



الخطة الوطنية للعلوم والتقنية والإبتكار

**The National Plan for Science, Technology and Innovation**

**List of Recommended Proposals – March 2013**

تقنية المواد المتقدمة  
ADV Technology

Serial Number	Proposal Code	Proposal Title
1	13-ADV1044-02	Development and Optimization of the Long Afterglow Properties of PP/Strontium Aluminate Composites
2	13-ADV1205-02	Design of Tunable Broadband Conjugated-Polymer Laser
3	13-ADV1432-02	Development of inexpensive and excellent biocompatible smart materials based on ionic polymer-metal composites using non-perfluorinated polymers for biomimetic applications
4	13-ADV1478-02	Production and characterization of new nanostructured materials as gas sensors
5	13-ADV898-02	Development of Polymeric adsorbent membranes for heavy metal ions' extraction
6	13-ADV971-02	Modelling and Optimization while Machining Particle Reinforced Alumina Based Metal Matrix Composites



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Serial Number	Proposal Code	Proposal Title
1	12-AGR2653-02	Integrated epigenetic and transcriptomic technologies to study mechanisms of Toxoplasma gondii recrudescence during pregnancy using a sheep model
2	13-AGR1104-02	Sustainable Irrigation Water Management Using Regulated Deficit Irrigation and the Partial Root-Zone Drying Method: the SALTMED Model Application
3	13-AGR1159-02	Bioactive components of Arabian camel's milk for human nutrition: Detection and preservation of the natural secretion of insulin (INS) and adiponectin (ADPN) in camel's milk
4	13-AGR1208-02	Seasonal variation of trace element and nutritional status of camels (Camelus dromedarius) raise at five representative regions in Saudi Arabia
5	13-AGR1438-02	Assessing beneficial bacteria in the indigenous honeybee (Apis mellifera jemenitica) of Saudi Arabia and their potential role in honey bee health
6	13-AGR956-02	The use of lasalocid as a feed additive to improve ruminal fermentation, digestion, growth, and meat quality in goats
7	13-AGR965-02	Irrigation Water Conservation for Date Palms using Various Qualities and Regimes of Water through Modern Irrigation Techniques under Arid Conditions
8	13-AGR979-02	The Effects of High Hydrostatic Pressure-Assisted Processing on Bacterial Pathogens, Spores and Yeast Inactivation Kinetics and Physico-Chemical Properties in Camel Milk, Grape Juice, and Tomato Puree



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**التقنيات الحيوية  
BIO Technology**

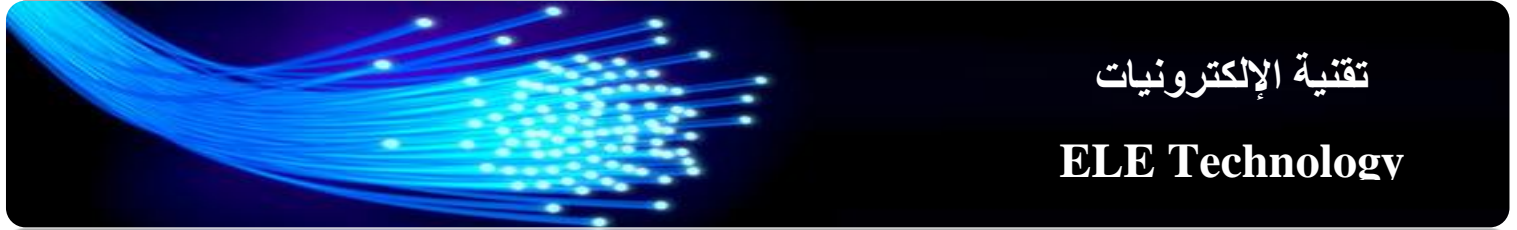
Serial Number	Proposal Code	Proposal Title
1	13-BIO1030-02	Cataloguing fungi and mycetozoa of the deserts of Saudi Arabia
2	13-BIO1197-02	Isolation And Cloning Of Biosynthetic Gene Clusters From Marine Actinomycetes
3	13-BIO1206-02	Protective Vaccination Against Blood-Stage Malaria: Gene Expression and Epigenetics of the Liver
4	13-BIO1222-02	Population genetics of Xanthomonas citri pv. citri causing citrus bacterial canker in Saudi Arabia as a basis for improving disease management
5	12-BIO1246-02	Surface functionalized mesoporous luminescent rare-earth fluoride core-shell nanoparticles for photodynamic therapy application
6	13-BIO1301-02	Improving the productive efficiency ?and genetic characteristics of the ?dromedary ?camel using MOET and cloning ?
7	13-BIO1382-02	Development Of Widely Applicable Thienothiophene Derivatives Displaying Broad Biological Activity
8	13-BIO1384-02	Thraustochytrids from Saudi Arabia as a novel source of omega-3 fatty acids and other secondary products.
9	13-BIO1407-02	RNAi-based Strategies for the control of the Red Palm Weevil, a Highly Damaging Pest of Date Palm Trees in the Kingdom of Saudi Arabia
10	13-BIO1410-02	DNA Barcoding of the Termite Fauna in the Riyadh Region, Kingdom of Saudi Arabia: Identification and Molecular Phylogeny Inferred from the Mitochondrial COI Gene Sequences
11	13-BIO1459-02	The distribution of the Rift Valley fever virus vaccine strain in nature and its vectorial competence in Saudia Arabia
12	13-BIO1530-02	Utilization of Dates' Syrups for the Production of Fructose and Single Cell Protein using a Glucose-Selective Yeast Strain
13	13-BIO843-02	Development of a protein folding biosensor to study protein misfolding diseases



