جامعة بنها
كلية الطب البشرى
قسم العظام

توصيف برنامج

PROGRAM SPECIFICATION

*** معلومات أساسية :** **Basic information**

1 ـ اسم البرنامج : دبلومة جراحة العظام

2 ـ طبيعة البرنامج : (multiple)

3- الأقسام المسئولة عن البرنامج:

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

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

5- تاريخ إقرار البرنامج فى مجلس الكلية 356: 15/9/2013

6- منسق البرنامج: الاستاذ الدكتور الحسينى مصطفى

7- المراجع الخارجى:الاستاذ الدكتور عادل المرشدى (استاذ جراحة العظام كلية طب قناة السويس)

*** معلومات متخصصة:** **Professional information**

1 ـ الأهداف العامة للبرنامج :

1- Overall Aims of the Program:

The overall aims 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 provide the scientific knowledge essential for the practice of orthopedic surgery and traumatology according to the international standards.

1-3 To enable the postgraduate student to learn the 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 apply the ethical principles related to practice in the highly sensitive specialty.

1-5 To maintain the abilities necessary for continuous medical education.

2 ـ المخرجات التعليمية المستهدفة من البرنامج :

2-Intended Learning Outcomes (ILOS):

2.أ ـ المعرفة والفهم :

2. a. Knowledge and Understanding:

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

2.a.1. recognize 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. illustrate the abnormal structure, function, growth and development of human musculoskeletal system

2.a.4. discuss 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. recognize methods of fixation of different fracture pattern.

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

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

.a.9. Describe the various 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. illustrate the knowledge of the general surgery.

2.a.12 discuss trauma management.

2.a.13 illustrate scientific developments in the field of orthopedic surgery and traumatology

2.a.14 categorize Ethical and legal principles of professional practice in the field of orthopedic surgery and traumatology and research.

2. ب ـ القدرات الذهنية :

2.b. Intellectual Skills:-

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

2.b.1. 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.

2.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

2.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.

3 ـ المعايير الأكاديمية :

a)Academic Standards of Diploma Program of Orthopaedic surgery, approved in department council no (261) date 5 / 9/ 2013, and in faculty council no. (354) date 16 / 6 / 2013.
(ملحق 1)

4- العلامات المرجعية: .Reference standards (benchmarks)

المعايير القياسية لبرامج الدراسات العليا (درجة الدكتوراة)الصادرة عن الهيئة القومية لجودة التعليم والإعتماد (مارس 2009)

Academic reference standards (ARS), MD Program (March 2009), which were issued by the National Authority for Quality Assurance & Accreditation of Education NAQAAE **(ملحق 2)**

b) External references standards (Benchmarks): المعاييرالمرجعية الخارجية
External reference points/benchmarks are selected to confirm the appropriateness of the objectives, ILOs of the program. (ملحق 2)

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

5 ـ هيكل ومكونات البرنامج : (5): Program structure and contents

a) Program duration: 3 semesters (1.5 years)

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

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

b) Program structure

- **Total hours of program 36 credit hours**
- **Theoretical:** 15 credit hours
- **Practical:** 10 credit hours
- **University and faculty requirements:** 6
- **Logbook:** 5

ب ـ هيكل البرنامج:

البند	المقررات	الكود	الساعات المعتمدة	
متطلبات الجامعة والكلية		Univ 501	6	
الجزء الأول	anatomy	Orth 501	1.5	7
	Physiology &biochemistry	Orth 502	1.5	
	pharmacology	Orth 503	1	
	pathology	Orth 504	1.5	
	microbiology	Orth 505	1.5	
كراسة الانشطة			5	
الجزء الثانى	General surgery	Orth 506	4	18
	orthopedic	Orth 507	7	
	traumatology	Orth 508	5	
	Surgical pathology	Orth 509	2	
الاجمالى			36	

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 501**	1		1.5	2.5		37.5
Physiology &biochemistry	**Orth 502**	1		1.5	2.5		37.5
pharmacology	**Orth 503**	**1**		**1**	**2**		30
pathology	**Orth 504**	**1**		**1.5**	2.5		37.5
Microbiology	**Orth 505**	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			Total teaching hours/ 30 weel
		Theoretic	practic	Total/W	
General surgery	Orth 506	2	6	8	240 hours
orthopedic	Orth 507	4	9	13	390

					hours
Traumatology	Orth 508	4	3	7	**210 hours**
Surgical pathology	Orth 509	1	3	4	120 hours
					Total 960 hour

b- Elective courses: none

5 ـ متطلبات الإلتحاق بالبرنامج :

(5): Program admission requirements:

مادة (15) : شروط القيد بإحدى دبلومات التخصص

1- يشترط فى قيد الطالب للدراسة الخاصة بإحدى دبلومات التخصص أن يكون حاصلا على درجة البكالوريوس فى الطب والجراحة من إحدى جامعات ج 0 م 0 ع أو على درجة معادلة لها من معهد علمى معروف بع من الجامعة 0

2- أن يكون قد أمضى السنة التدريبية أو ما يعادلها 0

3- أن يتفرغ للدراسة لمدة سنة على الأقل فى الجزء الثانى (فصلين دراسيين)0

مادة (16) : يشترط فى الطالب لنيل دبلوم التخصص :

أ – حضور المقررات الدراسية والتدريبات الإكلينيكية والعملية بصفة مرضية طبقا للساعات المعتمدة

ب- أن يقوم بالعمل كطبيب مقيم أصلى أو زائر لمدة سنة على الأقل فى قسم التخصص 0

جـ- أن ينجح فى امتحان القسمين الأول والثانى 0

مادة (17) : يحسب التقدير النهائى للدبلوم على الوجه التالى :

- 30% لامتحان القسم الأول
- 70% لامتحان القسم الثانى
- **مادة (18)** : تحتسب تقديرات النجاح والرسوب فى امتحانات الدبلوم بنفس نطام الماجستير

-مادة (19) : الطالب المقيد لدرجة الماجستير ونجح فى امتحان القسم الأول والثانى ولم يستكمل الرسالة خلال مدة القيد المحددة باللائحة يمكنه أن يحصل على شهادة دبلوم التخصص 0

-مادة (20) : يكون التقدم للقيد لدبلومات التخصص مرة واحدة فى السنة بنفس نظام الماجستير (مادة 5) 0

-مادة (21) : نظام الامتحان للدبلومات نفس نظام امتحان الماجستير (مادة 9) 0

- **تبدأ الدراسة لدرجة الدبلوم فى شهر أكتوبر من كل عام.**

6 ـ القواعد المنظمة لإستكمال البرنامج :

مادة (6): تتولى لجنة الدراسات العليا بالكلية عن طريق لجنة تشكل لكل تخصص من أعضاء مجلس القسم التابع له المادة والقسم المانح للدرجة وضع البرنامج التفصيلى 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 اكلينيكى ومحاضرات وندوات مشتركة.

مادة (7): يشترط فى الطالب لنيل درجة دبلوم 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 التويفل بمستوى لايقل عن 400 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.

7 ـ وسائل تقييم مخرجات التعلم المستهدفة من البرنامج :

7- Students Assessment methods:

م	الطريقة	ما تقيسة من مخرجات التعلم المستهدفة
1	Written examination	To assess knowledge and understanding, & intellectual skills: **From 2.a.1-2.a.6 and from 2. b.1-2.b.6**
2	Oral examination	To assess knowledge and understanding & intellectual skills & General and transferable skills **2. a.1-2.a.6. 2.b.1-2.b.6 2.d.1-2.d.8.**
3	Practical & clinical examination	To assess knowledge and understanding & intellectual skills & practical and professional skills & General and transferable skills: **2. a.1-2.a.6 , 2.b.1-2.b.6, 2.c.1-2.c.4, 2.d.1-2.d.8.**

Final exam:

First part

المقرر	الاختبار	الدرجة				إجمالي
		تحريري	شفهي	عملي	إكلينيكي	
التشريح و المسولوجي	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي	100	50			150
الفسيولوجي و الكيمياء الحيوية	اختبار تحريري مدته ثلاث ساعات	100	50			150

الفارماكولوجى	+ اختبار شفهي	100	50			150
البكريا	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي و عملي	100				100
الباثولوجى الجراحية		100	50			150
إجمالي الدرجة						700

Second part

المقرر	الاختبار	الدرجة				إجمالي
		تحريري	شفهي	إكلينيكي	عملي	
الجراحة العامة	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي + اختبار إكلينيكي	300	50	50		400
امراض العظام و الاصابات	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي + اختبار إكلينيكي+عمليات	300	300	600		1200
إجمالي الدرجة						1600

8 - طرق تقويم البرنامج :

8- Evaluation of Program:

Evaluator	Tools	sample
Internal evaluator (s) مقييم داخلى	Focus group discussion Meetings	report
External Evaluator (s) مقييم خارجى	Reviewing according to external evaluator checklist report.	report
Senior student (s) طلاب السنة النهائية	questionnaires	50%
Alumni الخريجون	questionnaires	50%

Stakeholder (s) أصحاب العمل	questionnaires	All sectors
Others طرق أخرى	none	

استراتيجيات التعليم و التعلم علي مستوي البرنامج:

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

الملحقات :

ملحق 1: المعايير القياسية العامة لبرامج قطاع الدراسات العليا و مواصفات الخريج.

ملحق 2: Benchmarks (المعاييرالمرجعية الخارجية)

ملحق 3: مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير العامة, والمعاييرالمرجعية الخارجية

ملحق 4: توصيف المقررات التابعة للبرنامج.

ملحق 5: 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: **ا د الحسينى مصطفى**	Signature & date:
Head of department: Name: **ا د صلاح شوقى**	Signature & date:

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

برامج الدبلوم

1- موصفات الخريج:

خريج برامج دبلومه الدراسات العليا فى جراحة العظام يجب أن يكون قادرا على :

1-1 القدرة على تشخيص جميع انواع امراض العظام و التحليل لدقيق لمعرفة تشخيص المرض.
2-1 تحديد المشكلات الجراحية و كيفية التعامل معها.
3-1 استخدام الوسائل التكنولوجية المناسبة بما يخدم جراحات العظام.
4-1 التواصل وقيادة فرق العمل بقسم الطوارئ.
5-1 اتخاذ القرار فى ضل المعلومات المتاحةعن الحالة المرضية
6-1 توظيف الموارد المتاحة بكفاءة وتنميتها والعمل على ايجاد موارد جديدة
7-1 الوعى بدوره فى تنمية المجتمع والحفاظ على البيئة و معرفة مشاكل المجتمع المحيط و العمل على ايجاد حلول لها
8-1 التصرف بما يعكس الالتزام بالنزاهة والمصداقية وقواعد المهنة وتقبل المسائلة والمحاسبة
9-1 إدراك ضرورة تنمية ذاته والانخراط فى التعليم المستمر.

2- المعايير القياسية العامة :

2-1 المعرفة والفهم:

بانتهاء دراسة برامج دبلومه الدراسات العليا يجب أن يكون الخريج قادرا على فهم واستيعاب كل من :

2-1-1 النظريات والاساسيات والحديث من المعارف فى جراحة العظام والمجالات ذات العلاقة(كالتشريح , الباثولوجى , الكيمياء الحيوية , الفارماكولوجى , علم الميكروبيولوجى و المناعة)

2-1-2 المبادئ الاخلاقية والقانونية للممارسة المهنية فى جراحة العظام

2-1-3 مبادئ واساسيات العمليات الجراحية فى مجال جراحة العظام

4-1-2 معرفة اضرار العمليات الجراحية الخاطئة على المرضى و مدى تأثيرها على حياتهم .

2-2 المهارات الذهنية :

بانتهاء دراسة برنامج دبلومه الدراسات العليا يجب أن يكون الخريج قادرا على :

1-2-2 مواجهة أى مشاكل طارئة تحدث اثناء علاج المرضى و خصوصا بالطوارئ

2-2-2 تقييم مخاطر العمليات الجراحية الغير مناسبة للحالة المرضية

3-2-2 قراءة و استيعاب ابحاث علمية تفيد المجتمع و تستطيع حل مشاكله بصورة غير مكلفة

4-2-2 تقييم المخاطر فى قسم الطوارئ المواجهة لحياة المرضى.

5-2-2 تقييم المعلومات المتاحة عن المريض و استنباط العلاج المناسب للحالة المرضية

3-2 المهارات المهنية :

بانتهاء دراسة برنامج دبلومه الدراسات العليا يجب أن يكون الخريج قادرا على :

1-3-2 اتقان جميع انواع رد الكسور و التعامل مع حالات الطوارئ

2-3-2 كتابة وتقييم الروشتات العلاجية و معرفة المفيد و الضار منها للمريض

3-3-2 مساعدة الفريق الطبى فالعمليات الجراحية.

4-2 المهارات العامة والمنتقلة:

بانتهاء دراسة برنامج دبلومه الدراسات العليا يجب أن يكون الخريج قادرا على :

1-4-2 التواصل مع اعضاء الفريق الطبى بصورة تخدم المريض و تحسن من الأداء العلاجى.

2-4-2 استخدام اجهزة الكمبيوتر و الانترنت فى التعلم .

3-4-2 التقييم الذاتى والتعليم المستمر و تطوير الأداء العملى بالطوارئ

4-4-2 استخدام المصادر المختلفة للحصول على المعلومات والمعارف من ابحاث و رسائل علمية و الانترنت.

