Call for Paper

Scholarly and well researched papers are invited from the academia and members of public on any of the following research areas and thematic focuses.

I. ARTS

Research Area
Language, Literature, Communication and National Development

Focus:

A. INTEGRATION OF LINGUISTIC, LITERARY, CREATIVE AND CULTURAL RESOURCES for:

- National Development
- Institutional Performance
- Information and Communication Technology
- Child Formation
- Gender Related Issues

B. LINGUISTICS THEORIES (e.g. Semiotics, Pragmatics, Stylistics, Sociolinguistics and Communication Studies

C. CREATIVE ARTS AND ENVIRONMENTAL STUDIES

D. LEGAL INSTRUMENTS

- National Integration
- The constitution and its interpretation
- Institution formation and empowerment
- Childs right and national development
- Womens right and national development
- Humans right and national development
- Federalism and resource control
- National security and economy
- Regional Integrational and Rights of Nations
- Electoral Matters
- Land Matters, Use of Modern Technology in Land Reforms, Users Rights etc.

II HUMANITIES AND SOCIAL SCIENCE
Research Areas:

A. NATIONAL INTEGRATION

Focus:

- Economic Integration Models, their application and anticipated result
- Government Integration Mechanisms, (e.g. school systems, youths mobilization , Quota System, Orientation Programmes) their application, historical antecedents and new options

B. LEADERSHIP AND VALUES

Focus:

- Socio-cultural values
- Religious Values
- Economic and Political Value: - The roles of these values as they affect the leadership/institutional performance and the evaluation of the performance
- The research must suggest new ways of mobilizing the values for community development

C. NATIONAL SECURITY REFORMS

Focus:
New and logical options on:

- Internal security reforms
- Trans-border security reforms
- Policing international terrorisms
- Police reform
- Armed forces reform
- Traditional Authority Reforms

D. ELECTORAL REFORM

Focus:
The researcher should focus on comparative electoral systems with the aim of suggesting new options in:

- Electoral Management
- Curbing Electoral Violence
- Electoral Legal Tussles

E. CONFLICT RESOLUTION

Focus:
Focus should be on creative, effective and logical solution to:

- Ethno-religious Crises
- Political crises
- Boarder disputes
- Resource Distribution and Control

III. EDUCATION AND TRAINING
Generally, the research should focus on how to prepare the citizens for the new global and knowledge-driven world.
Research Area

A. LEARNING TOOLS AND INNOVATIONS

Focus:

- Focus should be directed towards the use of:
- New Technological Resources
- Class Management
- E-Learning and its effects
- Curriculum Development
- Teaching and Learning Environment

B. FUNDING EDUCATION

Focus:

- Suggesting funding models for:
- Primary and Basic Education
- Secondary Education
- Technical Education
- Tertiary Education

C. EDUCATION INSTITUTION AND MANAGEMENT

Focus:

- Private Education Institution
- Public Education Institution
- Open and distance Learning
- Education Management Bodies (e.g. NUC, NBTE etc)
- Indigenous Education

Research should focus on the desirability of the institution, the management bodies and their relevance in the development of Education. Suggestions should be made on how to maximize their utilities.

D. HUMAN RESOURCES AND QUALITIES ASSURANCE

Focus:

- Teaching and Teaching Qualities
- Teachers Training
- Learners and Learning Qualities
- Ethics in teaching and learning as concerned examinational malpractice, sexual and other harassments, etc.

E. EDUCATION FOR THE CHALLENGED

Focus:

- Equal opportunity for the physically, and mentally challenged
- Suggesting types of education that will prepare them for the future challenges

F. LANGUAGE AND EDUCATION

FOCUS

- Appraising the existing medium of instruction in schools and designing new medium and method.

IV. AGRICULTURE, FOOD PRODUCTION, SECURITY, PROCESSING,

PRESERVATION AND STORAGE

General Objective

Investigating how the ecological conditions, climatic diversities, varying vegetations, cultural practice and method of cultivation can positively and negatively affect food production, processing and preservation.

