



Ministry of Higher Education & Scientific Research
Sirte University
Research & Consultation Center



Research Plan (2024-2029)



University President's Opening Remarks,

In the name of ALLAH, the Most Gracious, the Most Merciful

First and foremost, all praise is due to the almighty ALLAH with wperformed.

The research plan is part of a research activities package which will be undertaken through a series of research papers and studies and research that address the issues and challenges encountering the institutions and the society as a whole.

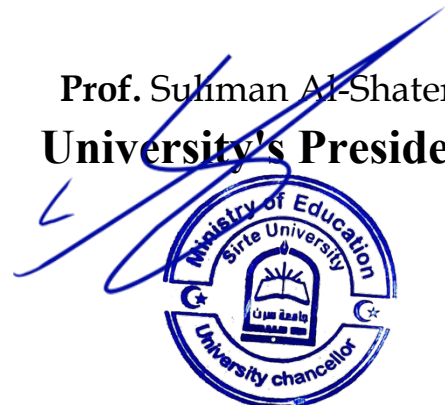
This research plan constitutes a broad outline for the roadmap intended to guide the researchers and faculty members when conducting their research studies. It is expected to help researchers to better see and understand the future by outlining the most prominent and urgent issues which need to be tackled and looked at.

As we introduce our researchers with our five-year research plan for the years 2024-2029, we do hope that it serves as guide for the future in all fields and we also hope that it inspires them to be more productive academically.

Last but not the least, I am so grateful and indebted to everyone who has been involved directly or indirectly in planning and producing this research plan.

Thank you all!

Prof. Suliman Al-Shater
University's President





In the name of ALLAH, the Most Gracious, the Most Merciful

(And that man shall have nothing but what he has striven for)

We would express our gratitude and appreciation for everyone who has taken part in the preparation and production of this plan. Accomplishing this research plan is a major milestone as it paves the way for our research activities in the next five years.

This plan would not be seen the light without the dedication and the will of teamwork. This plan is diverse and inclusive of all disciplines which makes it a strong research plan and it should play a major role in developing and improving the research standards across all disciplines.

This plan also highlights the challenges and the opportunities and it sets out clear vision and strategies to achieve its goals. We will work tirelessly to achieve the research priorities set out in this plan and to reach concrete and tangible outcomes in all research fields and we look forward for a future full of big achievements and outstanding research.

Thank you!

The Research Plan Preparation Committee (2024-2029)



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Introduction

The research plan sets a strategic vision for the next five years. It serves as the first step towards achieving clear research goals and contribute to the development of knowledge and the improvement of life. It also serves as a vision for the implementation of scientific research through collecting research materials and the method of conducting or analysing it.

The planning process of the current research plan has been an exceptional challenge. It required directing ideas, setting priorities and developing strategies. This research plan aims to identify the key objectives for the activities of scientific research and development. During this period, these objectives are the target for effective and sustainable research implementation through ongoing collaborations with relevant internal and external entities.

It is needless to say that achieving such objectives requires the dedication and great effort from all parties involved. However, reaching out for these objectives is believed to significantly contribute to knowledge developments and innovations. Moreover, these objectives should set clear and tangible steps for scientific research that aims to fulfill the broader aims of the faculties and the university as whole.

We are very much looking forward to implementing the current research plan by working diligently to achieve the stated objectives which would, hopefully, contribute to the progress and the prosperity of the society.



About the University.



Sirte University was founded in 1989 and it is now regarded as one of the prominent academic institutions in Libya. The university, since its foundation, has been constantly expanding, with the establishment of new colleges, departments, and centers. The students, faculty members and staff have also hugely increased as a result.. The university currently includes (14) colleges with a total number of 7025 full and part-time students. The faculty members number currently stands at around 658 Libyan and non-Libyan full and part-time faculty members. The university has eight centers in various specialties. Moreover, in addition to its undergraduate programs in many fields, the university currently have 40 postgraduate programs in various majors with a total of 449 students. As for the scientific publications, the university have 9 scientific journals in various disciplines and issued by different centers and colleges.



University Faculties and Centers

Faculties	Centres
1. Faculty of Law	1. Research and Consultation Center
2. Faculty of Agriculture	
3. Faculty of Economics	2. Information and Documentation Center
4. Faculty of Engineering	
5. Faculty of Education	
6. Faculty of Human Medicine	3. Community Services and Environmental Development Center
7. Faculty of Oral and Dental Medicine and Surgery	
8. Faculty of Information Technology	
9. Faculty of Science	4. Leadership and Innovation Center
10. Faculty of Arts	
11. Faculty of Health Sciences	5. Academic Center for Future Studies
12. Faculty of Humanities and Applied Sciences (Ehrawa campus)	6. Languages Center
13. Faculty of Arts and Sciences (Zamzam campus)	7. E-Learning Center
14. Faculty of Energy and Mining Engineering (Murada campus)	8. Renewable Energies Research Centre



Objectives:

A thorough review of the common needs and challenges encountering society, science and technology, and directing efforts and investments toward areas that require development and innovation. This should lead to progress in various economic, social, and environmental aspects. Moreover, supporting researchers' independence in establishing a suitable research environment that promotes sustainable development in various academic and research areas.