5-4-2 العمل مع فريق طبى متكامل و القدرة على قيادة فريق طبى اثناء الطوارئ

6-4-2 التعلم الذاتى والمستمر.

ملحق 2 (Benchmarks)

Specialist Training in Trauma and Orthopaedics 2010

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

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Authors & Editors 2006 edition

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Acknowledgements

The Orthopaedic Curriculum has drawn on a number of sources. We gratefully acknowledge the contribution of the following (and sincerely apologise to any individual or group we have inadvertently omitted):
British Orthopaedic Association (in particular for the provision of the Clinical Knowledge Syllabus)
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

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.

TABLE OF CONTENTS

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 through‖ 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.

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

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‖ (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

—… 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?‘‖[1]

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 —geography‖. 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 mechanism‖ (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

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.

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.

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* (ICSP) 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

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.

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 specialty.

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 speciality 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 Evaluated[4]

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 centre[5]

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 specialty choice, and who choose to enter —run through‖ training, competitive entry into ST1 will be possible with run through training in their chosen specialty to CCT, where this is offered by the specialty. 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.

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 specialty, 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 specialty 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.

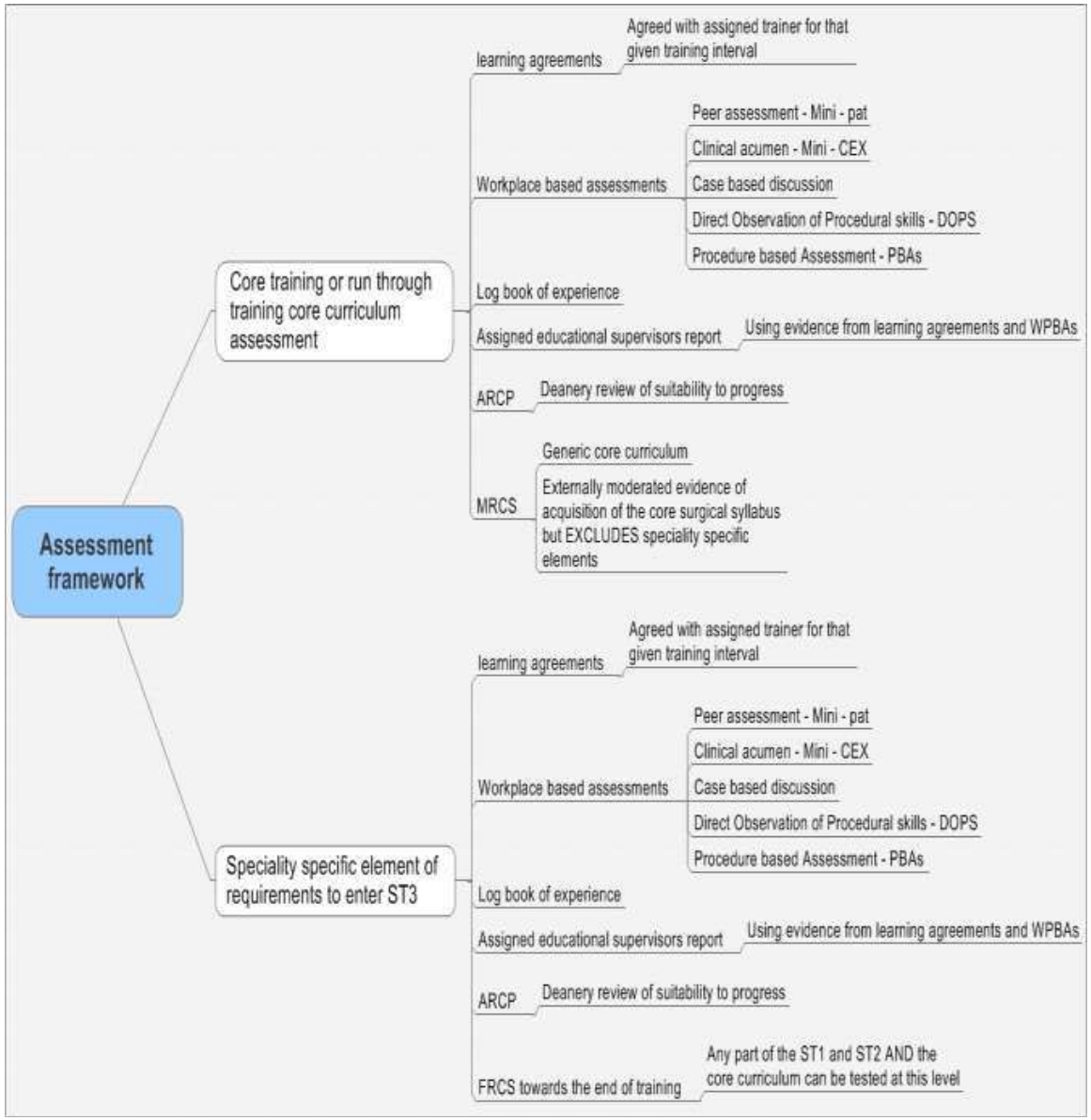
This model has a number of possible variants. It might be possible to teach core completely within a generic programme followed by speciality top up training later on in order to reach speciality entry ST3 level. Another variant would organise generic training along a theme which supports both core and 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 or 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 specialty. 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.

h) THE ASSESSMENT FRAMEWORK

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


Assessment framework
Core training or run through training core curriculum assessment
learning agreements
Agreed with assigned trainer for that given training interval
Workplace based assessments
Peer assessment - Mini - pat
Clinical acumen - Mini - CEX
Case based discussion
Direct Observation of Procedural skills - DOPS
Procedure based Assessment - PBAs
Log book of experience
Assigned educational supervisors report
Using evidence from learning agreements and WPBAs
ARCP
Deanery review of suitability to progress
MRCS
Generic core curriculum
Externally moderated evidence of acquisition of the core surgical syllabus but EXCLUDES speciality specific elements
Speciality specific element of requirements to enter ST3
learning agreements
Agreed with assigned trainer for that given training interval
Workplace based assessments
Peer assessment - Mini - pat
Clinical acumen - Mini - CEX
Case based discussion
Direct Observation of Procedural skills - DOPS
Procedure based Assessment - PBAs
Log book of experience
Assigned educational supervisors report
Using evidence from learning agreements and WPBAs
ARCP
Deanery review of suitability to progress
FRCS towards the end of training
Any part of the ST1 and ST2 AND the core curriculum can be tested at this level

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 $CT2_1$ (*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.

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.

[1] **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 our 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.

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.
Section 3-10 **© BOA 2010**
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

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 outlaid 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
Section 3-12 © **BOA 2010**
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

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

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

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.

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

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

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

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, CTpulmonary 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

Module 5 Peri-operative care

Role of duplex scanning, venography and d-dimer measurement
Initiate and monitor treatment of venous thrombosis and pulmonary embolism
Initiation of prophylaxis
Antibiotics:
Appropriate prescription of antibiotics
Assess and plan preoperative nutritional management
Arrange access to suitable artificial nutritional support, preferably via a nutrition team
including Dietary supplements, Enteral nutrition and Parenteral nutrition
Metabolic and endocrine disorders
History and examination in patients with endocrine and electrolyte disorders
Investigation and management of thyrotoxicosis and hypothyroidism
Investigation and management of hypercalcaemia and hypocalcaemia
Peri-operative management of patients on steroid therapy
Peri-operative management of diabetic patients
Investigation and management of hyponatraemia
Investigation and management of hyperkalaemia and hypokalaemia
Technical Skills
and Procedures
Central venous line insertion
Urethral catheterisation

Module 6

Assessment and management of patients with trauma (including the multiply injured patient)

Objective Assess and initiate management of patients with chest trauma
who have sustained a head injury
who have sustained a spinal cord injury
who have sustained abdominal and urogenital trauma
who have sustained vascular trauma
who have sustained a single or multiple fractures or dislocations
who have sustained traumatic skin and soft tissue injury
who have sustained burns
Safely assess the multiply injured patient.
Contextualise any combination of the above
Be able to prioritise management in such situation as defined by ATLS, APLS etc
Knowledge General
Scoring systems for assessment of the injured patient
Major incident triage
Differences In children

Shock
Pathogenesis of shock
Shock and cardiovascular physiology
Metabolic response to injury
Adult respiratory distress syndrome
Indications for using uncross matched blood
Wounds and soft tissue injuries
Gunshot and blast injuries
Stab wounds
Human and animal bites
Nature and mechanism of soft tissue injury
Principles of management of soft tissue injuries
Principles of management of traumatic wounds
Compartment syndrome

Module 6

Assessment and management of patients with trauma (including the multiply injured patient)

Burns
Classification of burns
Principle of management of burns
Fractures
Classification of fractures
Pathophysiology of fractures
Principles of management of fractures
Complications of fractures
Joint injuries
Organ specific trauma
Pathophysiology of thoracic trauma
Pneumothorax
Head injuries including traumatic intracranial haemorrhage and brain injury
Spinal cord injury
Peripheral nerve injuries
Blunt and penetrating abdominal trauma
Including spleen
Vascular injury including iatrogenic injuries and intravascular drug abuse
Crush injury
Principles of management of skin loss including use of skin grafts and skin flaps
Clinical Skills General
History and examination

Investigation
Referral to appropriate surgical subspecialties
Resuscitation and early management of patient who has sustained thoracic, head, spinal, abdominal or limb injury according to ATLS and APLS guidelines
Resuscitation and early management of the multiply injured patient
Specific problems
Management of the unconscious patient
Initial management of skin loss
Initial management of burns
Prevention and early management of the compartment syndrome
Technical Skills
and Procedures
Central venous line insertion
Chest drain insertion
Diagnostic peritoneal lavage
Urethral catheterisation
Suprapubic catheterisation

Module 7 Surgical care of the Paediatric patient

Objective To assess and manage children with surgical problems, understanding the similarities and differences from adult surgical patients
To understand the issues of child protection and to take action as appropriate
Knowledge Physiological and metabolic response to injury and surgery
Fluid and electrolyte balance
Thermoregulation Safe prescribing in children
Principles of vascular access in children
Working knowledge of trust and Local Safeguarding Children Boards (LSCBs) and Child Protection Procedures
Basic understanding of child protection law

Module 8 Management of the dying patient

Objective Ability to manage the dying patient appropriately.
Palliative Care: Good management of the dying patient in consultation with the palliative care team.
Knowledge Palliative Care:
Care of the terminally ill
Appropriate use of analgesia, antiemetics and laxatives
Principles of organ donation:
Circumstances in which consideration of organ donation is appropriate
Principles of brain death
Understanding the role of the coroner and the certification of death
Clinical Skills Palliative Care:

Symptom control in the terminally ill patient
Principles of organ donation:
Assessment of brain stem death
Certification of death

Module 9 Organ and Tissue transplantation

Objective To understand the principles of organ and tissue transplantation
Knowledge Principles of transplant immunology including tissue typing, acute, hyperactute and chronic rejection
Principles of immunosuppression
Tissue donation and procurement
Indications for whole organ transplantation
The Professional Behaviour and leadership elements are mapped to the leadership curriculum as laid out by the Academy of Medical Royal Colleges. The assessment of these areas is a thread running through the curriculum and this makes them common to all of the disciplines of surgery. For this reason, assessment techniques for this element of the curriculum are summarised in the final column.
Understanding of Children's rights
Working knowledge of types and categories of child maltreatment, presentations, signs and other features (primarily physical, emotional, sexual, neglect, professional)
Understanding of one personal role, responsibilities and appropriate referral patterns in child protection
Understanding of the challenges of working in partnership with children and families
Recognise the possibility of abuse or maltreatment
Recognise limitations of own knowledge and experience and seek appropriate expert advice
Urgently consult immediate senior in surgery to enable referral to paediatricians
Keep appropriate written documentation relating to child protection matters
Communicate effectively with those involved with child protection, including children and their families
Clinical Skills History and examination of the neonatal surgical patient
History and examination of paediatric surgical patient
Assessment of respiratory and cardiovascular status
Undertake consent for surgical procedures (appropriate to the level of training) in paediatric patients

Module 10 Professional Behaviour and Leadership Mapping to Leadership Curriculum

Assessment technique

Category *Good Clinical Care*

To include:
History taking
Physical examination
Time management and decision making
Clinical reasoning
Therapeutics and safe prescribing
Patient as a focus of clinical care
Patient safety
Infection control

Area 4.1

Objective To achieve an excellent level of care for the individual patient

To elicit a relevant focused history (See modules 2, 3, 4,5)
To perform focused, relevant and accurate clinical examination (See modules 2,3,4,5)
To formulate a diagnostic and therapeutic plan for a patient based upon the clinic findings (See modules 2,3,4,5)
To prioritise the diagnostic and therapeutic plan (See modules 2,3,4,5)
To communicate a diagnostic and therapeutic plan appropriately (See modules 2,3,4,5)
To produce timely, complete and legible clinical records to include case-note records, handover notes, and operation notes
To prescribe, review and monitor appropriate therapeutic interventions relevant to clinical practice including non – medication based therapeutic and preventative indications (See module 1,2,3,4,5)
To prioritise and organise clinical and clerical duties in order to optimise patient care
To make appropriate clinical and clerical decisions in order to optimise the effectiveness of the clinical team resource.
To prioritise the patient‘s agenda encompassing their beliefs, concerns expectations and needs
To prioritise and maximise patient safety:

To understand that patient safety depends on
- The effective and efficient organisation of care
- Health care staff working well together
- Safe systems, individual competency and safe practice