Research Areas

A. FOOD SECURITY

Focus:

- Development of improved planting materials (seeds, stems etc)
- Application of biotechnology to design varieties of planting materials.
- Design of machinery for agricultural production
- Development of environmentally friendly insecticides/pesticides
- Development of fertilizers suitable for a particular ecological setting
- Food Safety, Nutrition and Health

B. FOOD PROCESSING

Focus:

- Development of indigenous food products
- Development of new products from local communities
- Alternatives to imported food products
- New Technologies for processing of cereals, grains, roots, tubers fruits, vegetables, diary/diary products and fats/oilseeds
- Development of machinery for processing of agricultural products.
- Developing value chain schemes for various raw materials
- Food Engineering

C. FOOD PRESERVATION AND STORAGE

Focus:

- New and more reliable options for the preservation and storage of agricultural commodities
- Upgrading the indigenous technologies for preservation and storage of food
- New and more reliable options for food packaging and packaging materials
- Food waste utilization and plant management
- Food microbiology
- Food chemistry/biochemistry

D. DISTRIBUTION

Focus:
Developing indigenous technology for packaging and transportation of food

V. HEALTH AND SOCIAL WELFARE

General Objectives
Strategies for strengthening the community/National Health System, delivering effective, quality and affordable health care, increasing the life expectancy and quality of life in the third world countries and meeting global target on the elimination and eradication of life of the citizens.

Research Areas

A. COMMUNITY/ NATIONAL HEALTH SYSTEM MANAGEMENT

Focus:

- Research on policy making on health programme
- Setting health research agenda/priorities
- Setting ethical standards and practice
- Use of ICT to improve health care services
- Management and bioconversion of waste

- Water pollution and remediation technology

B. HEALTH PRODUCT DEVELOPMENT RESEARCH

Focus General

- Developing pharmaceutical products
- Developing Biological Diagnosis
- Developing therapeutic mechanisms
- Developing health educational products

Specific

- Developing new and improved tools for the prevention, treatment and control of diseases
- Research into traditional medical practices and products
- Research into herbal medicines
- Developing new bio-technologies for molecular diagnostics, recombinant vaccines
- Vaccine and drug delivery
- Research into bio-remediation, sequencing pathogen and genomes
- Control of sexually transmitted infections
- Research into the phenomenology of mycobacterials and HIV etc

C. DISEASES AND HEALTH PROBLEMS

Focus:
Research into the phenomenologies of infectious diseases, epidemiology material and child care.

D. HEALTH SYSTEM AND OPERATIONAL RESEARCH

Focus:

- Developing a comprehensive repository for research on bio-informatics in public and non-public sectors
- Developing communication strategies in health research

E. SOCIAL AND BEHAVIOURAL RESEARCH

Focus:

- Research on social-cultural and environmental factors affecting health system
- Developing new information, education and communication (IEC) materials

F. BIO TECHNOLOGY AND BIO RESOURCES DEVELOPMENT

Focus:

- Research on bioreactor design and fabrication using virtual manufacturing tools
- Research on industrial enzymes production
- Research on bio-prospecting: molecular biology and pharmaceutics
- Research on bio-mediation
- Safe herbal therapy for malaria, hypertension, diabetes etc
- Pesticide plants

VI. POWER AND ENERGY

General Objectives

Research on conversion of available energy sources into thermal energy, mechanical energy and electricity

Specific Research Areas

A. RENEWABLE AND NON-RENEWABLE SOURCES OF POWER AND ENERGY

Focus:

- Development of mini and micro-hydropower scheme
- Engineering design and construction of hydropower stations, plants, equipment and accessories
- Development of solar energy conversion technologies
- Development of efficient and less hazardous biomass convention devices
- Development of wind energy conversion technologies and its utilities, power distribution converters, energy conversions and management, etc.
- Studying the local production capacity for hydrogen as energy source
- Assessment of power generation systems, electromechanical transducers, electrochemical storage, etc.
- Development of technologies for efficient energy conversion into electricity
- Design and production of different kinds of energy conversion, non-conventional energy sources, automatic electrics, electric railways and signaling, etc.
- Economics of power generation, power generation and high power machines, domestic and industrial electrical appliances, etc.

