

## **Development of the International Cartographic Association sponsored Internet Cartography Teaching Programme**

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### **SUMMARY**

The proposed International Cartographic Association (ICA) sponsored Internet cartography teaching programme has been under development for a number of years as one of the activities of the Commission on Education and Training (CET). The teaching programme aims to provide modules on cartography for delivery over the Internet so that students from any geographical region have access to Bachelor of Science level cartographic theory and practice. The approach is to present a 'holistic' staged approach to education, with each stage becoming more sophisticated and closer to what is expected for a BSc program. The authors wish to present the latest developments in the teaching programme.

### **1. INTRODUCTION**

The proposed International Cartographic Association (ICA) sponsored Internet cartography teaching programme provides modules on cartography that can be delivered to remote locations; can be used to update existing courses; used as alternative delivery in existing courses; provide an International standard for cartography courses. The authors wish to present the latest developments in the teaching programme so that feedback can be gained from the International audience of educators at this FIG meeting. To place this activity in context the CET terms of reference are included below.

### **2. CET TERMS OF REFERENCE - 2003-2007**

- To work for the general aims conceived in the ICA Statutes.
- To produce an ICA-sponsored Internet cartography teaching programme (modules), with regional workshops for training the teachers.
- To produce an ICA-sponsored Internet programme for continuing education, with regional workshops for teacher training.
- To support cartography and cartographic education in developing nations by holding seminars in developing nations.
- To promote integration by establishing linkage with the committees on education of sister surveying and mapping disciplines, by producing a list of institutions providing

cartography course programmes, and interact as much as possible with other ICA commissions and working groups (organize joint meetings).

- To produce appropriate publications for dissemination of results of the above efforts and publish it in proceedings or on the CET website according to the IOF publication policy.

### **3. BACKGROUND INFORMATION**

The idea of a web course on cartography was conceived by Professor Ormeling (ICA Secretary-General). His thoughts on the web course were presented in his paper "WWW Cartography Courses" published as part of the Proceedings of the Seminars on *Developing the ICA-CET Internet Cartography Course* held at Budapest (Hungary), February 4-5, 2000 and Apatity (Russia), August 22-24, 2000. Below is a summary of the main points.

#### **3.1 The need for the web course on cartography**

- Numbers of students and trainees in cartography proper are relatively small
- It is only in the larger countries that independent cartography programmes can exist
- For smaller countries the alternatives are less specialised and less frequent education and training
- No separate WWW cartography courses exist

#### **3.2 Characteristics of the course**

- Independent
- Full-fledged cartography web course
- To set a standard in cartography teaching

These initial seed ideas helped to form the foundation for the existing program and provided the guidance from which the following objectives were developed.

### **4. WEB COURSE OBJECTIVES**

The objectives of the web course are to provide sufficient knowledge for the visualisation of spatial information at a BSc level through the medium of Internet with adequate possibilities for interaction with teachers.

#### **4.1 Some benefits:**

- May be the only opportunity for teaching
- Provide an opportunity to upgrade existing courses
- Used as a supplement to existing courses
- Provide a standard for comparison with existing courses

## 4.2 Implementation

- Where no classical cartography courses can be provided
- Where the number of students is small
- Where students live far apart

## 4.3 Requirements

- participants must have access to the web several hours per week
- colour printing facilities
- a scanner (*preferred*)
- access to a graphics department or cartography section
- a library - to provide some basic literature
- literature referred to in the course should be accessible through the web as well

## 4.4 Access and Interaction

- Free access to the course material
- Able to be downloaded
- Subject to copyright
- Not for commercial exploitation

## 4.5 Requirements for course participants (*students/lecturers*)

- able to check upon their progress
- some interaction is necessary
- provide questions, the answers to which can be found elsewhere in the module.
- participants send in their test results to be corrected/graded by teachers
- a help desk
- appointment of people to help out during specific periods of time
- regional workshops for training the teachers

*See also the document [Internet Cartography Course - ICA-CET by László Zentai and Ferjan Ormeling, Bonn 1999]*

It was then necessary to consider the appropriate content for such a course and to allow for changes in theory and practice which would take place during the development of the course.

## 5. THE INTERNET CARTOGRAPHY COURSE PLAN

The Internet Cartography Course plan has been documented. See the “The web course in cartography” in Proceedings of the Seminars on Developing the ICA-CET Internet Cartography Course held at Beijing (China), August 9, 2001 and Helsinki (Finland), May 28, 2002, published in 2003.

After much discussion between members of the ICA the following general topic areas were compiled and became the starting point for the development of content for the course.