To understand the risks of treatments and to discuss these honestly and openly with patients

Area 4.1

Mini CEX, CBD, Mini PAT, MRCS and Specialty FRCS

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum

Assessment technique

To systematic ways of assessing and minimising risk

To ensure that all staff are aware of risks and work together to minimise risk

To manage and control infection in patients, including:

Controlling the risk of cross-infection

Appropriately managing infection in individual patients

Working appropriately within the wider community to manage the risk posed by communicable diseases

Examples and descriptors for Core Surgical Training

Patient assessment

Obtains, records and presents accurate clinical

history and physical examination relevant to the clinical presentation, including an indication of patient's views
Uses and interprets findings adjuncts to basic examination appropriately e.g. internal examination, blood pressure measurement, pulse oximetry, peak flow
Responds honestly and promptly to patient questions
Knows when to refer for senior help
Is respectful to patients by
- Introducing self clearly to patients and indicates own place in team
- Checks that patients comfortable and willing to be seen
- Informs patients about elements of examination and any procedures that the patient will undergo

Clinical reasoning

In a straightforward clinical case develops a provisional diagnosis and a differential diagnosis on the basis of the clinical evidence, institutes an appropriate investigative and therapeutic plan, seeks appropriate support from others and takes account of the patients wishes

Record keeping

Is able to format notes in a logical way and writes legibly
Able to write timely, comprehensive, informative letters to patients and to GPs

Time management

Works systematically through tasks and attempts to prioritise
Discusses the relative importance of tasks with more senior colleagues.
Understands importance of communicating progress with other team members

Module 10 Professional Behaviour and

Leadership Mapping to Leadership Curriculum Assessment technique

Patient safety

Participates in clinical governance processes
Respects and follows local protocols and guidelines
Takes direction from the team members on patient safety
Discusses risks of treatments with patients and is able to help patients make decisions about their treatment
Ensures the safe use of equipment
Acts promptly when patient condition deteriorates
Always escalates concerns promptly

Infection control

Performs simple clinical procedures whilst maintaining full aseptic precautions
Follows local infection control protocols
Explains infection control protocols to students and to patients and their relatives
Aware of the risks of nosocomial infections.

Area 4.1

Module 10 Professional Behaviour and Leadership Mapping to Leadership Assessment Technique

Category *Being a good communicator*

To include:
Communication with patients
Breaking bad news

Communication with colleagues
N/A
Objective Communication with patients
To establish a doctor/patient relationship characterised by understanding, trust, respect, empathy and confidentiality
To communicate effectively by listening to patients, asking for and respecting their views about their health and responding to their concerns and preferences
To cooperate effectively with healthcare professionals involved in patient care
To provide appropriate and timely information to patients and their families
Breaking bad news
To deliver bad news according to the needs of individual patients
Communication with Colleagues
To recognise and accept the responsibilities and role of the doctor in relation to other healthcare professionals.
To communicate succinctly and effectively with other professionals as appropriate
To present a clinical case in a clear, succinct and systematic manner

PBA, DOPS, Mini CEX, Mini PAT and CBD

Examples and descriptors for Core Surgical Training

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Assessment Technique

Conducts a simple consultation with due empathy and sensitivity and writes accurate records thereof
Recognises when bad news must be imparted.
Able to break bad news in planned settings following preparatory discussion with seniors
Accepts his/her role in the healthcare team and communicates appropriately with all relevant members thereof

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Assessment Technique

Category *Teaching and Training* N/A
Objective To teach to a variety of different audiences in a variety of different ways
To assess the quality of the teaching
To train a variety of different trainees in a variety of different ways
To plan and deliver a training programme with appropriate assessments
Mini PAT, Portfolio assessment at ARCP

Examples and descriptors for Core Surgical Training

Prepares appropriate materials to support teaching episodes
Seeks and interprets simple feedback following teaching
Supervises a medical student, nurse or colleague through a simple procedure
Plans, develops and delivers small group teaching to medical students, nurses or colleagues

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum

Assessment Technique

Category ***Keeping up to date and understanding how to analyse information***

Including:
Ethical research
Evidence and guidelines
Audit
Personal development

Area 1.3

Objective To understand the results of research as they relate to medical practise
To participate in medical research
To use current best evidence in making decisions about the care of patients
To construct evidence based guidelines and protocols
To complete an audit of clinical practice
At actively seek opportunities for personal

Mini PAT, CBD, Portfolio assessment at ARCP, MRCS and specialty FRCS

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum

Assessment Technique

development
To participate in continuous professional development activities
Area 1.3
Examples and descriptors for Core Surgical Training
Defines ethical research and demonstrates awareness of GMC guidelines
Differentiates audit and research and understands the different types of research approach e.g. qualitative and quantitative
Knows how to use literature databases
Demonstrates good presentation and writing skills
Participates in departmental or other local journal club
Critically reviews an article to identify the level of evidence
Attends departmental audit meetings
Contributes data to a local or national audit
Identifies a problem and develops standards for a local audit
Describes the audit cycle and take an audit through the first steps
Seeks feedback on performance from clinical supervisor / mentor / patients / careers / service users
Area 1.3
Area 1.3

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum

Assessment Technique

Category *Manager*

Including:
Self Awareness and self management
Team-working
Leadership
Principles of quality and safety improvement
Management and NHS structure
Area 1.1 and 1.2
Area 2
Area 4.2, 4.3, 4.4
Area 3
Objective Self awareness and self management
To recognise and articulate one's own values and principles, appreciating how these may differ from those of others
To identify one's own strengths, limitations and the impact of their behaviour
To identify their own emotions and prejudices and understand how these can affect their judgment and behaviour
Area 1.1 and 1.2
Mini PAT and CBD

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum Assessment Technique

To obtain, value and act on feedback from a variety of sources
To manage the impact of emotions on behaviour and actions
To be reliable in fulfilling responsibilities and commitments to a consistently high standard
To ensure that plans and actions are flexible, and take into account the needs and requirements of others
To plan workload and activities to fulfill work

requirements and commitments with regard to their own personal health

Team working

To identify opportunities where working with others can bring added benefits

To work well in a variety of different teams and team settings by listening to others, sharing information, seeking the views of others, empathising with others, communicating well, gaining trust, respecting roles and expertise of others, encouraging others, managing differences of opinion, adopting a team approach

Leadership

To develop the leadership skills necessary to lead teams effectively. These include:

Identification of contexts for change

Application of knowledge and evidence to produce an evidence based challenge to systems and processes

Making decision by integrating values with evidence

Evaluating impact of change and taking corrective action where necessary

Principles of quality and safety improvement

To recognise the desirability of monitoring performance, learning from mistakes and adopting no blame culture in order to ensure high standards of care and optimise patient safety

To critically evaluate services

To identify where services can be improved

To support and facilitate innovative service improvement

Management and NHS culture

To organise a task where several competing priorities may be involved

To actively contribute to plans which achieve service goals

To manage resources effectively and safely

To manage people effectively and safely

To manage performance of themselves and
Area 2
Area 5
Area 4.2, 4.3 and 4.4
Area 3
Mini PAT, CBD and Portfolio assessment during ARCP
Mini PAT, CBD and Portfolio assessment during ARCP
Mini PAT, CBD and Portfolio assessment during ARCP
Mini PAT, CBD and Portfolio assessment during ARCP

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum	Assessment Technique
others	
To understand the structure of the NHS and the management of local healthcare systems in order to be able to participate fully in managing healthcare provision	
Examples and descriptors for Core Surgical Training	

Self awareness and self management
Obtains 360° feedback as part of an assessment
Participates in peer learning and explores leadership styles and preferences
Timely completion of written clinical notes
Through feedback discusses and reflects on how a personally emotional situation affected communication with another person
Learns from a session on time management
Team working
Works well within the multidisciplinary team and recognises when assistance is required from the relevant team member
Invites and encourages feedback from patients
Demonstrates awareness of own contribution to patient safety within a team and is able to outline the roles of other team members.
Keeps records up-to-date and legible and relevant to the safe progress of the patient.
Hands over care in a precise, timely and effective manner
Supervises the process of finalising and submitting operating lists to the theatre suite
Leadership
Complies with clinical governance requirements of organisation
Presents information to clinical and service managers (e.g. audit)
Contributes to discussions relating to relevant issues e.g. workload, cover arrangements using clear and concise evidence and information
Quality and safety improvement
Understands that clinical governance is the over-arching framework that unites a range of quality improvement activities
Participates in local governance processes
Maintains personal portfolio
Engages in clinical audit
Questions current systems and processes

Management and NHS Structures
Participates in audit to improve a clinical service
Works within corporate governance structures
Demonstrates ability to manage others by
Area 1.1 and 1.2
Area 2
Area 5
Area 4.2, 4.3, 4.4

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum Assessment Technique

teaching and mentoring juniors, medical students and others, delegating work effectively,
Highlights areas of potential waste
Area 3

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum Assessment Technique

Category P*romoting good health*
Objective To demonstrate an understanding of the determinants of health and public policy in relation to individual patients
To promote supporting people with long term conditions to self-care
To develop the ability to work with individuals and communities to reduce levels of ill health

and to remove inequalities in healthcare provision
N/A MRCS, specialty FRCS, CBD, Mini PAT
Examples and descriptors for Core Surgical Training
Understands that —quality of lifell is an important goal of care and that this may have different meanings for each patient
Promotes patient self care and independence
Helps the patient to develop an active understanding of their condition and how they can be involved in self management
Discusses with patients those factors which could influence their health

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum Assessment Technique

Category: *Probity and Ethics*
To include:
Acting with integrity
Medical Error
Medical ethics and confidentiality
Medical consent
Legal framework for medical practise
Area 1.4
Objective To uphold personal, professional ethics and values, taking into account the values of the organisation and the culture and beliefs of individuals
To communicate openly, honestly and inclusively

To act as a positive role model in all aspects of communication
To take appropriate action where ethics and values are compromised
To recognise and respond the causes of

Area 1.4 Mini PAT and CBD, PBA, DOPS, MRCS, specialty FRCS

Module 10 Professional Behaviour and Leadership

Mapping to Leadership Curriculum Assessment Technique

medical error
To respond appropriately to complaints
To know, understand and apply appropriately the principles, guidance and laws regarding medical ethics and confidentiality as they apply to surgery
To understand the necessity of obtaining valid consent from the patient and how to obtain
To understand the legal framework within which healthcare is provided in the UK
To recognise, analyse and know how to deal with unprofessional behaviours in clinical practice, taking into account local and national regulations
Understand ethical obligations to patients and colleagues
To appreciate an obligation to be aware of personal good health

Examples and descriptors for Core Surgical

Training
Reports and rectifies an error if it occurs
Participates in significant event audits
Participates in ethics discussions and forums
Apologises to patient for any failure as soon as an error is recognised
Understands and describes the local complaints procedure
Recognises need for honesty in management of complaints
Learns from errors
Respect patients' confidentiality and their autonomy
Understand the Data Protection Act and Freedom of Information Act
Consult appropriately, including the patient, before sharing patient information
Participate in decisions about resuscitation status, withholding or withdrawing treatment
Obtains consent for interventions that he/she is competent to undertake
Knows the limits of their own professional capabilities

Area 1.4
Area 1.4
Area 1.4

j) ASSESSMENT OF THE CORE CURRICULUM

The purpose of the assessment system is to:
Determine whether trainees are meeting the standards of competence and performance specified at various stages in the curriculum for surgical training
Provide systematic and comprehensive feedback as part of the learning cycle.
Determine whether trainees have acquired the generic and specialty-based knowledge, clinical judgement, operative and technical skills, and professional skills and behaviour required to enter ST3 in any of the nine defined surgical specialities.
Address all the domains of Good Medical Practice and conform to the principles laid down by the Postgraduate Medical Education and Training Board.
The individual components of the assessment system are:
The learning agreement
Workplace based assessments covering skills, knowledge, behaviour and professional behaviour

A logbook of procedures undertaken which provides corroborative evidence of experience
An examination designed to assess the knowledge and skills acquired within the generic curriculum. – the MRCS
The assigned educational supervisors' report
Annual review of competence progression. (ARCP)

Learning agreements

At each training interval (usually six months) a trainee will meet with their Assigned Educational Supervisor initially, part way through and finally to construct and ultimately sign off the outcome of a learning agreement. Each learning agreement is predicated by already acquired experience and competency signed off at previous ARCPs or on completion of Foundation or its equivalent. Their principal purpose is to set an agenda for a training interval and to agree milestones and assessment episodes which will be used to formulate the educational supervisor's report regarding the rate of progression on the agreed educational trajectory.

Workplace Based Assessments

The workplace based assessments used during core training are:
Peer assessment tool (Mini-PAT)
Mini-clinical evaluation exercise (Mini CEX)
Case Based Discussion (CBD)
Direct Observation of Procedural Skills in Surgery (DOPS)
Procedure based assessment (PBA)

Purpose of WPBAs

WPBAs have the primary purpose of providing short loop feedback between trainers and their trainees – a formative assessment to support learning. They are designed to be mainly trainee driven but may be trainer triggered. The number of types and intensity of each type of WPBA in any one assessment cycle will be initially determined by the Learning Agreement fashioned at the beginning of a training period and regularly reviewed. The intensity may be altered to reflect progression and trainee need. For example a trainee in difficulty would undertake more frequent assessments above an agreed base line for all trainees. In that sense WPBAs meet the criterion of being adaptive.

