POST-TENSIONING
DESIGN AND
CONSTRUCTION

A 2-DAY PROGRAMME - 5 - 6 APRIL 2005
WITH AN OPTIONAL HANDS-ON TRAINING WORKSHOP - 7 APRIL 2005

Course Director
Dr. Bijan O. Aalami
Professor Emeritus of San Francisco State University
目的与背景

展示最新的设计概念、规范规定、施工、设计技术以及软件工具，本课程将提供有关如何和方法，以便进行高效、经济和适用的后张预应力建筑物和停车结构的设计。它从介绍当前的后张预应力系统、施工实践以及一个可靠的操作清单开始，接着，它涵盖了现代设计概念，以及对梁、单向和柱支撑的平板楼板系统的设计程序。每一个程序都伴随着详细的长手计算实例，以及计算机生成的计算。接下来，它会介绍组件技术，这是用于分析和设计楼板系统的一流方法。使用组件技术及软件应用，课程会强调从建筑图纸到结构文件的设计过程中的设计时间的节省和潜在错误的减少。

这个课程将包括：
- 当前的后张预应力系统和施工实践在建筑物和停车结构
- 后张预应力设计的概念和程序
- 最新的设计规范对后张预应力结构的规定
- TR 43 报告概述，特别参考 EC2
- 长手计算用于设计和设计验证
- 等效框架方法在后张预应力设计中的应用
- 能量元分析在后张预应力楼板设计中的应用
- 使用组件技术的结构建模的后张预应力楼板和设计
- 超时行为和预应力混凝土梁/板的伸缩分析
- 绳索布置和细节
- 软件和设计培训工作坊

课程参与者将获得包含详细设计实例的全面课程笔记和参考材料。

课程益处
- 了解最新的发展在后张预应力系统和施工实践，包括对耐久性和低维护的措施
- 了解 EC2、TR 43 报告、ACI 和 IBC (国际建筑规范) 建筑规范的变化及其对设计的影响
- 学习如何避免使用集成设计方法时的昂贵错误
- 学习使用有限元方法在设计中，结合组件技术进行结构建模的可能性
- 学习如何增加设计的可靠性和经济性

应出席者
- 钢筋混凝土和/or 后张预应力设计的结构工程师
- 建筑官员和城市计划检查员
- 负责审查后张预应力设计的工程师
- 负责后张预应力建筑的翻新工作的工程师
- 对后张预应力结构感兴趣的建筑商
- 法律工程师，处理后张预应力结构
- 有兴趣和背景于混凝土设计的学术界和学生
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<tr>
<th><strong>Content</strong></th>
<th><strong>5 April</strong></th>
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<tbody>
<tr>
<td>Introduction to post-tensioning; post-tensioning systems; post-tensioning hardware</td>
<td>Construction technology of post-tensioned structures; preferred construction practice</td>
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<tr>
<td>Review of design concepts of concrete floors with specific reference to post-tensioning</td>
<td>Building Code Requirements of BS8110, EC2, TR 43 Report and their impact on design of post-tensioned structures</td>
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<tr>
<td>Longhand design example of a post-tensioned column supported floor structure</td>
<td>Longhand design example of a post-tensioned continuous parking structure beam</td>
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<td>Equivalent Frame Method and computer applications for design of post-tensioned floor systems and beam frames (using ADAPT-PT)</td>
<td>Design for restraint and crack mitigation in post-tensioned structures</td>
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<td>Questions and Discussion</td>
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<tr>
<th><strong>Content</strong></th>
<th><strong>6 April</strong></th>
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<tr>
<td>Time-dependent behaviour and creep analysis for prestressed members</td>
<td>Structural Modelling of post-tensioned members for analysis and design;</td>
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<tr>
<td>Key concepts in Component Technology for structural modelling and application of finite elements to design of post-tensioned floor systems</td>
<td>Finite element analysis and design of post-tensioned floor systems using ADAPT-Floor Pro</td>
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<td>Finite element analysis and design case study of a flat slab floor system</td>
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<td>Load balancing</td>
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<td>Hyperstatic (secondary) actions in post-tensioned members</td>
<td>Building code requirements - BS8110; EC2; ACI-318; IBC (International Building Code)</td>
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<td>Economics of post-tensioned construction and quantities</td>
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<td>Selected topics - Friction and elongation calculations; Stress losses in post-tensioned tendons</td>
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<td>Construction detailing and tendon layout</td>
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<td>Questions and discussion</td>
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<th><strong>7 April (Optional)</strong></th>
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<td>Optional 3rd day - hands-on Software and Design Training in a computer laboratory</td>
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<td>At the end of the day participants are expected to have developed the skill necessary to perform computer assisted design of post-tensioned buildings</td>
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<td>Limited number of places available</td>
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<tr>
<th><strong>Participating Organisations</strong></th>
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<td>Organisations that have been represented on this course include:</td>
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<tr>
<td>Buro Happold ♦ WSP Buildings ♦ Bovis Lend Lease Ltd ♦ ODIN Consulting Engineers Ltd</td>
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<tr>
<td>JSA Consulting Engineers ♦ CTT Stronghold ♦ Taylor Woodrow Construction ♦ Atkins</td>
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<tr>
<td>Robinson Consulting Ltd ♦ FaberMaunsell ♦ Finmap Consulting ♦ JLE Eng ♦ Halcrow</td>
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<tr>
<td>Cameron Taylor Bedford ♦ Appleby Group Ltd ♦ The Concrete Centre ♦ Arab Enterprise</td>
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<td>Esteyco ♦ Elliott Wood Partnership ♦ Aaro Kohonen OY ♦ Bunyan Meyer &amp; Partners Ltd</td>
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<tr>
<td>Clarke Nicholls &amp; Marcel ♦ Suncoast Post-Tension ♦ Gyoury Self Partnership ♦ MLM</td>
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Comments from previous participants are available at: [www.imperial.ac.uk/cpd/tension](http://www.imperial.ac.uk/cpd/tension)
DR. BIJAN O. AALAMI, a Life Member of the Post-Tensioning Institute and ASCE, is Professor Emeritus of San Francisco State University, Chartered Engineer, and CEO and Founder of ADAPT Corporation - a structural engineering firm in California specialising in the design of concrete structures. He has been actively engaged in the design and construction of numerous notable post-tensioned buildings, bridges and special structures. A renowned world leader and teacher in the design of concrete buildings, bridges, special structures and post-tensioning, through his worldwide educational seminars, Dr. Aalami has enriched the practice of many engineers in North and Latin America, Far East, Europe and the Middle East. His extensive publications on concrete design, in particular post-tensioning, are regarded as primary resources for practical design of post-tensioned buildings and bridges. For over twenty years, Dr. Aalami has been the project leader of the ADAPT software suite of programs that are serving concrete design engineers in over 75 countries worldwide.