Vision:

Investing in research areas that addresses the issues within the community in order to come up with practical solutions and recommendations. It also aims to enhance scientific enrichment in various disciplines in the university and equip the departments with the facilities needed to conduct research. Moreover, our vision is also focused on improving research which would serve the wider community.

Mission:

The present research plan is set to achieve, from amongst others, the following objectives:

- Enhancing the scientific research culture.
- Identifying and highlighting the most prominent issues the next five years.
- Prioritizing the most urgent issues and directing research investment towards such issues.
- Expanding collaborations and building partnership between the university and local and national institutions in order to address the most urgent issues which need research.
- Promoting and raising awareness of the culture of publications in journals and supporting innovation and invention.
- Expanding the faculty members' volume of publications in local, national and international journals which in turn may help in increasing the university's global reputation and its national and international ranking.

The concept of research priorities

Research priorities refer to areas that researchers are interested in and prioritize for conducting scientific research. Research priorities are based on the needs of the community in order to make advancement in the current science and technology. Identifying research priorities can facilitate efforts and resources for fields that require greater attention. This can contribute to solving specific issues or providing practical benefits for the society. Furthermore, it helps in determining the directions of development in certain fields and in providing tangible contributions to scientific knowledge. In addition, it can guide research and studies that are conducted in specific fields. These fields may cover both main specialization and any related sub-specialization that represents primary areas of scientific interest during a specific period. This ensures that these fields of study receive the most attention to address the emerging needs of society, or to address urgent crises that face the community.

Basic criterion used for identifying research priorities

The research priorities, in the current research plan, were identified based on the following criterion:

- Responding to the needs which means identifying issues and challenges that require solutions.
- Incorporating technological advancements with research in order to open up new horizons for development and innovations.
- Directing research to address the urgent needs of the community.
- Identifying the research areas that require collaboration.
- Giving priority to research that promotes sustainability in various fields such as environment, economy others.
- Changes in governmental policies or legislation can steer research towards certain topics.
- Highlighting the research areas that can benefit industries and other sectors.
- Conducting research in areas that are eligible for the available funding and investment.



- Aligning the research plan with the university's broader objectives and vision and prioritizing the most important and urgent issues.
- Striking a balance in the diversity of research across all disciplines.
- Creating networking and group work between faculties and the research centers.

Research ethics

Research ethics are part and parcel of any piece of research. Therefore, all researchers are expected and required to follow and preserve the research ethics. If the researcher fails to follow these ethics, s/he will put his/her credibility and integrity into questioning. Being aware of the importance of the research ethics, our research plan has outlined some the research ethics which should all researchers follow and preserve when conducting any type of research. These research ethics can be summarized as follows:

- Transparency.
- Objectivity.
- Scientific integrity.
- Legitimacy and compliance with law and norms.
- Respecting the efforts of others and their intellectual property.
- The source of citation should be made clear, and to ensure that the extent of the citation is understood without any ambiguity or confusion.

In this regard, it should be noted that Sirte University has adopted a code of ethics approved by the university's board of directors in 2023.

Programs included in the research plan

The research plan includes:

- Undergraduate graduation projects.
- Master's dissertations and doctoral theses.
- Textbooks.
- Research papers in conferences and academic journals.
- Encyclopedias and dictionaries.
- Funded research projects.



Sources of data collection and the methodology employed for planning the research plan

The research plan process has gone through several stages where the adopted approach was based on seeking expertise of individuals and institutions on their views of research priorities.

First:

Collecting data through the consultation of faculties by seeking their views on the most urgent and prominent issues which need to be researched and investigated.

Second:

Consulting the various public sectors within the city of Sirte for their views on the issues that require attention and research.

Third:

Reviewing similar strategic research plans in the national, regional and international universities and institutions.

Fourth:

Reviewing previous research plans and assessing their weakness and strength.

Fifth:

All research proposals from the university faculties and centers should be classified, assessed before receiving any funding.

Sixth:

The research plan must be approved by the university board of directors before making it public to university faculty members and to other relevant public and private sectors.



Fields of the Research Plan

First: Field of Medical Sciences.

1. Medicine.
2. Dentistry.
3. Health Sciences.

Second: Field of Applied Sciences.

1. Engineering Science.
2. Basic Science.
3. Agricultural Science.
4. Computer and Information Technology.

Third: Field of Human Sciences.

1. Humanities and Social Sciences.
2. Educational Sciences.
3. Economic and Administration Sciences.
4. Sharia and Law.

Fourth: Field of Renewable Energies.

Fifth: Field of Business Development and Creativity.

