

# ITU Spectrum Management Training Programme (SMTP) at a glance



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**An HCB presentation to the World Radio Assembly- 2018**

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# PRESENTATION OUTLINE

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- **Addressed Problem, Solution and Development Process**
- **SMTP Structure, Composition and Certification Routes**
- **Delivery Options**
- **Pilot Test**
- **Partners( Development and Delivery)**

# Addressed problem

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- **No formal holistic SM education programmes;**
- **Current training in SM achieved through secondments in large administrations;**
- **Small administrations who cannot use secondments are not able to train.**

# The Solution

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- The ITU establishes the SMTP:
- Access to state-of-the-art holistic SM training and forward-looking professional vision;
- Formalized assessment;
- The SMTP programme was first developed in 2014
- All the materials of the programme were revisited and updated in 2018
- Certification to give international recognition, with possible option of university credits/diploma.



**SMTP**  
**SPECTRUM**  
**MANAGEMENT**  
**TRAINING**  
**PROGRAMME**

AN ITU ACADEMY INITIATIVE



<http://academy.itu.int>



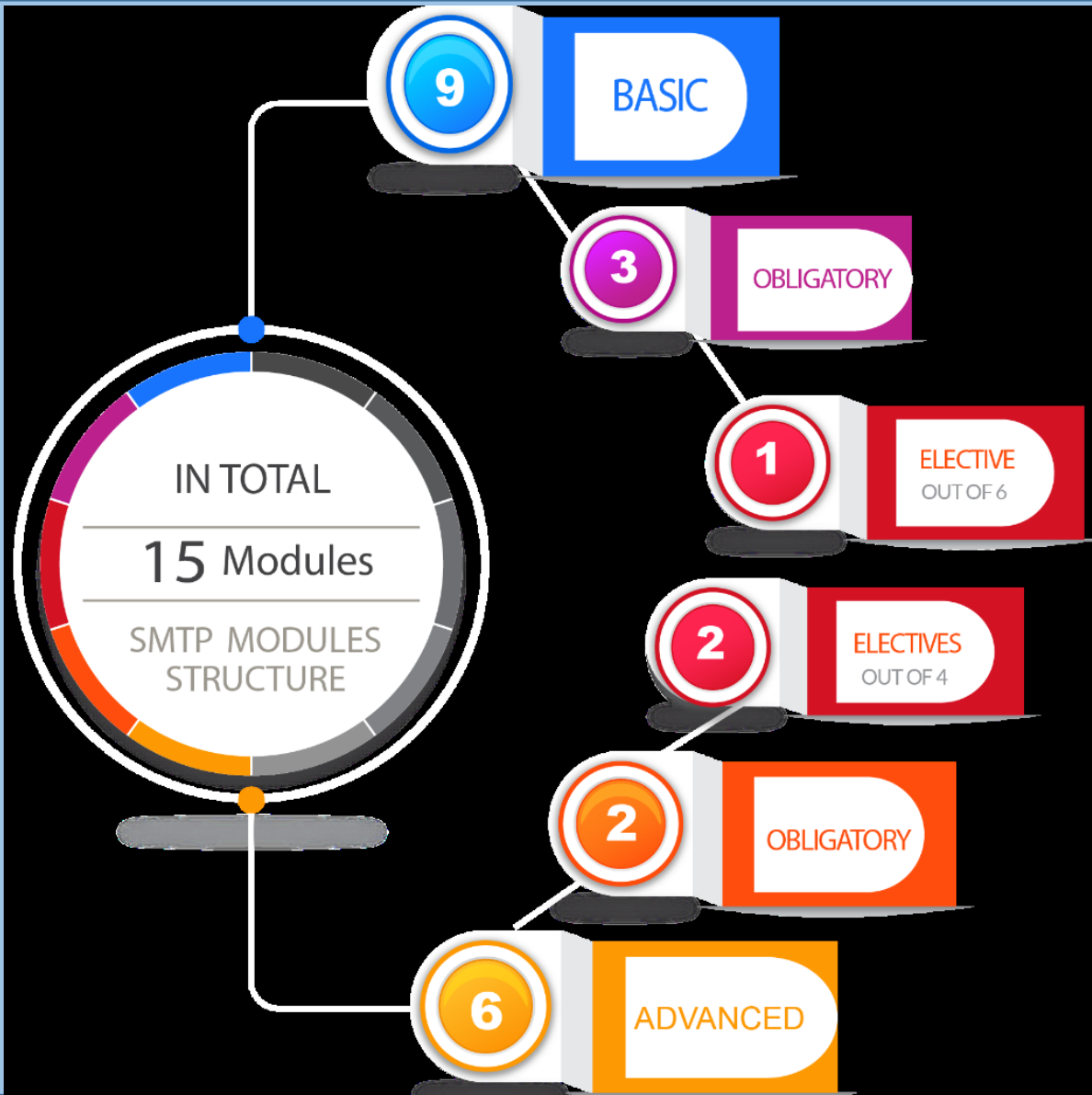
# Development Process

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- In-depth review of subject area and development of a scope
- Development of individual modules by subject matter experts
- Peer-review of materials
- Editing of the training modules
- Delivery of the training programme

# SMTP Modules Structure



- **15 Modules in total**
- 9 Modules at Basic level
- 6 Modules at Advanced level
- **Basic Level:**
  - 3 are Obligatory modules
  - 1 Elective out of the 6 Electives
- **Advanced Level**
  - Two obligatory
  - Two elective out of 4.

# Composition of the programme-Basic Level

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- Obligatory Modules (OM):
  - OM1 “Legal Basis and Regulatory Framework of SM”
