PROJECT DESIGN :

The Project is composed of following Components and Sub-components:

Component - 1 : Improving Quality of Education in Selected Institutions

> *Sub-Component 1.1*   :   Strengthening institutions to improve learning outcomes and employability of graduates

> *Sub-Component 1.2*   :   Scaling-up Postgraduate Education and Demand-Driven Research & Development and Innovation

> • *Sub-Sub-Component 1.2.1*   :   Establishing Centres of Excellence

> *Sub-Component 1.3*   :   Faculty Development for Effective Teaching (Pedagogical Training)

Component - 2 : Improving System Management

> *Sub-Component 2.1*   :   Capacity Building to Strengthen Management

> *Sub-Component 2.2*   :   Project Management, Monitoring and Evaluation

The key features of the Project are presented in Table-1 and the detailed descriptions are given in Section-3.

Table-1
Project Component and Sub-Components

Component – 1 : Improving Quality of Education in Selected Institutions

1.1   Strengthening Institutions to Improve Learning Outcomes and Employability of Graduates

Objectives	Suggested activities

To strengthen selected Engineering institutions to improve the competencies of undergraduates.
 	
(An estimated 140 new Engineering institutions meeting the Eligibility Criteria will be competitively selected under this Sub-component.)
 	
Private unaided institutions could also be part of this Sub-component but will be funded on cost sharing basis for carrying out the following activities only:
 	
• Improvement in teaching, training and learning facilities through:
 	
  ○ Establishment of laboratories for new PG programmes
  ○ Updation of learning resources
  ○ Procurement of furniture
  ○ Modernization and strengthening of libraries and increasing access to knowledge resources
 	
• Providing Teaching and Research Assistantships to increase enrolment in existing and new PG programmes in Engineering disciplines
• Faculty and Staff development for improved competence based on Training Needs Analysis (TNA)
• Enhanced interaction with Industry
• Institutional management capacity enhancement
• Implementation of Institutional reforms
• Academic support for weak students
	• Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis
	• Improvements in teaching, training and learning facilities through:
	
	  ○ Modernization and strengthening of laboratories and establishment of new laboratories for existing UG and PG[1] programmes and for new PG programmes
	  ○ Modernization of classrooms
	  ○ Updation of learning resources
	  ○ Procurement of furniture
	  ○ Establishment/upgradation of Central and Departmental Computer Centres
	  ○ Modernization/improvements of supporting departments
	  ○ Modernization and strengthening of libraries and increasing access to knowledge resources
	  ○ Refurbishment (Minor Civil Works)
	
	• Providing Teaching and Research Assistantships[2] to increase enrolment in existing and new PG programmes in Engineering disciplines
	• Enhancement of R&D and institutional consultancy activities
	• Faculty and Staff development for improved competence based on Training Needs Analysis (TNA)
	• Enhanced interaction with Industry
	• Institutional management capacity enhancement
	• Implementation of institutional reforms
	• Academic support for weak students

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[1] The term PG covers both Masters and Doctoral programmes.
[2] Teaching Assistantships are to be awarded to full-time non-GATE Masters degree students and Research Assistantships are to be awarded to full-time Doctoral degree students who are not able to secure a scholarship or fellowship.

1.2 Scaling-up Postgraduate Education and Demand-Driven Research & Development and Innovation	
Objectives	**Suggested activities**

To significantly increase enrolment in PG programmes in engineering disciplines and enhance engineering research and development and innovation.
 	
(An estimated 60 institutions will be selected under this Sub-component. The private unaided institutions could also be part of this Sub-component and will be funded for activities as all the other institutions.)
 	
Sub-objectives:
 	
• Improve quality and relevance of PG programmes
• Attract more and better qualified students for PG programmes
• Improve faculty qualifications
• Enhance management of the institutions for more effective governance
	• Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis
	• Improvement in teaching, training and learning facilities through
	   o Establishment of new laboratories for new and existing PG programmes in engineering disciplines
	   o Updation of learning resources
	   o Procurement of furniture
	   o Modernization and strengthening of libraries and increasing access to knowledge resources
	   o Refurbishment (Minor Civil Works)
	• Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in engineering disciplines
	• Enhancement of R&D and Institutional consultancy activities
	   o Development of research interest among UG students
	   o Resource sharing with Industry through collaborative arrangements
	• Faculty and Staff development for improved competence based on Training Needs Analysis (TNA)
	• Enhanced interaction with Industry
	• Institutional Management Capacity enhancement
	• Implementation of institutional reforms
	• Academic support for weak students

1.2.1 Establishing Centres of Excellence	
Objectives	**Suggested activities**

To support establishment of Centres of Excellence for multi-disciplinary applicable research in specific thematic areas.
 	
