Proposal from

Shri G. S. Institute of Technology and Science,
23, Park Road, Indore – 452 003 (M.P.)

For

Institutional Development Proposal (IDP)

For

Sub-component 1.2 Scaling-up Post Graduate Education and demand-driven R&D&I
Under
Technical Education Quality Improvement Programme
(TEQIP Phase – II)

Submitted Through

Government of Madhya Pradesh

On 28.05.2015

to

National Project Director,
National Project Implementation Unit,
Ed. CIL House, 4th Floor, Plot No. 18-A, Sector 16-A
Gautam Buddha Nagar, Noida – 201 301 (Uttar Pradesh)

INSTITUTIONAL DEVELOPMENT PROPORAL (IDP)

1. EXECUTIVE SUMMARY

Shri G.S. Institute of Technology & Science, Indore (SGSITS) was established in 1952 by G.S. Technical Society in the objective of providing technical education to the bright young generation in entire Malwa Region in Central India. It started its journey with the offering of a Licentiate Programme in Civil Engineering. In 1956 the Institute became a degree engineering college. Today, the Institute runs 9 UG and 17 PG Programmes in Engineering, B. Pharmacy, 2 Programmes in M. Pharmacy offering also in MCA, Course.

Today, in Madhya Pradesh, SGSITS is the largest technological institute with an annual intake of 660 UG, 300PG and 60 MCA students. The Institute has always been keen to introduce newer and newer engineering programmes and subjects like Bio-Medical Engineering at UG level and Opto-electronics with specialization in Optical Communication at PG Level have been introduced when the country needed trained technical manpower at these levels

The Institute celebrated its Golden Jubilee year during December 2001 to December 2002. The celebration was inaugurated by Dr. Murali Manohar Joshi, Union Minister of human Resource Development and the valedictory function in December 2002 was attended by Dr. A.P.J. Abdul Kalam, the President of India and several other national leaders during this entire Golden Jubilee year, the Institute has organized several academic activities and initiated many ambitious programme. Among them, the participation in the prestigious "Technical Education Quality Improvement Programme (TEQIP)" has been one of the few important mile stones in the path of 58 year – long journey.

The faculty members of this institute have a long track record of being committed, dedicated and academically oriented which could lead to the fact that the parents of 10+2 School going children in M.P. dream of gating admission for their wards if not in IITs then in SGSITS. The research motivation among the faculty has always been encouraged by the administration that could bring large amount of funding from leading S&T Agencies like MHRD/AICTE,DST, DOE, DAE, CSIR, UGC etc. these projects have been instrumental in the development of a large number of sophisticated laboratories and could enabled the faculty members to publish research papers in International and National Journals and doing testing and consultancy. However, the rapid pace at which the technology is changing towards higher order of sophistication, it has been almost impossible to maintain the

coherent phase of progress if liberal and adequate funding is not available for upgradation of the academic curricula including laboratories and R&D Centres/Cells in the institute.

The Institute has actively participated in TEQIP phase-I during 2003-09 as a lead Institute and successfully achieve the goals set by and mentioned in the Institute proposal submitted in 2003. The Institute is grateful to the authorities of Govt. Madhya Pradesh and NPIU, New Delhi for its active support and cooperation from time to time. Some of the salient achievements of TEQIP Phase-I are as follows:

1. The Institute is first in the country to implement Campus Wide Networking with more than 1350 nodes connecting all academic departments, administrative and financial block, hostels and staff campus.
2. The Institute has created a facility of 33 KVA Substation to provide uninterrupted electric supply in the Institute premises.
3. The Institute has uplifted the status of Library by 35% in volumes of Books, Periodicals, Journals and e-Library facility along with the infrastructure development.
4. Institute is also established a separate block as Advanced Technology Centre with the financial support under TEQIP.
5. The Institute has also organized more than a dozen seminars/workshop/training programmes for the benefit of the faculty members of the Engineering Colleges of the Madhya Pradesh and some of them of organized with the network institute.
6. The Institute has organized two training programmes in the area of conservation of water and water harvesting. 400 Tribal youths (Gram Engineers) were trained by the faculties of the Institute in the year 2006 and 2008.
7. Institute has also organized training programme for ITI trained and qualified staff for electrical technician courses and mechanical oriented programmes.
8. Institute is also enhanced the ongoing UG and PG Programmes.
9. Around 100 faculties have been sponsored to attend National and International Conferences/Seminar for presenting their research works.
10. The Institute is first in the state of Madhya Pradesh to implement grading system at UG and PG level among affiliated institutes of RGTU, Bhopal.
11. 50 Research Scholars have registered for the Doctoral Programmes.

