Report Submitted for the ASME Design Engineering Division General Committee Meeting

Monday Sep. 11th, 2:30 PM – 5:00 PM
Sheraton Philadelphia City Center Hotel
Philadelphia, Pennsylvania

Meeting Agenda	
Minutes of the March 2006 Meeting	A. Shabana/L. Howell
Chair's Report (*see Executive Committee Report*)	S. Azarm
Technical Committee Reports (*see Executive Committee Report*)	A. Shabana
Design Automation	W. Chen
Design Education	P. Doepker
Design for Manufacturing	S.K. Gupta
Design Theory and Methodology	J. Allen
Mechanisms and Robotics	S. Agrawal
Micro and Nano Systems	L. Saggere
Multibody Systems and Nonlinear Dynamics	S. Sinha
Power Transmission and Gearing	A. Kahraman
Reliability, Stress Analysis, and Failure Prevention	E. Sancaktar
Vehicle Design	M. El-Gindy
Vibration and Sound	G. Flowers
Journals	
Journal of Mechanical Design	J.M. McCarthy
Journal of Vibration and Acoustics	K.W. Wang
Journal of Computational and Nonlinear Dynamics	S. Sinha
ASME/IEEE Journal of Mechatronics	D. Mavroidis
JCISE Report	J. Shah
Journal of Medical Devices	A. Erdman
Treasurer's Report (*see Executive Committee Report*)	J. Vance
IDETC Technical Conferences (*see Executive Committee Report*)	K. Kazerounian
ASME Meetings Department (*see Executive Committee Report*)	N. El-Ghobashy
Standing/Special Committees	
Constitution and Bylaws	H. Lipkin
NDEC	J. Renaud
Honors and Awards	J. Davidson
Nominating Committee (*see Executive Committee Report*)	K.C. Gupta
Design Society	W. Seering
Fellow Nominations	R. Hirsch
Publicity and Newsletter	C.A. Tan
Student Affairs	P. Larochelle
Information Management	S. Gooch
K-12 Awareness of Design Engineering	K. Jacobson
Professional Engineering Licensure	A.V. Karvelis

Attachments

ASME Design Engineering Division General Committee Meeting
Agenda

Monday September 11th, 2006, 2:30 – 5:00 pm
Sheraton Philadelphia City Center Hotel, Logan 2
Philadelphia, Pennsylvania

1.	Call to Order	S. Azarm	2:30 pm
2.	Approval of Minutes	L. Howell/A. Shabana	2:32 pm
3.	Report of the Executive Committee	S. Azarm	2:35 pm
4.	Technical Committee and IMECE Reports	A. Shabana	2:45 pm
	(Please limit each report to 3 minutes)		
	(a) Design Automation	W. Chen	
	(b) Design Education	P. Doepker	
	(c) Design for Manufacturing	S.K. Gupta	
	(d) Design Theory and Methodology	J. Allen	
	(e) Fastening and Joining	P. R. Mantena	
	(f) Mechanisms and Robotics	S. Agrawal	
	(g) Micro and Nano Systems	L. Saggere	
	(h) Multibody Systems and Nonlinear Dynamics	S. Sinha	
	(i) Power Transmission and Gearing	D. Lewicki/A. Kahraman	
	(j) Reliability, Stress Analysis, and Failure Prevention	E. Sancaktar	
	(k) Vehicle Design	M. El-Gindy	
	(l) Vibration and Sound	W. Clark/G. Flowers	
5.	Liaison Reports		
	(Please limit each report to 4 minutes)		3:21 pm
	(a) Journal of Mechanical Design	J.M. McCarthy	
	(b) Journal of Vibration and Acoustics	K.W. Wang	
	(c) Journal of Computational and Nonlinear Dynamics	S. Sinha	
	(d) ASME/IEEE Journal of Mechatronics	D. Mavroidis	
	(e) Journal of Computing and Information Science in Engineering	J. Shah	
	(f) Journal of Medical Devices	A. Erdman	
6.	Vice Chair/Treasurer's report (Funding levels allocations in committee accounts)	J. Vance	3:45 pm
7.	IDETC Technical Conferences	K.Kazerounian	3:50 pm
8.	ASME Meeting Department	N. El-Ghobashy	4:05 pm
9.	Standing/Special Committee Reports **(Please limit each report to 3 minutes)**		4:15 pm
	• Constitution and Bylaws	H. Lipkin	
	• NDEC	J. Renaud	
	• Honors and Awards	J. Davidson	
	• Nominating Committee	K.C. Gupta	
	• USCToMM	G. Chirikjian	
	• Design Society	W. Seering	
	• Fellow Nominations	R. Hirsch	
	• Publicity and Newsletter	C.A. Tan	
	• Student Affairs	P. Larochelle	
	• Information Management	S. Gooch	
	• K-12 Awareness of Design Engineering	K. Jacobson	
	• Professional Engineering Licensure	A.V. Karvelis	
10.	Old Business		4:51 pm
11.	New Business		4:55 pm
12.	Adjourn		5:00 pm

ASME Design Engineering Division General Committee Meeting
Minutes of the meeting on
Sunday March 19th, 2006

UIC Campus, Room 1043 ERF
Chicago, Illinois

Present: S. Agrawal, S. Azarm, W. Chen, P. Doepker, W. Clark, N. El-Ghobashy (teleconferencing), K.C. Gupta, K. Kazerounian, M. McCarthy (teleconferencing), L. Saggere, A. Shabana, J. Vance, K.W. Wang.

1. The meeting was called to Order by K.C. Gupta at 1:15 pm.

2. **Approval of the Minutes:** The minutes of the General Committee Meeting on Thursday September 27th, 2005 held in Long Beach, California were unanimously approved.

3. **Chair's Report:** K.C. Gupta presented the Executive Committee report (oral report only). The highlights of this report are as follows:
   - The new DED web site will be up soon. Krish encouraged the attendants to send their feedback to him or to Shayne.
   - Budget allocation: Two requests from two technical committees (MSND and MNS) were received for budget allocations. The requests were partially and fully approved. The fund should not be used for travel. Flat honoraria payments are certainly appropriate for keynote speakers.
   - The discussion on the IMECE and IDETC participation was summarized. IMECE revenue for the DED is small. Some technical committees plan to stay with IMECE while other committees are considering moving to IDETC to get a bigger share of the revenue. IDETC participation also allows more flexibility in conference organization and operation.
   - A proposal on a new ASME Journal on medical devices cosponsored by the Bioengineering Division and DED is being prepared. A special issue of the ASME Journal of Biomechanical Engineering on this topic came out recently. Discussion with Art Erdman on DED co-sponsorship of the newly proposed journal on biomedical devices is continuing. K. Kazerounian is our liaison. The DED is involved with total of 6 journals.
   - Tel-conferencing was tested this morning during the Executive Committee meeting. Noha reported that ASME is becoming more entrepreneurial. ASME is coming up with a new formula for the conferences.

4. **Vice Chair and Treasurer's Report:** S. Azarm presented the Treasurer's report (oral report only). Shapour reported that the DED is doing well in terms of finances. The process of distributing the excess revenue is being finalized. The distribution will be based on the number of papers and sessions. Special requests for funding from technical committees were discussed.

5. **IMECE and Technical Committee Reports**: J. Vance reported on the IMECE and various technical committee activities. Judy indicated that all technical committees provided written reports for this meeting.

   (a) Design Automation Committee: W. Chen reported on the activities of DAC (oral & written). DAC is doing well and enjoys steady growth. The 2005 DAC conference at Long Beach sponsored 30 technical sessions and 129 papers. A large number of people attended the committee meeting in Long Beach.

(b) Design Education Committee: P. Doepker reported on the DE activities (oral & written). Phil mentioned that two years ago Clive Dym revitalized the committee and stepped down. Phil became the chair of the committee. The committee will sponsor 10 sessions at the 2006 IDETC. The sessions cover several areas including design projects, industry and academic collaboration, pure design education, and design classroom facilities. There will be three keynote speakers (Clive Dym, Crispn Hale, and Chris McMahon). The committee is also sponsoring one session in the NMW and successfully participated in the selection for the Spira Design Educator Award. There is a need for someone to head the Triodyne honors and awards activities, to identify a plan for presenting at future IDETC's, and for someone to head the committee's technical conference activity at IDETC.

(c) Design for Manufacturing Committee: (written report only).

(d) Design Theory and Methodology: (written report only).

(e) Fastening and Joining: (written report only).

(f) Mechanisms and Robotics: S. Agrawal presented the Mechanisms and Robotics Committee report (oral & written). He mentioned that the M & R Committee is healthy and doing well. The committee switched to annual conference and chair. The M & R conference had 124 papers accepted and 2 keynote speakers at the 2005 DETC's in Long Beach. The preparation for the 30th Mechanism Conference is going well. The awards sponsored by the committee are listed in the written report. The Biomimicry Prize will be for ASME and is not limited to mechanism. Sunil explained the changes in the Bylaws as the result of switching from two years to one year cycle. The revised Bylaws were unanimously approved by the members of the General Committee.

(g) Micro and Nano Systems: L. Saggere presented the MNS Committee report (oral & written). Laxman mentioned that the committee was formed in July of last year. It was possible to arrange a committee meeting last September. The mission of the committee is summarized in the written report. The committee currently has 16 members and there are 4 vacant positions. The committee website was created. A symposium is being organized at the 2006 IMECE. Total of 54 abstracts have been submitted to the sessions sponsored by MNS and the MEMS Division. MNS is maintaining a close relationship with the ASME MEMS Division. The MNS Committee will have its first formal meeting at the 2006 IMECE. Some urgent businesses such as approval of Bylaws will be conducted by E-mails. The term of the committee chair is for 2 years starting January 2006.

(h) Multibody Systems and Nonlinear Dynamics: (written report only).

(i) Power Transmission and Gearing: (written report only).

(j) Reliability, Stress Analysis, and Failure Prevention: (written report only).

(k) Vehicle Design: (written report only).

(l) Vibration and Sound : W. Clark presented the TCVS report (oral & written). The committee requested 14 sessions for the 2006 IMECE and received 12 sessions. During the committee meeting this morning, a Best Student Paper Award was introduced. The committee would like to increase the number of members from 15 to 24, and more members have been already added. Starting July 2006, George Flowers will be the chair, Chris Rahn will be the vice chair, and Brian Feeny will be the secretary.

6. **Journals:** The following reports were presented:

   (a) Journal of Mechanical Design: J.M. McCarthy presented the report on the Journal of Mechanical Design (JMD) (oral report only). Mike reported that the journal is still growing and moving from bimonthly to monthly starting January 2007 is being considered. The journal received 490 submissions last year. Projection for this year submission is approximately 600 papers. Percentage of published papers from overall submission is 28%. However, if one considers the out-of-scope submissions, the percentage of the published papers is approximately 40%. The review takes on the average four months. The journal has now around 20 associate editors. The problem created by one of the authors has been solved by the Publication Committee. The journal Impact Factor has been increasing from 0.2 to 0.3 to 0.4 over the last three years.

   (b) Journal of Vibration and Acoustics: K.W. Wang reported on JVA (oral & written). Two new associate editors were nominated and the nominations were approved recently (via e-mail). Special issues of the journal are planned in order to obtain more papers and increase the visibility of the journal. From January to December 2005, the acceptance rate was 40%. In 2005 JVA was given 600 pages by ASME. In 2003, 112 papers were submitted, while in 2005 215 papers were submitted. The Publication Committee granted JVA additional 200 pages (total now 800).

   (c) Journal of Computational and Nonlinear Dynamics: (written report only).

   (d) ASME/IEEE Journal of Mechatronics: (written report only).

   (e) Cooperating Journal: JCISE (no report).

7. **ASME Headquarter Report:** N. El-Ghobashy presented the ASME Headquarter report (oral report only). The technical divisions have not been operationally changed. ASME will be focusing on globalization, industry and young engineers. The DED can explore the possibility of having its conferences in international location once every two years. The ASME Conference Committee is looking for a new business model. Phil Doepker explained some of the problems his committee members are encountering in using the conference web tool. Shapour Azarm suggested having a unique password for each author instead of having multiple passwords depending on the number of conference papers submitted by a single author. Wei Chen suggested having an ASME server location for the committee web sites instead of using a link to sites at university locations. Krish Gupta suggested that Wei should consult with Shayne Gooch and that he will also try to find out the procedure to do this.

8. **IDETC/CIE Technical Conferences**: K. Kazerounian reported on the future IDETC/CIE conferences (oral & several written reports). He also mentioned that the 2005 conference was very successful.

   (a) 2006 IDETC/CIE: The preparations are going well. There are on-going discussions on the details of the budget.

   (b) 2007 IDETC/CIE: The preparations are going well. The organizers feel that the IDETC registration fee is high.

   (c) 2008 IDETC/CIE: needs attention.

   (d) 2009 IDETC/CIE: will be in San Diego and it seems to be in a good hand.

   (e) 2010 IDETC/CIE: Proposals were withdrawn. Sunil Agrawal expressed interest in organizing this conference.

9. **Constitution and Bylaws:** (written report only). Krish Gupta mentioned that there have been Bylaws changes from 2003 that need to be approved by ASME. These changes were approved by DED and will be sent to Ken Waldron (Group Leader). The revised Bylaws will be published on the DED website with a statement that they are pending ASME approval.

10. NDEC: (no report).

11. Government Relations: (written report only)

12. Honors and Awards: (written report only).

13. USCToMM: (no report). The $3000 annual membership fee for IFToMM was discussed and most attendants recommend continuing this country membership for US. However, periodic reporting on IFToMM activities by USCToMM Chair was strongly urged.

14. Design Society: (written report only).

15. Fellow Nominations: (written report only).

16. Member Interest, Member Development: (no report).

17. Publicity and Newsletter: (written report only).

18. Student Affairs: (written report only).

19. Information Management: (written report only).

20. K-12 Awareness of Design Engineering: (written report only).

21. Old Business: Phil Doepker questioned whether ASME and the Design Society have a formal agreement on conference cosponsorship. Krish will look into this matter.

22. New Business: Kazem Kazerounian proposed to consolidate some of the existing standing committees under the umbrella of the Design Education Committee, or possible another coordinating committee (e.g., Outreach Committee). The proposal was discussed by the attendants. Kazem will pursue this idea by contacting the chairs of some of the standing committees. Phil Doepker made a motion that the DED chair send a letter to ASME regarding improvements of the design of the ASME web page to make it easier to get to division pages. The motion was unanimously approved.

23. The meeting was adjourned at 4:00 pm.

Respectfully submitted,

Ahmed A. Shabana
Secretary of the DED General Committee

Design Automation Committee (DAC) Report

August 14, 2006

Design Automation research and education have continued to be one major focus of interest in the ASME design engineering community, due to the enthusiasm of the members of the DAC community, along with the increased demand for “Automation”, a fundamental domain in design engineering that uniquely defines the role of DAC.

In the 2005 IDETC held in Long Beach, DAC sponsored 30 technical sessions, featuring 129 papers. Special events included a plenary talk on "From Hero Mountain to Payback Meadow: Pursuing the Strategic Business Benefits of CAE in Design Automation", by Dr. Dennis Nagy, vice president of CD-Adapco; and a successful joint academia-industry panel session on "Offshore Engineering: Where are the future jobs for mechanical engineers?" The Committee meeting at the conference was well attended with 50 members. In recent years, the committee has attracted a number of junior faculty members with a variety of research background.

We expect another successful DAC in 2006. 161 papers were submitted to the conference, and 119 papers were accepted after a rigorous peer review process. The paper acceptance rate is approximately 74%, similar to the rates in the past several years. These accepted papers are grouped into 18 topics and will be presented in 27 technical sessions, running in three parallel tracks. Additionally, one panel session, organized by Dr. Ren-Jye Yang from FORD Motor Company, will focus on “DAC Accomplishments, Current Status, and Future Trends and Needs: From Industry’s Prospective”. The Design Automation award (recipient: Prof. K.K. Choi) and the winner of the Best Paper Award sponsored by the FORD Motor Company will be announced at the award luncheon. This year, we have 40 reviewer coordinators help with the review of 161 DAC papers. The committee also appointed seven International Liaisons: Dr. Mounib Mekhilef (France), Dr. Bernard Yannou (France), Dr. Taioun Kim (S. Korea), Dr. Roger Jiao (Signapore), Dr. Masataka Yoshimura (Japan), Dr. Kikuo Fujita (Japan), and Dr. Han-Pang Huang (Taiwan).

The Committee continues to attract many applicants to the Executive Committee. Since the bylaw changes made in 2004, the structure of the DAC Executive Committee has been stabilized. The current Executive Committee members are: Dr. Wei Chen (Committee Chair), Dr. Hae Chang Gea (Conference Chair), Dr. Tim Simpson (Program Chair), Dr. Frank Liou (Special Sessions Paper Chair), and Dr. Ren-Jye Yang (Industry Liaison). Dr. Kenji Shimada is the past chair. This year, we selected a new web coordinator, Dr. Horea Ilies, to replace Dr. Tim Simpson who has served for many years. The committee contacted ASME and set up our own space on the ASME webserver http://divisions.asme.org/ded/daccomm/.

The DAC committee has made bylaw changes in 2004. However, it appears that the changes have not yet been officially approved by the design division. The modified bylaws are enclosed at the end of this report. As a highlight, one of the changes was to

redefine DAC's target areas of research and education. The new areas include, but are not limited to: (1) Design representation—CAD, virtual and physical prototyping, knowledge based systems, and product data management; (2) Design optimization—structural, topological, multi-disciplinary, heuristic and deterministic, and under-uncertainty optimization; (3) Design evaluation—modeling, simulation, and approximation; and (4) Design integration—integration, decomposition, and collaboration. Some changes were made to the DAC Executive Committee structure. Industry Liaison has been added to the committee membership, and the former role of International Paper Chair has been changed to Special Sessions Papers Chair.

Respectively submitted,
Wei Chen, Committee Chair

ASME Design Automation Committee Bylaws

ASME
DESIGN ENGINEERING DIVISION
DESIGN AUTOMATION COMMITTEE
OPERATING MANUAL
Proposed revisions 10/04

INTRODUCTION

The Design Automation Committee of ASME has one primary function, and that is to promote research and the dissemination of knowledge in the areas identified as dealing with Design Automation. They include topics in the broad areas listed below and other areas identified through new research.

- **Design Representation**
  - CAD, virtual and physical prototyping, knowledge based systems, product data management
- **Design Optimization**
  - Structural, topological, multi-disciplinary, heuristic and deterministic, under uncertainty
- **Design Evaluation**
  - Modeling, simulation, approximation
- **Design Integration**
  - Integration, decomposition, collaboration

1. Committee Structure. The Design Automation Committee is composed of persons actively publishing and conducting research in Design Automation. See Section 15 of this document for information about membership on the Committee. The Committee is governed by the Design Automation Executive Subcommittee, composed of the Chair, the Vice Chair and two members. Each member of this subcommittee sits for a 4 year term, and serves in each position for a 1 year period. The immediate past Chair of the Committee is an ex-officio member of the Executive Subcommittee for a period of one year. The immediate past Chair does not vote on Executive Subcommittee business except when necessary to break a tie. An Industrial Advisor also participates in the meetings of the Design Automation Executive Subcommittee. The duties of this position consist in strengthening industrial participation to solve more industry related problems, and envisioning future R&D needs

2. Committee Meetings. The Design Automation Committee meets every fall at the annual Design Automation Conference.

3. Nomination and Election to Executive Subcommittee. Prior to the annual meeting, candidates are nominated for election to the Executive Subcommittee. Any member

of the Design Automation Committee may nominate a candidate. Nominations are to be made to the Committee Chair. Candidates are elected to the Executive Subcommittee by a majority vote of the current members of the Executive Subcommittee. The term of service begins after the annual meeting.

4. Prior to the annual meeting, candidates are nominated for election to the position of Industrial advisor. Any member of the Design Automation Committee may nominate a candidate. Nominations are to be made to the Committee Chair. Candidates are elected to the Executive Subcommittee by a majority vote of the current members of the Executive Subcommittee. The term of service begins after the annual meeting. The Industrial Advisor will have voting privileges and serve one two year term. The Industrial advisor cannot be elected member of the exec committee while serving.

5. Service in Office. Each member of the Executive Subcommittee serves for one year in each of the Committee offices, in the following order:
Special Sessions Chair, Program Chair, Conference Chair (Committee Vice-Chair), and Committee Chair.