Sixth: Field of Future Studies.

Seventh: Field of Multiple Means of Education.

Eighth: Field of Community Service and Community Partnership.

1. Environment and Social Development.
2. Human Resources Development.
3. Labor, Rehabilitation and Training.
4. Culture
5. Weather and Climate
6. Food and Drug Administration.

First: Field of Medicine

1. Faculty of Medicine:

Responsible for Implementation	Department	Priority areas of research
Faculty of Medicine	Department of Pediatric	<ul style="list-style-type: none"> • Early detection of congenital Hypothyroidism in newborns. • Short and long-term complications of type 1 diabetes mellitus (insulin-dependent diabetes mellitus).
	Neurology Department	<ul style="list-style-type: none"> • Brain injury statistics and comparing conservative treatment with surgical treatment. • Statistics of spinal cord injury and comparing conservative treatment with surgical treatment. • Congenital malformation of the nervous system and surgical intervention results. • Interventional pain management (Radiofrequency treatment).
	Department of Internal Medicine	<ul style="list-style-type: none"> • complications of type 2 diabetes mellitus (non-insulin-dependent diabetes mellitus). • The prevalence of blood diseases in Libyan society. • Therapeutic catheterization
	Department of Pathology	<ul style="list-style-type: none"> • Genetic factors affecting the incidence of cancer and the prevalence in the human body. (Study cancer cases in Sirte). • Hepatitis and HIV case
	Department of Family & Community	<ul style="list-style-type: none"> • Environmental pollution and diseases caused. • The impact of some industries on public health. • Maternal and child health. • A study to identify the associated factors with abnormalities in normal pregnancy and to identify pregnancy risks on fetus. • Maternal and child nutrition, anemia and childhood obes
	Department of Biochemistry	<ul style="list-style-type: none"> • Vitamin D receptors and their relationship with vitamin D deficiency in North Africa. • Amyloidosis and biochemical consequences at the molecular level

2-Faculty of Dentistry

Responsible for Implementation	Department	Priority areas of research
Faculty of Dentistry & Oral Surgery	Department of Dentistry	<ul style="list-style-type: none"> Evaluate the effectiveness of oral health programs in schools. The effectiveness of oral diseases prevention in Libya. The factors beyond dental and oral diseases. Study and evaluate the methods used for treating dental problems

3-Faculty of Health Science

Responsible for Implementation	Department	Priority areas of research
Faculty of Health Science	Department of Intensive Care & Anaesthesia	<ul style="list-style-type: none"> anaesthesia for caesarean delivery. Out-of-hospital cohort treatment for coronavirus patients.
	Department of Diagnostic & Therapeutic Radiology	<ul style="list-style-type: none"> The role of triple phase computed tomography in characterization of hepatic lesions. The role of high-resolution computed tomography in lung nodules
	Department of Pharmaceutical Science	<ul style="list-style-type: none"> Analysis and discover plants derived bioactive compounds, their anti-cancer affects as an alternative treatment strategy for breast-cancer. Determine the medicinal plants and bioactive compounds used in the treatment of diabetes
	Department of Dental Technology	<ul style="list-style-type: none"> Innovation in CAD/CAM technology in the dental industry. Comparison between acrylic and flexible partial dentures.
	Department of Medical Laboratory	<ul style="list-style-type: none"> Hypoalbuminemia in renal failure. Microbial contamination associated with mobile phone used by the students at medical colleges

Second: Field of Applied Science

1. Faculty of Engineering

Responsible for Implementation	Department	Priority areas of research
Faculty of Engineering	Department of Power Electrical & Electronic Engineering.	<ul style="list-style-type: none"> • Development for electrical feeding systems. • Design a smart electrical system to rationalize electrical energy consumption. • Enhancing the use of fiber-optic communication in data transmission. • Developing mobile network services. • Developing wireless communication network technology
	Department of Mechanical Engineering	<ul style="list-style-type: none"> • Developing fluid dynamic and turbomachinery research. • Improving power plant efficiency and eliminating waste-to-energy. • Microstructure of granular materials under stress and strain. • Evaluating corrosion in industrial facility and oil and water pipelines. • The effect of mechanical vibration on the industrial facility. • Modern techniques and methods in Engineering education. • Advanced quality control techniques for manufacturing. • Design a controlled system in air-conditioning and refrigeration systems. <p>Mechanical</p>
	Department of Chemical Engineering	<ul style="list-style-type: none"> • Groundwater pollution. • Bioremediation of hydrocarbon contaminated soil due to leakage in gas station. • Applications of nanotechnology. • Analytical and applied research on reactors and mass strain. • Applied research on control systems in industrial companies. • Household waste recycling. • Biological wastewater treatment