12. As an out come various magazines of the Country which is carried out a survey among the Engineering and Technological Institute for the research performance has ranked as under:

(i) Current Science Volume 97 No.3 August 2009 had ranked SGSITS on **No. 28th** among lead institutes including II Ts, and IISCs for research publications in International Journals.

(ii) Outlook survey June 2010 has ranked SGSITS as **35th** on all India basis including IITs and IISCs, further more, it has ranked the Institute as **6th** on Return of Investment Basis.

(iii) Competition Success Review August 2010 has ranked SGSITS on **23rd** under ranking of Top Engineering Colleges of the Country. Further more it has been **9th** in Excellence among Engineering Institutes in India.

The roll of industry can not be over looked when one aims at the attainment of excellence in technical education. The Institute Industry Promotion Cell has been dedicated in the exploration of more avenues to establish permanent bridge between these two vital sectors of the national economy.

In any ambition productive proposal, the roll of woman in today's world can not be neglected. 30% of the students admitted to the UG Programmes belong to the women sectors. The Institute has prepared an independent proposal to examine how the young would be woman engineers can enjoy these students hood in an ambiance that nurtures in idealisms of love, affection, respect an mutual confidence between teachers and taught, boys and girls, intelligence and average students.

It is to be specially mentioned that the Institute has submitted a proposal on the Tribal Development Plan (TDP) to the Govt. of India. The Institute would like to state that although SGSITS is the most preferred technical institute for UG programmes in MP, it also caters to the huge need to provide technical education among the socially backward communities belonging to SC/ST/OBC Categories, 50% of the total seats in UG courses are reserved for the students of these categories. A Cell already exists in the Institute that is dedicated to these students only.

The Institute reforms as described above in terms of autonomies, community services, TDP and Women in Technology will also contribute to the healthy, consistent and steady growth of academic activities in the Institute where transfer of academic curricula from higher level to lower levels (from R&D to PG to UG) in near future leading to the beginning of a new era when India could establish its identity as a "Developed Nation".

The above summary on the present status reveals the preparedness of the institute in undertaking the TEQIP Project as a "Lead Institute"

An important issue which any premier institute should address for the continuation of the academic growth is "Sustainability of the existing infrastructure in the different laboratories, centralized facilities to have their origins in the receipt of grants from State and Central Government agencies like MPCST/MHRD/AICTE, DST, DOE, DAE, UGC etc. Continuous inflow of funds from these agencies is an usual phenomenon in this institute and not only the sustainability but also the nourishment of the laboratories is a well established practice of this institute. Moreover, with direct active cooperation of the State Government through the creation of "Endowment Fund" will help considerably in the maintenance of sustainability of the academic activities initiated under TEQIP. All-out efforts will also be made to generate adequate funds for this purpose through mechanism such as testing, consultancy, organizing short term training schools in specialized technological areas, transfer of technology from institute to industry, etc.

To conclude, SGSITS is fully prepared to go with adequate sustainability and retain its identity as a Premier Technological Institute in entire Central India in the coming decade with generous and judicious funding under TEQIP Project of NPIU, Government of India.

2.

(a) STRENGTHS

(i) The Institution is 58 Years old. Since 1989 it is academically autonomous & autonomy has been extended up to 2015 by University Grant Commission (U.G.C), New Delhi.

(ii) The Institute is under block grant scheme of Govt. of M.P. and is managing its resources through proper planning.

(iii) The Institute has experience of handling 9 UG and 17 PG programs with student staff ratio of 1:15.