In particular these workplace based assessments are designed to:
Provide feedback to trainers and trainees
The most important use of the workplace-based assessments is in providing trainees with an opportunity to assess their own learning and use that assessment to inform and develop their own practice. Each assessment is scored only for the purpose of providing meaningful feedback on one encounter. The assessments should be viewed as part of a process throughout training, enabling trainees to build on assessor feedback and chart their own progress.
Provide information for trainers and training supervisors to aid in their construction of training supervisors reports.
Like all medical training disciplines we recognise that the use of assessments for learning as part of an overall assessment of learning has theoretical disadvantages. However it is important that patient safety considerations are paramount and so ongoing monitoring is essential.

These formative assessments of learning are also used as evidence of progression and so inform (not dictate) the training supervisor‘s report which is the first appraisal step prior to the ARCP. The ARCP is the principal review of Learning which determines progression.
Contribute towards a body of evidence held in the learning portfolio and made available for the annual review of competence progression (ARCP) panel and planned educational reviews.
All assessment data is stored in the trainee‘s electronic portfolio. Although the principal role of workplace assessment is to support learning, the summary evidence will be used to inform the annual review process. This process results in decisions to how well the trainee is progressing. At the end of a period of training, the trainee‘s whole portfolio will be reviewed. The accumulation of assessments for learning will be only one of a range of indicators in an overall assessment of learning that inform the decision as to satisfactory completion of that period training at the annual review of competence progression.

Peer Assessment Tool

The mini-PAT, previously described as 360° assessment or multi-source feedback (MSF), is a method of assessing professional competence within a team-working environment and providing developmental feedback to the trainee. The mini-PAT assessment is undertaken every three years in specialty training. For core training first occasion will be at entry level (CT1) and for most the next assessment will be at the time of entry to specialty training (ST3). It should be used more often if there are areas of concern.
Surgical trainees work as part of a multi-professional team with other people who have complementary skills. Trainees are expected to understand the range of roles and expertise of team members in order to communicate effectively to achieve high quality service for patients. Mini-PAT comprises a self-assessment and assessments of a trainee‘s performance from a range of co-workers. It uses up to 12 assessors with a minimum of 8. Assessors are chosen by the trainee and will always include the assigned educational supervisor and a range of colleagues covering different grades and environments (e.g. ward, theatre, outpatients) but not administrators or patients.
Feedback is in the form of a peer assessment chart that enables comparison of the self-assessment with the collated views received from co-workers for each of the 16 competencies on a 6-point scale including a global rating. The competencies map across to the standards of Good Medical Practice and to the core objectives of the intercollegiate surgical curriculum.
The assigned educational supervisor will meet with the trainee to discuss the feedback on performance in the mini-PAT. Trainees are not given access to individual assessments. Assigned educational supervisors sign off

the trainee‘s mini-PAT assessment and make comments for the annual review. They can also recommend a repeat mini-PAT. The method enables serious concerns, such as those about a trainee‘s probity and health, to be flagged up in confidence to the assigned educational supervisor, enabling appropriate action to be taken.

Mini Clinical Evaluation Exercise

The mini-CEX is a method of assessing skills essential to the provision of good clinical care and to facilitate feedback. It assesses the trainees‘ clinical and professional skills on the ward, on ward rounds, in Accident and Emergency, or in outpatient clinics. It was designed originally by the American Board of Internal Medicine but has been contextualised to the surgical environment.
Trainees will be assessed on different clinical problems that they encounter from within the curriculum in a range of clinical settings. Trainees are encouraged to choose a different assessor for each assessment but

one of the assessors must be the current assigned educational supervisor. Each assessor must be registered with ISCP and have expertise in the clinical problem.
The assessment involves observing the trainee interact with a patient in a clinical encounter. The areas of competence covered include: history taking, physical examination, professionalism, clinical judgement, communication skills, organisation/efficiency and overall clinical care. Most encounters should take between 15-20 minutes.
Assessors do not need to have prior knowledge of the trainee. The assessor‘s evaluation is recorded on a structured checklist that enables the assessor to provide developmental verbal feedback to the trainee immediately after the encounter. Feedback would normally take about 5 minutes.

Case Based Discussion

CBD was developed for the foundation training period and has been contextualised to the surgical environment. This tool is designed to assess clinical judgement, decision-making and the application of medical knowledge in relation to patient care in cases for which the trainee has been directly responsible. The method is particularly designed to test higher order thinking and synthesis as it allows assessors to explore deeper understanding of how trainees compile, prioritise and apply knowledge. CBD is not focused on the trainees‘ ability to make a diagnosis nor is it a viva-style assessment.
The process is a structured, in-depth discussion between the trainee and assigned educational supervisor about how a clinical case was managed by the trainee; talking through what occurred, considerations and reasons for actions. By using clinical cases that offer a challenge to the trainee, rather than routine cases, the trainee is able to explain the complexities involved and the reasoning behind choices they made. It also enables the discussion of the ethical and legal framework of practice. It uses patient records as the basis for dialogue, for systematic assessment and structured feedback. As the actual record is the focus for the discussion, the assessor can also evaluate the quality of record keeping and the presentation of cases.
Most assessments take no longer than 15-20 minutes. After completing the discussion and filling in the assessment form, the assigned educational supervisor should provide immediate feedback to the trainee. Feedback would normally take about 5 minutes.

Direct Observation of Procedural Skills (DOPS)

The Surgical version of DOPS is used to assess the trainees‘ technical, operative and professional skills in a range of basic diagnostic and interventional procedures, or parts of procedures, during routine surgical practice and facilitate developmental feedback. Surgical DOPS is used in relatively simple environments and procedures and can take place in wards or outpatient clinics as well as in the operating theatre. It is a surgical version of an assessment tool originally developed and evaluated by the UK Royal Colleges of Physicians.

The surgical DOPS form can be used routinely every time the trainer supervises a trainee carrying out one of the specified procedures, with the aim of making the assessment part of routine surgical training practice. The procedures reflect the procedures which are routinely carried out at the trainees‘ workplace.
The assessment involves an assessor observing the trainee perform a practical procedure within the workplace. Assessors do not need to have prior knowledge of the trainee. The assessor‘s evaluation is recorded on a structured checklist that enables the assessor to provide verbal developmental feedback to the trainee immediately afterwards. Trainees are encouraged to choose a different assessor for each assessment but one of the assessors must be the current assigned educational supervisor. Most procedures take no longer

than 15-20 minutes. The assessor will provide immediate feedback to the trainee after completing the observation and evaluation. Feedback would normally take about 5 minutes.
The surgical DOPS form is scored for the purpose of providing feedback to the trainee. The overall rating on any one assessment can only be completed if the entire procedure is observed. A judgement will be made at completion of the placement as to the overall level of performance achieved in each of the assessed surgical procedures.

Procedure-based Assessment

PBAs assess trainees' technical, operative and professional skills in a range of specialty procedures or parts of procedures during routine surgical practice up to the level of CCT. PBAs provide a framework to assess practice and facilitate feedback in order to direct learning. The PBA was originally developed by the Orthopaedic Competence Assessment Project (OCAP) for trauma and orthopaedic surgery and has been further developed by the SACs for use in all surgical specialties.
The assessment tool uses two principal components:
A series of competencies within six domains. Most of the competencies are common to all procedures, but a relatively small number of competencies within certain domains are specific to a particular procedure.
A global assessment that is divided into four levels of overall global rating. This gives the trainer's view on the level to which completed elements of the PBA were performed. The highest rating is the ability to perform the procedure (or selected elements) to the standard expected of a specialist in practice within the NHS (the level required for the Certificate of Completion of Training - CCT).
The assessment form is supported by a worksheet, originally used as a validating the tool. It contains descriptors outlining examples desirable and undesirable behaviours that assist the assessor in making judgements.
The procedures chosen should be representative of those that the trainee would normally carry out at that level and will be one of an indicative list of procedures relevant to the specialty (selected by the SAC). The trainee generally chooses the timing and makes the arrangements with the assessor. Usually the assessor will be the trainee's assigned educational supervisor, but it is anticipated that other surgical consultants may take on the assessment of certain procedures depending on the trainee's work pattern. Trainees are encouraged to request assessments on as many procedures as possible with a range of different assessors.
Assessors do not need to have prior knowledge of the trainee. The assessor will observe the trainee undertaking the agreed sections of the PBA in the normal course of workplace activity (usually scrubbed). Given the priority of patient care, the assessor must choose the appropriate level of supervision depending on the trainee's stage of training. Trainees will carry out the procedure, explaining what they intend to do throughout. The assessor will provide verbal prompts to encourage the trainee to give explanations, if required, and intervene if the quality of patient care is at risk of compromise.

The log book of procedures

This is a web based compilation of all procedures witnessed or performed under varying degrees of supervision during the training intervals. It is validated by supervising trainers after being generated by trainees. It is web based and distinguishes between passive and active involvement in both operative and ward based procedures as laid out in the curriculum.

k) EXAMINATIONS

Introduction- Core surgical trainees will take the MRCS examination. The MRCS will assess knowledge and skills that are encompassed within the generic component of the core curriculum and is blueprinted to the curriculum. It is inevitable that although this is an assessment of the generic curriculum, the assessment will take place within a specialty context.

The written component consists of a MCQ and EMI (Extended matching item questions) combined into a single part A. These two components address knowledge and applied knowledge in the generality of surgery.

Part B consists of an Objective Structured Clinical Examination (OSCE). The precise design and structure are provided in the appendix. The overall design of the OSCE tests skills and applied knowledge as detailed below. It is innovative in that it has some optional elements which permit some choice in the contexts of which the core skills and knowledge may be tested. This is explained in more detail below. In addition to the part A anatomical assessments the OSCE also provides candidates with the opportunity to demonstrate their three dimensional anatomical knowledge in the context of their likely future surgical career, without losing the vital need to ensure a thorough overall grip of generic three dimensional surgical anatomy.

Both Parts A and B must be completed to pass the MRCS.

Trainees will typically take the examination towards the end of the CT2/ST1 year, which has the following advantages:

If the candidate is unsuccessful, there will be an opportunity to re-sit the examination during CT3/ST2, prior to entry to ST3.

Progression to ST3 will NOT BE POSSIBLE unless the MRCS is achieved.

Such timing will fit well with the timetable currently in place for selection into ST3.

A more detailed description of the scope and format of the MRCS examination

The purpose of the MRCS examination is to determine that trainees have acquired the knowledge, skills and attributes required for the generic component of core training in surgery and, for trainees following the Intercollegiate Surgical Curriculum Programme, to determine their ability to progress to higher specialist training in surgery.

The MRCS examination consists of two parts, A & B. Although divided into two parts, the Intercollegiate MRCS is a single examination.

Part A

The MRCS Part A is a machine-marked, multiple choice, written, examination testing knowledge. It consists of two papers, each of two hours' duration, taken on the same day. The marks for both papers are combined to give a total mark for Part A. To achieve a pass the candidate will be required to demonstrate a minimum level of knowledge in each of the two papers, in addition to achieving or exceeding the pass mark set for the combined total mark for Part A. The papers cover generic surgical sciences and applied knowledge, including the core knowledge required in all nine specialties.

Paper 1 - Applied Basic Science.

This paper consists of 135 questions and employs the single best answer (SBA) format, each question containing five possible answers of which there is only one single best answer.

Paper 2 - Principles of Surgery-in-General.

This paper consists of 135 questions and employs the extended matching questions (EMQ) format. Each

theme contains a variable number of options and clinical situations. Only one option will be the most appropriate response to each clinical situation. It is possible for one option to be the answer to more than one of the clinical situations.

Part B

The MRCS Part B is an Objective Structured Clinical Examination (OSCE). The OSCE will normally consist of eighteen examined stations. These stations will be divided into four broad content areas as follows:

- Anatomy and surgical pathology
- Applied surgical science and critical care
- Communication skills
- Clinical and procedural skills.

All of the examined stations are ‗manned'. Some of the stations will have two examiners and some one. In stations with two examiners, each examiner will normally be examining different aspects of a candidate's performance.

Specialty context stations

The OSCE is designed for candidates in the generality part of their speciality training and twelve of the 18 examined stations are ‗generic'. However, to meet the emerging intentions of trainees with regard to future career progression, and to accommodate different patterns of specialty training, six of the 18 examined stations are presented within a specialty context: one in the broad content area of anatomy and surgical pathology, two in clinical skills (history taking) and three in clinical skills (physical examination).

The specialty contexts are:

head and neck
trunk and thorax
limbs (including spine)
neurosciences.

Candidates must specify their choice of specialty context stations at the time of application to the examination. Their choice determines the same specialty context area for anatomy and surgical pathology, clinical skills (history taking) and one of the clinical skills (physical examination) stations. Candidates must choose a different specialty context area for the other clinical skills (physical examination) stations. It is important to emphasise that this optional element is simply to be able to demonstrate generic skills and some knowledge and its application in a context most familiar to the candidates. It is not to test deep knowledge in designated speciality areas. We believe that this is a unique feature of the new examination and one that caters best for the variety and choice inbuilt into our new approach to early year's surgical training. In effect candidates may only choose not to be examined in the context of one speciality area; this seems fair in that all surgeons should understand surgery in broad context but head and neck surgeons need less understanding in the context of say abdominal surgeons and vice versa.