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تقنية الإلكترونيات

**ELE Technology**

Serial Number	Proposal Code	Proposal Title
1	13-ELE1174-02	Synthesis, efficacy and evaluation of novel rigid coumarin/quinoline hybrids for solid state dye lasers
2	13-ELE901-02	Low-Power, Many-Core Design Under Process, Voltage and Temperature Variations

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تقنية الطاقة  
ENE Technology

Serial Number	Proposal Code	Proposal Title
1	13-ENE1135-02	Design and fabrication of high-performance, flexible energy storage devices via the layer-by-layer assembly of graphene and ultra-thin metal hydroxide films deposited onto multiwall carbon nanotubes
2	13-ENE1157-02	Design and Control of an Isolated/connected Hybrid Renewable Energy System
3	13-ENE1227-02	Screening and characterizations of new photo-catalytic materials for solar water-splitting hydrogen production.
4	13-ENE1292-02	Performance Study Of A Hybrid Building Cooling System Using A Solar Air Heater And Waste Heat Recovery
5	13-ENE1357-02	The development of novel anhydrous composite polymer membranes based on protic ionic liquids for H <sub>2</sub> /O <sub>2</sub> fuel cell application
6	13-ENE1405-02	Development of novel proton conducting organic ionic materials and their acid containing compositions for H <sub>2</sub> /O <sub>2</sub> fuel cell application
7	13-ENE886-02	Towards all-solid-state dye-sensitized solar cells using Co(II/ III) redox couple-based solid polymer electrolytes
8	13-ENE934-02	Investigating the geothermal power potential of the basaltic lava fields (Harrats) close to Al Madinah Al Munwarah area, Western of Saudi Arabia



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Serial Number	Proposal Code	Proposal Title
1	13-ENV1025-02	The integration of GIS and remote sensing, hydrogeology, hydrochemistry and well logging to assess aquifer vulnerability to pollution in Hail - Qassim areas, KSA.
2	13-ENV1070-02	Submerged Biofilm Reactor for Carbon and Nitrogen Removal from Municipal Sewage in Saudi Arabia
3	13-ENV1102-02	Production of activated carbon from date palm biomass by microwave heating for wastewater treatment
4	13-ENV1186-02	Fabrication of magnetic activated carbon composites from solid waste and their environmental applications
5	13-ENV1284-02	Levels of polybrominated diphenyl ethers in human breast milk collected from Saudi mothers
6	13-ENV1321-02	Involvement of oil-related environmental pollutants in the development of ovarian disorders, infertility and ovarian cancer: actions and mechanisms.
7	13-ENV1434-02	Clean technology for the removal of automobile fuel and crude oil from contaminated water using grafted ground biomass (date seeds)
8	13-ENV884-02	characterization of mechanical and thermal properties of recycled degraded polymer/nanoclay-palm tree fibers
9	13-ENV922-02	Effects of Petroleum Industry Pollution in the Eastern Region of KSA on the Ecosystem
10	13-ENV969-02	Conformational and vibrational analysis of 12-azacrown-4 and some of its cation metal complexes



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Serial Number	Proposal Code	Proposal Title
1	13-INF1155-02	Development & Evaluation of a System of Integrated Agents and Numerical Optimization for Flexible Manufacturing Systems (Design – FMS)
2	13-INF1586-02	Content Adaptation for Mobile Government in KSA
3	13-INF869-02	Developing an Innovative Emergency Call System for the KSA to Reduce Response Time by Safety Units and Minimize Fatalities in Case of Traffic Collisions
4	13-INF943-02	Hand-based Biometrics Fusion and Bio-Cryptosystem Computation
5	13-INF946-02	Fingerprint Sensor Interoperability
6	13-INF977-02	Computer-Aided Pronunciation Training System for Non-native Learners of the Arabic Language



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برنامج الرياضيات والفيزياء  
MAT Technology

