Objective & Methodology Summary

The main objective of this programme is to promote basic and applied research in thrust areas of various disciplines of science & technology viz Chemical and Pharmaceutical Sciences, Medical Sciences and Physical Sciences, Agricultural & Allied Sciences, Biological Sciences and Earth Sciences, Environmental Sciences, Veterinary/Animal Health sciences etc. with special reference to sectors relevant to the State, to develop S&T human resource in specific discipline and to create strong S&T base for conducting advanced scientific research in the institutions of the state.

Research proposals are invited from R&D institutions, Universities, medical and agricultural colleges located in the state. The proposals are evaluated by experts and then screened through related expert/advisory committee considering their importance for the state on the basis of infrastructure available in the institution and competency of investigator to carry out the research work in the concerned discipline. Thus screened projects are finally put up for approval of Executive Committee. The research projects approved by Executive Committee are sponsored to various institutions in the State for implementation. In addition to supporting open ended research the following broad areas have also been identified by the Council where R&D projects are considered on priority:

- Biotechnology & Rural Development
- Environment & Human Health
- Genomics in Human Diseases
- Pharmaco-genomics & bio-informatics
- Epidemiological studies of diseases prevalent in the State like Vitamin D Deficiency
- Nano-technology
- Safe drinking water
- Hazardous waste management
- Development of Herbal Drugs
- Alternative Source of Energy
- Disease resistant varieties of major UP crops
- Development of genetically modified foods with due emphasis on their safety evaluation
- Organic farming in production of improved agricultural and horticultural crops.
The results of useful and applied research projects are presented by investigators and scientific personnel associated with the projects in National and International conferences/symposia/workshops. Efforts are also made to send the findings of the important research projects to user departments and institutions concerned to utilize the results and take desired follow up action for the benefit of State and welfare of society. During XIth Five Year Plan, initiatives have been taken to establish Centers of Excellence in selected areas of science & technology with major thrust on capacity building and human resource development. Beside this, Young Scientists Scheme and Young Scientists Visiting Fellowship Scheme have also been taken up to give opportunities to young scientists to pursue research in emerging areas of science & technology and to excel their scientific capability.

1. **To Support R & D Projects in various discipline of Science & Technology:**

   There are 103 R&D projects being carried out in different thrust areas of Science & Technology related to Chemical and Pharmaceutical Sciences, Medical Sciences and Physical Sciences, Agricultural & Allied Sciences, Biological Sciences and Earth Sciences, Environmental Sciences, Veterinary / Animal Health sciences etc. with special reference to sectors relevant to the State. Association studies of cytokine chemokine receptor and xenobiotic metabolizing enzyme gene polymorphisms in cervical cancer, role of VDR gene polymorphism on growth and bone mineral density in homozygous beta thalassemia patients of north India, S-phase fraction and aneuploidy in patients with bone marrow suppression (diagnostic& prognostic value), Co-infection of hepatitis C virus with HIV: impact on immunological progression of HIV, Cord blood stem cell banking in context of its application in management of diseases, Identification and evaluation of cost effective polymers of biomedical importance, Health risk assessment and environmental monitoring among pesticide sprayers in Mango plantations of Uttar Pradesh, Occupational dust toxicity and health risk assessment in bone based unorganized industrial unites of Uttar Pradesh, Genetic basis for susceptibility to lung cancer, Utilizing aroma compounds based leads for mosquito control agents, immuno modulatory role of withania somnifera in management of pulmonary tuberculosis, study of causative factors of megaloblastic anemia , Role of caspase gene polymorphism and TNF alpha induced apoptosis in prostate cancer susceptibility, genetic polymorphisms of GST and risk of gastric cancer, application of nano scale iron for the remediation of site contaminated with tannery waste at (Rania) , nano wire nano sensors : an electronic tool for drug discovery , mobilization of arsenic to the ground water and its mitigation in
the endemic areas of Uttar Pradesh, A Study on Leptin Receptor Gene Polymorphism in Obstructive Sleep Apnoea Patients in Indian Population, Expression of biomarkers in oral cancer and precancer as predictive adjunct to conventional histology and clinico-epidemiological risk factors, Vitamin D and Calcium Nutrition - In Pregnancy - Evaluation of Optimal Supplementation Dose of Vitamin D During Antenatal Period, To Assess the Nutritional, Functional and Immunological Changes of Palliation and Glutamine Supplementation on Patients of Malignant Obstructive Jaundice, Improvement of strain for alkaline protease Production from fungi in solid state-culture, Identification of potential antimutagenic Phytochemicals from weeds and agri-wastes, Studies on therapeutic role of L-Arginine on free radical scavenging system In ischemic heart diseases, Study of the genetic stability of bacterial strain from earth worm gut for in-situ application in detoxification of endosulfan, Biodiversity, chemical Characterization and agro-techniques of ethno botanically used nutraceutical plants of North Eastern Tarai Region of UP, Formulation of Botanical pesticide from wild essential of plants for safe storage of pigeonpea grains, Accelerating the Adoption Conservation Agriculture Technologies for their farm Level impact in western Uttar Pradesh, Molecular Characterization of tospoviruses infecting faboceous crops based on NP gene sequences, Effect of some synthetic pyrethroids on the reproductive ability of Zebrafish Brachydario rerio (Cyprinidae), Efficacy of Cassia Tora (L) As a Tool of Phytoremediation of fly Ash and biocontrol of root-Knot Nematode (Meloidogyne Incognita), Search for Indigenous Blood Sugar Lowering Herbs for Treatment of Diabetes and Validation of Refined IPM Modules for the Management of Helicoverpa Armigera in Larger Area of Basti District & Standardization of Agro-techniques for cultivation of sarpagandha (Rauvolfia serpentina) under Teak (Tectona grandis) and poplar (Populus deltoides) based agroforestry system, Storability Assessment of Value Added Jaggery Prepared using Aonla as a Natural Source of Vitamin-c, Long term effects of Integrate nutrient cropping system and sustainability of rice wheat cropping system and soil fertility in Eastern Uttar Pradesh, Management of Banded Leaf and Sheath Blight Disease of Maize by Integration of Cultural are some of the important research projects.