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Responsible for Implementation	Department	Priority areas of research
Faculty of Engineering	Department of Civil & Architectural Engineering	<ul style="list-style-type: none"> • The influence of foundation on soil behavior. • Stress concentration on soil. • Low cost housing innovations in construction. • Facilities damage inspection. • Thermal analysis of rebar alternatives. • Strengthening steel structures and bridges with carbon fiber. • Recycling and reuse of road construction waste • The pros and cons of vertical and horizontal housing in the city of Sirte: environmental and social impacts. • waste. • The impact of random construction on the urban environment of the city of Sirte. • Assessment of fire-prone buildings with low cost solutions
	Department of Petroleum Engineering	<ul style="list-style-type: none"> • Nanotechnology in energy sector. • Exploration, production and development in oil and gas industry. • Expanding research on oil extraction from shale oil. • Crude oil transportation and storage. • Applications of artificial intelligence in the oil and gas industry. • Prediction of oil and gas reservoir. • Modern reservoir management application

2. Faculty of Science

Responsible for Implementation	Department	Priority areas of research
Faculty of Science	Department of Biology & Biotechnology	<ul style="list-style-type: none"> Expand a research of biological pollution. Determine the impact of microbes on the environment. Expand a research on animal tissue culture. Identifying common plant diseases in the region. Evaluating the influence of antibiotics in community pharmacies and medical centers. Conducting a scientific research in identification of wild plant in the area.
	Department of Physics	<ul style="list-style-type: none"> Development of high-efficiency photovoltaic and solar-cell. Advancement of fuel cells, renewable energy and electronic technology. A study of physical and magnetic properties of the new compounds. The use of nanotechnology in electrical conductivity. Global warming phenomenon: definition and solutions.
	Department of Chemistry	<ul style="list-style-type: none"> Producing nanomaterials for various applications. Preparation of environmental-friendly polymers. Extraction of natural products in industry Determination of some heavy metals in the environment. Health benefits of industrial products
	Department of Mathematics	<ul style="list-style-type: none"> The use of mathematical modelling: application in medicine, physics and engineering. Digital analytics research. Developing research in mathematics and statistics education

3. Agricultural sciences

Responsible for Implementation	Department	Priority areas of research
Faculty of Agriculture	Department of Soil	<ul style="list-style-type: none"> Evaluate the quality of groundwater in Sirte, its suitability for irrigation using the irrigation quality index, and free from pollution. Using nanotechnology in agricultural fertilization processes as an alternative to traditional fertilizers.
	Department of Animal Production & Veterinary Medicine	<ul style="list-style-type: none"> The effect of nutrition using different protein systems on the efficiency of egg production in chicken barns in the city of Sirte. The effect of heat during the summer on the productive performance of cows at the station of cow in the Man-Made River Project in the Central Region. The effect of injecting different levels of arginine on some biochemical characteristics of the blood of local Billy- goats in the city of Sirte. The effect of using the magnetic and normal water on the productive traits of meat hens.
	Department of Plant Production	<ul style="list-style-type: none"> Study the nitrogen deficiency in barley plants and how to treat it. The effect of nanotechnology in improving the crop production. The effect of salts stress on barley and wheat. A field study on insect pests that affect fruit orchids. Controlling intrusive weeds that invade field crops.
	Department of Agricultural Economics	<ul style="list-style-type: none"> Economic and productive efficiency of producing fodder crops and vegetable crops in the city of Sirte. Economic efficiency of producing olive crops in Sirte. The economic return of oat crop production in Sirte. Evaluating the consumption pattern of red and white meat in Sirte. Economic efficiency of producing honey in Sirte.

4. Computer and Information Technology

Responsible for Implementation	Department	Priority areas of research
Faculty of Computer & Information Technology	Department of Information Technology	<ul style="list-style-type: none"> Artificial Intelligence Techniques and its applications. Digital Transformation of eLearning systems. Information systems and electronic management.
	Department of Software Construction & Development	<ul style="list-style-type: none"> Designing software solution in various practical (applied) filed. Expanding of the basic research in Programming Languages
	Department of Communication & Internet	<ul style="list-style-type: none"> Data transmission security in national networks and protection against computer crimes Develop computer networks in various administrations. Evaluating and developing the calculating methodologies for the cost of telecommunications and Internet services.

Third: Field of Human sciences

1- Humanities and social science

Responsible for Implementation	Department	Priority areas of research
Faculty of Arts	Department of Islamic Studies	<ul style="list-style-type: none"> Contemporary thoughts issues Contemporary Jurisprudence issues Curricula and biography of Islamic figures
	Department of Geography	<ul style="list-style-type: none"> Urban growth and its impact on urban expansion trends. Solid waste and its impact on the environment Elements of the natural environment and their impact on human activities.
	Department of English	<ul style="list-style-type: none"> Learning and teaching English language. Corpus Analysis of spoken and written text. Translating reference and textbooks from English to Arabic and vice versa. E-learning technology: its role and importance in teaching the English language. Comparative linguistic analysis between the Arabic language and the English language. Translating major Arabic writers (Playwrights, novelists, short story writers, and critics).

