



RCSI SURGICAL
AFFAIRS

MASTERS (MCh) IN SURGICAL SCIENCE AND PRACTICE

PROGRAMME BROCHURE 2020-2021





MASTERS (MCh) IN SURGICAL SCIENCE AND PRACTICE – INTRODUCTION

KICK-START YOUR CAREER IN SURGERY

This Masters programme presents a truly exciting new approach to early surgical education and training. As a participant on this programme you will cover the entire curriculum for Core Surgical Training, as defined by the Intercollegiate Surgical

Curriculum Programme, in just 1 year.

The programme is an intensive full-time programme and will take place in the state-of-the-art simulation facilities at the new National Surgical and Clinical Skills Training Centre at RCSI the most advanced clinical simulation centre in Europe.

You will acquire core knowledge using advanced technology-enhanced learning techniques including simulated MDT meetings, case-based discussions, grand rounds, journal clubs and keynote presentations. You will also acquire clinical skills through immersive simulated ward rounds, outpatient clinics and “nights on-call” in the Emergency Department. There will be a major emphasis on skills acquisition (both technical skills and non-technical skills) and you will spend time every day in a variety

of simulation environments. In addition to the knowledge, skills and behaviours components, you will also undertake a module which addresses various elements of professional development including healthcare economics, surgical innovation and professional behaviours. Finally, you will undertake a research methodology module and prepare a 3,000 word research report.

Assessment of skills and documentation of competence will play an important part in the programme and your complete training portfolio will be housed on the RCSI Learning Space platform.

The overall aim of this programme is to prepare you to commence surgical training in the clinical environment at a more advanced level with documented and verifiable knowledge, skills and behaviours which will accelerate your training and contribute to enhanced patient safety.

Be part of it!!

Professor Oscar Traynor MCh FRCSI
Professor of Postgraduate Surgical Education

CONTENTS

1. COURSE OUTLINE AND SYLLABUS	4
2. MASTERS (MCh) IN SURGICAL SCIENCE AND PRACTICE - PROGRAMME OUTLINE	5
2.1. CORE KNOWLEDGE AND CLINICAL JUDGEMENT	6
Basic Sciences	6
• Surgical Anatomy	6
• Clinical Physiology	7
• Surgical Pathology	8
Clinical Surgery	8
• Perioperative Care	8
• Postoperative Management and Critical Care	9
• Surgical Technique and Technology	9
• Clinical Microbiology	9
• Principles of Surgical Oncology	10
• Emergency Medicine and Management of Trauma	10
• Management and Legal Issues in Surgery	10
• Cardiothoracic Surgery	10
• General Surgery	11
• Neurosurgery	12
• Oral and Maxillofacial Surgery	12
• Otorhinolaryngology, Head and Neck Surgery	12
• Paediatric Surgery	12
• Plastic and Reconstructive Surgery	12
• Trauma and Orthopaedic Surgery	12
• Urology	13
2.2 CLINICAL SKILLS	14
2.3 TECHNICAL SKILLS	15
Surgical Technical Skills Syllabus	15
• Generic	15
• General Surgery	16
• Trauma and Orthopaedic Surgery	17
• Urology	17
• Plastic and Reconstructive Surgery	18
• Otorhinolaryngology/Head & Neck Surgery	18
• Neurosurgery	18
• Maxillofacial Surgery	18
2.4 NON-TECHNICAL SKILLS	19
• Medical Error and Patient Safety	19
• Talking to Patients and Relatives	19
• Crisis Management	19
• Negotiation and Conflict Resolution	20
• Team Working and Leadership	20
• Disclosure of Error	20
2.5 PROFESSIONAL DEVELOPMENT	21
3 ENTRY REQUIREMENTS	23
4 FEES	24
5 APPLICATIONS	25
6 QUERIES / CONTACT DETAILS	27

01

COURSE OUTLINE AND SYLLABUS

This Masters programme is designed to give prospective surgical trainees the essential knowledge, skills and behaviours required to maximise your competitiveness for entry to surgical training programmes anywhere in the world. The Masters is a 1-year, full-time programme delivered entirely in RCSI's new National Surgical and Clinical Skills Centre. The facilities of the new centre will be used to develop trainees clinical skills and also the technical and non-technical skills required to optimise opportunities for their entry onto a structured programme of postgraduate surgical training.

