

SURGICAL ULTRASOUND

(University Diploma)

ACADEMIC YEAR 2021-2022

Note: the whole course will be delivered in English.

- **Objectives :**

The purpose of this University Diploma is to teach candidates about the basic principles of ultrasound and the handling of the ultrasound scanner but also to give them the necessary skills to efficiently integrate ultrasound in their daily practice.

It meets the needs of surgeons to include ultrasound imaging in the pre-, per- and post-operative management of their patients.

The course is mainly addressed to digestive surgeons, gastroenterologists, endoscopists or any other specialties (intensive care, internal medicine or emergency physicians for instance) with an interest in the use of ultrasound for the patient follow-up in pre- or post-operative consultations or during interventions.

With this new training course, we wish also to familiarize our candidates with basic interventional procedures such as ultrasound-guided percutaneous procedures (puncture, biopsy etc.).

In addition to the deepening of basic principles, the course will be particularly focused on :

- The diagnosis of complications of surgery
- Ultrasound in the operating room, particularly in hepatobiliary surgery
- Ultrasound "surgeon's stethoscope", at the bedside of the patient, or in intensive care
- Practical and clinical training developed on the one-to-one mentoring, with participation in medical rounds in the different units.

- **Duration** : 1 year **Number of places available**: 20 places (minimum : 10 participants)

- **Registration :**

- **If registration for this sole degree for 2021-22 or as first University Diploma (if several University Diplomas in Strasbourg in 2021-22)**

For full year : Administrative fees (243 €)

+ Tuition fees (*800 €, **1 100 €, ***1 600 € ou ****2 200 €)

- **If registration as 2nd or umpteenth University Diploma (because several University Diplomas in Strasbourg in 2021-22)**

For full year : Administrative fees (159 €)

+ Tuition fees (*800 €, **1 100 €, ***1 600 € ou ****2 200 €)

Tuition fees :

- Initial education:
 - o 8 00 € (for residents)
 - o 1 110 € (for chief residents)
- Continuing education:
 - o 1 600 € (paid by self)
 - o 2 200 € (paid by employer)

Payment :

Both fees (administrative and tuition) are to be paid directly to the IHU Strasbourg, which will transfer the administrative fees to the University of Strasbourg after receipt of the registration documents.

- **Course director responsible for the University of Strasbourg:**

Pr. Silvana PERRETTA

Department of Digestive and Endocrine Surgery - Hepato-Digestive Pole of the Nouvel Hôpital Civil- 1 place de l'Hôpital - 67091 Strasbourg cedex

☎03 88 11 90 00

Email: silvana.perretta@ircad.fr

Partnership

IHU Strasbourg

Scientific Cooperation Foundation - 1 place de l'Hôpital - 67091 Strasbourg cedex

Represented by its Chief Executive officer, Prof. Benoit Gallix

- **Targeted audience:**

- Level of access: Initial and continuing education
 - Final year medical students
 - Residents
 - Chief residents
 - Specialists working in public or private institutions
- Specialties include:
Specialists with an interest in the use of ultrasound for the patient follow-up in pre- or post-operative consultations or during interventions
 - Digestive surgeons
 - Gastroenterologists
 - Endoscopists
 - Radiologists interested in a training course dedicated to the digestive sphere
 - Internal medicine residents
 - Intensive care and emergency physicians
- Training delivered exclusively in English : sufficient level required

- **Recruitment process / selection :**

Pre-registration : form available at the following address: <https://igt.eve-evolving-education.eu/pre-registration>. CV and cover letter to the attention of the course director

Selection: according to the order of receipt, provided that the candidate meets targeted audience criteria and that pre-registration receives a favourable opinion.

For additional information, please visit <https://eve-evolving-education.eu/> or email education@ihu-strasbourg.eu

Course and program:

Hourly volume: The training is divided into 60 hours: 25 hours of theory, 20 hours of hands-on practical sessions and 15 hours of clinical placement.

Structure: The proposed University Diploma offers an "on-line" education - upon request and accessible from any computer platform – and hands-on training sessions.