N.B. THE CHOICE OF SPECIALITY CONTEXT STATIONS IS NOT DELINEATED IN THE AWARD OF MRCS. Successful candidates all are awarded exactly the same diploma as a measure of their core surgical competencies.

Domains

In addition to the four broad content areas examined in the OSCE, four domains have been identified which

encompass the knowledge, skills, competencies and professional characteristics of the competent surgeon. These domains map to GMC's Good Medical Practice (GMP) and are assessed in the OSCE. They are as follows:
Anatomy and surgical pathology
Applied surgical science and critical care
Communication skills
Clinical and procedural skills
The four domains are assessed via the 18 stations of the OSCE. Each station will assess all four different domains, as described above.

SPECIALTY SPECIFIC ELEMENTS REQUIRED TO MEET THE ST3 COMPETENCY IN ANY GIVEN SURGICAL DISCIPLINE

NB: The following pages summarise the requirements of individual specialties. Entry requirements to ST3 published by individual specialties and approved by PMETB should be regarded as the primary document where there is any discrepancy. For surgery most of the requirements are common for all nine disciplines and are described in the table below. The details for each speciality specific ST1 and 2 section are described including the time expected to be spent in that discipline during early years training such that a candidate is eligible for ST3 entry. If a candidate wishes to change from one discipline to another at any stage before entry into ST3 this may prolong their training as completion of the mandatory period in the speciality is still a requirement as well as completing all the early years educational goals laid out below. In practice any wish to ladder from one discipline of surgery to another is easier the earlier the decision is made and in practice once selected into ST3 changing discipline will be extremely difficult and time consuming.

Eligibility for entry into ST3

These build on the entry requirements for entry into ST1/CT1. Criteria for entry are expanded upon on later in this document.

Application requirements to enter Specialty Training at ST3 in any discipline	**Essential When Evaluated**[6]
Qualifications MBBS or equivalent medical qualification	
Successful completion of MRCS or equivalent at time of application	
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 centre[7]	

Evidence of achievement of Early years competencies in core training.
Evidence of achievement of ST1 speciality specific competences in surgery at time of appointment
Application form
Interview / Selection centre
Evidence that a candidate will reasonably have a prospect of achieving ST2 speciality specific competences by August of the year of application
Application form
Interview / Selection centre
Fitness To Practise Is up to date and fit to practise safely Application form
References
Language Skills 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

6 'when evaluated' is indicative, but may be carried out at any time throughout the selection process
7 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.

Application requirements to enter Specialty Training at ST3 in any discipline
Essential When Evaluated[8]
Health
Meets professional health requirements (in line with GMC standards/Good Medical Practice)
Application form
Pre-employment health screening
Career
Progression
Ability to provide a complete employment history

At least 24 months' experience[9] in surgical training (not including Foundation modules), of which a specified period of time in the speciality applied for by August of the year of appointment. The specified me period is described below for each of the 9 surgical disciplines

Application form

Application Completion

ALL sections of application form completed FULLY according to written guidelines

Application form

Given that entry at the ST3 level of competency must permit an individual to progress in their chosen speciality, then it is imperative that the competencies of all ST3 entrants are at the same level. This is also preferable in the speciality element also. However it needs to be pragmatically recognised that given a rich and varied choice of early years programmes, having everyone at exactly the same level in terms of the details of their WPBAs will be extremely difficult to achieve, although all must meet a minimum standard.

Trainees who have been selected despite some remediable and identified gaps in their speciality specific curriculum competencies as demanded overall for ST3 progression must ensure these are dealt with expeditiously during ST3. All these gaps must be addressed by the time of a ST3 ARCP as part of their overall permission to progress to ST4. They must be specifically addressed through local learning agreements with educational supervisors. Trainees with identified gaps must be accountable to the training programme directors whom in turn must address this as part of their report to the ARCP process.

The top up requirements for Trauma and Orthopaedics are described below.

What may be expected of a trainee by the time they become eligible to commence ST3 in Trauma and Orthopaedic surgery (T&O)

In order to meet the job specifications of an ST3 trainee an early year's trainee must take a clear role in the T & O surgical team, managing clinic and ward based patients under supervision, with an emphasis on trauma patients. They will need to be able to take part in a fracture clinic and see patients themselves with the consultant available for advice. This will mean the trainee understanding protocols and policies of the fracture service which is a pivotal element of Trauma and Orthopaedic practice in general. Therefore in early years training, IN ADDITION to the generic competencies for all surgeons, it is necessary to address the specifics of a developing interest in T & O during these years. This means spending one year in T & O in a service which gives trainees access to the appropriate learning opportunities. Also by the time a trainee enters ST3 they need to be familiar with the trauma operating room environment and have also observed some elective practice, although the latter is simply desirable. It is essential that early years trainees gain operative experience in the management of simple ankle fractures and fractures of the femoral neck as these are extremely common.

8 'when evaluated' is indicative, but may be carried out at any time throughout the selection process

9 Any time periods specified in this person specification refer to full time equivalent

Trainees must attend morning trauma meetings and ward rounds, prepare operating lists for trauma, attend trauma operating sessions and actually perform some surgery under appropriate supervision, and manage all patients in a T & O ward environment, preoperatively and post operatively. This includes recognising and initiating the management of common T & O complications and emergencies, over and above those already laid out in the generic curriculum, particularly module 2.

The range of conditions a trainee needs to manage are laid out below and in the depth demonstrated in a text book such as **Apley's System of Orthopaedics and Fractures** by Louis Solomon, David Warwick, and Selvadurai Nayagam include

1. Simple fractures and dislocations

To be able to provide the early care of the injured including the management of simple fractures and dislocations

2. Soft tissue injuries

To be able to recognise and manage soft tissue injury including sprains, contusions, crushing and simple wounds

3. Ankle fractures

To be able to understand and recognize the varying patterns of ankle fractures including their initial and definitive management.

4. Proximal femoral fractures in the elderly

To be able to understand and recognize the varying fracture patterns, predisposing causes, investigation, operative management and rehabilitation of proximal femoral fracture patients.

5. Distal radial fractures

To be able to understand and recognise the varying fracture patterns, predisposing causes, operative management (manipulation, cast treatment, K-wire fixation and ORIF) and rehabilitation of distal radial fractures.

Early Years training in Trauma and Orthopaedic Surgery

Objective Provide experience in the early care of the injured, learn to manage simple fractures and dislocations and have some evidence of operative experience as the surgeon in ankle and extra capsular hip fractures

Knowledge Anatomy and physiology of the locomotor system and spinal cord

Understanding of imaging techniques (e.g. MRI, CT, bone scan, USS) as applied to bone and musculoskeletal soft tissues

Patho-physiology of bone healing.

Principles of management of fractures. Including the principles of internal and external fixation of long bone and peri-articular fractures

Principles of management of joint dislocations

Principles in the management of open Vs closed fractures

Principles of Management of pathological fractures

Details of management of ankle and hip fractures including classification and definitive treatment

Early Years training in Trauma and Orthopaedic Surgery

Clinical Skills Examination of the limbs and joints
Perform a neurological examination in the presence of a nerve root compression or spinal injury
Interpretation of plain radiographs
Ability to describe a fracture/ dislocation from an x ray
Classification of closed and open fractures,
Assessment, investigation and management of low velocity closed fractures and dislocations encountered in a fracture clinic.
Ability to prescribe rehabilitation and work with the hospital and community based interdisciplinary team

Technical Skills and Procedures

Closed manipulation and reduction of simple fractures and dislocations.
Techniques of immobilisation including casting and safe splintage of these injuries
Simple ankle and or olecranon fracture fixation under supervision
Surgical fixation of extra capsular fractures of the femoral neck under supervision.
Performance of a hemiarthroplasty under supervision

Assessment

The speciality elements of the early years will all be assessed primarily in the workplace and then scrutinised in the Annual Review of Competency Progression. All these documents would be included in a portfolio which would contribute as evidence in subsequent applications to enter ST3. All (with the exception of the final ARCP) should be available at the time of application to enter ST3.
Specific evidence includes

Assessment type	**Subject**	**Level of achievement**
DOPS	a selection of types and numbers of each type according to learning agreements	Complete
	Application of a secondary cast	Complete
	Closed reduction of a fracture	Complete
	Removal of a K wire	Complete
	Intra articular injection of a knee or shoulder	Complete
	Debriding a simple wound	Complete
	Opening and closure of a wound	Complete

Complete
Case Based
Discussions
One per attachment Complete
CEX Examples of examination of Shoulder, Spine
(including neurological examination), Elbow,
Hand and Wrist, Hip, Knee, Ankle, Foot
Complete
PBAs Ankle fracture fixation
Fixation of an extra capsular fracture
Hemi arthroplasty of the hip
Average level 2
Average level 2
Average level 2
Training Supervisors
report
Evidenced by the above WPBA Complete
ARCP for each specified
training interval
As per local Deanery specifications Completed to level expected of
candidate entering ST3
MRCS Generic syllabus Complete

I) SELECTION INTO A SURGICAL DISIPLINE

This document has laid out the potential careers pathways for early years training up to and including the broad outlines of selection into surgery and/or its nine SAC defined disciplines.

The responsibility for setting standards and criteria for selection out of Foundation in the UK or its equivalent standard for those from overseas rests with the Royal Colleges of Surgery which operates in this case through the JCST and its nine SACs.

Postgraduate Deaneries and their schools of surgery are responsible for running training schemes and for recruitment and selection at all levels of pre CCT training including into ST1/CT1 and ST3.

The requirements for ST/CT1are laid out on later in this document as are those for ST3.

Selection takes place in the core/themed, run through and ST3 in selection centres run either by individual Deaneries and Schools or in clusters arranged either by discipline or collaborations by a series of schools. Some of these clusters aim for a national selection process for the whole of a discipline (for example, urology, cardiothoracic surgery and neurosurgery and others through practical problems posed by size and volume to regionally orientated groups (for example General and Trauma and Orthopaedic surgery.

This is part of ongoing work and evaluation. The judgements are made according to nationally agreed standards tabulated below. The criteria apply to both levels of entry and different levels of depth depending on the stage of application (CT1/ST1 or ST3) are calibrated through selector training before selection centres take place.

SELECTION CRITERIA

Essential	**Desirable**	**When Evaluated**[10]
Clinical Skills Technical Knowledge & Clinical Expertise:		
Capacity to apply sound clinical knowledge & judgement & prioritise clinical need		
Demonstrates appropriate technical competence & evidence of development of excellent diagnostic skills & judgement		
Validated logbook documentation of surgical exposure to date		
Personal Attributes:		
Shows aptitude for practical skills, e.g. hand-eye coordination, dexterity, visuospatial awareness		
Attendance at relevant courses, e.g. ATLS, Basic Surgical Skills or equivalent		
Application form		
Interview /Selection centre		
References		

10 'when evaluated' is indicative, but may be carried out at any time throughout the selection process

SELECTION CRITERIA

Essential	**Desirable**	**When Evaluated**[11]
Academic/ Research Skills		
Research Skills:		
Demonstrates understanding of the basic principles of audit, clinical risk management & evidence-based practice		
Understanding of research basic research principles, methodology & ethics, with		

potential to contribute to research

Teaching:

Evidence of contributing to teaching & learning of others

Evidence of relevant academic & research achievements, e.g. degrees, prizes, awards, distinctions, publications, presentations, other achievements

Evidence of active participation in audit

Evidence of participation in risk management and/or clinical/laboratory research

Application form

Interview / Selection centre

Personal Skills Judgement under Pressure:

Capacity to operate effectively under pressure & remain objective in highly emotive/pressurised situations

Awareness of own limitations & when to ask for help

Communication Skills:

Capacity to communicate effectively & sensitively with others, able to discuss treatment options with patients in a way they can understand

Problem Solving:

Capacity to think beyond the obvious, with analytical and flexible mind

Capacity to bring a range of approaches to problem solving

Situation Awareness:

Capacity to monitor and

anticipate situations that may change rapidly

Decision Making:

Demonstrates effective judgement and decisionmaking skills

Leadership & Team Involvement:

Capacity to work effectively in a multi-disciplinary team & demonstrate leadership when appropriate

Capacity to establish good working relations with others

Application form
Interview / Selection centre
References

Application form
Interview / Selection centre
References

11 'when evaluated' is indicative, but may be carried out at any time throughout the selection process

SELECTION CRITERIA

Essential Desirable When Evaluated[12]

Personal Skills

(continued…)

Organisation & Planning:

Capacity to manage time and prioritise workload, balance urgent & important demands and follow instructions

Understands importance & impact of information systems

Probity Professional Integrity:

Takes responsibility for own actions, demonstrates respect for the rights of all.

Demonstrates awareness of ethical principles, safety, confidentiality & consent

Aware of importance of being the patients' advocate, clinical governance & responsibilities of an NHS employee
Application form
Interview /Selection centre
References

Commitment To Specialty

Learning & Development:

Shows realistic insight into Trauma and Orthopaedics and the demands of a surgical lifestyle
Demonstrates knowledge of training programme & commitment to own development
Shows critical & enquiring approach to knowledge acquisition, commitment to self-directed learning & reflective/analytical approach to practice
Extracurricular activities / achievements relevant to a particular discipline
Application form
Interview /Selection centre
References

12 'when evaluated' is indicative, but may be carried out at any time throughout the selection process

In the course of early years training, particularly in ST1 and 2 run-through models, T & O trainees will visit other specialties and vice versa. To facilitate these interactions a number of topics have been identified to form a brief focus for visiting trainees. These topics have been embedded into an ST1-2 learning agreement form which is included in this document asan appendix showing assessment tools and giving opportunity for reflection. This learning agreement is not intended to replace any systems or agreements in other specialties but only to support the visiting trainee and help them to maximise the learning from what may be a very brief period.