6. Conference Chair. The Conference Chair is responsible for the organization of the annual conference. The conference organization involves the following tasks.
   - i. Promotion of the conference through the appropriate media. This includes the preparation and distribution of conference notices, calls for papers, conference programs, etc. Appropriate media include ASME Transactions Journals, Mechanical Engineering, Design Division Newsletter, and other publications that are of interest to the research community in Design Automation.
   - ii. Development of invited sessions on topics of current or future interest. The Conference Chair may wish to appoint qualified individuals to arrange such sessions from time to time.
   - iii. Selection of papers for presentation at the annual conference. All papers submitted for presentation at the annual conference will be subjected to peer review. This review process is separate from the review process for work submitted to the ASME Transactions Journal. Papers accepted for presentation at the annual conference must be technically correct, must be relevant to the themes of the conference, must be of current or archival interest, must not in any way have a commercial purpose, and must be written in a style appropriate for publication by ASME. Papers accepted for presentation at the annual conference will be published by ASME.
   - iv. Arrangement for social functions at the annual conference. Each year there will be a conference luncheon. Other social functions may be held from time to time when appropriate.
   - v. Interaction with the ASME Meetings Manager at ASME headquarters in New York City.
   - vi. Interaction with other committees who are actively planning annual conferences. Every effort should be made to cooperate with other groups in ASME who share common interests. At the time of this writing, the annual conference in odd numbered years is held in conjunction with the Biennial

Vibrations Conference, the annual conference in even numbered years is held in conjunction with the Biennial Mechanisms Conference.

7. Program Chair. The Program Chair has the following responsibilities.
   - i. Acts as the liaison between the Committee and the Journal.
   - ii. Maintains a data-base of reviewers which is to include persons who are known to be actively involved in research and/or scholarly activities in Design Automation. This database would normally be updated frequently during the Papers Review Chair's term in office.
   - iii. Serves as coordinator for the peer review of all papers that are to be considered for publication in the conference proceedings.

8. Special Sessions Chair. The Special Sessions chair will assist the Program Chair and Conference Chair in organizing special sessions. He/She will also coordinate with the International Paper Liaisons and the Industrial Advisor to broaden the reach of the DAC community and to widen the scope of the featured sessions

9. International Conference Liaisons. International Conference Liaisons, typically representing the Pacific Rim and Europe will coordinate the paper solicitation, submittal and review with authors in their respective regions of the world. They are selected by the Conference Chair with the consent of the Executive Sub-committee. They will work with the Special Sessions Chair to coordinate their activities with the Conference organizers.

10. Committee Vice Chair. The Committee Vice Chair who is also the Conference Chair will normally assist the Committee Chair in directing the activities of the Committee. The Committee Vice Chair will maintain the Design Automation Committee mailing list in cooperation with the ASME Meetings Manager. The Vice Chair will also keep the minutes at the annual meeting. The minutes will be sent to all members of the Committee within 90 days of the annual meeting.

11. Committee Chair. The Chair of the Committee will preside over meetings of the Committee and meetings of the Executive Subcommittes. The Chair will be the Committee's representative to other governing bodies in ASME (such as the Design Division General Committee). The Chair will inform the Design Division whenever there is an impending change of officers (typically during September of each year). The Chair will recommend the Papers Review Chair to serve as Associate Editor for Design Automation for the Transactions Journal. The Recommendation is made to the Technical Editor of the Journal.

12. Immediate Past Chair. The Immediate Past Chair will serve as an ex-officio member of the Executive Subcommittee. The Immediate Past Chair will only vote on Executive Subcommittee business when there is a tie vote.

13. Executive Subcommittee Business. The Executive Subcommittee has two primary functions. The first function is to establish the agenda for the annual committee

meeting at the fall conference. The second function is to elect a new member and an Industrial Advisor from the lists of nominees. (See 3. and 4. above).

- i. Agenda for the Executive Subcommittee. The agenda for the Executive Subcommittee will be set by the Chair after consultation with all of the other members of the Executive Subcommittee. The agenda should be established and circulated to all of the Executive Subcommittee members at least two weeks before the annual Design Automation Conference.
- ii. Meetings of the Executive Subcommittee. The Executive Subcommittee will meet as soon as possible during the annual Design Automation Conference. The Chair and two of the other voting members shall constitute a quorum. Every effort will be made to assure the participation of all members of the Executive Subcommittee in all Executive Subcommittee business. At its annual meeting, the Executive Subcommittee will set the agenda for the annual Design Automation Committee Meeting by majority vote. The Executive Subcommittee will also elect one new member and an industrial advisor as outlined above in 3. and 4.

14. Design Automation Committee Business. The Design Automation Committee has one primary function, and that is to promote research and the dissemination of knowledge in the areas identified as dealing with Design Automation. The Committee carries out this function by conducting an annual meeting on Design Automation.
    - i. The Committee will meet on the second or third night of the annual conference. The date and location will be set by the Chair of the Committee in consultation with the ASME Meetings Manager. This information will be published in the Conference Program that is prepared by the ASME Meetings Manager.
    - ii. Any issues to be decided will be done so by a majority vote of those present at the committee meeting.
    - iii. At the annual committee meeting the agenda established by the Executive Subcommittee will be deliberated on.
    - iv. On issues requiring a vote, the Chair will only cast a vote to break a tie.
    - v. At the annual committee meeting, each subcommittee will present a report of its activities.

15. Membership on the Design Automation Committee. The Design Automation Committee is composed of persons who are interested in Design Automation. Membership on the committee is attained by active participation at the conference and at the committee meeting. By default, those who actively participate become members of the committee.

16. Areas of Design Automation Research. The Committee wishes to promote theoretical and experimental research and industrial applications in the broad areas given below and other areas identified by new research:
    - Design Representation
        - CAD, virtual and physical prototyping, knowledge based systems, product data management
    - Design Optimization

    - Structural, topological, multi-disciplinary, heuristic and deterministic, under uncertainty
- Design Evaluation
    - Modeling, simulation, approximation
- Design Integration
    - Integration, decomposition, collaboration

17. Technical Subcommittees and Their Business. The Design Automation Committee Chair will appoint appropriate technical subcommittees. The purpose for such subcommittees will be to expedite the dissemination of knowledge in that subcommittee's technical field. The Conference Chair will utilize the talents of the technical subcommittees in conducting the peer review process for the annual Design Automation Conference. Each Technical Subcommittee may recommend one paper to the Honors and Awards Subcommittee for consideration as the annual "Best Paper in Design Automation" award. See Section 20 below for additional information about this award.

18. Peer Review of Conference Presentations. Papers are submitted to the Program Chair for Review. The Conference assisted by the Program Chair will organize the papers into tentative sessions by topic. Papers that are to be considered for a particular session may be forwarded to a Technical Subcommittee Chair that is closely identified with the session topic. The Technical Subcommittee Chair will actually arrange for reviews of the papers. The Technical Subcommittee Chair will report back to the Conference Chair and/or Program Chair in a timely fashion. Each paper submitted for presentation will be reviewed by at least three qualified referees. Any paper that is presented and published at the conference must have received at least two favorable reviews. The peer review process will have four possible outcomes at this level.
    - i. The paper may be rejected as unsuitable for presentation at the annual conference.
    - ii. The paper may be accepted for presentation at the annual conference after some revisions have been made.
    - iii. The paper may be accepted for presentation at the annual conference without any revisions.
    - iv. The paper may be accepted for presentation at the annual conference (with or without revisions) and further recommended for journal review by the Papers Review Chair for possible publication in the ASME Transactions Journal. Standard ASME Conference/Journal review forms will be used for the conference review.

19. Schedule of Review Activities. It is important that the review process be conducted in a timely fashion. Accordingly, the following schedule is recommended.
    - i. Papers should be submitted to the Program Chair for distribution to the Technical Subcommittee Chair and other referees before the deadline set by the conference chairs in the conference announcement.

- ii. Referees and subcommittee Chairs should inform the Program Chair of their recommendations by the deadline set by the Program Chair in coordination with the other conference chairs and ASME.
- iii. The Program Chair should make final decisions and report to each communicating author by the date published in the conference announcement.
- iv. The communicating authors must return the author prepared final drafts incorporating any required revisions to ASME by the date specified in the conference announcement.
- v. The Program Chair should send any manuscripts that are to be reviewed for inclusion in the ASME Transactions Journal to the Journal Technical Editor.
- vi. The Conference Chair must have the complete program ready for submission to the ASME Meetings Manager by the deadline set by ASME.

20. Honors and Awards. The Chair shall appoint members to serve on the Honors and Awards Subcommittee. The membership of this subcommittee shall include the Immediate Past Chair, the Vice Chair, and one or more other members of the Committee. The Design Automation Committee makes two regular awards after positive recommendation by the Honors and Awards Subcommittee.
    The two awards, their purpose and their frequency are:

    - i. "Best Paper in Design Automation" award is given annually at the conference luncheon. The purpose of the award is to recognize excellence in a paper that is presented at that year's conference. Each Technical Subcommittee can forward one paper each year to the Honors and Awards Subcommittee for consideration as a possible recipient of this award. Nominations should be submitted 2 months before the conference starting date. Nominations must be communicated to the Chair of the Honors and Awards Subcommittee by the Technical Subcommittee Chair. Any member of a Technical Subcommittee can suggest a possible nomination to the Chair of that Technical Subcommittee.
    - ii. Design Automation Award is given from time to time, but never more than once each year, to recognize sustained meritorious contribution to research in Design Automation. This award will only be given after the recommendation of 75% of the members of the Honors and Awards Technical Subcommittee. Nominations for this award can be made by any member of ASME. The nomination package should include specific details of the nominee's contributions to the area of Design Automation, and a critical explanation of why these contributions are significant enough to warrant the award. A curriculum vitae should also be included for the nominee along with appropriate letters of recommendation from other researchers in the nominee's field.

21. Revision of This Operating Manual. This manual can be revised by a two thirds majority vote of the members of the Design Automation Committee. Suggested revisions should be forwarded to the Chair of the Committee. Once each year or whenever there are suggested revisions (whichever is less frequent), the Chair will forward all suggested revisions to all of the members of the Committee for their consideration. Suggested revisions will be discussed and voted on by the DAC participants who were present at the last annual meeting.

Design Education Committee
Design Engineering Division (DED)
Report to the Division

11 August 2006

The Design Education Committee (DEC) continues to make progress in providing activities and programs that meet the goals of the Constitution of the Division and the newly developed Manual of Operating Procedures.

1. Phil Doepker assumed the duties of chair for a two-year term that began July 1, 2005. The first year of his term has been completed and the committee will seek a new chair. The two-year term of the new chair will begin July 1, 2007.
2. The last committee meeting was held at the IDETC Sunday, September 25, 2005. The issues addressed at this meeting were:
    a. Young Design Engineers Paper Competition Board on Pre-College Liaison – decided not to emphasize at this time
    b. Participation at IDETC 2006.
    c. National Manufacturer's Week.
    d. International Activities Subcommittee - 3rd International Activities Symposium, IDETC 2006, has been incorporated with the DEC sessions
    e. Mission, Goals and Objectives – A vision for the future of the DEC was discussed.

    Details of this meeting were published in the last report.
3. The DEC has been a part of the DED for many years. With recent activities it appears that there continues to be a place for the committee within the division. It is anticipated that the committee will continue to participate in the IDETC on an annual basis.
4. DEC successfully participated in selection for the Spira Design Educator Award. The award will be presented to John Lamancusa at the IDETC in Philadelphia in September 2006. Nominations are being sought for 2007
5. The DEC is hosting the 3rd Symposium on Design Education in a Global Context at the IDETC in Philadelphia. There is a complete track of sessions including 6 technical sessions containing 24 papers, 3 keynote presentations and 1 panel session.
6. The DEC has been invited to submit papers to the Journal of Machine Design for the July 2007 issue. A call for papers will be issued in August and discussed at the IDETC in September. It is anticipated that the issue will contain about 12 papers. Thanks to Mike McCarthy, editor of the journal, for this invitation. The committee has made a commitment to make this happen. Clive Dym and Phil Doepker will be co-editors.
7. Needs: (1) Someone to head the honors and awards activity for the DEC. We need nominations for the Spira Design Educator Award for the next cycle.
    (2) Identify a plan for DEC tracks at future IDETC's
    (3) Definition and procedure for Young Design Engineers Paper Competition
    (4) Someone to head the technical conference (IDETC) activity
    (5) Decide future of DEC at National Manufacturer's Week. The time of the conference and show has been moved to the Fall. Should the committee concentrate on IDETC?
    (6)A strong group of papers to be provided to the special issue of the journal, July 2007
    (6) Someone to replace Doepker in July 2007

Respectfully submitted,
Phil Doepker, Chair (2005-2007)
Design Education Committee

To: Design Engineering Division Executive Committee

From: Satyandra K. Gupta, Chair, DFM Technical Committee
Jeffrey Herrmann, Vice-Chair, DFM Technical Committee
Edward Morse, Secretary, DFM Technical Committee

Date: August 25, 2006

Re: DFM Technical Committee Activities

IDETC 2006 Status Report

The DFM Committee expects a successful conference at IDETC 2006. The organizers for this event were:

Conference Chair: Dr. Bill Wood
Mechanical Engineering Department
University of Maryland Baltimore County
Baltimore, MD 21250
Email: bwood@umbc.edu

Program Chair: Dr. Dariusz (Darek) Ceglarek
Department of Industrial Engineering
University of Wisconsin
Madison, WI 53706-1572
Email: darek@engr.wisc.edu

Papers Chair: Edward P. Morse
Department of Mechanical Engineering and Engineering Science
University of North Carolina at Charlotte
9201 University City Blvd.
Charlotte NC, 28223
Email: emorse@uncc.edu

Thirty three papers were submitted to 2006 Conference. Out of the submitted papers, twenty five papers were accepted for publication. We plan to have eight paper sessions.

Editorial Board Representation

Dr. Jeffrey Herrmann has been appointed as Associate Editor of the Journal of Mechanical Design. Dr. Satyandra K. Gupta has been appointed as Associate Editor for JCISE.

Design Theory and Methodology Committee – Annual Report
August 2005

The mission of the Design Theory and Methodology Committee is to facilitate and enhance the development of design theories and the methods that grow from them.

The 18th Annual Design Theory and Methodology conference will be held at IDETC2006 in Philadelphia, Pennsylvania. John Gershenson of the Michigan Technological University is the Conference Chair and Rob Stone of the University of Missouri – Rolla is the Papers Chair. We have scheduled 11 sessions on design theory and formalisms, design innovation, risk-based design, collaborative and distributed environments, advances in design representation, techniques for improving design practice in industry, advances in design education and curricula, product architecture design methods, designer behavior study, and design generation. 94 papers were submitted to this year's DTM conference for peer review, of these eight had at least one industry author, 3 had at least one author from a national laboratory and 52 had at least one author from outside of the United States. 52 papers of the 81 submissions were selected for presentation 49 to appear in the DTM conference and 3 were sent to the Design Automation Conference. Of the papers being presented, 6 are from industry and 19 are from international institutions. In addition to the technical sessions, we have an expert panel session on intelligent synthesis and innovation, chaired by Yan Jin. Continuing our tradition of seeking excellence, we have selected an outstanding paper for the Xerox Best Paper Award.

For the 19th Annual DTM Conference, Robert Stone of the University of Missouri – Rolla will be the Conference Chair and Li Shu of the University of Toronto will be the Papers Chair.

The heart of the DTM conference in the quality of the papers. Our reviewers play a significant role in maintaining this quality and making our conference a success; we especially thank the review coordinators: Saeema Ahmed, Janet Allen, Matt Campbell, John Clarkson, Joseph Donndelinger, Ping Ge, Monty Greer, Katja Holtta, Katie Grantham Lough, Dan McAdams, Robert Paasch, Michael Scott, Li Shu, Durward Sobek, Janice Terpenny, Irem Tumer, and Maria Yang.

The DTM Committee sponsors the NSF/ASME Design Essay competition which is run by Janet Allen and Farrokh Mistree. Eight essays won in 2006. The winning students are from Cambridge University, Clemson, Georgia Tech, The Indian Institute of Technology – Madras, Michigan Technological University, and The University at Buffalo. Again, the success of this competition depends on the assistance of our panel of judges: Rich Crawford, Kemper Lewis, Zahed Siddique, Linda Schmidt, and Joshua Summers.

The DTM community nominated John Gershenson and Janet Allen to serve as Associate Editors of the *Journal of Mechanical Design* and they began their term as Associate Editors in July 2006.

This year we have re-established the DTM website and updated and extended the membership roster. In the coming year, we will continue to seek sponsors for the DTM Best Paper Award. We will also continue to work with ASME to streamline and improve the DTM Conference session design, paper submission and review process. Our DTM Committee meeting will be held Wednesday, September 13, 2006 from 8:00-8:50. We welcome your participation.

Respectfully submitted,
Janet K. Allen
Chair of the Design Theory and Methodology Subcommittee

Mechanism Committee Report – ASME DED Meeting held in Philadelphia, Sept 2006

Submitted by

Sunil K. Agrawal, PhD
Chair, Mechanisms Technical Committee of the ASME Design Division
Professor of Mechanical Engineering
University of Delaware
Newark, DE 19716
(302) 831-8049

(i) 30th ASME Mechanisms and Robotics Conference in Philadelphia

The conference is being organized by Profs. Gordon Pennock (Conference Chair) and Stephen Canfield (Technical Program Chair). This year, the conference has 140 technical papers, several poster sessions, several invited talks, and student design contests. The program is divided into 12 symposia ranging from mechanism, robotics, to medical devices. The new symposia this year are Education in Mechanisms, History of Robotics, Space Mechanisms, and Adaptronics in Machines. The three keynote speakers are Jorge Angeles, Delbert Tesar, and Pierre LaRochelle. We expect a vibrant meeting this year in Philadelphia.

(ii) Committee Membership for the year 2006:

The committee membership for the year 2006 is given below. Five members will be finishing their term this year. The committee will elect new members as per the guidelines.

1 Regular Members

Terms ending in 2010	Terms ending in 2008	Terms ending in 2006
Steve Canfield	Just Herder	Vijay Kumar
Jian Dai	Mary Frecker	Jeffrey Ge
Laxman Saggere	Venkat Krovi	Suresh Ananthasuresh
James Schmiedeler	Pierre Larochelle	Karim Abdel-Malek
Thomas Sugar	Andrew Murray	Steve Derby

1 EXECUTIVE COMMITTEE

Committee Chair	Sunil Agrawal
Committee Chair-Elect	Gordon Pennock
Past Committee Chair	Larry Howell
Secretary	Jeffery Ge
Treasurer	Andrew Murray
Mechanisms Conf. Chair	Gordon Pennock

2 Ex Officio Members

Title	Member
Technical Program Chair	Stephen Canfield
Technical Editor, ASME Journal of Mechanical Design	Michael McCarthy

Associate Technical Editors, ASME Journal of Mechanical Design	Hashem Ashrafiuon (2007) Tom Chase (2007) G.K. Anathasuresh (2006) Jeff Ge (2006) L. L. Howell (2007) Q. Liao (2008) H. Lipkin (2008) K. W. Ting (2008) Pierre Larochelle (2008)

Other Roles:

Title	Member
Awards Committee Chair	Pierre La Rochelle
2006 DETC Design Competition	Craig Lusk Carl A. Nelson

(iii) M&R Conference Luncheon:

The M&R Conference Luncheoon is organized for Tuesday, Sept 12 at noon. This luncheon will recognize awardees of best papers and student design winners. A special tribute has been planned in memory of Prof. Freudenstein.

(iv) M&R Committee Meeting:

The committee meeting is scheduled for Tuesday, Sept 12 between 8:30-10:30 in Parlor A. The primary agenda for this meeting are:

A. Introduction of the members of the committee
B. Report of the conference by M&R Chair Gordon Pennock
C. Election of 5 new committee members
D. Planning for 31st M&R Conference.
E. Others

To: The ASME Design Engineering Division (DED) General Committee

From: Laxman Saggere, Chair, Micro/Nano-Scale Systems (MNS) Committee

Date: August 25, 2006

Subject: MNS Committee report for the period 4/06–8/06.

Mission: The mission of the MNS Committee is to foster activities related to theoretical and applied research in microsystems and nanotechnology areas in the Design Engineering field. The topics of interest in the MNS broadly include, but not limited to, miniaturized mechanisms, sensors and actuators, micro/nano-manipulation, dynamics and control of micro/nano-scale systems, bioMEMS and bio-nano-systems design.