THE CONTENT OF THE PROGRAMME WILL BE DELIVERED THROUGH FIVE MODULES:

01 CORE KNOWLEDGE AND CLINICAL JUDGEMENT

Students will be provided with tuition and learning resources for both the Basic Sciences and Clinical Surgery. Clinical judgment training will focus on diagnoses and clinical decision-making.

02 CLINICAL SKILLS

Students will develop the skills necessary to obtain a comprehensive patient history, conduct a thorough physical examination, perform basic clinical tests and interpret data in a spectrum of patient care settings.

03 TECHNICAL SKILLS

This module will teach fundamental surgical skills and basic surgical procedures in a non-critical environment using simulation technology and a faculty of experienced surgeons.

04 NON-TECHNICAL SKILLS

Decision-making, communication, teamwork and leadership, self-awareness and insight, conflict resolution and error management play a key role in surgical practice and will be explored in this module.

05 PROFESSIONAL DEVELOPMENT

This module will focus on areas such as healthcare process improvement /LEAN healthcare/ 6-Sigma, healthcare economics, technology/medical device innovation etc.

02

MASTERS (MCh) IN SURGICAL SCIENCE AND PRACTICE - PROGRAMME OUTLINE

MODULE TITLE	CREDITS	TOTAL HOURS	ACTIVITY HOURS					
			FACE TO FACE INSTRUCTION		SELF-DIRECTED LEARNING		ASSESSMENT	
			Skills Lab/ Classroom	Pre-course work	Self-directed learning	Independent Skills Practice	Formal Knowledge / Skills assessment	Continuous Assessment & assignments
TAUGHT MODULES – 80 CREDITS								
Core Knowledge and Clinical Judgement	15	375	160 hours	60 hours	80 hours	70 hours	5 hours	n/a
Clinical Skills	10	250	100 hours	50 hours	45 hours	n/a	5 hours	50 hours
Technical Skills	30	750	325 hours	130 hours	125 hours	80 hours	15 hours	75 hours
Non-Technical Skills	15	375	160 hours	60 hours	80 hours	70 hours	5 hours	n/a
Professional Development	10	250	100 hours	50 hours	45 hours	n/a	5 hours	50 hours
RESEARCH PROJECT AND REPORT – 10 CREDITS								
Research Project and Report	10	250	55 hours		100 hours		Report – 95 hours	

2.1

CORE KNOWLEDGE AND CLINICAL JUDGEMENT

The core knowledge requirements for students on this Masters programme include both **Basic Sciences** and **Clinical Surgery**. These requirements will be taught through interactive case-based discussions, simulated MDT meetings, journal clubs and grand rounds. Traditional classroom lectures will be replaced by experiential learning, whereby students will “learn by doing”.

BASIC SCIENCES

SURGICAL ANATOMY

It is not possible to practice surgery without a thorough knowledge and understanding of the three dimensional anatomy of the human body. A knowledge of both normal and abnormal anatomy is essential, not only to practice operative surgery, but also to understand and interpret clinical signs and modern imaging techniques. The Syllabus for Surgical Anatomy outlines the structures and organs with which the surgeon needs to be familiar. Participants on this programme should understand and recognise the arrangement of the basic structures in the body:

BONES

Be able to identify, name and orientate the principal bones and joints of the body. Know the major muscle groups and tendons.

BLOOD VESSELS

Know the course and distribution of the major arteries and veins in the body.

NERVES

Know the major nerves and nerve groups (motor and sensory) and associated dermatomes.

LYMPHATICS

Know and understand the principal lymph node groups and lymphatic channels in the body.

HISTOLOGY

Have a basic understanding of the microscopic structure of organs which are of surgical relevance (e.g. layers of the intestine, breast, blood vessels, skin, endocrine glands and abdominal organs).

EMBRYOLOGY

Have a basic knowledge of the developmental anatomy and surgical embryology of the major parts of the body and appreciate the developmental basis of common congenital abnormalities encountered in surgical practice (e.g. Meckel's diverticulum, hydrocele, branchial cyst).

Clearly, students require a detailed knowledge of certain parts of the body (e.g. abdomen and pelvis) and will also be provided with tuition of all parts of the body:

- ABDOMEN, PELVIS AND PERINEUM
- THORAX
- UPPER LIMB
- LOWER LIMB
- HEAD AND NECK
- CENTRAL NERVOUS SYSTEM

CLINICAL PHYSIOLOGY

Participants on this programme will require a knowledge of the physiological principles that will help them to understand surgical pathology and disease processes. An appreciation of abnormal physiology and how to treat it will ultimately lead to better outcomes for surgical patients.

