Starting and Maintaining a Continuing Education Program in Your Section

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Outline of Talk

- Educational programs according to IEEE
- What some other sections are doing
- Why a continuing education program?
- How you can set up a continuing education program
- Some possible topics
- What are CEUs and PDUs? How to award them
- States requiring PDUs for PE license renewal
- Sample tutorial budgets
- Short course/tutorial guiding principles
- Other continuing education possibilities

Sources

- IEEE web pages
- Donald Dunn – One of the originators of the Houston Section's Continuing Education on Demand (CED) program
- Personal experiences
  - EE educator for over 37 years – specialty is communications systems and signal processing
  - Organized and taught short courses through my universities (UMR and UCCS) and local IEEE sections (St. Louis and Pikes Peak)
  - Spent intermittent periods in industry and in government positions – did short courses as a part of some of these stints

Educational Programs According to IEEE

- An educational program hosted by an IEEE Section, Society, Chapter, or Region might focus on technical, as well as professional topics. Some are designed for the general public and others are more technical. Types are:
  - ***Popular Talk*** **-** Provides technological or career information about various aspects of electrical, electronics, and computer engineering.
  - ***Tutorial*** **-** Introduces engineers to new technical areas and applications. Generally short overviews, from 2–8 hours; may involve lectures, Q&A, and demonstrations.
  - ***Short Course*** - Covers technical and nontechnical materials in depth, as in a regular college course. Usually no credit (see CEUs later). May run 1–5 days.
  - ***Workshop*** - Involves intensive interaction among students and instructor. Some are designed to help students master a particular application/tool; others focus on problem-solving, brainstorming, & other group techniques. 1/2-day or longer. (M-PAC is an example)
  - ***Self-Study*** - Employs stand-alone tools in a variety of media, such as books, videos, CD-ROMs, web-based audio and/or video presentations, etc. No instructor. An IEEE Section might facilitate through a lending library.
  - ***Group-Study*** - Involves 2 or more individuals, using a common set of learning materials and tools. Interactivity via the web, by phone, or face-to-face.

What Are Some Other Sections Doing in the Continuing Education Arena?

- Houston Section – Annually sponsors the IEEE Continuing Education on Demand Seminar program; 2004 – 2005 seminars are:
  - Arc Flash/Arc Resistance – Oct 12/13, 2004
  - Protective Relay 1 – Oct 28/27, 2004
  - IEC Electrical Equipment – Nov. 9/10, 2004
  - Protective Relay 2 – Feb. 1/2, 2005
  - IEC – NEC Area Classification – Feb. 15/16, 2005
  - Protective Relay 3 – Mar. 1/2, 2005
  - Field Testing of Large Power Transformers – Mar. 15/16, 2005
  - Protective Relay 4 – Mar. 29/30, 2005
  - NEC Problem Areas for Industrial Plants – Apr. 12/13, 2005
  - Advanced MV Switchgear and Circuit Breaker Standards – Apr. 26/27, 2005
- The Panhandle Section provides two continuing education seminars per year on broad interest topics; e.g., improving the performance of work groups; 65 persons attended their last two seminars
- The New Orleans Section holds monthly Section meetings; a majority of them are technical in nature and PDH certificates are issued for these
- Sections outside of Region 5 – e.g., Syracuse and Boston

Why Have a Continuing Education Program in Your Section?

- Engineering knowledge goes out of date; we, as engineers, need to maintain our technological currency
- Engineers have natural curiosity and a desire to learn
- Tutorials and short courses are a step up from the normal IEEE technical meeting – both involve active learning
- More and more states are requiring continuing education for renewal of Professional Engineering Licenses
- It is a *member benefit* that your section can provide
  - Not as expensive as courses at a local university (or as time intensive)
  - A way for a member to come up to speed in an unfamiliar area
  - Increases the knowledge level and marketability of your members
- Your section's continuing education offerings can be focused on interests/needs of your members
- A good continuing education program can be a revenue source in your section (but this should not be the main focus)

What We Face in the U.S. – the Importance of Continuing Education

- BS/BA degrees among 24-year-olds in 2001

Country	BS/BA degrees (000)	BS Eng'g (000)	% Eng'g
US	1253.1	59.5	5%
China	567.9	219.6	39%
So Korea	209.7	56.5	27%
Taiwan	117.4	26.6	23%
Japan	542.3	104.5	19%

•China produces 4 times as many engineers as the US; Japan (and India) 2 times as many

•Our national well being involves, in part, our technological "edge"

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How Can You Set Up a Continuing Education Program?

