge up to date as laid out in GMP. It is predicated on the value that surgeons are doctors who carry our surgery and require competencies.

To demonstrate understanding of the relevant basic scientific principles for each of these surgical conditions and to be able to provide the relevant clinical care as defined in modules assessment and management as defined in Modules 1 and 4.

Topics Presenting symptoms or syndromes

Abdominal pain
Abdominal swelling
Change in bowel habit
Gastrointestinal haemorrhage
Rectal bleeding
Dysphagia
Dyspepsia
Jaundice

To include the following conditions

Appendicitis
Gastrointestinal malignancy
Inflammatory bowel disease
Diverticular disease
Intestinal obstruction
Adhesions
Abdominal hernias
Peritonitis
Intestinal perforation
Benign oesophageal disease

Peptic ulcer disease
Benign and malignant hepatic, gall bladder and
pancreatic disease
Haemorrhoids and perianal disease
Abdominal wall stomata
Breast disease
Breast lumps and nipple
discharge
Acute Breast pain
To include the following conditions
Benign and malignant breast lumps
Mastitis and breast abscess
Peripheral vascular disease
Presenting symptoms or syndrome
Chronic and acute limb
ischaemia
Aneurismal disease
Transient ischaemic attacks
Varicose veins
Leg ulceration
To include the following conditions
Atherosclerotic arterial disease
Embolic and thrombotic arterial disease
Venous insufficiency
Diabetic ulceration

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Module 2 Common Surgical Conditions

Cardiovascular and pulmonary
disease
To include the following conditions
Coronary heart disease
Bronchial carcinoma
Obstructive airways disease
Space occupying lesions of the chest
Genitourinary disease
Presenting symptoms or syndrome
Loin pain
Haematuria
Lower urinary tract symptoms
Urinary retention
Renal failure

Scrotal swellings
Testicular pain
To include the following conditions
Genitourinary malignancy
Urinary calculus disease
Urinary tract infection
Benign prostatic hyperplasia
Obstructive uropathy
Trauma and orthopaedics
Presenting symptoms or syndrome
Traumatic limb and joint pain and deformity
Chronic limb and joint pain and deformity
Back pain
To include the following conditions
Simple fractures and joint dislocations
Fractures around the hip and ankle
Basic principles of Degenerative joint disease
Basic principles of inflammatory joint disease including bone and joint infection
Compartment syndrome
Spinal nerve root entrapment and spinal cord compression
Metastatic bone cancer
Common peripheral neuropathies and nerve injuries
Disease of the Skin, Head and Neck
Presenting symptoms or syndrome
Lumps in the neck
Epistaxis
Upper airway obstructions
To include the following conditions
Benign and malignant skin lesions
Benign and malignant lesions of the mouth and tongue
Neurology and Neurosurgery
Presenting symptoms or syndrome
Headache
Facial pain
Coma

To include the following conditions
Space occupying lesions from bleeding and tumour

Endocrine

Presenting symptoms or syndrome

Lumps in the neck

Acute endocrine crises

To include the following conditions

Thyroid and parathyroid disease

Adrenal gland disease

Diabetes

Module 3 Basic surgical skills

Objective Preparation of the surgeon for surgery

Safe administration of appropriate local anaesthetic agents

Acquisition of basic surgical skills in instrument and tissue handling.

Understanding of the formation and healing of surgical wounds

Incise superficial tissues accurately with suitable instruments.

Close superficial tissues accurately.

Tie secure knots.

Safely use surgical diathermy

Achieve haemostasis of superficial vessels.

Use suitable methods of retraction.

Knowledge of when to use a drain and which to choose.

Handle tissues gently with appropriate instruments.

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Module 3 Basic surgical skills

Assist helpfully, even when the operation is not familiar.

Understand the principles of anastomosis

Understand the principles of endoscopy

Knowledge Principles of safe surgery

Preparation of the surgeon for surgery

Principles of hand washing, scrubbing and gowning

Immunisation protocols for surgeons and patients

Administration of local anaesthesia

Choice of anaesthetic agent

Safe practise

Surgical wounds

Classification of surgical wounds

Principles of wound management

Pathophysiology of wound healing

Scars and contractures

Incision of skin and subcutaneous tissue:

- Langer's lines
- Choice of instrument
- Safe practice

Closure of skin and subcutaneous tissue:

- Options for closure
- Suture and needle choice

Safe practice

Knot tying

- Range and choice of material for suture and ligation
- Safe application of knots for surgical sutures and ligatures

Haemostasis:

- Surgical techniques
- Principles of diathermy

Tissue handling and retraction:

- Choice of instruments

Biopsy techniques including fine needle aspiration cytology

Use of drains:

- Indications
- Types
- Management/removal

Principles of anastomosis

Principles of surgical endoscopy

Clinical Skills Preparation of the surgeon for surgery

Effective and safe hand washing, gloving and gowning

Administration of local anaesthesia

Accurate and safe administration of local anaesthetic agent

Preparation of a patient for surgery

Creation of a sterile field

Antisepsis

Draping

Technical Skills

and Procedures

Preparation of the surgeon for surgery

Effective and safe hand washing, gloving and gowning

Administration of local anaesthesia

Accurate and safe administration of local anaesthetic agent

Incision of skin and subcutaneous tissue:

- Ability to use scalpel, diathermy and scissors

Closure of skin and subcutaneous tissue:

- Accurate and tension free apposition of wound edges

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Module 3 Basic surgical skills

Knot tying:

- Single handed
- Double handed
- Instrument
- Superficial
- Deep

Haemostasis:

- Control of bleeding vessel (superficial)
- Diathermy
- Suture ligation
- Tie ligation
- Clip application
- Transfixion suture

Tissue retraction:

Tissue forceps

Placement of wound retractors

Use of drains:

- Insertion
- Fixation
- Removal

Tissue handling:

Appropriate application of instruments and respect for tissues

Biopsy techniques

Skill as assistant:

Anticipation of needs of surgeon when assisting

Module 4 The assessment and management of the surgical patient

Objective To demonstrate the relevant knowledge, skills and attitudes in assessing the patient and manage the patient, and propose surgical or non-surgical management.

Knowledge The knowledge relevant to this section will be variable from patient to patient and is covered within the rest of the syllabus – see common surgical conditions in particular (Module 2).

As a trainee develops an interest in a particular speciality then the principles of history taking and examination may be increasingly applied in that context.

Clinical Skills Surgical history and examination (elective and emergency)

Construct a differential diagnosis

Plan investigations

Clinical decision making

Team working and planning
Case work up and evaluation; risk management
Active participation in clinical audit events
Appropriate prescribing
Taking consent for intermediate level intervention; emergency and elective
Written clinical communication skills
Interactive clinical communication skills: patients
Interactive clinical communication skills: colleagues

Module 5 Peri-operative care

Objective To assess and manage preoperative risk
To manage patient care in the peri-operative period
To conduct safe surgery in the operating theatre environment
To assess and manage bleeding including the use of blood products
To care for the patient in the post-operative period including the assessment of common

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Module 5 Peri-operative care

complications
To assess and plan perioperative nutritional management
Knowledge Pre-operative assessment and management:
Cardiorespiratory physiology
Diabetes mellitus and other relevant endocrine disorders
Fluid balance and homeostasis
Renal failure
Pathophysiology of sepsis – prevention and prophylaxis
Thromboprophylaxis
Laboratory testing and imaging
Risk factors for surgery and scoring systems
Pre-medication and other preoperative prescribing
Principles of day surgery
Intraoperative care:
Safety in theatre including patient positioning and avoidance of nerve injuries
Sharps safety
Diathermy, laser use
Infection risks
Radiation use and risks
Tourniquet use including indications, effects and complications
Principles of local, regional and general anaesthesia
Principles of invasive and non-invasive monitoring
Prevention of venous thrombosis
Surgery in hepatitis and HIV carriers
Fluid balance and homeostasis

Post-operative care:

Post-operative monitoring

Cardiorespiratory physiology

Fluid balance and homeostasis

Diabetes mellitus and other relevant endocrine disorders

Renal failure

Pathophysiology of blood loss

Pathophysiology of sepsis including SIRS and shock

Multi-organ dysfunction syndrome

Post-operative complications in general

Methods of postoperative analgesia

To assess and plan nutritional management

Post-operative nutrition

Effects of malnutrition, both excess and depletion

Metabolic response to injury

Methods of screening and assessment of nutritional status

Methods of enteral and parenteral nutrition

Haemostasis and Blood Products:

Mechanism of haemostasis including the clotting cascade

Pathology of impaired haemostasis e.g. haemophilia, liver disease, massive haemorrhage

Components of blood

Alternatives to use of blood products

Principles of administration of blood products

Patient safety with respect to blood products

Coagulation, deep vein thrombosis and embolism:

Clotting mechanism (Virchow Triad)

Effect of surgery and trauma on coagulation

Tests for thrombophilia and other disorders of coagulation

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Module 5 Peri-operative care

Methods of investigation for suspected thromboembolic disease

Principles of treatment of venous thrombosis and pulmonary embolism including anticoagulation

Role of V/Q scanning, CT pulmonary angiography, D-dimer and thrombolysis

Place of pulmonary embolectomy

Prophylaxis of thromboembolism:

Risk classification and management of DVT

Knowledge of methods of prevention of DVT, mechanical and pharmacological

Antibiotics:

Common pathogens in surgical patients

Antibiotic sensitivities

Antibiotic side-effects
Principles of prophylaxis and treatment
Metabolic and endocrine disorders in relation perioperative management
Pathophysiology of thyroid hormone excess and deficiency and associated risks from surgery
Causes and effects of hypercalcaemia and hypocalcaemia
Complications of corticosteroid therapy
Causes and consequences of Steroid insufficiency
Complications of diabetes mellitus
Causes and effects of hyponatraemia
Causes and effects of hyperkalaemia and hypokalaemia
Clinical Skills Pre-operative assessment and management:
History and examination of a patient from a medical and surgical standpoint
Interpretation of pre-operative investigations
Management of co morbidity
Resuscitation
Appropriate preoperative prescribing including premedication
Intra-operative care:
Safe conduct of intraoperative care
Correct patient positioning
Avoidance of nerve injuries
Management of sharps injuries
Prevention of diathermy injury
Prevention of venous thrombosis
Post-operative care:
Writing of operation records
Assessment and monitoring of patient's condition
Post-operative analgesia
Fluid and electrolyte management
Detection of impending organ failure
Initial management of organ failure
Principles and indications for Dialysis
Recognition, prevention and treatment of post-operative complications
Haemostasis and Blood Products:
Recognition of conditions likely to lead to the diathesis
Recognition of abnormal bleeding during surgery
Appropriate use of blood products
Management of the complications of blood product transfusion
Coagulation, deep vein thrombosis and embolism
Recognition of patients at risk
Awareness and diagnosis of pulmonary embolism and DVT

c) APPLIED CLINICAL SKILLS

Recording a particular surgical skill such as suturing, or taking consent in isolation does not tell us sufficiently well how a professional deals with problems in the round. Neither do we want to simply credential individuals to carry out a particular hip replacement or fix a certain type of fracture.

We therefore want to train and assess the ability of the trainee in the context of the whole problem and extrapolate that to dealing with problems in general.

Core competencies

The skills syllabus is not simply a list of procedures and levels of competence to do something essentially manual or visuo-spatial, but considers each procedure as a whole from the first encounter with the patient preoperatively to their management afterwards and onwards to discharge. The skills are captured as a list in the core domains of consent etc listed below. They are then broken down further within each core domain to explore different elements, some of which may be verbal, involve interpretation or judgment as well as manual ability etc.

The way that this is interpreted in assessment is explained on Section 10-2.

It should be noted that, as with the Applied clinical knowledge syllabus the column —ST1-2II initially included for run through trainees may also be seen as the entry requirement for ST3.

The list of procedures correlates with the eelogbook structure which facilitate the electronic monitoring of the trainee's developing experience.

