



## **The EAB Manifesto**

Plans for IEEE Educational Activities in 2007

*“Life shrinks or expands in proportion to one's courage”*  
*Anais Nin (1903 – 1977)*

Moshe Kam

15 January 2007

Version 6



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*IEEE by-law I-304.3: The IEEE Educational Activities Board (EAB) shall recommend to the Board of Directors policies on educational matters and implement programs specifically intended to serve and benefit IEEE members in educational pursuits, the engineering and scientific community, and the general public. These programs shall include the broad planning of educational activities of the IEEE, the development and delivery of continuing education products and activities, the development of guidelines for the IEEE representatives to accreditation bodies, the monitoring of accreditation activities, the coordination of pre-college programs, and the representation of the IEEE in matters regarding engineering education. The EAB shall be the IEEE interface in education-related matters with external bodies.*

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## **What is New in EAB in 2007?**

- IEEE first Standards Educational Workshop for Practicing Engineers will be held in Chicago in October 2007 (joint effort with the Standards Association)
- IEEE Expert Now will be offered to IEEE members
- The first IEEE Expert Now Module Cluster will be developed – on IEEE 802 standards
- IEEE Expert Now will get a new editorial board and may make net profit
- TryEngineering.org will go global – the portal will be made available in six (6) new languages, and close to 30 new countries will be added to the University Search
- IEEE will launch a new portal on engineering accreditation worldwide, [www.Engineering-accreditation.org](http://www.Engineering-accreditation.org)
- The IEEE Working Group on Education in China will begin its work
- IEEE's accreditation effort in the Caribbean will start
- An International Workshop on Pre-University Engineering Education will be held in Munich, Germany in November 2007
- The Teacher In-Service program (TISP) will go to Rio De Janeiro, Lima (Peru), Dallas and Baltimore (joint effort with RAB and IEEE-USA)
- A major new initiative will get underway: Increasing the Representation of Women in IEEE's Fields of Interest (joint effort with WIE)

## 0. Glossary

<b>Term</b>	
ACM	Association for Computer Machinery
APC	Accreditation Policy Council (EAB)
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
BEWG	Biometrics Engineering Working Group (IEEE TAB Committee on Biometrics and EAB)
CEAA	Committee on Engineering Accreditation Activities (EAB)
CTAA	Committee on Technology Accreditation Activities (EAB)
CGAA	Committee on Global Accreditation Activities (EAB)
CPEC	Continued Professional Education Committee (EAB)
ECETDHA	Electrical & Computer Engineering Technology Department Heads Association
EA/EAB/EAD	Educational Activities/Board/Department
EMBS	Engineering in Medicine and Biology Society
HKN	Eta Kappa Nu <sup>1</sup>
IEL	IEEE/IEE Electronic Library
LMS	Learning Management System, a software package that manages and delivers online content to learners.
MDC	Membership Development Committee
MOU	Memorandum of Understanding
NCEES	National Council of Examiners for Engineering and Surveying
NSF	National Science Foundation (a US organization)
OU	Organizational Unit
PAC	Public Awareness Committee (EAB)
PECC	Pre College/ Pre University Coordinating Committee (EAB)
PEV	Program evaluator (accreditation)
RAB/RAD	Regional Activities Board/Department
SA	Standards Association
SEC	Standards Education Committee (EAB/SA)
SETF	Standards Education Task Force (now SEC) (EAB/SA)
SEOC	Section Outreach Committee (EAB)
SME	Society of Manufacturing Engineers
SOOC	Society Outreach Committee (EAB)
TAB/TAD	Technical Activities Board/Department
TISP	Teacher In-Service Program
UEF	United Engineering Foundation (a US organization)
VDE	Verband der Elektrotechnik, Elektronik und Informationstechnik; Association for Electrical, Electronic & Information Technologies (Germany)
WGEC	Working Group on Education in China

<sup>1</sup> See [www.hkn.org](http://www.hkn.org). The organization describes itself as “a unique membership organization dedicated to encouraging and recognizing excellence in the electrical and computer engineering field.”

# THE EAB MANIFESTO

## **1. Scope and organization**

The manifesto describes the directions that the IEEE Educational Activities Board (EAB) will pursue in 2007. It outlines key challenges and desired outcomes.

TABLE 1 summarizes the planned activities by subject.

TABLE 2 summarizes the planned activities by the responsible committee chair.

Both tables provide references to the rest of the document (page numbers).

The manifesto emphasizes new initiatives and projects. Important but routine activities (e.g., preparation of a budget, awards, support of accreditation evaluators, nominations and appointments) are not described in detail.

Whenever the term “Engineering” is used, it is understood to include Computer Science. Whenever the term “Engineers” is used, it is understood to include practitioners of Computer Science.

## **2. EAB’s Guiding Principles**

Education is an essential process that all persons involved with technology need to pursue on a planned and continuing basis.

IEEE has an obligation to provide its members, and others who are concerned with IEEE’s technical fields of interest, with high-quality educational opportunities to explore and study these topics.

IEEE needs to educate and foster a dialog with the public on technological and engineering questions, with emphasis on young people who may consider engineering as a career path.

## **3. EAB’s purpose**

To provide members and all persons involved in IEEE’s technical fields of interest with high-quality opportunities for education on these topics.

To provide young people and their teachers and parents with opportunities to understand prospects and career paths in engineering and technology.

To provide the profession’s perspective on all key aspects of higher education in IEEE’s technical fields of interest. Among these are: curriculum, accreditation, recruiting and retention, educational policies, and the research enterprise.

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## 4. Summary – what will EAB do in 2007?

### 4.1 Pre-university education

#### (1) TryEngineering.org

- a. Upgrade TryEngineering.org to serve the university community in addition to the pre-university community
- b. Expand *Find a University* to include academic institutions in 30 new countries
- c. Offer the TryEngineering portal in at least six (6) new languages
- d. Align internal operations to improve the *Ask an Expert* service
- e. Institutionalize TryEngineering.org expansion in EAB's regular programs (2008 budget)

#### (2) TISP (Teacher In-Service Program)

- a. Develop at least 20 new TISP lesson plans
  - b. Conduct at least four (4) TISP sessions (in Regions 2, 5, 8, and 9)
  - c. Test a TISP model based on participation of student branches in Region 9
  - d. Institutionalize TISP expansion in EAB's regular programs (2008 budget)
- (3) Conduct an international workshop on pre-university engineering education in Munich, Germany
  - (4) Explore a possible program for pre-university students in selected IEEE conferences (potential new initiative)
  - (5) Explore a paper/on-line publication for pre-university students (potential new initiative)
  - (6) Continue efforts toward the third *Deans Summit*
  - (7) Develop a job description for Pre-university Education Chairs at the Region and Section level
  - (8) Develop instructional material for school counselors (under an UEF grant)

### 4.2 University-level education

- (1) Execute Phase 1 of the new initiative "Increasing the Representation of Women in IEEE's Fields of Interest" (working with IEEE WIE)
- (2) Engage in development, long-term planning and an advertising campaign for the *Standards in Education* SETF portal
- (3) Initiate efforts toward model curricula in Biomedical Engineering, Biometrics, and Systems Engineering