- Formulate a simple mission statement (or objective) for your program
- For sustainability, form a continuing education committee – perhaps two arms: technical and operations
- For a given course, somebody must be in charge and take it as their responsibility
- Allow plenty of lead time (4 – 6 months) and begin small (1 – 3 courses)
- How to determine topics
  - Broad interest versus specialized topics
    - Broad interest – appeal to wide spectrum of members or even nonmembers
    - Specialized – know your section's interests and pick topics accordingly
  - If time allows, do a survey (give several choices and an "other" category)
- How to find instructors
  - Local university
  - Out of town experts
    - Neighboring sections
    - IEEE at large (e.g., distinguished lecturers)
  - Local experts
    - Find by doing a survey or by knowing your local talent
    - Some sections have a "Propose a course" form on their web site
  - For specialized topics, manufacturer's representatives can be a source
- Once you have run a survey, use the information to design a course series tailored for your section

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How Can You Set Up a Continuing Education Program? Continued

- Some tried-and-true formats
  - Three to six hours of instruction time
  - Include a meal - Friday or Saturday with noon meal or one or two night format with meal
  - Make sure attendees are comfortable – screen visible, pointer provided, audio system works, comfortable climate, frequent breaks (50 minute presentation, 10 minute break), rest room facilities easily accessible, etc.
  - If you are in charge, you should attend a large portion of the presentation; let instructor know (off line) what needs to be done to address deficiencies (if any)
  - $70 - $100 (including meal) seems to be a reasonable price (not too high so average engineer can pay out of pocket if necessary); CEUs are in addition (about $10 per person plus $25 application fee per course)
  - Charge non-IEEE members a differential to encourage them to join IEEE ($151 full year; $75.50 half year)
  - Include an evaluation form to be turned in anonymously at the end of the course
- Advertising
  - Your section web site
  - Develop and use e-mail lists for your section/interested persons
  - Make up a brochure: Example: http://www.ieee-houston.org/CEDSeminars/SeminarIndex.htm)
  - Local company and university bulletin boards
  - Don't depend on potential customers accessing a web site on their own
  - As strange as it may seem, want ads are an inexpensive means that work

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Some Possible Topics

- Specialized
  - Power topics (Houston)
  - Shielding and grounding (Boston)
  - Digital signal processing (RZ)
  - Phased-array/adaptive antennas (Boston)
  - Real-time DSP
  - Sensor networks (RZ)
  - Spread spectrum modulation/applications (RZ)
  - Cellular radio communications; 2nd, 3rd generation & beyond (RZ)
  - RFID tags (Ron Ogan, Dallas Section)
  - Hybrid vehicles
  - Wireless networks & network security (Fred Granville, KC Section)
- Broad Interest
  - Effective reports/meetings (EM Society)
  - Building and maintaining a profitable consulting business (Boston)
  - C, C++ programming (Computer Society; Boston)
  - State of computer networking (Syracuse)
  - Implementing voice over IP (Boston)
  - Object oriented analysis and design (Boston)
  - Configuring and securing your home or small business network (Boston)
  - Ethics
  - Improving performance of work groups (Panhandle Section)

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Awarding Continuing Education Units (CEUs)

- A CEU
  - 10 PDHs (PDH = Professional Development Hour); so 1 CEU is 10 contact hours
  - Awarded by the International Association for Continuing Education Training (IACET)
- Staff person at IEEE Headquarters to contact regarding CEUs
  - Sharon L. Strock, Projects Administrator, IEEE Educational Activities, 732-562-5485, s.strock@ieee.org
- Application submitted prior to each course
  - Course syllabus
  - Defined learning objectives and learning outcomes
  - Instructor's biographical sketch
- After completion of course:
  - Spreadsheet of participants sent to Sharon Strock
  - She registers participants with the IACET
  - Cost: $25 application fee ($10 each per multiple courses submitted together) and $10 per individual
- For a presentation on CEUs, go to www.ieee.org/portal/cms_docs/education/ceus/present.ppt

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Partial List of States Requiring Continuing Education for Renewal of PE

State	PDU/yr	State	PDU/yr	State	PDU/yr
AL	15	MS	15	OK	30/2 yrs
AR	15	MO	30/2 yrs	OR	30/2 yrs
FL	8	MT	30/2 yrs	SC	30/2 yrs
GA	30/2 yrs	NE	30/2 yrs	SD	30/2 yrs
IA	30/2 yrs	NV	30/2 yrs	TN	24/2 yrs
IL	30/2 yrs	NH	30/2 yrs	TX	15
KA	30/2 yrs	NM	30/2 yrs	UT	24/2 yrs
LA	30/2 yrs	NY	36/3 yrs	WV	15
ME	30/2 yrs	NC	15	WY	30/2 yrs
MN	24/2 yrs	ND	30/2 yrs		

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CEU Guidelines and Policies

- As an Authorized Provider of CEUs, IEEE has adopted IACET guidelines and criteria for all its continuing professional development programs. IEEE EAB will work with its Sections and Societies to assure that the following guidelines are followed:
  - The activity must be an organized continuing education experience, under responsible supervision, with capable direction and qualified instructors.
  - The program must be planned in response to the educational needs of a target audience.
  - A clear statement of rationale, purpose, and objectives is required for each educational activity, prior to its initiation.
  - Qualified instructional personnel must be directly involved in conducting the educational activity.
  - Specific performance requirements for awarding CEUs must be established, prior to offering the program.
  - Participant registration must include sufficient detail to provide information necessary for a permanent record.
  - Program administration must include a system for verifying participants' CEU eligibility. It must also provide a list of those approved for CEUs. These records will be maintained by IEEE for at least seven years.
  - IEEE EAB maintains a policy of strict confidentiality regarding the release of these records to anyone other than the participant. No social security numbers are collected.
  - Presenters must disclose, in advance of the activity, instructor's proprietary interest in any product, instrument, device, service, or material discussed during the continuing education activity. Any compensation the presenter receives must also be disclosed.

