

**CPACC SPONSORSHIP FOR PARTICIPATION IN THE  
CERTIFICATE IN GEOGRAPHIC AND LAND INFORMATION SYSTEMS  
UWI, CAVE HILL, BARBADOS**

**Background**

The CPACC project through its Regional Project Implementation Unit (RPIU) signed a Memorandum Of Understanding with the Centre for Resource Management and Environmental Studies (CERMES) in August 1998 to support the development of GIS capacity both in the Region and at the University of West Indies (UWI), Cave Hill campus in Barbados. The specific objectives of the MOU were:

1. To establish a well-equipped Geomatics Laboratory at CERMES which will be used to support the teaching and research activities of CPACC, CERMES and other University of the West Indies units;
2. To facilitate capacity building throughout the Caribbean in Geomatics related disciplines.

The MOU also specified that CPACC would provide hardware and software in support of the Geomatics Laboratory. In return, CPACC would have unlimited access to the Geomatics Laboratory in pursuit of its project demands and also, CPACC would reserve two places per year for qualified CPACC nominees in the Certificate Course.

**The Certificate in Geographic and Land Information Systems**

The Engineering Institute of the Faculty of Engineering, UWI, St. Augustine campus in Trinidad initiated a modular Certificate In Geographic and Land Information Systems (CGLIS) course in 1997, involving six one-week modules and a special project based in the classroom and laboratory coupled with on-the-job . The year long course has been extended to the Cave Hill campus of the UWI in Barbados in association with CERMES and support from CPACC.

The CGLIS course is aimed at those engaged in GIS/LIS development and implementation in both the public and private sectors. Additionally, the target group includes professionals such as: engineers, surveyors, planners, geographers, agriculturists and all others who are interested in the use, development, and management of GIS/LIS. The 1998 to 1999 CGLIS course prospectus is appended to this document.

The first module of the 1999-2000 CGLIS Course is scheduled for 25<sup>th</sup> to 29<sup>th</sup> October 1999.

**CPACC Sponsored Participation in the Certificate Course**

CPACC expects to support two participants in the CGLIS course each year for the duration of the project. The first two CPACC supported participants were selected from the Coastal Zone

Management Unit and the Environment Division in the Ministry of Health and the Environment, both in Barbados. These agencies were favourably considered given the involvement of their agencies in the CPACC Project and the limited notice available between the finalisation of the MOU and the deadline for registration.

The CPACC Project will support the participation of two individuals per year from CPACC member countries in the Certificate Course as follows:

1. Course fee (US \$3000);
2. Air travel between Barbados and the individual's country for the six one-week courses;
3. Accommodation in Barbados on the UWI Campus for the six one-week courses (for participants not resident in Barbados).

The selection of the CPACC supported participants will be based on an open competition among government nominees and on the criteria outlined in the following section.

### **Criteria for CPACC Sponsorship to the CGLIS Course**

CPACC sponsorship for participation will be based on the following:

1. Meeting of the matriculation requirements for the Certificate course (as specified in the appended course prospectus);
2. CARICOM National resident in one of the twelve CPACC project countries (appendix 2);
3. Employment in an organisation involved in the CPACC process (i.e. National Focal Point (NFP), National Implementation Coordinating Unit (NICU), Lead Agency in one of the CPACC Components; recommended repository for CPACC generated spatial data);
4. The organisation in which the prospective participant is employed must already have GIS capacity in the form of software and hardware;
5. The Special Project (see appended course prospectus) to be undertaken should be related to either the country's CPACC Pilot Component or Component 3 of the CPACC project (see Website at [www.cpacc.org](http://www.cpacc.org) );
6. Commitment of and certification from the nominating agency that:
  - 6.1. The subsistence costs and terminal expenses of the participant (where not resident in Barbados) will be met by the employer or other sources;
  - 6.2. Costs of books will be met by the candidate, employer or other sources;

6.3. Leave will be granted for the six one-week courses; and

6.4. Access to a GIS facility to undertake course work and the Special Project are guaranteed by the employer.

### **Nominations for CPACC Sponsorship to the CGLIS Course**

All nominations should be submitted on the attached form through the CPACC NFP or applicant's Head of Department. The nominations should include:

1. Resume of the prospective participant including current job description;
2. Statement of how the training will benefit the organisation;
3. Identification of the Special Project to be addressed and which should be related to either the country's CPACC Pilot Component or Component 3 of the CPACC project;
4. Description of the proposed Special Project and the expected data to be used;
5. Written commitment to meeting the subsistence costs and terminal expenses for the prospective participant;
6. Written commitment to allowing the individual leave to attend all of the one week courses and to undertake the Special Project using departmental GIS facilities.