In addition to supporting ongoing projects, new research projects in different areas of Science & Technology and multidisciplinary emerging areas of relevant to the state are proposed to be taken up in the current financial year (2010-2011). In the current financial year, 16 new research projects have been sanctioned till July, 2010.
2. Establishment of Centre of Excellence in chosen areas of Science & Technology:

Science and Technology plays a pivotal role in national development. The policy goal for the next decade is to facilitate the availability of higher quality scientific as well as technical human resource in major disciplines of science and technology. Large talent pools are required in multiple scientific disciplines to address societal problems in terms of healthcare and economy in the present era of global competition and changing S&T scenario.

During 11th Five Year Plan, efforts have been made to establish Centers of Excellence in Institutions/Universities situated in the State of Uttar Pradesh with a view to strengthen S&T infrastructure and to give thrust on capacity building and human resource development in chosen areas of S&T. As part of 11th Five Year Plan, the centers of excellence in encephalitis research, herbal medicine, materials science (Nano materials), Pharmaceutical Sciences, and diagnostics have been proposed to be established in institutions which have the basic facilities. With the approval of Director General, CST, UP regarding the Establishment of Centres of Excellence in above areas, the proposals were invited from Institutions / Universities / Research Organizations situated in the State. 16 proposals were received in various areas.

In the meeting of Planning Commission Govt. of India, New Delhi regarding discussion on 11th five year plan of science & Technology, it has been suggested that the centers of excellence in selected areas relevant to the state should be established by providing adequate fund and infrastructure instead of giving small grant to establishing centre of excellence in many areas. It is therefore, following two areas are prioritized for establishment of centers of Excellence.

1. Encephalitis Research Centre of Excellence: Keeping in view acute problems of Japanese Encephalitis (JE) affecting large number of children in eastern areas of Uttar Pradesh every year.

2. Centre of Excellence in Materials Science (Nanomaterials): This technique of millennium is thought to address problems of health, agriculture and environment improving the quality of life for one and all.