(iv) All the 13 departments of the Institute are recognized research centers for Ph.D. level of work

(v) 50% of the permanent faculties hold Ph.D. degree.

(vi) The Institute is involved in various research and developmental activities, such as QIP Center for Ph.D. M.E. in Electrical Engineering. It also has ISO Certification for some departments & at Institute level ISO Certification is in process.

(vii) Several National and International collaborations are in progress with RRCAT-Indore, BARC, IIT-Mumbai, IIT-Delhi, IIT-Kharagpur and IISC-Bangalore, Humboldt University, Berlin (Germany), University of Trieste (Italy).

(viii) Cooperative projects with industry community such as:

- Alignment Survey for Narmada Water Supply Scheme from JALUD to INDORE on which the final alignment was laid.
- Improvement of Geometrics of National Highway No.3 from INDORE to SENDHWA.
- Remodeling of Rivers Khan and Saraswati in Indore town for pollution abatement.
- Design of Effluent Treatment Plants for number of Industries in and around Indore.
- Design of Rain Water Harvesting Structures as a solution for Drinking Water problem in Indore city.

(ix) Conference/Seminar /Workshop organized is one of the regular features among several R&D activities some of these are:

- IGS National Convention 2000.
- IWWA National Convention 2008, 1995, 1988
- National Conventions of Mechanical Engineering organized jointly by Institute of Engineering (I) & SGSITS – 2002.
- ISTE Annual Conventional 1992.
- National Conference on Real-Time Systems - 1991
- Eco Technologies and Challenges for Mechanical Engineering (27-28 January 2006)
- National Workshop on "Technologies for Rural Development" (25-26 March 2006)
- Workshop on CFCs phase-out Servicing & Retrofitting of Appliances using Alternative Refrigerants (27-29 March 2006)
- Product Life Cycle Engineering Management workshop (12-13 September 2007)
- National Conference on Emerging Trends in Information Technology (18-20 December 2007)
- Recent Trends in Nanotechnology (RTN-07) - 29-31 March 2007.
- National Workshop on Recent Trends in Microelectronics and VLSI (RTMV-07) during 24-26, May 2007 at SGSITS, Indore.
- National Conference on Emerging Trends in Information Technology (NCETIT-07).
- Product Life Cycle Engineering and Management (PLM-07) – 12-13 September 2007

(x) Conference/Seminar/Workshop organized Jointly with Network Institution (UEC, Ujjain) under TEQIP Phase-I

- National Workshop on Advances in Power Systems (APS-2007) - UEC, Ujjain (23-24 February 2007).
- National Workshop on Mobile Communication (NWMC-07) at UEC, Ujjain (16-18 March 2007).
- International Conference on "Recent Trends in Mechanical Engg." UEC, Ujjain 4-6 Oct.2007

(xi) In the past Institute has successfully completed joint project in the area of Nanotechnology in collaboration with Humboldt University, Berlin (2003-06)

(xii) This is the only Institute in the State, where AICTE, New Delhi has sanctioned seats under FN/PIO/GC.

(xiii) SGSITS is the fist Technical Institute in the state of M.P. introduce to credit based Grading System since 2009-2010.

(xiv) Institute is having e-Library & Digital Library System.

(xv) The first leading Institute in the State which has provided Campus Wide Network (CWN) facility in the entire campus with more than 1350 nodes. The first in India to accomplish it under TEQIP Phase-I.

(xvi) The Institute is recognized for National Doctoral Fellowship Programme of AICTE.

(b) WEAKNESSES

(i) Shortage of faculty at senior level i.e. at of Readers and Professors level. The posts are lying vacant due to retirements/resignations in last 7 years and the acute shortage of prospective candidates under reserved categories at senior levels.

(ii) There exists only 1/3 capacity of Hostel Accommodation for the boys while only 1/4 of the total girl-students admitted every year can be provided hostel accommodation.

(iii) Being a grant-in-aid institute of the state of M.P., 50% of the seat both at UG and PG levels being reserved for SC/ST/OBC candidates, equal and uniform academic growth cannot be achieved in spite of best efforts.

