Electric Machine Design: Aerospace Applications

Sheraton Hotel in Los Angeles, CA
February 27-29, 2012

Join Jim Hendershot, renowned electric motor expert, for a three day workshop on machine design for aerospace applications. The focus will be on tips and useful techniques for approaching your next aerospace related motor project.

What makes this workshop so unique?

1. Attendees will be encouraged to share the practical problems they face in their work environment to better understand how to apply the theory to real problems.

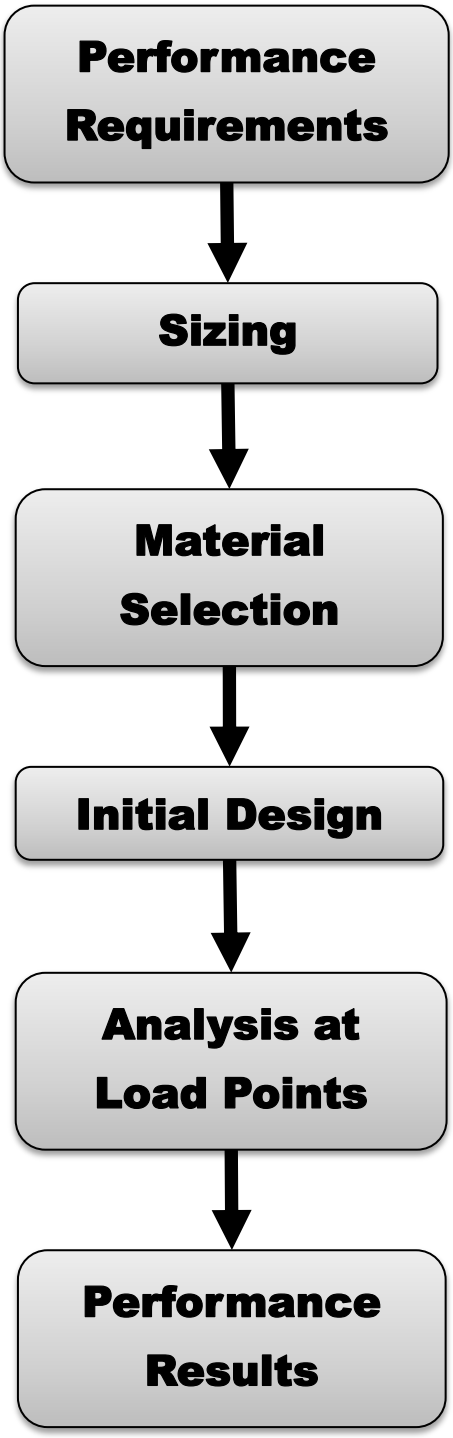
2. Jim Hendershot has over 50 years of experience in motor design and manufacturing. He has written several books on the topic and has been honoured by associations such as IEEE and SMMA.

3. Combining theory and design procedure discussions with hands-on sessions using a motor design software package to perform detailed analysis.

Motor design strategy based on requirements

Discussion of topics will include initial sizing, material selection, dimensioning, load point analysis and design iterations. Each topic will include extensive discussion on manufacturing and other constraint-based design of electric machines as typically provided by a specification sheet.

Attendees will receive a trial of the motor design software tool to use during the workshop's hands-on session.



Registration fees include workshop materials, parking, refreshments, lunch and a copy of Jim's book "Design of Brushless Permanent-Magnet Machine"

Course Schedule[1]

February 27, 2012

- Overview
- Electric motor replacements for hydraulic actuators
- Power distribution and generators
- Electro-magnetic redundant design techniques
- Outline the electric machine options and present pro & cons
- Hybrid hydro-electric actuators.
- Thermal design issues and cooling methods for electric aircraft machines and actuators
- Present advanced high torque density electro-magnetic design

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- Aerospace grade magnetic materials: electric steel and high temperature magnets
- Machine sizing procedures
- Selection of machine type for different applications (inside or outside rotor AC Induction SR, OM brushless or RSM)
- Selection of number of poles, stator slots or rotor bars.
- Machine losses such as rotor or stator ohmic, rotor and stator iron, magnet & retainment sleeves
- Theory of torque production based upon flux linage to conductor - from machine viewpoint rather than inverter viewpoint
- Motor layout or rotor & stator including lamination designing
- Magnet selection, design and flux determination
- Use of equivalent circuit for Asynchronous motor design.
- Salient pole machine theory for reluctance torque determination for SR , RSM & IPM machines
- Torque control using trapezoid commutation or sine drives using either hysteresis control or PWM Ld & Lq control for brushless machines
- Current control and phase overlap for SR machines
- Flux vector control for Asynchronous machines
- Voltage regulations schemes for PM synchronous generators. (active transistor bridge rectifier or straight diode bridge rectification)
- Thermal design

February 29, 2012

Hands on design example for flight control actuator with redundant phase winding design.

Hands on design for gas turbine PM synchronous generator

Attendees can also use this time to design their own machine with support from the class and the instructors.

[1] This workshop plan will be discuss with class for possible revisions

EVENT LOCATION

Sheraton Gateway Los Angeles Hotel
6101 West Century Boulevard
Los Angeles, CA 90045 ·
(310) 642-1111
Maps & Directions

DATES and TIME

Monday, February 27 – Wednesday, February 29, 2012
8:00 AM to 5:00PM
Registration and Continental Breakfast begins at 7:30AM

COST

$1675 USD

PAYMENT & CANCELLATION POLICY

You can complete and fax back the attached form or register online at
https://www.jh-workshop.com/register/

If you need to cancel your registration, we must receive written notice. Our policy is as follows:
On or Before February 1, 2012 – **Full refund**
Between February 2 and February 24, 2012 – **50% refund**
After February 24, 2012 – **sorry, no refund**

For questions, contact Chad Ghalamzan:
info@jh-workshop.com
514 849 8752 x 300

Registration Form

DISCOUNT DEADLINE February 1, 2012

You can also registration online at https://www.jh-workshop.com/register/

Please select from the following

Electric Machine Design Workshop for Aerospace Applications
February 27-29, 2012 at the Sheraton Gateway in Los Angeles, CA

Three day workshop on machine design for aerospace applications.

Design, selection, thermal sizing & simulation of electric machines for electro & electro-hydraulic actuator and power generation on military and commercial aircraft.

1675 USD per attendee

First Attendee or Contact Person Information

Name: _____ Company: _____

Address: _____

City: _____ State:_____ ZIP: _____

Phone: _____ Email: _____

Credit Card Information

☐ MasterCard ☐ Visa

Cardholder Name: _____

Billing Address: (if different than above)

_____

City: _____ State:_____ ZIP :_____

Account Number: _____

Security Code: _____ Expiry (mm/yy):_____

Signature: _____ Date: _____

Please complete this form and fax to (514) 849-4239
Your registration confirmation will be sent via e-mail upon receipt of this form.
If you have any questions: info@jh-workshop.com