B. ELECTRICITY TRANSMISSION AND DISTRIBUTION

Focus:

- Identify the operational problems associating with the existing transmission system and proffer solutions
- Developing more effective materials for electricity transmission
- Research on new economics of power distribution with emphasis on electricity demand and supply

C. MANAGEMENT STRUCTURE

Focus:

Research on problems associated with organization and management structure in energy generating, transmitting and distributing industries/system, database management, etc.

VII. ICT AND TELECOMMUNICATION

General Objectives

To carry out research on how to revolutionize the e-government, e-learning, e-commerce, e-banking, e-library, biometric systems, networking security, artificial intelligence, telecommunication systems, (etc) through the potentials of ICT

Research Areas

A. RESEARCH ON COMPUTER HARDWARE AND ASSOCIATE PERIPHERALS

Focus:

- Design and development of embedded microcontroller
- Research on computer architecture, computer aided health diagnosis, computer performance evaluation, flight control systems, modeling and simulation process and machine control, etc.
- Nanotechnology
- Network administration and security

B. RESEARCH ON SOFTWARE DEVELOPMENT

Focus:

- Research on algorithms and theoretical computer science
- Developing internet security technology
- Developing intelligent/cognitive tutoring systems
- Developing multilingual system
- Developing robotic and autonomous systems
- Mechatronics technology
- Constructive criticism of Cloud computing systems

Data Banks

Focus:

- Developing web based national databanks
- Data Warehousing and data Mining

C. TELECOMMUNICATION

Focus:

- New discoveries on computer networking, wireless communications, fiber optic applications
- Research on monitoring telecommunication networks
- Social and medical issues relating to development of GSM

D. MULTIMEDIA AND ANIMATION

Focus:

- sing multimedia computing for education and public enlightenment
- Signal/image/video processing
- Advertising and graphic design
- Simulation and game development

E. INFORMATION TECHNOLOGY

Focus:

- Globalization and information technology
- Security challenges in Nigeria: The roles of the media
- Library and Information services for rural development
- New trends in e-library
- ICT and office management/technology: New trends

VIII. ENVIRONMENTAL, HOUSING & URBAN DEVELOPMENT
General Objectives
Research on the physical and built environment to:

- Evolve proactive policies and appropriate governance mechanism for effective management of the environment
- Acquire scientific understanding of ecological problem and develop environmental technologies that can

be employed to tackle the problems.

Research Area

A. DESERTIFICATION TECHNOLOGY

Focus:

- Developing technology for desertification and erosion, drought and disaster control.

B. ENVIRONMENTAL POLLUTION

Focus:

- Developing new technologies for air pollution, water pollution, oil spillage control etc
- Developing sustainable biodiversity projects on ecosystem management
- Reforestation and forest management

C. HOUSING

Focus:

- Research on appropriate housing systems and technologies in the urban environment
- Research on housing economics and finance
- Modern technology for environmental sanitation and waste disposal
- Sustainable urban development technology
- Proposing policies on housing and urban management

ENVIRONMENTAL GOVERNANCE

Focus:

- proposing policies on housing and urban management
- Management of information technology in construction
- Public-private partnerships in Environmental development and governance
- Policy, contractual and risk issues in Construction industry

E. LANDSCAPE EVOLUTION AND LAND USE CHANGE

Focus:

- Developing an improved models for landscape evolution
- Developing technology for controlling and planning of land use

F. ENVIRONMENTAL DYNAMICS

Focus:

- Natural and social impacts of global climate change on…?
- Impacts of Green architecture on global climate change
- Eco-city design and climate change.
- Capacity building
- Community/government capability in post disaster recovery
- Post- disaster organizational risk management, supply chain recovery
- Green Architecture on global climate change

- Sustainability of the built environment
- Computational analysis of built environment
- Sociological analysis of digital practices in environmental governance
- Building information modeling,
- Property valuation, accounting and taxation (Internal perspectives)
- Urban and property economics
- Facilities management, property governance and ethics, green innovation
- Developing new technologies for the control of environmental
- Developing energy saving technologies in the residential, commercial building, transportation and industrial sectors
- Developing an improve models for landscape evolution
- Developing technology for controlling and planning of land use.
- Digital photogrammetry: Forest inventory measurement, airborne laser scanning satellite data, animal aggregation behavior measurement
- Development of specialized instruments and techniques for precise measurement
- Geographical information science (GIS) in Cadastral management and Environmental management
- Environmental geodesy
- Research on feature extraction from high resolution satellite imagery and modeling