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CORE COMPETENCIES

I Consent

Demonstrates sound knowledge of indications and contraindications including alternatives to surgery

Demonstrates awareness of sequelae of operative or non operative management

Demonstrates sound knowledge of complications of surgery

Explains the perioperative process to the patient and/or relatives or carers and checks understanding

Explains likely outcome and time to recovery and checks understanding

II Pre operative planning

Demonstrates recognition of anatomical and pathological abnormalities (and relevant co-morbidities)

and selects appropriate operative strategies/techniques to deal with these e.g. nutritional status

Demonstrates ability to make reasoned choice of appropriate equipment, materials or devices (if any)

taking into account appropriate investigations e.g. x-rays

Checks materials, equipment and device requirements with operating room staff

Ensures the operation site is marked where applicable

Checks patient records, personally reviews investigations

III Pre operative preparation

Checks in theatre that consent has been obtained

Gives effective briefing to theatre team

Ensures proper and safe positioning of the patient on the operating table

Demonstrates careful skin preparation

Demonstrates careful draping of the patient's operative field

Ensures general equipment and materials are deployed safely (e.g. catheter, diathermy)

Ensures appropriate drugs administered

Arranges for and deploys specialist supporting equipment (e.g. image intensifiers) effectively

IV Exposure and closure

Demonstrates knowledge of optimum skin incision / portal / access

Achieves an adequate exposure through purposeful dissection in correct tissue planes and identifies all structures correctly

Completes a sound wound repair where appropriate

Protects the wound with dressings, splints and drains where appropriate

V Intra operative Technique

Follows an agreed, logical sequence or protocol for the procedure

Consistently handles tissue well with minimal damage

Controls bleeding promptly by an appropriate method

Demonstrates a sound technique of knots and sutures/staples

Uses instruments appropriately and safely

Proceeds at appropriate pace with economy of movement

Anticipates and responds appropriately to variation e.g. anatomy

Deals calmly and effectively with unexpected events/complications

Uses assistant(s) to the best advantage at all times

Communicates clearly and consistently with the scrub team

Communicates clearly and consistently with the anaesthetist

VI Post operative management

Ensures the patient is transferred safely from the operating table to bed

Constructs a clear operation note

Records clear and appropriate post operative instructions

Deals with specimens. Labels and orientates specimens appropriately

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Procedures

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A trainee must be able to demonstrate their competence in the procedures below at the appropriately marked level and stage of training.

Competence Levels

1 = Has observed or knows of **3** = Can manage whole but may need assistance

2 = Can manage with assistance

4 = Competent to manage without assistance including complications

4s = Competence level (4) needed only by those trainees selecting this area as a sub-specialist interest, otherwise as ST3 - 6

Topic

ST1 – 2

ST3 – 6

ST7 – 8

TRAUMA GENERAL

Free flap 1 1 1

Full thickness skin graft 1 3 4s

Muscle flap 1 1 4s

Nerve repair 1 2 4s

Pedicle flap 1 1 4s

Removal external fixator or frame 3 4 4

Removal foreign body from skin / subcutaneous tissue 3 4 4

Removal K wires or skeletal traction 4 4 4

Split skin graft 1 3 4s

Transpositional flap 1 1 4s

Wound closure, delayed primary or secondary 4 4 4

Wound Debridement 3 4 4

AXIAL SKELETON:

Cervical Spine

Anterior fixation fracture / dislocation cervical spine 1 1 3s

Application halo / tong traction cervical spine 1 2 3s

MUA fracture / dislocation cervical spine 1 2 3s

Posterior fixation fracture / dislocation cervical spine 1 2 3s

Thoracic Spine

Anterior decompression / fixation thoracic spine 1 2 4s

Posterior decompression / fixation thoracic spine 1 2 4s

Lumbar Spine

Anterior decompression / fixation lumbar spine 1 2 4s

Posterior decompression / fixation lumbar spine 1 2 4s

Pelvis

Acetabular fracture ORIF 1 2 4s

Pelvic fracture:

- Pelvic fracture external fixator application 1 3 4s
- Pelvic fracture ORIF 1 2 4s

UPPER LIMB:

Brachial Plexus

Exploration / repair / grafting brachial plexus 1 1 3s

Clavicle

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Topic

ST1 – 2

ST3 – 6

ST7 – 8

ORIF clavicle fracture 1 3 4s

ORIF non-union clavicle fracture 1 2 4s

Shoulder

Anterior dislocation shoulder

- Anterior dislocation shoulder closed reduction 3 4 4
- Anterior dislocation shoulder open reduction +/- fixation 1 2 4s

Acromioclavicular joint dislocation acute ORIF 1 3 4s

Fracture proximal humerus ORIF 2 3 4s

Glenoid fracture ORIF 1 2 4s

Posterior dislocation shoulder closed reduction 3 4 4

Humerus

Fracture diaphysis humerus **non-op**: 4 4 4

- Non-union ORIF +/- bone grafting 1 2 4s
- Fracture diaphysis humerus IM nailing 1 3 4s
- Fracture diaphysis humerus MUA +/- POP 2 4 4
- Fracture diaphysis humerus ORIF plating 2 4 4

Elbow

Dislocated elbow +/- fracture:

- Dislocated elbow +/- fracture closed reduction 3 4 4
- Dislocated elbow +/- fracture open reduction +/- fixation 2 3 4s

Intraarticular distal humerus fracture ORIF 2 3 4s

Lateral condyle fracture ORIF 2 3 4

Medial condyle / epicondyle fracture MUA / K wire / ORIF 2 4 4

Olecranon fracture ORIF 2 4 4

Dislocated elbow +/- fracture:

- Radial head / neck fracture MUA +/- K wire 3 4 4
- Radial head / neck fracture ORIF 2 4 4
- Radial head replacement for fracture 1 3 4

Supracondylar fracture:

- Supracondylar fracture MUA +/- K wires 2 3 4
- Supracondylar fracture **ORIF** 1 3 4

Forearm

Fasciotomy for compartment syndrome 1 4 4

Fracture distal radius:

- Fracture distal radius – closed non-op 1 4 4
- Fracture distal radius external fixation 2 3 4s
- Fracture distal radius MUA & percutaneous wires 2 3 4
- Fracture distal radius MUA & POP 3 4 4
- Fracture distal radius ORIF 2 3 4s

Fracture shaft radius / ulna:

- Fracture shaft radius / ulna IM nailing 1 3 4s
- Fracture shaft radius / ulna MUA & percutaneous wires 2 4 4

- Fracture shaft radius / ulna MUA & POP 2 4 4
- Fracture shaft radius / ulna ORIF 2 4

Wrist

Carpal fracture / dislocation:

- Carpal fracture / dislocation MUA & percutaneous wires 2 3 4s

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Topic

ST1 – 2

ST3 – 6

ST7 – 8

- Carpal fracture / dislocation MUA & POP 2 4 4
- Carpal fracture / dislocation ORIF 1 2 4s

Scaphoid fracture non-op 3 4 4

Scaphoid fracture ORIF 1 3 4s

Scaphoid fracture MUA & percutaneous wires 1 3 4s

Scaphoid fracture non-union ORIF +/- graft 1 2 4s

Hand

Carpal fracture / dislocation:

- 5th metacarpal fracture / dislocation non-op 3 4 4
- 5th metacarpal fracture / dislocation MUA & percutaneous wires 3 4 4
- 5th metacarpal fracture / dislocation MUA & POP 2 4 4
- 5th metacarpal fracture / dislocation ORIF 2 4 4

Finger tip reconstruction 2 4 4

Infection:

- Infection hand drainage (not tendon sheath) 2 4 4
- Infection tendon sheath drainage 2 4 4

IPJ fracture / dislocation:

- IPJ fracture / dislocation MUA & percutaneous wires 2 4 4
- IPJ fracture / dislocation MUA +/- POP 2 4 4
- IPJ fracture / dislocation ORIF 2 4 4

Ligament repair hand 2 3 4s

Metacarpal fracture (not 1st or 5th) non-op 3 4 4

Metacarpal fracture (not 1st or 5th) MUA & Percutaneous wires 2 4 4

Metacarpal fracture (not 1st or 5th) MUA +/- POP 2 4 4

Metacarpal fracture (not 1st or 5th) ORIF 2 4 4

Phalangeal fracture non-op 3 4 4

Phalangeal fracture MUA & percutaneous wires 2 4 4

Phalangeal fracture MUA +/- POP 2 4 4

Phalangeal fracture ORIF 2 3 4s

Tendon repair:

- Tendon repair extensor 3 4 4
- Tendon repair flexor 2 4 4

MCPJ fracture / dislocation:

- MCPJ fracture / dislocation MUA & Percutaneous wires 2 3 4s
- MCPJ fracture / dislocation MUA +/- POP 2 3 4s
- MCPJ fracture / dislocation ORIF 2 3 4s

LOWER LIMB:

Hip

Dislocated hip:

- Dislocated hip closed reduction 2 4 4
- Dislocated hip open reduction +/- fixation 1 2 4s

Extracapsular fracture:

- Extracapsular fracture CHS / DHS 3 4 4
- Extracapsular fracture intramedullary fixation 3 4 4
- Extracapsular fracture other fixation 3 4 4

Intracapsular fracture:

- Intracapsular fracture hemiarthroplasty 2 4 4

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Topic

ST1 – 2

ST3 – 6

ST7 – 8

- Intracapsular fracture internal fixation 3 4 4
- Intracapsular fracture intracapsular fracture THR 2 3 4

Femur

Diaphyseal fracture closed:

- Diaphyseal fracture traction or spica in child 1 3 4s
- Diaphyseal fracture intramedullary nailing 2 4 4
- Diaphyseal fracture plate/screw fixation 2 4 4

Fasciotomy for compartment syndrome 3 4 4

Subtrochanteric fracture:

- Subtrochanteric fracture intramedullary fixation 2 4 4
- Subtrochanteric fracture plate/screw fixation 3 4 4

Supracondylar fracture (not intraarticular):

- Supracondylar fracture (not intraarticular) DCS / blade plate etc 2 3 4s
- Supracondylar fracture (not intraarticular) intramedullary fixation 2 3 4s

Knee

Acute haemarthrosis arthroscopy 1 3 4s

Acute ligament repair 1 2 4s

Intraarticular fracture distal femur ORIF 1 2 4s

Patella dislocation closed reduction +/- open repair 2 4 4

Patella fracture ORIF 2 4 4

Patella tendon repair 2 4 4

Quadriceps tendon repair 2 4 4

Tibial plateau fracture 1 3 4s

Tibial plateau fracture arthroscopically assisted fixation 1 3 4s

Tibial plateau fracture ORIF with plates & screws 1 3 4s

Tibial plateau fracture treatment with circular frame 1 3 4s

Tibia & Fibula

Diaphyseal tibial fracture external fixation (including frame) 2 3 4s

Diaphyseal tibial fracture intramedullary nailing 2 4 4

Diaphyseal tibial fracture MUA & POP 3 4 4

Tibial shaft plating 2 3 4

Fasciotomy for compartment syndrome 1 3 4

Tibial non-union:

- Tibial non-union circular frame management 1 2 4s
- Tibial non-union intramedullary nailing +/- bone grafting 1 3 4s

Ankle

Ankle fracture / dislocation:

- Ankle fracture / dislocation MUA & POP 3 4 4
- Ankle fracture / dislocation ORIF 3 4 4

Pilon fracture:

- Pilon fracture ORIF 1 2 4s
- Pilon fracture with circular frame 1 2 4s

Tendoachilles repair 2 4 4

Foot

Amputation toe / ray for trauma 2 4 4

Calcaneal fracture ORIF 1 2 4s

Metatarsal fracture ORIF 1 4 4

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Topic

ST1 – 2

ST3 – 6

ST7 – 8

Phalangeal fracture MUA +/- K wire +/- ORIF 2 4 4

Talar, subtalar or midtarsal fracture / disloc:

- Talar, subtalar or midtarsal fracture / dislocation MUA +/-POP +/- K wires 1 3 4s
- Talar, subtalar or midtarsal fracture / dislocation ORIF 1 3 4s

AchillesTendon Repair 1 3 4

ELECTIVE SITE NON SPECIFIC

Aspiration / injection joint 3 4 4

Benign tumour excision (**not exostoses**) 2 4 4

Biopsy bone - needle 1 4 4

Biopsy bone - open 1 4 4

Bursa excision 3 4 4
Cyst bone curettage +/- bone graft 1 4 4
Epiphysiodesis n/a 3 4s
Malignant tumour excision 1 2 3s

AXIAL SKELETON:

Cervical Spine

Anterior decompression +/- fixation / fusion (C2-C7) n/a 1 3s
Atlantoaxial fixation +/- fusion n/a 1 3s
Biopsy cervical spine n/a 2 4s
Excision cervical / 1st rib n/a 1 3s
Nerve root / facet joint injection cervical spine n/a 1 4s
Occipito-cervical fusion +/- fixation n/a 1 3s
Posterior decompression +/- fixation / fusion (C20C7) n/a 1 3s

Thoracic Spine

Anterior decompression +/- fixation / fusion n/a 1 3s
Biopsy thoracic spine n/a 1 3s
Posterior decompression +/- fixation / fusion n/a 2 4s
Scoliosis correction - anterior release +/- instrumentation n/a 1 3s
Scoliosis correction - posterior fusion +/- instrumentation n/a 1 3s

Lumbar Spine

Caudal epidural injection n/a 2 4s
Decompression lumbar spine with fusion +/- fixation n/a 2 4s
Decompression lumbar spine without fusion (not disectomy alone) n/a 2 4s
Disectomy open / micro 1 3 4s
Nerve root / facet joint injection lumbar spine 1 2 4s

Brachial Plexus

Exploration / repair / grafting brachial plexus 1 1 3s

UPPER LIMB:

Shoulder

Acromioclavicular joint excision - arthroscopic / open / lateral clavicle n/a 3 4s
Acromioclavicular joint reconstruction (e.g. Weaver Dunn) n/a 2 4s
Acromioplasty open n/a 2/3 4s
Anterior repair for instability arthroscopic n/a 2 4s
Anterior repair for instability open including capsular shift n/a 4 4
Arthroscopic subacromial decompression n/a 3 4s
Arthroscopy diagnostic 1 4 4s

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Topic

ST1 – 2

ST3 – 6

ST7 – 8

—Total Knee Replacement

A unique technique has been developed to —normalizell the data as described below:-

The trainee's uploaded information is interrogated and compared with the data uploaded by their peers in the same year of training, and at the same stage of training. This allows the trainee and the ARCP/RITA panel to compare each individual's operative experience with a comparable deanery or their national (UK) peer group. Comparisons of numbers of operations attended, the extent of surgical exposure and the level of supervision can now be made and this is highlighted by bar charts such as the one shown below.

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4. What the eLogbook/ePortfolio offers to Trainers in Trauma and Orthopaedics

The eLogbook produces a mirror trainer —footprintll every time a trainee logs an operation. In this way a training profile of procedures undertaken and patterns of training soon emerge for individual trainers. This consolidated data can be accessed by both the trainer and by the Training Programme Director and the SAC.

5. What the eLogbook/ePortfolio offers to Training Programme Directors in Trauma and Orthopaedics

The data available to the Training Programme Director allows scrutiny not only of an individual trainee's experience but of training patterns by trainers for trainees at varying stages of their careers. This can be vital —hard data in understanding satisfactory and unsatisfactory progress on the part of a trainee or even demonstrating an unsatisfactory training environment and an uncommitted trainer.

6. What the eLogbook offers to the SAC in Trauma and Orthopaedics

The Chair of the SAC has the capacity to examine individual trainees, trainers, Training Programmes and even national trends in the practice of Trauma and Orthopaedic surgery. One example has been the ability to demonstrate if there is any potentially deleterious effect of an Independent Sector Treatment Centre (ISTC) on the elective surgical experience of trainees working in adjacent NHS hospitals.

The data has demonstrated that training posts at the ST1 and ST2 level can be configured correctly and deliver more operative opportunity than the old SHO grade. It also demonstrated that poorly configured posts offer less operative training. (Jameson SS, Gupta S, Khan A, Lamb A, Sher L, Wallace WA, Reed MR Has MMC improved early years training in T&O. Glasgow Meeting of Orthopaedic Research, 2009).

Recent data has suggested a significant drop in operative training cases per year with the introduction of shift patterns to support the European working time directive and further examination of this data in the coming years is seen as vital for quality assurance of the national training programme (PMETB standard domain 5). (Jameson SS, Gupta S, Khan A, Lamb A, Sher L, Wallace WA, Reed MR The effect of changes to trainee working patterns: analysis of operative experience. British Orthopaedic Association National Congress 2009)

7. Conclusions

The eLogbook has already proven to be a valuable tool in monitoring and influencing exposure of trainees to operative surgery in the specialty of Trauma and Orthopaedic Surgery. It is one of a number of unique tools developed by Orthopaedic Surgeons for Orthopaedic Surgeons (including OCAP and the ePortfolio) and is now finding a place in the other surgical specialities in the UK.

e) OCAP ONLINE

The T & O curriculum is now fully available and fully integrated with the well established logbook. All assessments and records may be completed online and information generated for RITA/ARCP interviews. Illustrative screenshots from OCAP online are contained in Appendix (h) and in addition a series of

comprehensive PowerPoint guides are available on the OCAP website (www.ocap.org.uk).

The electronic delivery system for the T & O curriculum has been designed to mirror the original paper based version. This is partly to facilitate the transfer of learning for trainers and partly to allow a paper —back-up for the curriculum activities should access to computers be difficult for whatever reason. The same login system is shared with the eLogbook and the two systems are fully integrated to allow seamless transitions between logbook and other assessment activities and reflective records.

Key features of OCAP Online include:

Online trainer profiles, together with the facility for trainees to support their trainer in creating them

Updateable knowledge and skills profiles for trainees to record and reflect on progress

Simple entry systems for PBA and other assessments

A one-click validation system for all records

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PBA (and other assessment) summaries in graphic formats to easily track competence progress

A reflective journal linked to all elements

Programme directors pages that allow summary reports of trainee activities

Screenshots illustrating aspects of OCAP online are included as Appendix (h).

f) FORMAL TESTS OF KNOWLEDGE RELEVANT TO THE TRAINING OF A SURGEON

Before the end of ST2 we will expect a trainee to demonstrate knowledge in the basic surgical sciences (germane to all surgery), anatomical knowledge of sufficient depth to facilitate training in T & O and specific patho-physiological and biomechanical knowledge relevant to musculoskeletal surgery. The early years curriculum earlier in this document forms the syllabus for the MRCS exam.

As this assessment is designed specifically to test knowledge and to a limited degree application of knowledge then this aspect of progress should be assessed by the most reliable methods available. The evidence strongly supports an MCQ and EMI model of not less than three to four hours and three hundred questions long (ref Van der Vleuten 1996).

The application of knowledge and its use in judgement will be assessed in the final T & O FRCS examination.

g) FEEDBACK

The regular reviews of progress, known as Educational Appraisals, (at least 3 per 6 month attachment) to be made by trainers and their trainees will be informed by the workplace based assessments and are designed to provide considered feedback (in addition to that provided at the end of a PBA) as soon as possible in the learning and teaching cycle. They also contribute evidence to the portfolio for more formal appraisal during Formal Educational Reviews (ARCP/RITA).

The regular Educational Appraisals will be primarily enabling processes, designed to encourage the trainee through feedback. There is no maximum limit to the amount of informal feedback and assessment that a trainee may receive during an attachment.

Usually more formal workplace based assessment episodes (e.g. PBAs) will be triggered by trainees who feel ready to move on. Occasionally a trainer may trigger a workplace based assessment either to encourage confidence or occasionally to highlight concerns.

i. The educational appraisal – short loop feedback

Short loop feedback should be ongoing between trainee and designated trainer through workplace based instruments as described above. A minimum of three distinct medium term reviews of progress will be made:-
At the beginning of a designated training attachment when the learning agreement will be finalised.
Half way through the attachment when progress against outcomes will be checked and the contract modified if necessary (goals should remain realistic).
Finally the evidence in the trainee's portfolio supporting the agreed achievements relative to the learning agreement will be reviewed between trainer and trainee. This will be presented as part of the Formal Educational Review (ARCP/RITA).

ii. Annual review- long loop feedback
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A longer loop feedback will follow the high stakes summative element of the annual Formal Educational Review (ARCP/RITA). This will be designed to plan progression. The end of training interval Educational Appraisals between designated trainers and trainees will generate a view as to whether the learning agreements were achieved and so progression is or is not recommended. The final Educational Appraisal at the end of a training attachment will be a very important event and as such will be a prominent component of the portfolio presented for annual review.

The evidence supporting an agreed position about progression will include:-

The workplace based instruments as described above. Sufficient evidence should be provided to ensure the instruments provide valid and reliable assessments. Measures are in place to ensure this is underway. In summary we believe the instruments chosen are rational, have face validity and are reliable in the numbers which approximate in current evidence to those described by Norcini and Holcombe (personal communication). Our own evidence on validity has been published and reliability data is currently being formalised (Appendix (c)).

A log book of surgical experience. This is described in detail above. The key procedures on which PBAs are based are tracked to the log book and all the procedures and expected level of achievement defined in the syllabus on Sections 6-5 to 6-6.

Evidence of achievement of summative exams. As indicated a test knowledge will occur in ST1 - ST2 and the candidate must show evidence of having the level of knowledge which permits training. An exit examination is in place for the purposes of quality assurance.

Evidence of reflective practice through a critical appraisal of study leave, courses etc.

Evidence from previous ARCP/RITAs.

The annual review (Formal Educational Review) will carry out a paper review of all the evidence and confirm for the trainee whether progress has been made.

The review process at deanery level must ensure transparency, clarity and feedback designed to inform progression wherever possible. It should not only facilitate setting a minimum standard, or recommend remediation but also permit strong candidates to demonstrate excellence and mastery.

This review should ask three core questions about the conduct of the process before dealing with any specific elements of the learning agreement. These are:-

On reflection were the goals set in the learning agreement reasonable?

Have there been any unanticipated constraints such as illness, systems failures etc?

Has the relationship between trainer and trainee been conducive to achieving a realistic and objective

appraisal of progress?

If these issues (which are rarely likely to be of concern) are dealt with then the agreement goals can be compared to the evidence provided in the workplace assessments. It is the role of the first part of the annual review to ensure that the agreed position between a trainee and his or her trainers over the year is a reasonable one. If in doubt they may interview trainees and their trainers. If the position is accepted then the trainee will go to the second half of the process of educational planning with a designated member or member of the training panel agreed with the training programme director.

The second phase of the annual review will determine what needs to be next achieved according to the overall blueprint. The details of how this will be delivered must be discussed in a face to face interview with the trainee by representatives of the local training committee and ideally an external appraiser nominated by the SAC.

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h) APPEALS

A trainee will be able to appeal at various stages of the assessment process.

In the first instance if a trainee disagrees with a workplace based assessment judgment they should first discuss it with the assessor (who is likely to be their assigned trainer) acting in a different capacity. Both trainer and trainee should sign off an agreed position.

If a position cannot be agreed the trainee should be able to have a confidential and non prejudicial discussion with the programme director. The programme director may ask for an independent assessment after a discussion with the trainee.

At both these levels the aim should be dispute resolution in adult – adult relationships.

Should a trainee remain dissatisfied they must take up the matter with the local deanery utilising local appeals mechanisms. The local Dean must remain the final arbiter.

If a trainee is dissatisfied with the annual review this would be a matter for the local Dean to resolve through their own transparent mechanisms.

i) THE END POINT OF TRAINING

Training will be deemed complete when the trainee has populated the curriculum knowledge and procedures maps/ syllabi appropriately and to a standard defined in the levels of the individual domains of the syllabus.

The outcomes must fulfil the requirements of Good Medical Practice. These are described in terms of a blueprint to these learning outcomes below. The description of the outcomes in terms of a practicing orthopaedic and trauma surgeon are described in Section 11-1.

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j) KEY ROLES IN ASSESSMENT

The central stakeholder is the trainee who must be responsible for their own learning supported by the designated trainers and the head of the training programme who is accountable to the School of Surgery which represents the Deanery. Those responsible for training and assessing the trainee are ultimately responsible to patients in ensuring newly trained surgeons comply with the best standards that ensure safety and indeed excellence in Good Medical Practice in the context of orthopaedic surgery.

i. The trainee

The trainee will be responsible for the contents and probity of their portfolio. Failure to keep accurate and honest information will be regarded as a professional disciplinary matter, which could ultimately in serious

cases of fraud or plagiarism result in reporting the individual to the fitness to practise committee of the GMC. All workplace based assessments agreed as triggered by trainer and or trainee must be retained whatever their outcome. Where an assessment is unsatisfactory repeated assessments will be required until a satisfactory standard is reached. Trainees must appreciate that a record of unsatisfactory assessments which ultimately show improvement and success can be a positive experience in reflective learning. Likewise trainees who reach a satisfactory standard early are encouraged to continue to trigger assessments in order to demonstrate continuing improvement and progress to mastery and excellence.