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- (4) Expand TryEngineering to serve the university-level community
- (5) Develop an assessment program for electrical engineering technology students (with SME)
- (6) Conduct a dialogue with NCEES, IEEE-USA, and EMBS on licensing of biomedical engineers in the United States
- (7) Develop an IEEE white paper on the first professional degree in engineering
- (8) Develop an IEEE White paper on the role of technical standards in engineering education
- (9) Accreditation (see below under *4. Accreditation*).
- (10) Institutionalize university level on-line expansion in EAB's regular programs (2008 budget)

### **4.3 Post-university education and continuing education**

#### **(1) IEEE Expert Now**

- a. Institute the IEEE Expert Now Editorial Board
- b. Solicit new modules from IEEE Technical Societies
- c. Offer IEEE Expert Now to IEEE members
- d. Offer IEEE Expert Now modules to IEEE Sections (for Chapter and Section events)
- e. Establish financial framework that allows year-to-year product development
- f. Stabilize and conclude the delivery platform arrangements (internal and external) and the contractual arrangements with outside vendors (e.g., NETg)
- g. Develop and market the first IEEE Expert Now cluster on IEEE 802 Standards
- h. Explore an IEEE Expert Now cluster on Biometrics

#### **(2) Standards**

- a. Develop face-to-face workshops on IEEE Standards (first workshop in 2007 on the 802 IEEE family of standards in Chicago, IL.)
- b. Examine the development of IEEE Expert Now modules to accompany the release of new major IEEE standards (potential new initiative)
- c. Explore cooperation with IPv6 groups to develop instructional material in this area

#### **(3) Certification**

- a. Establish EAB's role in the IEEE certification program development process

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- b. Explore the possibility of starting the development of a certification program in Biometrics

### **(4) IEEE educational programs**

- a. Develop a catalog of all IEEE existing educational and instructional offerings
- b. Plan a summit of OUs that offer educational and instructional material for coordination and standardization
- c. Expand, analyze and monitor the *Education Partners* program

### **4.4 Accreditation – general**

- (1) Develop an IEEE white paper on Accreditation
- (2) Develop the IEEE comprehensive portal on Accreditation, [www.engineering-accreditation.org](http://www.engineering-accreditation.org)
- (3) Institutionalize the outcomes of the 2006-7 new initiative on accreditation in the EAB 2008 budget

### **4.5 Accreditation in the United States**

- (1) Complete development and testing of IEEE instructional materials for returning/continuing program evaluators
- (2) Monitor progress in discussions with ABET on ABET's governance, finances, and the Participation Project
- (3) Coordinate IEEE program evaluator training with the *ABET Participation Project*
- (4) Monitor the plans of ABET in the area of international accreditation

### **4.6 Accreditation outside the United States**

- (1) Implement accreditation efforts in China
- (2) Implement accreditation efforts in the Caribbean, including program in UWI in Trinidad
- (3) Expand IEEE efforts in accreditation in Region 9: Peru, Ecuador, El Salvador

### **4.7 Relationships with other IEEE and non-IEEE organizational units (Outreach)**

- (1) Expand relationships with Eta Kappa Nu (beyond the current Memorandum of Understanding)
- (2) Examine cooperation opportunities with the Sarnoff library
- (3) Continue discussions and cooperation in Biometrics (including certification)
- (4) Develop a job description for IEEE Education Chairs at the Region and Section level (with RAB)
- (5) Develop an MOU between IEEE EAB and VDE

### **4.8 Other efforts**

- (1) Develop a manual for the IEEE Vice President for Education

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**TABLE 1: Responsibilities for EAB/EAD's activities in 2007 by subject**

Area of responsibility	Principal responsible parties	Other OUs, Comments	#
<b>Pre-university Education</b>			
TryEngineering expansion and development	Vice President, PECC Chair, SP Chair		17-19
TISP workshops	Vice President, PECC Chair		20-21
Munich pre-university education summit	Vice President, PECC Chair		20
TISP new lesson plans	PECC Chair, TAB representatives, SOOC Chair	TAB, Technical Society Presidents	21
TISP institutionalization in budget	Treasurer	FINCOM	
Pre-university programs in IEEE conferences	TAB representatives, SOOC Chair	TAB; possibly a new initiative	22
A publication for pre-university students	TAB representatives, SOOC Chair	TAB; possibly a new initiative	23
Job description and institutional framework for pre-university education chairs	SEOC Chair, RAB representatives	RAB, IEEE-USA	22
Third Deans Summit	Vice President , SP Chair		21
Instructional material for school counselors	PECC Chair	UEF Grant	23
TryEngineering.org institutionalization in budget	Treasurer	FINCOM	
<b>University level activities</b>			
New initiative on retention of women in ECE and Computer Science Programs	PAC Chair, SP Chair	WIE	24, 19
Development and advertising campaign for SETF portal	SEC, SA representative	SA	24
Long term plan for SETF portal	SEC, SA representative, SP chair		24
Development of model curricula	Vice President	EMBS, Systems Council, BEWG	25
TryEngineering expansion and development	Vice President, PECC Chair, SP Chair		17-19
Assessment program for electrical engineering technology	APC Chair, Vice President	SME	25
Biomedical Engineering licensing	Vice President	IEEE-USA, EMBS, NCEES	26
First professional degree in Engineering position paper	APC Chair, Vice President	NCEES	26
IEEE white paper on the role of standards in engineering education	SEC, SA representative	SA	27
University-level resources institutionalization in budget	Treasurer	FINCOM	
Examine potential of IEEE Expert Now in the academic market.	CPEC Chair		29

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<b>Post-university educational activities</b>			
Solicitation of modules for IEEE Expert Now	SOOC Chair, TAB representatives		28-29
Establishment of an IEEE Expert Now Board of Editors	Chair of Board of Editors		30-31
Offering Expert Now to IEEE members	CPEC Chair	RAB	29
Offering Expert Now to Sections	SEOC Chair, RAB representatives		29
Financial framework for IEEE Expert Now	Treasurer	FINCOM	29
IEEE Expert Now delivery platform and external contracts	CPEC Chair		29
IEEE Expert Now 802 cluster	SA Rep., SEC, Vice President	SA	29
IEEE Expert Now Biometrics cluster	Vice President	BEWG	29
Standards workshops	SA Rep., SEC, Vice President		31
IEEE Expert Now for new standards	SA Rep., SEC, Vice President	SA; possibly a new initiative	31
IPv6 promotional movie	Vice President	CERDEC	31
Certification tasks	Vice President		32
Education Partners	CPEC Chair		32
Development of a one stop shop for educational offerings by IEEE	CPEC Chair	OUs that offer educational products	32
Offering IEEE Expert Now to IEEE members	CPEC Chair		29
<b>Accreditation – general</b>			
White paper on accreditation	APC Chair, CTAA, CEAA, IEEE representatives to ABET BoD		33
New portal on accreditation	Vice President, APC Chair, CGAA Chair		19
Accreditation initiative institutionalization in budget		FINCOM	
<b>Accreditation in the United States</b>			
Development of instructional material for program evaluators	Chairs of APC/CEAA/CTAA		33
Interactions with ABET: governance, finances, Participation Project	Vice President, APC Chair	APC, CTAA, CEAA, IEEE representatives to ABET BoD, CSAB	34
Monitor ABET plans on international accreditation	Vice President, APC Chair	CTAA, CEAA, IEEE representatives to ABET BoD, CSAB	34
Coordinate program evaluator plans with the ABET Participation Project	Vice President, APC Chair		34