Serial Number	Proposal Code	Proposal Title
1	13-MAT1276-02	Reproducing Kernels and Berezin Symbol Methods for Solving Equations
2	13-MAT1428-02	Reconstruction of relational structures and application to regular graphs in computer science
3	13-MAT1544-02	Cutting Stock Optimization Tool for Saudi Factories
4	13-MAT874-02	Optimization and Numerical Algorithms on Riemannian Manifolds and Applications.
5	13-MAT887-02	Nonlinear phenomena in the study of PDE's related to the biharmonic operator





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التقنيات الطبية والصحية

MED Technology

Serial Number	Proposal Code	Proposal Title
1	13-MED1022-02	Towards pharmacological chaperone therapy for the treatment of genetic lysosomal disorders
2	13-MED1204-02	Establishing a colorectal cancer BIOBANK: identification of genetic mutations in Saudi colorectal cancer patients
3	13-MED1239-02	Gastric and humoral responses to weight loss via multimodal lifestyle modification or bariatric surgery
4	13-MED1248-02	Study of certain Saudi medicinal plants as a source of new agents to treat several cardiovascular diseases
5	13-MED1304-02	Development of a Novel Neck Neuromuscular Training Protocol for Sports-Associated Neurological Trauma and Disability Prevention in Pediatrics: A Joint Saudi-Canadian Experimental and Computational Study
6	13-MED1343-02	BlindSys: An Innovative Wearable System for Helping Blind People Move and Sense in Indoor Environments
7	13-MED1349-02	Effects of Wearing Ihram Made of Cotton Toweling on Respiratory Symptoms, Lung Function, Fractional Exhaled Nitric Oxide and Upper Airway Inflammatory Markers in Hajj Pilgrims
8	13-MED1360-02	Studies on the characterization of Bacillus thuringiensis strains locally isolated from Saudi Arabian environments and investigation of their parasporal toxins as natural anticancer agents
9	13-MED1363-02	Regulation of proinflammatory and antiinflammatory cytokines by growth hormone (GH): impact on insulin signaling
10	13-MED1374-02	Analysis of potential neurodegenerative metabolites and neurotrophic factors in diabetic retinopathy
11	13-MED1375-02	Identification of Genetic Modifiers of Stroke Risk in Sickle Cell Disease Using Whole-Genome Sequencing
12	13-MED1390-02	Effects of low-level lasers on proliferation, differentiation and calcium deposition in human embryonic stem cell-derived mesenchymal stem cells.

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13	13-MED879-02	Effects of Combination Nebivolol and Novokinin Intervention on the Amelioration of Cardiovascular Pathology Associated with Obesity in a Diet-Induced Obesity Rat Model
14	13-MED899-02	Identification and Pharmacological Profiling of the Anti-Diabetic Agent(s) in Camel Milk and Molecular Characterization of Insulin Resistance in the Arabian Camel
15	13-MED915-02	Evaluation of recombinant keratinocyte growth factor in the prevention and management of radiation and chemotherapy induced mucositis in patients with epithelial malignancies
16	13-MED997-02	Novel sulfonamides as anticancer agents



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Serial Number	Proposal Code	Proposal Title
1	13-NAN1120-02	The functionalization of nanocellulose extracted from date palms for photonic-based applications
2	13-NAN1268-02	Nanosized vesicular-based transdermal therapeutic system for the management of hypertension
3	13-NAN1309-02	Synthesis and characterization of novel multifunctional mesoporous nanocatalysts for improved hydrocarbon oxidation and fuel-cell applications.
4	13-NAN929-02	Solidification of self-emulsifying/self-nanoemulsifying lipid formulation (SELF/SNELF) by high-adsorption materials: the effects of dispersion and digestion on the performance of the formulations



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تقنية البترول والغاز  
**OIL & GAS Technology**

Serial Number	Proposal Code	Proposal Title
1	13-OIL1207-02	Studying the rifting history of the Red Sea at the Arabian Shield margin using geophysical data



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Serial Number	Proposal Code	Proposal Title
1	13-PET1056-02	Development Of A Nanocatalyst For The Dry Reforming Of Methane

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1	13-WAT1027-02	Risk assessment and management of flash floods in Wades Al Laith and Yalamlam, western Saudi Arabia.
2	13-WAT1050-02	Theoretical, Economical & Experimental Studies of a Natural Vacuum-based Multi-Effect Solar Desalination System Using Various Solar Configurations & Thermal Energy Storage
3	13-WAT1218-02	Rainwater Harvesting Techniques For The Management Of Water Conservation and Environmental Protection In Saudi Arabia Using GIS And Remote Sensing Approaches
4	13-WAT907-02	Study on the Feasibility of the Desalination of Brackish Water by Reverse Osmosis Powered by Wind Energy at Selected Sites in Saudi Arabia

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