Nominations should be mailed or faxed to:

**The Project Manager,  
Regional Project Implementation Unit,  
CPACC Project,  
CERMES Building, UWI  
Cave Hill  
St. Michael  
BARBADOS  
Fax (246) 417 0461**

**All nominations should be received by the CPACC RPIU no later than 30<sup>th</sup> June 1999.**

Nominations may be forwarded prior to the availability of CGLIS application forms for 1999-2000. These forms will be forwarded to applicants and any other interested parties when available.

There are no limits to the number of applications that can be sent from any country.

## **Award of CPACC Sponsorship to the CGLIS Course**

Award of the CPACC Sponsorship for the CGLIS Course will be undertaken at the sole discretion of the RPIU Project Manager with advice from the Coordinator of the CGLIS.

### **General**

For further information, you may contact Mr. Ian King, Information Systems Coordinator/GIS Specialist at (246) 417 4579/80 or email [kingcpacc@sunbeach.net](mailto:kingcpacc@sunbeach.net).

**APPENDIX 1: NOMINATION FORM FOR CPACC SPONSORSHIP TO THE  
1999-2000 CERTIFICATE IN GEOGRAPHIC AND LAND  
INFORMATION SYSTEMS**

**SECTION A: TO BE COMPLETED BY APPLICANT**

**Personal Information**

*Family Name* \_\_\_\_\_ *First Name* \_\_\_\_\_ *Initial* \_\_\_\_\_

*Nationality* \_\_\_\_\_

*Address* \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Tel.* \_\_\_\_\_ *Fax* \_\_\_\_\_ *Email* \_\_\_\_\_

*Contact Address (if different from above)*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Tel.* \_\_\_\_\_ *Fax* \_\_\_\_\_ *Email* \_\_\_\_\_

*Education and Training*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*GIS Experience and Training*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Employment Information**

*Employer* \_\_\_\_\_

*Position* \_\_\_\_\_

*Duties* \_\_\_\_\_

\_\_\_\_\_

*Address* \_\_\_\_\_

\_\_\_\_\_

*Head of Department* \_\_\_\_\_

*Tel.* \_\_\_\_\_ *Fax* \_\_\_\_\_ *Email* \_\_\_\_\_

**Project and Training Information**

*Proposed Project and Expected Data (Submit an attachment if necessary)*

\_\_\_\_\_

\_\_\_\_\_

*Relationship of Proposed Project to CPACC Components (Submit an attachment if necessary)*

\_\_\_\_\_

*Signature* \_\_\_\_\_ *Date* \_\_\_\_\_

**Checklist of Attached Documents**

- Resume.
- Proposed project and expected data.
- Relationship of Proposed project to CPACC Components.

**SECTION B: TO BE COMPLETED BY NOMINATING AGENCY**

*Nominating Agency* \_\_\_\_\_

*Address* \_\_\_\_\_

\_\_\_\_\_

*Tel.* \_\_\_\_\_ *Fax* \_\_\_\_\_ *Email* \_\_\_\_\_

*How will training benefit applicant's organisation or country (Submit an attachment if necessary)*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Name and Position* \_\_\_\_\_

*Signature* \_\_\_\_\_ *Date* \_\_\_\_\_

*Department Stamp*

**Checklist of Attached Documents**

- Explanation of how will training benefit applicant's organisation or country.
- Letter confirming commitment to meet the applicant's subsistence costs and terminal expenses.
- Letter confirming commitment to allowing applicant leave to attend training and to have access to GIS facilities to undertake assignments and final project.