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<b>Accreditation outside the United States</b>			
Accreditation activities in China	Vice President, CGAA Chair, WGEC	Corporate Activities, RAB	35,19
Accreditation activities in the Caribbean	Vice President, CGAA Chair		36,19
Expand IEEE accreditation activities in Region 9	Vice President, CGAA Chair	ICACIT	35-6, 19
<b>Outreach</b>			
HKN outreach	Vice President, SP Chair	RAB, Corporate Activities	37
Sarnoff outreach	Vice President, SP Chair	IEEE President	37
Coordination of Biometrics efforts	Vice President	BEWG	37
Job description for education chairs	SEOC Chair, RAB representatives		37-8
Meeting of all regional education chairs	SEOC Chair, RAB representatives		37-8
MOU with VDE	PECC Chair, Vice President		38
<b>Other efforts</b>			
Development of an VP-EA manual	Vice President, SP Chair		

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**TABLE 2: Responsibilities for EAB/EAD's activities in 2007 by responsible party**

Area of responsibility	Other EAB responsible parties	Other OUs, Comments	
<b>Vice President</b>			
TryEngineering expansion and development	PECC Chair, SP Chair		17-19
TISP workshops	PECC Chair	RAB, IEEE-USA	20-21
<i>Munich pre-university education summit</i>	<i>PECC</i>		<i>20</i>
New portal on Accreditation	APC Chair		19
First professional degree in Engineering position paper	APC Chair	NCEES	26
Interaction with ABET: governance, finances, Participation Project	APC Chair	CTAA, CEAA, IEEE representatives to ABET, CSAB	34
Monitor ABET plans on international accreditation	APC Chair	CTAA, CEAA, IEEE representatives to ABET BoD, CSAB	34
<i>Assessment program for electrical engineering technology</i>	<i>APC Chair</i>	<i>SME</i>	<i>25</i>
<i>Coordinate program evaluator plans with the ABET Participation Project</i>	<i>Vice President, APC Chair</i>		<i>34</i>
Accreditation activities in China	Chair of CGAA, WGEN	Corporate Activities, RAB	35, 19
Accreditation activities in the Caribbean	Chair of CGAA		36, 19
Expand IEEE accreditation activities in Region 9	Chair of CGAA	ICACIT	35-6, 19
<i>Expert Now 802 cluster</i>	<i>SA Rep, SEC</i>		<i>29</i>
<i>Standards workshops</i>	<i>SA Rep, SEC</i>	<i>SA</i>	<i>31</i>
<i>Expert Now for new standards</i>	<i>SA Rep, SEC</i>	<i>SA; possibly a new initiative</i>	<i>31</i>
The EA-VP manual	SP Chair		
HKN outreach		RAB, Corporate Activities	37
Sarnoff outreach		IEEE President	37
Coordination of Biometrics efforts	BEWG		37
Development of model curricula	BEWG	EMBS, Systems Council,	25
Biomedical Engineering licensing		IEEE-USA, EMBS, NCEES	26
IPv6 promotional movie		CERDEC	31
<i>Development of a one stop shop for IEEE educational offerings</i>	<i>CPEC Chair</i>	<i>OUs that offer educational products</i>	<i>32</i>
<i>MOU with VDE</i>	<i>PECC Chair</i>		

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<b>Strategic Planning Chair</b>			
Third Deans Summit			21
<i>Development of an EA-VP manual</i>	<i>Vice President</i>		
<i>TryEngineering expansion and development</i>	<i>PECC Chair, SP Chair</i>		17-19
<i>Long term plan for SETF portal</i>	<i>SA Representative, SEC</i>		24
<i>HKN outreach</i>	<i>Vice President</i>	<i>RAB, Corporate Activities</i>	37
<i>Sarnoff outreach</i>	<i>Vice President</i>	<i>IEEE President</i>	37
<i>New initiative on retention of women in ECE and Computer Science programs</i>		<i>WIE</i>	24,19
<b>Society Outreach Chair, TAB representatives</b>			
Solicitation of modules for IEEE Expert Now		TAB, Technical Society Presidents	28-29
TISP new lesson plans	PECC Chair	TAB, Technical Society Presidents	21
Pre-university programs in IEEE conferences		TAB; possibly a new initiative	22
A publication for pre-university students		TAB; possibly a new initiative	23
<b>Pre-University Education (PECC) Chair</b>			
Munich pre-university education summit	Vice President		20-21
MOU with VDE			38
TISP new lesson plans	SOOC Chair	TAB, Technical Society Presidents	21
Development of instructional material for school counselors		UEF grant	23
<i>TryEngineering expansion and development</i>	<i>PECC Chair, SP Chair</i>		17-19
<i>TISP workshops</i>	<i>Vice President</i>	<i>RAB, IEEE-USA</i>	20-21
<b>Public Awareness Committee (PAC) Chair</b>			
New initiative on retention of women in ECE and Computer Science programs	SP Chair	WIE	24,19

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<b>Accreditation Policy Committee (APC) Chair</b>			
White paper on accreditation	CTAA, CEAA, IEEE representatives to ABET BoD		33
Development of instructional material for program evaluators	Chairs of CEAA/CTAA		33
Assessment program for electrical engineering technology	Vice President	SME	25
Coordinate program evaluator plans with the ABET Participation Project	Vice President, APC Chair		34
<i>First professional degree in Engineering position paper</i>	<i>Vice President</i>	<i>NCEES</i>	26
<i>Interaction with ABET: governance, finances, Participation Project</i>	<i>APC Chair</i>	<i>CTAA, CEAA, IEEE representatives to ABET, CSAB</i>	34
<i>Monitor ABET plans on international accreditation</i>	<i>Chair of APC</i>	<i>CTAA, CEAA, IEEE representatives to ABET BoD, CSAB</i>	34
<i>New portal on Accreditation</i>	<i>Vice President</i>		19
<b>Chair of the Expert Now Board of Editors</b>			
Establishment of an Expert Now Board of Editors			30-31
<b>Section Outreach Committee (SEOC) Chair and RAB representatives</b>			
Offering IEEE Expert Now to IEEE Sections		RAB	29
Job description for education chairs		RAB	37-8
Job description and institutional framework for pre-university education chairs		RAB, IEEE-USA	22
Meeting of all regional education chairs		RAB	37-8
<b>Standards Association (SA) Representative, Standards Education Committee (SEC)</b>			
IEEE Expert Now 802 cluster	Vice President		29
Standards workshops	Vice President	SA	31
IEEE Expert Now for new standards	Vice President	SA; possibly a new initiative	31
Development and advertising campaign for SETF portal		SA	24
Long term plan for SETF portal	SP Chair	SP chair	24
IEEE White paper on the role of Standards in engineering education		SA	27

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<b>CPEC Chair</b>			
Development of a one-stopshop for educational offerings by IEEE	Vice President	OUs that offer educational products	32
IEEE Expert Now delivery platform and external contracts			29
Education Partners			32
Offering IEEE Expert Now to IEEE members			29
Examine potential of IEEE Expert Now in the academic market			29

<b>Treasurer</b>			
Financial framework for Expert Now		FINCOM	29
TISP institutionalization in budget		FINCOM	
Accreditation initiative institutionalization in budget		FINCOM	
TryEngineering institutionalization in budget		FINCOM	
University resources institutionalization in budget		FINCOM	

<b>Chair of CGAA</b>			
<i>Accreditation activities in China</i>	<i>Vice President, WGEC</i>	<i>Corporate Activities, RAB</i>	35
<i>Accreditation activities in the Caribbean</i>	<i>Vice President</i>		36
<i>Expand IEEE accreditation activities in Region 9</i>	<i>Vice President</i>	<i>ICACIT</i>	35-6

## 5. On-line portals

### 5.1 Main activities in 2006

In 2006 IEEE has launched the on-line portal [www.TryEngineering.org](http://www.TryEngineering.org). The portal was designed for pre-university students and their parents, as well as teachers and school counselors. It provides information on engineering disciplines, related activities and participation opportunities, and preparations for academic studies in engineering.