It is the responsibility of the trainee to ensure the training programme director and the School of Surgery are fully apprised of contact details, address etc as well as personal health issues and any ongoing disciplinary matters involving the Medical Defence Unions or the GMC.

The trainee will be responsible for completing and storing information and evidence in their portfolio with a view to informing the educational appraisal process and any examination board which represents compulsory testing of trainees.

The trainee will be solely responsible for the payment of fees and subscriptions deemed necessary to complete training.

ii. The Designated Trainer

The designated trainer must complete learning agreements and reviews according to the set protocols. They will work in partnership with trainees to give timeous feedback and ensure all appropriate documents are signed and validated. With the trainee they should ensure the evidence prepared for educational review is appropriate, complete and meets all standards of probity. Difficulties with completing learning agreements for whatever reason must be made clear to the trainee and the training programme director.

The designated trainer will also be carrying out assessments and must be clear when that is the role they are fulfilling and that a particular workplace event should be recorded. All trainers who carry out assessment must have been trained and be competent in the application of the instruments described.

iii. The Training Programme Director

The training programme director is responsible for the whole programme and accountable locally to the School of Surgery and nationally to the SAC in T & O. The training programme director is the first port of call should a trainee have difficulty – either personally or with their designated trainer. They will be the first point of appeal should a trainer and trainee have any kind of difficulty or dispute. Their aim should be to resolve disputes as quickly and effectively as possible.

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iv. The Specialist Advisory Committee

The SAC will provide external quality assurance of the programme as described in Section 12 of the document.

v. The Deanery and School of Surgery

The School of Surgery is expected to be the repository for T & O training programmes ultimately. In the meantime deaneries will deliver training programmes through local training committees in T & O chaired by Programme Directors appointed through SACs with Deanery support.

k) BLUEPRINTING AND SAMPLING OF ASSESSMENT TO THE CURRICULUM ACHIEVING INTEGRATION

Outcome

**Medical Practice
Assessment Method**

CBD

Mini-

CEX

Mini-

PAT

PBA

Knowledge

Test

Good Clinical Care/Maintaining

Good Medical Practice

Relationships with Patients

Working with Colleagues

Teaching & Training, Appraising &

Assessing

Probity, Health

The whole curriculum has been mapped back to GMP and examples are included as Appendix (f).

It is essential that the assessments be they workplace based or summative in the case of set examinations provide a fair spectrum of appraisal of all aspects of skills, knowledge and attitudes required of a T & O surgeon practising as leader of an on call team and delivering emergency and elective services as defined in section 11(sub section b3) of this document.

The blueprint of assessment methodology mapped back to Good Medical Practice is shown below and relates back to the outcomes in terms of clinical, professional and management activities laid out in Appendix (f).

The challenge for the examination board is to provide an exam blueprint which reciprocates with the other assessment methodologies which themselves sample broadly across the curriculum but by necessity will inevitably be less systematic and more opportunistic.

In terms of integration of assessment the right amount of assessment overall must be achieved without leaving gaps in the sampling across the blueprint. Workplace based assessment should map back to the procedure and knowledge syllabi in ensuring that contextualised application of knowledge and testing at the peak of Miller's pyramid occurs. In terms of formal summative tests a fair sampling of real clinical problems will be balanced with clinical scenarios which test clinical situations commonly encountered. This will also provide triangulation with workplace based assessments. It will also generate an overall profile of a trainee's ability across the spectrum of the syllabus which is appropriately sampled.

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**I) TRANSITION TO LIFELONG CONTINUOUS PROFESSIONAL DEVELOPMENT
AND RECORDING PRACTICE IN A PORTFOLIO**

At the point of exit a trainee will be considered fit to practice as part of a team leading the receiving and management of trauma and emergencies etc as described in Section 11. However we accept that the selected specialist interest will require further development.

We expect that the transition to lifelong learning will be seamless and be a natural transition for someone steeped in the philosophy of our curriculum which pivots around the values of professionalism and reflective practice.

The criteria of CPD were laid out by the senate of surgery in their position paper (Monitoring Your Performance) Senate of Surgery publications 2004). The criteria and standards for CPD are presently under review as part of the revalidation project. The next goal for a newly appointed consultant will be to receive accreditation for a declared area of expertise which we expect to occur post CCT (and so out with the scope of this curriculum and PMETB). We expect this to be acquired through peer review of the portfolio and not through set piece examinations.

The end point of lifelong professional learning will be the point at which (many years past retirement in most cases) a surgeon ceases to maintain an interest in, or contribute to, the profession.

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a) SPECIALTY ADVISORY COMMITTEE (SAC) STATEMENT OF OUTCOMES

At the end of training a number of factors will be in place; a trainee will have a number of satisfactory ARCP/RITAs which will demonstrate to both professional colleagues and the public the level of training required to work as an independent consultant surgeon in T & O.

In order to satisfy the ARCP/RITA G process the trainee's portfolio must contain a number of mandatory elements

A complete set of mandatory learning agreements which have been satisfactorily discharged
Sufficient workplace PBA's to make a reliable assessment that a satisfactory standard has been reached

Attendance certificates for professional development courses

Evidence of publications and presentations

Legal documents

Evidence that during their training the trainee has satisfied the intercollegiate specialty examinations board

E-log book consolidation data

Evidence that the programme director has scrutinised the e-log book and is satisfied that it contains a range and number of operations necessary in order to carry out the duties of the modern Orthopaedic Surgeon

Evidence that the programme director has scrutinised the learning agreements and PBA's and has sought and received evidence of satisfactory progress and completion of training from those trainers who have been involved in those assessment processes.

After the completion of the ARCP/RITA G process the SAC will recommend to the JCHST that a CCT be issued by PMETB

b) CERTIFICATE OF COMPLETION OF TRAINING (CCT)

At the end of training a CCT will be awarded when the trainee has satisfied PMETB that they have been trained in the generality of Orthopaedics and Trauma, assessed as having completed the competencies

laid out in the Orthopaedic and Trauma curriculum and having the attitudes, skills, and judgement of a surgeon capable of independent practice.

The SAC recommendation to PMETB for the award of the CCT will take into consideration that:

1. The syllabus is for the generality of Trauma and Orthopaedics and this will have been assessed in the summative intercollegiate specialty board exam which trainees must have completed by the end of their training. This exam forms part of the trainee's portfolio which also includes work place based assessments and the evidence of previous learning agreements and ARCP/RITA assessments. The Portfolio will have been assessed in its entirety at the final ARCP/RITA G assessment prior to the recommendation of the award of the CCT.
2. Towards the end of their training in the generality of the discipline the overwhelming majority of Trainees will have developed a subspecialty interest which will have been assessed in the work place both pre and post CCT and is likely to be formally assessed in a subsequent peer review process.
3. Such an individual would then be able to join and lead a multidisciplinary team which would receive, assess and go on to definitively manage the majority of patients who needed emergency treatments. They would provide a similar service for a range of common Orthopaedic conditions. In both Trauma and Orthopaedic services they would recognise the need to refer rarer and specific conditions for more specialised definitive management.

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ملحق ٣

مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير القياسية العامة، والمعايير المرجعية الخارجية

أ - المعرفة والفهم:

المعايير الأكاديمية للبرنامج	External References Standards (Benchmark) المعايير الأكاديمية لجامعة British Orthopedic Association	المعايير القياسية العامة لبرامج (Generic) الدراسات العليا (درجة الماجستير)
1-1-النظريات والاساسيات من المعارف في جراحة العظام والمجالات ذات العلاقة) كالتشريح ، الباثولوجى (By the end of the program the graduate should be able to: 1. To acquire and demonstrate underpinning basic science knowledge appropriate for the practice of orthopedic surgery	2-1-1-النظريات والاساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة
2-1-2-دوره اتجاه المجتمع و مدى تأثيره على المجتمع المحيط به .	Keeping up to date and understanding how to analyze information To understand the results of research as they relate to medical practice To participate in medical research	2-1-2-التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
2-1-3-الحديث من		2-1-3-التطورات العلمية فى

المعارف فى جراحة العظام		مجال التخصص
2-1-4 المبادئ الاخلاقية والقانونية للممارسة المهنية فى جراحة العظام	Participates in audit to improve a clinical service Works within corporate governance structures Demonstrates ability to manage others by teaching and mentoring juniors, medical students and others, delegating work effectively	2-1-4 المبادئ الاخلاقية والقانونية للممارسة المهنية فى مجال التخصص
2-1-5 مبادئ واساسيات العمليات الجراحية فى مجال جراحة العظام	To uphold personal, professional ethics and values, taking into account the values of the organization and the culture and beliefs of individuals	2-1-5 مبادئ واساسيات الجودة فى الممارسة المهنية فى مجال التخصص
2-1-2 اساسيات ومنهجيات واخلاقيات البحث العلمى وادواته المختلفة	To uphold personal, professional ethics and values, taking into account the values of the organization and the culture and beliefs of individuals	2-1-2 اساسيات واخلاقيات البحث العلمى

ب - القدرات الذهنية :

المعايير الأكاديمية للبرنامج	External References Standards (Benchmark) المعايير الأكاديمية لجامعة British Orthopedic Association	المعايير القياسية العامة لبرنامج الدراسات (Generic) العليا (درجة الماجستير)
1-2-2-1- تقييم المعلومات المتاحة عن المريض و استنباط العلاج المناسب للحالة المرضية	By the end of the program the graduate should be able to: Elicit and clearly record a complete appropriate history, including the chief complaint, the history of the present illness,	1-2-1 تحليل وتقييم المعلومات في مجال التخصص والقياس عليها لحل المشاكل
2-2-2- مواجهة أى مشاكل طارئة تحدث اثناء علاج المرضى و خصوصا بالطوارئ	Communicate effectively with patients and families using verbal, nonverbal and written skills as appropriate.	2-2-2 حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
2-2-3- الربط بين مواد التشريح و الباثولوجى بما يخدم جراحة العظام .	To participate in continuous professional development activities	2-2-3 الربط بين المعارف المختلفة لحل المشاكل المهنية

2-2-4 كتابة رسائل علمية و ابحاث عن طريق الانترنت في مجال العظام.	To prioritise and maximise patient safety.	٤-٢-٢ اجراء دراسة بحثية او كتابة دراسة علمية منهجية حول مشكلة بحثية
2-2-5 تقييم مخاطر العمليات الجراحية الغير مناسبة للحالة المرضية	To plan and deliver a training programme with appropriate assessments	٥-٢-٢ تقييم المخاطر في الممارسات المهنية في مجال التخصص
2-2-6 التخطيط لتطوير اداءه فالعمليات الجراحية		٦-٢-٢ التخطيط لتطوير الاداء في مجال التخصص
٧-٢-٢ اتخاذ القرارات فالعمليات الجراحية الطارئة بصورة تساعد على نجاح العملية		٧-٢-٢ اتخاذ القرارات المهنية في سياقات مهنية متنوعة

ج. مهارات مهنية وعملية :

المعايير الأكاديمية للبرنامج	External References Standards (Benchmark) المعايير الأكاديمية لجامعة	المعايير القياسية العامة لبرامج الدراسات (Generic) العليا (درجة الماجستير)
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	British Orthopedic Association	
1-3-2-1 اتقان جميع انواع رد الكسور و التعامل مع حالات الطوارئ	By the end of the program the graduate should be able to Use a widely accepted diagnostic system to assist in making the diagnosis and differential diagnosis in each case.	١-٣-٢ اتقان المهارات المهنية الاساسية والحديثة فى مجال التخصص
2-3-2 كتابة وتقييم الروشتات العلاجية و معرفة المفيد و الضار منها للمريض	Practice in a manner that seeks to optimise the consent of patients in all aspects of their assessment, treatment and care.	٢-٣-٢ كتابة وتقييم التقارير المهنية
٢-٣-٣ القيام ببعض العمليات الجراحية بمفرده و اخرى تحت اشراف الاستشاريين.	Demonstrate an empathic approach to the assessment of all people with injuries or musculoskeletal disability.	٢-٣-٣ تقييم الطرق والادوات القائمة فى مجال التخصص

