



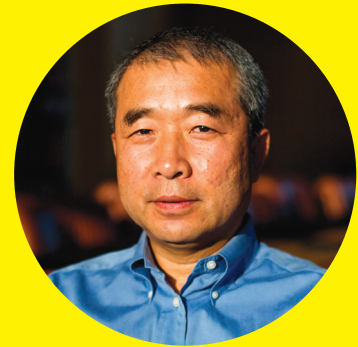
A Unique Course Series
Offered for the 1st Time
in Europe since 2007



Unique Course Series

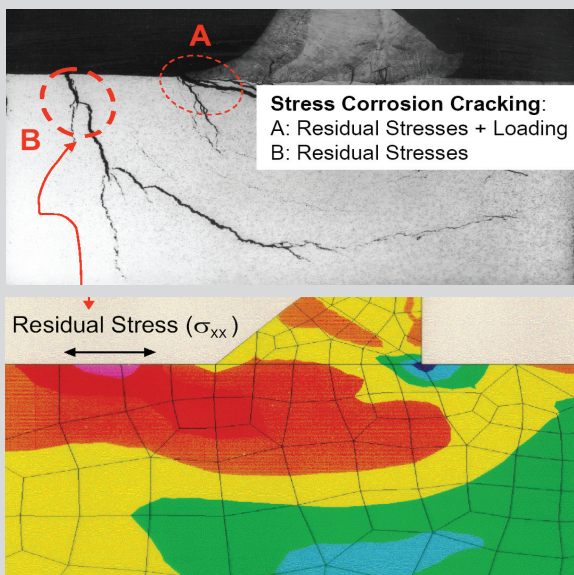
Professor PINGSHA DONG

Professor, Naval Architecture and Marine Engineering
Professor, Mechanical Engineering
Director, Welded Structures Laboratory
University of Michigan, Ann Arbor, MI



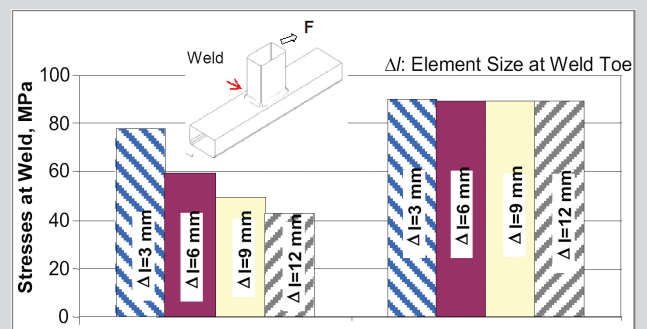
Course I

Weld Residual Stresses, Distortions, and Fitness for Service



Course II

Advanced Fatigue Design and Evaluation Methods for Welded Structures



July 4-6, 2017

On-line registration

Venue:

Klaipėda University
Aula Magna, Studlendas
Herkaus Manto street 92
92295 Klaipėda Lithuania

Unique Course Series

Professor PINGSHA DONG

Professor, Naval Architecture and Marine Engineering
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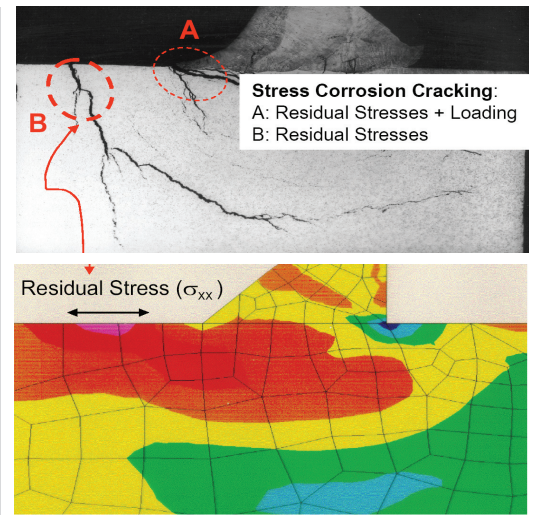


About the Instructor

The course will be taught by Dr. Pingsha Dong, Professor of Naval Architecture and Marine Engineering, Professor of Mechanical Engineering, Director of Welded Structures Laboratory at University of Michigan. Dr. Dong has published over 180 peer-reviewed papers in archive journals and major conference proceedings and provided over 20 plenary and keynote lectures at major international conferences on residual stresses and distortions as well as fatigue and fracture of welded structures. He has received numerous prestigious national and international awards/recognitions, including AWS Fellow Award (2015), IIW Fellow Award (2014), SNAME Helmer L. Hann Award (2012 and 2007), IIW Evgeny Paton Prize (2008), R&D Magazine's R&D 100 Award (2006), TIME Magazine's Math Innovator (2005), Aviation Week and Space Technology's Aerospace Laurels Award (2004), SAE Henry Ford Award (2003), AWS R.D. Thomas Award, and ASME G.E.O Widera Literature Award (2002), among others.