The *Find a University* feature allows a focused search for programs of study that fit the user's criteria (e.g., location, tuition level). The *Ask an Expert* feature allows users to ask questions and get answers from students in engineering programs and practicing engineers. The *Lesson Plans* provide teachers with high quality classroom material on engineering and engineering design.

The success of TryEngineering<sup>2</sup> (as measured by the number of visits to the site, university searches, and questions to *Ask an Expert*) provides EAB with incentive to plan significant expansion of this portal. Moreover, we are motivated to use the same approach in other areas where EAB seeks to educate the public and provide resources for wide audiences.

### 5.2 Inventory of portals and sites maintained by EAB

Purpose	Address	Comments
Educational Activities	<a href="http://www.ieee.org/education">www.ieee.org/education</a>	
Standards Education	<a href="http://www.ieee.org/portal/cms_docs/education/setf/index.html">http://www.ieee.org/portal/cms_docs/education/setf/index.html</a>	University-level education
Pre-University education	<a href="http://www.TryEngineering.org">www.TryEngineering.org</a>	Pre-university; major expansion in 2007
IEEE working group in China	<a href="http://dfl.ece.drexel.edu/ieeewgce">http://dfl.ece.drexel.edu/ieeewgce</a>	Accreditation
Accreditation in Peru, ICACIT	<a href="http://dfl.ece.drexel.edu/icacit">http://dfl.ece.drexel.edu/icacit</a>	Accreditation
Continuing Education	<a href="http://www.ieee.org/web/education/partners/eduPartners.html">http://www.ieee.org/web/education/partners/eduPartners.html</a>	
<b>To be launched in 2007</b>		
Projects for the first year in the engineering college		New initiative
Accreditation and mutual credential recognition	<a href="http://www.Engineering-accreditation.org">www.Engineering-accreditation.org</a>	
IEEE Expert Now for members		
Standards Workshop		
Munich Pre-university workshop		
Accreditation in the Caribbean		

<sup>2</sup> EAD keeps a detailed set of statistics and monitors traffic on a weekly basis.

### **5.3 Plans for 2007**

#### **5.3.1 TryEngineering**

##### **5.3.1.1 University searches in more countries (new in 2007)**

As of 31 December 2006, TryEngineering provides searches in the United States and Canada. In 2007 EAB will expand the portal to provide university searches in 30 countries. In the first phase the search will be expanded to include Australia, Brazil, France, Germany, India, Japan, Korea, Malaysia, Mexico, New Zealand, Pakistan, South Africa, and the United Kingdom. A second phase will include 10-15 additional countries.

##### **5.3.1.2 Offering the portal in additional languages (new in 2007)**

In 2007 EAB will offer TryEngineering in Chinese, French, German, Japanese, Spanish, and Russian.

##### **5.3.1.3 Games (new in 2007)**

TryEngineering will feature in 2007 two new engineering games developed by EAB.

##### **5.3.1.4 Increased coverage and timeliness**

EAB will add descriptions of engineering disciplines that are not yet covered in the portal narratives, and increase the frequency of updating related features such as *Life of an Engineer*. Additional respondents to *Ask an Expert* questions will be hired in order to improve the timeliness of answers on the portal.

##### **5.3.1.5 Lesson plans**

EAB will hire a consultant to increase the number of lesson plans available to science and technology teachers and will engage PECC in reviewing them. The Chair of SOOC and the TAB representatives will develop a plan to engage IEEE technical societies in developing lesson plans for the site.

##### **5.3.1.6 Services to university-level students (new in 2007)**

From the profile of users of TryEngineering it is apparent that the portal is popular not only with the pre-university community, but also with many university level users – students and their professors.

EAB will devise a plan to include services to the university community within TryEngineering. One such service is a section on accreditation ([Engineering-accreditation.org](http://Engineering-accreditation.org)) that will also function as a separate portal. Other services may include: guides on graduate studies, references to graduate programs, on-line resources for

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applicants to graduate programs, guides on career planning and preparations for job interviews.

### **5.3.1.7 Usability study**

EAB will conduct professional usability studies of the portal in 2007 to identify unmet needs and guide further development.

### **5.3.2 Engineering accreditation portal (new in 2007)**

In 2007 EAB will launch the portal [www.Engineering-accreditation.org](http://www.Engineering-accreditation.org) which would provide users with a comprehensive set of materials on education-program accreditation in engineering and computer science.

Among the features of this site:

- Background material and bibliography on accreditation of engineering programs.

- A list of all recognized accrediting agencies and the engineering/computer-science programs that they have accredited.

- A list of mutual recognition agreements, their texts and interpretations.

We expect the site to become the primary resource for Internet users who seek information about engineering accreditation.

### **5.3.3 Websites for accreditation agencies and initiatives outside the United States**

EAB will continue to maintain and expand, as needed, web sites for engineering accreditation in South America (<http://dfl.ece.drexel.edu/icacit>), the Caribbean, and China (<http://dfl.ece.drexel.edu/ieewgce>).

### **5.3.4 New initiative website (retention women in engineering programs)**

In 2007 a website for electrical engineering, computer engineering and computer science university-level educators will be developed as part of the new EAB/WIE initiative “Increasing the Representation of Women in IEEE's Fields of Interest.”

### **5.3.5 The Standards Education Portal**

IEEE is in the process of developing a portal on standards education for the university community (“the SETF portal”). For plans regarding this portal, please see Section 7.2.

## 6. Pre-university Education

**Objective:** IEEE seeks to provide the pre-university community (pre-university students and their parents, teachers and school counselors) with tools and information that would inform them of engineering fields and opportunities in engineering, and would increase the propensity of young people to choose engineering as a career path.

IEEE has chosen to focus in its activities on *teachers* and *school counselors*, not directly on students. The rationale is that (1) the effectiveness and impact of IEEE's activities appears to be greater when volunteers work with teachers and counselors, and (2) IEEE volunteers appear better suited to work with educators than with students.

### 6.1 Main activities in 2006

(1) IEEE developed with IBM and the New York Hall of Science a pre-university portal [www.TryEngineering.org](http://www.TryEngineering.org) (see section 5). The portal is a major resource on pre-university and university-level activities in engineering. It provides popular features such as *Find a University* and *Ask an Expert*.

(2) IEEE conducted the Teacher in-Service Program (TISP) which brings together IEEE volunteers and teachers of science and technology. The purpose is to expose the teachers to lesson plans on engineering and engineering design that can be used in the classroom. The lesson plans are tied to educational standards.

EAB's main activities within TISP are: (1) developing lesson plans for the programs; and (2) conducting training sessions for volunteers. The training sessions teach volunteers (a) how to interact with the pre-university education system, and (b) how to provide training to school teachers using the TISP lesson plans.

(3) IEEE participated in joint projects with other engineering associations to develop instructional material for school counselors. These activities were conducted with funding from the UEF .