Dr. FLORIAN AALAMI earned a bachelor’s degree in civil engineering from the University of California, Berkeley and both a master’s degree in structural engineering and a doctoral degree in construction technology from Stanford University. Florian’s extensive career in AEC software development began at Stanford's Center for Integrated Facility Engineering and extended to his founding of BuildPoint Corporation, where he served as CTO and Vice President of Business Development. As a specialist in construction technology, his interest and involvement in post-tensioned structures, is driving ADAPT’s global activities as a leading provider of software and specialty consulting services for the concrete design industry.

Dr. NEIL TSANG is a graduate of the University of Sheffield, worked for the Babite Group, and became a Chartered Structural Engineer before moving to Imperial College London. Here he undertook research on problems associated with the time dependent behaviour of concrete structures and integral bridges. He was the recipient of both a Mott McDonald PhD Scholarship and a Croucher Foundation Fellowship and was awarded a PhD degree in 1998. Following a period as a lecturer at the University of Strathclyde he returned to Imperial College London where currently he is a lecturer teaching prestressed concrete structures to both undergraduate and postgraduate students. He has published papers on the time and temperature dependent behaviour of concrete structures and mechanics of granular soil. He is also co-author of a book on Integral Bridges.

MR. ROBIN WHITTLE initially gained design and site experience with Sir Alexander Gibb and Partners working on large power stations, jetties and dams. This was followed by several years design and development work with Dow Mac Concrete (precast concrete factory). Between 1968 and 2001 he provided specialist advice on reinforced, prestressed concrete and structural design within Arup Research and Development. He has been deeply involved with the development of the UK and European Codes for application to structural concrete. He is chairman of the Concrete Society Working Party, which has been responsible for updating the technical design handbook TR 43, “Post-Tensioned Concrete Floors”. Since 2001 he has been a Consultant to the Arup Group Ltd.
General Information

Registration
Booking in the first instance can be made by PHONE: +44 (0)20 7594 6884, FAX: +44 (0)20 7594 6883, EMAIL: cpd@imperial.ac.uk, and then by completing and returning the attached registration form to the address shown. Detailed instructions, including a map, will be sent to all participants 10-14 days prior to the commencement of the course. Places on the course are limited, EARLY BOOKING IS ADVISED.

