**Проектное предложение**

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| Тип проекта | *Research*  |
| Название проекта | Selected topics in algebra |
| Подразделение инициатор проекта | Faculty of Mathematics |
| Руководитель проекта | *Alexander Pavlov* |
| Заказчик проекта / востребованность проекта | The project has been suggested by the Faculty of Mathematics and “Mathematics” MSc program |
| Основная проектная идея / описание решаемой проблемы | This is a reading course for students who want to improve their understanding of algebra topics covered in gradate and advanced undergraduate classes. The course is based on individual approach to each student. Student taking this class need to choose a topic, after that a reading material will be provided along with the individual counseling to develop conceptual understanding. Variety of topics will be offered, from basic to advanced. In order to develop problem solving skills several problem sheets will be given to each student based on the preliminary knowledge, topic and interests. |
| Цель проекта  | Learning theorems and methods of chosen area of algebra with application to solving problems. |
| Планируемые результаты проекта, специальные или функциональные требования к результату | The goal is to help students learn those aspects of algebra that were unclear or skipped before. It is expected that personal approach and tutoring will help to overcome difficulty barrier or considerably improve understanding of the material.  |
| Требования к участникам с указанием ролей в проектной команде при групповых проектах | Students of faculty of mathematics with basic knowledge of algebra, logic and set theory. |
| Количество вакантных мест на проекте | 10 |
| Проектное задание  | *Students need to choose one or two algebra topics, read recommended chapters of the textbooks, present proofs of the key theorems and assigned problems, take written final exam.* |
| Критерии отбора студентов  | *Priority will be given to international students, master’s students and early application students.*  |
| Сроки и график реализации проекта  | *05.10-30.04*  |
| Трудоемкость (часы в неделю) на одного участника | *6* |
| Количество кредитов | *6* |
| Форма итогового контроля | *Written final exam* |
| Формат представления результатов, который подлежит оцениванию | *Short presentations, written assignments, written final exam.* |
| Образовательные результаты проекта  | *Depending on the chosen topic might include** *Computing representations and character tables representations of finite groups*
* *Computing Galois groups of polynomials and field extensions*
* *Working out examples and proving properties of solvable, nilpotent and simple Lie algebras*
* *Constructing irreducible representations of some semi-simple Lie algebras*
* *Finding quivers of finite dimensional associative algebras*
* *Computing functors resolutions Ext and Tor in some examples, e.g. for quiver algebras*
* *Computing radicals, socles and tops of modules over associative rings*
* *Construct representations of the Lie algebra so(n) using Clifford algebra and spinors*
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| Критерии оценивания результатов проекта с указанием всех требований и параметров  | *20% Presentations**40% Assignments**40% Final exam*  |
| Возможность пересдач при получении неудовлетворительной оценки | *Yes* |
| Рекомендуемые образовательные программы | *Bachelor’s “mathematics”, master’s “mathematics”, master’s “mathematics and mathematical physics”* |
| Территория | *Moscow, Usacheva str., 6* |