Hands-on training and clinical placement will be carried out within the IHU Strasbourg. The emphasis is put on the one-to-one mentoring on which these placements are based. On the experimental platform of the IHU, students are supervised by ultrasound expert radiologists who will guide them in the acquisition and mastery of gestures and procedures. Clinical exposure is gained through participation in medical visits within the Hepato-Digestive Pole. The patients concerned are informed of the purpose of education and can give their consent or oppose it freely.

The University Diploma of digestive surgical ultrasound offers the unique environment of the Institute of Image-Guided Surgery- IHU Strasbourg with access to modern and innovative technologies: the online learning platform, technologies and training resources provided during the placement (ultrasound scanners, teaching models used: phantoms, virtual tumors, etc.).

Program: The course is organized into 5 progressive learning modules:

Teaching Unit title	Expected skills
Module 1 : Physics principles	Understand the physical principle of tissue / sound wave interaction
	Identify different structures and fluids in the US images (solid structures, liquid, tissue patterns, air, stones, etc.) and explain their US characteristics
	Recognise and manage common artefacts relevant to diagnostic and interventional procedures
	Describe US images using adequate terminology
Module 2 : Equipment, documentation and reporting	Familiarize with different equipment, probes, knobology
	Methods of documentation and reporting of ultrasound-guided procedures, including appropriate labeling and recording of images and videos
Module 3 : Diagnostic US	Understand indications and contra-indications for diagnostic US
	Select appropriate transducer, equipment settings and probe position for the identification of normal anatomy and pathological conditions of the abdominal wall and visceral structures such as liver, gallbladder and biliary tree, pancreas, bowel, vascular structures, kidney and urinary bladder, and other tissues commonly encountered during ultrasound procedures
	Select appropriate transducer, equipment settings and probe position for the identification of normal anatomy and pathological conditions of the thyroid gland and parathyroid
	Select appropriate transducer, equipment settings and probe position for the identification of common post-operative complications after visceral surgery at the bedside, in the ICU, or in the ER such as presence and location of abdominal and thoracic collections and abscess, venal thrombosis, intestinal obstruction
	Select appropriate transducer, equipment settings and probe position for the identification of common time-sensitive injuries and emergency conditions such as in the management of trauma patients
Module 4 : Per-operative US	Understand the indications and contraindications for ultrasound guidance during surgery especially during liver, biliary, and pancreatic interventions
	Understand diagnostic scanning for procedural planning during surgery (open and laparoscopic) including: <ul style="list-style-type: none">- Appropriate transducer selection and image optimization- Recognition of relevant anatomic variations and unexpected findings- Interpretation and correlation of ultrasound images with available complementary and diagnostic imaging

Teaching Unit title	Expected skills
Module 5 : US guided interventions	Understand the indications for US guided diagnostic and interventional percutaneous approaches and ablation techniques
	Understand pre-procedural and post-procedural patients' care
	Understand technical considerations for procedural planning such as: <ul style="list-style-type: none"> - Appropriate needle, biopsy gun, catheter or device selection. - Ultrasound-guided needle or device tracking using both in-plane and out-of-plane approaches, including the limitations of each technique and methods to optimize needle visualization.
	Select the correct probe, and technique to perform: <ul style="list-style-type: none"> - US guided liver punctures and biopsy - US guided renal puncture - US guided percutaneous cholecystostomy - US guided percutaneous transhepatic choledochal drainage (PTCD) - US guided introduction of central venous catheter - US guided thyroid biopsy
	Understand the indications and contra-indications for diagnostic and therapeutic EUS
	Understand the indication and technical aspects of EUS
	Select appropriate transducer, equipment settings for the identification of normal anatomy and pathological anatomy during diagnostic and therapeutic EUS
	Understand the indication and technical aspects of EUS and rendez-vous techniques such percutaneous transhepatic choledochal drainage (PTCD) and endoscopic (ERCP) and intra-operative CBD exploration
	Recognize and manage risks and procedural complications
	Understand the clinical use and indications of emerging technology in US such as: Contrast Enhanced Ultrasound, Fusion Imaging, three Dimensional Ultrasound (3D), elastography
	Understand the technical principles and indications of simultaneous live navigation of reference series, such as CT, MRI and PET, side-by-side with live ultrasound fusion imaging