Course I

Weld Residual Stresses, Distortions, and Fitness for Service



About the Course

It is well known that welding-induced residual stresses and distortions can have significant impact on the manufacturability and structural integrity of welded components. This unique course is designed to:

- provide a critical assessment of “state of art” residual stress modeling, analysis, and measurement techniques
- demonstrate effective modeling and analysis procedures for various industrial applications
- guide course participants to define and solve day to day residual stress and distortion control problems, as well as deal with fitness-for-service related needs. A bound volume of all course notes will be provided to all registered participants.

Course Content

Day 1 (9.00–17.00)

- **Importance of understanding residual stresses**
 - Weldability
 - Structural manufacturability
 - Structural integrity
- **Residual stress development mechanisms**
 - 1D thermo-plasticity descriptions
 - Graphic solution technique
 - 3-bar and n-bar models and implications
 - Basic shrinkage modes and distortion types
- **Finite element modeling requirements**
 - Time and length scale considerations
 - Proven residual stress analysis procedures
 - Proven distortion analysis procedures
- **Residual stresses in weld repairs**
- **Comments on residual stress measurements**
 - Why measurements can be wrong!
 - How to interpret measurement results?
 - How to plan measurements plan?
- **Residual stress and distortion mitigation**
 - In-process techniques and examples
 - Post-process techniques and examples

Day 2 (Morning) (9.00–12.30)

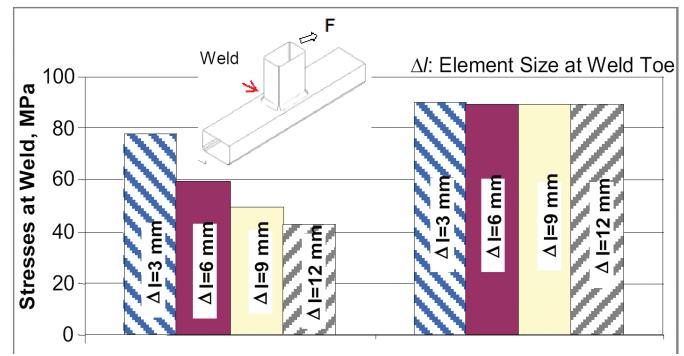
- **Treatment of residual stress effects on fatigue**
 - S-N curve based method
 - Crack growth method
- **Treatment of residual stresses in FFS**
 - Residual stress decomposition technique
 - Residual stress profile estimation
 - Use of BS 7910 and API 579
- **Some application examples**
 - Repair residual stress control in Al-Li vessel
 - Life assessment of a weld repair in a pipe
 - Buckling distortion control in a light-weight shipboard panel
 - FFS of super heater header repair
- **Summary and Q/A**

Course II

Advanced Fatigue Design and Evaluation Methods for Welded Structures

About the Course

This special course will provide a unique opportunity for attendees to learn the basic principles of structural fatigue design and valuation procedures as well as recent developments in finite element based fatigue life prediction methodologies, with a special emphasis on welded structures. Effective fatigue testing procedures for lab-scale specimens and large scale components will also be discussed, including methodologies for test data interpretation and correlation with computer model predictions. Through this



training course, participants will become familiar with some of the most important issues associated with fatigue of welded joints and existing as well as emerging fatigue design and analysis methods. Participants should be able to:

- Solve basic fatigue design problems
- Effectively design fatigue test plan and interpret fatigue test data
- Perform computer-based fatigue life estimations for basic fatigue problems

Course Content

Day 2 (Afternoon) (13.30–17.00)

- **Fundamental aspects of structural fatigue**
 - Initiation versus propagation and failure criteria
 - Unique fatigue issues associated with welded joints
- **Conventional fatigue evaluation procedures**
 - Key assumptions
 - Stress definitions and calculation procedures
 - Code-recommended S-N curves and assumptions
 - Why they don't work well for structural applications?
- **Traction structural stress method – I**
 - The traction structural stress definition
 - Numerical implementation
 - Simple calculation procedures
 - Measurement techniques and validations
 - Comparison with other stress definitions

Day 3 (9.00–17.00)

- **Traction structural stress method – II**
 - Generalized calculation procedure
 - Mesh-insensitivity validations
 - Multi-axial stress state
 - Weld root cracking versus weld toe cracking
 - Worked examples
- **The master S-N curve approach**
 - Fracture mechanics consideration
 - Master S-N curve formulation and validation
 - Load- versus displacement-controlled
- **Finite element based structural life prediction procedure**
 - Fusion welds
 - Plug, resistance spot, laser, and FSW welds
 - Do's and don'ts
 - Multiaxial fatigue
- **Summary and Q/A**



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REGISTRATION FORM

Only first 60 registrants will be accepted due to space limitation and on-site registrations are discouraged.