(iv) The Institute does not have modernized and standard Guest House to provide accommodation to outside experts.

(v) Institute being 58 years old and despite of best efforts institute is unable to acquire Deemed to be University status due to certain unavoidable legal issues, however it has already been recommended conditionally by UGC in 2004.

(vi) During last 5 years the Institute has not been in receipt of the committed block grant from the State government, as consequence many of the developmental activities are badly hampered like the construction of a PG hostel, staff quarters and new buildings.

(c) OPPORTUNITIES:

The minimization of weaknesses has been of prime concern for the Institute under TEQIP project for PG & Research.

(i) The State Govt. is likely to allow the Institute to go ahead with the appointment of faculty at senior levels. Many of these posts had been advertised in the past also.

(ii) Under financial autonomy accorded by the State Govt., the purchase procedure will be made more efficient, prompt and economic.

(iii) Entire library activities will be modernized and the facilities will be enriched and enhanced. Through intranet facilities, students and facilities will have free access to the e-books and journals.

(iv) The Computer Centre will be provided with high-capacity computing facilities.

(v) Significant budget will be allocated to modern communication system development in the Institute including the Library services.

(vi) Modernization of existing PG Laboratories, Development of New Laboratories & Research Centers including Centers of Excellence.

(vii) Development of Modern Infrastructure facilities to keep pace and competitiveness with the Private Sector.

(d) THREATS:

(i) In order to maintain the high standard of academic records of the Institute, proper care must be taken to retain the dedicated, highly trained faculty members. In absence of proper incentives, the Institute may loose the qualified faculty.

(ii) The laboratories developed under funding from various funding agencies must be upgraded. Otherwise, obsolescence would prevail and the sustainability of good student flow both at UG and PG levels will affected.

(iii) Due to non implementation of the Pay Scale approved by AICTE (VI pay commission) good faculty in most of the departments cannot be attracted.

(a) IMPLEMENTATION OF INSTITUTIONAL REFORMS

Sr.	Key Activities	Project Months					
		1 - 3	4 – 6	7 – 9	10 – 12	13 – 15	16 - 18
1.	Identification of Areas for Institutional reforms for the Managerial, Administrative, Financial & Academic Autonomy						
2.	Interaction with other academic institutions to study the best practices						
3.	Preparation of the documents & produce for Institutional reforms in identical areas						
4.	Approved from the board of governors & implementation of the reforms						

3. SPECIFIC OBJECTIVES & EXPECTED RESULTS IN TERMS OF SCALING-UP POST GRADUATE EDUCATION AND DEMAND DRIVEN R&D&I.

The Institute is involved in various research & development countries as Q.I.P. Centre for Ph.D. Institute also had international collaboration Humboldt University, Berlin & SICE programme, Japan. Presently the Institute is also working jointly with Raja Ramanna Centre for Advance Technology (RRCAT), Indore, BARC, Mumbai. IISC, Bangalore, IIT, Mumbai, IIT, Delhi which is our major strength. Presently, the Institute is running 9 UG & 17 PG programmes. About 300 Students have been registered in Masters in Engineering, Technology, Pharmacy and Applied Science Programmes in 2010-11. Candidates registered under Doctoral programme were 7 during August 2009. We cannot provide stipend/assistantship to non-Gate category of the students. It is envisaged that with the implementation of TEQIP Phase – II, provision for Assistance to the students will help us in enhancing the quality of the Post Graduate programmes.

a. ACTION PLAN FOR SCALING UP ENROLLMENT INTO MASTER AND DOCTORAL PROGRAMMES

Action Plan for Scaling-up Enrollment in masters & doctoral programme can be focused in the whole institution on performance basis in the programmes which have already reached high levels of achievement through exercise of autonomy in such activities as faculty development, modernizing of training for faculties and physical infrastructure, reforms in curricula, student performance assessment, reforms in governance and management and eventuating an ambience for innovation and creativity.