Keeping in view the importance of the above sectors, Encephalitis Research Centre of Excellence has been established in Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow and Centre of Excellence in Materials Science (Nanomaterials) in Aligarh Muslim University, Aligarh. Research work in the above centre is in progress.
(a) **ESTABLISHMENT OF CENTRE OF EXCELLENCE IN ENCEPHALITIS RESEARCH**

Japanese Encephalitis Virus (JEV) infection causes acute infection of the Central Nervous system (CNS) producing encephalitis. The mortality rate is comparatively high in this disease. The virus is endemic in our country and causes epidemics. JEV virus epidemics also occur in eastern Uttar Pradesh especially in Gorakhpur region. The disease affects all age groups with highest incidence among children. There is no specific treatment of this disease. Even the rapid detection methods of the JEV antigen in infected patients are also needed. Thus there is need to have a center in the state of U.P. to undertake in depth study on viral encephalitis – a disease associated with great morbidity and mortality. The main objectives of this Encephalitis research Centres of Excellence are:

- Detail clinical, radiological and virological evaluation of cases presenting with encephalitis syndrome.
- Provide molecular diagnostic facility for common encephalitis in the state of Uttar Pradesh.
- To conduct clinical research to improve management.
- Disseminate information about treatment and prevention of encephalitis in endemic areas of Uttar Pradesh.
- Storing the clinical and lab data for the undiagnosed patients with encephalitis for future analysis.

The above centre will be useful in the diagnosis and management of the patients of viral encephalitis especially infected with Japanese encephalitis virus. The centre would also conduct research work on pattern, variation and changes in the clinical spectrum of viral encephalitis, molecular diagnosis and management of encephalitis.

(b) **ESTABLISHMENT OF CENTRE OF EXCELLENCE IN MATERIALS SCIENCE. (Nano-Materials)**

Development of innovative systems and processes today depends more and more on the availability of high performance materials. The field of Engineering Materials has expanded enormously and produced variety of materials such as ceramics, polymers, inter metallic together with traditionally important metals and alloys, composites materials, ceramic, polymers and bio-materials have revolutionized materials scene. At present in many applications these materials, both traditional and non-traditional are competing with each other. Considering these points in view, there is strong need to establish center of excellence in Materials Science (Nano Materials) in selected institution in the State having some expertise and infrastructure base in the area with an aim to undertake multidisciplinary R&D work in the field of Nano Materials Science. Some of
the areas where work could be taken are Nano particles, conduct metric sensors, catalytically active materials, thin films, advanced ceramics, Luminescent materials, High temperature super conductors, Amorphous silicon thin films for photovoltaic applications, etc. This center would also conduct short term training programmes for young scientists to be trained in the field of materials science. The centre aims to develop R&D facilities in Nanomaterials synthesis, Nanomaterial characterization and testing facilities thus creating strong R&D base in the field of Nanomaterials having applications in Health, Agriculture, Environment and Industries. The specific objectives of the above Centre of Excellence are:

1- **To Conduct Research & to Develop R&D Facilities in the Following Areas for Nanomaterials Synthesis:**
   - Chemical synthesis of Nanomaterials - Metal Oxides Nanoparticles, Precipitation and sol-gel methods.
   - Chemical Vapor Deposition (CVD)- Carbon fullerenes and nanotubes.
   - Atomic Layer Epitaxial Deposition
   - Reactive Sputter Deposition
   - Electrochemical Deposition
   - Nanoporous Formation

2- **To Conduct Research & to Develop R&D Facilities in the Following Areas for Nanomaterial Characterization & Testing:**
   - Optical and Conventional microscopy
   - Profilometry and Thin Film Measurements
   - Thin Film Stress Measurement
   - STM/AFM
   - SEM/TEM
   - XRD
   - UV/Visible, FTIR Spectroscopy
   - Raman Spectroscopy
   - Particle size & dispersion
   - Chemical constituents
   - Simulation & modeling
3. **Young Scientists Scheme and Young Scientists Visiting Fellowship Scheme:**

The Young Scientists Scheme has been initiated in year 2007. The main objective of the scheme is to provide grant-in-aid to young scientists who have adequate background and training in important areas of science & technology with an inclination to undertake activities related to R&D. With this effort, young scientists will get opportunities to pursue their innovative ideas in newly emerging frontier areas of research in science & technology, to work for integrated research programme involving interdisciplinary fields and to acquire experience in the management of a project. Young Scientists Scheme in CSTUP has been adopted on the pattern of Deptt. of Science & Technology, Govt. of India, New Delhi. Under this scheme, funds are provided for consumables, travel and contingency.

