Course Syllabus

Skoltech

Course Title	Industrial Immersion
Course Title (in Russian)	Производственная практика
Lead Instructor	-

1. Annotation

Course Description

The goal of Industrial Immersion program is to provide for Skoltech students real hands-on work experience in an industrial sector and develop the knowledge and skills for making an impact through engineering and innovation. The Industrial immersion is performed in a sector company and it implies that internships at academic institutions (like universities etc.) are excluded. Duration of program is 8 weeks. Project focuses on short-term development, manufacturing or operations challenges rather than long-term research problems and is co-supervised by company and Skoltech. The internship is cooperatively planned: project assignment is provided by a company and subject for approval of Industrial Immersion Program Coordinator (I.I.P.C.).

Course Description (in Russian)

Цель программы "Индустриальное погружения" — предоставить студентам Сколтеха опыт практический работы в промышленном секторе, развить навыки и знания для их будущего применения в областях инженерии и инноваций. Индустриальное погружение осуществляется в отраслевой компании и исключает практику в академических учреждениях (например, университетах и т. д.). Продолжительность программы 8 недель. В отличие от долгосрочных исследовательских задач проект практики представляет собой выполнение краткосрочной технологической задачи в сфере разработки, производства или эксплуатации под руководством кураторов от компании и Сколтеха. Подготовка проекта практики планируется Институтом и компанией совместно: задание на проект предоставляется компанией и подлежит утверждению координатором программы индустриального погружения

2. Basic Information

Course Academic Level

MSc

Number of ECTS credits

12

Course Prerequisites / Recommendations

To participate in Industrial Immersion a student should successfully complete the compulsory courses of the 1st year of study.

Type of Assessment

Pass/Fail

Mapping from grades to percentage:

Pass:

90

Term

Summer Term

Students of Which Programs do You Recommend to Consider this Course as an Elective?

BSc Programs	Masters Programs	PhD Programs
	Advanced Computational Science Advanced Manufacturing Technologies Applied Computational Mechanics Data Science Energy Systems Engineering Systems Internet of Things and Wireless Technologies Life Sciences Materials Science Petroleum Engineering Photonics and Quantum Materials	

Maximum Number of Students

	Maximum Number of Students
Overall:	300
Per Group (for seminars and labs):	300

Course Stream

Sector

3. Course Content

Topic	Summary of Topic	Lectures (# of hours)	Seminars (# of hours)	Labs (# of hours)
Self-marketing on Paper.Resume.	Students prepare and submit resumes via Canvas due to the date specified by Education Office. Strong and competitive profile increases student's chances to be selected into a high-quality project with a prestigious company.	1		
Project work in a company. Final report.	Students work in a company on project assignment. The results are to be provided in a written form: - individual report is submitted via Canvas and approved both by company project supervisor and Skoltech project supervisor.	320		
Presentation	Students are required to make written and oral presentation of their project: - project team poster is submitted via Canvas and approved both by the company project supervisor and Skoltech project supervisor; - students should exhibit their posters at the Skoltech Industry Day and be prepared to answer questions about the project implementation and results.	3		

4. Learning Outcomes

Skoltech Learning Outcomes are indicated as per Skoltech Learning Outcomes Framework.

5. Assignments and Grading

Assignment Type	Assignment Summary	% of Final Course Grade
Projects	Students work in companies over a period of eight weeks during summer term. The project work is performed under close guidance of a company project supervisor and Skoltech project supervisor. Following the end of the industrial immersion students should fill in the on-line report form and submit it via Canvas on the final day of the immersion. The report is approved by company project supervisor and Skoltech project supervisor.	70

Assignment Type	Assignment Summary	% of Final Course Grade
Poster	Together with individual report students should also submit individual/team project posters via Canvas. A poster comprises the following sections: 1)Project title; 2)Background of the Project Task; 3)Objectives; 4)Process; 5)Results; 6)Conclusions. Poster template is provided and should be used as mandatory to ensure a better visibility of all posters exhibited at the Industry Day.	20
Other	All students should attend Skoltech Industry Day, exhibit their posters at a poster session and answer questions. The poster should be provisionally approved by company project supervisor and Skoltech project supervisor.	10

6. Assessment Criteria

Assignment 1 Type

Projects

Sample of Assignment 1

More details are provided in LMS - Canvas.

Or Upload Sample of Assignment 1

Sample of Assignment 1

Assessment Criteria for Assignment 1

The project is fully completed as per the task set by the company, the expected results are achieved. The report is submitted by a student in Canvas on time. The report is approved by company project leader and Skoltech Supervisor as Pass/Fail.

The report consists of three sections:
1. Describe what you have accomplished (be specific) and the progress made toward the objective/goal
2. Describe any significant problems you faced and solutions found. If a project took a different course and your tasks/goals changed (from initially planned), describe why
3. Summarize the outcomes of the project for the company (how the results can be used/implemented).

Criteria for the PASS assessment:
1. realization of project diligently and in accordance with company's requirements;

2. results meet the planned objective considering the industrial environment and constraints.

Assignment 2 Type

Other

Sample of Assignment 2

Poster. More details are provided in LMS - Canvas.

Sample of Assignment 2

Poster is created against the template and submitted via Canvas. The poster is approved by Company project leader and Skoltech Supervisor. Quality check includes 1.complience of the presented information with the actual work peformed; 2. Structuring of information and formatting of text as per the template - text is clear and to the point; 3. Effective use of graphics, color and fonts; 4.Content is in accordance with the structure of the poster template.

Assignment 3 Type

Other

Sample of Assignment 3

Participation in Industry Day

Assessment Criteria for Assignment 3

Students attend Skoltech Industry Day, exhibit posters at a poster session and answer questions about the project implementation and results.

7. Textbooks and Internet Resources

You can request at most two required textbooks. Additionaly, you can suggest up to nine recommended textbooks.

Required Textbooks	ISBN-13 (or ISBN-10)
Product design and Development, Karl T. Ulrich, Eppinger, fifth edition.	9780073404776

Recommended Textbooks	ISBN-13 (or ISBN-10)
Technology Entrepreneurship: Taking Innovation to the Marketplace Thomas N. Duening, Robert A. Hisrich and Michael A. Lechter.	9780124201750
Lean Customer Development: Building Products Your Customers Will Buy, Cindy Alvarez.	9781492023746

Web-resources (links)	Description
https://skoltech.instructure.com/courses/2030/pages/career-handbook	Industrial Career Handbook in Canvas to look for CV guidelines
https://www.indeed.com/career-advice/resumes-cover-letters?from=careeradvice-US	Resume writing online Guide

8. Facilities

Software
Provided by a host company if necessary

Equipment
Provided by a host company

9. Additional Notes

Comments

- Short list of companies and projects is prepared by Skoltech and offered to students;
- Proposal for internship project with a curtain company can arrive directly from a student but the project needs to be approved by Skoltech;
- Best industrial immersion project is selected by each Program and awarded at the Conference Skoltech Industry Day:

Overall criteria:
- Industrial component is clearly presented
- Industrial application of the project findings is apparent
- Positive/exceptional feedback of the host company
- Results clearly met or exceeded the planned objectives

Poster:
- Context section provides appropriate perspective/background for the subject
- Objectives are clearly stated
- Process described is accurate and transparent.
- Objectives are met/addressed
- Clarity of presentation. Referencing tables, graphs etc. are well arranged

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