  - OM2 “Spectrum Engineering Fundamentals”
  - OM3 “Wireless Telecommunications Technologies”
- Elective Module 1 (EM 1) includes 6 options:
  - EM1-1 “Spectrum Monitoring”
  - EM1-2 “Enforcement and Type Approval of Equipment”
  - EM1-3 “SM for Satellite Systems”
  - EM1-4 “SM for HF Systems, Science, Maritime and Amateur Services”
  - EM1-5 “SM for Aeronautical and Radio Determination Services and Military Systems”
  - EM1-6 “Computer-aided Spectrum Management”

# Composition of the programme-Advanced Level

- Obligatory Modules (OM):
  - OM4 “Economic and Market Tools of Spectrum Management”
  - OM5 “Strategic Planning and Policies for Wireless Innovation”
- Elective Module 2 (EM2). Legal Specialization:
  - EM 2-1 “Advanced Spectrum Authorization Regimes”
  - EM 2-2 “Socio-Economic Impact of Spectrum Regulation; Competition and Consumer Protection”
- Technical Specialization:
  - EM 2-3 “Terrestrial TV Broadcasting Planning and Digital Transition”
  - EM 2-4 “Opportunistic Spectrum Access and Cognitive Radio”



# SMTP Modules:

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OM1 - Legal basis and regulatory framework of spectrum management

OM2 - Spectrum engineering fundamentals

OM3 - Wireless telecommunication technologies

OM4 - Economic and market tools of spectrum management

OM5 - Strategic planning and policies for wireless innovation.

# SMTM Modules:

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EM1.1: Spectrum monitoring

EM1.2: Enforcement and type approval of equipment

EM1.3: SM for satellite systems

EM1.4: SM for HF systems, science, maritime and amateur services

EM1.5: SM for aeronautical and radio determination services and military systems

EM1.6: Computer-aided spectrum management

EM2.1: (Legal Specialization): Advanced spectrum authorization regimes

EM2.2: (Legal Specialization): Socio-economic impact of spectrum regulation; competition and consumer protection

EM2.3: (Technical Specialization)

Terrestrial TV broadcasting planning and digital transition

EM2.4: (Technical Specialization): Opportunistic spectrum access and cognitive radio.