Some Suggested parameters that could contribute towards the achievement of academic excellence are:

(1) Equipment & Faculty Improvement.
(2) Faculty & Staff Development.
(3) Curricula Improvements.
(4) Curricula Implementation.
(5) Course Flexibility
(6) Student Evaluation.
(7) Learning Resources.
(8) Interaction with Industry and Research Organizations.
(9) Development of Management Capacity at Institutional Level
(10) Distance Education.
(11) Inviting leading industrial Houses for Campus Placements of both UG and PG students.

These parameters will be implement phase wise & at the time of completion of the project or even before that impact at PG and Doctoral level the positive efforts are anticipated.

ACTION PLAN FOR SCALING-UP ENROLLMENT INTO MASTERS & DOCTORAL PROGRAMMES:

Sr.	Key Activities	Project Months					
		1 - 3	4 – 6	7 – 9	10 – 12	13 – 15	16 - 18
1.	Identification of New research areas & enrollment of faculty involved in these areas	⟷	⟷				
2.	Modernization of the curriculum to incorporate front line subjects o research areas.			⟷	⟷		
3.	Publicity of the potential areas of research as identified earlier & interaction of joint research work					⟷	
4.	Commencement of the enrollment of the students in Masters & Doctoral Programmes				⟷	⟷	⟷

b. **ACTION PLAN FOR IMPROVING COLLABORATION WITH INDUSTRY**:

Technical Education Institutions can serve in various ways both the formal & informal segments of the economy (Industry) and in turn derive the benefits for their students and faculty by undertaking studies, projects and researches and by mobilizing local resources.

Industry Interaction Cell of the Institute has been exploring newer and newer avenues of interaction with industrial houses engaged in cutting edge technologies. The following actions are intended for the coming years:

(1) Continuing education for industry personal.
(2) Problem solving projects and consultancies on industrial production services & processes.
(3) Testing & Collaboration Services.
(4) Designing training software for Industry.
(5) Training Customers of industry.
(6) Designing or substitutions training centres of industry.
(7) Production Center for outsourced components.

Institute is having a well developed Training & Placement Cell with a full time Training & Placement Officer of the rank of senior professor and interacts with the industries.

Following recruiters have been visiting the Institute for Campus Placements on regular basis:

(1) Acc Concrete Ltd.
(2) Accenture
(3) Amdocs
(4) Army
(5) Ashok Leyland
(6) Altos Origin India Pvt. Ltd.
(7) BASF
(8) Cap Gemini
(9) Crompton Greaves Ltd., (CGL)
(10) Cummins, Pune
(11) Cybage Software, Pune
(12) Deloitte Consulting India Pvt. Ltd.
(13) C.S.C.
(14) Eicher
(15) Essar
(16) Gujrat Guardian (Glass) Co.
(17) Infosys
(18) L&T ECC
(19) LG India
(20) Mahindra & Mahindra
(21) Microsoft
(22) Oriental Paper Mills
(23) Persistent
(24) Power-tech Automation Solutions Ltd. (PASL)
(25) Schneider Electric
(26) Sutton (Wind Power)
(27) Tata Motors
(28) Tech Mahindra
(29) Vedanta
(30) Wipro Technologies

FOR DEVELOPING RESEARCH INTEREST AMONG UNDERGRADUATE STUDENTS:

Institute organizes: AAYAM annual function for the students & by the students under AAYAM following activities are organized:

National Seminar on the topic finalized by individual departments for UG & PG Students.

Students from NITs, IITs, Autonomous & Private Technological Institute participates in this event.

Support is provided by the Institute for organizing this event along with the Best Paper award.

With the availability of the additional funds under TEQIP-II event will be organized as mega event.

Funds will also be provided to the students under major projects.

Collaboration with Indian & Foreign Institutes in academic and research areas through M.O.Us.

ACTION PLAN FOR DEVELOPING RESEARCH INTEREST AMONGST UNDER GRADUATE STUDENTS:

Sr.	Key Activities	Project Months					
		1 - 3	4 – 6	7 – 9	10 – 12	13 – 15	16 - 18
1.	Identification of the Potential research areas for under graduate students in consultation with the Departments						
2.	Liaising with the agencies working in the identical research areas for possible interacts.						
3.	Planning of the training schedule & identification of trainers, venues & schedules.						
4.	Training						

ACTION PLAN FOR COLLABORATING WITH INDIAN AND FOREIGN INSTITUTIONS IN ACADEMIC AND RESEARCH AREAS THROUGH MOUs.