د . مهارات عامة :

المعايير الأكاديمية للبرنامج	External References Standards	المعايير القياسية العامة لبرامج (Generic) الدراسات العليا (درجة)
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	(Benchmark) المعايير الأكاديمية لجامعة British Orthopedic Association	(الماجستير)
1-4-2 التواصل مع اعضاء الفريق الطبي بصورة تخدم المريض و تحسن من الأداء العلاجي.	By the end of the program the graduate should be able to: Communicate effectively with patients and families using verbal, nonverbal and written skills as appropriate.	٢-٤-١ التواصل الفعال بأنواعه المختلفة
2-4-2 استخدام اجهزة الكمبيوتر بالعمليات الجراحية	Be open to new ideas and developments that will improve patient care.	٢-٤-٢ استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
3-4-2 التقييم الذاتي والتعليم المستمر و تطوير الأداء العملي للجراحات	Show a personal commitment to teaching and learning, and a willingness to develop as both a doctor and a teacher.	٢-٤-٣ التقييم الذاتي وتحديد احتياجاته التعليمية
4-4-2 استخدام المصادر المختلفة للحصول على المعلومات والمعارف من ابحاث و رسائل علمية و الانترنت		٢-٤-٤ استخدام المصادر المختلفة لحصول على المعلومات والمعارف
5-4-2 تقييم اداء الفريق		٢-٤-٥ وضع قواعد

الطبي المعاون له و تقويمهم .		ومؤشرات تقييم اداء الاخرين
2-4-6 العمل مع فريق طبي متكامل و القدرة على قيادة فريق طبي اثناء الطوارئ		٦-٤-٢ العمل في فريق سياقات كهنية مختلفة
2-4-7 ادارة الوقت بكفاءة		٧-٤-٢ ادارة الوقت بكفاءة
٨-٤-٢ التعلم الذاتى والمستمر		٨-٤-٢ التعلم الذاتى والمستمر

ملحق 4

Program courses



*Benha University.
Faculty of Medicine.
Department of Orthopedic surgery and Traumatology.*

Course Specifications

Course title: Course title: Surgical anatomy and embryology + Histology

Diploma Degree (First PART)

Code: ORTH 501

Academic Year (201٣ – 201٤)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Anatomy and Embryology Department and Histology Department.
- **Date of specification approval:** department council, date ٥/٩/201٣.

Faculty council, date 1^o/9/2013

- **Academic year:** First part diploma

A) Basic Information:

- **Allocated marks:** 150.
- **Course duration:** 15 week of teaching.
- **Teaching hours:** 2.5hours / week **37.5** total teaching hours.

	Hours/week	Total hours
1-Lectures	1 hour/week	15 hours
2- Practical	1.5 hours/week	22.5 hours
Total	2.5 hours/week	37.5 hours

Authorization date of course specification:2011-2013

B) Professional Information:

1-Overall Aim of the course:

The aim of this course are

1.1 To have the professional knowledge about the anatomy and histology of upper limb.

1.2 To describe the embryology of upper limb.

To have the professional knowledge about the anatomy and histology of lower limb ۲

1.4 To mention the anatomy and embryology and histology of vertebral column.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course , student should be able to:

2.a.1. Mention the normal structure and histology of the human musculoskeletal system.

2.a.2. Describe the normal development and histology of the human musculoskeletal system.

2.b. Intellectual skills:

2.2.1. Interpret data acquired to understand applied anatomy and histology of orthopedic diseases.

2.c. Professional and practical skills:

By the end of the course , student should be able to:

2.c.1. Master the basic professional skills in surgical dissection on anatomical basis.

2.d. General and transferable skills:

2.d.1 Use of different sources for information and knowledge to learn more about abnormal anatomy and histology of orthopedic disease.

3- Course contents:

3-A) Topics:

Topic No. of hours Lecture

Introduction

Anatomy and embryology and histology of the upper limb

Anatomy and embryology and histology of the vertebral column

Anatomy and histology of the muscles of the back

Anatomy and embryology and histology of the lower limb

Anatomy and embryology and histology of the spinal nerves

Revision

Total 15 hs

Time plain:

Item	Time schedule	Teaching hours	Total hours
Lectures	Once /week (each time 1 hour)	15 hours	40%
Practical classes	Once/ week (each time 1.5 hours)	22.5	60%
Total	2.5 hrs/week	37.5 hours	100%

4- Teaching and learning methods:

4.1-lectures.

4.2-practical lessons.

5- Students assessment methods:

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written exam	To assess (2.1.1,2.1.2,2.2.1,2.3.1)
Oral examination	To assess (2.1.1 , 2.1.2,2.2.1, 2.3.1,2.4.1)

5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.

Oral exam.

5-D) Weighting system:

Final written Examination 50 %

Oral Examination. 50 %

Total 100%

6- List of references:

6.1- Course Notes made by the staff of the department

6.2- Essential Books (Text Books)

Gray's Anatomy Susan Standriary et al, 2008

Basic Histology, 2005

6.3- Recommended Books

A colored Atlas of Human anatomy and Embryology, 2005.

7- Facilities required for teaching and learning:

Data show device for lectures

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assistant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky



*Benha University.
Faculty of Medicine.
Department of Orthopedic surgery and Traumatology.*

Course Specifications

Course title: Course title: Physiology and Biochemistry

Diploma (First PART)

Code: ORTH 502

Academic Year (201^٣ – 201^٤)

- **Department offering the program:** Orthopedic surgery and Traumatology department

- **Department offering the course:** Physiology and Biochemistry Departments
- **Date of specification approval:** department council date ٥/٩/201٣.

Faculty council date 1٥/٩/201٣

- **Academic year:** First part diploma

A) Basic Information:

- **Allocated marks: 150.**
- **Course duration: 15 week of teaching.**
- **Teaching hours: 2.5 hours / week 37.5 total teaching hours.**

	Hours/week	Total hours
1-Lectures	1 hour/week	15 hours
2- Practical	1.5 hours/week	22.5 hs
Total	2.5 hours/week	37.5 hours

Authorization date of course specification:2011-2013

B) Professional Information:

1-Overall Aim of the course:

The aim of this course is

- 2.1 To have the professional knowledge about the physiology of the human body.
- 2.2 To describe the biochemical properties of the human body.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course , student should be able to:

- 2.a.1. Mention the normal physiology of the human body.
- 2.a.2. Describe the normal metabolism of the human musculoskeletal system.

2.b. Intellectual skills:

- 2.b.1. Interpret data acquired to understand applied physiology and biochemical reactions of orthopedic diseases.

2.c. Professional and practical skills:

2.d. General and transferable skills:

2.d.1 Use of different sources for information and knowledge to learn more about abnormal physiology and biochemistry of orthopedic disease.

3- Course contents:

3-A) Topics:

Topic No. of hours Lecture

Introduction

Physiology of the muscles

Physiology of the nerves

Physiology of the bone and bone turnover

Physiology of endocrine system and its bony affection

Physiology and biochemical reactions of calcium, phosphorus and its kidney excretion

Revision

Total 15 hs

Time plain:

Item	Time schedule	Teaching hours	Total hours
Lectures	Once /week (each time 1 hour)	15 hours	40%
Practical classes	Once/ week (each time 1.5 hours)	22.5	60%
Total	2.5 hrs/week	37.5 hours	100%

4- Teaching and learning methods:

4.1-lectures.

5- Students assessment methods:

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written exam	To assess (2.1.1,2.1.2,2.2.1)
Oral examination	To assess (2.1.1 , 2.1.2,2.2.1, 2.4.1)

5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.

Oral exam.

5-D) Weighting system:

Final written Examination 50 %

Oral Examination. 50 %

Total 100%

6- List of references:

6.1- Course Notes made by the staff of the department

6.2- Essential Books (Text Books)

Poul-Erik Paulev(2000): Medical Physiology And Pathophysiology

Essentials and clinical problems.

Poul-Erik Paulev (2002):Medical Physiology

6.3- Recommended Books

Orthopedic physiology and orthopedic biochemistry.

7- Facilities required for teaching and learning:

Data show device for lectures

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assistant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky



*Benha University.
Faculty of Medicine.
Department of Orthopedic surgery and Traumatology.*



Course Specifications

Course title: Course title: Pharmacology

Diploma Degree (First PART)

Code: ORTH 503

Academic Year (201۳ – 201۴)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Pharmacology Department.
- **Date of specification approval:** department council ۰۹/۹/201۳.

Faculty council date 1۰/۹/201۳

- **Academic year:** First part diploma

A) Basic Information:

- **Allocated marks:** 100.
- **Course duration:** 15 week of teaching.
- **Teaching hours:** 1 hour / week 15 total teaching hours.

	Hours/week	Total hours
1-Lectures	1 hour/week	15 hours
Total		15 hours

B) Professional Information:

1-Overall Aim of the course:

The aim of this course is

- To have the professional knowledge about the pharmacology of different drugs used in treating different diseases and its effect on musculoskeletal system.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course , student should be able to:

2.a.1. Mention the different drugs used in orthopedic diseases.

2.a.2. Describe the side effects of the different drugs.

2.b. Intellectual skills:

2.b.1. Interpret data acquired to understand the reaction and side reactions of different drugs and its effect on orthopedic diseases.

2.c. Professional and practical skills:

2.d. General and transferable skills:

2.d.1. Use of different sources for information and knowledge to learn more about the new medications of orthopedic disease.

3- Course contents:

3-A) Topics:

Topic No. of hours Lecture

Introduction

Pharmacology of steroids

Pharmacology of non-steroidal antirheumatic

Pharmacology of calcium drugs and antiresorptive drugs

Pharmacology of endocrine drugs and its bony affection

Pharmacology of muscle relaxant drugs

Pharmacology of vitamins

Pharmacology of pain killers and analgesics

Revision

Total 15 hs

Time plain:

Item	Time schedule	Teaching hours	Total hours
Lectures	Once /week (each time 1 hour)	15 hours	100%
Total	1 hr/week	15 hours	100%

4- Teaching and learning methods:

4.1-lectures.

5- Students assessment methods:

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written exam	To assess (2.1.1,2.1.2,2.2.1,2.4.1)
Oral examination	To assess (2.1.1 , 2.1.2,2.2.1, 2.4.1)

5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.

Oral exam.

5-D) Weighting system:

Final written Examination 50 %

Oral Examination. 50 %

Total 100%

6- List of references:

6.1- Main reference:

Department Book for post graduate

6.2- Essential Books

Pharmacology Text book

7- Facilities required for teaching and learning:

Data show device for lectures

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assistant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky



Benha University.

Faculty of Medicine.

Department of Orthopedic surgery and Traumatology.

Course Specifications

Course title: Course title: Pathology

Diploma (First PART)

Code: ORTH 504

Academic Year (201^٣ – 201^٤)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Pathology Department
- **Date of specification approval:** department council ٥/٩/201^٣.

Faculty council date 1٥/٩/201٣

- **Academic year:** First part diploma

A) Basic Information:

- **Allocated marks:** 150.
- **Course duration:** 15 week of teaching.
- **Teaching hours:** 2.5 hours / week **37.5** total teaching hours.

	Hours/week	Total hours
1-Lectures	1 hour/week	15 hours
2- Practical	1.5 hours/week	22.5 hours
Total	2.5 hours/week	37.5 hours

- **Authorization date of course specification:**2011-2013

B) Professional Information:

1-Overall Aim of the course:

The aim of this course is

2.3 To have the professional knowledge about the pathology of bone tumors.

2.4 To define the pathology of orthopedic diseases.

- To have the professional knowledge about the pathology of bone infections.

1.5 Know the general pathology.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course , student should be able to:

2.a.1. Develop understanding of the general and systemic pathology.

2.a.2. Be familiar with etiology, pathogenesis and pathologic manifestation of diseases especially musculoskeletal & soft tissue disorders.

2.a.3. Describe sufficient information about the fate and complications and prognosis of different diseases especially musculoskeletal & soft tissue disorders.

2.b. Intellectual skills:

2.b.1. Correlate gross and histopathology with the clinical basis of diseases especially musculoskeletal & soft tissue disorders.