## Appendix 2: CPACC Countries and National Focal Points

### **Antigua and Barbuda**

Ms. Cheryl Jeffrey, Acting Chief  
Fisheries Officer  
Ministry of Agriculture, Lands, and  
Fisheries  
Temple Street,  
St. John's, Antigua and Barbuda  
Tel: (268) 462-6106  
Fax: (268) 462-6104  
[mintourenv@candw.ag](mailto:mintourenv@candw.ag)

### **Bahamas**

Mr. Philip Weech, Chairman, Climate  
Change Committee  
Bahamas Environment, Science &  
Technology Commission  
P.O. Box CB-10980  
Nassau, The Bahamas  
Tel: (242) 322-2799  
Fax: (242) 322-2799  
[nicu@batelnet.bs](mailto:nicu@batelnet.bs)

### **Barbados**

Mr. Rawleston Moore, Environmental  
Research Officer  
Ministry of Health and the Environment  
Sir Frank Walcott Building  
Culloden Road, St. Michael, Barbados  
Tel: (246) 431-7680  
Fax: (246) 437-8859  
[envdivn@caribsurf.com](mailto:envdivn@caribsurf.com)

### **Belize**

Zenaida Moya, GEF Operational Focal  
Point  
Ministry of Economic Development  
P.O. Box 42 Administrative Building  
Belmopan, Belize  
Tel: (501) 82-2527 82-2526  
Fax: (501) 82-3673  
[econdev@btl.net](mailto:econdev@btl.net)

### **Commonwealth of Dominica**

Gerard Hill, Coordinator  
Sustainable Development Council  
Valley Road, P.O. Box 293  
Roseau, Dominica  
Tel: (809) 448-2045  
Fax: (809) 448-5840  
[sdchill@tod.dm](mailto:sdchill@tod.dm)

### **Grenada**

Ms. Jocelyn Paul, Planning Officer  
Ministry of Finance, Planning &  
Development, Trade & Industry  
Lagoon Road, The Carenage  
St. George's, Grenada  
Tel: (809) 440-9701  
Fax: (809) 440-4115  
[plandev@caribsurf.com](mailto:plandev@caribsurf.com)

### **Guyana**

Dilip Jaigopaul, Chief  
Hydrometeorologist Officer (ag.)  
Hydrometeorological Department  
Ministry of Agriculture  
18 Brickdam, Stabroek  
Georgetown, Guyana  
Tel: (592) 25-4247  
Fax: (592) 26-1460  
[dkjhym@guyana.net.gy](mailto:dkjhym@guyana.net.gy)

### **Jamaica**

Clifford Mahlung, Applied Meteorologist  
National Meteorological Service  
P.O. Box 103, 65 3/4 Half Way Tree  
Road  
Kingston, 10, Jamaica  
Tel: (876) 929-3700  
Fax: (876) 960-8989  
[metja@infochan.com](mailto:metja@infochan.com)

**St. Kitts and Nevis**

Randolph Walters, Director  
Ministry of Tourism, Culture and  
Environment  
P.O. Box 132, Pelican Hall  
Basseterre, St. Kitts  
Tel: (869) 465-4040  
Fax: (869) 465-8794  
[sknmtcce@caribsurf.com](mailto:sknmtcce@caribsurf.com)

**St. Lucia**

Cornelius Fevrier, Planning Officer  
Ministry of Agriculture, Forestry, Fishing  
and Environment  
P.O. Box 709  
Castries, St. Lucia  
Tel: (758) 451-8728  
Fax: (758) 451-9029  
[nccp@candw.lc](mailto:nccp@candw.lc)

**St. Vincent and the Grenadines**

Dr. Reynold Murray, Environmental  
Services Coordinator  
Ministry of Health and Environment  
Kingston  
St. Vincent  
Tel: (784) 456-1111 Ext. 466  
Fax: (784) 457-2684  
[svgenv@caribsurf.com](mailto:svgenv@caribsurf.com)

**Trinidad and Tobago**

Ms. Marva Salvador-Arthur  
Environmental Management Authority  
2nd Floor, the Mutual Center  
16 Queen's Park West, P.O. Box 150  
Newtown  
Port of Spain, Trinidad and Tobago  
Tel: (809) 628-8042  
Fax: (809) 628-9122  
[ema@carib-link.net](mailto:ema@carib-link.net)

*A New Academic Programme*

**Certificate  
in  
Geographic and Land Information  
Systems Management**

*For more information please contact:*

Professor Oliver Headley/Mr William Hinds  
Centre for Resource Management & Environmental Studies (CERMES)  
Faculty of Science & Technology  
The University of the West Indies  
Cave Hill Campus, BARBADOS, W.I.