### 6.2 Plans for 2007

#### 6.2.1 International pre-university workshop (new in 2007)

On 9-11 November 2007 EAB (in cooperation with the German association VDE) will conduct an international workshop on pre-university engineering education in Munich, Germany. The workshop is entitled "Meeting the Growing Demand for Engineers and Their Educators 2010- 2020." The event is expected to draw 100-200 presenters and participants from government, industry, academia, and the pre-university community.

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The workshop is focused on the challenges of developed countries, with presenters and attendees mostly from Western Europe and North America. The General Chair of the Workshop is Arthur Winston.

[See also Section 10.4 concerning an MOU with VDE.]

### **6.2.2 Teacher in Service Activities (with RAB and IEEE-USA)**

6.2.2.1 EAB will conduct Teacher in Service training sessions for volunteers in Dallas (for Region 5), Baltimore (for Region 2) and Rio de Janeiro (for Region 9). We will explore the possibilities in Region 8 (possibly Israel) and Region 10 (possibly Hong Kong).

6.2.2.2 EAB will examine, in cooperation with the Peru Section, TISP models that are based on volunteers from student branches.

6.2.2.3 EAB will seek to expand the offerings of new lesson plans (see 5.3.1.5). EAB will hire a consultant to increase the number of lesson plans available to science and technology teachers and will engage PECC in reviewing them. The Chair of SOOC and the TAB representatives will develop a plan to engage IEEE technical societies in developing lesson plans for TISP.

### **6.2.3 TryEngineering**

In 2007 EAB will expand the pre-university functions of TryEngineering.org (see 5.3.1).

### **6.2.4 The Deans Summit<sup>3</sup>**

IEEE has attempted in 2005-6 to restart a multi-association effort to conduct a Deans Summit. In the past, Deans Summit forums were used to provide Engineering Deans, Deans of Education, and other interested parties with opportunities to develop cooperation plans in the areas of pre-university engineering education and teacher preparation. Subjects that were discussed in the summits included: community outreach, future teacher preparation, and pedagogical strategies for engineering education.

Deans Summits 1 and 2 (held in 2001 and 2003, respectively) were organized and financed by multiple sources (IEEE, the IEEE Foundation, ASEE, NSF, and several private corporations including Intel and HP). However the primary source of funds was

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<sup>3</sup> See *Technically Speaking*, <http://www.nae.edu/nae/techlithome.nsf/weblinks/KGRG-57UNRK?OpenDocument> and *Deans Summit II: Fostering Campus Collaborations*, <http://www.ieee.org/web/education/fcc/index.html>

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IEEE and the IEEE Foundation. IEEE announced in 2006 that it would agree to be an active participant and contributor to the next Deans Summit, but it cannot be the primary source of funding for the event or serve as its financial agent.

At the present time a committee chaired by Peter Crouch (Dean of Engineering at the University of Hawaii) is working on planning *Deans Summit 3*. Several alternatives were explored for format and venue, including a university-based event hosted by a group of schools. IEEE will continue to provide the Deans Summit committee with assistance, and to help with investigating sources for funding and logistical arrangements.

### **6.2.5 Job description and organizational framework for pre-university education chairs**

Several geographical units and technical units within IEEE have formed pre-university committees (or pre-college committees). However, we do not have a “job description” for the chairs of these committees, and there is no infrastructure to assist them in their activities.

In 2007, EAB, in consultation with RAB and IEEE-USA, will develop a job description for pre-university and pre-college education chairs, distribute it to the relevant organizational units, and announce the framework to be used for communication, information exchange, and institutional support of these chairs.

### **6.2.6 Exploration: activities for pre-university students in IEEE conferences**

At present, a small number of IEEE conferences offer activities to pre-university students and their teachers. These range from workshops for pre-university teachers to full fledged “junior conferences.”

Examples:

Activities sponsored by IEEE Control Systems Society in conjunction with the ACC and CDC at Chicago, Denver, Las Vegas, Maui, Portland, Seville-Spain, and San Diego (reference: <http://www.ieeecss.org/CAB/conferences/cdc2006/program.php>)

Student and pre-college activities in Globecom (reference: <http://www.ieee-globecom.org/2005/students.html>)

IEEE Aerospace Junior Engineering Conference (reference: <http://www.aeroconf.org/>)

(Non IEEE) Activities for teachers, on high speed computing  
[http://www.supercomp.org/sc2003/nr\\_educ\\_integ.html](http://www.supercomp.org/sc2003/nr_educ_integ.html)

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In 2007 EAB will explore the potential of an organized effort to provide support, infrastructure, and incentives to IEEE conferences so that an Institute-wide program of pre-university conferences and activities can be developed and sustained. This effort may require the development of a new initiative proposal.

### **6.2.7 Exploration: publications for pre-university students**

Several past incentives to create a journal or on-line publication for pre-university students have been discussed in IEEE forums in the last decade. These have not resulted in a tangible product. Among the proposals were the following: a counterpart to *Science News*, a supplement to *Spectrum*, and an expanded newsletter to accompany *TryEngineering*.

The pre-university publication question will be revisited in 2007 as a possible joint initiative of PSPB and EAB.

### **6.2.8 School counselor outreach**

Along with ASME, JETS and ASCE, IEEE was provided a grant from the UEF to develop instructional materials for school counselors. In 2007 IEEE will take the lead in the development of these materials and in their presentation and dissemination in conferences and publications of school counselor organizations.

## 7. University-level education

### Objective

EAB seeks to provide the profession's perspective on all key aspects of higher education in IEEE's technical fields of interest. Among these are: curriculum, accreditation, recruiting and retention, educational policies, and the research enterprise.

Among the major activities that EAB seeks to lead are: accreditation of academic programs in IEEE's technical fields of interest; development of model curricula; recruiting and retention of talented students in engineering programs; recruiting and retention of groups that are underrepresented in engineering and engineering programs.

### 7.1 The new initiative "Increasing the Representation of Women in IEEE's Fields of Interest" (new in 2007)

In 2007 EAB is conducting a major new initiative<sup>4</sup> whose aim is to launch, develop and manage an IEEE program that provides university educators of Electrical and Computer Engineering (ECE) and Computer Science (CS) world-wide with high-quality tested hands-on team-based society-focused projects for undergraduate students. These projects are designed to increase the recruitment, persistence to degree, and satisfaction of women in baccalaureate ECE and CS degree programs.

The initiative's leader is Amy Bell. It is conducted with IEEE Women in Engineering.

### 7.2 Development, long-term planning and advertising campaign for the SETF portal

IEEE has developed, through a joint SA/EAB effort, a portal titled *IEEE Standards in Education* ([http://www.ieee.org/portal/cms\\_docs/education/setf/index.html](http://www.ieee.org/portal/cms_docs/education/setf/index.html)).

Development of the portal was supported by the NSF. The project is ongoing.

It is recognized that at present several hundred schools have full access to IEEE standards through their IEL subscriptions. Most make no use of this access. This group of schools is the target group of the project at present.

Several activities are planned in 2007:

- 7.2.1 Continued development of the SETF portal
- 7.2.2 Assessment of the portal's state and determination of desired hosting arrangements and "look and feel". This effort may include a usability study.

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<sup>4</sup> Amy Bell *et al.*: Increasing the Representation of Women in IEEE's Fields of Interest, Piscataway, NJ:IEEE, New Initiative Committee, July 2006 (13pp.)