2.b.2. Interpret data acquired to understand pathophysiology of orthopedic disease.

2.b.3. Interpret in a professional manner a pathology report.

2.c. Professional and practical skills:

By the end of the course , student should be able to:

2.c.1. Identify the macroscopic and microscopic criteria of the altered structure (pathology) of the body and its major organs and systems that are seen in various diseases.

2.d. General and transferable skills:

2.d.1 To be effectively utilize various computer based instruction tools and E-learning of Pathology and utilize a variety of computer-based self assessment tools.

3- Course contents:

3-A) Topics:

Topic No. of hours Lecture

1- General Pathology:

1.1. Inflammation & repair.

1.2. Cell response to injury and aging.

1.3. Disturbances of circulation.

1.4. Fractures.

1.5. Bacterial infection.

1.6. Tuberculosis & Pott's disease.

1.7. Osteoporosis, rickets & osteomalasia.

1.8. Disturbances of cellular growth.

1.9. General pathology of tumors.

1.10. Genetic diseases.

2- Musculoskeletal system:

2.1. Osteomyelitis.

2.2. Tumor like lesions of bone & soft tissue.

2.3. Tumors of bones.

2.4. Soft tissue tumors.

2.5. Osteodystrophies.

2.6. Artheritis & synovitis.

2.7. Tumors of joints.

2.8. Plasma cell dyscrasis & multiple myeloma.

2.9. Bone lymphoma.

Time plain:

Item	Time schedule	Teaching hours	Total hours
Lectures	Once /week (each time 1 hour)	15 hours	40%
Practical classes	Once/ week (each time 1.5 hours)	22.5	60%
Total	2.5 hrs/week	37.5 hours	100%

4- Teaching and learning methods:

4.1-lectures.

4.2-practical lessons.

5- Students assessment methods:

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written exam	To assess (2.1.1,2.1.2,2.1.3,2.2.1,2.2.2,2.2.3)
Oral examination	To assess (2.1.1 , 2.1.2, 2.1.3,2.2.1,2.2.2,2.2.3,2.4.1)
Practical examination	To assess (2.3.1)

5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.

Oral exam.

5-D) Weighting system:

Final written Examination 50 %

Oral and practical examination. 50 %

Total 100%

6- List of references:

6.1- Course Notes made by the staff of the department

6.2- Essential Books (Text Books)

- Kumar V ,Abbas AK ,Fausto N:Robbins and Cotran Pathologic Basis of Disease ,7th ed.;2005, Elsevier Saunders. Available at faculty bookshops & main library.

6.3- Recommended Books:

- Rosai and Ackerman's Surgical Pathology Juan Rosai, Mosby 2004
- Sternberg's Diagnostic surgical Pathology 4th edition, Lippincott Williams and Wilkins

6.4- Periodicals, American journal of pathology

Pathology

Human pathology

Web Sites: <http://www.ncbi.nlm.nih.gov/pubmed/>

7- Facilities required for teaching and learning:

-An appropriate teaching microscope with a screen.

-Good equipments essential for preparation of histological slides in the preparation room and staining set.

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assistant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky



*Benha University.
Faculty of Medicine.
Department of Microbiology & Immunology.*



Course Specifications

Course title: Course title: MICROBIOLOGY AND IMMUNOLOGY FOR ORTHOPEDIC Diploma (FIRST PART)

Code: ORTH 505

Academic Year (201٣ – 201٤)

- **Department offering the program: Orthopedic department**
- **Department offering the course: MICROBIOLOGY AND IMMUNOLOGY**
- **Date of specification approval: department council ١٠/٩/201٣.**

Faculty council date 1٠/٩/201٣

- **Academic year: First part diploma**

A) Basic Information:

- **Allocated marks: 150** marks.
- **Course duration: 15** weeks of teaching.
- **Teaching hours: 2.5** hours / week **37.5** total teaching hours.

	Hours / week	Total hours
1- Lectures	1 hr/week	15 hrs
2- Practical	1.5hrs/week	22.5 hrs
Total	2.5 hrs/weeks	37.5 hrs

B) Professional Information:

1- Overall Aim of the Course:

- To educate students about the basic features of general bacteriology, virology, microbial genetics and mycology
- To provide students with an understanding of the immune system, its protective functions, its role in the pathophysiology of infectious and non-infectious diseases, and its clinical applications.
- To familiarize students with the common infections and diseases of surgical importance, their microbial causes, as well as laboratory diagnosis, treatment, prevention and control of such diseases.
- To enable the students to practice the principles of sterilization and infection control.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course, students should be able to:

- 2.a.1 Illustrate general bacterial morphology, physiology and genetics.
- 2.a.2 Mention the host parasite relationship and microbial pathogenesis.
- 2.a.3 Explain the physiology of the immune system, its beneficial role, its interaction with tumors, its deficiency conditions, as well as its detrimental role in hypersensitivity, autoimmunity and transplant rejection.
- 2.a.4. Describe the morphology, culture, antigenic structure and virulence factors of microorganisms of surgical importance.
- 2.a.5 Recognize the most important infectious clinical conditions of surgical importance and outline the diagnosis, treatment, prevention and control of the most likely organisms causing such diseases.
- 2.a.6 Describe the most important methods of decontamination, sterilization and principles of infection control.
- 2.a.7 Describe the antimicrobial chemotherapy and resistance.

2.b. Intellectual Skills:

By the end of the course, students should be able to:

- 2.b.1. Interpret results of microbiological, serological and molecular tests.
- 2.b.2. Interpret microbiological, immunological and molecular reports.

2.b.3. Formulate a systematic approach for laboratory diagnosis of respiratory infectious conditions and select the most appropriate and cost-effective tool leading to the identification of the causative organism.

2.b.4. Evaluate according to evidence the causal relationship of microbes and diseases.

2.b.5. Categorize a microorganism as a bacterium, virus or fungus according to standard taxonomy.

2.b.6. Appreciate the danger of handling and use of infectious agents on community and environment as a part of their ethical heritage.

2.c. Practical and Clinical Skills

By the end of the course, students should be able to:

2.c.1. Identify medically important bacteria based on microscopic examination of stained preparations.

2.c.2. Identify culture media and biochemical tests commonly used for bacterial identification and distinguish positive and negative results.

2.c.3. Perform various sterilization processes and simple infection control measures

2.d. General and transferable Skills:

By the end of the course, students should be able to:

2.d1 Establish life-long self-learning required for continuous professional development.

2.d.2 Use the sources of biomedical information and communication technology to remain current with advances in knowledge and practice.

2.d.3 Establish effective interpersonal relationship to Communicate ideas and arguments .

2.d.4 Retrieve, manage, and manipulate information by all means, including electronic means.

2.d.5 Present information clearly in written, electronic and oral forms.

2.d.6 Establish effective interpersonal relationship to Communicate ideas and arguments.

2.d.7 Apply the principles of statistical methods for collection, presentation & analysis of all types of data .

3- Course contents:

<ul style="list-style-type: none">• Introduction to Microbiology
<ul style="list-style-type: none">• Cell Structure
<ul style="list-style-type: none">• Safety procedure & Microscope
<ul style="list-style-type: none">• Disinfection and Sterilization

• Culture media
• Basic Immunology
• Growth requirement & Metabolism
• Bacterial genetics
• Antimicrobial Chemotherapy
• Host parasite relationship
• Pyogenic cocci
• Hypersensitivity
• Gram positive bacilli
• Tumor immunology ,Transplantation
• Autoimmune diseases Immunodeficiency diseases
• T.B
• Gram negative bacilli
• Short Gram negative bacilli
• General virology

• Hepatitis- oncogenic viruses
• Spirochetes
• RNA viruses
• Rickettsia & chlamydia Mycoplasma ,others
• Mycology
• Applied microbiology
• Total

4- Teaching and learning methods:

METHODS USED:

1. Lectures.
2. Practical classes

TEACHING PLAIN:

Lectures: 15 lectures

Practical classes: 15 practical classes

Time plain:

Item	Time schedule	Teaching hours	Total hours
Lectures	Once /week (each time 1 hour)	15 hours	40%
Practical classes	Once/ week (each time 1.5 hour)	22.5	60%
Total	2.5 hrs/week	37.5 hours	100%

5- Students Assessment methods:

5-A) ATTENDANCE CRITERIA:

1. Practical attendance

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
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Written examination	To assess knowledge acquisition, including MCQs and problem solving
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
Final exam	Either October or may

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- Final exam:		
a- Written	60	40%
b- Practical	65	43%
c- Oral	25	17%
6- Assignments & other activities	-----	-----
Total	150	100%

- The minimum passing score is **30 marks**.
- Passing grades are: EXCELLENT >85%, VERY GOOD 75- <85%, GOOD 65- <75% and FAIR 60-<65%.

5-E) Examination description:

Examination	Type	Description
Final Examination	2. Written	A two-hour written paper composed of short essay-type questions, MCQs and Case study
	3. Practical	Spots 10 spots including slides, culture media, biochemical reactions, serological tests and instruments. On each specimen, a small question should be answered (quiz).
	4. Oral	One oral examination station with 2 staff members (10-15 minutes: 4-5 questions)

6- List of references:

6.1- Basic materials:

1. Medical Microbiology: Department book and practical manual.
2. Lectures on Medical Virology: Department book.
3. Basic Immunology: Department book.

6.2- Essential books (text books):

1. Jawetz, Melnick and Adelberg's *Medical Microbiology*, (Brooks et al., 2008).
2. *Mackie & McCartney Practical Medical Microbiology*. (Collee et al., 2007)
3. Abul K. Abbas Cellular and molecular immunology (Abbas et al., 2011).

6.3- Recommended books:

1. Microbiology an introduction
2. Lpincott's Microbiology illusterated review.

6.4- Periodicals, Web sites, etc:

1. asmnews@asmusa.org
2. <http://www.phage.org/black09.htm>
3. http://www.microbe.org/microbes/virus_or_bacterium.asp
4. <http://www.bact.wisc.edu/Bact330/330Lecturetopics>
5. http://whyfiles.org/012mad_cow/7.html
6. <http://www.microbelibrary.org>
7. <http://www.hepnet.com/hepb.htm>
8. http://www.tulane.edu/~dmsander/Big_Virology/BVHomePage.html
9. <http://www.mic.ki.se/Diseases/c2.html>
10. <http://www.med.sc.edu:85/book/welcome.htm>
11. http://www.bioiogy.arizona.edu/immunology/microbiology_immunology.html

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Faculty lectures halls: 3
- Department lectures halls: 1
- Department Equipped Laboratories :2

Course coordinator: Prof Dr. Ahmed Omar

Head of Department: Prof Dr. Ahmed Omar



Benha University.

Faculty of Medicine.

Department of Orthopedic surgery and Traumatology.

Course Specifications

Course title: Course title: General Surgery FOR ORTHOPEDIC DIPLOMA (SECOND PART)

Code: ORTH 506

Academic Year (201^٣ – 201^٤)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** General surgery department
- **Date of specification approval:** department council date ٠/٩/201^٣.

Faculty council date 1٠/٩/201^٣

- **Academic year:** Second part diploma

A) Basic Information:

- **Allocated marks:** 400.
- **Course duration:** 30 week of teaching.
- **Teaching hours:** 8 hours / week **240** total teaching hours.

	Hours/week	Total hours
1-Lectures	2 hour/week	60 hours
2- practical	6 hours/week	180 hours
Total	8 hours/week	240 hours

2. Authorization date of course specification: 2011-2013

B) Professional Information:

1-Overall Aim of the course:

By the end of the course the students should be able to have the professional knowledge of the pathology of orthopedic diseases.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course, student should be able to:

2.a.1. identify topics of the general surgery.

2.a.2. discuss etiology, pathogenesis and pathologic manifestation of diseases especially vascular & soft tissue disorders.

2.a.3. Mention sufficient information about the fate and complications and prognosis of different diseases especially vascular & soft tissue disorders

2.b. Intellectual skills:

2.b.1. Correlate gross and histopathology with the clinical basis of diseases especially vascular & soft tissue disorders.

2.b.2. Interpret data acquired to understand management of shock

2.b.3. Interpret in a professional manner a polytraumatized patient report.

c- Professional and practical skills:

By the end of the course , student should be able to:

2.c.1. Identify the effect on the body and its major organs and systems that are seen in various diseases.