# SMTP Structure – Entry Levels

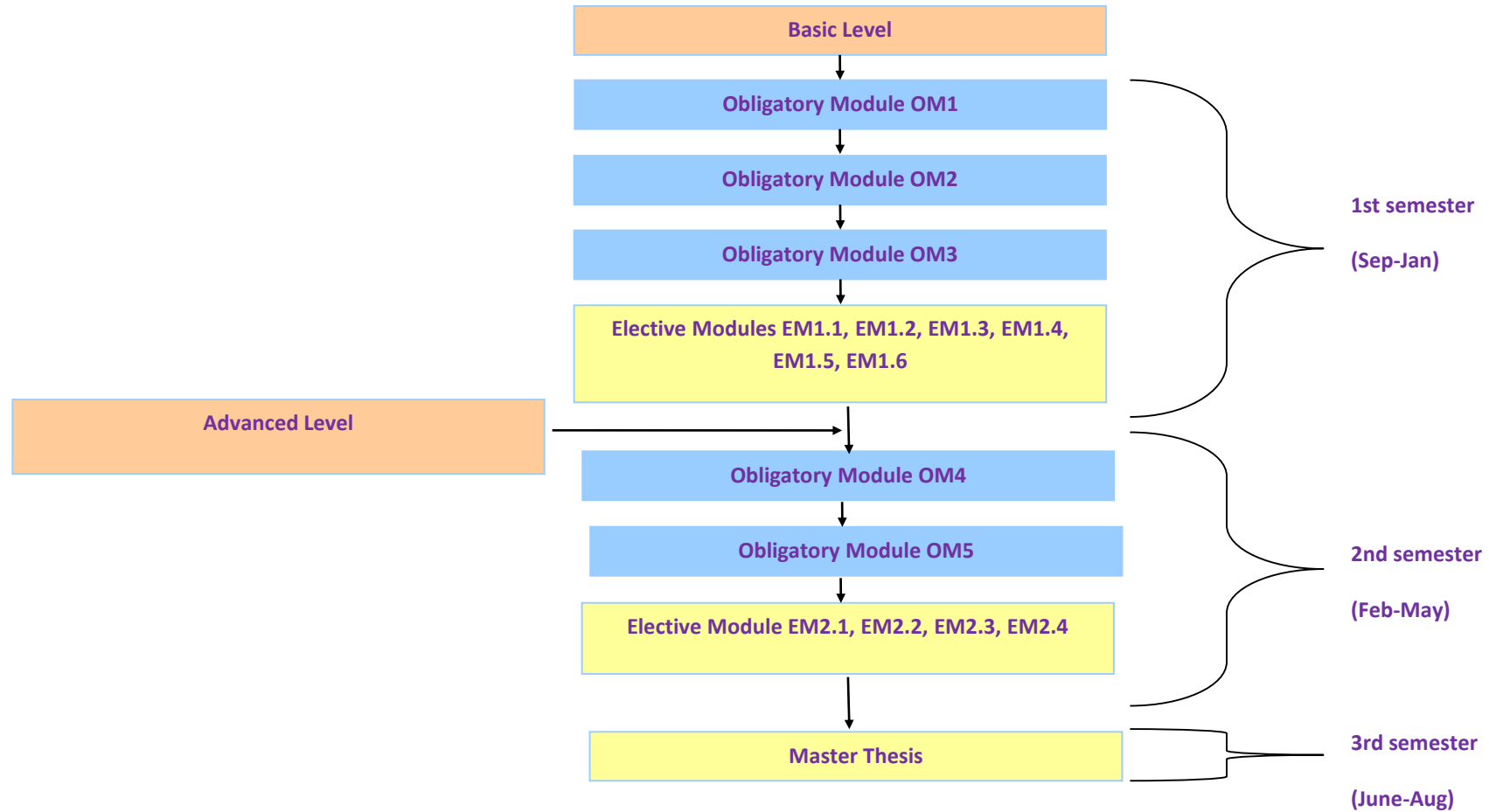


