

Deanship of Scientific Research Guidelines for the Institutional Finance Program



Introduction

Research and development is a vital component that helps the Kingdom of Saudi Arabia to achieve its long-term goals. One of the Kingdom's goals, as stated in Vision 2030, is to be among the top 10 countries in the Global Competitiveness Index by 2030, improving its 25th rank in 2015. There are two main components for the global competitiveness index, they are directly related to research and development and the Kingdom of Saudi Arabia can only improve them by increasing its competitive position in research and development. In addition to that, another goal that came in Vision 2030 is to have 5 Saudi universities among the best 200 universities in the world classification. Fulfilling this goal requires the conduct of high-quality research in universities in the Kingdom.

Approved Strategic Research Priorities

1- Psychiatric disorders and mental illness:

Psychiatric disorders and mental illness are two major issues that are widely reported in modern life. The lifestyle and stress in modern life along with genetic make-up and mutations are major causes of these diseases. The risk of these mutation-related disorders is greatly increased by consanguineous marriages, which are very common in Taif city. The biggest and first psychiatrist hospital in the Kingdom and the Gulf countries was established in Taif city. Moreover, the largest and first military psychiatric health centre is located in Taif city. This military hospital also contains a centre for autism.

This research priority will focus on understanding the psychiatric disorders reported in the region in addition to establishing novel therapeutic and medical care strategies for the psychiatric patients. In close collaboration with those specialised governmental hospitals, this research priority makes Taif University a powerful research centre in this field. This research priority will utilise the strength of the basic medicine at Taif University to achieve its main goals. The different departments that are involved in the basic medicine research will be directed to focus on understanding psychiatric disorders from different aspects, such as the genetical and environmental causes. Furthermore, the medical departments will be involved in enhancing current medical care and investigating potential therapeutic strategies for those psychiatric patients. The focus on psychiatric disorders will improve the quality of life for those patients and increase investment in novel medical treatment for these disorders .will be involved in enhancing current medical care and investigating potential therapeutic strategies for those psychiatric patients. The focus on psychiatric disorders will improve the quality of life for those patients and increase investment in novel medical treatment for these disorders.

Activities

1.1 Defining molecular and biological changes associated with psychiatric disorders and mental illness.

(Success will be measured by the number of publications, related to the activity, in Scopus indexed journals.).

1.2 Identifying the different causes of psychiatric disorders and mental illness.

(Success will be measured by the number of publications, related to the activity, in Scopus indexed journals.).

1.3 Innovative health and medical care strategies.

(Success will be measured by the number of publications, related to the activity, in Scopus indexed journals and the number of patents.)

1.4 Developing efficient drugs and therapies.

(Success will be measured by the number of publications, related to the activity, in Scopus indexed journals and the number of patents.)

1.5 One of the main problems with the research environment at Taif University is the lack of research staff. This activity will provide at least 10 postdoctoral researchers, 10 technicians, and research assistants. By increasing the research staff, we aim to enhance the quality of the publications and to target the top 10% of journals.

(Success will be measured by the number of research staff recruited).

2- High altitude:

High-altitude areas represent more than 18% of the total area of Saudi Arabia and more than 10% of the Kingdom's population live in these areas. These areas are among the most diverse in the Kingdom in terms of the environment, geographical characteristics and living conditions, making it a fertile and attractive area for researchers interested in the research of high-populated areas in altitude. It is an important tourist destination for the people of the Kingdom and the Gulf States as well as the visitors to Holy Makkah and Madinah.

It is scientifically proven that hypoxia in altitude has an effect on psychological changes as well as on the functions of vital organs in the human body. Taif University is establishing an altitude simulator unit through the establishment of advanced laboratories to control the pressure and oxygen percentage, which will have a great impact for those suffering from high altitude disturbances as well as those who wish to join a civil aviation or military aviation crew. In addition to the basic medicine research, environmental research is a priority for Taif University and includes agriculture and animal research.

It is worth mentioning that the global centers for altitude research are very limited globally. Moreover, there is no prestigious academic research authority specialized in altitude research in the gulf countries except in Taif University. The research strengths of Taif University are basic medicine and Chemistry research as mentioned in the previous part. We are aiming to direct our strengths toward achieving a distinctive level in altitude research, which will make us a reference in this field in the near future.