Tel.:(246)417-4316

Fax.:(246)424-4204

E-mail: [uwienergy@sunbeach.net](mailto:uwienergy@sunbeach.net)

SEPTEMBER 1998/99

## I. The Programme

### Title

Geographic and Land Information Systems Management

### Level

Certificate

### Length

This Certificate programme will be offered over one calendar year using a mix of part-time and full-time studies.

### Nature of Instruction

The Course will be delivered using a series of short intensive instructional periods. Six (6) weeks of whole-day lectures, tutorials and demonstrations will be undertaken together with a four-week intensive on-campus<sup>1</sup> period to undertake the final special project.

### Components of the Programme

<i>Code</i>	<i>Course</i>	<i>Credits</i>	<i>Contact Hrs.</i>
<i>SV41A</i>	<i>Introduction to GIS/LIS</i>	3	39
<i>SV42A</i>	<i>Digital Cartography and Visualisation</i>	3	39
<i>SV43B</i>	<i>Data Acquisition Systems</i>	4	52
<i>SV44B</i>	<i>Database Design and Development</i>	4	52
<i>SV45C</i>	<i>Spatial Analysis</i>	3	39
<i>SV46C</i>	<i>Project Management</i>	3	39
<i>SV47C</i>	<i>Special Project</i>	6	78
		<b>26 Crs.</b>	<b>338 Hrs</b>

### Nature of Assessment

<sup>1</sup> For CPACC scholarships, the four-week intensive study will be undertaken in the individual's home country.

With the exception of SV47A Special Project which shall be assessed 100% by course work, all other courses shall be assessed as follows:

Final examination: 60%, and assessed assignments: 40%

### **Conditions for entry**

Passes in at least five (5) O level GCE/CXC subjects including English Language and Mathematics or equivalent qualification. Applicants must also be computer literate, as knowledge of DOS/Windows will be required.

## **II. Rationale for New Programme**

The use and development of Geographic Information Systems and Land Information systems has revolutionised land management and spatial analysis. Using information technology, land-related data can now be acquired using a variety of techniques. The data acquired within a GIS/LIS provide a dynamic environment for various analyses. Applications range from land tenure management, natural resource management and infrastructural management to environmental management and engineering management.

In the last seven (7) years, several agencies in the Caribbean have acquired GIS/LIS hardware and software in support of their organisational responsibilities. In Trinidad and Tobago over eight (8) agencies have adopted GIS/LIS technology. In Jamaica and Barbados there are over fifteen (15) installed locations. St. Lucia, St. Vincent, Guyana, Dominica, Antigua, Anguilla and Montserrat have all begun to use GIS/LIS technology. Much of these efforts are, however, focused on technological acquisition and very little has been done on human resource development which is necessary to effectively and efficiently utilise these technical resources. One of the reasons for this is the lack of a formal training programme in the Caribbean to adequately cater to the needs of organisations using GIS/LIS.

The Department of Surveying and Land Information in an effort to address this problem, introduced GIS/LIS into its undergraduate B.Sc. Degree programme and also introduced, in 1992, an M.Sc. (GIS) degree programme. These two initiatives possess two main constraints:

1. They are designated along the traditional academic programme with long residency requirements in Trinidad.
2. They have entry requirements that limit access to these programmes to small percentage of persons currently using GIS/LIS in their organisations.

This certificate programme is therefore being designated to eliminate/reduce these two constraints by providing training at the technician level for persons using GIS/LIS.

### **Objectives**

1. To enhance the capability of the participants in the development and use of GIS/LIS concepts and technology.
2. To provide the participants with the working knowledge required in the acquisition, preparation and management of GIS/LIS data.
3. To develop a core of trained GIS/LIS personnel who can provide support for GIS/LIS projects throughout the Caribbean.

### **Target Groups**

1. Those engaged in GIS/LIS development and implementation in both the public and private sectors.
2. Professionals: engineers, surveyors, planners, geographers, agriculturists and all others who are interested in the use, development, and management of GIS/LIS.

### **Costs Associated With Putting on this Programme**

The Certificate programme is designed to be self-financing and marginally profit-oriented. A total of seven courses shall be registered for and passed in order to be awarded the Certificate.