Trauma & Orthopaedics
Trauma resuscitation
Approach to multiple injury
Approach to back pain
Thromboprophylaxis in T & O
Approach to the painful joint
Assessment of the injured joint (knee/shoulder/wrist/hand/ankle)
Management of open fracture
Management of painful joint
Management of painful back
Cast for wrist fracture / below knee for ankle injury
Removal of K wire
Debridement traumatic/infected wound
Closed reduction +/- k-wiring of a wrist fracture
Reducing a trochanteric fracture on traction table
Approach for application of a DHS.
Approach to distal fibula for fracture.
Application of a plate to distal fibula
Application of DHS for inter-trochanteric fracture
Simple fractures and dislocations
Soft tissue injuries
Ankle fractures
Proximal femoral fractures in the elderly

Neurosurgery
Breaking bad news
Management of spinal cord or cauda equine compression
Neurological assessment and initial resuscitation of patient with coma or impaired consciousness
History and examination of a patient with spinal claudication
Application of skull traction / Burr hole / Insertion of intracranial pressure monito

Plastic Surgery
The multidisciplinary assessment of management of tibial fractures involving skin loss
Management of patients developing pressure sores
Assessment and non-operative management of

the burns patient
Examination of the injured hand
V-Y advancement / SSG / FTSG / Excision & local flap / Digital nerve block / Primary repair of extensor of
hand / Primary repair of flexor of hand / Wound exploration & debridement

General Surgery

Superficial sepsis, including necrotising infections
Venous disease and ulceration
Nutrition
Assessment of the acute abdomen history, examination or resuscitation
Assessment of patients with possible intraabdominal injuries
Treatment of benign lesions of skin and subcutaneous tissues
Diagnostic peritoneal lavage

The Early years curriculum outlined in Section 3 contains the syllabus for the MRCS examination and the general requirements to enter ST3. In this section we outline the specific requirements of T&O. These are the expectations and demands of the ST3 posts in T&O and should be seen as both complementary and supplementary to the early years curriculum. In this section the requirements are outlined in the same format as the 2006 curriculum. Tthe —ST1-2‖ columns of the syllabi in this submission, are still included in the main tables (8-5 onwards) for convenience.
This section of the curriculum also contains checklists for the trainee wishing to enter ST3 in T&O. These checklists utilise information listed elsewhere in this curriculum in a format to help the trainee reflect on their actual experience in the various formats of early years training.

a) FEATURES OF JOBS AND EXPERIENCE TO PREPARE FOR ENTRY

Job Features
Actual
Experience
Summary: A day in the life of an early years trainee

Care of traumatized patient
Orthopaedic emergencies

Managing patients in a busy orthopaedic unit
An introduction to elective orthopaedics
1. Attending referrals in A & E as first point of call
Will be first on to take calls from A & E
Will be supported by a more senior trainee as well as a consultant
2. Attending and participating in trauma conferences and receiving rounds
Presenting cases at the meeting
Having an input as to the overall management of the patient
Maintaining a perspective between surgical and medical expediencies for an individual patient
Building up an experience base from the discussions they are attendant to
3. Attending the Organising a trauma list
Section 5-2 **© BOA 2010**
Job Features
Actual Experience
Operating theatre
Liaising with theatre staff
Liaising with radiographers
Liaising with anaesthetists
Scrubbing and assisting
- Carrying out a range of procedures under supervision
  - Closed manipulation of fractures
  - Application of acute casts and slabs
  - Setting up a femoral neck fracture on the operating table
  - Doing an angled screw plate
  - Performing Hemiarthroplasty
  - Fixing a simple fracture such as an olecranon or a less complex ankle fracture

a. Mastering a limited range of

common trauma situations

Manipulation of most closed fractures and dislocations
Fixed angle screw plate for neck of femur fractures
Fixing a simple ankle fracture
Applying a simple external fixator
Doing a tension band

4. Basics of care of the elderly

Dehydration
Electrolyte imbalance
Common medical problems
Arranging for ongoing care
Rehabilitation team awareness

5. Post operative patient management on a ward

Fluid balance
Surgical complications
Bleeding
Infection
DVT and embolism

- Dislocation

- Medical complications

Chest pain
Stroke
Collapse
Pneumonia etc

6. Attending fracture clinics

Management of closed fractures
Recognising complications and what to do
Knowing when to refer or defer to a more experienced or expert opinion
Applying a secondary cast and or a brace

- Being able to communicate with colleagues in and out of hospital regarding patient management

- Being able to write clear notes
- Dictate and check a succinct letter to the GP

7. Preadmission

assessments
Work with the preadmission team
Supervise situations where the protocol is in question
Anticipate problems and trouble shoot
8. Attending selected orthopaedic clinics
Be exposed to assessment of any of a number of common problems such as arthritis
Be able to take a history
Be able to examine a patient
Generally
Musculoskeletally
Be able to participate in discussions about management
9. Acquiring basic anatomical and pathophysiological knowledge
Germane to surgery in a general sense
Germane to the levels required to train as an orthopaedic and trauma surgeon to the level of CCT

b) SPECIFIC KNOWLEDGE/SKILL REQUIREMENTS

This section defines in detail the knowledge and experience expected at ST3. It does not seek to define in any way the content of the selection process. It is possible to enter ST3 with gaps in knowledge or experience, this section tries to help trainees to define those gaps which will need to be filled in the early stages of ST3.
The knowledge level expected is indicated on the following four point scale:
1. knows of
2. knows basic concepts
3. knows generally
4. knows specifically and broadly

These are difficult terms to define precisely but it will be expected that a practicing surgeon (level 4) will not only be able to apply specific, detailed knowledge of a given condition or technique but also utilise a broad knowledge of orthopaedics and medicine to view any patient‘s situation holistically. Most crucially, trainees must demonstrate an appreciation that knowledge changes as research progresses, and so they must also possess and apply the relevant skills to keep themselves up to date. These skills are defined in the Professional Behaviour and Leadership syllabus of the curriculum.
The skills and procedures are assessed on the following four point scale:
1. has observed or knows of
2. can manage with assistance

3. can manage whole but may need assistance
4. competent to manage without assistance including complications
The core competencies for procedural skills are listed separately in this document.

c) OVERVIEW AND PRIORITIES

The detailed elements required in knowledge and application of knowledge should be reviewed in three areas which may be summarised as follows:-

1. Early years

In the first two years trainees focus predominantly in the area outlined in the early years curriculum found elsewhere in this document. All and every job available in the first two years of any programme must be capable of delivering and facilitating learning of this key syllabus. It is essential that all trainees demonstrate their acquisition of knowledge and its application by acquiring the Intercollegiate MRCS examination in full. Failure to do so will prevent progression to ST3 by any route, irrespective of what other educational milestones have been achieved.

2. Basic trauma

The predominant element of the T & O syllabus and curriculum at this level deals with trauma and its management. This is also laid out in detail in the curricular documents alluded to earlier. By the end of early years training trainees aspiring to enter ST3 in T & O must show competence in the overall management of non operative trauma and be conversant with operative trauma in general principle. Specifically they must be able to manage a limited range of techniques involved in treating fractures around the hip and simple internal fixations around the ankle or elbow. In terms of operative fixation this small selection contains very common technical problems. The techniques utilised to resolve them are very representative of the types and levels of skills which give an indication of a trainee's fitness to proceed to ST3. It follows that the underpinning knowledge and its application are required in the matching relevant areas and these are explained in detail elsewhere in this curriculum.

3. Broader trauma and elective experience

It is likely that early years trainees will also encounter a wider range of elective and trauma experience over and above the first two imperatives summarised above. It is important that such experience is used when available, reflected upon in the log book and supported by appropriate reading across the range of topics indicated in the orthopaedic curriculum. Such work is expected of committed career professionals. However, such records and reflections must not detract from the imperatives of area 1 (the early years/generality of surgery) and 2(the particular specifics of trauma surgery) alluded to above. In the future once the first two priorities are met then the committed trainee will be making a worthwhile start on their deeper and more extensively based reflective practice which will be required to achieve the CCT following entry to ST3.

d) DETAILED REQUIREMENTS

The column —ST1-2ll in the Applied Clinical Knowledge Syllabus and Applied Clinical Skills Syllabus beginning on Page 8-17 outline the detailed entry requirements for ST3. They should be used as a selfassessment/ reflective tool by any trainee aspiring to enter ST3 in T & O.

e) ASSESSMENT EVIDENCE REQUIRED

The assessment strategy is illustrated below

Assessment tools from foundation are continued into the early years (in particular ST1-2 in T & O). As training progresses more emphasis is placed on PBA's.

1) Learning Agreements

Evidence should be provided that learning agreements were set, reviewed and completed. Evidence of reflective practice such as presentations, research etc may be included but no absolute requirements are laid out in the curriculum.

2) Workplace Based assessments

Early years assessments

The assessment tools from foundation (DOPS, CBD, Mini-CEX, Mini-PAT, TAB) are available to the trainee and their supervisors. The curriculum requires evidence of progress (thus logically at least two of each assessments per attachment) but no absolute limits on how many assessments must be undertaken. In particular all surgical DOPS relating to T&O should be completed.

Direct Observation of Procedural Skills Completed?

Application of a secondary cast in the plaster room during a fracture clinic to a forearm or leg
Insertion of traction pins
Intra articular injections for joint aspiration
Removal of K wire
Opening and closure of a wound
Debriding a simple wound
Excision and direct suture of skin lesion
Use of Z-plasty

Procedure Based Assessments

As part of the trauma based early years elements of the curriculum certain procedures in Procedure Based Assessments including those listed below which are mandatory. [6-4]

Procedure Based Assessment Completed?

Operative Fixation of Weber B Fracture of Ankle
Hemiarthroplasty Intracapsular Fracture Neck of Femur

An early years trainee will not necessarily be expected to complete the whole PBA at level 4 but will certainly be expected to have attempted all elements of the above PBA's.

3) Formal knowledge Assessment

Before the end of early years/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.
MRCS exam must be passed before entering ST3.

Trauma and Orthopaedic Surgery is a specialty which encompasses the management of acute injuries and conditions and elective practice covering both congenital and acquired disorders of the bones, joints and their associated soft tissues, including ligaments, nerves and muscles.
Most consultants contribute to an emergency trauma service. For the majority of their working lives they will be expected to deal with bony and soft tissue injuries admitted through their local A & E Departments. The vast majority of surgeons also have a specialist elective interest in orthopaedic conditions often based on an anatomical region of the body including the following:
Lower limb joint reconstruction (hip and knee replacements and associated procedures).
Hip surgery
Knee surgery (bony and soft tissue)
Ankle and foot
Upper limb (shoulder and elbow)
Upper limb (hands)
Spine
Bone tumour surgery
The surgery of childhood
Rheumatoid surgery
Complex trauma surgery
A minority of surgeons have very highly specialised practices in one of these areas and an increasing proportion do not take part in general trauma surgery.
The award of a Certificate of Completion of Training (CCT) occurs at the completion of training once the Trainee has demonstrated a range of generic medical skills including team working and communication as well as evidence of competence in the general practice of orthopaedic and trauma surgery and the successful completion of the interspecialty examination. By the time they acquire the CCT they may already have developed a special interest in one of the above named areas.

a) RECRUITMENT INTO TRAUMA AND ORTHOPAEDICS

Orthopaedics and Trauma aspires to select all surgeons at the earliest possible stage using the most fair and effective methods available to the specialty.

b) PROGRAMME OF TRAINING

The early years ST1 and ST2 will enable those selected to show their capabilities and, subject to assessment, to pass seamlessly into ST3. It is anticipated that the majority of those entering the programme will need a further 6 indicative years after ST2 to achieve the standard dictated for the awarding of a CCT in T&O. Part of the later years (ST6+) assessment will include the successful completion of the Intercollegiate specialty examination.

c) ASSESSMENT

During the first year (ST1) we will utilise a Learning Agreement (including PBA assessments) within the first 8 months, enabling trainers and trainees to assess the trainee's progress and potential. This agreement will formally be reviewed on two occasions during this period by an ARCP/RITA-like process. A process of counselling will be instituted at an early stage if there is doubt on either side as to choice of career path or change of mind as to the direction of future career. The assessment tools for the early years are described

within this curriculum as are those for the later years of training.

The award of a Certificate of Completion of Training (CCT) occurs at the completion of training once the Trainee has demonstrated their competence in the entire range of skills, knowledge and attitudes described in Good Medical Practice, including competence in the general practice of orthopaedic and trauma surgery. By the time they acquire the CCT they may already have developed an interest in one of the above named specialist areas.

By the end of ST2 the trainee will have to demonstrate knowledge germane to the general principles of surgery and knowledge specific to training in Trauma and as orthopaedics. This is best done by MCQ and EMI.

The trainee will, as a normal part of their later training, begin to explore sub-specialist interests. This exploration will form a normal part of the learning agreement (s) and be subject to routine workplace based assessment (e.g. PBA) informing CCT (as any other attachment). The interest that many trainees develop at this stage will not be assessed in terms of specialty content for the purposes of CCT. It will, however, be a valuable developmental stage which will inform the trainee's own CPD agenda for the future.