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Responsible for Implementation	Department	Priority areas of research
Faculty of Arts	Department of Philosophy	<ul style="list-style-type: none"> • Teaching philosophy between reluctance and tendencies. • Philosophy and scientific and technological development. • Ethics of science and scientific practice. • Reading in cultural heritage and an impact on contemporary Arab thought • Critical discourse in contemporary Arab thought. • Question and philosophical criticism and its relationship to contemporary human society's issues.
	Department of Sociology and Community Services	<ul style="list-style-type: none"> • Divorce phenomena in the local society (SIRTE) • Manifestations of disintegration in the social fabric. • Social values and determinants of behavior formation in school students. • The impact of the social connectivity satellite on the reality of the Libyan family. • The impact of social changes on family life. • Minor marriage (trends towards it causes and effects. • Community values and early marriage. • Social networking sites and their impact on the culture of appearance consumption on university youth. • Family verbal violence from the sociological perspective of the family environment and its relationship to youth trends. • The reality of cyberbullying in university youth • Difficulties faced by students in preparing the graduation project from the teaching staff's point of view. • The role of SMEs in social and economic development in a study on SME owners in the city of Sirte. • Health services and their impact on the patient's satisfaction. • Psychology of magic.

2. Educational Sciences

Responsible for Implementation	Department	Priority areas of rese
Faculty of Education	Department of Chemistry	<ul style="list-style-type: none"> • Estimate heavy elements in drinking water samples in Sirte using spectral methods. • Determining the extent of groundwater contamination with medicines in the Sirte region. • Estimate mercury component concentration in seaside waters. • Estimate the concentration of some heavy elements in the blood of some smokers. • Measuring air pollution in areas near major roads. • The use of chemical physiological methods to purify the soil from pesticides. • Use chromatography analysis methods to identify water and food contaminant. • Methods for the practical preparation and use of ozone gas for water treatment. • Biological fracking of certain polymers and their relationship to environmental pollution. • Chemical methods used to determine the effects of carcinogens in agricultural crops. • Effects of the use of diagnostic radiation on biological reactions in the human body. • Biosynthesis of some water pollutants. • Problems faced by basic and secondary education teachers in applying modern methods of teaching chemistry from the teacher's point of view. • The impact of the use of educational games on the development of academic achievement in science in basic education students. • Analytical survey of some chemical and physical properties of groundwater in the Sirte Basin. • Food-added hydroxyoloin inhibition rate. • She eats iron using some organic inhibitors. • Calculating the half-life of medications i.e. taking a drug and rapidly degrading this drug in the blood indicates its effective effect.

cont'

Responsible for Implementation	Department	Priority areas of research
Faculty of Education	Department of Computer	<ul style="list-style-type: none"> Using Artificial I applications in education. Try to ind the best methods that can be used in the field of security and confidentiality of information. Optimal use of computer technology in distance learning
	Department of Management & Educational Planning	<ul style="list-style-type: none"> The extent to which the outputs of the faculties of education are appropriate for the labour market in relation to the public education sector. The efficiency of the educational process in the field of special education. Educational supervision and its role in raising teachers' competence.
	Department of Kindergarten	<ul style="list-style-type: none"> Preparation of child-rearing teachers in the light of international standards. Evaluation of child education teachers' training programmes at Libyan universities. Children's learning and education strategies common to kindergarten teachers. The degree to which kindergarten teachers possess the necessary educational skills. Learning strategies that maximize the level of achievement of educational objectives in kindergarten
	Department of Mathematics	<ul style="list-style-type: none"> Matrices in linear reparation and their computer applications. Loops and annular problems. Markov Chains Limited. Cantor Space and Helbert Cube. Garbet's method of solving partial differential equations of the first order. Laurent series. Infinite numerical chain convergence tests. Comparison of numerical integration

cont'

Responsible for Implementation	Department	Priority areas of research
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Faculty of Education</p>	<p style="text-align: center;">Department of Biology</p>	<ul style="list-style-type: none"> • Red lupus disease in Sirte. • Kidneys and their relationship to blood pressure regulation in Sirte. • Study the impact of salinity of irrigation water in the city of Sirte on the germination of some economic plants. • Study the allopathic effect of some plants on the germination and growth of field crops. • Isolate and diagnose pathogenic bacteria from drinking water in the city of Sirte. • The effect of the biological activities of an aqueous extract of Malva parviflora leaves and cockerel custom plant on radish seed germination and cucumber. • Evaluate the levels of electromagnetic waves in residential homes in the city of Sirte. • Assessment of contaminants resulting from the incinerator of medical waste at the Ibn Sina Teaching Hospital.
	<p style="text-align: center;">Department of physics</p>	<ul style="list-style-type: none"> • Detecting the extent of soil contamination in the city of Sirte by nuclear radiation. • Analysis of drinking water in the city of Sirte and its relationship with certain internal diseases. • Installation of plastic materials used in bottling drinking water. • The reasons why students are reluctant to choose a physics major at the university level. • Reasons for the lack of innovation and creativity among physics students at the university level.

