



الخطة الوطنية للعلوم والتقنية والإبتكار

The National Plan for Science, Technology and Innovation

List of Recommended Proposals for March 2014 Submission

تقنية المواد المتقدمة
ADV Technology

Serial Number	Proposal Code	Proposal Title
1	12-ADV2851-02-R	Fabrication and Characterisation of Graphene reinforced Al ₂ O ₃ Nanocomposite for Advanced Structural and Multifunctional applications
2	13-ADV1178-02-R	Aluminum to Titanium joining by spark plasma sintering technology
3	13-ADV858-02-R	Studying FRP-schemes for the strengthening and repair of wall-like RC columns
4	14-ADV1056-02	Performance of Prestressed Fiber-Reinforced Concrete under Projectile Impact
5	14-ADV110-02	Joining of nitinol shape memory alloy to alpha-beta Titanium alloy using Linear Friction Welding for advanced aerospace applications
6	14-ADV931-02	Preparation and characterization of organic polymer based monolithic columns for capillary chromatography applications

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Serial Number	Proposal Code	Proposal Title
1	14-AGR164-02	Enhancing growth performance of seedlings of <i>Juniperus procera</i> Hochst. ex Endlicher and <i>Acacia origena</i> R.B. by using Rhizobium and Mycorrhiza
2	14-AGR509-02	Production of High Quality Charcoal Briquette from Date Palm Residues.
3	14-AGR734-02	Production and assessment of pulp and paper from date palm residues
4	14-AGR780-02	Impact of Roots Symbiotic Fungi and Bacteria on Growth, Nutrient Uptake and Fruit Quality of Olive (<i>Olea europaea</i> L.) in Saudi Arabia
5	14-AGR810-02	Exploration of Physiological and Genetic Characteristics Associated with Heat Stress Tolerance in Najdi and Naimi sheep
6	14-AGR905-02	Documentation of Ethnoveterinary Medicinal Practices and Scientific Validation of Some Traditionally Used Ethnobotanicals for Their Anthelmintic Activity

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التقنيات الحيوية

BIO Technology

Serial Number	Proposal Code	Proposal Title
1	14-BIO1059-02	Construction of infectious clones from locally prevalent begomoviruses and their associated satellites for screening tomato germplasm for begomovirus resistance
2	14-BIO1066-02	Polymeric nanofibers as new class of 3D scaffold and their application in stem cell research and tissue engineering.
3	14-BIO128-02	Soft Lewis-Acid Catalyzed Enantioselective Synthesis and Biological Evaluation of Novel Pharmacophores as Potential Anticancer Agents
4	14-BIO144-02	Potential immunomodulatory responses of surface functionalized nanomaterials used in nanomedicine
5	14-BIO1453-02	Development of novel RNA Interference based method to control Varroa destructor -A Highly Damaging Pest of Managed honeybee colonies in the kingdom of Saudi Arabia
6	14-BIO617-02	Summative and formative ePortfolio of clinical performance and growth of students learning in health colleges
7	14-BIO627-02	Molecular diversity and phylogeographic distribution of Candidatus Liberibacter spp, the causal agents of citrus greening disease and their vectors in Saudi Arabia
8	14-BIO724-02	Establishment of seed cryo-bank and determination of genome size and ploidy levels of endemic, rare and endangered flora of Saudi Arabia
9	14-BIO785-02	Remediation and Rehabilitation of polluted soils at Industrial communities in Saudi Arabia

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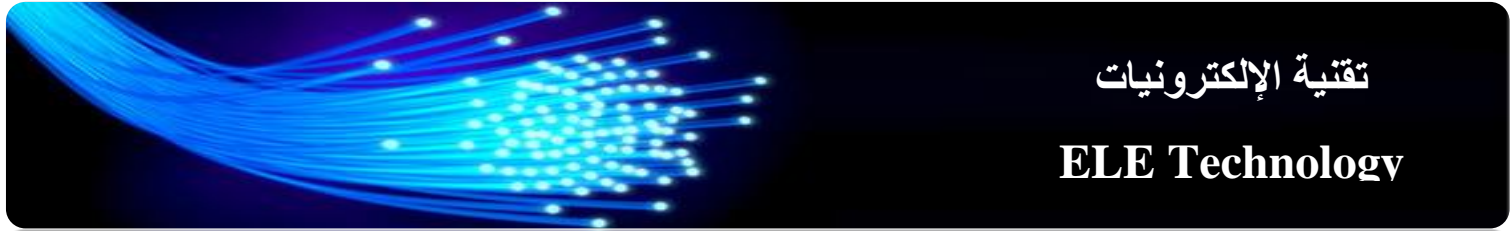
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تقنية الإلكترونيات