COURSE I – Weld Residual Stresses, Distortions, and Fitness for Service, July 4-5 th, 2017

COURSE II – Advanced Fatigue Design and Evaluation Methods for Welded Structures, July 5-6 th, 2017

Please fill in and send by e-mail tatjana.paulauskiene@ku.lt

Attendee's Name

Company Name

Company registration number

Address (country, postcode, city, street)

Telephone

E-mail

Invoice address, if different (country, postcode, city, street)

Course Selection (Please mark those as appropriate)	Registration Fee* (Euros)	
	Prior to June 4th, 2017	After June 4th, 2017
COURSE I	<input type="checkbox"/> 550	<input type="checkbox"/> 700
COURSE II	<input type="checkbox"/> 550	<input type="checkbox"/> 700
Registration for Both	<input type="checkbox"/> 1100	<input type="checkbox"/> 1400

Klaipėda evening reception &
dinner 2017 07 05

I will attend

*100 % of the course fee will be charged for cancellations received after June 23. We reserve the right to limit admission

Payment by Bank Transfer:

Account Name:	Association Baltic Valley
Company registration No:	301830870
Address:	H. Manto st. 92, Klaipėda, Lithuania
Bank:	AB bankas SWEDBANK
Account No:	LT607300010111023915
SWIFT Code:	HABALT22
Ref.	P. Dong Courses, July 2017

Charge by Credit Card:

Charge to: ☐ Visa ☐ MasterCard ☐ American Express

Name (as it appears on your card)

Card No (no dashes or spaces)

Expiration date

Security code

Place / Date

Company stamp and legally binding signature

The cost of the workshop includes registration, workshop papers, coffee breaks and lunches. Printed lecture notes will be distributed on site. You should make your own arrangements for accommodation, although we can help by providing lists of nearby hotels and budget accommodation.

You can reach Klaipėda by air, ferry, bus, and train.

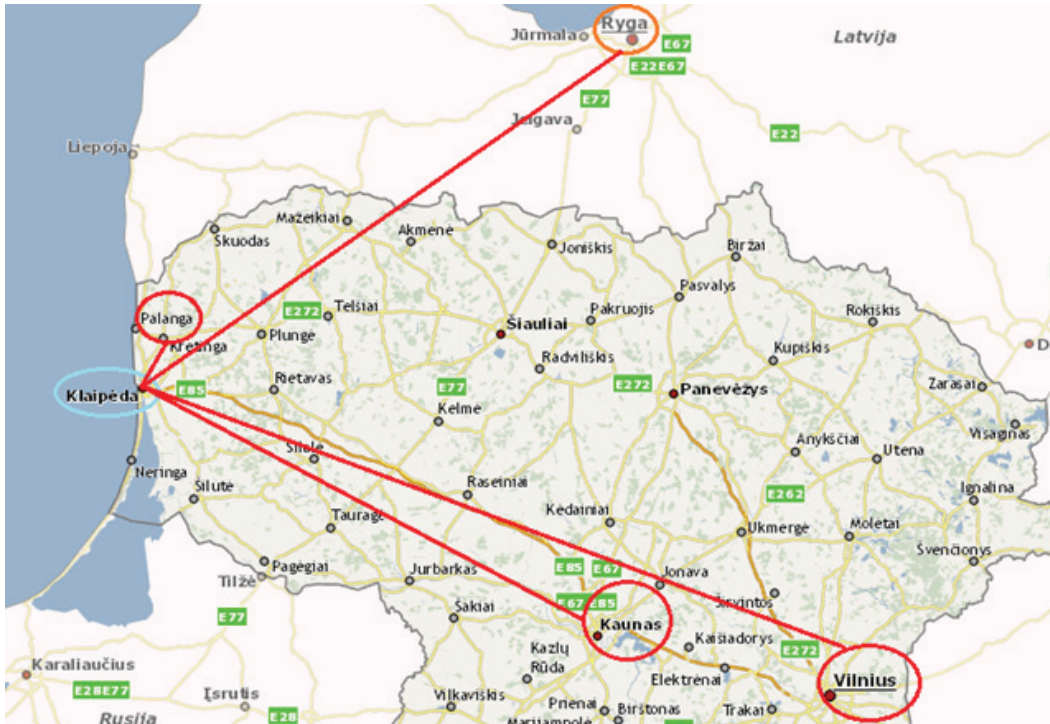
By air from airports:

■ **Palanga PLQ**

■ **Kaunas KUN**

■ **Vilnius VNO**

■ **Riga RIX**



■ **Palanga Airport PLQ**

Regular scheduled flights from Palanga Airport are operated by airlines “SAS”, “airBaltic”, “Norwegian Air Shuttle”, “Rusline”, “Ryanair”, “Wizz Air”, “LOT”, “Belavia”, “Ukraine International Airlines”. More detailed information available at <http://www.palanga-airport.lt/en/airlines>

You can reach Klaipėda by bus or taxi.