2006 IMECE: The committee is organizing a symposium titled "*Design, Dynamics, and Controls of Micro/Nano Systems*" jointly with the MEMS Division at the 2006 IMECE to be held in Chicago in November 2006. Two members of the MNS committee, Frank Feng and Dane Quinn, are the Co-Chairing of the symposium along with Qiao Lin from the MEMS Division. The joint symposium has six oral sessions, three of which have been contributed by the DED and the other three contributed by the MEMS Division. A total of 39 papers were accepted for the symposium, based on reviews of 2-page Extended Abstracts. Of these 39 accepted papers, 30 papers are invited for oral presentations and the other nine papers are invited for poster presentation in the MEMS Division poster session.

Biennial conference at the DETC: In April 2006, the committee unanimously voted (via email correspondence) to organize a new biennial conference called "the Biennial International Conference on Micro/Nano Systems" at the DETC beginning with the 2007 DETC. The organizing committee formation and the conference planning is underway.

Committee Meeting: The first formal meeting of the committee will be held on November 8, 2006 at the 2006 IMECE in Chicago. The committee is also conducting business through emails on some important tasks related to the framework of the committee.

Respectfully submitted,

Laxman Saggere
Assistant Professor
Dept. of Mechanical and Industrial Engineering
University of Illinois at Chicago
Phone: (312) 413-1031; E-Mail: saggere@uic.edu

MNS Committee Membership

Executive Officers (2006-2008)	
Chair:	Prof. Laxman Saggere Dept. of Mechanical and Industrial Eng. University of Illinois at Chicago, Chicago, IL
Vice-Chair/Treasurer:	Prof. Arvind Raman Dept. of Mechanical Engineering Purdue University, West Lafayette, IN
Secretary:	Prof. Gloria J. Wiens Dept. of Mechanical & Aerospace Eng. University of Florida, Gainesville, FL
Immediate Past Chair:	None

Members (2006-2009)	
Dr. James Allen Sandia National Laboratories Albuquerque, NM	Prof. Constantinos Mavroidis Department of Mechanical Engineering Northeastern University, Boston, MA
Prof. G. K. Ananthasuresh Department of Mechanical Engineering Indian Institute of Science, Bangalore, India	Prof. Dane Quinn Mechanical Engineering Department University of Akron, Akron, Ohio
Prof. Ed Berger Department of Civil Engineering University of Virginia, Charlottesville, VA	Prof. Chris Rahn Department of Mechanical Engineering Penn State University, University Park, PA
Prof. Shaochen Chen Department of Mechanical Engineering University of Texas at Austin, Austin, TX	Prof. Steve Shen Department of Mechanical Engineering University of Washington, Seattle, WA
Prof. William Clark Department of Mechanical Engineering University of Pittsburg	Prof. Metin Sitti Mechanical Engineering Carnegie Mellon University, Pittsburgh, PA
Prof. Martin Culpepper Department of Mechanical Engineering MIT, Cambridge, MA	Prof. Min-Feng Yu Dept. of Mechanical and Industrial Eng. University of Illinois at Urbana Champaign
Prof. Frank Feng Dept. of Mechanical and Aerospace Eng. University of Missouri, Columbia, MO	

Report on the

TECHNICAL COMMITTEE ON MULTIBODY SYSTEMS AND NONLINEAR DYNAMICS
Submitted to DED, August 25, 2006

The mission of the Technical Committee on Multibody Systems and Nonlinear Dynamics (MSND) is to foster experimental, symbolic, computational and analytical activities pertaining to multibody systems and nonlinear dynamics and control and other related areas.
Currently the committee members are working on the upcoming Biennial *International Conference on Multibody Systems, Nonlinear Dynamics and Control* to be held September 4-7, 2007 in Las Vegas, Nevada. Subhash Sinha will serve as the Conference Chair while Bala Balachandran will be the Program Chair. The Committee is also looking at coordinating some of the symposia with TCVS that could be of common interest.

The Committee met in Blacksburg, VA during the *11th Conference on Nonlinear Vibrations, Stability and Dynamics of Structures* (an independent conference), held August 13-17, 2006. Walter Lacarbonara of University of Rome was elected to serve on the committee. The nominees for the D'Alembert and Lyapunov Awards were presented and discussed. Since there was no quorum, it was agreed that the voting will be done by e-mail. The committee members would like a DED Executive Committee member to conduct the voting process. The nominees for the D'Alembert award are : Jorge Angeles, Ed Haug and Werner Schiehlen while Philip Holmes and Francis Moon are nominated for the Lyapunov award.

-Submitted by Subhash Sinha, Chair
March 6, 2006

Power Transmission and Gearing Committee Report

The Power Transmission and Gearing (PTG) Committee met in April 27, 2006 at the Ohio State University in Columbus, Ohio. Thirteen members attended the daylong meeting. The committee voted to elect Dr. Avinash Singh as the Vice Chairman of the PTG Committee for the period 2006-2007, who will assume the chair duties after September 2007. Dr. Dick Dippery agreed serve as the Secretary during the same period.

The PGT Committee decided to establish of an Awards Sub-committee to be chaired by Dr. Dave Lewicki. This sub-committee will identify individuals be nominated to the Fellow grade. It will also explore the possibilities of establishing a new ASME PTG Research Award to be given once every four years in conjunction with the keynote lecture at the PTG conferences.

The rest of the meeting was devoted to preparation for the next International ASME Power Transmission and Gearing Conference that will be held as part of the 2007 IDETC in Las Vegas. Assignments for technical session organizers were made in the areas of chains, engineered surfaces, design and analysis, dynamics and noise, manufacturing, durability, transmission systems, and engineered materials. The Committee agreed to maintain the same paper review process used in the 2005 conference. The Committee also decided that the existing mailing list must be updated and expanded to include databases from other sources. The new list that contains more than one thousand contacts will be used for distribution of the conference material.

The PTG Committee has recently set up a newly designed website at www.asmeptg.org. This website contains general information about the PTG Committee as well as the upcoming International Conference. The staff of the Gearlab at the Ohio State University will maintain the site.

Ahmet Kahraman
Chairman, Power Transmission and Gearing Committee
(kahraman.1@osu.edu).

TO: ASME Design Division Executive Committee
FROM: Erol Sancaktar, RSAFP Technical Committee Chair
DATE: 8/7/2006
RE: RSAFP Technical Committee Report

The Reliability, Stress Analysis, and Failure Prevention (RSAFP) Committee of the Design Engineering Division participated in 2005 International Mechanical Engineering Congress and Exposition with sessions related to RSAFP issues in "Strength and Failure Analysis", “Composites”, Welded and Threaded Joints”, “Stress Analysis”, “Adhesives and Adhesively Bonded Joints”, and “Design Methodology”. Seven sessions were organized with 28 papers, some of which were from overseas countries including Japan, Korea, China, and Germany. A good mix of papers from Industry, Academia, and Government (NASA) was present.

The RSAFP Committee also participated in International Design Engineering Technical Conference held in Long Beach, CA, September 24-28, 2005, with sessions related to RSAFP issues in "Reliability and Failure Prediction", “Materials”, Bolted or Welded Joints”, “Stress Analysis”, and “Design Methodology”. Five sessions were organized with 19 papers, some of which were from overseas countries including Japan, Korea, China, Mexico and Malaysia. A good mix of papers from Industry, Academia, and Government (NASA) was present.

The RSAFP Committee will be participating at the IMECE 2006 with 6 sessions.

Respectfully Submitted,

Erol Sancaktar, Ph.D.
ASME Fellow
RSAFP Technical Committee Chair

ASME International
The American Society of Mechanical Engineers

VEHICLE DESIGN COMMITTEE
Design Engineering Division

Activity Report (August 3, 2006)

Prepared by:

Moustafa.El-Gindy, Ph.D.

Chair, Vehicle Design Committee
The Applied Research Laboratory
The Pennsylvania State University
201 Research Office Building
University Park, PA 16802
E-mail: mxe15@psu.edu

The Chair of the committee has appointed new vice-chairs, **Dr. Brian Gilmore** of John Deere and **Professor Rajesh Rajamani** of University of Minnesota. The committee is thankful for the service of the former vice-chair Professor Imtiaz Hague.

The members of the Vehicle design committee have decided about moving its activity to the IDETC starting 2007.

The current active members are:

Professor Massimiliano Gobbi, Politecnico di Milano
Professor Farid Amirouche, University of Illinois-Chicago
Dr. Michael Kokkolaras, University of Michigan
Professor Imtiaz Haque, Clemson University
Dr. Scott Kimbrough, Motion Research Inc.
Dr. David Gunter, U.S. Army Tank Research Center
Mr. Mike Letherwood, U.S. Army TRC l
Dr. Brian Gilmore, John Deere Corp.
Professor Ion Stihary, Concordia University
Professor J.Y. Wong, Carleton University
Professor Mehdi Ahmadian, Virginia Tech
Dr. Gary Heydinger, NHTSA
Professor Mehdi Ahmadian, Virginia Tech
Dr. MING CAO, Penn State University
Mr. Hillegass, Matthew
Dr. Xubin Song, Eton Corp
Dr. Shung H. (Sue) Sung, General Motors Corporation
Dr. Paul Lomangino (P.F.) (Ford)
Dr Goldman Robert, US Navy
Professor Corina Sandu, Virginia Tech
Dr. Xiaobo Yang, Daimlerchrysler
Dr. Trivedi Mukesh, Volvo 3P

Mr. Wayne Evenson, TITAN Corp
Mr. Scaglione Mario, US Navy
Mr. Donald Nefske, GM
Dr. Yin-ping \(Daniel\) Chang, Oakland University
Professor Ebrahim Esmailzadeh, University of Ontario
Institute of Technology
Mr. Alan Matton, CDC
Dr. Taehyun Skim, University of Michigan
Dr. Yuksel Gur, FORD
Dr. Shung H. (Sue) Sung, GM
Professor Jacob Tsao (San Jose State University)
Professor Rajesh Rajamani (University of Minnesota)

VDC 8th Symposium on "Advanced Vehicle Technologies" (November 2006)

The Vehicle Design Committee of the ASME Engineering Design Division is organizing a symposium entitled "Advanced Vehicle Technologies" to be held during The International Mechanical Engineering Congress and Exposition on November 5-10, 2006, Illinois, Chicago, USA. Papers are invited on innovative analytical, computational, and experimental investigations in control, dynamics, and design of full vehicle systems and their sub-assemblies. Papers may address fundamental research, applied research, or successful implementations relating to light or heavy vehicle design and development.

Topical Organizer: **Dr. Moustafa El-Gindy,** Applied Research Laboratory (ARL), the Pennsylvania State University. The total number of papers accepted is 26.

Five sessions are organized (then reduced later to six) as follows:

Session 1: Advances in Methods for Vehicle Systems Design

Topics include optimal, reliable, and robust design of vehicles and their systems and subsystems, design of integrated (mechatronics) systems, and engineering applications referring to vehicle design.

Chair:	**Professor Massimiliano GOBBI** Politecnico di Milano (Technical University) E-mail: massimiliano.gobbi@polimi.it
Co-Chair:	**Professor Imtiaz Haque** Clemson University E-mail: imtiaz.haque@ces.clemson.edu
Co-Chair:	**Professor Rajesh Rajamani** University of Minnesota E-mail: rajamani@me.umn.edu

Session 2: Advances in Vehicle Systems Product Development

Papers in the area of product development, as it applies to the vehicle manufacturing industry, are solicited. Topics include, but are not limited to, design target setting, business case analysis,

reliability and maintenance issues, cost models, impact analysis of novel and advanced technologies, market uncertainty and demand modeling.

Chair: **Dr. Brian Gilmore**
Deere & Company.
E-mail: gilmorebrianj@johndeere.com

Co-Chair: **Dr. Xiaobo Yang**
DaimlerChrysler Corporation
Email: xy1@dcx.com

Co-Chair: **Elizabeth Cudney**
University of Missouri-Rolla
E-mail: elizabeth.cudeny@umr.edu

Session 3: Advances in Vehicle Structural Modeling and Validation

Topics will include advanced modeling methods and solution procedures that enable a more rapid, accurate, and improved vehicle structure development process by providing accurate prediction with test validation. Some example topics include tire mechanics, vehicle body, powertrain, and chassis structural components using advanced analytical/ computational methods. New topics on uncertainty modeling, high-frequency prediction methods, non-linear structural modeling, and damping modeling are of particular interests.

Chair: **Dr. Shung H. (Sue) Sung**
General Motors Corporation
E-mail: shung.h.sung@gm.com

Co-Chair: **Dr. Corina Sandu**
Virginia Polytechnic Institute and State University
E-mail: csandu@vt.edu

Co-Chair: **Dr. Don Nefske**
General Motors Corp
E-mail: DNefske@aol.com

Session 4: Advances in Vehicle Systems Dynamics and Control

Papers in the general area of Dynamics and Controls applications to vehicle systems are welcome. Topics include integrated design, modeling, analysis, and experimental testing of ABS systems with load shifting, active and semi-active suspensions for improving vehicle ride and handling, intelligent rollover warning systems, active yaw control systems for on- and off-road vehicles, and advanced propulsion control systems for improving fuel economy, emission control and drivability for both passenger and commercial vehicles.

Chair **Dr. Mohammad Elahinia**
University of Toledo
E-mail: mohammad.elahinia@utoledo.edu

Co-Chair: **Dr. Xubin Song**
Eaton Corp.

E-mail: XubinSong@eaton.corp

Co-Chair: **Dr. Jeong-Hoi Koo**
Miami University
E-mail: koo@muohio.edu

Session 5: Advances in non-conventional, energy efficient and environmentally friendly vehicles

The recent hikes in fuel prices as well as growing environmental concerns have drawn renewed interest on research and development of more energy efficient vehicles. While electric and hybrid electric vehicles (EV/HEV) have seen some market success, significant progress is also being made with fuel cell vehicles (FCV), hydraulic hybrid vehicles (HHV), and solar (photovoltaic cell) powered vehicles. This session emphasizes but is not limited to the design, analysis and optimization of EVs, HEVs, HHVs, FCVs and solar cell powered vehicles. Examples of topics include innovative controls and energy management strategies; new component or sub-assembly designs for HEV/EV/FCV/HHVs, including power electronics and electrochemical/hydro-pneumatic energy storage systems; hydrogen storage systems; PV cell design and optimization, thermal stress management; regenerative braking systems; implications to vehicle dynamics, safety and reliability; and the analysis of environmental impact.

Chair: **Dr. Bohdan T. Kulakowski**
Penn State University
E-mail: btk1@psu.edu

Co-Chair: **Dr. Ming Cao**
United Technologies Research Center
E-mail: CaoM@UTRC.utc.com

Co-Chair: **Dr. Beshah Ayalew**
Penn State University
E-mail: beshah@psu.edu

All papers will be subjected to extensive review and the best paper will be selected; the authors of the best paper will receive the Best Paper Award at the opening of the 8th Advanced Vehicle Technologies Symposium at the ASME Congress in November 5-10, 2006, Chicago, Illinois, USA..

Vehicle Design Committee Next Meeting

The meeting has ended at 8:00pm and next meeting will be in Illinois, Chicago, on November 6, 2006 at 8:00pm.

Technical Committee on Vibration and Sound
Design Engineering Division
The American Society of Mechanical Engineers
http://divisions.asme.org/ded/tcvs/tcvs%20pages/Hom

ASME International

TO: DED Executive Committee

FROM: G. T. Flowers, TCVS Chair (flowegt@auburn.edu)

SUBJECT: Summary of TCVS activities during March to September 2006

DATE: August 25, 2006

- **Elections:** At our last meeting during the Design Show in Chicago, the committee voted on:

  Members: A new procedure was adopted to allow for an increase of the TCVS membership from 15 to 24 members. In order to continue the current practice of having the same number of members rotate off the committee each year, 3 of the members that were elected have three year terms, 3 have two year terms and 3 have one year terms. Doug Adams, Ed Berger, Malcolm Crocker, Xiaoling He, Brian Mann, Steve Shaw, and Steve Shen were reelected/elected for three year terms (from July 1, 2006 to June 30, 2009). Dumitru Caruntu, Liming Dai, and Amit Shukla were elected for two year terms (from July 1, 2006 to June 30, 2008). Jiong Tang, Steve Suh, and Jeanne Zu were elected for one year terms (from July 1, 2006 to June 30, 2007).

  Officers: George Flowers was elected to serve as chair, Chris Rahn as vice-chair, and Brian Feeny as secretary. Each has a term of office of two years, from July 1, 2006 to June 30, 2008.

- **TCVS Treasurer's Report:** We continue to build up the Den Hartog award account in an effort to push it toward a Division level award. The Myklestad Award account balance is $11,667.19 and the Den Hartog Award account balance is $30,326.03. The balances for the either of the award accounts are still not near the $50K specified by ASME to push the awards up to the division level. Funds from IDETC 2005 had not yet been distributed as of the Spring 2006 TCVS meeting.

- **IDETC 2005:** Hamid Hamidzadeh reported that IDETC 2005 was a solid success. TCVS got the highest number of papers and participants at IDETC 2005. The net revenue for the DED Custodial account was reported as $125,609.

- **IDETC 2007:** H. S. Tzou reported that the 2007 IDETC meeting has been set for 9/4/06 – 9/7/06 at the Rio All-Suite Hotel & Casino, Las Vegas, Nevada. Nader Jalili will serve as the technical program chair. An International Steering Committee has been setup to promote international IDETC participation. The regular cost is around $300/night but ASME has negotiated a good rate (around $175/night). Best paper awards for student papers will be selected and presented at the conference. The symposia are to be organized around specific themes so as to avoid having multiple symposia on similar topics.

- **IDETC 2009:** Kurt Anderson (from MDNS) and George Flowers (from TCVS) will serve as co-chairs for the conference. Harry Dankowicz (from MDNS) and Dane Quinn (from TCVS) will serve as the program co-chairs. The meeting will be held in San Diego, with the San Diego Sheraton as a possible site for the conference. Webpage development has been initiated.

- **IMECE 2006**: Three symposia from TCVS are planned for IMECE 06. The are

  - Symposium on Dynamics, Acoustics and Simulations (Hamidzadeh and Luo).

- Symposium on the Dynamics, Identification and Experiments (Kerschen and Feeny).

- Symposium on the Nonsmooth and Discontinuous Dynamical Systems (Shukla).

TCVS requested 14 sessions and was allocated 12. 60 abstracts have been submitted and should fill up the 12 sessions. The papers will be divided between the three symposia. Panel sessions have also been requested in emerging research and teaching areas.

- **Journal of Vibration and Acoustics:** Two new Associate Editors have been nominated and approved by DED, Brian Feeny and Chris Rahn. The editor, Kon-Well Wang, is encouraging the transfer of papers from conferences to the journal and is planning several special issues. The nominal acceptance rate for manuscript submissions is 40% and the average time from submission to editor decision is 7 – 8 months. The editor is working to reduce this time. The journal is experiencing paper submissions that have almost doubled in the last two years. There is currently about a 5 issue backlog for the journal. ASME has increased JVA page count from 600 to 800 pages and this will cut the backlog to 2 months. The increase in papers is partially due to the webtool ease of submission.

- **Interactions:** The TCVS interacts with a number of other committees and divisions, with liaisons to *Noise Control and Acoustics Division* (Grosh), *Applied Mechanics Division – Dynamic Systems and Structures Committee* (Luo), *Applied Mechanics Review* (Pierre), *Aerospace Division--Adaptive Structures Committee* (Wang), *Design Engineering Division – Power Transmission and Gearing Committee (Parker), DED International Activities Committee (Dyke), Micro and Nano Systems Committee (Raman).*

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- **TCVS Web Page:** Ed Berger has taken over responsibility for the TCVS web pages and has successfully transitioned them to an ASME server. The new home page is http://divisions.asme.org/ded/tcvs/tcvs%20pages/Home.html. In addition, the information and format has been updated.

UNIVERSITY OF CALIFORNIA, IRVINE

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DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING
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Report to the Executive Committee of the Design Division
Journal of Mechanical Design

Prepared by J. Michael McCarthy

August 25, 2006

I. Overview

A. Paper Review Process:

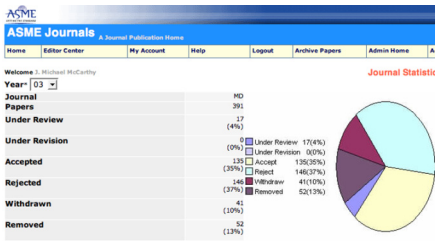
i. August 15 2002 to August 15, 2003: 299 papers submitted, (39% accepted)

ii. August 15, 2003 to August 15, 2004: 357 papers submitted
222 closed (34% accepted) in an average of 3mons, 131 open for an average of 4 mon.