Additionally, the applicant if not holding a regular position or not drawing any other fellowship / stipend / salary, can draw a fellowship amount of Rs. **25,000.00** per month. In cases, where the applicant is holding a regular position, he/she can seek a manpower at junior level (JRF, Project Assistant, etc). The details about the scheme and criteria for the award have been prepared on the pattern of Department of Science & Technology, Government of India.

53 research projects in various discipline of Science & Technology under Young Scientist Schemes are continuing and their physical and financial progress are being monitored.

As a part of 11th Five Year Plan, the initiative has been taken to encourage Young Scientists by giving them opportunity to work in reputed institutions of the country for short duration in order to excel their research potential in the field of their specialization. The main objective of the scheme is to provide opportunity to young scientists working in various Institutions, Universities, Degree Colleges, Medical Colleges, Engineering Colleges where infrastructure for conducting advanced research are not adequate, for undergoing specialized training in Indian research institute/ laboratories, for conducting advanced research in their field of specialization, furtherance of research capabilities for carrying out collaborative research, undergoing training in specific techniques or utilizing facilities not available in their own institutions. These fellowships will be awarded on a competitive basis to the scientists for furtherance of their research and / or research capabilities for carrying out collaborative research, undergoing training in specific techniques, or utilizing facilities not available in their own institutions. The fellowships will be for a period of two to six months in a given year. Preference will be given to the candidates from universities and academic institutions in remote places/inadequately equipped laboratories. The candidates will be below 35 years and they should be having Master degrees in Engineering, Technology or equivalent or Ph.D in Science or Technology, or equivalent or M.D. degree in medicine or equivalent. The candidates should hold a regular position on a recognized Science &
Technology institution, University, or in a college, candidates must be officially sponsored (their applications to be forwarded) by the employer/Head of the institution or agency with commitment to depute him/her for research/training under the fellowship. The fellowship will carry an honorarium of Rs. 5000.00 per month in addition to the scientists own salary from his parent institution and to and fro travel expenses as per entitlement from the parent organization to the proposed institute of work shall be provided. Also Rs.1,500.00 may be given per month as contingencies. Funds will be released to the candidates parent organization with an undertaking from them. Under this scheme five young scientists have been provided visiting fellowship by the Council. In addition to supporting continuing schemes, new proposals under Young Scientists Scheme and Young Scientist Visiting Fellowship scheme are proposed to be invited from the institutions of the State and technically viable projects are proposed to be funded in light of importance of the proposals, academic qualifications and research experience of the candidates in the current financial year 2014-2015. In the current financial year, 20 research schemes are running, 23 research schemes have been completed under the P.I.s, and 17 new research schemes have been recommended by the Advisory (Expert) Committee for Young Scientist Schemes and Young Scientist Visiting Fellowships of the Council to grant financial support. 09 visiting fellowships have been awarded during 2007 - 2012. Further new research proposals are being invited for consideration under young scientist scheme and young scientist visiting fellowship scheme.

**YOUNG SCIENTISTS VISITING FELLOWSHIP**

The main objectives of the scheme is to provide opportunity to Young Scientists working in various institutions, Universities, Degree Colleges, Medical College, Engineering Colleges where infrastructure for conducting advanced research are not adequate, for under going specialize training in Indian Research Institute/Laboratories, for conducting advanced research in their field of specialization, furtherance of research capabilities for carrying out collaborative research, undergoing training in specific techniques are utilizing facilities not available in their parent institutions.

1. **DETAILS OF AWARD:**

These Fellowships will be awarded on a competitive basis to Indian scientists for strengthening their research career. The activities may include collaborative research, training in specific techniques, or utilizing facilities not available in their own institutions. The fellowships will be for period of 2 to 6 months in a well established laboratory/national research institution or university normally in another state of the country. In a given year, there will normally be up to 20
fellowships in all disciplines. Preference will be given to the candidates from Universities and academic institutions in remote places/inadequately equipped laboratories.

2. **CANDIDATES AGE:**
   Below 35 year on date of application.

3. **ACADEMIC QUALIFICATIONS:**
   Masters Degree in Engineering or Technology or equivalent or Ph.D. in Science or Technology or equivalent or MD Degree in Medicine or equivalent.