Activities

2.1 Defining molecular and biological changes associated with different altitudes. Moreover, this activity provides a controlled low-oxygen environment, which offers a unique training opportunity for athletes and flight crew, and a medical service for those suffering from altitude sickness.

[The success will be measured by the number of people and organisations served by the facility and by the number of

publications related to the activity in Scopus indexed journals, as well as by the number of patents.]

2.2 Field experiments will be conducted on private local farms in Taif city to investigate different modern techniques to increase the productivity of local crops and increase their yields using special fertilisation processes.

The optimum environmental condition, maximising the productivity of local crops, will be investigated in this activity also. In addition, an extensive investigation will focus on finding better and environmentally friendly solutions to fight field crop pests.

[The success will be measured by the number of people and organisations served by the facility and by the number of publications related to the activity in Scopus indexed journals, as well as by the number of patents.]

2.3 One of the main problems with the research environment at Taif University is the lack of research staff. This activity will provide at least 10 postdoctoral researchers, 10 technicians, and research assistants. By increasing the research staff, we aim to enhance the quality of the publications and to target the top 10% of journals.

(Success will be measured by the number of research staff recruited.)

3- Nanotechnology for Waste Management:

Nanotechnology has emerged as an effective and economic technology for boosting the properties of materials. The main target of this research priority is to direct the knowledge of nanotechnology applications at Taif University to derive innovations and discoveries

in the various disciplinary strengths. This research priority will mainly focus on the following:

- a. Sustainable waste management through converting waste by-products to valuable nanomaterials for energy production applications.
- b. Sustainable water treatment and manufacturing of economic and efficient filters from plastic waste and polymeric by-products.

Activities

3.1 To convert the waste products to economic and useful products that could be involved in different applications. For example:

- a. Improve the carbeneous materials' properties in flyash to be integrated into hydrogen production.
- b. Extract useful nanomaterials from sulphuric spent, which could be integrated into the perovskite solar cells.
- c. Integrated waste plastic in nanomaterials for light absorption and energy production.

(Success will be measured by the number of publications in Scopus indexed journals, the number of patents and the number of collaborations with national and international partners.).

3.2 To manufacture advanced water nanofilters for large-scale use in industry, improve the agriculture waste water quality and enhance the ground water quality by removing contaminants such as heavy metals and salinity.

(Success will be measured by the number of publications in Scopus indexed journals, the number of patents and the number of collaborations with national and international partners.).

3.3 One of the main problems with the research environment at Taif University is the lack of research staff. This activity will provide at least 10 postdoctoral researchers, 10 technicians, and research assistants. By increasing the research staff, we aim to enhance the quality of the publications and to target the top 10% of journals.

(Success will be measured by the number of research staff recruited.).

4- Taif roses:

Taif roses are unique roses that do not exist anywhere except in Taif city. They possess special features and characteristics. They are being used currently for multiple purposes, such as manufacturing perfumes. The ways of manufacturing and investment in these roses are traditional and do not follow scientific principles. This research priority will focus on developing the agriculture of Taif roses and boosting the extraction of their oil to be used for multiple purposes. The activities that will be associated with this priority are as follows:

- a. Increasing the productivity of flowers and oil (yield and quality) of *Rosa damascena* Miller var. *trigintipetala* Dieck.
- b. Extraction of essential oil from Taif roses and other plants from Taif city and KSA.
- c. Recycling of wetted waste of Taif roses to obtain economic products.

Activities

4.1 Field experiments will be conducted on private local farms in Taif city to investigate different modern techniques to increase the productivity of roses and increase their oil yield using special fertilisation processes and proper pruning methods.

The optimum environmental conditions to maximise the productivity of flowers and oil yield will be investigated in this activity also. Moreover, extensive investigation will focus on the physiological and biochemical mechanisms that have been linked to decreased flowering in Taif roses.

(Success will be measured by the number of publications in Scopus indexed journals, the number of patents and the number of collaborations with national and international partners.).

4.2 Enhance the production of Taif roses by producing 'NEW PRODUCTS', such as food oil, cosmetics, perfumes and antioxidants, design industrial devices that can be used for oil extraction and implement new technologies to improve extraction performance so that it costs less and is better for the environment.

(Success will be measured by the number of publications in Scopus indexed journals, the number of patents and the number of collaborations with national and international partners).

4.3 Searching for a way to use the waste of the Taif roses industry to obtain economic products. New technologies and techniques will be investigated and proposed.