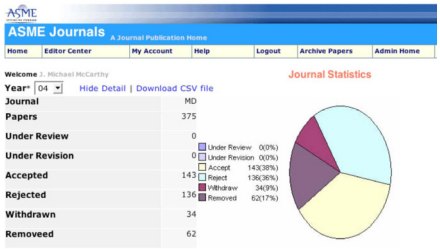
iii. August 15, 2004 through August 15, 2005: 434 submitted
268 closed (27% accepted) in an average of 3 months, 166 open for an average for 3 months;

iv. August 7, 2005 through August 7, 2006: 442 submitted
305 closed (24% accepted) in an average of 3 months, 137 open for an average for 3 months;

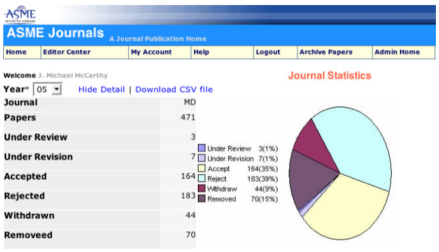
ASME JMD records similar statistics from the web page, which run for the calendar year.



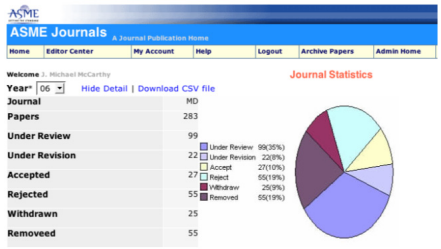
2003 Acceptance 37%



2004 Acceptance 38%



2005 Acceptance 35%



2006 Acceptance 10% as of August 15.

(These are screen shots at 72dpi, which is why they are such poor quality. The data is reproduced on the next page.)

--The ASME statistics collect the information on all papers in the yearly time windows. In some cases, it can take over a year before the decision on particular papers is resolved.

--The JMD statistics were developed as an in-progress snap-shot from August of one year to August of the next. The acceptance rate shown will increase over time, because papers open longer are usually under revision.

More ASME statistics:

Journal data:

Journal	Papers	In Progress	Accepted	Rejected	Withdrawn	Removed
2003	391	17	135 (34%)	146	41	52
2004	375	0	143 (38%)	136	34	62
2005	471	10	164 (35%)	183	44	70
2006	283	121	27 (10%)	55	25	55
All Years	1520	148	469 (31%)	520	144	239

Review Process data:

	Average Days			Average Months	
Journal	Assigned to AE	TE Decision	TE Approval	Draft TE Decision	Draft TE Approval
2003	22	3	8	6.514	8.651
2004	8	2	11	4.978	7.454
2005	19	2	11	4.909	6.593
2006	5	4	13	3.186	3.862
All Years	14	2	10	5.265	7.413

B. Production Backlog
i. August 2003: 73 papers after September 2003 issue, through June 2004
ii. August 2004: 85 papers after September 2004 issue, through May 2005
iii. August 2005: 80 papers after September 2005 issue, through May 2006
iv. August 2006: 93 papers after September 2006 issue, through June 2007

II. Production

A. Production schedule
i. January 1, 2003, quarterly, July 1, 2003 allocation, 900 pages.
ii. January 1, 2004, bimonthly, July 1, 2004 allocation, 900+200supplemental pages.
iii. January 1, 2005, bimonthly, July 1, 2005 allocation, 1100+200 supplemental pages.
iv. January 1, 2006, bimonthly, July 1, 2006 allocation, 1400 pages.
v. January 1, 2007, monthly

B. Themed collections of papers
i. July 2005 (supplement): Design of Micro, Nano and Biologically-inspired Systems (Dinos Mavroidis and Suresh Ananthasuresh, eds.)
ii. January 2006 (supplement): Spatial Mechanisms and Robot Manipulators (Gordon Pennock and Madhu Raghavan, eds.)
iii. July 2006 (supplement): Risk-Based & Robust Design (Shapour Azarm and Zissimos Mourelatos, eds.)
iv. January 2007 (special issue): Direct Contact Mechanisms (David Dooner and Teik C. Lim, eds.)
v. July 2007 (special issue): Engineering Design Education: A Global Perspective (Phil Doepker and Clive Dym, eds.)

III. Status of Associate Editors

A. AE's ending their terms in 2006
i. Kyung K. Choi, April
ii. Suresh G. K. Ananthasuresh, April
iii. Q. Jeffrey Ge, April
iv. Erol Sancaktar, April
v. David Kazmer, June
vi. Mike Savage, July
vii. Wei Chen, October

viii. John Clarkson, October
ix. Clive Dym, October
x. David Dooner, December

Recognition plaques are mailed to each former AE.

B. New Associate Editors beginning in 2006:
i. Mary Frecker, December 05
ii. Philippe Velex, December 05
iii. Hong S. Yan, March
iv. Ashitava Ghosal, May
v. Jose Rico, May
vi. Zissiimos Mourelatos, May
vii. Jeffrey Herrmann, July
viii. Janet Allen, July
ix. John Gershenson, July
x. Timothy Simpson, July

IV. Interaction between JMD and IDETC:

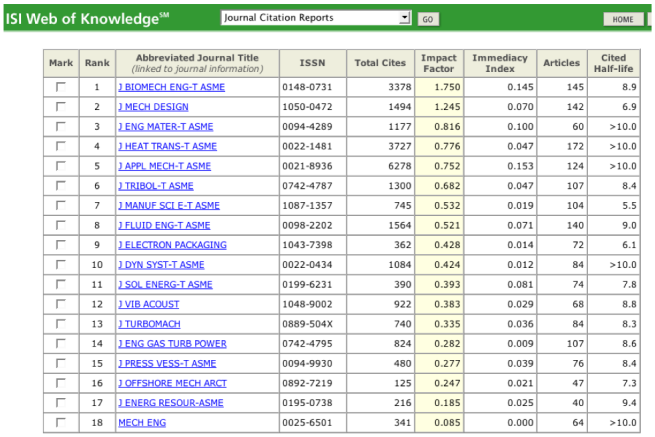
i. September 2004: Author, Reviewer and Associate Editor Appreciation Reception organized for the 2004 DETC in Salt Lake City, Utah.
ii. September 2005: AE dinner is scheduled for those who attend the Conference and is scheduled for September 25 (Sunday) 6:00-8:00 PM.
iii. September 2006: Author, Reviewer and Associate Editor Appreciation Reception is being planned for the 2006 DETC in Philadelphia, PA.

V. Quality of JMD

A. Production issues:
i. There is an increased emphasis on on-time publication of JMD. The goal is to have the Journal on-line the third week of the previous month, and in the mail the first week of the month of issue.
ii. On-time publication requires authors to return their proof sheets promptly. Technical Editor calls authors whose proofs have not been received by the printer. Unfortunately, in some cases this has meant the proofs were lost at ASME, because authors have confirmation of receipt by ASME.
iii. Page count for July 1, 2006 through June 30, 2007 is 1400 pages. The growth in submissions seems to have slowed. It may be possible to reduce the production backlog.
iv. A new policy for figures printed in JMD has been instituted. Authors are required to provide the figures that meet a minimum level of quality before publication, which is that fonts be clear and appropriately sized, not fuzzy or pixilated, and that line weights are appropriate and without rasterization. Paper proofs with poor quality font or line weights in their proofs will be held from publication.
v. A set of instructions has been generated with formatting information so that authors can generate two column mock-ups of their paper to examine how their figures appear on the printed page. This will be required of authors at the time of final submission, prior to Editor approval. This replaces the previous practice of review of individual figures by the Technical Editor.

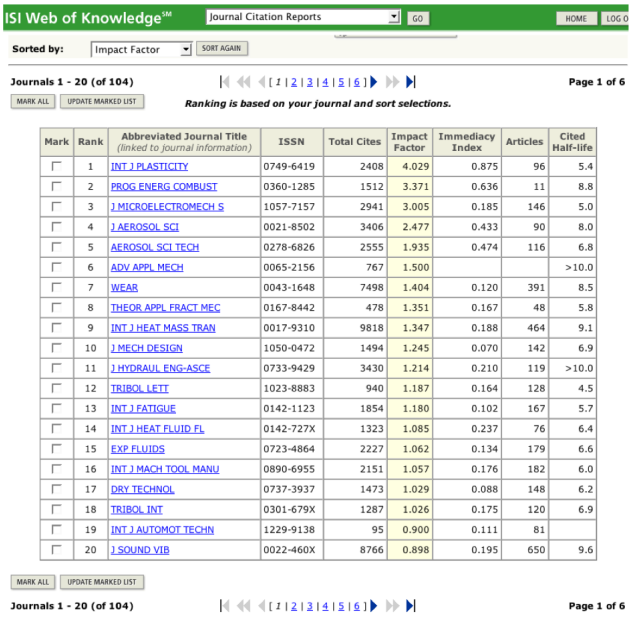
B. Impact Factor
i. 2002: 0.268, 12th out of 18 ASME journals, 2003: 0.354, 15th out of 18 ASME journals
2004: 0.461, 10th out of 18 ASME journals, 2005: 1.245, 2nd out of 18 ASME journals
ii. This increase in impact factor may be due the decrease in the time to a decision, which has been less than four months since 2003.
iii. The large production backlog continues to hurt the impact factor.
iv. Final manuscripts are listed on the web page: http://mae.eng.uci.edu/jmd/forthcomingissues.html

Ranking among ASME journals:


ISI Web of Knowledge℠ Journal Citation Reports GO HOME

Mark	Rank	Abbreviated Journal Title (linked to journal information)	ISSN	Total Cites	Impact Factor	Immediacy Index	Articles	Cited Half-life
☐	1	J BIOMECH ENG-T ASME	0148-0731	3378	1.750	0.145	145	8.9
☐	2	J MECH DESIGN	1050-0472	1494	1.245	0.070	142	6.9
☐	3	J ENG MATER-T ASME	0094-4289	1177	0.816	0.100	60	>10.0
☐	4	J HEAT TRANS-T ASME	0022-1481	3727	0.776	0.047	172	>10.0
☐	5	J APPL MECH-T ASME	0021-8936	6278	0.752	0.153	124	>10.0
☐	6	J TRIBOL-T ASME	0742-4787	1300	0.682	0.047	107	8.4
☐	7	J MANUF SCI E-T ASME	1087-1357	745	0.532	0.019	104	5.5
☐	8	J FLUID ENG-T ASME	0098-2202	1564	0.521	0.071	140	9.0
☐	9	J ELECTRON PACKAGING	1043-7398	362	0.428	0.014	72	6.1
☐	10	J DYN SYST-T ASME	0022-0434	1084	0.424	0.012	84	>10.0
☐	11	J SOL ENERG-T ASME	0199-6231	390	0.393	0.081	74	7.8
☐	12	J VIB ACOUST	1048-9002	922	0.383	0.029	68	8.8
☐	13	J TURBOMACH	0889-504X	740	0.335	0.036	84	8.3
☐	14	J ENG GAS TURB POWER	0742-4795	824	0.282	0.009	107	8.6
☐	15	J PRESS VESS-T ASME	0094-9930	480	0.277	0.039	76	8.4
☐	16	J OFFSHORE MECH ARCT	0892-7219	125	0.247	0.021	47	7.3
☐	17	J ENERG RESOUR-ASME	0195-0738	216	0.185	0.025	40	9.4
☐	18	MECH ENG	0025-6501	341	0.085	0.000	64	>10.0

Ranking among Mechanical Engineering journals:


ISI Web of Knowledge℠ Journal Citation Reports GO HOME LOG O

Sorted by: Impact Factor SORT AGAIN

Journals 1 - 20 (of 104) [1 | 2 | 3 | 4 | 5 | 6] Page 1 of 6

MARK ALL UPDATE MARKED LIST

Ranking is based on your journal and sort selections.

Mark	Rank	Abbreviated Journal Title (linked to journal information)	ISSN	Total Cites	Impact Factor	Immediacy Index	Articles	Cited Half-life
☐	1	INT J PLASTICITY	0749-6419	2408	4.029	0.875	96	5.4
☐	2	PROG ENERG COMBUST	0360-1285	1512	3.371	0.636	11	8.8
☐	3	J MICROELECTROMECH S	1057-7157	2941	3.005	0.185	146	5.0
☐	4	J AEROSOL SCI	0021-8502	3406	2.477	0.433	90	8.0
☐	5	AEROSOL SCI TECH	0278-6826	2555	1.935	0.474	116	6.8
☐	6	ADV APPL MECH	0065-2156	767	1.500			>10.0
☐	7	WEAR	0043-1648	7498	1.404	0.120	391	8.5
☐	8	THEOR APPL FRACT MEC	0167-8442	478	1.351	0.167	48	5.8
☐	9	INT J HEAT MASS TRAN	0017-9310	9818	1.347	0.188	464	9.1
☐	10	J MECH DESIGN	1050-0472	1494	1.245	0.070	142	6.9
☐	11	J HYDRAUL ENG-ASCE	0733-9429	3430	1.214	0.210	119	>10.0
☐	12	TRIBOL LETT	1023-8883	940	1.187	0.164	128	4.5
☐	13	INT J FATIGUE	0142-1123	1854	1.180	0.102	167	5.7
☐	14	INT J HEAT FLUID FL	0142-727X	1323	1.085	0.237	76	6.4
☐	15	EXP FLUIDS	0723-4864	2227	1.062	0.134	179	6.6
☐	16	INT J MACH TOOL MANU	0890-6955	2151	1.057	0.176	182	6.0
☐	17	DRY TECHNOL	0737-3937	1473	1.029	0.088	148	6.2
☐	18	TRIBOL INT	0301-679X	1287	1.026	0.175	120	6.9
☐	19	INT J AUTOMOT TECHN	1229-9138	95	0.900	0.111	81	
☐	20	J SOUND VIB	0022-460X	8766	0.898	0.195	650	9.6

MARK ALL UPDATE MARKED LIST

Journals 1 - 20 (of 104) [1 | 2 | 3 | 4 | 5 | 6] Page 1 of 6

C. The Future

i. Editor decisions are now available to reviewers at the completion of the review process.

ii. There is a desire to have all the reviews available to the reviewers at the completion of the review process.

iii. Author approved typesect manuscripts should be made available on-line as soon as possible prior to publication.

v. The author should be able to include animations in the on-line paper.

vi. On-line JMD issues should be expanded to include issues prior to 2000.

Sincerely,

J. Michael McCarthy
Professor
University of California, Irvine

ASME Journal of Vibration and Acoustics
Report to DED Committee
September 2006

Purpose and Scope

The purpose of the Journal of Vibration and Acoustics (JVA) is to serve as a vehicle for the communication of original research results of permanent interest in all areas of vibration and acoustics. Papers published by the journal are full-length articles of considerate depth. The journal also presents Technical Briefs, which are intended to serve as a means for the rapid communication of recent developments in an abridged form. Examples of specific topic areas covered include, but not limited to: vibration of continuous and lumped parameter systems; linear and non-linear vibrations; random vibration; modal analysis; mechanical signatures; structural dynamics and control; vibration suppression; vibration isolation; passive and active damping; machinery dynamics; rotor dynamics and vibration; acoustic emission; noise control; machinery noise; structural acoustics; fluid-structure interaction; aeroelasticity; and flow induced noise and vibration.

Associate Editors

New Associate Editors Dr. Jeffrey Vipperman, Associate Professor of Mechanical Engineering at the University of Pittsburgh, and Dr. C. K. Sung, Professor of the Power Mechanical Engineering Department at National Tsing Hua University in Taiwan, have been nominated and approved as new associate editors. Their terms began on June 1, 2006. Dr. Vipperman's major technical areas include acoustics and active noise and vibration controls. Dr. Sung's expertise is in machine dynamics and vibration, smart materials and structures, and precision machine design. These are some of the areas that JVA is currently getting a huge amount of paper submissions, and thus these new associate editors will be great additions to the Journal.

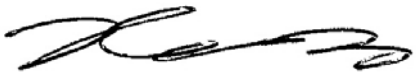
Special Projects

Through working with the symposium organizers of the 2005 IDETC Mechanical Vibration and Noise Conference, we are planning a couple of special issues for the coming years. The first one will be on *vibration-based structural health monitoring techniques*, with guest editors Bogdan Epureanu (University of Michigan) and Mark Derriso (Air Force Research Labs). We have also communicated with the Conference program chair and symposium organizers to identify and solicit high quality papers from the Conference. These papers will go through the regular rigorous journal review process.

Current Status and Outlook

In 2005, we have used 607 pages of our allotted 600. The Journal is experiencing an increasing rate of paper submission. There have been 112 papers submitted in 2003, 193 in 2004, and 215 in 2005. In November 2005, a total of 59 papers were in the queue waiting to be printed. Given this number and assuming a nominal of 10 to 12 papers per issue, the predicted back log for the most recent accepted papers at that time was 5 issues. This translates to a ten months wait for the authors after their papers have been accepted. With the increasing paper submission rate and the significant backlog, we requested a page increase from ASME. After the IMECE meeting in November 2005, JVA was allotted an additional 200 pages per year, making the new annual number of available pages 800. Thus beginning in 2006, the Journal will have about 133 pages per issue. As of July 24, 2006, there has been 156 papers submitted to the JVA (which translates to 267 papers by the end of 2006, via extrapolation). During this same time period, January through July, we have accepted 53 papers. With the increase of page limit per issue, our back log is now three to four issues.

Respectfully submitted,



Kon-Well Wang, JVA Editor
William E. Diefenderfer Chaired Professor in Mechanical Engineering
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Journal Assistant
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Papers Published in 2006

Issue	Full Papers	Tech Briefs	Discussions	Reviews	Misc.	Number of Pages	Total Pages Allocated
February	14	1	0	0	0	132	
April	14	4	0	0	0	135	
June	13	2	1	0	0	142	
August	11	3	2	0	1	129	
October	TBA	TBA	TBA	TBA	TBA	TBA	
December	TBA	TBA	TBA	TBA	TBA	TBA	
Total							**800**

Summary of Activities (January 1, 2003 – July 24, 2006)

	Submitted Papers	Accepted Papers	Rejected Papers	Withdrawn Papers	Removed Papers	% Papers Accepted	% Papers Rejected
2003	112	76	63	26	9	44%	36%
2004	193	87	72	23	12	45%	37%
2005	215	69	76	23	5	40%	44%
2006*	156	53	67	11	8		

* As of July 24, 2006

Journal of Computational and Nonlinear Dynamics

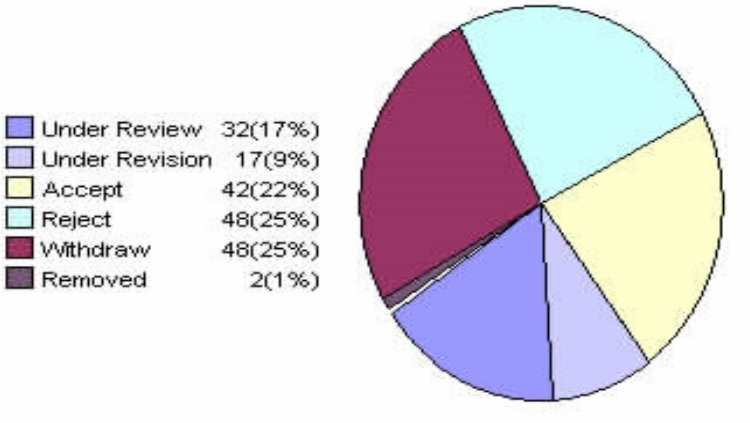
Report, September 2006, Philadelphia, PA

The journal is coming along well; the number of articles submitted and accepted is about what I was expecting. We are on track of meeting the goal of 400 pages /year allocated by the ASME Publication Directorate. The October 2006 issue is a special issue honoring Professor Philip Holmes' 60th birthday. I would like to thank Harry Dankowicz and Oliver O'Reilly for serving as the Guest Editors. I would like to welcome the following five new Associate Editors who are starting their three year term from July 2006. These are:

1. Dr. David Gilsinn of NIST, USA (Nonlinear Dynamics, Systems involving delay differential equations, bifurcations and machine tools)
2. Professor Claude-Henri Lamarque of ENTPE, Lyon, France (Nonlinear Dynamics, Non smooth systems, Nonlinear dynamics of Structures)
3. Professor Albert Luo, SIU, Edwardsville, USA (Nonlinear Dynamics, Continuum and Damage Mechanics, Discontinuous Systems)
4. Professor Aki Mikkola, Lappeenranta University of Technology, Lappeenranta, Finland (Flexible Multibody dynamics, Coupled simulation of machine syst., Nonlinear FE formulations)
5. Professor Nobuyuki Shimizu of the Department of Mechanical Engineering, Iwaki Meisei University, Japan (multibody dynamics, fractional differentiation, damping technology, dynamics of soft materials)

Papers Statistics

Total Number of Papers (since the journal started) = 189



Associate Editors Statistics*

AE/GE	Papers	Rev.	Acc.	Rej.	Withdr./Rem.	Days to Assign Reviewer	Days in Review	Days to Recom.	Days to Revision	Days to Review Revision
O. Agrawal	4	1	0	2	0	10	31	13	13	
D. Anderson	7	3	3	3	0	24	47	4	82	110
B. Balachandran	9	6	5	0	1	1	33	4	41	16
O. Bauchau	5	2	1	3	0	16	62	1	55	123
A. Berlioz	8	2	1	4	1	6	74	18		
H. Dankowicz	17	10	11	3	0	2	33	7	22	12
A. Ferri	8	2	1	3	1	26	21	21	92	60
H. Lankarani	7	1	6	0	0	6	30	21	19	14
J. McPhee	8	5	3	2	0	10	46	10	40	51
F. Pfeiffer	1	1	0	0	1	63	28	28	35	
C. Pierre	3	1	0	0	0	49	72	18		
G. Rega	6	4	2	2	0	3	62	2	37	114
W. Schiehlen	4	3	2	0	0	22	38	15	99	46
A. Shabana	8	3	2	3	0	0	29	2	75	34
A. Singh	4	0	0	3	0	35	118	5		
L. Virgin	7	3	2	1	1	8	64	20	77	15
Total & Avg.	**106**	**47**	**39**	**29**	**5**	**17**	**49**	**11**	**52**	**54**

- **Note that the papers handled by the Editor is not reported in the statistics**

Submitted by: Subhash C. Sinha
Editor, Journal of Computational and Nonlinear Dynamics

IEEE/ASME TRANSACTIONS ON

MECHATRONICS

Report of the Activities of the IEEE / ASME Transactions on Mechatronics Submitted to the Executive Committee of the Design Engineering Division ASME DED Executive & General Committee Meetings, Philadelphia, PA, September 11, 2006

1. Growth of Transactions

Table 1. Growth of Printed Pages (1997-2006) including covers, 16 pages for four issues. Growth of Printed Pages (2005)including covers, 16 pages for six issues

Year	1997	2002	2003	2004	2005	2006	2007
# of printed pages	312 (4 issues)	528 (4issues)	528 (4issues)	560 (4issues)	710 (6issues)	750 (6issues)	776 (6issues)

Table 2. Growth of Paper Submissions (1997-2005)

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006 (by 08/20)
# of submissions *	56	49	70	92	104	101	186	187	183	123

* Numbers indicate contributed papers only and do not include papers in focused sections. Because of this, the numbers in this table do not match with those in earlier reports.