Before the award of the CCT the trainee will need to demonstrate in a formal summative assessment of the curriculum the applied knowledge, skills, attitudes and judgements of an Orthopaedic surgeon practicing independently in the generality of the discipline.

d) CURRICULUM PHASES

The curriculum for T&O training is modular with the trainee rotating through a series of attachments aimed at providing a comprehensive appreciation of the range of disorders likely to present in later professional life.

The Initial Phase (ST1-2)

The initial phase ST1 stresses the learning of essential generic surgical principles shared by all surgical specialties and the acquisition of skills for the management of trauma. Initial focus will be fractures to the neck of the femur and to the ankle as well as a general ability to manage other low velocity fractures normally expected to be seen in A&E and admitted or referred on to fracture clinics. ST2 then expands the trauma vocabulary and consolidates generic surgical principles of in- and out- patient care as well as providing an introduction to the principles of modern elective orthopaedic practice by the commencement of the modular attachments, described below (intermediate phase).

The Intermediate Phase (ST3-6)

The next period of training takes the trainee to an intermediate level, usually involving six month specialist attachments in the sub specialist areas described above and referred to hereafter as Modules. The trainee would be expected to acquire in each area of orthopaedics a level of knowledge, skills and professionalism expected of a consultant surgeon practising in a district general hospital setting where they will be receiving trauma and managing most common orthopaedic conditions.

The Final Phase (ST7-8)

Following the acquisition of all or most competencies defined above, a further period of focused training and experience will be planned in one or more of the sub-specialist modules described above. This will be assessed as part of the CCT but this does not imply that sub-specialisation is completed at this stage (see above).

The Outcome of Training

A newly appointed consultant in T&O with CCT should be able to accept responsibility for the reception and initial management of the majority of unselected trauma cases and act as the primary consultant for the small number of rare orthopaedic emergencies which may occur. They will deal with the majority of these cases definitively. The consultant will also make appropriate referral to other specialists within the discipline, depending on local circumstances, for those patients who are best served by a colleague with a specific expertise.

The acquisition of a CCT will define an individual who could work in a multi disciplinary team with other more experienced surgeons. This individual would be expected to assess emergencies as they arise, resuscitate and definitively treat the majority, referring on some of the more specialised cases as described above. In the final phase of training, although the CCT holder will already have proven competencies in one or more of the specialist areas, further acquisition of skills, professionalism and knowledge in the sub specialist areas will continue during Continuous Professional Development. Any defined specialist interest will ultimately need to be competency proven, probably through peer review of a portfolio of work developed through CPD. The acquisition of a CCT permits the Orthopaedic Surgeon to be placed on the specialist register of the GMC as a T & O surgeon but gives no guarantee of appointment to a particular post. The final decision as to suitability for a Consultant appointment lies with the designated Appointment Committee and the job description.

Trainees who for whatever reason opt out of training prior to acquisition of CCT need special consideration. Those who choose to practice with less than the minimum level of training to achieve CCT will require supervision by a CCT holder.

Independent practice and full responsibility for action require a doctor who has reached the stage of being able to make critical and independent judgements. Even within focused specialty practice, such an individual requires training in the round, as evidenced by CCT.

We anticipate selection into Trauma and Orthopaedic Surgery being part of the national selection process into surgery taking place simultaneously in individual Deaneries across the UK. In time recruitment will be exclusively from F2.

The selection process will be non discriminatory; prior exposure to a T&O experience during F1/2 will not be an essential prerequisite although evidence of knowledge of, commitment to, and enthusiasm for T&O are all highly desirable attributes.

a) Entry Requirements for run through training

It is important that the knowledge, attitudes and skills that are required to be able to train and then practice as an Orthopaedic Surgeon are identified and verified in the selection process. The diagram above summarises desirable attributes in an individual wishing to train in T & O and are described in more detail below.

i. Knowledge

a. What an orthopaedic surgeon does
i. Trauma care
- Low velocity fractures make up the most part of care
- The management of multiply injured patients
- Fracture fixation

ii. Elective care
- How orthopaedics is divided up into sub-specialities
- Environments where elective care is administered

b. Core awareness of anatomy and pathology relevant to orthopaedic surgery
i. A knowledge of the basic lay out of the musculoskeletal system
ii. Some examples of applied anatomy
1. Nerve root origins and their significance
2. Joint structure and function
iii. Soft tissue pathophysiology
iv. Basic biomechanical awareness
v. The response of the body to trauma and surgery
c. How NHS practice relevant to orthopaedic surgery works in outline
i. The relationship between trauma and elective services

ii. Existing Skills

a. Evidence of testing themselves in surgical environments
i. Basic surgical skills
- Student exposure
- Voluntary exposure in Foundation

b. Basics of Trauma Life Support
More than statutory requirements in Foundation
c. Ability to work in a team and manage situations
i. Scenario discussions around team situations
ii. Situation awareness

iii. Attitudes

a. Portfolio demonstrating commitment
i. Student electives
ii. Student projects
iii. Published work
iv. Audits carried out
v. Intercalated degrees
vi. Other activities outwith the curriculum relevant to a career in orthopaedics
- Voluntary work
- Visits

b. Ability to describe their future development as a potential orthopaedic surgeon

iv. Ability to acquire skills

a. Being able to do simple tasks in the selection process

i. Knot tying
ii. Three dimensional orientation with a simple endoscopic model
b. Problem solving of simple orthopaedic situations
a) OSCE type settings of simple things
Looking at an x ray
Seeing the normal
See the obviously abnormal
Looking at a set of blood investigations related to bones and joints
b) Orthopaedic trauma case based discussions

b) Entry Process (early years)

An initial paper/electronic based selection process will match candidates against broad generic criteria indicating a propensity for surgical training. Selection into T & O will be facilitated by face-to-face interviews with Orthopaedic Surgeons as part of the selection process.
Selection centres will provide aptitude testing (as yet undefined) with smaller deaneries being part of a regional selection process to preserve a national standard for selection.

At present we expect that the selection centre will provide information linked to previous education and experience on the applicant's motivation (towards surgery in general and T&O in particular) together with a judgement as to their ability to be trained.

c) Entry into Later Years of Training

There will be a need to provide for entry into a variety of levels of training for those applying from research and academic posts, career posts, after assessment under Article 14 and periods of absence after career breaks.

1. Intermediate phase ST3-6

To permit entry into the later stages of training ST3-6 a selection process would be conducted in a similar manner to the earlier years entry with an initial electronic screening followed by selection against specialty specific criteria.
In order to standardise this process the specialty specific criteria will be developed in the first tranche of the —Further Work and Development‖ – Section 14. The basis of these criteria will be the competencies required to enter at each level.
For example entry to ST3 will require completion of the competencies required to successfully complete ST2 including the test of knowledge applied at this stage.

2. Final Phase ST6-8

It is anticipated that in order to access the final phases of training it would be necessary to have completed all the modular competencies equivalent to completing ST6 and to be able to demonstrate that the applicant had a level of knowledge sufficient to complete the Intercollegiate Specialty Exam in Trauma and Orthopaedics within 12 months of entering at this level.

d) Introduction to T & O Prior to Entry

Prior to entry into T&O the specialty will, in collaboration with Royal Colleges and specialist associations, make introductory material available to potential candidates in the form of Websites (information and contacts), Summer Schools (knowledge and experience) and Careers Fairs (contacts and questions).

e) ARTICLE 14

Those individuals applying to access the specialist register by having their evidence of training and experience assessed by the processes laid out under Article 14 will need to demonstrate that their skills, knowledge and attitudes are of the same standard as those who have achieved the CCT as described in this curriculum. Individuals who have been assessed under Article 14 as requiring additional skills and knowledge may need to enter training in order to fulfil these requirements. They will be considered for an earlier stage of training dependent on the requirements identified. .

a) OVERVIEW

The early years' syllabus is common to all nine SAC defined surgical disciplines and contains skills and knowledge expected of any surgeon in training. This syllabus has been presented earlier in this document as part of the early years curriculum (see Page 3-11)

The Syllabus specifically supporting T & O has three distinct elements which capture the skills, knowledge and attitudes required of a T & O surgeon practicing in a modern health service. All map back to Good Medical Practice which then permits the whole content to be associated with assessment, making a complete curriculum which is capable of being audited for scope and quality. The Professional and management syllabus has been imported from ISCP and is now common to all surgical specialties.

The three T & O components consist of:-

Applied Clinical Knowledge with specific application in the context of T&O.

Applied Clinical Skills, including core competencies which are applied in procedures which encompass the core of T & O surgical practice, and are tested in a selected group of key (or indicative) procedures.

Professional and Management, which brings together key competence groupings under GMP headings to emphasise knowledge, skills and attitudes which are essential both clinically and generally in order to be a practicing surgeon at the same time as practising the specifics of surgery.

This syllabus is also mapped to the AoMRC leadership syllabus.

These three elements are interdependent – for example being skilled manually but a poor communicator is no more acceptable than being indifferently skilled but a good communicator. We are in full sympathy with the public's expectation of surgeons to perform at the highest levels of skill and with appropriate attitudes in a patient centred approach to practice.

Applied Clinical Knowledge

This component contains that which underpins training in T&O and is essential both to contextualize skills and attitudes acquired in training and in order to practice as a T & O surgeon.

The knowledge level expected is indicated on the following four point scale:

1. knows of
2. knows basic concepts

3. knows generally
4. knows specifically and broadly

These are difficult terms to define precisely but it will be expected that a practicing surgeon (level 4) will not only be able to apply specific, detailed knowledge of a given condition or technique but also utilise a broad knowledge of orthopaedics and medicine to view any patient's situation holistically. Most crucially, trainees must demonstrate an appreciation that knowledge changes as research progresses, and so they must also possess and apply the relevant skills to keep themselves up to date. These skills are defined in the Professional Behaviour & Leadership skills section of the curriculum.(see page 8-11)

Applied Clinical Skills

In the early years of training trainees must acquire core technical skills expected of a surgeon in any discipline (e.g. suturing, soft tissue handling, sterile practice). Also they must acquire skills in straightforward orthopaedic practice, such as the application of a plaster or safe infiltration of a joint. These are dealt with in the generality syllabus.

A collection of core competencies have been identified through OCAP. These now form part of the Applied Clinical Skills syllabus (and form the basis for assessment through PBA's).

The trainee must demonstrate the same competence and skill in all procedures they eventually perform as a consultant.

The Procedures section of the syllabus contains all the operations currently listed in the T & O log book, in a format that ensures immediate resonance (and eventual electronic integration).

Assessment of competence in procedures is dealt with in depth in Section 10 of this curriculum (see Section 10-2). In order to facilitate workplace based assessment a number of key (indicative) procedures have been identified. These will be assessed in depth in the Procedure Based Assessment workplace assessment instrument described in Section 10-4. It is essential to realise that these key procedures do not encompass the whole practice of the discipline but do indicate the whole range of skills to be acquired by a competent T & O surgeon. Assessment (PBA) in the key procedures gives evidence as to the quality of a trainee's performance, their overall competence is assessed from this evidence set in the context of their entire logbook (quantity) of procedures. Trainees must make every effort (with the support of their local programme) to experience the scope of the whole procedures list in as much depth as is practicably possible. Trainees and trainers should aspire to a level of mastery and not just core competence.

The skills and procedures are assessed on the following four point scale:

1. has observed or knows of
2. can manage with assistance
3. can manage whole but may need assistance
4. competent to manage without assistance including complications

All key procedures (PBA) must be mastered to level 4 and the remainder at a minimum of level 2, except in rarer and very specialized areas when this will simply not be practicably possible. The detailed levels of all the procedures are indicated in the syllabus.

Professional Behaviour & Leadership

This syllabus/section incorporates clinical skills alongside general aspects of behaviour as a high grade professional. The two are deliberately integrated to reflect their essential and inseparable nature in day to day

practice. They map to Good Clinical Practice and the AOMRC Leadership syllabus. It cannot be over emphasized how important it is for a T & O surgeon to behave in an all round manner which is nothing less than exemplary at all times.

The syllabus at critical waypoints

Although training and education in the full scope of the curriculum are progressive and seamless there are convenient way points within key stages. These stages are described in detail in Section 9 which describes the learning opportunities and contextualizes them in the real world of clinical training. At these way points the trainee's progress through the syllabus may be helpfully reviewed.

The first way point is after what is termed the —early years‖. Here trainees and trainers must be able to be certain that career choice is correct and ability matches aspiration. The generality of surgical knowledge must be mastered and basic skills acquired. Once an NTN has been confirmed at the end of this period the trainee must be comfortable that they have both the motivation and the ability required to succeed.

The second way point is towards the end of training, after the middle years period, when the generality of the discipline will have been covered and competence demonstrated. The nature of training in the middle years will be modular and vary in style depending on the nature of local training programmes which are bound together by the standards set out in this curriculum. Towards the end of this period, or at the start of the next, a public demonstration of the acquisition of the skills, knowledge and attitudes expected of a T & O surgeon practicing in the generality of the discipline at the level of an NHS consultant must take place in the form of a Fellowship examination. Together with a portfolio of evidence of workplace based competency this will permit the trainee to enter the final stages described below.

In the last part of training the acquired competence will be honed into capability through gaining broader experience in the discipline and specific experience in a developing specialist interest converting a competent

trainee into a capable and flexible surgeon. The nature of this last part will vary and the different options are outlined in Section 9.