2.c. General and transferable skills:

By the end of the course , student should be able to:

2.c.1. Effectively utilize various computer based instruction tools and E-learning of General surgery and utilize a variety of computer-based self assessment tools.

3- Course contents:

3-A) Topics:

Topic	No. of hours
1- General surgery.	80 hours
2- Vascular surgery.	80 hour
3- Plastic surgery.	80 hour
Total	240 hour

4- Teaching and learning methods:

4.1. Lectures.

4.2. Practical lessons (Jars & slides).

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	1 time/ week	2 h/week	60
Clinical lessons	2 time / week	6 h/week	180
Total	3 times/week	8hs/week	240

5- Students assessment methods:

5.1. Written examination to assess knowledge.

5.2. Oral examination to assess knowledge.

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written examination	To assess (2.1.1 to 2.2.3)
Oral examination	To assess (2.2.1 to 2.2.3)
Practical examination	To assess (2.4.1)

Clinical examination	To assess (2.3.1)
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5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.

One written exams 3 hours in orthopedic diseases.

Assessment 1. Written examination

Assessment 2. Oral examination

5-D) Weighting system:

Examination	% of Total marks
Final exam: Written	50 %
Final exam: Oral	25 %
Final exam: Clinical	25 %

- Other types of assessment : by log book.
- The minimum passing & passing grades : Faculty bylaws.

6- List of references:

6.1- Course Notes made by the staff of the department

6.2- Essential Books (Text Books):

• Bailey & love (short practice of surgery): edited by Russell., R.C.G., Williams, N.S & Bulstrode, C.J.K., 2004, Arnold-London.

Clinical surgery, edited by Michael M. Henry & Jeremy N. Thompson, 2nd edition, 2005, Elsevier, London & Sydney & Toronto

6.3- Periodicals, American journal of general surgery

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

-An appropriate teaching microscope with a screen.

-Good equipments essential for preparation of histological slides in the preparation room and staining set.

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Head of the department:

Professor Dr. Mohamed Salah Shawky



Benha University
Faculty of Medicine
Department of Orthopaedics surgery and Traumatology

Course Specifications

**Course title: Course title: ORTHOPEDIC SURGERY FOR ORTHOPEDIC
Diploma (SECOND PART)**

Code: ORTH 507

Academic Year (201٣ – 201٤)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Orthopedic surgery and Traumatology department

- **Date of specification approval:** department council ١٠/٩/201٣.

Faculty council date 1٠/٩/201٣

- **Academic year:** Second part diploma

A) Basic Information:

- **Allocated marks:** 600 marks.
- **Course duration:** 30 week of teaching.
- **Teaching hours:** 13 hours / week 390 total teaching hours.

	Hours/week	Total hours
1-Lectures	4 hours/week	120 hours
2-practical/clinical	9 hours/week	270 hours
Total	13 hours/week	390 hours

B) Professional Information:

1-Overall Aim of the course:

By the end of the course the student should be able to manage orthopedic patients, and perform all of the orthopedic surgical procedures and most of special orthopedic surgical procedures. Also he should master the basics of scientific research and apply the analytic methods for knowledge in the orthopedic surgery field.

2- Intended Learning Outcomes (ILOs):

2.1. Knowledge and understanding:

By the end of the course, student should be able to:

- 2.a.1. Mention the normal structure and function of the human musculoskeletal system and its relation to surgical procedure
- 2.a.2. Describe the normal growth of the human musculoskeletal system.
- 2.a.3. List the abnormal structure, function, growth and development of human musculoskeletal system
- 2.a.4. Mention the natural history of orthopedic diseases and traumatology Problem
- 2.a.5. Describe the causation of orthopedic diseases and traumatology problems and their pathogenesis
- 2.a.6. Enumerate methods of fixation of different fracture pattern.
- 2.a.7. List the clinical picture and differential diagnosis of orthopedic diseases.
- 2.a.8. Enumerate the common diagnostic and laboratory techniques necessary to establish diagnosis of orthopedic diseases.
- 2.a.9. Describe the various therapeutic methods/alternatives used for orthopedic diseases.
- 2.a.10. List the knowledge of the general surgery.
- 2.a.11. Define the trauma management.

2.a.12. Understand scientific developments in the field of orthopedic surgery and traumatology

2.a.13. Mention Ethical and legal principles of professional practice in the field of orthopedic surgery and Traumatology

2.a.14. Mention the principles and fundamentals of quality in professional practice in the field of orthopedic surgery and traumatology.

2.b. Intellectual skills:

2.b.1. Interpret data acquired through history taking to reach a provisional diagnosis for orthopedic diseases.

2.b.2. Solve the problems in the area of orthopedic surgery and traumatology

2.b.3. Read and analyze researches and issues related to orthopedic surgery and traumatology.

2.b.4. Assess risk in professional practices in the field of orthopedic surgery and traumatology.

2.b.5. Make professional decisions in light of the available data.

2.c. Professional and practical skills:

By the end of the course, student should be able to:

2.c.1. Master the basic professional clinical and surgical skills in the area of orthopedic surgery and traumatology.

2.c.2. Write medical reports.

2.c.3. Use imaging, electrophysiological and endoscopic data in diagnosis of orthopedic and traumatology problems

2.d. General and transferable skills:

By the end of the course, student should be able to:

2.d.1. Present orthopedic cases in seminars effectively.

2.d.2. Assess himself and identify his personal learning needs.

2.d.3. Use of different sources for information and knowledge of orthopedic diseases and traumatology.

2.d.4. Work coherently and successfully as a part of a team and effectively manage time.

2d.5. Lead a team in familiar professional contexts

2.d.6. Obtain knowledge continuously and independently in orthopedic surgery and traumatology field.

3- Course contents:

3-A) Topics:

Subject	Lectures number
1. General orthopedics	36
2. Regional orthopedics	51
3. Pediatric orthopedics	72
Total	108

GENERAL PRINCIPLES

Surgical Techniques and Approaches

ARTHRODESIS

Arthrodesis of Ankle, Knee, and Hip

Arthrodesis of Shoulder, Elbow, and Wrist

ARTHROPLASTY

Introduction and Overview

Arthroplasty of Knee

Arthroplasty of Hip

INFECTIONS

General Principles of Infection

Osteomyelitis

Infectious Arthritis

Tuberculosis and Other Infections

TUMORS

General Principles of Tumors

Benign Tumors of Bone

Benign (Occasionally Aggressive) Tumors of Bone

Malignant Tumors of Bone

Soft Tissue Tumors and Nonneoplastic Conditions Simulating Bone Tumors

RHEUMATOID ARTHRITIS

Juvenile rheumatoid arthritis

Ankle and subtalar joint

Rheumatoid knee

Rheumatoid hip

Rheumatoid shoulder & elbow

OSTEOARTHRITIS

Osteoarthritis of foot and ankle

Osteoarthritis of the knee

Proximal tibial osteotomy

Distal femoral osteotomy

Arthroplasty

Arthrodesis

Patellofemoral joint

Osteoarthritis of the hip joint

Proximal femoral osteotomy

Hanging hip operation

Resurfacing arthroplasty

Total hip arthroplasty

Arthrodesis of the hip

Osteoarthritis of the shoulder and elbow

OSTEONECROSIS OF THE FEMORAL HEAD AND PERTHES DISEAS

NEUROPATHIC ARTHROPATHY (CHARCOT JOINT)

CONGENITAL ANOMALIES

Congenital Anomalies of Lower Extremity

Congenital and Developmental Anomalies of Hip and Pelvis

Congenital Anomalies of Trunk and Upper Extremity

OSTEOCHONDROSIS

Osteochondrosis or Epiphysitis

NERVOUS SYSTEM DISORDERS IN CHILDREN

Cerebral Palsy

Paralytic Disorders

Neuromuscular Disorders

THE SPINE

Spinal Anatomy and Surgical Approaches

Arthrodesis of Spine

Pediatric Cervical Spine

Scoliosis and Kyphosis

Lower Back Pain and Disorders of Intervertebral Discs

Infections of Spine

Other Disorders of Spine

THE HAND

Basic Surgical Technique and Aftercare

Acute Hand Injuries

Flexor and Extensor Tendon Injuries

Wrist Disorders

Paralytic Hand

Cerebral Palsy of the Hand

Arthritic Hand

Compartment Syndromes and Volkmann

Dupuytren Contracture

Carpal Tunnel, Ulnar Tunnel, and Stenosing Tenosynovitis

Tumors and Tumorous Conditions of Hand

Hand Infections

THE FOOT AND ANKLE

Disorders of Hallux

Pes Planus

Neurogenic Disorders

Disorders of Tendons and Fascia

4- Teaching and learning methods:

4.1 Lectures.

4.2 Practical / surgical /clinical lessons

4.3 Discussion sessions.

4.4 Information collection from different sources.

4.5 Attending and participating in scientific meeting and workshops

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	4 time/ week	4 hs/week	120
Clinical lessons	3 time / week	9 hs/week	270
Total	7 times/week	13hs/week	390

5- Students assessment methods:

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written examination	To assess (2.1.1 to 2.1.14)
Oral examination	To assess (2.2.1 to 2.2.5)
Practical examination	To assess (2.4.1 to 2.4.6)
Clinical examination	To assess (2.3.1 , 2.3.2 , 2.3.3)

5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.

One written exams 3 hours in Orthopedic diseases.

Assessment 1 ... Written exam

Assessment 2.... Clinical exam

Assessment 3..... Oral exam

5-D) Weighting system:

Examination	% of Total marks
Final exam: Written	40 %
Final exam: Oral	20 %
Final exam: Clinical	40 %

- Other types of assessment : by log book.
- The minimum passing & passing grades : Faculty bylaws.

Formative assessment:

Student knows his marks after the formative exams.

6- List of references:

6.2- Essential books (text books):

Campbell's Operative Orthopedic, 11th edition (Canal & Beat, 2007)

6.2- Recommended Books:

Surgical exposure in orthopedic, stanle Hoppenfeld, Piet DeBoer, Richard Eric 2009

- Manual of internal fixation, 2003
- Spine Journal
- British bone and joint Journal
- American bone and joint Journal
- Journal of hand and microsurgery
- Clinical Orthopedic Journal

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls.
- Small group classes.
- Operative theatres
- Live surgery video show.
- Adequate infrastructure including teaching rooms, comfortable desks.
- Teaching tools including screen, slide Projector, computer and data show.

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assistant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky



*Benha University
Faculty of Medicine
Department of Orthopedic surgery and Traumatology*

Course Specifications

Course title: Course title: TRAUMATOLOGY FOR ORTHOPEDIC

Diploma (SECOND PART)

Code: ORTH 508

Academic Year (201٣ – 201٤)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Orthopedic surgery and Traumatology department
- **Date of specification approval:** department council ١٥/٩/201٣.

Faculty council date 1٥/٩/201٣

- **Academic year:** Second part diploma

A) Basic Information:

- **Allocated marks: 600** marks.
- **Course duration: 30** week of teaching.
- **Teaching hours: 7** hours / week **210** total teaching hours.

	Hours/week	Total hours
1-Lectures	4 hours/week	120 hours
2-practical	3 hours/week	90 hours
Total	7 hours/week	210 hours

3. Authorization date of course specification: 2011-2013

B) Professional Information:

1-Overall Aim of the course:

By the end of the course the student should be able to manage trauma patients, and perform all of the orthopedic surgical procedures and most of special orthopedic surgical procedures. Also he should master the basics of scientific research and apply the analytic methods for knowledge in the orthopedic surgery field.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course, the student is should be able to:

- 2.a.1. Mention the normal structure and function of the human musculoskeletal system and its relation to surgical procedures
- 2.a.2. Describe the normal growth of the human musculoskeletal system.
- 2.a.3. List the abnormal structure, function, growth and development of human musculoskeletal system.
- 2.a.4. Mention the natural history of orthopedic diseases and Traumatology problems.
- 2.a.5. List the causation of orthopedic diseases and traumatology problems and their pathogenesis.
- 2.a.6. Enumerate methods of fixation of different fracture pattern.
- 2.a.7. List the clinical picture and differential diagnosis of orthopedic diseases.
- 2.a.8. Enumerate the common diagnostic and laboratory techniques necessary to establish diagnosis of orthopedic diseases.
- 2.a.9. Describe the various therapeutic methods/alternatives used for orthopedic diseases.
- 2.a.10. Mention the knowledge of the general surgery.