G. DEVELOPMENT CHALLENGES

Focus:

- Developing new technologies for minimizing environmental impacts?
- Developing sustainable infrastructure development…?
- Design and management of the built environment for economic
- Adaptive re-use of heritage structure
- The built environment and community health
- Lighting design in Architecture
- Environmental performance prediction in building
- Tendering/Bidding Strategies and Qualification in construction industry
- Public/private Construction contract Administration
- Value Engineering and Management
- Cost Planning, cost control and quantity surveying practice
- Procurement systems, process, modeling, innovative and strategies
- New trends in innovative building concepts,
- Development of new materials and component for efficiency in building

H. PROPERTY MORTGAGE INVESTMENT

Focus:

- Revitalizing mortgage origination and organization
- New options for controlling mortgage delinquency and default.

1. **DESIGN COGNITION AND LEARNING**

Focus

- Research on process of design in terms of learning, teaching, understanding and application Professional competency standards and curriculum design

IX. ENTREPRENEURSHIP AND WEALTH CREATION

General Objectives

Research on information, knowledge based scientific, technological and innovational driven skills acquisition and

wealth generating enterprises.

Research Areas

A. TRIPOD OF TECHNOLOGY

Focus:

- Developing models for strengthening the tripod of technology linkages and collaboration (Government-Academia-Industry)

B. THE IMPACT SOCIO-CULTURAL ISSUES ON ENTREPRENEURSHIP AND WEALTH CREATION

Focus:

- Research on how to formulate framework/policy for integrating science technology and innovation into national/economic development programmes

C. TECHNOLOGY-DRIVEN DIVERSIFICATION OF NATIONAL ECONOMY

Focus:

- Research on methods of modernization of traditional technology
- Technology adaptation for SMEs
- Developing software for programmes on available global opportunities
- Cost implications on production activities in small and medium scale enterprises
- Management consulting and practice for small and medium scale enterprises
- Production management in SME
- Handling of risks associated with small and medium scale enterprises
- Improving access to finance from the informal sector for SMES
- Issues relating to loans and debt recovery in SME
- Developing new technologies for marketing SMEs products.

D. FINANCING OF INNOVATIONS & ENTREPRENEURSHIP

Focus:

- Developing new models for financing SMEs, capital development, technology and industrial parks

X. TRANSPORT

Focus:

- Suggesting means of improving the transportation systems in favour of SME

XI. CIVIL AND MECHANICAL ENGINEERING

A. ANALYSIS AND DESIGN OF STRUCTURES

Focus:

- New technologies for steel-concrete composite structure, mechanical characterization of timber elements, using various tests steel and timber structures, racks and scaffold systems; and structural health monitoring and identification.

B. STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT
Focus:

- New trends in: concrete structures analysis innovative hybrid structures, cable supported bridges, design and reinforcement of piers and maintenance planning.

C. GIS/REMOTE SENSING FOR NATURAL RESOURCES MANAGEMENT
Focus:

- Research on: Environmental assessment and sustainable development in developing countries, improved altitude determination with GPS and altimetry.

D. HIGHWAY ENGINEERING
Focus:

- Improved construction materials, asphalt paving and recycling
- Conduct a study on driver support system, traffic behaviour, simulation and real-time analysis
- New Studies on tunnel construction, complete contours drilling and rock blasting.
- Improved /new soil modeling technology

E. WATER RESOURCES MANAGEMENT
Focus:

- Improved water resources/scarcity management, water governance and legal framework

F. INNOVATIVE STRUCTURAL DESIGNS
Focus:

- New trends in structural integration and optimization, life cycle of structure lightweight structures, and structural designs with glass, fibres, etc.

G. WATER AND WASTE WATER TREAMENT TECHNOLOGY
Focus:

- New development for waste management and recycling, membrane technology ozonation/biofiltration, particle characterization, elimination of persistent organic pollutants, etc.