- GENERAL PHYSIOLOGY





SYSTEM SPECIFIC PHYSIOLOGY

- Respiratory system
- Cardiovascular system
- Gastrointestinal System
- Renal System
- Endocrine System
- Central Nervous System

SURGICAL PATHOLOGY

- Students on this Masters will also receive tuition on general and system-specific pathology.

GENERAL PATHOLOGY

- Inflammation
- Wound healing
- Cellular injury and cell death (necrosis and apoptosis)
- Vascular disorders
- Disorders of growth, differentiation and morphogenesis
- Tumours
- Surgical Immunology
- Surgical Haematology
- Lymphoreticular system

SYSTEM SPECIFIC PATHOLOGY

- Nervous system
- Musculoskeletal system
- Respiratory system
- Breast disorders
- Cardiovascular system
- Endocrine system
- Genitourinary System
- Gastrointestinal system

CLINICAL SURGERY

Students will receive instruction in Clinical Surgery which covers the assessment and preparation of the patient, anaesthesia and critical care, inflammation, wound healing and infection, and the key components of general surgical practice as follows:

PERIOPERATIVE CARE

- Assessment of Fitness for Surgery
- Management of Associated Medical Conditions
- Preparation for Surgery
- Principles of Anaesthesia



- Monitoring of the Anaesthetised Patient
- Care of the Patient Under Anaesthesia
- Haematological Problems in Surgery
- Blood Transfusions

POSTOPERATIVE MANAGEMENT AND CRITICAL CARE

- Anaesthetic Management
- Metabolic and Nutritional Support
- Postoperative Complications

SURGICAL TECHNIQUE AND TECHNOLOGY

- Surgical Wounds
- Surgical Technique
- Diathermy, Lasers and Cryotherapy
- Surgical Procedures
- Tourniquets in the Operating Theatre

CLINICAL MICROBIOLOGY

- Surgical Microbiology
- Prevention of Infection
- Modern Antibiotic Usage
- Surgery in Hepatitis and HIV Carriers



PRINCIPLES OF SURGICAL ONCOLOGY

- Principles of Carcinogenesis
- The Molecular Biology of Cancer
- Screening Programmes
- Clinico-Pathological Staging of Cancer
- Principles of Cancer Treatment
- Palliative Care

EMERGENCY MEDICINE AND MANAGEMENT OF TRAUMA

- Pathophysiology of Trauma
- Initial Assessment
- Management of the Unconscious Patient
- Traumatic Wounds
- Management of Soft Tissue Loss
- Traumatic Oedema
- Eye Surgery
- Management and Legal Issues in Surgery
- Evidence-based Surgical Practice
- Management Aspects of Surgical Practice
- Communication Skills and Human Factors

MANAGEMENT AND LEGAL ISSUES IN SURGERY

- Evidence-based Surgical Practice
- Management Aspects of Surgical Practice
- Communication Skills and Human Factors

CARDIOTHORACIC SURGERY

- Haemodynamic Control
- Cardiac Surgery
- Thoracic Trauma
- Thoracotomy and Chest Drainage
- Surgical Disorders of the Lung
- Complications of Thoracic Operations
- Pneumothorax and Empyema Thoracis

GENERAL SURGERY

ABDOMEN

- Abdominal Trauma
- Common Abdominal Problems
- Abdominal Emergencies
- Abdominal Hernias
- Intestinal Fistulas
- Gastrointestinal Stomas
- Surgery of Spleen

GASTROINTESTINAL SURGERY

- Upper Gastrointestinal Surgery
- Colorectal Surgery
- Hepatobiliary Surgery
- Pancreatic Surgery

BREAST AND ENDOCRINE SURGERY

- Common Breast Disorders
- Carcinoma of the Breast
- Surgery of the Thyroid Gland
- Parathyroid Disorders
- Adrenal Disorders and Secondary Hypertension
- Endocrine Disorders of the Pancreas

VASCULAR SURGERY

- Arterial Surgery
- Venous Disorders of the Lower Limbs
- Lymphoedema

TRANSPLANTATION SURGERY

- Organ Transplantation



NEUROSURGERY

- Neurological Trauma
- Surgical Disorders of the Brain
- Intracranial Haemorrhage
- Surgical Aspect of Meningitis
- Rehabilitation