The list of subjects for the course is:

- Maps and cartography - main definitions
- Map Projections
- Nature of cartographic representation
- Generalisation I, II and III
- Topographic mapping I and II (Including relief representation)
- Statistical map design
- Thematic Mapping (methods)
- Colour use
- Map use
- Atlases
- Toponymy
- Legal aspects and Copyright
- Reproduction processes
- Databases
- Digital mapping
- Graphic formats and conversion
- Internet mapping
- Introduction to GIS
- Cartography and GIS
- Mapping Project

A number of meetings and informal discussions have seen significant conceptual changes being introduced so that the course could become a reality. Expectations of the voluntary ICA working team have been amended and a more workable arrangement has been worked out which takes into account the efforts of those who have already developed on-line resources.

## **6. THE WAY FORWARD**

Since the ICA conference in A Coruña, Spain in July 2005 the way forward has become clear. This insight was revealed after many conversations with individuals and discussion within groups at the conference. The following views have influenced the re-direction of the project:

1. It is not possible for members of the CET to produce, or even gather, all the modules of a high quality into a form suitable as an on-line BSc Cartography program.
2. It would require a massive effort over an extended period for the CET members to attend to all the tasks required to maintain such a program.
3. Existing providers of on-line programs in cartography were concerned that the ICA program would compete with their offerings.
4. An opportunity presented itself at the conference for the ICA to access existing modules without cost.

5. It was suggested that the ICA could provide accreditation of suitable on-line providers (universities).
6. Accredited providers would earn the right to use the ICA accreditation in their marketing material.
7. A representative from each accredited provider would sit on a panel to determine the way forward for the ICA involvement in on-line learning.
8. The ICA CET initiative would target locations where no reasonable opportunity existed for individuals to be trained and educated in cartography.
9. The ICA CET should provide a doorway to on-line cartographic training and education
10. The ICA CET should, in the early stages, provide mentors for individuals enrolled in the program.

### **6.1 The Approach To Be Adopted**

The ICA CET will set up a global management structure and will facilitate access to basic and intermediate training in cartography using a selection of on-line modules.

The ICA will accredit suitable on-line providers (universities).

When a student has completed and satisfied the assessment requirements for the basic and intermediate training in cartography using the on-line modules they will be eligible to apply to take up the on-line offerings available through the accredited providers registered with the ICA. A student may be guided to one particular program offered at a single university or may select modules from a number of on-line providers which will sum to the equivalent of a BSc - Cartography.

The panel of accredited providers will determine the Terms-of-Reference associated with the ICA CET Internet-based Bachelor of Science project and will provide ongoing guidance to the day-to-day running of the project.

### **6.2 Administrative Sequence of Activities**

A high level of commitment is required by one, or a group of individuals, before significant progress can be made with the program. There are many steps in the process and it is likely that the momentum will change as those involved pass on the task to other CET members.

The key activities are listed below:

1. Revised proposal fully documented
2. Structure for the basic and intermediate levels developed
3. Main topics for inclusion at the basic and intermediate levels identified
4. Coordinator identified
5. Marketing approach determined
6. Specifications developed for web site
7. Web site designed to specifications
8. Guidelines for students document prepared
9. Web site populated with required information
10. Logistics planning session held

11. Testing of web site effectiveness
12. Refinement of web site
13. Limited trial of website
14. Website to go live

## 7. CONCLUDING COMMENT

This Internet Bachelor of Science- Cartography programme is seen as a priority task to be undertaken by the Commission on Education and Training. A lot of very valuable preliminary work has been undertaken so far and now the CET needs help from the international community to bring the vision of an Internet BSc- Cartography to reality.

The screenshot shows a Microsoft Internet Explorer browser window displaying a web page titled "ICA course on Toponymy - Microsoft Internet Explorer". The page content is as follows:

**S1: Introduction**

**3. CONFUSION BECAUSE OF SAME NAME FOR DIFFERENT LOCATIONS (HOMONYMS)**

**Stratford upon Avon** (UK)  
 Stratford upon Avon (Australia)  
 Stratford upon Avon (New Zealand)

**Birmingham** (UK)  
 Birmingham (Alabama, USA)  
 Birmingham (Iowa, USA)  
 Birmingham (Michigan, USA)  
 Birmingham (Ohio, USA)

**Batavia** (historical name for Jakarta)  
 Batavia (San Luis Province, Argentina)  
 Batavia (California, USA)  
 Batavia (Illinois, USA)  
 Batavia (New York, USA)  
 Batavia (Saramacca, Suriname)

*What is a homonym?*  
 Each of two or more identical toponyms denoting different topographic features.

The page also features a map of the Birmingham area with various locations marked, including Stratford-upon-Avon, Worcester, and Coventry. A navigation menu on the left includes links for HOME, PROGRAM, SELF STUDY, EXERCISES, DOCUMENTS, ICA, ACI, LINKS, and CONTACT. A copyright notice at the bottom reads "©2004 ICA - optimised for browsers version 4 or higher on 1024x768 screen".

Figure 1: Sample page of the Toponymy course (written by Ferjan Ormeling)

## REFERENCES

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## **BIOGRAPHICAL NOTES**

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