(Success will be measured by the number of publications in Scopus indexed journals, the number of patents and the number of collaborations with national and international partners.).

4.4 One of the main problems with the research environment at Taif University is the lack of research staff. This activity will provide at least 10 postdoctoral researchers, 10 technicians, and research assistants. By increasing the research staff, we aim to enhance the quality of the publications and to target the top 10% of journals.

(Success will be measured by the number of research staff recruited.).

5- Research support services:

This priority will focus on improving the quality of research production. It will provide all researchers with necessary support regarding language editing and proofreading, statistical analysis, patent registration, and publication awards. This overlaps with all aforementioned priorities. Language editing and proofreading are essential for non-native English speakers. Furthermore, professional statistical support is vital for all researchers. Patent registration support is a fundamental service that guides researchers to register their innovative discoveries and market

these products. Moreover, Taif University will use the strategic fund from the Ministry to encourage researchers to publish their work in the top 10% journals to increase its number of published works.

Activities

5.1 Language editing and proofreading services are essential for manuscripts written by non-native English scientists. By providing these services, the manuscripts written by the scientists at Taif University should have a better chance of being accepted for publication in the top of 10% journals. The success of these services will be measured using the number of manuscripts accepted for publication.

5.2 Researchers often make mistakes when performing statistical analysis, resulting in reduced research quality and validity. These services will address this problem to enhance the quality of publications produced by researchers at Taif University. The success of these services will be measured by the number of manuscripts accepted for publication in the top 10% of journals.

5.3 At present, there is no support service for patent registration. As a result, the number of patents registered under Taif University is very low. This service will address this problem, and its success will be measured by the number of patents registered through this activity.

5.4 This activity will aim to increase the number of publications in the top 10% of journals. The success will be measured by the number of publications in the top 10% of journals.



Institutional Finance Program (1):

Submission mechanism and controls:

1- Submission will be made available through the research system to researchers in the period from the sixth of July, 2020 AD to the sixth of August, 2020 AD.

2- Each faculty member (Assistant Professor, Associate Professor, Professor) is allowed to participate in a maximum of two groups, whether as a group leader or an associate researcher.

3- The group consists of a minimum of three researchers (including the head of the group) to a maximum of five researchers (including the head of the group).

4- A minimum of three researchers must be from Taif University, and a maximum of two researchers from outside the university can be added, provided that they belong to an international university that belongs to the best 200 international universities according to the Shanghai International Classification. Subject to bringing an official signed letter from the international researcher agreeing to participate in the research project.

5- The group leader must have published four previous research in journals with classification and impact factor in the Web of Science ISI databases, provided that one of them is on the list as a first researcher in a journal ranked Q1 in the same database. The information related to this must be attached to the research system.

6- The research groups that passed the external message and arbitration are supported by an amount of 500,000 Saudi riyals.

outputs:

1- A scientific paper in the English language in a journal ranked Q1 and is among the best 10% of the journals in the speciality according to the Web of Science ISI classification.

2- A scientific paper in the English language in a journal rated Q1 according to the classification of Web of Science ISI. This paper can be replaced by a patent registered in the name of the lead researcher and Taif University.

3- A scientific paper in the English language in a journal classified Q2 according to the classification of Web of Science ISI.

Institutional Finance Program (2):

Submission mechanism and controls:

1- Submission will be made available through the research system to researchers in the period from the first to the fifteenth of July, 2021 AD.

2- The head of the group must have published four previous research in journals with classification and impact factor in the Web of Science ISI databases, provided that one of them should be a first researcher in a journal classified Q1 in the same database. The information related to this must be attached to the research system.

3- The researcher (as president or co-chair) is allowed to participate in a total of four research projects, including participation in the previous institutional funding. Example: If a researcher (as president or co-participant) participated in research groups in the previous institutional funding with one project, he is allowed to participate in this initiative with a number of just 3. If the researcher did not participate in the research groups in the previous institutional funding, he is allowed to participate in this initiative with 4 projects.

- 4- The support for each research group is 50 thousand riyals.
- 5- The number of individuals participating in the research project ranges from 3-5 members. A minimum of three members to a maximum of five members, including the head researcher. 3 members as a minimum from Taif University and 2 from outside the university as a maximum without conditions.
- 6- The duration of the research project is 8 months.

Outputs:

The required scientific output from the research project is an original research paper published in a journal that falls in the Web of Science classification and is classified among the SSCI and SCIE classification indicators.