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Responsible for Implementation	Department	Priority areas of research
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Faculty of Education</p>	<p>Department of Arabic language</p>	<ul style="list-style-type: none"> ● Spelling weakness for the students at the preparatory and secondary stages. ● The importance of memorizing the Holy Q'oran and its role in improving the level of Arabic students. ● The role of the Arabic language teacher at the primary education stage. ● The role of Arabic language and the proper foundation in education ● The role of technology in building the students at the primary stage. ● The role of the society and environment in building and establishing the student linguistically ● The role of kindergarten's teacher at the foundation stage in establishing the pupils in Arabic language. ● The student (teacher), the reasons behind the weakness of his/her Arabic language and the ways to improve ● The role of educator in building the student (the teacher) ● The role of the educational supervisor on the Arabic language teachers.
	<p>Department of English</p>	<ul style="list-style-type: none"> ● The impact of linguistic variation on sociological realization in English department at higher education. ● A sociolinguistic study of language use and identity among Arabic students in Libya. ● Identifying assessment strategies as used by English language teachers at the university of Sirte. ● The effectiveness of document-based questions in improving the oral cultural competencies of students at the university of Sirte. ● The impact of experiential education on improving the performance of students studying English as a foreign language: <u>Students and teachers' perspectives.</u> ● The difficulties faced by English as a foreign language learner in listening skills in English department at higher education

3- Economy and Administration

Responsible for Implementation	Department	Priority areas of research
Faculty of Economics	Department of Economy	<ul style="list-style-type: none"> • Small/ micro and medium-size projects in economic development. • Electronic banking in dealing with the liquidity crisis. • The general budget deficit and its impact on inflation. • Imbalance in the balance of payments and its impact on Libyan dinar exchange rates. • The environment-friendly economy and its impact on sustainable development. • The role of small and medium-size projects in reducing the unemployment rates. • The impact of removing fuel/lifting subsidies on inflation. • The foreign investment's obstacles in the Libyan economy. • Manufacturing industries drive economic development. • Reviewing the policy of subsidizing basic goods in an effort to counter the smuggling of goods across the borders. • Raising the production capacity of the olive crop as a strategic export-oriented commodity. • The role of tourism investment in creating job opportunities. • Human capital in achieving the goals of sustainable development. • The impact of green economy in achieving the economic growth. • The ways and feasibility of localizing clean energy economically. • The impact of agricultural investment in the economic growth.
	Department of Political Sciences	<ul style="list-style-type: none"> • Political division (its causes and consequences) • The political participation and the peaceful transfer of power. • Constitution and elections. • The achievement of the stability and reconciliation in Libya. • The impact of the illegal immigration on Libya and the region. • The violations of human rights in the current situation of Libya. • The role of the regional neighboring countries in the Libyan issue. • The impact of the foreign intervention on the instability of Libya. • Digital Diplomacy Prospects

cont'

Responsible for Implementation	Department	Priority areas of research
Faculty of Economy	Department of Statistics	<ul style="list-style-type: none"> Insurance awareness culture. The strategies of insurance price. The implementing of cooperative (Takaful) insurance criteria at the Libyan insurance companies. The Mechanisms and constraints of insurance companies in Libya. The factors affecting on the population coverage of health insurance. The electronic forms of the insurance applications. The insurance systems on the deposits to improve the risk management. The role of insurance on supporting the micro/small projects. The impact of population growth on the development of population structure in Libya. The statistical analysis for the obstacles of implementing e-governance programs. The quality of insurance services in the Libyan insurance companies. Using the statistical technique to monitor the quality of services. Using the statistical techniques to assess the education process at the institutions. The policy of implementing the health insurance for individuals. The impact of technical provisions on the financial solvency in the insurance companies.
	Department of Business Management	<ul style="list-style-type: none"> The strategies of Intellectual capital development and human resources management. The governance in managing the institutions of the state. Management of the high education institutions and the problems they face. The impact of management monitor on the evaluating of transparency, integrity, social responsibility and work ethics (occupational/ work ethics and the career ladder. Managing the risks and changes.

cont'

Responsible for Implementation	Department	Priority areas of research
Faculty of Economy	Department of Finance & Banking	<ul style="list-style-type: none"> • The strategies of combatting the financial and administrative corruption. • The ways of avoiding the financial risks. • The mechanisms of encouraging investment in Libya. • The mechanisms of implementing the banking governance standards in the Libyan banks. • The quality of banking services in the Libyan banks. • The tools, the obstacles and risks of the Libyan Islamic banking. • The reality of Libyan financial stock market. • Evaluating the banking monitor systems in the Libyan banks. • The relation between the international finance and the local economy. • The liquidity and the ways to solve it. • The mechanisms and the obstacles of small and medium projects in Libyan. • Basel convention on banking supervision. • The technology of e-banking and its risks. • Electronic commerce. • The prediction model for the financial failure. • Mechanisms to reduce the phenomenon of money-laundering. • The models of financial performance measurement. • Issues of financial and banking legislation.