ORAL AND MAXILLOFACIAL SURGERY

- Maxillofacial Trauma

OTORHINOLARYNGOLOGY, HEAD AND NECK SURGERY

- Ear, Nose and Throat Disorders
- Common Neck Swellings
- Salivary Gland Disorders

PAEDIATRIC SURGERY

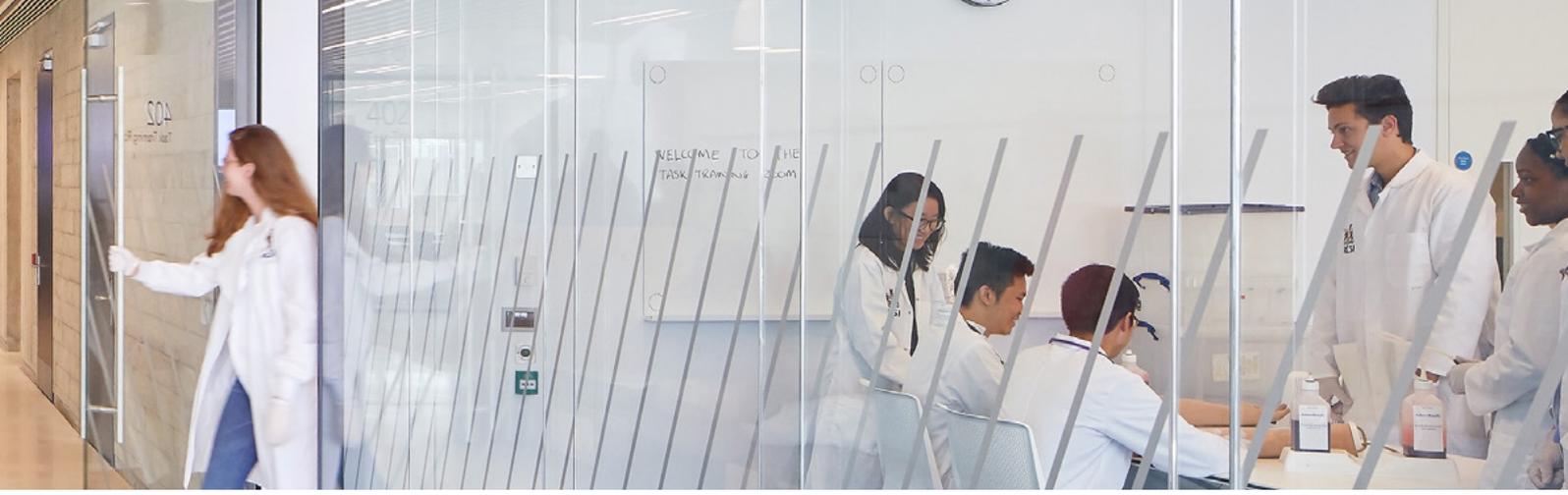
- Principles of Neonatal Surgery
- Correctable Congenital Abnormalities
- Common Paediatric Surgical Disorders
- Orthopaedic Disorders of Infancy and Childhood

PLASTIC AND RECONSTRUCTIVE SURGERY

- Principles of Plastic and Reconstructive Surgery
- Burns

TRAUMA AND ORTHOPAEDIC SURGERY

- Skeletal Fractures
- Soft Tissue Injuries



- Common Disorders of the Extremities
- Degenerative and Rheumatoid Arthritis
- Infections of Bones and Joints
- Musculoskeletal Pain
- Bone Tumours and Amputations

UROLOGY

- Urological Trauma
- Haematuria
- Retention of Urine
- Pain and Swelling in the Scrotum
- Chronic Renal Failure
- Aspects of Pelvic Surgery

This is a comprehensive list of the basic science and clinical surgery topics which the student will need to know at the end of the Masters programme.

Students will also be expected to develop their surgical clinical judgement. Clinical cases will be presented on a regular basis and students will be given assignments that are based on these cases. Students will also participate in simulated MDT meetings, grand rounds and journal clubs. This is all designed to encourage students to use the knowledge they have gained to develop their clinical judgement.

