Department of Civil Engineering
Rakennustekniikan laitos

Building Technology MSc Thesis Seminar 5/2020 – 7 December 2020 at 9

Place/Paikka: Microsoft Teams Conference ID: ID: 339 105 298#

Esittelyjärjestys/The order of presentations

9:00-9:20 Markkola Joel (Prof. Peltokorpi Antti)
9:20-9:40 Rengarajan Prabu (Prof. Puttonen Jari)
9:40-10:00 Riekkinen Viljami (Prof. Puttonen Jari)
10:00-10:20 Sikanen Ville (Prof. Puttonen Jari)
Lyhyt tauko/Short break
10:30:10:50 Qvisén Jami (Prof. Lin Weiwei)
10:50-11:10 Akhondzada Ali (Prof. Jouni Punkki)
11:10-11:30 Roney James (Prof. Jouni Punkki)
11:30-11:50 Forss Jussi (Prof. Jouni Punkki)

Esittelijät aakkosjärjestyksessä/Authors in the alphabetical order

Akhondzada Ali, Forss Jussi, Markkola Joel, Rengarajan Prabu, Riekkinen Viljami, Sikanen Ville, Roney James, Qvisén Jami

Author: Akhondzada, Ali
Title: Ladle furnace slag as a binder for floor screeds
Supervisor: Prof. Punkki Jouni
Supervisors: Assoc. prof. Kinnunen Päivö, and Ph.D. Nguyen Hoang, University of Oulu

Ladle furnace slag a byproduct of the steelmaking process due to its chemical and mineralogical properties has the potential to be used as supplementary cementitious material. In this study, the compatibility of ladle slag in a floor screed material is studied.

Author: Forss, Jussi
Title: Digital manufacturing of concrete moulds
Supervisor and Instructor: Prof. Punkki Jouni

The goal of this thesis was to investigate the possibilities of digital manufacturing in concrete construction. The focus of the thesis was on the use of digital and additive methods in production of concrete casting molds. This would allow the use of concrete as casted material rather than printed.

Diplomityön tekijä: Markkola, Joel
Aihe: Tehtäväkohtaisen laadunhallinnan toimivuus rakentamisessa
Valvoja: Prof. Peltokorpi Antti
Ohjaaja: Valpola Timo, NCC

Author: Qvisén, Jami
Title: Standardized bridge weigh-in-motion data and its applications in bridge engineering
Supervisor: Prof. Lin Weiwei
Instructors: M.Sc. Lilja Heikki, Väylä; M.Sc. Jussila Antti, Sweco

Bridge Weigh-in-Motion (B-WIM) is method to measure information, such as weights, from moving vehicles by using bridge as a weighing instrument. It has large potential in bridge designing, but lack of standardized data format hinders its use. This thesis suggests a new standardized format to present the data and the benefits of it in form of a fatigue case study for orthotropic bridge deck.

Author: Rengarajan, Prabu
Title: Moment Resisting Frame as a load-bearing structural system of a multi-story car park
Supervisor: Prof. Puttonen Jari
Instructors: M.Sc. Sivill Arto, Sweco

The main aim of this case study is to investigate the global second order effects that would affect global stability of the building, based on of critical buckling load factor and amplification factor, Moreover, how the influence of second order effect affect the stiffness of frame and its members.

Author: Riekkinen, Viljami
Title: Effect of room temperature differences on safety-related reinforced concrete floors and walls in the reactor building of Olkiluoto 2 nuclear power plant
Supervisor: Prof. Puttonen Jari
Instructor: M.Sc. Jauhiainen Jyrki, Sweco

Goal of the thesis is to study the effect of room temperature differences on the integrity of the reinforced concrete walls and floors in the reactor building of Olkiluoto 2 nuclear power plant. The study is performed mainly by using finite element method.

Author: Roney, James
Title: Non-rectangular Concrete Beams Produced from Bent Planar Molds
Supervisor and Instructor: Prof. Punkki Jouni

This thesis describes the development of a different strategy for concrete beam molding, using regular, flat plywood panels. Using active-bending principles, the panels are bent into a unique, curved geometry into which concrete can be poured to make a beam. The thesis follows the development process from small-scale to medium scale testing. The potential advantages of this mold method and the particular beam produced are investigated.

Diplomityön tekijä: Sikanen, Ville
Aihe: Teräsbetonisen ulokkeellisen laattatiesillan algoritmiavusteinen suunnittelu
Valvoja: Prof. Puttonen Jari
Ohjaajat: DI Horttanainen Jukka, Vahanen Suunnittelupalvelut Oy; DI Nykänen Simo, Väylävirasto

Teräsbetoninen ulokelaattasilta (Bul) -siltatyypin suunnitteluohjeen mukainen algoritmiavusteinen tietomallinnus siltahankkeen esi- ja yleissuunnitteluvaiheessa. Algoritmin laadinta ja algoritmin tuottaman siltaratkaisun validointi tapaustutkimuksella. Tavoitteena algoritmiavusteisesti muodostaa lähtötietojen mukainen ja suunnitteluohjetta noudattava siltaratkaisu kyseisestä siltatyypistä.

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Further information of the MSc Thesis event

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https://www.aalto.fi/en/department-of-civil-engineering Events/Tapahtumat

Next master's thesis seminar will be held in February 8th, 2021