H. GEOTECHNICS AND SOIL MECHANICS
Focus:

- Develop techniques for: Tunneling, dynamic soil compaction, soil analysis and foundation, etc.
- Geotechnical utilization of waste materials and their economic values in developing countries.

I. MECHATRONIC SYSTEMS
Focus:

- Improved Computer simulation and application in mechatronic and embedded system.
- Geometric modeling, design of intelligent products and manufacturing, etc.

J. VEHICLE DYNAMICS AND CONTROL
Focus:

- Improved Studies on: Dynamic modeling and application, human factors and ergonomics, vehicle body structures and control, etc.

K. CONDITION MONITORING OF PIPES AND FITTINGS

- Improved corrosion inspection/sensor, monitoring of pipelines
- Modern production technologies for manufacturing popes and fittings
- New methods of operational safety regulation for popes, fittings and power plant.

L. ADVANCED MANUFACTURING PROCESSES AND SYSTEMS
Focus:

- Improved material selection and processing, advanced metrology and inspection, techniques for manufactured parts,
- New strategies in manufacturing processes, computer aided production planning, etc

M. CURRENT TRENDS IN CAD/CAM

- Modelling techniques and application

N. CURRENT TRENDS IN REFRIGERATION, AIR-CONDITIONING, HEAT AND MASS TRANSFER
Focus:

- Energy efficient refrigeration and air-conditioning systems, alternative/new refrigerants, refrigeration and air-conditioning components simulations, application of heat and mass transfer in refrigeration and air-conditioning, manufacturing, plant equipment, etc.

O. SUSTAINABLE ENERGY, ENERGY CONSERVATION AND MANAGEMENT

- New and comprehensive studies and application of geothermal, nuclear, solar, water, wind, biomass and tidal energy, etc.

P. STUDIES ON THE DEVELOPMENT IN THE OIL AND GAS SECTOR OF THE ECONOMY

OTHERS

- Focus on the new technologies in foundry industry
- Energy research; including biofuel, nanotechnology, etc.
- CNC machines; modeling and applications.
- New trends in autotronics.

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FOCUS

- Appraising the existing medium of instruction in schools and designing new medium and method.

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PRESERVATION AND STORAGE

General Objective

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Research Areas

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- Developing value chain schemes for various raw materials
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- Upgrading the indigenous technologies for preservation and storage of food
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- Food microbiology
- Food chemistry/biochemistry

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- Water pollution and remediation technology

B. HEALTH PRODUCT DEVELOPMENT RESEARCH

Focus General

- Developing pharmaceutical products
- Developing Biological Diagnosis
- Developing therapeutic mechanisms
- Developing health educational products

Specific

- Developing new and improved tools for the prevention, treatment and control of diseases

- Research into traditional medical practices and products
- Research into herbal medicines
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Focus:

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General Objectives
Research on conversion of available energy sources into thermal energy, mechanical energy and electricity

Specific Research Areas

A. RENEWABLE AND NON-RENEWABLE SOURCES OF POWER AND ENERGY

Focus:

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General Objectives

To carry out research on how to revolutionize the e-government, e-learning, e-commerce, e-banking, e-library, biometric systems, networking security, artificial intelligence, telecommunication systems, (etc) through the potentials of ICT

Research Areas

A. RESEARCH ON COMPUTER HARDWARE AND ASSOCIATE PERIPHERALS

Focus:

- Design and development of embedded microcontroller
- Research on computer architecture, computer aided health diagnosis, computer performance evaluation, flight control systems, modeling and simulation process and machine control, etc.
- Nanotechnology
- Network administration and security

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Focus:

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Focus:

- Developing web based national databanks
- Data Warehousing and data Mining

C. TELECOMMUNICATION

Focus:

- New discoveries on computer networking, wireless communications, fiber optic applications
- Research on monitoring telecommunication networks
- Social and medical issues relating to development of GSM

D. MULTIMEDIA AND ANIMATION

Focus:

- sing multimedia computing for education and public enlightenment
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- Advertising and graphic design
- Simulation and game development

E. INFORMATION TECHNOLOGY

Focus:

- Globalization and information technology
- Security challenges in Nigeria: The roles of the media
- Library and Information services for rural development
- New trends in e-library
- ICT and office management/technology: New trends

VIII. ENVIRONMENTAL, HOUSING & URBAN DEVELOPMENT
General Objectives
Research on the physical and built environment to:

- Evolve proactive policies and appropriate governance mechanism for effective management of the environment
- Acquire scientific understanding of ecological problem and develop environmental technologies that can be employed to tackle the problems.