2.2

BASIC CLINICAL SKILLS

Students will develop the skills necessary to obtain a comprehensive patient history, conduct a thorough physical examination, order basic clinical tests and interpret data in a spectrum of patient care settings, as follows:

- Become proficient at taking an accurate history, performing a full clinical examination and formulating a logical differential diagnosis for surgical patients.
- Be able to present clinical findings coherently in both written and oral format and understand the importance of good clinical records.
- Become proficient at developing a logical, efficient and economical investigation pathway for surgical patients, which includes laboratory tests, imaging investigations and special investigations.
- Be able to develop a logical management plan for surgical patients that should include risk assessment and appropriate communication with patients and their family.
- Become proficient at pre-operative preparation, peri-operative care and post-operative management of surgical patients. This should include proficiency in management of fluids and electrolytes, enteral and parenteral nutrition and both antibiotic and thrombo embolic prophylaxis.
- Develop appropriate attitudes and behaviours for good surgical practice and develop an appreciation of the importance of professionalism and probity.
- Develop an understanding of the importance of multidisciplinary team working in surgical practice.

These skills will be developed through regular immersive participation in simulated ward rounds, outpatient clinics, nights "on-call" in the emergency department and ICU rounds.

2.3

TECHNICAL SKILLS

This module will teach fundamental surgical skills and basic surgical procedures in a non-clinical environment. Students will be taught in a non-critical environment (i.e. no patients involved) using simulation with a faculty of experienced surgeons with a high tutor-to-student ratio. Teaching will involve use of the very latest surgical models and simulators. Students will receive training in non-specific generic skills and also procedure-specific skills. On completion of the new Masters programme it is expected that students should be proficient in the majority of these procedures.

SURGICAL TECHNICAL SKILLS SYLLABUS

GENERIC

- General principles of operative surgery
- Surgical strategy
- Local/regional anaesthesia
- Intravenous sedation
- Sutures/needles/stapling instruments
- Knots and ligatures
 - Hand tie / instrument tie
 - Superficial / at depth
- Surgical instruments
- Diathermy/electrocautery
- Wounds a) Surgical b) Traumatic
 - Incisions/closure/care/removal of sutures and clips
- Parenteral injections – I.M., I.V., S.C.
- Intravenous access – peripheral, central, cut-down
- Long term vascular access
- Abdominal and chest paracentesis
- Securing a chest/abdominal drain
- Nasogastric/nasojunal tube placement



GENERAL SURGERY

- Excision of skin lesions/skin cancer
- Excision/cautery of verrucas/warts
- Excision of subcutaneous lesions
- Muscle biopsy
- Temporal artery biopsy
- Excision- biopsy of lymph node – cervical/axilla/groin
- Incision/drainage of abscess
- Breast biopsy – needle/excision
- Ingrown toenail – avulsion/wedge resection/Zadek
- Abdominal incisions/closure
- Appendicectomy
- Hernia repair – inguinal/femoral/umbilical/epigastric
- Varicose vein surgery
- Excision of pilonidal sinus
- Fissure in ano/sphincterotomy
- Surgical treatment of anorectal abscess
- Anogenital warts
- Bowel anastomosis: sutured and stapled
- Proctoscopy/sigmoidoscopy
- Haemorrhoids: injection/band ligation

- Laparoscopic techniques and procedures
- Laparoscopic and open cholecystectomy/exploration of CBD
- Laparoscopic appendicetomypic appendicectomy
- Gastroenterostomy
- Management of abdominal trauma
- Management of gastrointestinal perforations
- Surgery for gastrointestinal haemorrhage
- Management of “compartment syndrome”
 - Upper limb/lower limb
 - Abdomen
- Gastric fundoplication
- Bowel resection/anastomosis: hand sewn/stapled
- Stoma formation/closure
- Diagnostic and therapeutic endoscopy
 - Upper GI endoscopy
 - Lower GI endoscopy
- Fundamentals of robotic surgery
- Basic vascular surgical skills and procedures
 - Vascular anastomosis
 - Embolectomy
- Catheter based vascular interventions

TRAUMA AND ORTHOPAEDIC SURGERY

- Reduction/fixation of common fractures/dislocations
- Application of plaster of Paris
- Aspiration/injection of joints
- Cervical/spinal fracture stabilisation

UROLOGY

- Circumcision
- Paraphimosis/phimosis
- Catheters: urethral/suprapubic

PLASTIC AND RECONSTRUCTIVE SURGERY

- Dressing techniques/finger stall
- Hand injuries/hand infections/fingertip injuries
- Extensor tendon repair
- Traumatic wounds – debridement/foreign bodies/closure
- Soft tissue foreign body

