

Course title: **New ways of teaching mathematics and physics – practical and cross-curricular approach**
Ljubljana 23rd – 28th August 2015

Program

Sunday 23rd August

Arrival of the Participants for Teacher's Professional Development

All the sessions/meetings will be held in the room "Učilnica Drago Marija Šijanča" at the ground floor of *St. Stanislav's Institution*, Zavod sv. Stanislava, Štula 23, 1210 Ljubljana, Slovenia – EU.

Monday 24th August

| Time | Approx. | Session | Theme | Presenter/Moderator |
|----------|---------|-----------------------|--|---------------------------|
| 8-12 | 30 min | Presentation | Welcome, Introduction | Tine Golež, Marina Rugelj |
| | 30 min | Discussion | Participants introduce themselves | |
| | 50 min | Presentation | Calculus; from physics ... | Tine Golež |
| | 15 min | Coffee (app. at 9:50) | | |
| | 115 min | Presentation | Calculus; from physics ... [see Wednesday at 14] | Tine Golež |
| 12-13 | Lunch | | | |
| 13-15:15 | | Presentation | Interdisciplinary teaching involving geometry | Marina Rugelj |

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Tuesday 25th August

| Time | Approx. | Session | Theme | Presenter/Moderator |
|-----------------|---------|---------------------------|------------------------------------|---------------------|
| 8-12 | 45 min | Presentation | Technology, motivation, teaching | Damjan Kobal |
| | 60 min | Workshop | Hands on simple techno-math ideas | Damjan Kobal |
| | 15 min | Coffee | | |
| | 120 min | Workshop-CL | From real to virtual with GeoGebra | Damjan Kobal |
| 12-13 | Lunch | | | |
| 13-15:30 | 150 min | Presentation, Workshop | ... towards mathematics | Tine Golež |
| | | | | |
| 15:30 | Free | | | |

[Some participants wanted to visit World famous Postojna Cave last year ... and we organized an additional excursion. That is the optional excursion paid by participants. The entrance ticket alone is 22,90 EUR. However, we can get a special offer: bus trip, Postojna cave, Postojna castle and dinner – all together for 45 EUR per participants. This excursion can be realised on Thursday (afternoon, 15 – 22).]

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Wednesday 26th August: PARALLELE SESSIONS

MATH TEACHERS:

| Time | Approx. | Session | Theme | Presenter/Moderator |
|-------------|---------|--------------|---|---------------------|
| 8-12 | 60 min | Presentation | Interdisciplinary lessons between mathematics and biology | Marina Rugelj |
| | 60 min | Presentation | Interdisciplinary lessons between mathematics and biology | Marina Rugelj |
| | 15 min | Coffee | | |
| | 60 min | Workshop | Creating interdisciplinary lessons between math and science | Marina Rugelj |
| | 45 min | workshop | Creating interdisciplinary lessons between math and science | Marina Rugelj |

PHYSICS TEACHERS:

| Time | Approx. | Session | Theme | Presenter/Moderator |
|-------------|---------|--------------|---|-------------------------|
| 8-12 | 60 min | Presentation | Advanced physics experiments for A-level students | Tine Golež, Martin Čokl |
| | 60 min | Workshop | Advanced physics experiments for A-level students | Tine Golež, Martin Čokl |
| | 15 min | Coffee | | |
| | 60 min | Workshop | Advanced physics experiments for A-level students | Tine Golež, Martin Čokl |
| | 45 min | Workshop | Advanced physics experiments for A-level students | Tine Golež, Martin Čokl |

ALL TOGETHER:

| Time | Approx. | Session | Theme | Presenter/Moderator |
|--------------------|---------|-------------------------|--|-------------------------|
| 12-13 | Lunch | | | |
| 13.15-22.00 | 525 min | Excursion (Workshop) | Measurements in real world – field work incorporated into science teaching (tourist) excursion | Tine Golež, Martin Čokl |

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Thursday 27th August

| Time | Approx. | Session | Theme | Presenter/Moderator |
|-----------------|---|------------------|--|---------------------------|
| 8-12 | 105 min | Workshop-CL | Learning GeoGebra | Damjan Kobal |
| | 15 min | Coffee | | |
| | 60 min | Workshop-CL | Teaching with GeoGebra or physics experiments | Damjan Kobal / Tine Golež |
| | 60 min | Workshop-CL | Teaching with GeoGebra or physics experiments | Damjan Kobal / Tine Golež |
| 12-13 | Lunch | | | |
| 13-14:30 | Presentation | Modelling motion | Tine Golež | Presentation |
| | | | | |
| 15 - 22 | Excursion – <i>ad libitum</i> [See remark on Tuesday page.] | | | |

Friday 28th August

| Time | Approx. | Session | Theme | Presenter/Moderator |
|------|---------|-------------------------|--|--|
| 8-12 | 90 min | 90 min | Workshop (by Gregor Pavilč and Tine Golež) | Physics experiments prepared for 2nd and 3rd graders lab-work or Matura Math – state prepared final exam for all secondary school students (Parallele session for physics and math teachers) |
| | | | | |
| | 15 min | Coffee | | |
| | 60 min | Presentation | Science and/or common sense | Damjan Kobal |
| | 40 min | Discussion | Final discussion + evaluation | All |
| | 35 min | Conclusion and farewell | | |
| | | | | |

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