4. **EMPLOYMENT:**
   A regular position in a recognized S&T institution, University or in a College. Candidates must be officially sponsored (applications to be formally forwarded) by the employer/Head of the institution or agency with commitment to depute him/her for research/training under the Fellowship.

5. **PLACE OF WORK:**
   The Fellow should be accepted by the host institute (letter of acceptance should be enclosed with the application) which is nationally recognized as an outstanding institution where major work, in the area on which the candidate would like to work, is being carried out.

6. **VALUE:**
   The Fellowships will carry an honorarium of Rs. 5,000.00 per month in addition to the scientist's own salary from his parent institution. One to and fro 1st Class Rail/Bus fare plus reservation charges from the parent organization to the proposed institute of work shall be provided. In addition Rs. 1,500.00 per months will be provided for contingencies. Funds will be released to the candidate’s parent organization.

7. **APPLICATION PROCEDURE:**
   Candidates should submit their application on prescribed form through proper channel. Applications received will be processed through duly constituted Expert Panels.
YOUNG SCIENTISTS SCHEME

The main objective of the scheme is to provide grant in aid to Young Scientists, who have adequate background and training in important areas of science & Technology and show inclination to undertake activity related to R&D. This scheme will be useful to young scientists to pursue their bright ideas in newly emerging frontier areas of research in science and technology, to work for integrated research programme involving interdisciplinary fields and to acquire experience in the management of a project. The specific, time bound and result oriented projects would be considered. Young Scientists up to 35 years of age (relaxable by five years in the case of SC/ST/OBC, women and physically handicapped) with minimum qualification of Ph.D. in any branch of science and technology, or M.D. or M.Tech will be considered under this scheme. The candidates from Universities/degree Colleges are particularly encouraged to apply. The details of the scheme are as follows:-

OBJECTIVES :

1. To provide quick research support to young scientists for pursuing exciting and innovative research ideas.
2. To provide opportunities for interaction and exchange of ideas with scientific community.
3. To involve young scientists in national S&T development process.

ELIGIBILITY :

1. The applicant should possess any of the following degrees:-
   (b) Masters degree in Engineering/ Technology, Medicine/ Surgery, Pharmacy, Veterinary, Agriculture or equivalent.

2. The candidate should be less than 35 years on the date on which the application is received in Council of Science & Technology, U.P. However, age relaxation of 5 years would be given to scientists belonging to SC/ST/OBC, Women and Physically Handicapped category.
Only Indian citizens who are resident of Uttar Pradesh are eligible for Young Scientist Award.

FUNDING

1. The funding is provided up to a maximum of Rs. 9.00 lakhs for a period not exceeding three years. If the proposed objectives can be achieved in less than three years, the budget may be reduced accordingly.

2. Funds are provided for, consumables, travel and contingency. Additionally, the applicant if not holding a regular position or not drawing any other fellowship/stipend/salary, can draw a fellowship amount of Rs. 20,000.00 per month (all inclusive). The fellowship amount is taxable. In cases, where the applicant is holding a regular position, he/she can seek a manpower at junior level (JRF, Project Assistant, etc.)

General Guidelines for Submission

1. The applicant should fulfill the eligibility criteria (education and age) as given under “Eligibility”

2. The funding is up to a maximum of Rs. 9.00 lakhs for a period not exceeding three years.

3. All care must be taken to write a good scientific proposal. The proposal should contain significant novelty and should lead to enrichment of scientific knowledge in the field. Routine extension of Ph.D. or any other work will be discouraged. The candidates who are unemployed and drawing fellowship from the project are encouraged to choose the place or work different from the place where they have completed their Ph.D. or other degree obtained in the immediate past.

4. Projects which involve Recombinant DNA work should be examined and certified by institutional Biosafety Committee.

5. Projects, which are clinically oriented or projects, which involve experiments with human and/or animal material, should be examined and certified by Institutional Ethics Committee.

6. All the required information should be given in the text of the proposal itself and not as annexures.

7. Incomplete application and application lacking scientific/technical details will not be considered.

8. The proposal should be forwarded by the Head of Institution where the candidate desires to
work. In case the candidates who are on regular services, should send their proposal through their employer/Head of Institution.

9. 10 copies of the proposal in the prescribed form should be submitted to Council of Science & Technology, U.P.,

APPLICATION FORM FOR YOUNG SCIENTISTS SCHEMES : CLICK HERE