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- 7.2.3 Assessment of future development and funding needs – possibly new grant requests
- 7.2.4 Advertising and dissemination campaign – to encourage use of the SETF portal by engineering programs beyond the participants in the IEEE-NSF pilot study

### **7.3 Model curricula in Biomedical Engineering, Biometrics, and Systems Engineering**

As the leading professional association in electrical engineering, computer engineering, biomedical engineering and several related areas, IEEE has the duty to develop and disseminate model curricula in its technical fields of interest. Past efforts (in Computer Science, Computer Engineering and Software Engineering, developed by the IEEE Computer Society with ACM<sup>5</sup>) resulted in documents that became the “gold standards” of the relevant academic communities.

In 2007, IEEE will embark on model curriculum development in three areas:

- 7.3.1 Biomedical Engineering (joint effort with the IEEE EMBS and possibly other organizations)
- 7.3.2 Systems Engineering (joint effort with the IEEE Systems Council)
- 7.3.3 Biometrics (an effort of the Biometrics Engineering Working Group (created by the TAB Committee on Biometrics and EAB))

The leader of the Biometrics curriculum development effort is Evangelia Micheli-Tzanakou.

### **7.4 Expand TryEngineering.org to serve the university-level community**

Please see section 5.3.1.6.

### **7.5 Assessment program for engineering technology students (with SME)**

In 2006, EAB conducted discussions with ECETDHA and SME on the possibility that IEEE and SME will develop jointly an assessment tool for graduates of programs in Electrical Engineering Technology.

These discussions will continue in 2007. The current EAB tasks are to develop a memorandum of understanding with SME as well as a grant preparation plan to cover the test development costs.

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<sup>5</sup> See for example , [http://www.computer.org/portal/cms\\_docs\\_ieeeecs/ieeeecs/education/cc2001/cc2001.pdf](http://www.computer.org/portal/cms_docs_ieeeecs/ieeeecs/education/cc2001/cc2001.pdf)

## **7.6 Dialogue with NCEES on licensing of biomedical engineers in the United States**

In 2006, the NCEES approached several engineering associations in the United States, requesting participation in the development of a series of tests leading to licensure and registration of bioengineering and biomedical engineers in the United States.

IEEE holds the view that biomedical engineers need to be registered, and that development of licensure examinations for them is both desirable and timely.

The discussions with NCEES will continue in 2007. The current task (assigned to EAB, IEEE-USA, and EMBS) is to develop a statement on the general direction as well as the levels of commitment that IEEE would be willing to undertake in the process of test development and maintenance.

## **7.7 IEEE white paper on the first professional degree in engineering**

IEEE was approached by NCEES with the request that IEEE express its views on the first professional degree in engineering. The first professional degree (FPD) is the first degree which qualifies the holder for unsupervised work in a profession. At present, the FPD in engineering is (in most countries) the Bachelor of Science (or equivalent) in an engineering field. Other professions usually require more schooling for the FPD (for example, DDS or DMD for dentistry and MD for general medicine)

The determination of the FPD for engineering has been a subject of several opinion papers and debates [1-5]. As early as October 1998, the ASCE Board of Direction adopted ASCE's Policy Statement 465, which begins as follows: "The ASCE supports the concept of the master's degree as the First Professional Degree for the practice of civil engineering at the professional level" [4]. More recently, the US National Academy of Engineering expressed the same opinion [1]. The architects of the Bologna Accord, which re-shaped many educational programs in Europe, had a similar objective; they devised a system of 5 years of study for engineering students (3+2). After the first three years, a student earns a Bachelor of Science degree; additional two years of study lead him/her to a FPD which is the Master of Science. From time to time there were suggestions that the FPD be Doctor of Engineering (Eng.D.) – a degree that is distinct from the Doctor of Philosophy (Ph.D.) degree [2].

In 2007, EAB will work with other IEEE constituencies to develop the IEEE position on FPD. Activities will include discussions by APC, EAB and the IEEE Board of Directors and distribution of drafts for constituency comments and discussion.

### **7.8 IEEE white paper on the role of technical standards in engineering education**

During the last three years IEEE, with support by the NSF, has developed an educational program on standards, intended for academic programs in electrical and computer engineering. This experience provides IEEE with an opportunity to develop a definitive statement on the desired role of technical standards in the engineering curriculum.

It is well documented that at present engineering standards are mentioned only peripherally in most curricula. Most engineering graduates do not see standard – or a significant portion of a standard – during any part of their education.

In 2007, EAB will develop a process to generate an IEEE white paper on the role of technical standards in the engineering curriculum. The paper is meant for discussion with educators, other engineering associations, and accrediting bodies.

## **8. Post-university education and continuing education**

### **Objective**

EAB seeks to provide IEEE members and all persons involved in IEEE fields of interest with high-quality opportunities for education in these fields.

### **8.1 IEEE Expert Now**

#### **8.1.1 Mission and Scope**

The mission of IEEE Expert Now is to provide practitioners and students of the IEEE technical fields of interest with high-quality self-paced on-line self-learning modules focused on state-of-the-art developments in technology, practice and theory.

It is envisioned that most IEEE Expert Now modules will be based on workshops and tutorials provided in IEEE conferences and meetings, and on IEEE standards. It is also envisioned that the IEEE Expert Now library will be used for educational and training purposes. Users should be able to use IEEE Expert Now modules for continuing education and for collection of credentials such as Continuing Education Units (CEUs) and Professional Development Hours (PDHs).

The vision of IEEE Expert Now is to assist users in gaining entry into new fields, obtaining authoritative and pedagogically-effective overviews of technical and scientific subjects, and understanding the context and the main additional resources available for supplementary self-education.

The business model of IEEE Expert Now calls for the product to provide IEEE with a financial surplus, though some activities (e.g., member sales, sales to Sections) may break even or even produce a deficit.

#### **8.1.2 Status**

**8.1.2.1** At present, we possess sixty (60) complete tutorials and approximately twenty (20) modules are in development. The production of the modules is done by NETg<sup>6</sup>.

**8.1.2.2** We have six (6) corporate customers.

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<sup>6</sup> Formerly known as KnowledgeNet Inc. and Thomson NETg. The company was sold to SkillSoft plc in November 2006. See <http://www.azcentral.com/arizonarepublic/business/articles/1104biz-sr-skillsoft1104.html>.

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- 8.1.2.3** Delivery of the courses to corporate customers is made on the customer LMS or on an LMS of NETg. The NETg LMS is administered by EAD staff.
- 8.1.2.4** In 2006, the marketing agreement with NETg expired and marketing of IEEE Expert Now was transferred to IEEE Sales and Marketing Department.
- 8.1.2.5** In 2006, a revenue sharing formula was developed, according to which 90% of the net revenue from the library will be returned to module owners (the IEEE OUs that sponsored the modules) and 10% will be retained in EAB for product development. The first distribution of funds to module owners is expected in late 2007 or early 2008.
- 8.1.2.6** In late 2006, IEEE announced in messages to members that individual purchases of modules will be available in 2007.
- 8.1.3 IEEE Expert Now key plans for 2007**
- 8.1.3.1 Establish an editorial board for IEEE Expert Now (see below).
- 8.1.3.2 Establish an IEEE Expert Now Reserve account in EAB to allow accumulation of funds from module sponsors and customers. At present all funds in the Expert Now account are zeroed out at year end.
- 8.1.3.3 Solicit additional investments in the library by IEEE Technical Societies, the Standards Association, Sections and other OUs.
- 8.1.3.4 Develop a cluster of modules based on IEEE 802 standards family and explore the potential of marketing it separately.
- 8.1.3.5 Offer the library to IEEE members<sup>7</sup> and to IEEE Sections.
- 8.1.3.6 Review and institutionalize the contractual arrangements with NETg and the internal division of labor concerning module acquisition and marketing.
- 8.1.3.7 Examine the feasibility of developing a three module cluster in the area of Biometrics.
- 8.1.3.8 Examine the potential of IEEE Expert Now in the academic market. (This effort would require that IEEE Expert Now be introduced to customers of IEL by IEEE Marketing and Sales).