3. Law and Sharia

Responsible for Implementation	Department	Priority areas of research
Faculty of Law	Department of Private Law	<ul style="list-style-type: none"> • Protect the consumer from the commercial fraud. • The importance and forms of electronic retirement.
	Department of Criminal Law	<ul style="list-style-type: none"> • The impact and forms of electronic crimes • The criminal system, its growth circumstances, its establishing and its problems.
	Department of Islamic Law	<ul style="list-style-type: none"> • Spousal Support/Maintenance and its rules • The rules/ provision of E-divorce
	Department of International Law	<ul style="list-style-type: none"> • Protect the environment in accordance to it scientific importance. • The impact of the corruption at the national and international levels.
	Department of Public law	<ul style="list-style-type: none"> • The importance and the rule of administrative legalization • The problems raised by the constitution in the Libyan reality.

Fourth: Renewable Energy

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • The New and Renewable Energies center • Faculty of Engineering 	<ul style="list-style-type: none"> • Evaluating the situation and the future of new and renewable energies in Libya. • Building, developing and maintaining the renewable energy systems. • Supporting, financing and encouraging the use of the renewable energy systems. • Exploiting the renewable energies and connect them to the electricity network. • Solar energy and its technologies. • Water desalination using solar energy. • Wind energy. • Environment and the possibility to determine the carbon footprint. • Developing water heating systems and applying them to the thermal systems. • Utilizing wind and marine wave energy to produce energy.

Fifth: Business Development and Creativity

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Leadership and Innovation Centre • Faculty of Economics 	<ul style="list-style-type: none"> • Information technology and entrepreneurship strategies. • Challenges and solutions of technology transfer. • The role of business incubators in directing students towards entrepreneurship. • The factors that affect technology transfer. • The relationship between technology transfer, innovation and sustainable development. • Developing a system of business incubators in universities. • Conducting studies in marketing, finance and technical development.

Sixth: Future Studies.

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Academic Centre of Future Studies 	<ul style="list-style-type: none"> • Future planning at various levels of long, medium and short term. • Conducting future studies in both Humanities and Applied Sciences. • Anticipating the future in light of the present data. • Planning to match the workforce to the requirements of the labor market in Libya. • Urban planning in the light of climate change in Libya. • Developing the educational curricula in Libya in a way that it keeps up with the technological development. • Developing teaching methods in light of the uses of artificial intelligence.

Seventh: Learning through Multiple Means.

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • E-Learning Center • Faculty of Information Technology 	<ul style="list-style-type: none"> • Investigating new strategies to improve students' engagement • To investigate the unexpected challenges faced by learners who learn through the Internet. • To examine the effectiveness of play activities in e-learning • Motivating students to learn through online courses. • Access to e-learning platforms for learners who have disabilities. • The impact and effectiveness of e-learning in the digital age. • Quantitative analysis of students' data. • Successful applications and methods used in ICT in e-learning. • The role of e-learning to help undergraduate and post- graduate students acquire scientific research skills.

Eight: Community Services and Partnership

1. Developing Community Services and Environment

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Community Services and Environmental Development Centre • Faculty of Agriculture • Faculty of Education 	<ul style="list-style-type: none"> • Domestic violence. • Drug abuse • Illegal immigrants. • People with special needs. • Mental illness resulting from wars and natural disasters. • Medicine, fertilizers and food pollution. • Investigating the relationship between the agricultural production and market needs in Sirte. • Reinforcing agricultural technology. • Treating water used in irrigation. • Introducing palm weevil and its dangers. • The spread of agricultural pests and their impact on crops. • Overgrazing and its effects on vegetation. • Research related to study some harmful insects (such as bedbugs/lice/ticks). • Investigating the causes behind the spread of leishmaniasis. • Proper handling of organic and inorganic medical waste. • The impact of garbage dumps on humans and environment. • Desertification. • Global warming • Conducting studies related to water pollution.

2. Human Resources Development

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Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Community Services & Environmental Development Centre • Faculty of Education 	<ul style="list-style-type: none"> • Reasons behind low outcomes of public education. • Problems related to educational attainment. • Causes of school violence among high school students. • Reasons behind the low performance of public sector employees. • Investing in education, considering the labor market needs in Sirte. • Highlighting the opportunities available to women to develop their capabilities to be an effective part in society.