2. Region of Author Affiliation

	2005	2004	2003	2002	2001
Region of author affiliation	%	%	%	%	%
Regions 1 – 6 (U.S.A.)	30.50	33.33	32.74	31.48	29.10
Region 7 (Canada)	11.86	8.33	8.62	9.26	10.91
Region 8 (Europe/Africa)	10.17	16.67	17.24	11.11	10.91
Region 9 (Central/South America)	1.74	2.08	1.72	0	3.64
Region 10 (Asia/Pacific)	42.37	37.51	39.66	44.44	43.64

3. Acceptance Rate

33%. (Same as 2003, 2004, and 2005)

4. Financial Package and Subscriptions

Average 2001 ASME copies

March 2001	223		
June 2001	223		
September 2001	223		
December 2001	254		
TOTAL	923		
Average	**231**	(based on 923/4 issues)	**231**

Total Subscribers as of September 2001

	Student	Regular	Retired	Other	Affiliates	
IES	21	428	6	0	1	456
LEOS	4	78	2	0	0	84
RAS	59	675	5	2	5	746
Interdisciplinary	8	99	0	0	2	109
TOTAL	92	1280	13	2	8	**1395**

Total Non Members as of September 2001: **104**

Total ASPP Subscribers: **650**

Subscribers (total IEEE subs, including ASPP; average ASME subs) **2380**

Total Production cost for T-Mech (based on preliminary 2001 results without editorial reimbursed expenses) **$85.4k**

Per Issue Cost: (based on $85.4k/2,380 subscribers)/ 4 issues} **$8.97**

INVOICE TO ASME

March 2001	$2,000.31
June 2001	$2,000.31
September 2001	$2,000.31
December 2001	$2,278.38
Total	$8,279.31

Average 2002 ASME copies

March 2002	259		
June 2002	227		
September 2002	209		
December 2002	239		
TOTAL	934		
Average	**234**	(based on 934/4 issues)	**234**

Total Subscribers as of September 2002

	Student	Regular	Retired	Other	Affiliates	
IES	25	407	9	0	0	441
LEOS	4	65	1	0	0	70
RAS	61	643	4	0	4	712
Interdisciplinary	8	106	0	0	6	120
TOTAL	98	1221	14	0	10	**1343**

Total Non Members as of September 2002: **119**

Total ASPP Subscribers: **695**

Subscribers (total IEEE subs, including ASPP; average ASME subs) **2,391**

Total Production cost for T-Mech (based on 2002 results without editorial reimbursed expenses) **80.8**

Per Issue Cost: (based on $80.8k/2,391 subscribers)/ 4 issues} **$8.45**

INVOICE TO ASME

March 2002	$2,188.58
June 2002	$1,918.18
September 2002	$1,766.07
December 2002	$2,019.58
Total	$7,892.41

Average 2003 ASME copies

March 2003	236		
June 2003	216		
September 2003	198		
December 2003	202		
TOTAL	852		
Average	**213**	(based on 852/4 issues)	**213**

Total Subscribers as of August 31, 2003

	Student	Regular	Retired	Other	Affiliates	
IES	18	327	9	20	0	374
LEOS	4	45	1	4	0	54
RAS	55	559	3	22	1	640
Interdisciplinary	9	92	1	4	4	110
TOTAL	86	1023	14	50	5	**1178**

Total Non Members as of August 2003: **100**

Total ASPP Print Subscribers: **374**

Subscribers (total IEEE subs, including ASPP; average ASME subs) **1,865**

Total Production cost for T-Mech (based on prelim 2003 results without editorial reimbursed expenses) **77.8**

Per Issue Cost: (based on $77.8K/1865 subscribers)/ 4 issues} **$10.43**

INVOICE TO ASME

March 2003	$2,461.23
June 2003	$2,252.65
September 2003	$2,064.93
December 2003	$2,106.65
Total	$8,885.47

Average 2004 ASME copies

March 2004	185		
June 2004	167		
September 2004	176		
December 2004	177		
TOTAL	705		
Average	**176**	(based on 852/4 issues)	**176**

Total Subscribers as of Agust 2004

	Student	Regular	Retired	Other	Affiliates	
IES	20	280	9	23	0	332
LEOS	6	38	1	5	1	51
RAS	31	521	4	32	1	589
Interdisciplinary	16	91	2	6	5	120
TOTAL	73	930	16	66	7	**1092**

Total Non Members as of August 2004: **70**

Total ASPP Print Subscribers: **343**

Subscribers (total IEEE subs, including ASPP; average ASME subs) **1,681**

Total Production cost for T-Mech (based on prelim 2004 results without editorial reimbursed expenses) **70.9**

Per Issue Cost: (based on $70.9K/1,681 subscribers)/ 4 issues} **$10.54**

INVOICE TO ASME

March 2004	$1,950.41
June 2004	$1,760.64
September 2004	$1,855.52
December 2004	$1,866.07
Total	$7,432.64

5. Plans for the Year December 2005 – 2006

October 2006 Issue: 125 pages
Focused Section on Focused Section on Mechatronics in Industrial Electronics 3 papers
(Guest Editor: Prof. Karel Jezernik)
Regular Submissions: 12 –13 papers

December 2006 Issue: 125 pages
Regular Submissions: 14 –15 papers

February 2007 Issue: 130 pages
Focused Section on Focused Section on Biomechatronics 10-12 papers
(Guest Editor: Prof. Paolo Dario)
Regular Submissions: 6 – 8 papers

April 2007 Issue: 130 pages
Focused Section on Focused Section on MRI Compatible Robotics 10-12 papers
(Guest Editor: Prof. Etienne Burdet)
Regular Submissions: 6 – 8 papers

June 2007 Issue: 130 pages
Focused Section on Focused Section on Advanced Integrated Mechatronics 10-12 papers
(Guest Editor: Prof. H. Huang)
Regular Submissions: 6 – 8 papers

August 2007 Issue: 130 pages
Regular Submissions: 16 – 18 papers

October 2007 Issue: 130 pages
Focused Section on Focused Section on Intelligent Mechatronic and Embedded Systems
(Guest Editor: Prof. Harry Cheng) 10-12 papers
Regular Submissions: 6 – 8 papers

December 2007 Issue: 130 pages
Regular Submissions: 16 – 18 papers

6. FUTURE PLANS

The page count for T-MECH increases from 528 (2001, 2002, 2003), 560 (2004) to 710 in 2005, and 750 in 2006. In 2007, the page count is increased to 776. It is expected that the page count will steadily increase in a few years. We will continue to publish papers covering not only macro aspect of mechatronics, but also the emerging micro level aspects of mechatronics. Papers with intelligence and the nature of system integration are particular welcomed. The focused sections tie with conferences, workshops were a good practice, because we were able to get good quality papers. We will continue this practice. The IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM) and the International Federation of Automatic Control (IFAC) will join together to make an annual flagship conference starting in 2008, which will bring more opportunities for applications papers. Since the Transactions is doing well, we do not foresee large changes in the set-up of T-MECH in the near future.

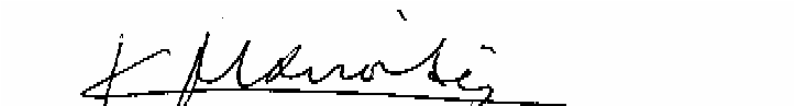
7. SELF ASSESSMENT

IEEE/ASME T-MECH is considered the premier journal in the field by the majority of the mechatronics research community, since T-MECH emphasizes system integration from the area of Mechanical Engineering, Electrical Engineering, Computer Engineering and Intelligence nature. Other journals from the other publishers with mechatronics subjects do not possess this strength of System Integration, since System Integration is the main spirit of the name "Mechatronics". Also, T-MECH is jointly collaborated with IEEE and ASME which makes good image and represents confidence for the quality. The total number of citations of a paper is increased from 193 (2001) to 406 (2004). Our objective is to remain the premier journal in the field as conceived by the majority of mechatronics research community. Strong assets of T-MECH to stay in this position are the high quality of the Board of Technical Editors, the timeliness of the publication, and the reasonable average time from submission to first decision. The latter parameter still is open for improvement, and this will be the primary goal for the coming period.

Journal Title		Total Cites	Impact Factor	Immed. Index	No. of Articles	Cited Half-Life
IEEE/ASME Transactions on Mechatronics						
	2004	406	0.652	0.062	64	4.6
	2003	396	0.716	0	58	4.5
	2002	267	0.544	0.037	54	4.2
	2001	193	0.696	0.018	55	3.9
IEEE Transactions on Automatic Control						
	2004	10795	1.545	0.178	292	>10.0
	2003	12051	1.896	0.215	307	>10.0
	2002	11914	1.553	0.186	295	>10.0
	2001	9911	1.222	0.117	282	9.8
IEEE Transactions on Control Systems Technology						
	2004	999	0.923	0.138	94	5.7
	2003	1086	1.157	0.055	91	5.3
	2002	979	1.241	0.088	91	5
	2001	748	0.889	0.062	81	5
IEEE Transactions on Industrial Electronics						
	2004	1926	0.976	0.097	155	6.4
	2003	1685	0.816	0.059	153	6.3
	2002	1367	0.56	0.084	143	6.8
	2001	1276	0.739	0.073	150	6.3
IEEE Transaction on Industry Applications						
	2004	3877	0.987	0.18	189	8.5
	2003	3257	0.783	0.104	202	8.3
	2002	2967	0.764	0.113	194	7.7
	2001	3037	0.847	0.159	220	7.6
IEEE Transactions on Robotics and Automation						
	2004	3909	2.126	0.136	110	8.6
	2003	3496	2.103	0.216	102	8.3
	2002	2575	1.048	0.083	96	8.7
	2001	2916	1.375	0.092	98	8.2

All data and information were provided by the Editor in Chief, Professor Ren Luo.

Respectfully submitted,



Constantinos Mavroidis, Ph.D., Professor
Technical Editor for Design, IEEE / ASME Transactions on Mechatronics

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JCISE Annual Report: DETC 2005 (Revised)
Submitted by: Jami Shah, Aug 1, 2006

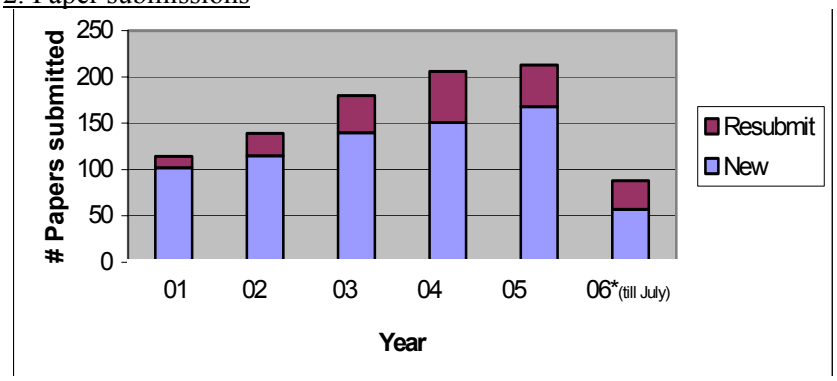
A. Journal Statistics

1. Published papers by categories

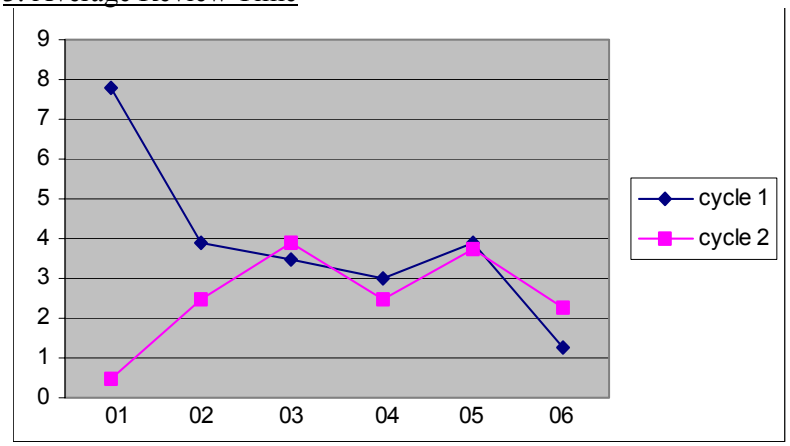
Year	Research papers	Application Briefs	Tech reviews	Tech Notes	Software reviews	Book reviews	Total #papers	Total pages
2001	33	3	2	3	3	0	44	384
2002	30	5	1	3	2	0	41	352
2003	34	7	0	0	2	1	44	372
2004	33	9	1	1	0	0	43	398
2005	40	4	0	0	0	1	45	400
2006*	25*	6*	0	0	0	0	31*	332*

*incomplete (includes only 3 issues)

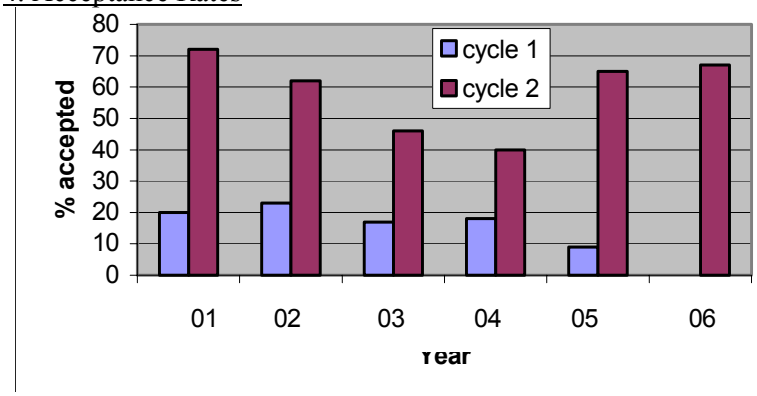
2. Paper submissions



3. Average Review Time



4. Acceptance Rates



5. Backlog (as of Aug 2006)
24 papers (2.5 issues)

B. JCISE Advisory Board (AB)

JCISE is governed by an Advisory Board in accordance with modified By-Laws. DED and CIE each have 2 seats on the AB; MED and DSCD each have 1; there are 2 at-large members, one from ME and the other from CS community. The Chairmanship of AB rotates between DED and CIE annualy. During 2005-06 Bahram Ravani served as the Chair. The Chairmanship will rotate back to CIE in Sep 2006. The AB Chair signs AE nomination forms in lieu of the Division Chair.

The current composition of the AB is

David Lee, Northrop-Grummon - CIE
YongSe Kim, Korea, CIE
Bahram Ravani, UC Davis, DED (Chair 2005-06)
Alan Parkinson, BYU, DED
Vacant, MED (MED has not nominated anyone yet to replace Tony Woo)
Dave Auslander, UC Berkeley, DCSD
Rich Riesenfeld, U. Utah, at-large CS
Paul Wright, UC Berkeley, at-large ME

C. AE Terms

1. Term ended 2005-06

Paul Wright – 2nd term – CAM/RP
Kunwoo Lee – 1st term - Simulation/ Geometric modeling
Ravi Rangan - 2nd term – Informatics (Application track)
Simon Szykman 2nd term – CAPD/AI (Application Track)
Susan Urban – 2nd term – Informatics
David Rosen – 2nd term – CAD/CAPD/RP
Nancy Dorighi – 2nd term - VR

2. New appointments: 2006

Sean Callahan (Boeing Co.) – 1st term – Informatics
Jim Oliver (Iowa State) – 1st term – VR
John Michopoulus (Naval research labs) – 1st term – simulation
Leo Joskowicz (Hebrew U.) – 1st term – AI/KBS

3. Re-appointments - 2006

Rich Crawford (UT Austin) – 2nd term - CAPD
Jonathan Corney (Heroit-Wyatt, Scotland) – CAM/CAPP

D. Special Issues – past year

V6N2 – Collaboartive Engineering
V5N4 – Meshing

Journal of Medical Devices Report
8/30/06

Submitted by Editors:

Arthur G. Erdman, Ph.D.
University of Minnesota

Gerald E. Miller, Ph.D.
Virginia Commonwealth University

The formation of Journal of Medical Devices (JMED) has been approved by both the Design Division and The Bioengineering Division Executive Committees of ASME in spring of 2006. The prototype for this journal appeared as a Special Issue of the ASME Journal of Biomechanical Engineering November 2006, Vol.127,No. 6 pp 893-1044, (A. Erdman Guest Editor).

There will be an Advisory Board for this Journal made up of two members selected by each of the two divisions. During 2006, Tom Andriacchi (Stanford) from the Bioengineering Division and Kazem Kazerounian (U of Connecticut) from the Design Division have been very helpful in this role! Both divisions need to nominate another board member.

The start up phase of the JMED has had its predictable stumbles, but the first issue is expected to be available online before the end of the year. This issue will contain between 11 and 14 papers that have gone through the review process.

Statistics (as of 8/28/06):

*Journal Activity **before** Journal was approved:*

-Papers transferred over to JMED from Frank Yin (Journal of Biomechanical Engineering) 11
-Papers rejected from this set 2
-Abstracts submitted for our Jan 2006 abstract deadline 31
(Set up partially for the 2006 Design of Medical Devices Conference, Minneapolis MN)
-Abstracts rejected 6
-Abstract accepted for full paper submission 16
-Abstracts accepted for Technical Brief submission 9

---

*Journal Activity **after** Journal was approved:*

-Total papers submitted online (including those from above who agreed to submit) 56
-Papers withdrawn during the review process 11
-Papers rejected in the review process 6
-Papers rejected and sent to a different ASME Journal 1
-Final Manuscripts ready for publication 10
-Final Manuscripts nearly ready for publication 5
-Papers accepted but waiting final submission 5
-Papers currently in the review process 18

Below is the mission of the Journal and the current Associate Editors:

A Central Source for Research, Development, and Application of Medical Devices and Instrumentation...

Journal of Medical Devices

Focusing on applied research and the development of new medical devices or instrumentation, this new journal presents papers on devices that improve diagnostic interventional and therapeutic treatments. It provides special coverage of novel devices that allow new surgical strategies, new methods of drug delivery, or possible reductions in the complexity, cost, or adverse results of health care. The Design Innovation category features papers focusing on novel devices, including some with limited clinical or engineering results. The Medical Device News section provides coverage of advances, trends, and events.