Standards and values

Mastery

The standards set in the three core elements we have described must not be set at the lowest common denominator as —competent‖. The culture of training programmes and aspirations of trainees must aspire to —Mastery‖, especially as specialist interests begin to be honed. Mastery means a continuing self reflection and drive by trainer and trainee alike to achieve the most from assessment and feedback. Self and peer assessment by trainees followed by constructive feedback from trainers who develop —adult – adult‖ learning environments with their trainees will ensure that training programmes —aim high‖.

Transparency

This syllabus is available to trainers and trainees alike – there are no separate documents or agendas. To monitor progress training programme directors will have more information about individual trainees but in general we wish to foster a culture of openness and transparency whilst respecting personal confidentiality appropriately.

Partnership

The curriculum lays out relationships of the key stakeholders around the premise that the trainee is responsible for her or his own learning. A mature partnership with designated trainers and training programme directors is

ملحق 3

مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير القياسية العامة, والمعاييرالمرجعية الخارجية

أ ـ المعرفة والفهم:

المعايير القياسية العامة لبرامج (Generic) الدراسات العليا (درجة الدبلوم)	External References Standards (Benchmark) المعايير الأكاديمية لجامعة British Orthopedic Association	المعايير الأكاديمية للبرنامج
1-1-2 التظريات والاساسيات والمعارف المتخصصة فى مجال التعلم وكذا العلوم ذات العلاقة بممارسته المهنية	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	1-1-2النظريات والاساسيات والحديث من المعارف فى جراحة العظام والمجالات ذات العلاقة(كالتشريح , الباثولوجى , الكيمياء الحيوية , الفارماكولوجى , علم الميكروبيولوجى و المناعة(

2-1-2 المبادئ الأخلاقية والقانونية للممارسة المهنية فى مجال التخصص	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	**2-1-2المبادئ الاخلاقية والقانونية للممارسة المهنية فى جراحة العظام**
3-1-2 مبادئ وأساسيات الجودة فى الممارسة المهنية فى مجال التخصص	To uphold personal, professional ethics and values, taking into account the values of the organization and the culture and beliefs of individuals	**3-1-2مبادئ واساسيات العمليات الجراحية فى مجال جراحة العظام**
4-1-2 تأثير لممارسة المهنية على البيئة والعمل على الحفاظ على البيئة وصيانتها	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	**4-1-2 معرفة اضرار العمليات الجراحية الخاطئة على المرضى و مدى تأثيرها على حياتهم .**

ب ـ القدرات الذهنية :

المعايير الأكاديمية للبرنامج	External References Standards (Benchmark) المعايير الأكاديمية لجامعة British Orthopedic Association	المعايير القياسية العامة لبرامج الدراسات (Generic) العليا (درجة الدبلوم)
2-2-1مواجهة أى مشاكل طارئة تحدث اثناء علاج المرضى و خصوصا بالطوارئ	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,	2-2-1 تحديد وتحليل المشاكل فى مجال التخصص وترتيبها وفقا لأولوياتها
2-2-2تقييم مخاطر العمليات الجراحية الغير مناسبة للحالة المرضية	Communicate effectively with patients and families using verbal, nonverbal and written skills as appropriate.	2-2-2 حل المشاكل المتخصصة فى مجال مهنته
2-2-3قراءة و استيعاب ابحاث علمية تفيد	To participate in continuous professional	2-2-3 القراءة التحليلية للأبحاث والمواضيع ذات العلاقة

المجتمع و تستطيع حل مشاكله بصورة غير مكلفة	development activities	**بالتخصص**
2-2-4تقييم المخاطر فى قسم الطوارئ المواجهة لحياة المرضى .	To prioritise and maximise patient safety.	**4-2-2 تقييم المخاطر فى المماراسات المهنية**
5-2-2 تقييم المعلومات المتاحة عن المريض و استنباط العلاج المناسب للحالة المرضية	To plan and deliver a training programme with appropriate assessments	**5-2-2 اتخاذ القرارات المهنية فى ضوء المعلومات المتاحة**

ج. مهارات مهنية وعملية :

المعايير الأكاديمية للبرنامج	**External References Standards (Benchmark)** **المعايير الأكاديمية لجامعة British Orthopedic Association**	**المعايير القياسية العامة لبرامج الدراسات (Generic) العليا (درجة الدبلوم)**
2-3-1اتقان جميع انواع	By the end of the	**1-3-2 تطبيق المهارات المهنية**

رد الكسور و التعامل مع حالات الطوارئ	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.	فى مجال التخصص
2-3-2كتابة 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.	2-3-2 كتابة التقارير المهنية
3-3-2 مساعدة الفريق الطبى فالعمليات الجراحية	Demonstrate an empathic approach to the assessment of all people with injuries or musculoskeletal disability in medical team.	

د . مهارات عامة :

المعايير الأكاديمية للبرنامج	External References Standards (Benchmark) المعايير الأكاديمية لجامعة British Orthopedic Association	المعايير القياسية العامة لبرامج (Generic) الدراسات العليا (درجة الدبلوم)
2-4-1التواصل مع اعضاء الفريق الطبى بصورة تخدم المريض و تحسن من الأداء العلاجى. .	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.	2-4-1 التواصل الفعال بأنواعه المختلفة
2-4-2استخدام اجهزة الكمبيوتر و الانترنت فى التعلم.	Be open to new ideas and developments that will improve patient care.	2-4-2 استخدام تكنولوجيا المعلومات بما يخدم تطير الممارسة المهنية
2-4-3التقييم الذاتى والتعليم المستمر و تطوير الأداء العملى بالطوارئ	Show a personal commitment to teaching and learning, and a willingness to develop as both a doctor and a teacher.	2-4-3 التقييم الذاتى ونحديد احتياجاته التعليمية الشخصية
2-4-4استخدام المصادر المختلفة للحصول على المعلومات والمعارف من		2-4-4 استخدام المصادر المختلفة للحصول على المعلومات والمعارف

		ابحاث و رسائل علمية و الانترنت .
5-4-2 العمل فى فريق وادارة الوقت		5-4-2العمل مع فريق طبى متكامل و القدرة على قيادة فريق طبى اثناء الطوارئ
6-4-2 قيادة فريق فى سياقات مهنية مألوفة		5-4-2 العمل مع فريق طبى متكامل و القدرة على قيادة فريق طبى اثناء الطوارئ
7-4-2 التعلم الذاتى والمستمر		6-4-2 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 (2013 – 2014)

- **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 5/9/2013.

- **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 are

- To have the professional knowledge about the anatomy and histology of upper limb.
- To describe the embryology of upper limb.

To have the professional knowledge about the anatomy and histology of lower limb 2

- 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 aprill – 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- <u>Facilities required for teaching and learning:</u>

Data show device for lectures

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assisstant 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 (2013 – 2014)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Physiology and Biochemistry Departments
- **Date of specification approval:** department council date 5/9/2013.

Faculty council date 15/9/2013

- **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

- To have the professional knowledge about the physiology of the human body.
- 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 aprill – 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- <u>Facilities required for teaching and learning:</u>

Data show device for lectures

Course coordinator:

Professor Dr. Alhusseiny Moustafa

Assisstant 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 (2013 – 2014)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Pharmacology Department.
- **Date of specification approval:** department council 5/9/2013.

Faculty council date 15/9/2013

- **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 program 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 antiresoptive 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 aprill – 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

Assisstant 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 (2013 – 2014)

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

- **Date of specification approval:** department council 5/9/2013.

Faculty council date 15/9/2013

- **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

- To have the professional knowledge about the pathology of bone tumors.
- To define the pathology of orthopedic diseases.
- To have the professional knowledge about the pathology of bone infections.
- 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. 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:

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. Ostomyelitis.

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	**22.5**	**60%**

	(each time 1.5 hours)		
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) <u>Time schedule:</u>

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

Oral exam.

5-D) <u>Weighting system:</u>

Final written Examination 50 %

Oral and practical examination. 50 %

_____

Total 100%

6- <u>List of references:</u>

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 4Ul 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- <u>Facilities required for teaching and learning:</u>

-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

Assisstant 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 (2013 – 2014)

- **Department offering the program: Orthopedic** department
- **Department offering the course: MICROBIOLOGY AND IMMUNOLOGY**
- **Date of specification approval:** department council 5/9/2013.

Faculty council date 15/9/2013

- **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 it 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 discuss 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.d1Establish 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- <u>Course contents</u>:

• **Introduction to Microbiology** • **Cell Structure**
• **Safety procedure & Microscope**
• **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)

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) <u>TIME SCHEDULE</u>:

Exam	Week
Final exam	Either October or may

5-D) <u>Weighting System:</u>

Examination	Marks allocated	% of Total Marks
1- Final exam: a- Written b- Practical c- Oral	 60 65 25	 40% 43% 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%.

FORMATIVE ASSESSMENT:

- Student knows his marks after the Formative exams.

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 (2013 – 2014)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** General surgery department
- **Date of specification approval:** department council date 5/9/2013.

Faculty council date 15/9/2013

- **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 of the general surgery.

2.a.2. identify 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 affect 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)

5-C) <u>Time schedule:</u>

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

One written exams 3 hours in orthopedic diseases.

Assessment 1. Written examination

Assessment 2. Oral examination

5-D) <u>Weighting system:</u>

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.

Formative assessment:

Student knows his marks after the formative exams.

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.

Professor Dr. Alhusseiny Moustafa Course coordinator:

Professor Dr. Mohamed Salah Shawky Head of the department:

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 (2013 – 2014)

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

- **Date of specification approval:** department council 5/9/2013.

Faculty council date 15/9/2013

- **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. identify 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. analyze researches and issues related to orthopedic surgery and traumatology.

2.b4. 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) <u>Attendance criteria :</u> Faculty bylaws

5-B) <u>Assessment tools:</u>

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) <u>Time schedule:</u>

- Two sets of exams : 1st in aprill – 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) <u>Weighting system:</u>

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- <u>List of references:</u>

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

Assisstant 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 (2013 – 2014)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Orthopedic surgery and Traumatology department
- **Date of specification approval:** department council 5/9/2013.

Faculty council date 15/9/2013

- **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 and shoulder girdle.	24

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) <u>Time schedule:</u>

- Two sets of exams : 1st in aprill – 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) <u>Weighting system:</u>

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:

6.1- 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

Assisstant 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 (2013 – 2014)

- **Department offering the program:** Orthopedic surgery and Traumatology department
- **Department offering the course:** Orthopedic surgery and Traumatology department
- **Date of specification approval:** department council 5/9/2013.

Faculty council date 15/9/2013

- **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. explain 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.	15 hours

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. Ostomyelitis. 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.	15 hours

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
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) <u>Attendance criteria :</u> Faculty bylaws

5-B) <u>Assessment tools:</u>

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) <u>Time schedule:</u>

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

One written exams 3 hours in orthopedic diseases.

Assessment 1. Written examination

Assessment 2. Oral examination

5-D) <u>Weighting system:</u>

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.

Formative assessment:

Student knows his marks after the formative exams.

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 4Ul 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

Assisstant coordinator:

Dr. Mohamed Goda

Head of the department:

Professor Dr. Mohamed Salah Shawky

ملحق (5) مصفوفة المعارف والمهارات للبرنامج الدراسى

جامعة /بنها برنامج: Diploma degree of Orthopedic & Traumatology كلية /الطب

مصفوفة المعارف والمهارات للبرنامج الدراسى

المعارف Knowledge & Understanding														ILOs / Courses	
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		
											√		√	Orth 501	1-Anatomy
												√		Orth 502	2-Physiology
				√										Orth 503	3-Pharmacology
				√					√					Orth 504	4-Pathology
									√					Orth 505	5-Microbiology
			√											Orth 506	6-General surgery
	√				√		√			√				Orth 507	7-Orthopedics
√	√	√						√						Orth 508	8-Traumatology
				√		√	√		√					Orth 509	9-Surgical pathology

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مهارات ذهنية Intellectual Skills					ILOs Courses	
2.b.5	2.b.4	2.b.3	2.b.2	2.b.1		
		√			Orth 501	1-Anatomy
		√			Orth 502	2-Physiology
		√			Orth 503	3-Pharmacology
		√			Orth 504	4-Pathology
		√			Orth 505	5-Microbiology
		√			Orth 506	6-General surgery
		√	√	√	Orth 507	7-Orthopedics
√	√	√	√	√	Orth 508	8-Traumatology
√	√	√			Orth 509	9-Surgical pathology

مهارات عملية و مهنية Practical & Clinical Skills			ILOs Courses	
2.c.3	2.c.2	2.c.1		
		√	Orth 501	1-Anatomy
			Orth 502	2-Physiology
			Orth 503	3-Pharmacology
		√	Orth 504	4-Pathology
			Orth 505	5-Microbiology
			Orth 506	6-General surgery
		√		
√	√	√	Orth 507	7-Orthopedics
√	√	√	Orth 508	8-Traumatology
			Orth 509	9-Surgical pathology

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مهارات عامة General and transferable							ILOs Courses	
2.d.7	2.d.6	2.d.5	2.d.4	2.d.3	2.d.2	2.d.1		
							Orth 501	1-Anatomy
							Orth 502	2-Physiology
							Orth 503	3-Pharmacology
							Orth 504	4-Pathology
							Orth 505	5-Microbiology
							Orth 506	6-General surgery
√	√	√	√	√	√	√	Orth 507	7-Orthopedics
√	√	√	√	√	√	√	Orth 508	8-Traumatology
√							Orth 509	9-Surgical pathology