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Focus:

- Developing technology for desertification and erosion, drought and disaster control.

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Focus:

- Developing new technologies for air pollution, water pollution, oil spillage control etc
- Developing sustainable biodiversity projects on ecosystem management
- Reforestation and forest management

C. HOUSING

Focus:

- Research on appropriate housing systems and technologies in the urban environment
- Research on housing economics and finance
- Modern technology for environmental sanitation and waste disposal
- Sustainable urban development technology
- Proposing policies on housing and urban management

ENVIRONMENTAL GOVERNANCE

Focus:

- proposing policies on housing and urban management
- Management of information technology in construction
- Public-private partnerships in Environmental development and governance
- Policy, contractual and risk issues in Construction industry

E. LANDSCAPE EVOLUTION AND LAND USE CHANGE

Focus:

- Developing an improved models for landscape evolution
- Developing technology for controlling and planning of land use

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Focus:

- Natural and social impacts of global climate change on…?
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- Eco-city design and climate change.
- Capacity building
- Community/government capability in post disaster recovery
- Post- disaster organizational risk management, supply chain recovery
- Green Architecture on global climate change
- Sustainability of the built environment
- Computational analysis of built environment
- Sociological analysis of digital practices in environmental governance
- Building information modeling,
- Property valuation, accounting and taxation (Internal perspectives)
- Urban and property economics

- Facilities management, property governance and ethics, green innovation
- Developing new technologies for the control of environmental
- Developing energy saving technologies in the residential, commercial building, transportation and industrial sectors
- Developing an improve models for landscape evolution
- Developing technology for controlling and planning of land use.
- Digital photogrammetry: Forest inventory measurement, airborne laser scanning satellite data, animal aggregation behavior measurement
- Development of specialized instruments and techniques for precise measurement
- Geographical information science (GIS) in Cadastral management and Environmental management
- Environmental geodesy
- Research on feature extraction from high resolution satellite imagery and modeling

G. DEVELOPMENT CHALLENGES

Focus:

- Developing new technologies for minimizing environmental impacts?
- Developing sustainable infrastructure development…?
- Design and management of the built environment for economic
- Adaptive re-use of heritage structure
- The built environment and community health
- Lighting design in Architecture
- Environmental performance prediction in building
- Tendering/Bidding Strategies and Qualification in construction industry
- Public/private Construction contract Administration
- Value Engineering and Management
- Cost Planning, cost control and quantity surveying practice
- Procurement systems, process, modeling, innovative and strategies
- New trends in innovative building concepts,
- Development of new materials and component for efficiency in building

H. PROPERTY MORTGAGE INVESTMENT

Focus:

- Revitalizing mortgage origination and organization
- New options for controlling mortgage delinquency and default.

1. **DESIGN COGNITION AND LEARNING**

Focus

- Research on process of design in terms of learning, teaching, understanding and application Professional competency standards and curriculum design

IX. ENTREPRENEURSHIP AND WEALTH CREATION

General Objectives

Research on information, knowledge based scientific, technological and innovational driven skills acquisition and wealth generating enterprises.

Research Areas

A. TRIPOD OF TECHNOLOGY

Focus:

- Developing models for strengthening the tripod of technology linkages and collaboration (Government-Academia-Industry)

B. THE IMPACT SOCIO-CULTURAL ISSUES ON ENTREPRENEURSHIP AND WEALTH CREATION

Focus:

- Research on how to formulate framework/policy for integrating science technology and innovation into national/economic development programmes

C. TECHNOLOGY-DRIVEN DIVERSIFICATION OF NATIONAL ECONOMY

Focus:

- Research on methods of modernization of traditional technology
- Technology adaptation for SMEs
- Developing software for programmes on available global opportunities
- Cost implications on production activities in small and medium scale enterprises
- Management consulting and practice for small and medium scale enterprises
- Production management in SME
- Handling of risks associated with small and medium scale enterprises
- Improving access to finance from the informal sector for SMES
- Issues relating to loans and debt recovery in SME
- Developing new technologies for marketing SMEs products.

