



Carbon Neutra  
Management of  
Sport Marinas  
International  
Master Modules  
Programme

# Intellectual Outputs 2.0

---

IO2A1: TRAINING PATHS, LEARNING CONTENT STRUCTURE  
AND GUIDELINES

PROMOTED BY:



IN PARTNERSHIP WITH:

Co-funded by the  
Erasmus+ Programme  
of the European Union



## SUMMERIZE INFO

PROJECT TITLE:

CARBON NEUTRAL MANAGEMENT OF SPORT MARINAS INTERNATIONAL  
MASTER MODULES PROGRAMME (**INCAMP**)

IO REFERENCE:

IO2

TASK REFERENCE:

IO 02/A1 TRAINING PATHS, LEARNING CONTENT STRUCTURE AND  
GUIDELINES

INCAMP CONTACTS:

[florin.iorad@bucks.ac.uk](mailto:florin.iorad@bucks.ac.uk)

AUTHORS AND AFFILIATION:

BNU

DATE:

July 2019

DOCUMENT VERSION 1 STATUS:

V.1

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



# TABLE OF CONTENTS

- 1 The aim of the INCAMP project and the learning programme ..... 3
- 2 Short description of IO2 ..... 4
- 3 Training paths development..... 5
  - 3.1 Target groups ..... 7
  - 3.2 Basic definition of target groups ..... 7

# 1 THE AIM OF THE INCAMP PROJECT AND THE LEARNING PROGRAMME

The field of Higher Education has been recognised as one of the key drivers within the EU2020 Strategy to overcome the socioeconomic crisis, to boost growth and jobs and to foster equity and inclusion. Moreover, one of the key priorities for HE is the reinforcement of the “Knowledge Triangle”, through the support of innovation, entrepreneurship and university-business cooperation. This specifically applies to those traditional sectors, such as the environment management sectors, where changes in education and training are required to equip the future workforce with the new skills for the new demands generated by the changing patterns of carbon neutral management (e.g.: Climate Change/Population increase). Staff qualifications along with the ageing workforce and the inability to attract young workers remain one of the crucial points in these industries. This project intended to boost the training of competent staff in the carbon neutral management sector.

The aim was to develop a carbon neutral management of sport marinas international master modules programme in Europe. The new master’s programme offers an adapted curriculum to equip the young generation with the specific, basic and transversal competences currently required in the carbon neutral management and related industries. This international Master Programme provides students with opportunities to gain additional skills by studying and training abroad.

For these reasons, this Strategic Partnership developed a flexible learning pathway in line with the needs of learners and companies in the carbon neutral management and related sectors. The project provided a joint study program between Higher Education and Vocational Education and Training that are providing enterprises innovation, expertise and added value.

INCAMP was a Strategic Partnership composed of seven entities from regions that are highly influenced by the environment management related industry: Four universities, two companies and one chamber of commerce representatives.

The consortium developed a Study Report on current skills needs on the carbon neutral management of sport marinas industry, a Joint Curriculum together with a learning content and an e-Learning platform that is freely and widely distributed. Four Multiplier Events have been conducted at the end of the project.

INCAMP contributes to the modernisation and reinforcement of education aligned to the needs and opportunities offered by traditional industries.

The project provides, assesses, and seeks the recognition of basic skills needed in the carbon neutral management sector. INCAMP also addressed transversal skills, such as entrepreneurship, foreign languages and digital competences. HE students and staff, and also everyone involved in the development of this initiative had the chance of increasing their sense of initiative and entrepreneurship, their competences in foreign languages and, of course, increasing their skills and capabilities for employability in an industrial sector which is the main key driver in many European regions. It is estimated that in the next five years there will be about 500 students benefiting directly from the educational materials developed within the project. These will become better equipped to contribute to the development of the sector, to fulfil the demand of highly qualified staff, to foster entrepreneurship in the sector, to support the professional development of existing specialists. The fact that the Programme is taught in English facilitates the mobility of staff from one EU country to another and through this the integration is facilitated.

## 2 SHORT DESCRIPTION OF IO2

This output has defined and analysed the most suitable training paths according to the target groups. They were designed in terms of the necessary areas of knowledge and the pedagogical methodologies optimized to fit the variety of job profiles and the industry, by providing a core training path, as well as training modules and their units in languages to address the specific needs of certain job profiles. It also contains guidelines to support trainers and lecturers. Furthermore, the strategy for protecting the training materials under open licenses was described.

