

# ADHESION SCIENCE AND TECHNOLOGY COURSE

2-3 December, 2013, Bled, Slovenia

**INTRODUCTION:** Adhesion plays an important role in many technologies and industries, viz., automotive, thin films, optics, printing, medical, coatings, paint and so on. Broadly speaking, the topic can be divided into two categories: film or coating/substrate combination, and adhesive joint. Films and coating are used for a variety of purposes and irrespective of their intended function, these must adhere adequately to the underlying substrate. So the need for understanding and controlling the factors affecting adhesion is quite patent. Also the durability of the bond (on exposure to process chemicals, moisture, corrosives, etc) is of grave concern and importance.

This two-day Course provides up-to-date information on the factors affecting adhesion and various ways to enhance adhesion in a host of situations.

**Instructor:** Dr. Kash Mittal **Invited speakers:** Prof. Dr. Marko Petrič, Prof. Dr. Milan Šernek, Prof. Dr. Vera Kovačević

## WHO SHOULD TAKE THIS COURSE

Research, development and manufacturing personnel who have a current or anticipated need for a thorough knowledge of adhesion science and technology.

The Course is primarily prepared and intended for participants from the following countries: Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Former Yugoslav Republic of Macedonia (FYRM), Greece, Hungary, Kosovo, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia and Turkey.

## TOPICS TO BE COVERED:

- SURFACE CONTAMINATION AND CLEANING
- THEORIES OR MECHANISMS OF ADHESION
- CONTACT ANGLE, WETTABILITY AND ADHESION
- INVESTIGATION OF INTERFACIAL INTERACTIONS
- SURFACE MODIFICATION TECHNIQUES AND OTHER WAYS TO IMPROVE ADHESION OF ORGANIC COATINGS/ADHESIVES
- SILANES AND OTHER ADHESION PROMOTERS
- ADHESION ASPECTS OF THIN FILMS
- ADHESION MEASUREMENT OF FILMS AND COATINGS

**VENUE:** Hotel Lovec, Bled, Slovenia

## COURSE FEES

EARLY Standard Fee (until 15 November 2013)	350 EUR
EARLY Academic Fee (until 15 November 2013)	270 EUR
EARLY Student Fee (until 15 November 2013)	100 EUR
LATE Standard Fee (after 15 November 2013)	380 EUR
LATE Academic Fee (after 15 November 2013)	300 EUR
LATE Student Fee (after 15 November 2013)	130 EUR

## LOCAL ORGANISER

University of Ljubljana, Biotechnical Faculty,  
Department of Wood Science and Technology

## CONTACT INFORMATION

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## REGISTRATION AND MORE INFO

<http://www.adhesioncourse.si>

SEE THE COURSE PROGRAMME ON THE NEXT PAGE

# ADHESION SCIENCE AND TECHNOLOGY COURSE PROGRAMME

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## Monday, 2 December, 2013

- 8.00-9.00 **Registration** (registration desk will also be open on Sunday, 1 December, 2013 from 18.00 to 20.00)
- 9.00-9.15 **Official Opening of the Event**  
M. Petrič<sup>1</sup>, M. Šernek<sup>2</sup>  
Chairperson: M. Šernek
- 9.15-10.45 **INTRODUCTION TO ADHESION**  
K. L. Mittal<sup>3</sup>
- 10.45-11.00 **Coffee Break**
- 11.00-13.00 **SURFACE CONTAMINATION AND CLEANING**  
K. L. Mittal
- 13.00-14.30 **Lunch**
- 14.30-16.00 **THEORIES OR MECHANISMS OF ADHESION**  
K. L. Mittal
- 16.00-16.15 **Coffee Break**
- 16.15-17.30 **CONTACT ANGLE, WETTABILITY AND ADHESION**  
K. L. Mittal
- 17.30-18.30 **INVESTIGATION OF INTERFACIAL (ACID-BASE) INTERACTIONS USING ESCA (XPS)**  
K. L. Mittal
- 18.30-18.35 **Conclusion of the First Day**  
M. Šernek
- 20.00 **Course Dinner**

## Thursday, 3 December, 2013

- 9.00-9.15 **Opening of Second Day**  
Chairperson: M. Petrič
- 9.15-10.45 **POLYMER SURFACE MODIFICATION**  
K. L. Mittal
- 10.45-11.00 **Coffee Break**
- 11.00-13.00 **INVITED LECTURES**
- Importance of Adhesive Parameters at the Interface of Filled Composites and Blends**  
V. Kovačević<sup>4</sup>
- Surface Free Energy of Wood**  
M. Petrič
- Bonding of Wood – Adhesion Aspect**  
M. Šernek
- 13.00-14.30 **Lunch**
- 14.30-15.00 **WAYS TO IMPROVE ADHESION OF COATINGS/ADHESIVES**  
K. L. Mittal
- 15.00-16.30 **SILANES AND OTHER ADHESION PROMOTERS**  
K. L. Mittal
- 16.30-16.45 **Coffee Break**
- 16.45-17.45 **ADHESION ASPECTS OF THIN FILMS (INCLUDING METALLIZED PLASTICS)**  
K. L. Mittal
- 17.45-18.30 **ADHESION MEASUREMENT TECHNIQUES**  
K. L. Mittal
- 18.30-18.35 **Closing of the Event**  
M. Petrič

- 1 Prof. Dr. Marko Petrič, University of Ljubljana, Biotechnical Faculty, Department of Wood Science & Technology, Jamnikarjeva 101, 1000 Ljubljana, Slovenia, e-mail: marko.petric@bf.uni-lj.si
- 2 Prof. Dr. Milan Šernek, University of Ljubljana, Biotechnical Faculty, Department of Wood Science & Technology, Jamnikarjeva 101, 1000 Ljubljana, Slovenia, e-mail: milan.sernek@bf.uni-lj.si
- 3 Dr. Kashmiri L. Mittal, Editor, Reviews of Adhesion and Adhesives. 1983 Route 52, Suite C, P.O. Box 1280, Hopewell Junction, NY 12533-1280, U.S.A.
- 4 Prof. Dr. Vera Kovačević, University of Zagreb, Faculty of Chemical Engineering and Technology, Department of Surface Engineering of Polymer Materials, Savska 16, HR-10000 Zagreb, Croatia, e-mail: vkovac@fkit.hr