COVERAGE

New medical sensors/actuators
Orthopedic devices
Cardiovascular devices
Rehabilitation devices
Neurological devices
Bioheat transfer devices
Medical instrumentation
Image guided intervention/treatment
Endoscopic/Laparoscopic devices
Minimally invasive devices
Human performance/force assessment
Tissue engineered devices
Drug/Cell deliver systems
Medical robotics
Medical device design processes
Medical device manufacturing
Human factors in medical devices

SEND SUBMISSIONS TO:
http://journaltool.asme.org/Content/index.cfm
I I
Editors:

Arthur G. Erdman, Ph.D.
University of Minnesota

Gerald E. Miller, Ph.D.
Virginia Commonwealth University

Approved Associate Editors:

Karim A. Abdel-Malek, Ph.D.
University of Iowa

Ted A. Conway, Ph.D.
Virginia Commonwealth University

Vijay K. Goel, Ph.D.
University of Toledo

Just Herder, Professor
Delft University of Technology

Hamid M. Lankarani, Ph.D.
Wichita State University

Ming-Yih Lee, Ph.D.
Chang Gung University

Amy L. Lerner, Ph.D.
University of Rochester

James E. Moore Jr., Ph.D.
Texas A&M University

Jahangir Rastegar, Ph.D.
State University of New York at
Stony Brook

Erol Sancaktar, Ph.D.
The University of Akron

Guest Associate Editors (who have served as invited AE's in the first issue):

Gary Lee Bowlin, PhD
Virginia Commonwealth University

Paul Anthony Iaizzo, PhD
University of Minnesota

Horea Ilies, PhD
University of Conn.

Keefe B.Manning, PhD
Pennsylvania State University.

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ISSN: 1932-6181

ASME Design Engineering Division General Committee Meeting
September 11, 2006

Constitution and Bylaws Report
H. Lipkin

OLD BUSINESS

1) DED approved changes in the Constitution, Bylaws, and Operating Procedures of the Executive Committee on 19 March 2006.

NEW BUSINESS

1) The current version of the CBOP has been reformatted in a consistent form as a Microsoft Word document.

2) The CBOP should be forwarded to Systems & Design Technical Group for approval.

3) After approval the DED website should be updated with the new CBOP.

4) An approved draft of the Technical Communities Operating Guide, 8. Board on Technical Communities (approved 02 November 2005) has been reviewed and found consistent with the CBOP. No changes to the CBOP are recommended.

5) It is suggested to change references to DETC in the CBOP to IDETC in order to reflect current usage. These can be put in the next revision.

RE: NDEC/NMW 2006 Report for the DETC

National Manufacturing Week 2006
Prepared by: John E. Renaud, Univerity of Notre Dame

Acknowledgements: Noha El-Ghobashy, ASME

The ASME Design Engineering Division submitted approximately 12 abstracts for presentation. REED accepted six of these sessions. Revenues for the conference are distributed based on attendance and the Design Engineering Division attendance garnered 32% of attendees, resulting in a net revenue of $4857.95 for the Design Engineering Division.

2006 NMW Programming

The overall technical conference organized this year by REED consisted of over 200 sessions (including free sessions). ASME organized a total of 31 (vs. 35 in 2005) technical sessions.

The 31 sessions were organized by 6 ASME participating divisions

- **Design Engineering Division (6 sessions)**
- Manufacturing Engineering Division (7 sessions)
- Plant Engineering and Maintenance Division (2 sessions)
- Management Division (2 sessions)
- Technology and Society Division (8 sessions)
- Computers and Information in Engineering Division—NEW participant in 2006 (2 sessions)
- Electronics and Photonic Packaging Division—NEW participant in 2006 (2 sessions)
- Continuing Education —NEW participant in 2006 (2 sessions)

ASME Session Attendance and Revenue Sharing

ASME Revenue for 2006 = $30,000 Plus $5,000 Logo Fee

The revenues to distributed as follows:

- Logo fee to ASME = $5,000
- 50% Knowledge & Community = $15,000
- 50% to the participating divisions &Continuing Ed based on attendance (total $15,000)

Design Engineering Division	**$4,857.95 (~32%)**
Manufacturing Engineering Division	$2,002.84 (~13%)
Plant Engineering and Maintenance Division	$426.14 (~3%)
Management Division	$1,960.23 (~13%)
Technology and Society Division	$3,792.61 (~25%)
Computers and Information in Engineering Division	$511.36 (~3%)
Electronics and Photonic Packaging Division	$383.52 (~2%)
Continuing Education	$1,107.95 (~7%)

Comparison to 2004 & 2005 Conferences

Division	Revenue Share 2004	Revenue Share 2005	Revenue Share 2006
Design Engineering Division	$7,519 (49%)	$3,448 (23%)	$4,857.95 (32%)
Manufacturing Engineering Division	$2,858 (18%)	$3,313 (22%)	$2,002.84 (13%)
Plant Engineering & Maintenance Division	$808 (6%)	$940 (6%)	$426.14 (3%)
Management Division	$2,983 (19%)	$5373 (36%)	$1,960.23 (13%)
Technology & Society Division	$1,181 (8%)	$672 (4%)	$3,792.61 (25%)
Computers and Information in Engineering Division	N/A	N/A	$511.36 (3%)
Electronics and Photonic Packaging Division	N/A	N/A	$383.52 (2%)
Continuing Education	N/A	N/A	$1,107.95 (7%)

Honors & Awards Committee
J. K. Davidson, Chair
Design Engineering Division
ASME

Report for meeting of September 11, 2006
Philadelphia, Pennsylvania

1. The three awards (MD, daVinci, and Spira Educator) are selected by two committees: MD and daVinci by the entire DED H&A Committee, and the Spira Award by a subset of the H&A Committee and 3 from the DED Education Committee. The cooperation from the Education Committee was superb. This year, 2006, the committees that judged the awards were:

DED H&A	Spira Design Educator
J. Davidson, Chr	J. Davidson, Chr
Art Erdman	Alan Parkinson
Crispin Hales	Art Erdman
Alan Parkinson	Clive Dym
Jeffrey Ge	Edmund Feldy
Gordon Kirk	Alex Slocum.

To simplify matters within the DED, we have traditionally chosen to designate the entire DED H&A committee to BE the Society's committee that selects the Machine Design recipient, and we choose half of H&A to be half of the Society's Spira committee. The Chair of the DED is the one who must ask the Society H&A Committee to change the roster of who is on these Society selection committees.

2. The job of the H&A Committee is to select qualified candidates who meet the qualifications for the three awards. Although there were nominations for all of the awards this year, the H&A committee chose to make just two of the three awards: Machine Design and Spira Outstanding Educator Awards.

3. We need more qualified nominations for all three of the awards, so I am hereby soliciting nominations for all of them. Nomination packets are carried over automatically for 3 years and then removed from consideration, unless renewed by the nominator. Qualifications for each award are listed on the DED website, along with the past recipients. Our Division website leads to the nomination materials (resume of candidate, a simple form for the nominator, and 5 letters of support). (Shayne Gooch has done a splendid job of organizing the DED website, including the H&A portion.) I hope that many of you will identify a worthy candidate for one of the awards and then undertake the nomination. Attached is a copy of the guidelines for the awards that are handled by the DE Division. Also included in the guidelines is a listing of the Technical Committee Awards.

4. Through the efforts of Clive Dym last year, the Division attempted to upgrade the Product Safety Award to a Society award, but the Society H&A Committee has established a moratorium on new awards. Consequently, although the endowment funds are available, the award remains a Division award.

J. K. Davidson, Chair
DED Honors & Awards Committee
August 19, 2006

ASME DESIGN ENGINEERING DIVISION

HONORS AND AWARDS

The ASME Design Engineering Division is the custodian of the following awards:

ASME (Society) Awards

Selection by DED Committee & confirmed by ASME H&A
Presentation at DED luncheon of IDETC

Machine Design Award	This award recognizes eminent achievement or distinguished service in the field of machine design which is considered to include application, research, development, or the teaching of machine design.
Spira Outstanding Design Educator Award	This award is to be presented to a person who exemplifies the best in furthering engineering design education through his/her vision, interactions with students and industry, scholarship and impact on the next generation of engineers; a person who through his/her actions is a role model for other educators to emulate

Division Awards

Selection by DED Honors & Awards Committee
Presentation at DED luncheon of IDETC

Robert E. Abbot Award	Established in 1978 to recognize individuals who have served the Design Engineering Division beyond the call of duty. Administrator: Design Engineering Division.
Leonardo Da Vinci Award	Eminent achievement in the design or invention of a product which is universally recognized as an important advance in machine design. Administrator: Design Engineering Division. .
Ralph Barnett-Carl Uzgiris Product Design Safety Award	This award is to recognize individuals who have made significant contributions to the safe design of products through teaching, research, and professional accomplishments.

Division-Technical Committee Awards

Selection by sub-committee of the TC
Presentation venue determined by the TC

Design Automation Award	The award is to recognize sustained meritorious contribution to the field of Design Automation. Presentation: DED luncheon at IDETC.
Jacob P. Den Hartog Award	The award is to recognize lifelong contributions to the teaching and/or practice of vibration. Presentation: Biennial Vibrations Conference.
N.O. Myklestad Award	The award is to recognize a major innovative contribution to Vibration Engineering. Presentation: Biennial Vibrations Conference.
Mechanisms & Robotics Award	The award is to recognize cumulative contributions to the field of mechanism design or theory.
A. T. Yang Award	The award is to recognize the authors of an outstanding and deserving paper on theoretical kinematics which is presented at the annual ASME Conference on Mechanisms and Robotics.
D'Alembert Award	The award is to recognize lifelong contributions to the field of multibody system dynamics.
Lyapunov Award	The award is to recognize lifelong contributions to the field of nonlinear dynamics.
Alfred Noble Prize	The award is given for a technical paper of exceptional merit accepted by the Committee on Publications for publication in any of their technical publications provided that the author has not passed his/her 31st birthday at the time the paper is submitted. Administrator: American Society of Civil Engineers. This is an intersociety award.

Awards from Other Divisions

Worthington Medal	For eminent achievement in the field of pumping machinery. Administrator: Petroleum Division Awards Committee.

Nominations

The ASME Design Engineering Division Honors and Awards Committee invites you to recognize and reward the excellence embodied in your friends and colleagues by nominating them for one of our divisional awards. A formal nomination package should be prepared and submitted, according to the format provided in the template and notes below.

Particulars

Due date: January 15, 2007 for this year, but nominations may be submitted at any time

Forms and other information:

Mailing Address: Noha El-Ghobashy, ASME International, 345 East 47th Street, MS 7A, New York, NY 10017. Telephone: 212-591-7787. Email: ElGhobashyN@asme.org. Else send directly to Joseph K. Davidson at Arizona State University.

Email: J.Davidson@asu.edu

Telephone: 480-965-3824

NOMINATION FOR ASME NATIONAL AWARDS

1 NAME OF AWARD

2 DATES: Submitted Received by ASME

3 FULL NAME OF NOMINEE Date of Birth

ASME Membership Grade of Nominee
Nominee's current position

Nominee's Address (Indicate whether home or business.)

Nominee's Citizenship

4 CITATION (35-40 word summary for nominee's qualifications.)

5 NOMINATORS (Names, ASME committee connections, professional acquaintanceships)
SPONSOR

6 REFERENCES (Names and addresses of five individuals acquainted with the nominee's qualification and requirements of the award who have written the attached letters. Please be advised that the Committee will not consider more that five reference letters.

ACHIEVEMENT AWARDS

Items 7-8 should be typed (double spaced) on separate pages and submitted with the preceding page as cover.

7 QUALIFICATIONS: Give complete statements of specific ways in which the nominee meets the requirements for this honor. Be sure to support all claims made on the individual's accomplishments in this regard.

8 PUBLICATIONS: List upto 15 in order of significance and comment on the most important up to a maximum of 5. Please cite those publications which specifically support the nominees achievements and establish a claim to the honor for which the individual is nominated. If there are no publications please so indicate.

9 US AND FOREIGN PATENTS: List no more than 15 in order of significance and comment on the most important upto a maximum of 5. As with publications, please cite those patents which specifically support the nominee's achievements and establish a claim to the honor for which the individual is nominated. In the event that the nominee holds no patents, please so indicate.

10 BRIEF BIOGRAPHY: Give birth date and place, citizenship, education, positions held, honors, ASME activities, and participation in other engineering societies. In listing positions held, include directorships of civic activities and industrial corporations. For a nominee having many honors, those honors should be included that support the achievements for which the individual is being nominated.

OUTSTANDING DESIGN EDUCATOR AWARD

Items 7-8 should be typed (double spaced) on separate pages and submitted with the preceding page as cover.

7 QUALIFICATIONS: Give complete statements of specific ways in which the nominee meets the requirements for this honor. Be sure to support all claims made on the individual's accomplishments in this regard.

8 BRIEF BIOGRAPHY: Indicate education institutions attended, positions held, honors, ASME activities, participation in other engineering societies and civic societies. Indicate publication record that is relevant to this award and comment on its relevance.

Report on the Design Society
Written for the ASME Design Engineering Division
January 2006

The Design Society is an international non-governmental, non-profit organisation focused on design research, design practice, and design education. The Design Society concentrates on activities that transcend national boundaries, and, where possible, will seek to complement national activities. The initiatives, themes, issues and questions addressed by the Design Society are discussed and disseminated through its conferences and workshops, along with their associated publications.

The goals of the Design Society are to contribute to a broad and established understanding of design, and to promote the use of knowledge about design for the good of humanity.

It aims to

- enhance and rationalise engineering design through design science
- develop and promote a common understanding of design activities
- support its members in consolidating, focusing and establishing theory and research methodology
- support the creation and development of a formal body of knowledge about design
- support the evaluation of research results and their implementation in education and industry
- promote interdisciplinary work in design and co-operation among researchers, managers, educators and practitioners
-

The Design society was constituted in March of 2000. It builds on prior work of the international society of design science, WDK. Founded in the early 1980's, WDK was an informally constituted international society based on a common interest in engineering design.

At this point, the Design Society has two primary objectives; to establish services that it can provide to its members, and to develop an effective infrastructure for delivering these services. Each year, the Society runs a major design conference. In the odd years, it holds the ICED Conferences (International Conference on Engineering Design) and in the even years it holds the DESIGN conferences. In August of 2005, the International Conference on Engineering Deisgn was held in Melbourne, Australia. More than 400 technical papers were presented. In September, the Design Education Special Interest Group (DESIG) held a meeting in Edinburgh. In June the Design Society will sponsor DESIGN'06 in Zagreb. Later this year Applied Engineering Design Science, AEDS'06 will be held in Pilsen, Czech Republic, and NordDesign'06 will be held in Reykjavik, Iceland. One of the most active of the Design Society Special Interest Groups is Japan Design. During the last year, 120 members of Japan Design wrote and then presented to the Japanese Government a Proposal of Design Vision for Artifact Design and Production in the 21st Century.

Members of the ASME are welcome to participate in any of the Design Society conferences and SIG activities. They need not be Design Society members to do so, though we encourage membership in both societies.

To: DED General Committee

From: Chair, Fellows Committee

Subj.: Report for the Period 3/06-9/06

During this period nine members of our Division have been elected to the grade of Fellow. They are:

Fellow	Sponsor
Harry H. Cheng	Kazem Kazerourian
Georges Fadel	Panos Papalambros
Woodie C. Flowers	Warren Seering
Gary A. Gabriele	John Renaud
Michael Keefe	Rowan Perkins
Constantinos Mavroidis	Larry Howell
Michael Y. Wang	Vijay Kumar
Tachung C. Yih	Amir Karmi
Masataka Yoshimura	Panos Papalambros

Congratulations to these members and to their Sponsors and Supporters for taking the time to process their applications.

Fellow Nomination Forms may be submitted at any time but they being reviewed only twice per year, in June and December. Final disposition generally takes 6-8 weeks. The Committee of Past Presidents' Fellows Review Committee has made some changes to the application. Check the website www.asme.org/Governance/Honors/Fellows/Fellows.cfm for the latest information.

I have completed my second three-year term on the FRC and so am now available to sponsor or support nominations.

Respectfully submitted,

Richard A. Hirsch
Chair

Report from the Publicity and Newsletter Committee —
Chin An Tan, Wayne State University, 07 August, 2006
(for ASME DED General Committee meeting on 11 September, 2006 at Philadelphia, PA)

1. As of late July, revision and formatting of the 2006 newsletter draft are nearly completed and the newsletter should be in press shortly. The layout and quality of the newsletter are upgraded with inclusion of photos from conferences (instead of just texts). We will continue to improve its quality. Please send suggestions to this Committee. A beta version of the 2006 newsletter is posted at: http://divisions.asme.org/ded/NewsLetters/DEDNewsletter06.pdf.

2. Production and distribution of the electronic version of the newsletter are still covered by ASME. However, the cost of printing and mailing paper copies to approximately 16,000 members will be paid by the DED. This cost issue for the 2007 newsletter will be discussed.

DED Student Affairs Committee

This year the committee continued its focus on actively seeking out opportunities to involve and serve our students, specifically by promoting and expanding student-focused activities at the IDETC & CIE Conferences. For the 2006 Conference the committee has worked in collaboration with Drexel University via Prof. Bill Regli and Graduate Student Joe Kopena to organize a Student Networking Event Sunday evening at Drexel University. The focus of this event is on students but it is open to all attendees of the Conference that would like to attend. The evening begins with a provocative panel in the Bossone Auditorium from 5:30PM-6:30PM focused on "Students' Role in Shaping the Future of American Engineering Education" with three global leaders in engineering education: Joseph Bordogna (NAE, IEEE Fellow); Stephen Director (NAE, IEEE Fellow), Moshe Kam (IEEE VP for Educational Activities, IEEE Fellow). The panel will be focused on student issues and there will be ample opportunity for Q&A and interaction with the speakers. In addition, laboratories for several departments in the Drexel University College of Engineering will also be open for visiting and demos. Refreshments will be served after the panel. This is a terrific opportunity for students to network with other graduate students from around the globe and make new professional colleagues. Moreover, we again generated a *Welcome Message* for the Conference Program specifically addressed to students. The purpose of this welcome message was to make students aware of all of the activities available to them at the Conference. Furthermore, we have worked closely with the Conference leadership this past year in further revising the *student registration options* for the Conference. Sincere efforts were made to reduce student registration fees. This year ASME student members are paying only $50 to attend the conference ($100 for non ASME member students). We welcome your feedback on these efforts as well as your suggestions for future student-focused activities.

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ASME Design Engineering Division

Information Management Report

September 2006

Summary

The Information Management Committee is responsible for the Design Engineering Division (DED) website. Activities have involved web page maintenance and the evolution of a new website.

1. Introduction

The DED Information Management Committee provides reference information for ASME members via the DED web site. This includes information and links to technical committee home pages, conferences, journals, committee rosters and minutes of meetings.

2. Activities March 2006 - September 2006

In March 2006 a mock-up of the front page for the new DED website was posted at a remote location and comments were sought from the Executive Committee.

After adopting suggestions from Executive Committee members, the web site was evolved further and the agreed format applied for all of the DED web pages. The new web site was moved to replace the original web site at the default DED URL address (http://divisions.asme.org/ded/) in June 2006.

Further comments and suggestions on the page layout and functionality of the web site would be gratefully received.

3. Further Work

Emphasis in producing the DED new web site has been placed on web page layout and functionality. Further work will involve refining the HTML code to allow more efficient changes and updates to the web site in the future.

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ASME Design Division K-12 Awareness of Design Committee Report
September 12, 2006

Kathy Jacobson - Chair
Kathy.J.Jacobson@LMCO.com
770-494-7818

Spring 2006 program involvement:

- National Engineers Week is February 18-24, 2007. Take this opportunity to plan some activities with students in your community. See resources below for ideas. Contact Kathy for more ideas.

- Initial planning for 2007 Engineers Week Girl Scout badge workshops to be held at Lockheed Martin, Marietta, GA on February 19th, 2007. 4th – 12th grade girls from the Atlanta, GA area will be invited.

Resources:

Interesting Web Sites for activities to help you get middle school kids interested in Engineering.