Figure 1. Proposed composition and duration of the SMTP

# Certification Routes

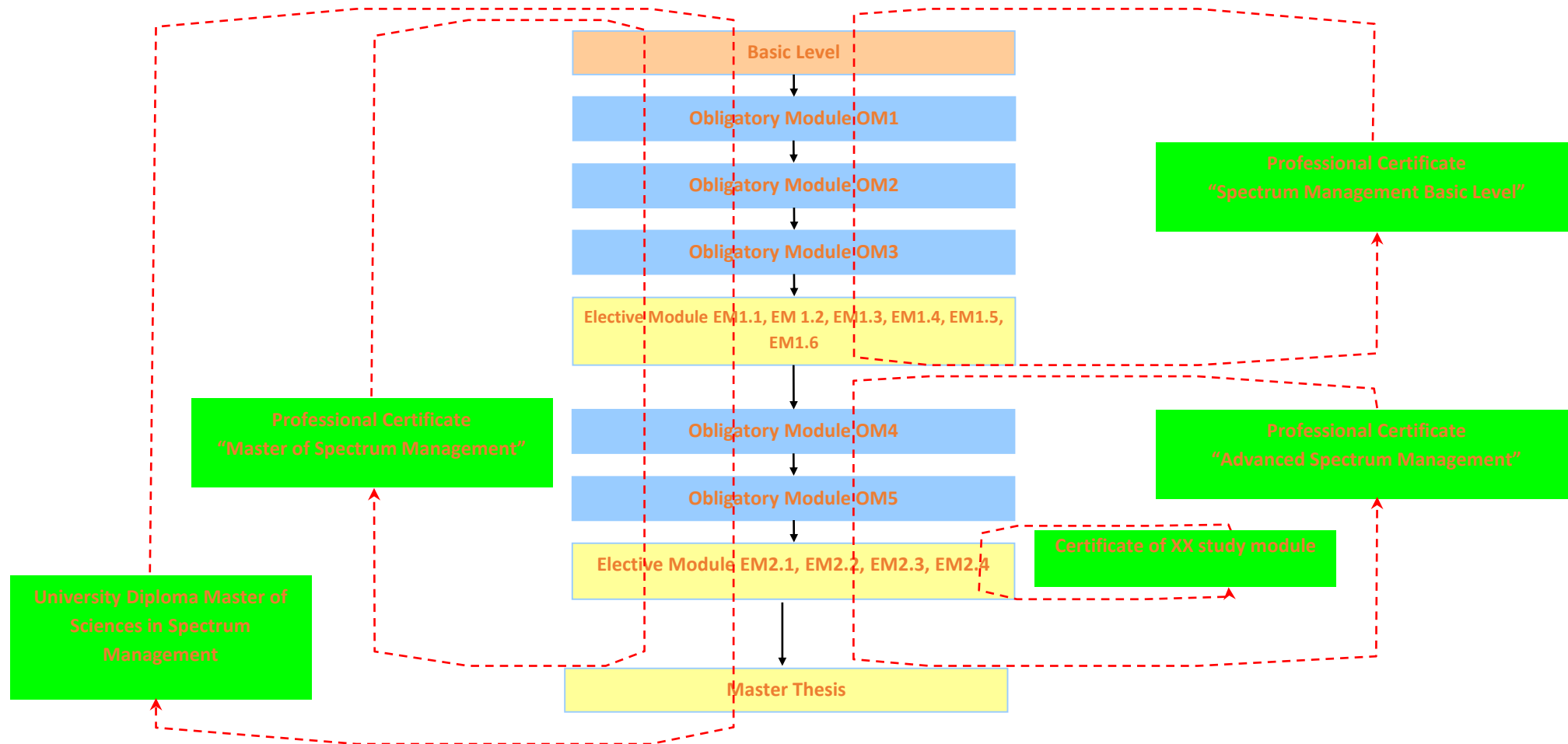
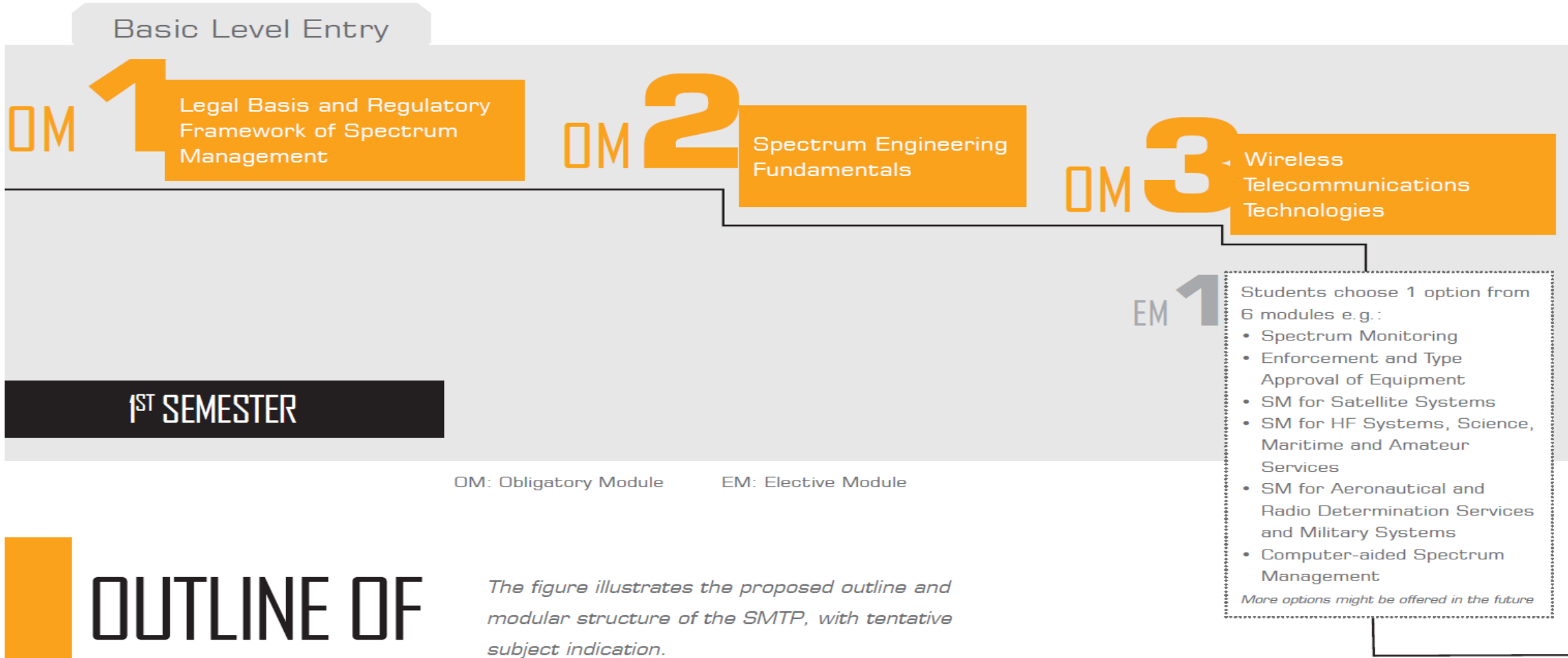