OTORHINOLARYNGOLOGY/HEAD & NECK SURGERY

- Endotracheal intubation
- Management of choking: Heimlich/cricothyroidotomy
- Foreign body in nose/ear
- Epistaxis/packing of nose

NEUROSURGERY

- Emergency management of head injury

MAXILLOFACIAL SURGERY

- Airway management in maxillo-facial trauma



2.4

NON-TECHNICAL SKILLS

Students will be expected to develop a sound knowledge and understanding of the theory of surgical practice and be technically adept at the craft of surgery. On their own, however, knowledge and skills do not necessarily make a good surgeon. **Non-technical/personal skills (human factors) play an equally important role in the achievement of good results in surgery.** Decision making skills, communication, teamwork and leadership, self-awareness and insight, conflict resolution and error management are all important personal skills and attributes that play a key role in surgical practice. It is our aim to give students on this Masters programme the personal skills and attitudes necessary for successful surgical practice as part of a multidisciplinary team in a modern clinical setting. The six areas that will be taught as part of this module of the Masters will include:

MEDICAL ERROR AND PATIENT SAFETY

- Why mistakes occur
- Error avoidance strategies
- Trapping, mitigating and recovering from error
- Patient safety initiatives

TALKING TO PATIENTS AND RELATIVES

- Basic communication skills
- Explaining diagnoses and treatment to patients and relatives
- Informed consent
- Breaking bad news

CRISIS MANAGEMENT

- Principles of crisis and disaster management
- Major disaster planning
- Critical decision making
- Harnessing the team in crises



NEGOTIATION AND CONFLICT RESOLUTION

- Negotiation strategies
- Dealing with difficult people
- Conflict in the work place
- Achieving a win-win situation

TEAM WORKING AND LEADERSHIP

- Effective performance of multi-disciplinary teams
- Principles of teamwork interaction
- Dysfunctional teams
- Leadership styles and strategies

DISCLOSURE OF ERROR

- Essential elements of conversation
- Handling complaints
- Giving feedback
- Achieving shared understanding in conversations

2.5

PROFESSIONAL DEVELOPMENT

The new Masters programme will also deliver a focussed module on the following areas which are important components of general professional development and practice in 21st Century healthcare delivery:

- Medical Professionalism and Ethics
- Healthcare Informatics
- Healthcare Economics
- Healthcare Management
- Clinical Governance
- Surgical Innovation
- Global Surgery
- Research Methods



2.5

PROFESSIONAL DEVELOPMENT (con't.)

- Research Methods (con't.)
 - Critically appraise the current and potential contributions of a research-based approach to surgery and patient care.
 - Critically evaluate the methodologies available to researchers and their appropriateness to surgical education and practice.
 - Undertake a critical review of the literature on a topic relevant to the student's intended area of practice.
 - Critically discuss how to use and implement research findings.
 - Prepare a robust proposal for a 3,000 word report.



03

ENTRY REQUIREMENTS

Applicants should meet the following entry requirements:

- MB BCh BAO holder (or equivalent level-8 undergraduate medical degree) * Recognised by the World Health Organisation
- English Language Requirements Prospective students for whom English is not their native language must have certified proof of English language skills and this will need to be uploaded during the online application process.
- What proof of English language competency is acceptable? Those students who must have certified proof of English language skills should have IELTS Certificate (dated within the last two years at date of application) with an average IELTS score of at least 6.5 (no domain < 6.5)
- Who is exempt? Students who have satisfactory proof that their basic medical degree was completed through English (in a country where English is the language spoken by the vast majority of the population) are exempt from IELTS certification requirement.

04

FEES

Places on this programme are strictly limited to a maximum number of 20 students. Fees for the academic year 2020 are €17,250 PA for EU students/€34,500 PA for non-EU students.



05

APPLICATIONS

Applications are now open for the course starting in August 2020. Interested candidates can apply now at www.rcsi.ie/mssp.

Please be aware that visas can take up to 12 weeks to be issued. If you require a visa to enter Ireland, make sure that you apply as early as possible pre-travel. Visit <https://www.rcsi.com/dublin/student-life/undergraduate-essentials/visa-and-immigration> for further information.



06

CONTACT DETAILS

Any queries regarding the Masters (MCh) in Surgical Science and Practice should be addressed to the following:

Department of Surgical Affairs
Royal College of Surgeons in Ireland
121 St Stephens Green
Dublin 2
Ireland

Email: mssp@rcsi.ie

Website: www.rcsi.ie/mssp