ELE Technology

Serial Number	Proposal Code	Proposal Title
1	13-ELE1184-02-R	Luneburg lens and Substrate Integrated Waveguide based beam Steerable Antenna Array for 60GHz High speed Indoor Communication Systems
2	14-ELE871-02	Field Measurements and Propagation Models for mm Wave 5G Cellular Services in Riyadh Area

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تقنية الطاقة ENE Technology

Serial Number	Proposal Code	Proposal Title
1	14-ENE197-02	Development of Novel Ionic Electrolytes for High Energy Density Electrochemical Pseudocapacitors
2	14-ENE697-02	Multiscale Seismic Imaging algorithms for studying Geothermal and Volcanic processes.
3	14-ENE704-02	Enhanced geothermal systems (EGS) of high heat generating granites: Midyan granite, Northwest Saudi Arabia
4	14-ENE899-02	Designing, Evaluating and Improving Solar-cells based on Conjugated-Polymer, perovskite organo-metal trihalide.

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Serial Number	Proposal Code	Proposal Title
1	13-ENV1323-02-R	Environmental impact of anthropogenic activities on accumulation of heavy metals and their effect on the DNA damages and its risk assessment in some commercially important fish species in Saudi Arab
2	14-ENV138-02	Benthic foraminifera as bioindicators of anthropogenic Pollution in the eastern Red Sea Coast, Saudi Arabia
3	14-ENV183-02	Quaternary climatic changes and potential for human settlement of the Red Sea Coast, Saudi Arabia.
4	14-ENV528-02	Optimization of The Remnants of Dates, Crop Residues and Animal Wastes to Produce Bio-Energy (BIOGAS) and Organic Fertilizers For Rural Areas
5	14-ENV591-02	Designing novel green ionic liquid-based solvent media for the synthesis of biologically important compounds
6	14-ENV665-02	Production of Biofuel/Biochar from food waste generated during holy hajj pilgrimage: an alternate waste management approach

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Serial Number	Proposal Code	Proposal Title
1	14-INF882-02	MGCServer: a metagenomic gene calling server



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$$\left[\frac{-\hbar^2}{2m} \nabla^2 + V \right] \Psi = i \hbar \frac{\partial}{\partial t} \Psi$$

برنامج الرياضيات والفيزياء
MAT Technology

Serial Number	Proposal Code	Proposal Title
1	14-MAT1240-02	The one tangle and concurrence versus multipartite entanglement in quantum spin systems
2	14-MAT623-02	Advances in Special Functions, ring theory with applications
3	14-MAT730-02	Nonlinear Evolution Equations
4	14-MAT739-02	Modelling, numerical analysis and simulation of flows in fractured porous media