D. FINANCING OF INNOVATIONS & ENTREPRENEURSHIP

Focus:

- Developing new models for financing SMEs, capital development, technology and industrial parks

X. TRANSPORT

Focus:

- Suggesting means of improving the transportation systems in favour of SME

XI. CIVIL AND MECHANICAL ENGINEERING

A. ANALYSIS AND DESIGN OF STRUCTURES

Focus:

- New technologies for steel-concrete composite structure, mechanical characterization of timber elements, using various tests steel and timber structures, racks and scaffold systems; and structural health monitoring and identification.

B. STRUCTURAL ENGINEERING AND CONSTRUCTION MANAGEMENT

Focus:

- New trends in: concrete structures analysis innovative hybrid structures, cable supported bridges, design and reinforcement of piers and maintenance planning.

C. GIS/REMOTE SENSING FOR NATURAL RESOURCES MANAGEMENT
Focus:

- Research on: Environmental assessment and sustainable development in developing countries, improved altitude determination with GPS and altimetry.

D. HIGHWAY ENGINEERING
Focus:

- Improved construction materials, asphalt paving and recycling
- Conduct a study on driver support system, traffic behaviour, simulation and real-time analysis
- New Studies on tunnel construction, complete contours drilling and rock blasting.
- Improved /new soil modeling technology

E. WATER RESOURCES MANAGEMENT
Focus:

- Improved water resources/scarcity management, water governance and legal framework

F. INNOVATIVE STRUCTURAL DESIGNS
Focus:

- New trends in structural integration and optimization, life cycle of structure lightweight structures, and structural designs with glass, fibres, etc.

G. WATER AND WASTE WATER TREAMENT TECHNOLOGY
Focus:

- New development for waste management and recycling, membrane technology ozonation/biofiltration, particle characterization, elimination of persistent organic pollutants, etc.

H. GEOTECHNICS AND SOIL MECHANICS
Focus:

- Develop techniques for: Tunneling, dynamic soil compaction, soil analysis and foundation, etc.
- Geotechnical utilization of waste materials and their economic values in developing countries.

I. MECHATRONIC SYSTEMS
Focus:

- Improved Computer simulation and application in mechatronic and embedded system.
- Geometric modeling, design of intelligent products and manufacturing, etc.

J. VEHICLE DYNAMICS AND CONTROL
Focus:

- Improved Studies on: Dynamic modeling and application, human factors and ergonomics, vehicle body structures and control, etc.

K. CONDITION MONITORING OF PIPES AND FITTINGS

- Improved corrosion inspection/sensor, monitoring of pipelines
- Modern production technologies for manufacturing popes and fittings
- New methods of operational safety regulation for popes, fittings and power plant.

L. ADVANCED MANUFACTURING PROCESSES AND SYSTEMS
Focus:

- Improved material selection and processing, advanced metrology and inspection, techniques for manufactured parts,
- New strategies in manufacturing processes, computer aided production planning, etc

M. CURRENT TRENDS IN CAD/CAM

- Modelling techniques and application

N. CURRENT TRENDS IN REFRIGERATION, AIR-CONDITIONING, HEAT AND MASS TRANSFER
Focus:

- Energy efficient refrigeration and air-conditioning systems, alternative/new refrigerants, refrigeration and air-conditioning components simulations, application of heat and mass transfer in refrigeration and air-conditioning, manufacturing, plant equipment, etc.

O. SUSTAINABLE ENERGY, ENERGY CONSERVATION AND MANAGEMENT

- New and comprehensive studies and application of geothermal, nuclear, solar, water, wind, biomass and tidal energy, etc.

P. STUDIES ON THE DEVELOPMENT IN THE OIL AND GAS SECTOR OF THE ECONOMY

OTHERS

- Focus on the new technologies in foundry industry
- Energy research; including biofuel, nanotechnology, etc.
- CNC machines; modeling and applications.
- New trends in autotronics.