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<sup>7</sup> Current target date is 10 March 2007.

#### **8.1.4 The IEEE Expert Now Editorial Board (new in 2007)**

8.1.4.1 In late 2006, EAB established, in principle, an editorial board for IEEE Expert Now. In early 2007, the IEEE Expert Now Editorial Board with new charter will be formally established.

##### **8.1.4.2 Excerpts from the Charter of the Editorial Board**

###### **1. General**

*The EAB Editorial Board of IEEE Expert Now reports to, and is a Standing Committee of, the EAB Operating Committee (OpCom).*

###### **2. Scope**

*The EAB Editorial Board of IEEE Expert Now shall develop strategies for the future of the IEEE Expert Now library, prepare plans to maintain and expand the coverage, quality, reach, and relevance of the library, and oversee and monitor the execution of these plans.*

###### **3. Functions**

- 3.1 *Wherever needed, recommend to EAB policies and actions that will support the mission and vision of the library.*
- 3.2 *Maintain the quality, content diversity, timeliness, and relevance of the IEEE Expert Now library.*
- 3.3 *Monitor and direct the process of topic selection, coverage, and development for the library.*
- 3.4 *Suggest and lead the development of module clusters and specific themes within the library.*
- 3.5 *Assist the Staff of EAD in all areas pertinent to editorial activities.*
- 3.6 *Maintain communication and dialog with CPEC, EAB, and other organizational units of IEEE which are engaged in module development, procurement, funding and distributions.*
- 3.7 *Maintain communication and dialog with subscribers, users and contributors to the library.*

###### **4. Composition**

- 4.1 *The EAB Editorial Board of IEEE Expert Now shall consist of four to seven members, with the Chair of the Educational Activities Board serving as an additional ex-officio non-voting member.*
- 4.2 *The EAB Editorial Board of IEEE Expert Now will elect its own Chair from its membership for a renewable two-year term.*

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The first Chair of the Editorial Board and Editor in Chief of IEEE Expert Now is Tamer Basar.

### **8.2 Post-university Education about Standards**

At present, IEEE serves as a major developer of technical standards but provides only few educational opportunities to individuals who seek more knowledge about IEEE standards and the standard development process.

#### **8.2.1 Standards Workshop (new in 2007)**

IEEE plans to conduct a workshop on a subset of IEEE 802 standards in Chicago, IL in October 2007.

The 1 1/2-day workshop will include four modules: Introduction to IEEE Standardization; Introduction to the IEEE 802 family of standards; Introduction to IEEE Standard 802.11; Introduction to IEEE Standard 802.15; Introduction to IEEE Standard 802.16.

The volunteer responsible for this activity is Todor Cooklev, chair of the SEC.

#### **8.2.2 Exploration: IEEE Expert Now modules for new IEEE standards (new in 2007)**

In 2007, EAB will explore the possibility of using IEEE Expert Now as a platform for development of educational modules concurrently with the development of new major IEEE standards. The objective is to release an educational module at the same time a new standard (or a major revision to an existing standard) is released.

#### **8.2.3 Instructional material for IPv6 (new in 2007)**

IEEE was approached to develop instructional material on Internet Protocol version 6 (IPv6), a network layer IP standard used by electronic devices to exchange data across a packet-switched internetwork. IEEE will explore the possible use of IEEE Expert Now as well as other platforms for the task.

### **8.3 Certification**

In 2006, the IEEE Communications Society initiated an effort to develop a certification program with the Holmes Corporation (<http://www.holmescorp.com/about.html>). In 2007, EAB will work with the Communication Society to bring the effort to realization and examine its potential in the area of Biometrics<sup>8</sup>.

### **8.4 One-stop shop for educational opportunities offered by IEEE**

- 8.4.1 IEEE offers a large number of educational activities, scattered among a large number of organizational units. These activities include Society and Section initiated conferences, workshops, lectures and tutorials; formal and informal courses and continued education programs (including CEUs).
- 8.4.2 Members of IEEE who seek information about educational activities, through IEEE website or EA website, are bound to become disoriented. The information is scattered, many venues of information and links are inactive or outdated. There is no central point of inquiry and search.
- 8.4.3 In 2007, EAB will take several steps toward development of a one-stop shop for educational services in IEEE. As a minimum, EAB will seek to collect information on all on-line offerings provided by IEEE and present users with a catalog of educational opportunities in a unified format.
- 8.4.4 Based on the cataloging effort, EAB may call for a meeting of all major players to explore opportunities of standardization in format, platform delivery, and user interfaces.

### **8.5 Education Partners**

Education Partners is a service available exclusively for IEEE members. It offers on-line degree programs, certifications and courses at a 10% discount. The Partners are carefully selected universities and corporations whose courses were reviewed and approved by a group of highly qualified IEEE volunteers.

In 2007, the program will be reviewed to understand patterns of usage and utility for members. The objective is to discover what types of courses and programs are most useful for current users, and how the program can be expanded to assist engineers who wish to acquire new knowledge and enter new sub-disciplines.

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<sup>8</sup> For additional details see [http://www.ieee.org/portal/cms\\_docs\\_iportals/iportals/education/admin/Nov06/minutes/ATT11.ppt](http://www.ieee.org/portal/cms_docs_iportals/iportals/education/admin/Nov06/minutes/ATT11.ppt)

## **9. Accreditation**

### **Objective**

IEEE considers Accreditation a key activity. Participation in the Accreditation process allows the profession to assist in developing and guiding academic curricula and pedagogical methods. This assistance helps academic programs address the changing technical and business climate wherein the profession operates.

Accordingly, IEEE seeks an active role as a member of accrediting bodies, partner in the development and nurturing of new accrediting bodies, and participant in selection, training, evaluation and deployment of program evaluators in IEEE's technical fields of interest.

IEEE seeks a leadership role in accreditation in all its areas of technical interest worldwide.

### **9.1 IEEE white paper on accreditation (new in 2007)**

In spite of its long-term involvement in academic accreditation, IEEE has never declared its philosophy in the area of accreditation, nor has it defined IEEE's goals in this area. The lack of a guiding document has complicated decision making, especially when new disciplines have grown to require accreditation efforts.

In 2007, EAB will develop a brief white paper to summarize IEEE's philosophy in the area of accreditation. The document will also outline the desired role of IEEE in this area, and IEEE's observations on accreditation trends.

### **9.2 IEEE portal on accreditation [www.Engineering-accreditation.org](http://www.Engineering-accreditation.org) (new in 2007)**

See Section 5.3.2

### **9.3 Instructional modules for returning/continuing program evaluators in the United States**

In 2006, EAB started the development of an on-line tool for training of program evaluators (PEVs) in the United States. The vendor is *Unreal Productions* (<http://www.unrealpros.com/>). The tool allows evaluators to examine test cases and scenarios that occur in the course of accreditation visits and provide their analysis and conclusions. The narratives are then transferred to the mentors of the evaluators for feedback. Samples of "correct responses" are also available.

