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## Smart Grid Technology – A Master Program [SGT-MAP]

### WP 1 & Preparation

#### 1.3 Preparation of the program curriculum map

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## 1 Introduction

This WP.1 represents the foundation of the SGT-MAP. It will be established within the project partners. A kick-off meeting between all of the project partners will be held at UNIABDN to identify the importance of the SGT-MAP. Participants will provide ideas about the required infrastructure to establish the program. This will include the number of teaching rooms, PCs, laboratories, etc.

Also, participants will discuss the SGT-MAP strategic plan, decide the optimal organizational structure, and the rules to achieve the project objectives. On the basis of aforementioned outputs, UNIABDN will activate the organizational structure and specify the administrative staff in parallel with setting up the required infrastructure.

Participated partners are UNIABDN, UNI-KLU, US, AASTMT, AU, HU, and ASWU.

## 2 Objectives of the Deliverable

Preparation of the program curriculum map. It is very important to maintain the link between the courses to ensure achieving the learning outcomes of each course separately. In addition, in some courses which include advanced topics, it will be required that the students study first basic courses. This is crucial for the success of the program to avoid any learning difficulty during the study.

## 3 Methodology

The UNIABDN is organized the kick off meeting, in Feb. 2017 to discuss the SGT-MAP strategic plan through the team work of the project consortium representatives and multidisciplinary collaboration between universities, enterprises and governmental authorities. The program curriculum map is agreed on and issued which is the building block in course formulation and development. This is achieved by face to face meeting (kick off meeting), monthly skype meeting and weekly emails.

## 4 Results

We succeed to finalize the program curriculum map as in Annex I.

## 5 Conclusions

The project program curriculum map was established.

## 6 Annexes

# Annex I: Program Curriculum Map

## PROGRAM STRUCTURE:

**Program duration:** (2 Years Min - 5Years Max)

**CREDIT HOURS:** 36 Cr. Hrs.

Course work for the MSc. degree requires the completion of a minimum of (36) credit hours as follows:

<b>A. Core courses:</b>	4 compulsory courses	<b>(12 Cr.h)</b>
<b>B. Elective courses:</b>	4 elective courses	<b>(12 Cr.h)</b>
<b>C. Research thesis:</b>	Part 1 (3 Cr. h.) + Part 2 (3 Cr. h.) + Part 3 (6 Cr.h.)	<b>(12 Cr.h)</b>
<b>Total Credit Hours</b>		<b>(36 Cr.h)</b>



• **A. CORE COURSES (COMPULSORY):** •

• Course Code	• Course Title	• Credit Hours	• Prerequisite
SGT 703	Introduction to Smart Grid	3	-
SGT 704	Discrete Mathematics and Optimization	3	-
SGT 705	Measurements and Signal Processing	3	-
SGT 706	Communication Technologies	3	-
<b>Subtotal</b>	<b>4 Courses * 3 Credit Hours</b>	<b>12</b>	

• **B. ELECTIVE COURSES:** •

Group ( I ): Control Elective Courses

• Course Code	• Course Title	• Credit Hours	• Prerequisite
SGT 710	Renewable and Distributed Generation	3	-
SGT 711	Advanced Distribution and Substation Automation	3	-
SGT 712	Energy and Distribution Management Systems	3	704
SGT 713	Demand Response	3	704
SGT 714	Smart grid Road Mapping and Standards	3	-
SGT 715	Adaptive Protection Systems in Smart Grid	3	-
SGT 716	Condition Monitoring and Asset Management in Smart Grid	3	-
SGT 717	Microgrid and Virtual Power Plant	3	-
SGT 718	Smart Grid Planning and Operation	3	704
SGT 719	Power Control in Smart Grid	3	721
SGT 720	Energy Storage Systems	3	-
SGT 721	Advanced Power Electronics Applications	3	-
SGT 722	Electric Vehicles Integration into Smart Grid	3	704
SGT 723	Simulation and Hardware Tools	3	-
SGT 724	Smart Building and Internet of Things (IoT)	3	706
SGT 725	Advanced Metering Infrastructure	3	706
SGT 726	Cyber Security and Data Privacy	3	-
SGT 727	ICT Infrastructure in Smart Grid	3	706
SGT 728	Cloud Computing and Big Data Analysis	3	727
SGT 729	Carbon Capture, Utilization and Storage (CCUS)	3	-



<b>Subtotal</b>	<b>4 Courses * 3 Credit Hours</b>	<b>12</b>	
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• **C. RESEARCH THESIS:** •

<b>• Course Code</b>	<b>• Course Title</b>	<b>Credit Hours</b>	
SGT 701	Master's Research Thesis (Part 1: Research Methodology)	3	
	Master's Research Thesis (Part 2)	3	
SGT 702	Master's Research Thesis (Part 3)	6	
<b>Subtotal</b>	<b>2 Parts * 6 Credit Hours</b>	<b>12</b>	