Figure 2. Possible derivative options for university or professional, full or partial certification levels

# Composition Of The Programme



## OUTLINE OF THE SMTP

*The figure illustrates the proposed outline and modular structure of the SMTP, with tentative subject indication.*

# Composition Of The Programme



# Programme Duration

15

## GUIDELINES FOR TEACHERS:



Power Point slides to fill 30 hours of lecturing per module



20 slides per lecture with a total of 600 slides per module



10 hours of tasks for practical exercises / lab (where applicable) per module



Exam questions for testing (50-100 questions)

## GUIDELINES FOR STUDENTS:



125 hours per module, 40 hours of classroom training



4-5 weeks – module duration



All modules can be completed in no more than 1 year



60-90 European Credit Transfer and accumulation System (ECTS) credits for the whole SMTP



Combination of face-to-face sessions, remote teaching and self-studies



Formal assessment at the end of each module

# Delivery Options



## SMP



ITU CENTRES  
OF EXCELLENCE

OR



ACADEMIA

+



ITU ACADEMY



MEMBER STATES AND SECTOR MEMBERS  
(OPERATORS, REGULATORS AND POLICYMAKERS)



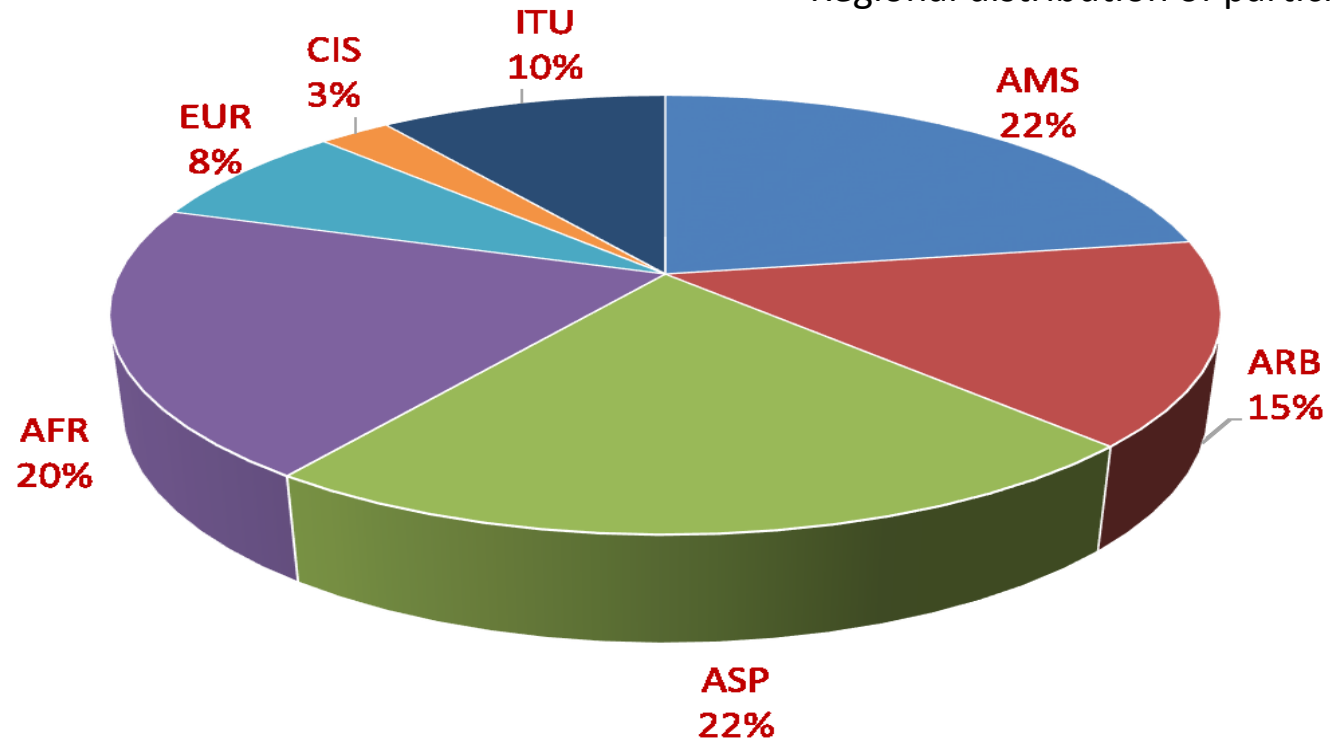
STUDENTS



# Pilot Test

- SMTP Pilot Training conducted (OM1)
  - 40 participants from across the world attended the training
  - Pilot was completed with 70% pass rate

Regional distribution of participants



# Development process: partners

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- Funding partners



- Content development partners



## Delivery partners

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- Czech Technical University
- AFRALTI
- Expression of Interest
- Strathmore University in partnership with AFRALTI in Kenya
- ICESI University in Colombia
- COMTELCA (regional body of regulators, Central America)
- TRC Jordan

# Success Story: certification

- Awarded by the Central Evaluation and Accreditation Agency (ZEvA), a member of the European Association for Quality Assurance in Higher Education.
- SMTP can be aligned to Master's degree programmes internationally, making it easier for Universities to adopt the programme.
- The ZEvA panel of experts concluded that all SMTP modules correspond to Level 7 of the European Qualification Framework for lifelong learning.
- This will promote flexible study options and provide students with an opportunity to acquire an academic qualification in the specialized field of spectrum management.