The Master's programme was based on the concept of Learning Outcomes.

**Learning outcomes:** Statements of what a learner knows, understands and is able to do on completion of a learning process defined in terms of knowledge, skills and competence.

**Developing of materials related key topics like:** How to study and understand climate change implications (short and long term). How do resources managers create solutions (case studies and practitioners). What are the different ways of doing applied research? Understanding Environmental Management research methods; literature, practice-based outputs, designing research questions, studying art-based approaches to investigation, evaluation methods, dissemination and impact.

The Masters to provide to the student to the enough knowledge of applied management that will allow him to make environment solutions for carbon neutral management. For that, this pillar is the base of the INCAMP training course.

This Masters allows to students to build skill sets and knowledge base that will give opportunity to have a full comprehension of the carbon neutral management processes. In reality SMEs will not always have the full compliment of environmental regulations and processes. It is therefore important that students have an appreciation of state of the art processes available to them through outsourcing. Graduates who find employment will be encouraged to complete CPD to maintain cutting edge knowledge of manufacturing possibilities which will contribute to the aim of the project to create environmentally sound solutions and are not limited by archaic 'outdated' knowledge.

These modules aims to prepare students for the complete process of carbon neutral management considering conceptual thinking.

The Masters also aims to provide the student with all the regulation and standards related with the carbon neutral management aspects. For that, is a supporting pillar of the manufacturing process pillar that will lead the enterprise to the success in terms of barriers of environmental targets.

The activities conducted within

- IO2 were: IO2-A1-Training path definition
- IO2-A2- Definition of learning content modules.
- IO2-A3- Harmonization and validation of learning modules and training path.

### 3 TRAINING PATHS DEVELOPMENT

**Training (Learning) path** is normally described as the chosen route, taken by a learner through a range of (commonly) e-learning activities, which allows them to build knowledge progressively.

**Training Path methodology** uses a performance improvement approach to learning / training and defines a Training Path as the ideal sequence of learning activities that drives target users (participants) to reach proficiency in their knowledge / experience / job in the shortest possible time.

Creating a curriculum is one of the essential functions within an education or training system, as it constitutes the guideline for planning, conducting and assessing learning processes. Existing literature reveals that curriculum development can be approached from three different perspectives (Smith and Keating, 2003, p. 121):

The first perspective is to regard it as ‘rational’ or ‘linear’: i.e., it is a logical process that proceeds from objectives to the selection of learning experiences to the organisation of learning material to evaluation.

The second perspective sees curriculum development as a ‘cyclical’ model, where the whole learning process is a cycle that continually renews itself so that evaluation leads to the reformulation of objectives.

The third perspective shows an ‘interactive’ model that assumes curriculum development can commence at any stage and that feedback leads to constant change at any stage.

The two most commonly used methods for curriculum development – DACUM and functional analysis – can be rated and described as linear models. DACUM (an acronym to represent developing a curriculum) is a method to define systematically the tasks, jobs, competences and tools associated with a certain type of workplace. DACUM is an inductive approach that defines small units so that it is possible to gradually extend those units and apply them in a broad context.

Three assumptions are underlying DACUM: First, people who regularly perform certain activities can describe them in a realistic and precise manner. Second, an efficient means to analyse a job is to describe the tasks of a specialist precisely and completely. Third, every successfully completed task requires special knowledge, skills, equipment and behaviour, which can be identified implicitly through work and job analysis.

The job analysis that is required by DACUM includes several elements, such as the analysis of occupations, jobs, duties, tasks and single work steps. Additional issues such as workers’ behaviour,

their general knowledge and skills, tools, equipment, supplies and materials, as well as future concerns, should be considered. Gonczi et al. (1990, p. 38) defined steps to be undertaken to set up and conduct a DACUM procedure:

1. First, it is necessary to choose an expert facilitator and select participants from various levels of the relevant occupation. Participants must have a profound knowledge of the occupation and it is important that different interests (e.g., educators, practitioners, unionists) are involved.
2. Second, a pre-DACUM session must be organised in order to explain the process of curriculum development. At the beginning of the session, the facilitator has to give a general introduction to and review of the occupational area. Then the main duties within the occupation must be outlined; associated tasks, sub tasks and required competences must be identified.