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التقنيات الطبية والصحية

MED Technology

Serial Number	Proposal Code	Proposal Title
1	12-MED2887-02-R	The role of Matrix metalloproteinase-2 and 9 in the development of diabetic retinopathy
2	12-MED2889-02-R	Characterization of Fatty Acid Synthase and Carnitine Palmitoyltransferase I Pathways in Triple-Negative Breast Cancer Saudi Females as Potential Targeted-Therapy
3	12-MED2892-02-R	Association of exposure to Saudi sandstorm dust with increased risk of asthma hospitalization: Role of dust particles components in asthma pathogenesis
4	13-MED0314-02-R	Human health risk assessment for heavy metals in Mahad AD'Dahab city, Saudi Arabia
5	13-MED920-02-R	The Biochemical actions of physiological thyroid hormone levels
6	14-MED1053-02	Genome-Wide Sequencing of Serum microRNAs :Exploring Next Generation Biomarkers for Diagnosis and Prognosis of Sepsis in Saudi Children
7	14-MED1248-02	Novel chemically synthesized angiogenesis -and matrix metalloproteinase 9-inhibiting peptides as Anti-diabetic retinopathy agents
8	14-MED142-02	Role of the novel oncogene KDM2B in the epigenetic regulation of the cytoskeleton
9	14-MED1497-02	Effects of navigated transcranial magnetic stimulation priming with transcranial DC stimulation coupled with constraint-induced movement therapy on the motor function of stroke patients in the Kingdom of Saudi Arabia.
10	14-MED567-02	Noninvasive, Physiologic Characterization of Cortical Plasticity After Mild Traumatic Brain Injury in Humans
11	14-MED622-02	Design, Synthesis and biological evaluation of Multimodal Hybrid derivatives for the Treatment of Alzheimer's Disease
12	14-MED690-02	Human iPS-derived hepatocytes as an in vitro drug toxicity screening platform
13	14-MED715-02	Studies on Differentiation Plasticity of human Stromal (mesenchymal) stem cells

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14	14-MED726-02	Assessing Nutrition knowledge-Gap, Nutrition Risk Factors and Behaviors about Type 2 Diabetes among Patients, Health Professionals and General Population in the Kingdom of Saudi Arabia
15	14-MED809-02	Epidemiological characteristics and genetic factors affecting the circulation and evolution of respiratory viruses in Saudi Arabia



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تقنية النانو

NAN Technology

Serial Number	Proposal Code	Proposal Title
1	14-NAN1251-02	Development and characterization of antimicrobial surface with and without self-polishing nanosegments
2	14-NAN561-02	Utilization of Ghost Bacteria as Novel Drug Delivery System for 5- Fluorouracil in Treatment of Colon Cancer
3	14-NAN862-02	Surface-modified graphene quantum dot nanoparticles for enhanced sensitivity and safety in magnetic resonance imaging technology
4	13-NAN908-02-R	Exploring the mechanisms of preferential killing of cancer cells by engineered zinc oxide nanomaterials: Potential implications in cancer therapy

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Serial Number	Proposal Code	Proposal Title
1	14-PET827-02	Synthesis of novel core-shell mesoporous zeolite catalysts with controllable isolated active sites towards the oxidation of olefins and ketones in liquid phase
2	14-PET851-02	Mixed Metal Oxides as catalyst precursors: Synthesis, Characterization and syngas production

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تقنية الفضاء والطيران

SPA Technology

Serial Number	Proposal Code	Proposal Title
1	14-SPA154-02	Evaluation of ore deposits in Al-Amar Region, Eastern Arabian Shield, Saudi Arabia: An implication of structural and Remote Sensing techniques
2	14-SPA576-02	Site effect and microzonation of Jizan coastal area for Earthquake Hazard Assessment
3	14-SPA610-02	Consensus Based Estimation and Control of a Reconfigurable Satellite Formation
4	14-SPA686-02	Geological Setting, Mineral and Chemical Evaluation of Bauxite Ore Deposits of Az Zabirah Area, Central Northern of Saudi Arabia.

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1	12-WAT1250-02-R	Development of cost-effective fluidized-bed based wastewater treatment technology using date-stone activated carbon
2	13-WAT1024-02-R	Developing onsite wastewater treatment and reuse in the KSA
3	13-WAT1152-02-R	Integrated Web-based Program for Water–Energy Management and Conservation in Irrigated Areas
4	14-WAT169-02	Synthesis of multifunctional magnetic core-TiO ₂ / meso-SiO ₂ double shell for simultaneous heavy metal removal and organic pollutants decomposition
5	14-WAT539-02	Analysis and development of the dual lateral subsurface drip approach as a promising technology to conserve water and improve yields quantity and quality
6	14-WAT663-02	Assessment of Emerging Organic Contaminants Occurrence for Wastewater Treatment Plants in Saudi Arabia

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