Fees
The full fee, (VAT exempt), for the first 2-days is £575 and all 3-days is £775 with a discount for early registration before 5 March 2005 (see registration form). The fee covers tuition, a comprehensive set of notes, lunches and light refreshments. Please note all fees must be received before the course start date.

Team Attendance
A 20% discount on the course fee (applicable at the time of the booking) is available for the third and any subsequent applicants from the same organisation who enrol together for the same duration.

Venue & Schedule
The course will be held at Imperial College London, South Kensington, located in a pleasant part of London, close to Hyde Park, the Royal Albert Hall and world-renowned museums.

Course Schedule: 9:00am - 5:00pm with refreshments and lunch breaks.

Accommodation
Single bedroom accommodation is available in local hotels within easy access to the College. Minimum cost of a room with shower/bath will be in the region of £85 per night. Limited number of basic student accommodation is also available starting at £47 per night. This is additional to the course fee, and participants are responsible for payment of their hotel bills. For further details and reservations, please contact:

Hotel Booking Service,
Imperial College London Conference Office,
Watt's Way, Prince's Gardens,
London SW7 1LU.
Tel: +44 (0)20 7594 9507/11; Fax: +44 (0)20 7594 9504/5;
Information is available at http://www.imperial.ac.uk/conferences

Cancellations
A 10% administration fee will be levied for cancellations made up to two weeks prior to the start of the course. Cancellations thereafter will be liable to the loss of the full fee. Notice of cancellation must be given in writing by letter or fax and action will be taken to recover, from the delegates or their employers, that proportion of the fee owing at the time of cancellation.

The College reserves the right to cancel an advertised course at short notice. It will endeavour to provide participants with as much notice as possible, but will not accept liability for costs incurred by participants or their organisations for the cancellation of travel arrangements and/or accommodation reservations as a result of the course being cancelled or postponed. If a course is cancelled, fees will be refunded in full. The College also reserves the right to postpone or make such alterations to the content of a course as may be necessary.

Queries
Queries regarding the technical content of the course should be directed to:

Dr. Bijan Aalami,
CEO, ADAPT Corp
Tel: +1(650)306-2400
Email: bijan@adaptsoft.com
Website: http://www.adaptsoft.com

Queries regarding registration and other administration matters should be directed to:

Mitul Shah,
Centre for Professional Development, Room 318 Sherfield Building,
Imperial College London, South Kensington Campus, London SW7 2AZ
Tel: +44 (0)20 7594 6884; Fax: +44 (0)20 7594 6883;
Email: cpd@imperial.ac.uk
Registration Form

POST-TENSIONING DESIGN AND CONSTRUCTION 5 - 7 APRIL 2005

Please reserve a place on this course (Photocopy for additional applicants)

Delegate’s Details: (Please let us know if this address is NOT for joining information)

Title
First Name(s)
Surname

Occupation/Job Title

Organisation

Work Address

Postcode
Country

I would like to receive joining information by:

☐ Post  ☐ Email

Course Fees (VAT Exempt): **Please note all fees must be received BEFORE the course start date**

5-6 April 05  £475 EARLY booking before 5 March 05
5-7 April 05  £675 EARLY booking before 5 March 05
5-6 April 05  £575 LATE booking after 5 March 05
5-7 April 05  £775 LATE booking after 5 March 05

Methods of Payment: OVERSEAS DELEGATES SHOULD EITHER PAY BY STERLING BANK DRAFT DRAWN ON A UK BANK, OR ADD £25 TO COVER BANK CHARGES

☐ Cheque: I / We enclose the fee of:

*** PLEASE MAKE DRAFT/ CHEQUES FOR COURSE FEES PAYABLE TO "IMPERIAL COLLEGE LONDON" ***

☐ Credit Card: Please charge the following credit card for the total fee of:

Type of card: ☐ VISA ☐ MASTERCARD ☐ SWITCH ☐ DELTA (These cards ONLY)

Card No.
Expiry Date
Name on Card
Signature

☐ Invoice: Please invoice the following person/organisation for the sum of:

Invoice / PO Number

Construct
Address

For the Attention Of

Position

Other information: PLEASE DELETE AND TICK AS REQUIRED

☐ I will/will not require special meals (e.g. vegetarian). Please give details

☐ I will/will not need special facilities for a disability. Please give details

☐ I heard of this course from (please specify)

☐ For accommodation booking please contact Imperial College London Conference Link on +44 (0)20 7594 9507/9511

Website: www.imperial.ac.uk/conferences

I agree that if payment is not received from the above organisation, I will be personally liable for the full fee:

Applicant’s Signature
Date

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www.imperial.ac.uk/cpd

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