3. Labor, Rehabilitation, and Training

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Research & Consultation Centre • Faculty of Education • Faculty of Economics • Faculty of Arts 	<ul style="list-style-type: none"> • Unemployment and the reasons why some job seekers are reluctant to accept some professions. • Irregular employment (illegal immigration) and its impact on the reduction of job opportunities available for national workers in the city. • Small projects that can be financially supported by the state and their role in enabling housewives and families to achieve job opportunities. • Training opportunities available in Sirte for those who are registered as job seekers. • The role of private sector in ensuring access to some job opportunities. • The role of the electronic governance to link information between the government sectors and the Labor and Qualification Office.

4. Culture.

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Research & Consultation Centre • Faculty of Education • Faculty of Arts 	<ul style="list-style-type: none"> • The role of children's libraries in developing their language skills. • Lack of libraries and studying the reasons why young people are reluctant to read. • The diversity of Libyan folk heritage, and its role in enhancing the culture of society. • Fine arts as a valuable and an accurate historical record of Libyan culture. • Obstacles faced by publishing houses in Libya.

5. Weather and Climate

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Research & Consultation Centre • Faculty of Agriculture • Faculty of Arts 	<ul style="list-style-type: none"> • The effect of weather and climate on agriculture and the environment. • Field research on climate change. • The impact of floods on urban areas.

6. Food & Drugs Control

Responsible for Implementation	Priority areas of research
<ul style="list-style-type: none"> • Research & Consultation Centre • Faculty of Health Sciences • Faculty of Medicine • Faculty of Science 	<ul style="list-style-type: none"> • Renewing the validity of medicines and studying their adverse effect in treating patients. • Methods of storing and displaying medicines in a way that it does not comply with specifications and instructions. • Chemicals used in cosmetic creams and their effect on skin. • Environmental pollution in seawater. • Adding hormones and chemicals to poultry. • Beneficial bacteria in dairy and identifying the suitable time of human use. • The effect of salt deficiency in water and studying the correct methods for water purification. • Studying improvers used in bakeries. • The effect of fertilizers and pesticides on vegetables. • The effect of the genetically processed food on human. • Studying the dangers of stimulant drinks. • How true is the possibility that the artificial sweetener ASPARTAME (E951) which is used as a substitute for sugar is a potential carcinogen?



Research Plan Quality Assurance

Sirte University believes in the notion of quality with full support and encouragement of all faculty members and researchers who do their efforts to achieve the university's mission and objectives in terms of excellence in scientific research. Quality assurance in the future research plan has a role in ensuring the effectiveness of research. There are major priorities that need to be taken into consideration to ensure quality, which can be summarized as follows:

Outline the research objectives clearly and in details, so that they have an accurate understanding of the purpose they seek to achieve.

Having a precise definition of the problems that the research will study and defining hypotheses based on analyzing the research literature.

Clarity in research design and data collection method, with an emphasis on accuracy.

Choosing appropriate methods and techniques for research, with being sure that the necessary skills and facilities are available.

Clarity in how the data will be analyzed and ensure that the methods used support the conclusions drawn.

Ensuring the quality of the sources used and verifying the validity of the data used in research.

Reviewing literature periodically to check the latest relevant research and developments.

Checking errors periodically and adhering the professional standards and guidelines in the field of research.

Providing accurate and clear research documentation and reports, allowing others to replicate studies.

Ensure that conclusions are properly based on data and analysis and make proper recommendations.

Study the expected impact of research and how its results can be applied practically.



Research plan implementation & follow-up Mechanism.

There are many responsibilities that must be performed by the University's faculties, centers and departments to achieve the research plan and priorities at the university. They are all responsible to achieve this plan, announce it, and overcoming all the difficulties it faces to ensure the achievement of its goals, and to have an effective contribution to the development of knowledge and society.

To ensure a rigorous follow-up of implementing the current plan, , the following steps will be followed: -

Faculties and centers must submit an annual report to the university council highlighting the achievement rate of the research plan.

Postgraduate studies general office is required to submit an annual report to the University Council outlining all the research activities of the faculties' post graduate studies offices.

Preparing an annual report illustrating the achievement rate of the research plan objectives. Based on such report, a review could be conducted in order to assess the possible steps needed to change/modify the plan.

Develop/prepare alternative plans to overcome any possible rising obstacles in the current plan.

The University's Research and Consultation Center may add any research area that has an economic benefits and which may help in enhancing the university's partnership with other academic and non-academic institutions.

The University Council is eligible to add any research project if needed in order to solve any national issue that the University Council consider as a worth of investigating and research.

The University Council





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Finally, we look forward to seeing this plan being converted into concert and tangible steps which would, hopefully, contribute in improving the research quality as well as developing the wider community.

Thank you!

Research Plan
2024-2029

Dr. Ali Karkara Ali
Director, Research & Consultation Center



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3	Dr. Hussein M. Abu Midana	Dean of Graduate Studies and Training Office
4	Dr. Mohammed A.Saleh	Director of Printings and Libraries Office
5	Dr. Abdalsalm M. Abdalkader	Head of the Production, Power and Aeronautical Engineering Department

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