Bus Nr. 100 route is: Palanga airport - Klaipėda Bus station

http://www.palanga-airport.lt/upload/images/marsrutas_nr100.png

or leave the bus earlier at “Universiteto stotelė”.

Ticket price 2Euro. Ticket sale point - bus driver.

Bus schedules <http://www.stops.lt/klaipeda/#bus/100/a-b/en>

Bus is available in front of Airport Terminal.

Taxi is available in front of Airport Terminal. A trip to Palanga city takes 10 min., to Klaipėda -about 30 min. Taxi tel.:

+ 370 601 97699 (Palanga)

+ 370 620 66633 (Palanga)

+ 370 601 11885 (Palanga)

+ 370 601 63146 (Palanga)

When you come to Airport by a rented car, you can park it at the Airport.

For more information please contact +370 612 44442.

■ Kaunas Airport KUN

Regular scheduled flights from Kaunas Airport are operated by airlines

Ryanair www.ryanair.com

Wizzair www.wizzair.com

The bus stop at Kaunas Airport is just in front of the passenger terminal.

Bus schedule is coordinated with Ryanair flight schedule and serves every flight.

You can get tickets at www.airport-express.lt In Klaipeda the bus picks up and leaves the passengers at shopping centre Akropolis, Dubysos street.

More information available: klaipeda@ollex.lt and by tel. + 370 648 20200

■ Vilnius Airport VNO

Vilnius Airport Schedule available at

<http://www.vilnius-airport.lt/en/tips-for-passengers/schedule/>

You can reach Klaipeda from the Vilnius Airport by Ollex minibus www.airport-express.lt, taxi or rented car. You can get Klaipeda from the Vilnius City by train or bus as well.

The best recommendations how to get city available at

<http://www.vilnius-airport.lt/en/planning-a-trip/how-to-reach/train-bus/>

Train from Vilnius Train Station to Klaipeda goes 4 times per day.

Trip time – about 4 hours.

Price – about 13 EUR

Find your most suitable trip: <http://www.litrail.lt/en/home>

The buses to Klaipeda are hourly from Vilnius Bus Station (close to the Train Station).

Trip duration – 4 hours. Price – about 20 EUR

Find your most suitable trip: <http://www.autobusubilietai.lt/index.php?cl=start&lang=0>

■ Riga Airport RIX

Regular scheduled flights from Riga Airport <http://www.riga-airport.com/en> are operated by airlines AirBaltic, Belavia, Finnair, LOT, Lufthansa, Norwegian, Ryanair, SAS Scandinavian Airlines, Turkish Airlines, Ukraine International Airlines, Utair Aviation, Uzbekistan Airways, Wizz Air, Aeroflot.

You can reach Klaipeda from the Airport by Ollex minibus, taxi or rented car.

Ollex offers daily connections between Riga (city and airport) and Klaipeda Bus Station.

For further information and ticket reservation:

<http://www.ollex.lt/en/express/Riga-Express/buy-a-ticket>

■ Ferry DFDS Seaways

You may reach Klaipeda straight from Kiel or Karlshamn Seaports.

Find your most suitable route <https://www.dfds.com/>

■ Klaipėda Hotels



- **Hotel Radisson Blu** (Šaulių str. 28, Klaipėda) <https://www.radissonblu.com/en/hotel-klaipeda>
- **Hotel Navalys** (H. Manto str. 23, Klaipėda) <http://www.navalis.lt/en.php>
- **Hotel Amberton Klaipėda** (Naujojo sodo str. 1, Klaipėda) <http://ambertonhotels.com/en/klaipeda/>
- **Old Mil Hotel** (Žvejų str. 22, Klaipėda) <http://www.oldmillhotel.lt/en/>
- **Klaipėda University** (H. Manto str. 84, Klaipėda) www.ku.lt/eng
- **Venue Aula Magna** (H. Manto str. 92, Klaipėda)

Klaipėda University dormitory (Universiteto aleja 12, Klaipėda) – new facilities close to Venue Aula Magna. Price – from 7 Euro (double room) to 17 Euro (single room) per night.



More detailed info available at <http://www.trafi.lt/?l=en>