Additionally, the importance of each task, sub task and competence must be rated according to the frequency of its performance and its importance for a holistic work performance. The results must be structured and recorded for a final report, which is then disseminated to the relevant authorities.

The steps of a typical DACUM session are outlined below:

1. General introduction and orientation
2. Review of occupational area
3. Identification of the duties
4. Identification of tasks, sub-tasks and competences associated with each duty
5. Reviewing and refining the outcomes so far
6. Establishing importance of each task and /or competence by rating the frequency of performance, its degree of importance, etc.
7. Final structuring
8. Recording final results
9. Preparing final report.

Problems articulated regarding DACUM include the status quo of a job description being taken into account, and so methodical aspects, as well as assessment designs, are disregarded. To address this problem, a holistic approach to curriculum development is necessary. This determines not only learning targets in terms of competence standards, but also respective and appropriate assessment guidelines, as well as methodical support for teachers or instructors. However, it seems unrealistic to set-up appropriate procedures that generate elaborated curricula within a short period of time. Functional analysis is another method for curriculum development that is widely used in the UK in a variety of industries. Functional analysis is a deductive and target-oriented approach (Gonczi et al., 1990, p. 43).

In the analysis, the central task of an occupation is defined and complex functions are derived. Furthermore, basic sub-functions and simple tasks are derived from complex functions of the occupation. Therefore, functional analysis may be characterised as a process of disaggregating complex functions into smaller components, where functions are the defined outcome of a realised activity without describing the specific context of the activity. Functional analysis leads to small units and elements of competence that compose the design of a competence standard. One arising problem is that functions should be generally defined, although they are not necessarily suitable for all the different contexts. Another difficulty is that the complexity of work processes and occupations cannot be easily addressed simply by disaggregating complex functions into smaller units.

Although both functional analysis and DACUM are complex procedures that require sufficient expertise from practitioners, they depict the most commonly used methods for curriculum development in Competence-Based Education and Training. Other methods – such as expert interviews, questionnaires, and Delphi – could not be established as appropriate tools for curriculum development within Competence-Based Education and Training on a large scale.

### 3.1 Target groups

INCAMP consortium identified appropriate Target Groups (users/students/training participators) for the Master's curriculum, based on consortium partner's preliminary research and knowledge, discussion, identification and set up via project consortium regular communication and project meetings.

Tree (3.) Target oriented user groups were defined:

1. Managers
2. Post-graduate Students
3. Professionals

(technical engineers from various environment sectors).

### 3.2 Basic definition of target groups

**Manager** is a person engaged in management. Management / Business managers are responsible for overseeing and supervising a company's activities and employees. Small businesses rely on the business manager to keep workers aligned with the goals of the company. Business managers report to top executives in a larger organization, but in a small company, the manager might either own the company or report directly to the owner.

*Types of Business Managers* Business managers oversee the day-to-day operations in large and small organizations. In a big company, managers typically oversee an individual department, such as marketing, sales or production. In a smaller company, the business manager might oversee





operations in all departments. Office managers oversee the work of clerical or support staff in the business.

**A post-graduate student** is someone who is enrolled in a degree-granting program (either undergraduate or graduate) at an institution of higher education and registered full-time or part-time according to the definition of his/her respective public academic education institution.

**Professionals** in the case of INCAMP are mostly engineering technicians / technical engineers working in various thematic sectors or industries that are some kind involved in the resources management sector.

An engineering /technical engineer is primarily trained in the skills and techniques related to a specific branch of engineering, with a practical understanding and has general fundamental engineering concepts. He often assist engineers and technologists in projects and research and development.

Professionals solve technical problems. They build or set up equipment, conduct experiments, and collect data and calculate results. They might also help to make a model of new equipment. Some technicians / engineers works in quality control, where they check environment products, do tests, and collect data. In environment manufacturing, they help to design and develop products. They also find ways to produce things efficiently. There are multiple fields in this job such as; software design, repair, etc. They may also be people who produce technical drawings or engineering drawings.



**FOR FURTHER INFORMATION**  
[www.incamp-project.eu/](http://www.incamp-project.eu/)