A Sample Budget (one day format)

- Assume 17 IEEE attendees at $80/person; 3 non-IEEE attendees at $160/person = $1840 ($70 for course plus $10 for CEUs)
- Expenses
  - Lunch @ $20 per person (including instr/coordinator) = $440
  - Coffee/drinks @ $15 per person = $330
  - Room: furnished by hotel = $ 0
  - Copies of notes/viewgraphs to hand out (20 sets) = $ 80
  - CEUs @ $10 per person + $25 course = $225
  - Audio-visual rental = $250
  - Instructor recognition/gift = $ 50
  - Total expenses =$1375
- Contingency/Profit = $465
- Control costs – examples:
  - Bring your own projector/computer
  - Hold course at a company facility and have meals catered

A Sample Budget (two evening format)

- Assume 17 IEEE attendees at $80/person; 3 non-IEEE attendees at $160/person = $1840 ($70 for course plus $10 for CEUs)
- Expenses
  - Dinner @ $20 per person; 2 nights (incl instr/coord) = $880
  - Room: furnished by hotel = $ 0
  - Copies of notes to hand out = $ 80
  - CEUs @ $10 per person + $25 course = $225
  - Audio-visual rental = $250
  - Instructor recognition/gift = $ 50
  - Total expenses =$1485
- Contingency/Profit = $355

If You Want to Teach a Short Course or Tutorial

- Go to
  - www.ieee.org/organizations/eab/tutorials/refguide/mms0l.htm
  - Several good suggestions for organizing presentation material and assessing needs of learners
- Nine principles
  - Attention grabber – How can you gain learners' attention?
  - Objective – Upfront, tell learners what the objective is
  - Recall of prior learning – How can you link your material to learners' prior experiences or knowledge?
  - Present the content – How can you accommodate for different learning styles?
  - Performance/practice – How can you engage learners? How can learners demonstrate what they know?
  - Feedback – How can you provide helpful, constructive feedback on learner activities?
  - Assess performance – How can you assess whether learners are ready to proceed?
  - Enhance retention and transfer – How can you review, summarize, and connect your instructional material to learners' life experience and prior knowledge?

Continuing Education Possibilities Other Than Local Short Courses

- IEEE Societies
  - Communications
    - Tutorials Now – 20 tutorials on communications topics; $200 for members; $250 for nonmembers
  - Power
    - Education Partners Program – 6 universities and 10 corporate partners; courses, tapes, CDs, etc.; 10% discount to IEEE members
  - Computer (http://bell.computer.org/distancelearning/index.htm)
    - The IEEE Computer Society offers its members 100 online training courses through its Distance Learning Campus – free to Computer Society members
    - The Certified Software Development Professional (CSDP) Program is a certification program for software engineers
  - Engineering Management (http://www.rgilearning.com/online.asp?affID=6)
    - Foundations courses (3 for $145)
      - Get to the Point!; Organize the Details; Effective E-mail Techniques
    - Advanced courses: $20 to $40 each
- Extended Studies – Universities (see "Power", above)

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IEEE Expert Now (Formerly XELL)

- IEEE staff person: Barbara Stoler, b.stoler@ieee.org
- The "Best of the Best" of IEEE tutorials/short courses
  - Identified and peer reviewed by Societies/Councils/Standards
  - Packaged (by EAB) as 1-hour modules (some may require two 1-hour units)
  - Content includes audio with video diagrams and animations
  - Offered via a partnership with Thompson Corporation (on their servers)
  - Distributed through IEEE Xplore
  - To be marketed to:
    - Individual members (price not yet determined – perhaps one free/year)
    - Companies as a package
- CEUs optionally offered
- To view a demo: Go to https://www.monsoon5.com/index.html
  - User name: elearning. Password: IEEE
  - Currently about 15 completed and ready to view
- Being tested through June 2005
- One possibility discussed at the recent SEOC/SOOC meeting is to use them in conjunction with a local expert as the basis of a "continuing education meeting"

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IEEE Distinguished Lecturer's Program

- Distinguished speakers available to sections; tour involves three or more engagements; IEEE DL program pays travel; Sections pay local costs
- Information is available on the Distinguished Lecturer's Program through an autoretrievable file on the Internet. To request information, send a blank e-mail message to info.distlec@ieee.org.
- A description of the Distinguished Lecturer's Program is also available on-line. You may point your browser to http://www.ieee.org/organizations/tab/ciaoverview1.html. Click on Distinguished Lecturer Program on the sidebar.
- For more information, contact Society/Chapter General Activities at Voice: +1 732 562 3904; or email: society-info@ieee.org.

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Thank you!
Questions??
Comments??

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