2.a.11. Define the trauma management.

2.a.12. List scientific developments in the field of orthopedic surgery and traumatology

2.a.13. Mention Ethical and legal principles of professional practice in the field of orthopedic surgery and Traumatology

2.a.14. Mention the principles and fundamentals of quality in professional practice in the field of orthopedic surgery and traumatology.

2.b. Intellectual skills:

By the end of the course, the student should be able to:

2.b.1. Interpret data acquired through history taking to reach a provisional diagnosis for orthopedic diseases.

2.b.2. Solve the problems in the area of orthopedic surgery and traumatology

2.b.3. Read and analyze researches and issues related to orthopedic surgery and traumatology.

2.b.4. Assess risk in professional practices in the field of orthopedic surgery and traumatology.

2.b.5. Make professional decisions in light of the available data.

2.c. Professional and practical skills:

By the end of the course, the student should be able to:

2.c.1. Master the basic professional clinical and surgical skills in the area of orthopedic surgery and traumatology.

2.c.2. Write medical reports.

2.c.3. Use imaging, electrophysiological and endoscopic data in diagnosis of orthopedic and traumatology problems

2.d. General and transferable skills:

By the end of the course, the student should be able to:

2.d.1. Present orthopedic cases in seminars effectively.

2.d.2. Assess himself and identify his personal learning needs.

2.d.3. Use of different sources for information and knowledge of orthopedic diseases and traumatology.

2.d.4. Work coherently and successfully as a part of a team and effectively manage time.

2.d.5. lead a team in familiar professional contexts

2.d.6. Obtain knowledge continuously and independently in orthopedic surgery and traumatology field.

3- Course contents:

3-A) Topics:

Subject	Lectures number
1. General orthopedics	24
2. Fractures and dislocations of upper limb	24

and shoulder girdle.	
3. Fractures and dislocations of lower limb and pelvis.	24
4. Fractures & dislocations of spine	24
5. Pediatric fractures & dislocations	24
Total	120

GENERAL PRINCIPLES

Surgical Techniques and Approaches

AMPUTATIONS

General Principles of Amputations

Amputations About Foot

Amputations of Lower Extremity

Amputations of Hip and Pelvis

Amputations of Upper Extremity

Amputations of Hand

THE SPINE

Spinal Anatomy and Surgical Approaches

Fractures, Dislocations, and Fracture-Dislocations of Spine

SPORTS MEDICINE

Ankle Injuries

Knee Injuries

Shoulder and Elbow Injuries

Recurrent Dislocations

ARTHROSCOPY

General Principles of Arthroscopy

Arthroscopy of Lower Extremity

Arthroscopy of Upper Extremity

FRACTURES AND DISLOCATIONS

General Principles of Fracture Treatment

Fractures of Lower Extremity

Fractures of Hip

Fractures of Acetabulum and Pelvis

Fractures of Shoulder, Arm, and Forearm

Malunited Fractures

Delayed Union and Nonunion of Fractures

Acute Dislocations

Old Unreduced Dislocations

FRACTURES AND DISLOCATIONS IN CHILDREN

PERIPHERAL NERVE INJURIES

THE HAND

Basic Surgical Technique and Aftercare

Acute Hand Injuries

Flexor and Extensor Tendon Injuries

Fractures, Dislocations, and Ligamentous Injuries

Nerve Injuries

THE FOOT AND ANKLE

Surgical Techniques

Fractures and Dislocations of Foot

4- Teaching and learning methods:

4.1 Lectures.

4.2 Practical / surgical /clinical lessons

4.3 Discussion sessions.

4.4 Information collection from different sources.

4.5 Attending and participating in scientific meeting and workshops

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	2 time/ week	4 hs/week	120
Clinical lessons	1 time / week	3 h/week	90
Total	3 times/week	7hs/week	210

5- Students assessment methods:

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written examination	To assess (2.1.1 to 2.1.14)

Oral examination	To assess (2.2.1 to 2.2.5)
Clinical examination	To assess (2.3.1 to 2.3.3 & 2.4.1 to 2.4.6)

5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.
- One written exams 3 hours in Orthopedic diseases.

Assessment 1 ... Written exam

Assessment 2.... Clinical exam

Assessment 3..... Oral exam

5-D) Weighting system:

Examination	% of Total marks
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Final exam: Written	40 %
Final exam: Oral	20 %
Final exam clinical	40%

- Other types of assessment : by log book.
- The minimum passing & passing grades : Faculty bylaws.

Formative assessment:

Student knows his marks after the formative exams.

6- List of references:

6.1- Essential Books (Text Books)

Campbell"s Operative Orthopedic,11th edition (Canal & Beat, 2007)

6.2- Recommended Books:

- Surgical exposure in orthopedic, stanle Hoppenfeld, Piet DeBoer, Richard Eric 2009
- Spine Journal

- British bone and joint Journal
- American bone and joint Journal
- Journal of hand and microsurgery
- Clinical Orthopedic Journal

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls.
- Small group classes.
- Operative theatres
- Live surgery video show.
- Adequate infrastructure including teaching rooms, comfortable desks.
- Teaching tools including screen, slide Projector, computer and data show.

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assistant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky



*Benha University.
Faculty of Medicine.
Department of Orthopedic surgery and Traumatology.*

Course Specifications

Course title: Course title: SPECIAL SURGICAL PATHOLOGY FOR ORTHOPEDIC DIPLOMA (SECOND PART)

Code: ORTH 509

Academic Year (201۳ – 201۴)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Orthopedic surgery and Traumatology department
- **Date of specification approval:** department council ۰/۹/201۳.

Faculty council date 1۰/۹/201۳

- **Academic year:** Second part diploma

A) Basic Information:

- **Allocated marks:** marks included in Orth 507 course.
- **Course duration:** 30 week of teaching.
- **Teaching hours:** 4 hours / week 120 total teaching hours.

	Hours/week	Total hours
1-Lectures	1 hour/week	30 hours
2- practical	3 hours/week	90 hours
Total	4 hours/week	120 hours

4. Authorization date of course specification: 2011-2013

B) Professional Information:

1-Overall Aim of the course:

By the end of the course the students should be able to have the professional knowledge of the pathology of orthopedic diseases.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

By the end of the course, student should be able to:

2.a. 1Develop understanding of the general and systemic pathology.

2.a.2. discuss etiology, pathogenesis and pathologic manifestation of diseases especially musculoskeletal & soft tissue disorders.

2.a.3. Describe sufficient information about the fate and complications and prognosis of different diseases especially musculoskeletal & soft tissue disorders

2.b. Intellectual skills:

2.b.1. Correlate gross and histopathology with the clinical basis of diseases especially musculoskeletal & soft tissue disorders.

2.b.2. Interpret data acquired to understand pathophysiology of orthopedic disease

2.b.3. Interpret in a professional manner a pathology report.

2.c- Professional and practical skills:

By the end of the course , student should be able to:

2.c.1. Identify the macroscopic and microscopic criteria of the altered structure (pathology) of the body and its major organs and systems that are seen in various diseases.

2.d. General and transferable skills:

By the end of the course , student should be able to:

2.d.1. Effectively utilize various computer based instruction tools and E-learning of

Pathology and utilize a variety of computer-based self assessment tools.

3- Course contents:

3-A) Topics:

Topic	No. of hours
1- General Pathology: 1.1. Inflammation & repair. 1.2. Cell response to injury and aging. 1.3. Disturbances of circulation. 1.4. Fractures. 1.5. Bacterial infection. 1.6. Tuberculosis & Pott's disease. 1.7. Osteoporosis, rickets & osteomalasia. 1.8. Disturbances of cellular growth. 1.9. General pathology of tumors. 1.10. Genetic diseases.	15 hours

2- Musculoskeletal system:	15 hours
2.1. Osteomyelitis.	
2.2. Tumor like lesions of bone & soft tissue.	
2.3. Tumors of bones.	
2.4. Soft tissue tumors.	
2.5. Osteodystrophies.	
2.6. Artheritis & synovitis.	
2.7. Tumors of joints.	
2.8. Plasma cell dyscrasis & multiple myeloma.	
2.9. Bone lymphoma.	
Total	30 hours

4- Teaching and learning methods:

4.1. Lectures.

4.2. Practical lessons (Jars & slides).

Time plan:

Item	Time schedule	Teaching hours	Total hours
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Lectures	1 time/ week	1 h/week	30
Clinical lessons	1 time/week	3 h/week	90
Total	2 times/week	4hs/week	120

5- Students assessment methods:

5.1. Written examination to assess knowledge.

5.2. Oral examination to assess knowledge.

5-A) Attendance criteria : Faculty bylaws

5-B) Assessment tools:

Tool	Purpose (ILOs)
Written examination	To assess (2.1.1 to 2.2.3)
Oral examination	To assess (2.2.1 to 2.2.3)
Practical examination	To assess (2.4.1)
Clinical examination	To assess (2.3.1)

5-C) Time schedule:

- Two sets of exams : 1st in april – 2nd in October.

One written exams 3 hours in orthopedic diseases.

Assessment 1. Written examination

Assessment 2. Oral examination

5-D) Weighting system:

Examination	% of Total marks
Final exam: Written	50 %
Final exam: Oral	50 %

- Other types of assessment : by log book.
- The minimum passing & passing grades : Faculty bylaws.

6- List of references:

6.1- Course Notes made by the staff of the department

6.2- Essential Books (Text Books):

Kumar V ,Abbas AK ,Fausto N:Robbins and Cotran Pathologic Basis of Disease ,7th ed.;2005, Elsevier Saunders. Available at faculty bookshops & main library.

6.3- Recommended Books:

- - Rosai and Ackerman's Surgical Pathology Juan Rosai, Mosby 2004
 - Sternberg's Diagnostic surgical Pathology 4th edition, Lippincott Williams and Wilkins

6.4- Periodicals, American journal of pathology

Pathology

Human pathology

Web Sites: <http://www.ncbi.nlm.nih.gov/pubmed/>

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- An appropriate teaching microscope with a screen.
- Good equipments essential for preparation of histological slides in the preparation room and staining set.

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assistant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky

ملحق (٥) مصفوفة المعارف والمهارات للبرنامج الدراسي

برنامج: Master degree of Orthopedic & Traumatology

مصفوفة المعارف والمهارات للبرنامج الدراسي

المعارف Knowledge & Understanding														ILOs
2.a.14	2.a.13	2.a.12	2.a.11	2.a.10	2.a.9	2.a.8	2.a.7	2.a.6	2.a.5	2.a.4	2.a.3	2.a.2	2.a.1	Courses

Intellectual Skills							Courses	
2	2.b.6	2.b.5	2.b.4	2.b.3	2.b.2	2.b.1		
					√		Orth 601	1-Anatomy
					√		Orth 602	2-Physiology
					√		Orth 603	3-Pharmacology
					√		Orth 604	4-Pathology
					√		Orth 605	5-Microbiology
					√		Orth 606	6-General surgery
					√		Orth 607	7-Orthopedics
√	√	√	√		√	√	Orth 608	8-Traumatology
					√		Orth 609	9-Surgical pathology

مهارات عملية و مهنية	ILOs
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Practical & Clinical Skills			Courses	
2.c.3	2.c.2	2.c.1		
		√	Orth 601	1-Anatomy
			Orth 602	2-Physiology
			Orth 603	3-Pharmacology
		√	Orth 604	4-Pathology
			Orth 605	5-Microbiology
		√	Orth 606	6-General surgery
√	√	√	Orth 607	7-Orthopedics
√	√	√	Orth 608	8-Traumatology
			Orth 609	9-Surgical pathology

مهارات عامة General and transferable								ILOs	Courses
2.d.8	2.d.7	2.d.6	2.d.5	2.d.4	2.d.3	2.d.2	2.d.1		
								Orth 601	1-Anatomy
								Orth 602	2-Physiology
								Orth 603	3-Pharmacology
								Orth 604	4-Pathology
								Orth 605	5-Microbiology
								Orth 606	6-General surgery
√	√	√	√	√	√	√	√	Orth 607	7-Orthopedics
√	√	√	√	√	√	√	√	Orth 608	8-Traumatology
	√							Orth 609	9-Surgical pathology