## Certificate

Upon application by the

**International Telecommunication Union (ITU)**

the **Central Evaluation and Accreditation Agency Hannover (ZEvA)** has awarded its quality label to the:

**Spectrum Management Training Programme (SMTP)**

The quality label certifies that the modules of the SMTP are equivalent in level and content to educational units in Master's programmes at higher education institutions, and that the ECTS key features are correctly implemented.

Expert Group:

- Prof. Dr.-Ing. Wolfgang Froberg, AKAD University Stuttgart
- Prof. Dr.-Ing. Thomas Kürner, Technische Universität Braunschweig
- Günter Grüell, Consultant Engineer, Stuttgart

The certification of the Spectrum Management Training Programme is valid until 28 February 2023.



Prof. Dr. Wolfgang Lücke  
Academic Director ZEvA



Hermann Reuke  
Managing Director ZEvA

## DELIVERY STORIES

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- Since 2016, 150 participants trained at Afralti.
- Training is online through ITU academy platform
- Modules covered to date are:
  - SMTP OM1
  - SMTP OM2
  - SMTP OM3
  - SMTP EM1.3

[https://academy.itu.int/index.php?option=com\\_content&view=article&id=102&Itemid=641&lang=en](https://academy.itu.int/index.php?option=com_content&view=article&id=102&Itemid=641&lang=en)

## Spectrum Management Training Programme (SMTP)

SMTP is a programme developed under the auspices of the ITU Academy. It comprises a set of high-level training materials in all areas of spectrum management, which were developed by experts drawn from within and outside ITU. In 2018, SMTP received [international accreditation from the Central Evaluation and Accreditation Agency \(ZEvA\)](#).



### ABOUT SMTP

SMTP comprises two levels: basic and advanced. Each level includes a number of obligatory modules (OM) and elective modules (EM) which are the following:

#### BASIC

**OM1:** Legal Basis and Regulatory Framework of Spectrum Management  
**OM2:** Spectrum Engineering Fundamentals  
**OM3:** Wireless Telecommunications Technologies  
**EM1-1:** Spectrum Monitoring  
**EM1-2:** Enforcement and Type Approval of Equipment  
**EM1-3:** SM for Satellite Systems  
**EM1-4:** SM for HF Systems, Science, Maritime and Amateur Services  
**EM1-5:** SM for Aeronautical and Radio Determination Services and Military Systems  
**EM1-6:** Computer-aided Spectrum Management

#### ADVANCED

**OM4:** Economic and Market Tools of Spectrum Management  
**OM5:** Strategic Planning and Policies for Wireless Innovation  
**EM2-1:** (Legal Specialization): Advanced Spectrum Authorization Regimes  
**EM2-2:** (Legal Specialization): Socio-Economic Impact of Spectrum Regulation; Competition and Consumer Protection  
**EM2-3:** (Technical Specialization): Terrestrial TV Broadcasting Planning and Digital Transition  
**EM2-4:** (Technical Specialization): Opportunistic Spectrum Access and Cognitive Radio

### DELIVERY

SMTP is being delivered through our partner universities and Centres of Excellence. For upcoming deliveries of SMTP, please visit the ITU Academy [training catalogue](#).

### DOWNLOAD THE SMTP REPORT

## Next Steps

- Translation of the SMTP to other UN languages
- Partner contributions welcome
- Continuing discussions with private sector and academic institutions for SMTP delivery options
- Tailoring modules to specific needs of the regions
- Discussions with Comtelca on this is ongoing
- Simplifying legal access to program by users

# THANK YOU

For more information please contact  
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or visit

<https://academy.itu.int/>