The institutions selected under Sub-component 1.2 having potential for carrying out applicable research will be eligible for setting up Centres of Excellence with an additional grant. About 30 Centres of Excellence will be established.
 	
Sub-objectives:
 	
• Create knowledge in thematic, multi-disciplinary areas in collaboration with industry and other knowledge users
 	
• Produce advanced human capital (MTechs and PhDs) in thematic areas in collaboration with Industry and other knowledge users
 	
• Increase societal use of engineering R&D through technology transfer and commercialization
 	
• Increase research output
	• Infrastructure improvement for applicable thematic research and development through:
	
	    o Establishment of new laboratories for thematic research
	
	    o Establishment of a knowledge resource centre (library) in the thematic area
	
	    o Procurement of furniture
	
	    o Refurbishment (Minor Civil Works)
	
	• Providing additional Teaching and Research Assistantships for enrolment in Masters and Doctoral programmes in topics linked to economic or societal needs in the thematic areas
	
	• National / International collaboration for Research and Development activities with academic institutions and R&D organizations
	
	• Faculty training for enhancing research competence in thematic areas, both within India and abroad
	
	• Collaboration with Industry for applicable research and product development *(Note : Industry collaboration through an MoU is a necessary condition for award of CoE to an institution)*

1.3 Faculty Development for Effective Teaching (Pedagogical Training)	
Objective	**Suggested activities**
To improve learning outcomes of engineering students by improving competence of faculty from project and non-project institutions through Pedagogical Training.	• To provide Pedagogical Training to maximum faculty from project and non-project institutions.

Component – 2 : Improving System Management	
2.1 Capacity Building to Strengthen Management	
Objectives	**Suggested activities**
• To build capacity of Engineering Education policy planners, administrators and implementers at the Central, State, and Institutional levels for effective implementation of academic and non-academic reforms. • To introduce and sustain innovative systemic quality improvement practices.	• Establishment of Quality Assurance Practices in States/ Union Territories and Centrally Funded Institutions • Establishing a Task Force for strategic planning of Engineering Education by State Governments • Establishment of Curriculum Development Cells (CDCs) in Universities that affiliate project institutions • Spreading best practices to non-project institutions. • Establishing Industry-Institute Partnership Promotion Cells • Sharing of best academic, administrative and governance practices through workshops and specific groups • Conducting Professional Development Programme for Project and Engineering Education administrators at the National and State levels and from Affiliating Universities[3] • Establishment of a Task Force by MHRD for effective system governance

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[3] The term 'Affiliating Universities' is used for Universities that are affiliating project institutions.

2.2 Project Management, Monitoring and Evaluation	
Objectives	**Suggested activities**

To plan, organize and manage resources to bring about successful achievement of Project goals and objectives.
 	
To support innovations for improving State and Institutional level management and education practices.
 	
To monitor and evaluate the performance of project institutions and to identify variance, if any, from the Institutional plan and suggest remedial measures, as required.
 	
To mentor the project institutions towards quality improvement and audit the Institutional performance in achieving the Institutional goals.
	• Ensuring successful and timely implementation of the Project at the Central, State and Institutional levels through coordination of resources and integration of activities of the Project in accordance with the Project Implementation Plan (PIP)
	
	• Ensuring deliverables as outputs from the Project, as planned
	
	• Monitoring and evaluation of performance through:
	
	  ➤ Key Performance Indicators
	
	  ➤ Web based Management Information System (MIS) at the NPIU, State Project Facilitation Units (SPFUs) and project institutions
	
	  ➤ Conduct of Assessment Surveys :
	     o Student Satisfaction Surveys
	     o Faculty Satisfaction Surveys
	     o Implementation Surveys
	     o Employer Satisfaction Surveys
	
	  ➤ Conduct of Institutional Audits :
	     o Performance and Data Audits
	     o Fiduciary Audits
	
	  ➤ Conduct of Resource Utilization Study
	
	  ➤ Conduct of Bibliometric Study
	
	  ➤ Conduct of Impact Assessment Study
	
	  ➤ Reviews :
	     o Mid-term Review Mission
	     o Six-monthly Joint Review Missions
	
	  ➤ Mentoring