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In 2007, we expect to launch the modules and test them within the CEAA and CTAA communities.

### **9.4 Relationships with ABET, Inc.**

IEEE (through its predecessors AIEE and IRE) is a founding member of ABET, Inc., a leading accrediting body for engineering, applied science and technology programs in the United States. IEEE is responsible for the largest number of ABET accredited programs (compared to all other ABET member societies), and participates in accreditation activities of ABET both as “IEEE” and as part of CSAB. IEEE expects these activities to continue vigorously in 2007 and well beyond.

IEEE continues to support ABET financially and with volunteer workforce, and aims to continue participation and leadership in ABET.

ABET is, however, a US-centric organization whereas IEEE is transnational, and from time to time the goals of the two organizations differ. Moreover, IEEE and ABET do not always see eye to eye on organizational and policy issues. IEEE considers such disagreements normal, and will strive to continue a dialog with the leadership of ABET to try to reach resolution and accommodation. We believe that past discussions between IEEE and ABET have resulted in positive changes, such as the development of a new financial model for ABET in 2006.

At present, three principal areas are under discussion with ABET: (1) the role of member societies in program evaluator training in light of the ABET Participation Project; (2) the operations of ABET’s Board of Directors (reporting, fiduciary responsibilities, and transparency); and (3) international accreditation.

In the area of evaluator training, IEEE is concerned that it does not understand the plan and end goals of the ABET Participation Project (which addresses PEV training). Along with CSAB, IEEE expressed its objections to the “failure model” presented by ABET in August 2006 according to which there was a 10% “failure rate” of PEVs. IEEE does not wish to see the role of ABET member societies reduced to becoming mere financing sources for training that is provided by others (at present IEEE takes an active role in training program evaluators in IEEE’s areas of responsibility). A committee of the ABET Board of Directors was appointed to look at these and other Participation Project matters and IEEE looks forward to participate in its deliberations and be informed of its activities.

In the area of Board of Directors responsibility, IEEE has voiced concern over inadequate flow of information to the ABET Board of Directors and lack of control by the Board over key decisions and financial matters. A committee of the ABET Board of Directors was appointed to look at these and other governance matters. IEEE looks forward to participate in its deliberations and be informed of its activities.

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In the area of international accreditation, IEEE believes that the recent decision of the ABET Board (October 2006) to conduct international accreditation visits by ABET (as opposed to substantial equivalency visits) is ill advised. The decision is likely to put ABET in a conflict of interest with its stated desire (and IEEE's objective) to foster the development of local accrediting bodies in countries and regions where such bodies do not exist at present. Moreover, IEEE is prevented by its governing documents from using the ABET surcharge (that is levied on IEEE members who reside in the USA) to support ABET financially in international accreditation activities.

### **9.5 Accreditation in China**

In 2006, IEEE established the IEEE Working Group on Education in China (WGEC). The group met face-to-face in November 2006 in Beijing. Details on the meeting and supplementary material are available at <http://dfl.ece.drexel.edu/ieeewgac>.

In 2007, IEEE plans to continue and further expand this activity. One key effort is to organize a conference for decision makers on accreditation of engineering and computer science programs. A second effort is to establish a subcommittee of WGEC to develop a draft of an accreditation manual and accreditation program in engineering and computer science in China and follow the effort by pilot studies.

In order to assist the second effort, IEEE has commissioned, with ABET's consent, a translation of ABET's accreditation manual and program criteria from English to Chinese.

### **9.6 Accreditation in Peru**

IEEE has provided assistance to the accrediting body ICACIT, which is in the process of becoming a major accreditation agency in engineering, engineering technology, and computer science in Peru. In 2006, IEEE funded and conducted a training workshop for 45 Peruvian educators and practitioners who would become ICACIT's program evaluators. For more details please visit <http://dfl.ece.drexel.edu/icacit>.

In 2007, EAB will continue its assistance by helping ICACIT develop its governing documents, commission structure, and accreditation manuals. EAB will recommend that ICACIT aim to conduct its first independent program visits in 2008.

In order to assist ICACIT and other interested parties in Central and South America, IEEE has commissioned, with ABET's consent, a translation of ABET's accreditation manual and program criteria from English to Spanish. The translation is available publicly at <http://dfl.ece.drexel.edu/icacit>.

### **9.7 Accreditation in the Caribbean**

In 2006, discussions were held between EAB and the leadership of the IEEE Section in Trinidad and Tobago about accreditation activities.

In 2007, EAB expects to assist the University of the West Indies in Trinidad in assessing its accreditation needs.

In 2007, EAB expects to hold a workshop on accreditation in the Caribbean with the intent of using it for preliminary discussions on the establishment of an accrediting body for engineering programs in English speaking countries in the region.

### **9.8 Other accreditation activities in IEEE Region 9**

IEEE will explore requests for assistance in the area of accreditation received from Ecuador and El Salvador.

## **10. Outreach activities**

### **10.1 Eta Kappa Nu (HKN)**

In 2006, IEEE and HKN signed a Memorandum of Understanding (MOU), detailing joint activities. The MOU calls for notification of IEEE members of the agreement, encouraging them to identify themselves to HKN if they are members of both organizations.

The MOU and other developments motivate EAB to enter discussions with HKN on closer relationships in the future with the intent of increasing significantly the participation of IEEE student members in HKN activities.

### **10.2 The Sarnoff Library**

In 2006, EAB had conducted several discussions with individuals close to the Sarnoff library on possible joint activities with IEEE. These discussions are planned to continue in 2007.

### **10.3 Biometrics**

In 2006, EAB established, with the IEEE TAB Committee on Biometrics, a group called the *Biometrics Engineering Working Group*. The BEWG met several times and developed a blue print for activities in several areas:

10.1.1 Development of a model curriculum in Biometrics

10.1.2 Development of IEEE Expert Now modules in Biometrics

10.1.3 Incorporation of Biometrics in [www.TryEngineering.org](http://www.TryEngineering.org)

EAB expects to make significant progress on all three topics in 2007, including completion of 10.3.3 and near completion of the other two tasks.

### **10.4 Job description for IEEE Education Chairs**

All IEEE Regions and many Sections appointed education committees. However, we do not have a “job description” for their chairs, and there is no organized infrastructure to assist them in their activities. This is a key reason why many of the Education Chair positions are vacant.

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In 2007, EAB, in cooperation with RAB and IEEE-USA, will develop a job description for Education Chairs at the Region and Section level. EAB will distribute the description to the relevant organizational units for discussion and comment.

Following changes in its Charter, the SEOC will convene all the regional Education Chairs to a face-to-face meeting in 2007.

### **10.5 MOU with VDE**

IEEE will develop a Memorandum of Understanding (MOU) with VDE (Verband der Elektrotechnik, Elektronik und Informationstechnik; the Association for Electrical, Electronic & Information Technologies). The focus of the MOU is the 2007 Munich workshop on pre-university education, “Meeting the Growing Demand for Engineers and Their Educators 2010- 2020.” Based on this MOU and the level of success of the workshop, IEEE may propose an extension to formalize joint activities beyond the 2007 event.

## THE EAB MANIFESTO

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