### III. Exemplary Scheduling of the Programme

<u>Modules</u>	<u>Session</u>	<u>Dates</u>
SV41A	<i>Introduction to GIS/LIS</i>	<i>October 1998</i>
SV42A	<i>Digital Cartography and Visualisation</i>	<i>November 1998</i>
SV44B	<i>Database Design and Development</i>	<i>January 1999</i>
SV43B	<i>Data Acquisition Systems</i>	<i>March 1999</i>
SV45C	<i>Spatial Analysis</i>	<i>May 1999</i>
SV46C	<i>Project Management</i>	<i>June 1999</i>
SV47C	<i>Special Project</i>	<i>August 1999</i>

### IV. Course Outline

#### ***SV41A - Introduction to GIS/LIS***

***Course Objectives:*** This course will provide the participants with a full understanding of GIS concepts and principles and how it can be used for resource management.

***Course Content:*** Introduction to concepts; areas of application; system planning and acquisition; data automation; implementation and evaluation strategies; costs and benefits analysis; spatial query and analysis; towards a national GIS/LIS strategy.

#### ***SV42A - Digital Cartography and Visualisation***

***Course Objectives:*** This course provides participants with the knowledge to design and develop visualisation of GIS data using cartographic design principles and desktop mapping software.

***Course Content:*** Introduction to cartographic visualisation and the mapping process; the basic components of a map; map design; symbol design; name design and placement; concept of scale; map projections; data preprocessing techniques; thematic mapping; digital mapping.

#### ***SV44B - Data Acquisition Systems***

***Course Objective:*** This course will provide the participants with an appreciation of various data acquisition methods which can be used to build and update GIS spatial databases.

***Course Content:*** Introduction to Photogrammetric and Remote Sensing methods. Geodetic methods. GPS Concepts, definitions and accuracies. Transformation of GPS horizontal and vertical positions and mean sea level heights. Introduction to GIS/GPS components. DGPS data collection with GIS/GPS receivers. GPS Software and Data Processing.

### ***SV43B - Database Design and Development***

***Course Objective:*** This course is designed to expose participants to how GIS can be used to develop applications. Using real-life data, the participants will develop GIS databases.

***Course Content:*** Conceptual and logical database design; building and coding the attributes; digitizing and scanning of maps; relating spatial and attribute data; using databases; and database management.

### ***SV45C - Spatial Analysis***

***Course Objectives:*** Participants will acquire the skills and knowledge to use a desktop mapping software package for various spatial data analyses.

***Course Content:*** ArcView basics; creating views and themes; working with themes; the power of tables; spatial query and analysis; working with charts; creating a map layout; addresses and other events. Digital terrain models. Network analysis. Address matching system.

### ***SV46C - Project Management***

***Course Objectives:*** Participants will be introduced to basic principles of project management using Case studies.

***Course Content:*** Project initiation, definition, and project cycle. Project evaluation and monitoring. Report writing, pricing strategies; maintenance of digital databases.

### ***SV47C - Special Project***

***Course Objectives:*** To elicit from the participants their understanding of the programme and their ability to apply concepts learned to relevant situations.

***Course Content:*** Independent design, development and implementation of a GIS application relevant to the needs of the students or their sponsors.

## **V. Books**

This programme does not attract additional books or resources apart from those currently being used in the B.Sc. and M.Sc. Programmes of the Department. The list of recommended books is as follows:

1. Worral, L. (ed.) (1991). **Spatial Analysis and Spatial Policy Using Geographic Information Systems.** Belhaven Press, New York.
2. Clarke, K.C. (1997). **Getting Started With Geographic Information Systems.** Prentice Hall, New Jersey.
3. Burrough, P.A. (1986). **Principles of Geographical Information Systems for Land Resources Assessment.** Claredon Press, Oxford.
4. Environmental Systems Research Institute Inc. (1995). **Understanding GIS: The ARC/INFO Method.** (PC-version). John Wiley, New York.
5. Date, C.J. (1995). **An Introduction to Database Systems.** Addison-Wesley Publishing Company, New York.

## **VI. Distance Education Offering**

The programme co-ordinator is a recent awardee of the Cable & Wireless Fellowship for distance education. Using the opportunity of the award, it is estimated that a distance education option for this programme will be developed within two years of the beginning of the programme using skills and knowledge acquired during the fellowship in the United Kingdom.

## **VII. Course Team**

Dr. Jacob Opadeyi (Coordinator)  
Dr. Raid Al-Tahir  
Dr. Bsheshem Ramlal  
Ms Shahiba Ali  
Mr Ervel Burnham  
Mr Phillip Joseph