Lockheed Martin Aeronautics Flight Zone: www.lockheedmartin.com/flightzone

Space Day www.spaceday.com

National Engineers Week www.eweek.org

Girl Scouts Girls Go Tech Site www.girlsgotech.org

Girl Scouts USA www.girlscouts.org

ASME Pre-College Education

http://www.asme.org/Education/PreCollege/
http://www.asme.org/Education/PreCollege/TeacherResources/
http://www.asme.org/Education/PreCollege/Partnerships/
http://www.asme.org/Education/PreCollege/TeacherResources/Guidelines_Technical.cfm

ASME/Girl Scout Collaboration
http://www.asme.org/Education/PreCollege/Partnerships/Girl_Collaboration.cfm

ASME Capitol News e-mail regularly has information about K-12 STEM. Register for this e-newsletter through the ASME web page.

TO: Larry L. Howell, Ph.D., P.E., Secretary

CC: Shapour Azarm, Ph.D., P.E., Chair DED

Subject: Report from the Special Committee on Engineering Licensure

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In spring 2004, the DED formed a special subcommittee on professional licensing. The charge was to explore ways that ASME could provide design certification that could be used in advancing the international reciprocity and enhance the engineering profession.

It was decided to form a committee of experienced engineers and educators who not only had international experience but also provided a connection to the NCEES (National Council of Examiners for Engineering and Surveying). After numerous false starts, the subcommittee met for the first time in April 2006 in Naperville Illinois.

William G. Doran, P.E., President, 5D Solutions, Inc. (Former VP Engineering, SARGENT & LUNDY), 30 years experience in international power plant design/construction.)

Dr. Albert V. Karvelis, P.E., Senior Vice President, Packer Engineering, Inc. (Subcommittee Chair.)

Dr. Romualdas Kasuba, P.E., Dean Emeritus, Northern Illinois University, DeKalb Illinois (Dean Kasuba is active in EU educational activities.)

John M. McKinney, P.E., Director, Chemical Engineering/Safety, Packer Engineering, Inc. (Former Chair, Illinois State Board of Professional Engineers and officeholder in NCEES.)

Dr. Alfred Pettinger, P.E., Managing Engineer, Mechanical and Materials, Exponent, Inc. (Subcommittee Vice–Chair.)

Professor Jose Torero, Director, Edinburgh Centre for Fire Research, School of Engineering and Electronics, University of Edinburgh, Edinburgh, UK

The primary topic of discussion was whether or not international engineering licensure reciprocity is feasible, practical or desirable and what position, if any, should ASME take.

Dean Kasuba was able to provide current overview papers on international licensure and the committee reviewed these papers before meeting. For example, it was pointed out that although the EU has a designation "Euroengineer," in fact it does not have any legal standing.

John McKinney was able to provide us real-time insights into the NCEES and in particular on their "Blue Sky" study in which a working group is defining a Model Licensing policy which could standardize examination as well as harmonize with the EU licensing procedures.

There were considerable discussions on the general issue of international licensing reciprocity. It was agreed unanimously that international licensing would have value if and only if it caused the weaker requirements/standards of local jurisdictions to be raised to a uniformly highest standard. In fact, the quickest benefit of such reciprocity would be to raise the standards for certain US states.

However, considerable skepticism was expressed over the likelihood of international licensing in the near future notwithstanding all of the international "Accords."

John McKinney noted that that recently Illinois had flatly rejected any acceptance of the "Mutual Recognition of Registered/Licensed Engineers" as it related to Canada, NAFTA notwithstanding.

Further, even in the USA, parochial state interests sometimes appear to hinder progress towards unifying standards across state lines. Two states were identified as being problematic.

It was agreed that for international reciprocity to come into being, it would be driven by the NCEES and not by ASME independently.

It was concluded that ASME could play a role in international licensure by proposing a well worded agenda item on the NCEES docket. This wording would emphasize that while one purpose is to promote portability of engineering licensure in an increasingly "flat" world, the ultimate purpose is to uniformly raise the licensure requirements everywhere to the highest practical level and thereby to better protect the public safety and welfare.

Committee members also expressed concern over the potential for international reciprocity to lower professional engineering standards. This could occur by "adjusting" individual state standards/criterion up and/or down so that international uniformity is accomplished and reciprocity naturally follows.

Maintaining the highest practical level of licensure standards throughout can create challenges. For example, if the perception that Chartered Engineer professional licensing criterion in the UK is more rigorous than the corresponding Licensed Professional Engineer in the USA is true, then the NCEES should adjust its criterion to match the UK in the spirit of raising standards to a uniformly high level internationally.

In conclusion, the committee consensus was support for promoting international reciprocity in professional engineering licensure if and only if the health and welfare is adequately protected. This can only be accomplished if the criterion for licensure is uniform across boundaries. The potential danger in the "homogenization" of standards is the creation of "lowest common denominator" criterion instead of the highest practical criterion.

Thus, it was concluded that ASME should determine whether or not it is the Society position that:

> Professional engineering international reciprocity is desirable if and only if it enhances the public safety and welfare. This can be accomplished by raising the individual licensure criterion in co-operating states/regions to a uniform level consistent with the highest practical level. ASME is willing to participate in supporting efforts by the NCEES in reaching this goal.

If so decided, the ASME can either singly or in combination with IEEE or SAE, etc. submit the resolution to the NCEES for action. This committee can approach the other societies in the name of ASME if so directed.

It was decided to meet again in September/October 2006. The purpose of the fall meeting is to:

1. Obtain feedback from ASME DED how to submit a resolution to NCEES in ASME's name.
2. Obtain feedback from John McKinney on the NCEES "Blue Sky" study fall report.
3. Examine the issue of whether there is benefit, in of itself, of ASME offering a Certificate in Mechanical Design, along the lines of CSP (Certified Safety Professional or Certified Manufacturing Specialist). This study is independent of international licensure.

The subcommittee requested that the Chair contact ASME DED with respect to item #1 above.

Attached are the two (2) papers by Dean Kasuba and the Washington Accords web page.

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A comparative review of two major international accrediting consortia for engineering education: the Washington Accord and the Bologna Process

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ABSTRACT: The paper is a survey phase of a two-to-three year study of two major accreditation consortia: the Washington Accord (WA) and the Bologna Process (BP). These consortia were developed to ensure academic quality, recognition of accredited degrees and thus ease the mobility of professionals within wide geographical areas. The WA consortium was established in 1989 by six predominantly English-speaking countries: Australia, Canada, Ireland, New Zealand, the UK and the USA. The WA covers the undergraduate accredited engineering programmes for mutual recognition by all full WA members. The WA currently has eight full members and four provisional members. The BP was designed to lead towards the creation of a European Higher Education Area. The BP was initiated in 1999 with 29 signatory European countries and now has 40 full members. The BP covers all academic programmes including engineering at the undergraduate and master's levels. National or international licensing of engineers is not covered either by the WA or BP consortia. It can be envisaged that the WA and BP consortia will continue to expand and that in the foreseeable future, the WA and BP consortia will remain the major driving forces in the academic assessment field.

INTRODUCTION

This paper presents a survey of a two-to-three year study of two major accreditation consortia, namely: the Washington Accord (WA) and the Bologna Process (BP). These consortia were developed to ensure academic quality and recognition of accredited degrees, thereby easing the mobility of professionals within wide geographical areas.

The WA consortium was initiated in 1989 by six predominantly English-speaking countries, namely: Australia, Canada, Ireland, New Zealand, the UK and the USA. The WA covers undergraduate accredited engineering programmes within the WA countries for mutual recognition by all full members of the WA. The WA is in full operation. Currently, the WA has eight full members and four provisional members [1].

The Bologna Process (BP), with common expectations, was designed to lead towards the creation of a European Higher Education Area (EHEA). The BP was established in 1999 with 29 signatory European countries. Now, the BP consortium has 40 full members covering the entire continent. The BP covers all academic programmes including engineering at the undergraduate and master's levels [2].

Initial Comparisons between the WA and the BP

The WA involves the BS portion only of a *classic* BS, MS and PhD sequence. On the other hand, the BP countries have to work with a complexity of *short* and *long* BS and MS programmes, degree designations, substantial variations in the required number of credits and definition of credits for earning a degree. The BP/EHEA is in a rapid development state with defined common goals and should be fully operational by 2010. To date, it does not appear that there is a common approach for licensing professional engineers within the EHEA.

The approaches taken by the WA and BP consortia differ in flexibility and scope, but not in their principal aims leading to higher quality levels in accreditation and engineering education. It appears that the key elements of the ABET 2000 Criteria and its goals are commonly found in the WA and BP declarations [3]. Due to similarities in declarations of the WA and the BP consortia, it is expected that, with dual memberships, the WA and BP consortia will complement each other.

Neither the WA nor BP consortia cover the national or international licensing of engineers. However, all licensing processes within the WA and BP consortia rely on their respective accreditations. It is fully expected that the WA and BP consortia will continue to expand. In the foreseeable future, the WA and BP consortia will remain the major driving forces in the academic assessment field. However, the possibilities for new consortia should not be discounted; South American, many Asian and African countries are not yet in any consortia.

THE WASHINGTON ACCORD

The Washington Accord (WA) currently has eight full members, namely: Australia, Canada, Ireland, Hong Kong New Zealand, South Africa, the UK and USA. The WA was signed by the first six countries in 1989. Hong Kong and South Africa joined the WA in 1995 and 1999, respectively.

In 2003, Germany, Japan, Malaysia, and Singapore joined the WA as provisional members. All provisional members, before being accepted as full members, must demonstrate that they meet the WA goals and will be able to implement all of the rules and conditions set forth by the WA consortia.

To date, the WA recognises professional engineering degrees the undergraduate level only. Engineering technology a postgraduate-level programmes are not covered by the Accor

WA signatories, as a body, have examined the existing national accreditation criteria and have concluded that the WA countries have similar academic requirements for the practice of engineering at the professional level within the WA countries [4]. In other words, graduates of any accredited engineering programmes in any of the signatory countries will be recognised by other WA countries as having met the academic requirements for entry into the practice of engineering. However, WA signatories, as a body, are not bound to recognise programmes accredited or recognised as substantially equivalent by individual signatories outside their national boundaries.

The licensing, registration or certification of graduates as licensed professional engineers or equivalent is not covered by the WA. The overall licensing requirements vary among the WA countries and are in the domain of national licensing bodies. However, the academic requirements (graduation from the WA accredited undergraduate engineering programme), which are a *must-part* of licensing, are covered by the WA.

The WA signed in 1989 by the original six members was considered (unjustly) by some as being a closed consortium of English-speaking countries. The WA process was primarily initiated by the countries with a reasonably close match of existing academic programmes and accreditation processes without having to introduce any significant reforms. In the author's opinion, the WA, with the addition of new full members having programmes instructed-in-English or other languages, will become a significantly enhanced consortium. Certainly, all potential new WA members will have to meet the original WA expectations.

Previously, it was indicated that Germany (BP member), Japan, Malaysia, and Singapore were admitted as provisional members for future admission to full WA membership. Ireland and the UK are already full members of both the WA and BP consortia. A unified accreditation system may evolve with an increasing number of dual memberships within both consortia.

THE BOLOGNA PROCESS

The Bologna Process (BP) was initiated in 1999 when 29 European Ministers of Education signed the Bologna Declaration. Its aim was to establish a coherent and cohesive European Higher Education Area (EHEA). The EHEA seeks to ensure the quality and competitiveness of European education on a worldwide scale. By the end of 2003, the BP/EHEA membership increased to 40 countries.

The BP/EHEA membership list prior to 2003 is as follows: Austria, Belgium, Bulgaria, Czech Republic, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey and the UK.

It should be noted that Ministers responsible for higher education at the Conference on *Realizing the European Higher Education Area*, held in Berlin, Germany, on 19 September 2003 accepted eight new members: Albania, Andorra, Bosnia, and Herzogovina, Vatican, Russia, Serbia and Montenegro, and Macedonia, thus expanding the BP/EHEA consortium to 40 members.

The BP/EHEA activities cover all higher education programmes at the undergraduate (BS) and graduate (MS) levels. Engineering education, as a subset of the higher education, will have to meet or surpass the overall BP/EH expectations at the BS and MS levels. By contrast, the WA deals only with undergraduate engineering education.

All BP/EHEA signatories have to work on a continuous basis in order to minimise or eliminate significant differences in programmes and accreditation processes. Loosely defined, Europe has four educational systems: Western Europe, Central Europe, Eastern Europe and the Independents. All of them have very different academic programmes and degree titles. Most probably, a number of BP countries will have to introduce significant reforms that are needed for the implementation of common academic BP/EHEA policies and goals [5].

The creation of the BP/EHEA is a huge undertaking that involves 40 countries. The BP/EHEA's activities have moved forward through numerous and frequent meetings of government officials (Ministries of Education), European Universities Association (UEA) committees, national task groups and professional associations. European Student Associations are also involved in the process [6].

To date, the overall progress can be best described as being in a rapid development mode. The BP/EHEA have set strategic expectations; however, numerous tactical solutions are still to be introduced by individual countries. The entire BP/EHEA programme should be in full operation by 2010.

DIVERSITY OF PROGRAMMES, ACADEMIC CREDITS AND MUTUAL RECOGNITION OF DEGREES

The basic similarities and differences of the WA and BP consortia are illustrated in Table 1.

Table 1: Brief scope of the WA and BP systems (2002/2003).

	WA	BP
No. of Countries	8	32 (+ 8 new members)
Population	420 million	450 million + new member countries
Signatories	Professional Associations	Governments (Ministers of Education)
No. of Engineering Schools	400 (est.)	700 (est.) + new member countries
Accreditation	National criteria of WA countries	National criteria until EHEA criteria are developed
Programme Levels Covered	BS level only	Through MS level to account for various combinations of *short* and *long* BS and MS programmes
Recognition of Degrees	National Criteria	National Criteria plus Diploma Supplement until EHEA criteria are fully developed

The WA system is, in a sense, a rather simple system. As a body, all original six WA signatory countries conducted a very thorough review of the individual national criteria and processes. Following that, it was decided that they, as a body, have practically the same expectations and criteria. Consequently, all WA signatories have accepted all nationally accredited programmes within the WA boundaries as being equivalent to their own. The process was further simplified in that there were only six original WA signatories and that only undergraduate or BS programmes were covered within the classic BS, MS and PhD degree sequence.

The BP, with 40 signatory countries, will have to overcome a number of significant differences and national norms for a common equivalency of their programmes within the EHEA. The differences are not only between the research-oriented and practice-oriented programmes, but also in the definitions of academic credits, practicum hours, degrees and titles. The BP recommends to their members to institute a classic BS, MS, PhD system. The BS and MS degree programmes would be accredited under the BP/EHEA rules, which are in a rapid development cycle.

Currently, within the BP countries, there are several varieties of integrated *short* and *long* BS and MS programmes. The integrated or one-tier programmes can be generalised as a combination of *short* and *long* periods of study that lead directly to a masters degree or its equivalent. These programmes are illustrated as:

long BS + short MS		*short BS + long MS*	
3.5 – 4 yrs	1-2 yrs	3 yrs	2-3 yrs

From the integrated one-tier system shown above, it is very difficult to establish equivalency of the undergraduate component with the classical 4-year BS programmes. In extreme cases, there are some BP countries with 5-6 year undergraduate programmes.

The differences between various programmes within the BP/EHEA are further complicated because of significant differences in the definitions of credit hours versus the estimated hours of study. In order to simplify the equivalency problems, two new items were developed: the European Credit Transfer System (ECTS) credits and the Joint European Diploma Supplement. The Diploma Supplement is a rather detailed explanation of the courses, contents and credits listed in a regular transcript. At this time, there are many differences between so-called national credits and ECTS credits within the BP/EHEA and US academic credits.

For example, Lithuania and some other countries use a national credit system based on a student's overall work of 1,600 working or study hours per academic year. One national credit corresponds to 40 hours of student work consisting of lectures, laboratories, examinations, independent work, etc. Lithuanian universities have converted their programmes into a classic BS, MS and PhD sequence. Accordingly, the student completes his/her undergraduate 4-year BS programme in engineering with 160 credits, which also include credits for *practicum* or practical work assignments [7].

According to the ECTS, this would be equivalent to 240 ECTS credits. In the USA, this would be equal to about 130 semester credits (approximately 43 courses of three weekly lecture hours or other combinations of courses with 3, 4 or 5 weekly lecture hours).

There is a strong opinion in the BP/EHEA consortium that the total credits for completing separate BS and MS programmes (two-tier system) should be about 300 ECTS credits. This should be equivalent to about 160-166 semester credits in the USA. An integrated BS/MS programme (one-tier) system in the USA normally would save about nine semester credits. The integrated BS/MS programmes are not commonly available in the USA. In most cases, the recipients (permanent USA residents) of BS degrees in engineering enter the job market directly after graduation.

Currently, Switzerland is considering a two-tier degree structure: BS programmes requiring 180 ECTS credits and MS programmes requiring 90 ECTS credits, yielding a total of 270 ECTS credits. On the other hand, there are some countries where a combined minimum is 360 ECTS credits.

At this time, BP/EHEA countries are in the process of developing standalone two-tier systems (separate BS and MS programmes) in line with the BP/EHEA expectations. However, it is highly probable that various integrated BS/MS or one-tier systems will continue to exist in parallel with the two-tier system to meet some of the specific national needs of individual BP/EHEA members.

The following BP/EHEA agenda items are targeted for implementation in 2005:

- Quality assurance;
- Two-tier system;
- Recognition of degrees (Diploma Supplement to accompany all national diplomas and transcripts).

The Diploma Supplements are to be issued in a widely-spoken European language. For example, all Diploma Supplements in Lithuania are issued in both Lithuanian and English [7].

International Licensing of Engineers

As yet, there is no universal agreement for licensing engineers across international boundaries, even within the WA and BP/EHEA consortia. Most cases are considered on an individual basis. In licensing engineers for international practice, there are several concerns: differences in education, differences in national engineering standards, requisite language and communication skills, determination of significant and appropriate engineering experience, differences in definitions of professional responsibilities and accountability, etc. Most of these concerns are obviously beyond the current WA and BP/EHEA aims. However, one can be sure that graduation from the WA or EHEA-accredited (or *substantially equivalent*) programmes will be an essential common parameter for licensing engineers across international boundaries.

Accordingly, several international universities have asked the ABET to evaluate their engineering programmes according to the ABET criteria. The ABET does not accredit programmes outside the USA. However, when requested, the ABET will review international programmes for equivalency. To-date, about 100 engineering programmes at 26 universities in seven countries outside the WA and BP/EHEA consortia were determined by the ABET as being substantially equivalent to

accredited programmes in the USA. It is expected that the above determination will get a positive recognition of those graduates by the universities and licensing agencies in the USA. It is highly probable that some countries will also ask the BP/EHEA consortium to analyse their programmes for possible equivalency.

Within the USA, licensing is regulated by individual states and territories. In other countries, the licensing of engineers is mainly regulated on a national scale.

In 1994, FEANI developed the concept of *European Ingenieur* (EUR-ING) based on the length and scope of academic programmes and professional experience. FEANI is a federation of engineers that represents national engineering associations from European countries.

The level of acceptance of the EUR-ING status within the EHEA is not clear. At this time, it appears that licensing or certification of professional engineers is outside the scope of the BP/EHEA consortium.

The mobility of engineers and licensing for international practice are important aspects to all engineers. In the absence of universal licensing agreements, attempts are being made to work through the international trade agreements for developing registries of screened qualified engineers for international practice. The registries are advisory – each individual case, when requested, will be reviewed by the appropriate national jurisdictional bodies for licensing in that particular country.

In the USA, licensed professional engineers (PE) constitute only about 20% of the engineering workforce. Licensing imposes additional professional standards, rights and responsibilities, including project approvals. Licensed professional engineers are normally involved with various projects where the well-being and safety of workers, consumers and the general population are of concern.

In an effort to assist US-licensed professional engineers to practice internationally, the United States Council for International Engineering Practice (USCIEP) was formed [8]. The organisations that comprise USCIEP are as follows:

- Accreditation Board for Engineering and Technology (ABET) [9];
- American Council of Engineering Companies (ACEC);
- National Council of Examiners for Engineering and Surveying (NCEES) [10];
- National Society of Professional Engineers (NSPE).

Currently, the USCIEP is working with a number of partners to explore the possibilities for licensing engineers under several trade agreements, as follows:

- North American Free Trade Agreement (NAFTA) (Canada, Mexico and USA);
- Asia-Pacific Economic Cooperation (APEC), which was established in 1986 by 12 founding members: Australia, Brunei, Canada, Indonesia, Japan, South Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand and the USA; since that time, the APEC accepted nine new members: Peoples Republic of China, Hong Kong, Taiwan, Mexico, Papua New Guinea, Chile, Peru, Russia and Vietnam;
- Transatlantic Economic Partnership (TEP) (the European Union and the USA).

