

## Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training*)

1. Raziskovalna organizacija (*Research organisation*):

Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo

2. Ime, priimek in elektronski naslov mentorja (*Mentor's name, surname and email*):

Anže Babič, anze.babic@fgg.uni-lj.si

3. Šifra in naziv raziskovalnega področja (*Research field*):

2.01.04 Tehnika/Gradbeništvo/Potresno inženirstvo

4. Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training*):

Navedite tudi morebitne druge zahteve, vezane na usposabljanje mladega raziskovalca (npr. znanje tujih jezikov, izkušnje z laboratorijskim delom, potrebne licence za usposabljanje...).

*slo:*

Mladi raziskovalec/mlada raziskovalka (MR) se bo usposabljal/-a na Fakulteti za gradbeništvo in geodezijo Univerze v Ljubljani v okviru raziskovalnega programa P2-0185 Potresno inženirstvo.

V zadnjih letih se je v Sloveniji in širše v svetu povečalo zanimanje za gradnjo armiranobetonskih integralnih mostov. Za takšne mostove je značilen okvirni sistem brez dilatacij in ležišč, njihova prednost v primerjavi s tradicionalnimi zasnovami mostov pa je v nižjih stroških gradnje in vzdrževanja ter v večji trajnosti. Po drugi strani je zaradi toge povezave med oporniki in preklado integralnega mostu nevarnost za razvoj poškodb v primeru potresne in temperaturne obtežbe večja kot pri drugih vrstah mostov. Obenem je razumevanje potresnega odziva integralnih mostov še precej pomanjkljivo, kar je v veliki meri posledica kompleksnosti interakcije med preklado, oporniki, piloti in zemljino. Na področju potresne analize in potresno odpornega projektiranja armiranobetonskih integralnih mostov so zato potrebne nadaljnje raziskave.

V prvem delu usposabljanja bo MR pregledal znanstveno literaturo s področja potresne analize armiranobetonskih integralnih mostov in preučil postopek za potresno odporno projektiranje tovrstnih konstrukcij, ki je predviden v standardu Evrokod 8. Pri tem bo identificiral pomanjkljivosti standarda glede na znanstvena dognanja iz zadnjih let. V drugem delu usposabljanja bo izvedel lastne raziskave, usmerjene v razvoj postopka za analizo in projektiranje armiranobetonskih integralnih mostov na potresno obtežbo, ki bo upošteval interakcijo mostu z zemljino, a bo obenem dovolj enostaven, da bo primeren tudi za uporabo v praksi.

Kandidat/-ka mora izpolnjevati vse kriterije iz razpisa. Obvezna je magistrska izobrazba s področja gradbeništva. Zaželeno je predznanje iz potresnega inženirstva, geotehnike in analize armiranobetonskih konstrukcij. MR naj bi imel odlično znanje angleškega jezika in izkazano sposobnost za samostojno delo. Dodatne informacije: [anze.babic@fgg.uni-lj.si](mailto:anze.babic@fgg.uni-lj.si).

Predviden je vpis na doktorski študij Grajeno okolje.

*eng:*

Young researcher (MR) will be trained at the Faculty of Civil and Geodetic Engineering, University of Ljubljana, within the research program P2-0185 Earthquake Engineering.

In recent years, there has been increased interest in the construction of reinforced concrete integral bridges in Slovenia and wider in the world. Such bridges are characterized by a frame system that does not include expansion joints or bearing supports. Their advantage over traditional bridge designs is in the lower construction and maintenance costs as well as in the greater durability. On the other hand, due to the rigidity of the deck-abutment connection, integral bridges are more susceptible to damage in the event of an earthquake or temperature load. At the same time, the understanding of the seismic response of integral bridges is still quite limited, which is largely due to the complexity of the interaction between the deck, abutments, piles and the backfill. Further research is therefore needed in the field of seismic analysis and earthquake-resistant design of reinforced concrete integral bridges.

In the first part of the training, the MR will review the scientific literature in the field of seismic analysis of reinforced concrete integral bridges and the procedure for earthquake-resistant design of such structures foreseen in Eurocode 8. The shortcomings of the standard with respect to the latest scientific findings will be identified. In the second part of the training, the MR will conduct his/her own research aimed at developing a procedure for seismic analysis and design of reinforced concrete integral bridges that will consider the interaction between the bridge and the backfill but will still be simple enough to be suitable for practical use.

The candidate must meet all the criteria from the call. A master's degree in civil engineering is mandatory. Prior knowledge of earthquake engineering, geotechnics and analysis of reinforced concrete structures is desirable. The MR should have an excellent knowledge of the English language and a demonstrated ability to work independently. Additional information: [anze.babic@fgg.uni-lj.si](mailto:anze.babic@fgg.uni-lj.si).

The enrolment in the doctoral program Built Environment is envisaged.