

Раздел 2. Научная коммуникация. Module 2. Scientific Communication

ПР09. Предоставление исследовательского проекта. Форма заполнения заявки с описанием исследовательского проекта.

ПР09. Submitting a research proposal. Application form with a description of the research project.

Exercise 1. Read the following extract from a website. Your colleague has decided to apply to SARF and has downloaded an application form. Look at the list of sections on the form (1-10) below and match each one to your colleague's notes on the information she needs to provide.

The Sheridan Australian Research Fellowship (SARF) aims to develop science in Australia by attracting outstanding scientists in their field to continue their research in an Australian university or research institution. SARF fellowships are awarded to individual scientists with future potential for leadership in their field. Successful applicants receive a 5-year grant covering salary, travel and relocation costs.

1. Applicant	a) an explanation of how I'll do the research and why it is important
2. Current appointment and address	b) a short description of what I'll research
3. Location of proposed study	c) a statement from a senior researcher explaining why I'm a suitable applicant
4. Sponsor's recommendation	d) how much I plan to spend on my research
5. Departmental support	e) the job I do now
6. Project title	f) the name of someone to support my application
7. Project summary	g) what I'll call my research
8. Details of proposed research	h) permission from my head of faculty to use his/her resources
9. Budget	i) where I plan to study
10. Nominated referee with personal knowledge of applicant	j) my personal info

ПР10. Предоставление исследовательского проекта. Варианты исследовательских проектов и их особенности в современном сообществе.

ПР10. Submitting a research proposal. Types of research projects and their features in the modern community.

Exercise 2. Match each highlighted section in the projects summary (A – F) to the correct function (1 – 6) from the list below.

PROJECT SUMMARY

Provide a brief summary of aims, significance and expected outcomes of the research plan

A 3-D odour-compass for odour-detecting robots

Odour-sensing robots offer many benefits over the current use of animals in similar roles, including safety, efficiency and durability. [A] However, the robots which have been developed to date are limited by the fact that they can only accurately detect and navigate towards odour plumes if they are within direct 'sight' of the chemical source. Clearly, in real world situations, obstacles may well impede the robot's detection ability, and at present, odour-sensing robots are therefore only of limited use. [B] The proposed research will concentrate on developing a robot which is able to gather readings in three dimensions and therefore overcome the limitations of current models in odour-detection. [C] This technology will make robots a more effective substitute for animals.

[D] This research aims to develop existing robotic technology to create a three-dimensional (3-D) odour compass to be used as a navigation tool in searching for an odour source. [E] This will then be tested experimentally in simulated environments where wind direction is not stable or where obstacles interfere with odour distribution. A second stage in the research will be to develop the robot's environmental sensors, thus allowing it to safely negotiate the terrain to reach the source of the odour. [F] This should produce a robot which is able to both detect and move to the source of an odour, even on difficult terrain.

1. State the aims of your research.
2. Define what the problem is.
3. Explain why your topic is worth researching.
4. Say what the expected outcomes of the research are.
5. Outline the procedures you will follow.
6. Outline how you will limit your investigation.

Exercise 3. Complete another project summary using the following correct word or phrase:

aims to	however	the initial phase
the proposed research	the study	will indicate

Consumer interest in wines produced in organic vineyards has increased significantly in the last few years (1) _____, to date it is unclear whether these production methods actually improve soil or grape quality. (2) _____ will be the first phase of a long-term study on a New Zealand vineyard. These results (3) _____ whether methods of viticulture improve grape quality.

The research (4) _____ investigate the effects of organic agriculture on soil and grape quality. (5) _____ will consist of two treatments, organic and conventional (the control), each replicated four times in a randomised, complete block design. All organic practices will follow the standards set out by the Food Standards Australia New Zealand (FSANZ).

_____ (6) will assess soil quality using physical, chemical and biological indicators over six years. The next phase will then assess the physiology of the vines.

Exercise 4. Match a sentence (a – e) below to the correct paragraph (1 – 5) of the full project summary.

NSF GRANT PROPOSAL FOR STABILIZATION AND OPTIMAL CONTROL OF DYNAMIC SHELL MODELS

[1] _____ We intend to investigate problems related to stabilisation and optimal control of dynamic shell models where control actions and sensing are put into place via smart materials technology.

[2] _____ The principle model considered in this proposal is a three-dimensional structural acoustic interaction with curved walls, which is modeled by shell equations. This model occurs in the context of decreasing noise or pressure entering an acoustic chamber (e.g. airplane's cabin) and generated by an exterior source.

[3] _____ Thus mathematical investigation related to control problems of shell equations is challenging from a mathematical point of view and calls for the introduction of new tools and new techniques for the analysis and computations connected to the problem.

[4] _____ Two approaches will be considered. First, piezoelectric shell's modeling tracked by past researchers and a second centre on piezoelectric patches attached to the curved wall. These approaches will result in two different control models. Rigorous mathematical analysis of the problem, including comparative analysis, followed by numerical computations and experimental verification of the models will represent the essential part of the project.

[5] _____ Thus we wish to combine the teams' expertise to generate results leading to progress in the field.

a) Both teams for this project already have knowledge in various features of the problems described.

b) However there are very few outcomes and the methods that were developed have broken down.

c) The need for mathematical analysis of shell models is in response to a variety of technological demands, which call for more complex models.

d) This project will focus on stabilization and optimal control, particularly with boundary controls, of systems concerning dynamical shells.

e) We propose to carry out collaborative research between the French National Institute of Computer Science Research and the University of Ottawa in the general area of control theory for models illustrated by partial differential equations (PDEs).