Both the WA and BP/EHEA consortia will be involved, in one form or another, in the discussions possibly leading to a universal licensing of engineers for international practice. A good example can be found in the USCIEP, where the ABET and NCEES are fully represented.

Next Phase

This report will be updated on a continuous basis to reflect the ongoing dynamic events within the WA and BP/EHEA consortia.

In the future, it is anticipated that both the WA and BP/EHEA consortia programmes will complement each other. A simplified determination of equivalence of various programmes may or may not be possible. However, it is planned to look at the possibilities for developing a *common international BS degree engineering programme* for both consortia.

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International mobility and the licensing of professional engineers

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ABSTRACT: Definitions of licensed professional engineers are as varied as educational systems and degrees in engineering across the world. Equally diverse are varied definitions of licensures, registrations or certifications, and titles of professional engineers. The international recognition of accredited degrees alone is not equal to licensure to practice professional engineering internationally. Other potential concerns for *full mobility* as licensed professional engineers involve differences in national standards, requisite language/communication skills, professional responsibilities and accountability, applicable jurisdictional codes, continuing education requirements, etc. The licensing of engineers must ensure that there is quality, expertise and trust in the engineering services. Internationally, there is a multitude of national licensing bodies with very diverse requirements. To date, because of these complexities, there are no direct universal broad-based reciprocal agreements for the transferability of national licensures for international practice. Some assistance is provided through international registries that present pre-screened qualified candidates for possible licensing beyond their home countries.

INTRODUCTION

With the ever-increasing globalisation (either electronically or in direct human contact) of engineering tasks, there must be an equally increasing need for the international licensing of professional engineers. In this paper, the term *licensing* also includes certifications and registrations as professional engineers accorded by individual countries.

In a sense, licensing indicates the level of high competence, which ensures the quality of professional work with a commitment to environmental aspects, safety standards and other important issues to general populations. It also provides a legal authority for licensed individuals to certify, consult and advise in their expertise areas. At the same time, it must be noted that not all engineering undertakings would require international licensing.

ELEMENTS FOR INTERNATIONAL LICENSING

In general, there are six main elements that are needed for obtaining licensure as a professional engineer beyond the applicant's home country:

1. Accredited degree in engineering;
2. Meaningful and challenging engineering experiences;
3. Licensure in the home country;
4. Commitment to continuing education;
5. Listing in the international registries by the home country's agency as a qualified candidate for possible licensing by other countries;
6. Satisfaction of the jurisdictional requirements of the host countries.

The first element deals with the applicant's academic credentials. Invariably, an engineering degree from an accredited programme or institution is a must for international licensing. The next four elements denote the applicant's professional standing. The sixth element is a jurisdictional requirement to practice in the host country. In addition, some licensures may require specific work experience for a specified number of years, as well as knowledge of the relevant laws and standards of the host country.

INTERNATIONAL ACCREDITATION

It was noted that an accredited degree is an essential part in any licensing process. At this time, there are two major international consortia dealing with accreditation and academic quality issues, and the recognition of degrees. These consortia are the Washington Accord and the Bologna Process/European Higher Education Area [1-3].

The Washington Accord (WA) was signed in 1989 and has eight full members, namely: Australia, Canada, Hong Kong-China, Ireland, South Africa, the UK and the USA. Germany, Japan, Malaysia and Singapore joined the WA as provisional members in 2003. The WA covers only the accredited undergraduate engineering programmes in any WA country for mutual recognition by other WA countries. The WA has been in full operation since 1989.

The Bologna Process/European Higher Education (BP/EHEA) concept was initiated by 29 countries in 1999. The BP/EHEA consortium now covers the entire European continent. Its aim is to have a common degree recognition and quality assurance/ accreditation system in full operation by 2010.

The WA and BP/EHEA consortia are not involved in the licensing of engineers – they deal only with the essential academic side of the licensing. Currently, both consortia operate independently from each other as separate entities.

Interestingly, Ireland and the UK hold full memberships in both consortia and Germany recently became a provisional member of the WA Consortium. Eventually, dual membership may lead to the blending of both consortia.

REASONS FOR INTERNATIONAL LICENSURES

Some of the personal and professional reasons for seeking international licensures, registrations or certifications could be given as follows:

- International recognition of an engineering degree;
- Proof of competence;
- Evidence of high professional accomplishments;
- Moving to another country (short-term or long-term);
- Regulated profession in the host country;
- Hiring requirement;
- Specific job requirement;
- Professional pride.

Certainly, there will be situations where no licensure will be required – then the professional pride should be the impetus for obtaining licensure as professional engineer. Obtaining a national license is a good starting point for international licensing. The much talked about issue of outsourcing will also require equity in the credentials of engineers for international practice.

MODELS OF LICENSING PROCESSES

Loosely defined, there may be at least four generic models for the licensing or certifying of professional engineers. Running the risk of unintentional exclusions, these models illustrate some common licensing characteristics that are exemplified by a few selected countries. The models certainly represent many more countries beyond those listed. In general, the licensing of professional engineers is carried out under governmental mandates by national engineering associations or the government-appointed boards of highly regarded practitioners.

All countries require the completion of accredited or, in some cases, government-approved engineering degrees, plus meaningful engineering experiences ranging from two to seven years. There are a few exceptions where direct licensing is implied at the time that an engineering degree is granted.

For international licensing, even within the illustrated models described below, most, if not all, of the previously listed six elements are needed.

Model 1

Example countries engaging in Model 1 include the USA and Canada with professional licensures designated as PE and PEng., respectively [4][5].

Individual states, territories and provinces have specific licensing laws. Consequently, the applicants must seek licensing in the desired state, territory or province. There are 51 licensing entities in the USA and 12 in Canada. Both countries have very similar engineering education and accreditation systems, are full members of the WA, hold several international trade agreements, and are direct geographical neighbours.

However, at this time, there are practically no reciprocity agreements between the USA and Canada. The candidates have to apply to each country and specific state or province. Two written examinations (fundamentals of engineering and practice) are required in the USA. Canada requires one written examination on ethics and laws pertaining to professional engineering. In addition, both countries require verifiable meaningful engineering experience, as well as proof of continuing education. The licensing process in both countries is conducted by the respective government regulatory agencies or mandated state boards. In Canada, membership in engineering associations is required.

The licensing process and the meaning of the licensed professional engineer in the USA and Canada are probably unique in the world. Taking into account all the formalities, the licensing process in the USA is perhaps the most formal and rigid among all countries.

Model 2

Example countries of Model 2 include Australia, Hong Kong-China, Ireland, New Zealand, the UK, with the CPEng (AU), CE (IE), CPEng (NZ), CE (UK) designations, respectively [6-11]. These countries have some long-standing similar traditions in educational systems that are more conducive to possible broad-based reciprocal licensing agreements.

In Model 2, the assessments for national licensing are primarily undertaken by the national professional engineering associations under various government mandates. Licensing is based on an assessment of education (all countries are full WA members), experience, performance and continuing education. In Model 2, membership in the respective national engineering associations is either required or strongly expected.

There are some mutual recognitions of chartered engineer or equivalent licensures without additional conditions. In most cases, they are limited to bilateral agreements. For example, the CE title from the Institution of Engineers in Ireland is recognised by the respective institutions in Australia, New Zealand, Hong Kong-China, among others [6-9].

Going outside Model 2, full members of the Hong Kong Institution of Engineers, under a Mutual Recognition Agreement with the Canadian Council of Professional Engineers, will be eligible to become licensed engineers in Canada if they pass an examination or interview on local laws and practice, and demonstrate that they have obtained one year of experience equivalent to those obtained in the jurisdiction of Canada [5][7]. Similarly, New Zealand under the new Registration Authority Act may require engineers from other countries in Model 2 to undergo further reviews of their qualifications to practice in New Zealand. In summary, the Model 2 countries have not yet developed broad-based reciprocal agreements.

Model 3

Examples of Model 3 are found in countries of the European Union. As citizens of the European Union (EU), professional engineers if their qualifications or licensures enable them to pursue this profession in their own EU state, and are entitled to the same recognition in other EU states, subject to the local laws and national reviews.

There is also another European recognition of professional competence signified by the European Ingenieur (EUR ING) title. This title is awarded by the European Federation of National Engineering Associations (FEANI). One of the FEANI's main goals is to facilitate the mobility of engineers for professional practice within and outside of Europe through the recognition of the overall professional qualifications.

The EUR ING title denotes professional competence on the European scale and complements the engineering titles and qualifications from the EU home countries. There is no legal requirement for engineers to hold this title – application is entirely on a voluntary basis.

The primary criteria for the EUR ING title are based on verifiable engineering education, length of education and proven engineering experience [12-14]. FEANI expects a combination of at least seven years of engineering education, engineering training and experience. Both of the national monitoring and European monitoring committees assess the above elements. More details are provided in the FEANI Index, FEANI Register, and FEANI Guide [12].

By definition, FEANI is not a true licensing body, as there are several European countries where engineering is a regulated profession by national laws. In those instances, holders of the EUR ING title, just like the holders of national licensures, may be required to submit their qualifications for further reviews subject to the national laws of the host country for the practice of engineering.

FEANI, at this time, is a unique and, perhaps, one of the largest broad-based professional bodies for the assessment of engineering competence. The title of EUR ING can be considered as a valuable input when seeking international licensing outside the EU. With the advent of possible new EU directives to improve the mobility of engineers, the significance and status of the EUR ING may be strengthened. With these directives and somewhat redefined EUR ING, the holders of the EUR ING would not be subject to national reviews or additional qualifications for practice within Europe. With these possible changes, the EUR ING will remain open to qualified European engineers on a voluntary basis.

Model 4

Model 4 covers other nations and independents. Various definitions of academic programmes and degrees and licensures put a significant number of countries outside Models 1, 2, and 3 presented above. In some countries, direct licensure to practice engineering is granted at the time of graduation without acquiring significant professional experience. In a number of countries, the title of Engineer is defined and protected by national laws without requiring any special licensing processes. In some cases, both the accreditation and licensing processes are conducted by individual universities alone. There are at least several countries in Africa, Asia, Latin America and Europe that can be classified in this category.

Review

Regardless of their diverse approaches, countries in each of the four models emphasise a common desire for the recognition of high-level competence and the need for the full mobility of licensed/certified professional engineers. However, to date, there is no universal agreement for the direct unhindered reciprocity of national licensures across the above four models. In many cases, applicants must start the process anew taking into account all of the six elements listed earlier in the paper.

In general, the licensing situations and mandates change rapidly, which may require adjustments of the illustrated models. Therefore, it is strongly advised to check the appropriate international Web sites for up to the minute information on specific licensing requirements. However, in most cases, the finalisation of licensing will rest with the jurisdictional authorities of the host country.

LICENSING COOPERATION VIA INTERNATIONAL TRADE AGREEMENTS

In the absence of universal licensing agreements (for whatever reasons), attempts are being made to work through the international trade agreements to develop registries of nationally pre-screened qualified engineers for international practice. The individuals to be considered for these listings must fully meet the licensing/certification requirements in their home countries.

The registries are advisory – each individual case, when requested by the listee, is reviewed by the appropriate national jurisdictional bodies for possible licensing in that particular country. To date, two registries are available, namely:

- The Asia Pacific Economic Cooperation (APEC) Registry. The APEC was established in 1986 by 12 founding members: Australia, Brunei, Canada, Indonesia, Japan, South Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand and the USA. Since that time, the APEC accepted nine new members: the Peoples Republic of China, Hong Kong-China, Taiwan, Mexico, Papua New Guinea, Chile, Peru, Russia and Vietnam.
- The Engineers Mobility Forum (EMF) established the International Registry of Professional Engineers (IRPE). The EME's membership consists of Australia, Canada, Hong Kong-China, Ireland, Japan, South Korea, Malaysia, New Zealand, South Africa, the UK and the USA. FEANI has observer status.

Only those applicants from the APEC and EMF countries can be listed in the respective registries.

Further discussions continue with two more trade agreement partners, namely:

- The North American Free Trade Agreement (NAFTA): Canada, Mexico and the USA.
- The Transatlantic Economic Partnership (TEP): the European Union and the USA.

It should be noted that some countries have multiple memberships in the APEC, EMF, NAFTA and TEP pacts, which may lead to simplification and more universal reciprocity in licensing. For example, the USA has membership in all four pacts. Canada, Australia and New Zealand have three memberships followed by several countries with two memberships.

Engineers from non-listed countries should apply directly to the desired host countries for licensure. Currently, they would be

subjected to more formalised scrutiny than those listed in the IRPE and the APEC registries.

The process for international licensures is very cumbersome and slow. Consequently, several countries have formed committees for providing needed assistance for their engineers. For example, in the effort to assist US-licensed professional engineers to practice internationally, the United States Council for International Engineering Practice (USCIEP) was formed [15]. The organisations that comprise the USCIEP are as follows:

- The National Council of Examiners for Engineering and Surveyors (NCEES);
- The Accreditation Board for Engineering and Technology (ABET);
- The American Council of Engineering Companies (ACEC);
- The National Society of Professional Engineers (NSPE).

It is interesting to note that the USCIEP is a one-step screening unit consisting of industrial, accreditation, professional and licensing organisations. The USCIEP is responsible for the listing of qualified engineers for international practice and updating the US listings in the IRPE and the APEC registry for licensing consideration by other countries. Each listed applicant must request to initiate the process for a listing in the above international registries; an American engineer must be licensed in one or more jurisdictions in the USA, which includes written examinations.

International applicants seeking licensure in the USA will have to satisfy the outlined six elements at the beginning of this paper for international licensing, including the written tests (Model 1).

More detailed information can be provided by the NCEES [4]. In some US licensing jurisdictions, the fundaments of an engineering test could be waived.

OBSERVATIONS AND CONCLUSIONS

The international licensing process is unnecessarily complex due to economic, political, jurisdictional and possibly *protect-the-turf* issues. Regardless of these issues, there is one common thread: the desire to emphasise the quality, expertise and trust in the services provided by professional engineers. These items, hopefully, will start and accelerate the process for simplifying the steps to international licensure and ease the freedom of mobility for professional engineers.

The process used in forming the Washington Accord and Bologna Process/European Higher Education Area agreements could provide an excellent example to overcome complex problems in international licensing and degree recognitions. Engineering has always prided itself on the ability to provide meaningful solutions to complex problems. To further address the issue of *global quality of engineering professionals*, it is important to develop a universal model for international licensing. Neutral engineering communities, such as the UNESCO International Centre for Engineering Education (UICEE) under the auspices of UNESCO, could play a pivotal role in promoting new concepts to benefit the cause of full engineering mobility in this global environment.

In order to start these efforts, a universal international definition of professional responsibilities and an accompanying International Code of Ethics for Engineers must be developed. These two elements must have no international or political boundaries.

Perhaps this universal code would then prime the subsequent efforts leading to a universal or unifying (there are already too many organisations!) international licensing process of professional engineers.

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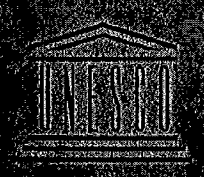

MELBOURNE 2004

Recognized Programs
Frequently Asked Questions
Principles of Good Practice
Signatory Representatives
Agreement
Rules & Procedures
Provisional Signatory Status
Application for Provisional Status
Developmental Pathways for Provisional Admission

A MULTINATIONAL AGREEMENT SIGNED IN 1989

- Recognizing the substantial equivalency of accreditation systems of organizations holding signatory status, and the engineering education programs accredited by them.
- Establishing that graduates of programs accredited by the accreditation organizations of each member nation are prepared to practice engineering at the entry level.

Country	Signatory Organization	Entry Year
Australia	Institution of Engineers, Australia	1989
Canada	Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers	1989
Hong Kong	Hong Kong Institution of Engineers	1995
Ireland	Engineers Ireland	1989
Japan	Japan Accreditation Board for Engineering Education	2005
New Zealand	Institution of Professional Engineers New Zealand	1989
South Africa	Engineering Council of South Africa	1999
United Kingdom	Engineering Council	1989
United States	Accreditation Board for Engineering and Technology	1989

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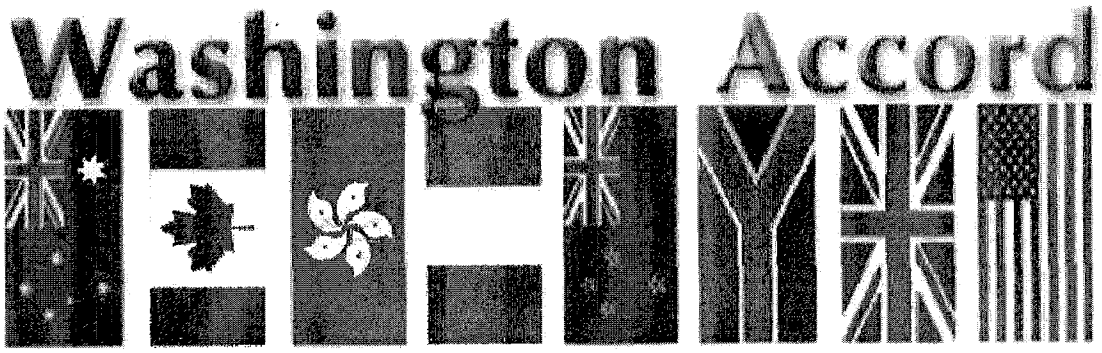

FREQUENTLY ASKED QUESTIONS

1. What is the Washington Accord?

The Washington Accord was signed in 1989. It is an agreement between the bodies responsible for accrediting professional engineering degree programs in each of the signatory countries. It recognizes the substantial equivalency of programs accredited by those bodies, and recommends that graduates of accredited programs in any of the signatory countries be recognized by the other countries as having met the academic requirements for entry to the practice of engineering. The Washington Accord covers professional engineering undergraduate degrees. *Engineering technology and postgraduate-level programs are not covered by the Accord.*

The signatory countries of the Washington Accord are Australia, Canada, Ireland, Hong Kong, New Zealand, South Africa, United Kingdom, and the United States.

2. How can I find out if my program is recognized under the Washington Accord?

The list of programs currently recognized under the Washington Accord can be searched by signatory country.

3. How do the Washington Accord signatories recognize degrees earned prior to the signing of the Accord?

Generally, the signatories only accept accredited degrees earned from the date of acceptance of a signatory into the Accord. Therefore, the original six signatories (IEAust-Australia, CCPE-Canada, IEI-Ireland, IPENZ-New Zealand, EngC-United Kingdom, and ABET-United States) accept one another's degrees accredited in 1989 and onward. Degrees from HKIE-Hong Kong and ECSA-South Africa are generally accepted beginning in 1995 and 1999, respectively, the dates these accrediting bodies were accepted as signatories of the Accord. For degrees earned prior to the aforementioned dates, each signatory country assesses the degrees on an individual basis. They should be contacted individually for specific policies on this matter.

4. If a program is not recognized by the Washington Accord, can it be submitted for recognition by the Washington Accord signatories?

Individual degrees cannot be submitted for recognition under the Washington Accord.

5. I hold an engineering degree from a non-Washington Accord signatory country. This degree, however, is recognized by a Washington Accord signatory as substantially equivalent to an engineering degree accredited within this signatory country. Is my degree recognized by other Washington Accord signatories?

The Washington Accord Agreement applies only to accreditations conducted by the signatories within their respective national or territorial boundaries. The signatories are not bound to recognize programs accredited or recognized as substantially equivalent by other signatories outside their national boundaries.

6. The list of accredited programs posted by a Washington Accord signatory includes non-engineering programs. Do Washington Accord signatories recognize technology degrees?

Washington Accord signatories recognize only engineering programs accredited by the respective signatories.

Information on the technology agreements honored by individual signatories may be found on their respective websites. The Sydney Accord provides for the mutual recognition of technology programs.

7. Do I get automatic licensure recognition in any signatory country of the Washington Accord after completing an engineering program/degree in a signatory country?

The licensing or registration of professional engineers is not covered directly or in full by the Washington Accord. However, the academic requirements which are part of licensing /regulation requirements are covered by the Accord.

The licensure process differs among signatory countries. You must contact the individual signatory country to which you are applying for licensure in order to learn of national and regional licensure regulation and specific requirements for holders of overseas degrees.

8. If I get an accredited Master's degree from a signatory country, can my overseas undergraduate degree be recognized by the signatory?

The Accord only recognizes undergraduate degrees earned in a signatory country. You must contact the individual signatory for information on how each assesses the equivalency of studies completed outside national boundaries. Various signatory countries have evaluation centers charged with evaluation and recognition of overseas programs. Information about this process can be found on