Sr.	Key Activities	Project Months					
		1 - 3	4 – 6	7 – 9	10 – 12	13 – 15	16 - 18
1.	Revitalizing the Academic & Research existing relationship of mutual interest	⟷					
2.	Preparation for joint areas of research & identification of team members.		⟷				
3.	Submission of proposal & enhancement in interact		⟷	⟷			
4.	Signing of MOUs & interaction of joint research			⟷	⟷		
5.	Strengtheing the joint research activities & exploration future areas of interaction.					⟷	⟷

c. TRAINING NEED ANALYSIS

Training Need Analysis (TNA) is a series of activities to define the current and desired activities individually as well as in organizational performance. It can be further clarified that TNA complies of areas where both individuals and organization would be benefited in order to become more effective and individuals achieving their own objectives and also the objectives of the organization. Based upon the guidelines and information provided in PIP information was prepared according to the following levels:

Class IV Staff
Laboratory Staff
Finance Staff
Administrative Section
Examination Section
Faculties
Heads of the Departments
Deans
Director

The summary of the proposals received from the above sections are as under:

Class IV Staff	Personality Development, Communication Skill
Laboratory Staff	Advance working like training on the new equipment operation & maintenance of the equipment, Skill up-gradation. ← Action Plan is given in Point No. 2.8
Faculty	Workshop/Seminars winter schools to upgrade their knowledge
Finance Staff	Training in the field of Automation , Skills and MIS
Administrative Staff	Training for Automation & Skills in MIS ← Action Plan is given in Point No.2.8
Deans	Management Skills & Knowledge on MIS and Administrative reforms
HODs	Technical & Administrative reforms & MIS

DEVELOPMENT PLAN FOR FACULTIES, HODs. DEANs AND DIRECTOR

Sr.	Key Activities	Project Months					
		1 - 3	4 – 6	7 – 9	10 – 12	13 – 15	16 - 18
1.	Identification of the areas for enhancement in research capabilities and Managerial Capabilities in consultant with the departments						
2.	Liaising						
3.	Planning						
4.	Training						

ACTION PLAN FOR TRAINING TECHNICAL AND OTHER STAFF IN FUNCTIONAL AREAS.

Sr.	Key Activities	Project Months					
		1 - 3	4 – 6	7 – 9	10 – 12	13 – 15	16 - 18
1.	Training Need Analysis for Academic & Administrative Staff						
2.	Identification of the Agencies.						
3.	Planning of the Training schedule including In-House Training						
4.	Conduction of Training Programme						

INSTITUTIONAL DEVELOPMENT PROPOSAL WITH STATE'S/NATIONAL (IN CASE OF CFIS) INDUSTRIAL / ECONOMIC DEVELOPMENT PLAN

India for last one decade experiencing accelerated economic growth with equity, Liberalization and globalization of the economy have brought in new challenges and rapid transformation into a knowledge-based society, increasing demand for a well-trained workforce. A workforce that is not only literate and has mastered specific skills but is able to acquire new skills and knowledge independently. The pace of change and the intensity of competition have increased as the economy continues to reform, especially as global standards come to dominate economy.

The country plans to become one of the competing and developed nations in the world as a economically strong nation. For achieving this, production of technical manpower of international standards in large numbers, is a sectors of the economy, enhancing their effectiveness and efficiency through intensive use of technology, and in turn employment and thus providing better quality of life to the people.

About 50 percent of the Indian population is below 30 years of age and will be a strong global workforce in future. The Technical Education System in India has grown to more than 3000 engineering institutions with intake capacity of more than 8,50,000 students per year and offering courses at the graduate and post-graduate levels in most branches of engineering and technology. The ready employability of engineering graduates particularly in the areas of Computer Science & Engineering Electronics & Communication Engineering and Civil Engineering in the last few years have led to a large scale expansion of educational and training facilities in areas having both current and potential large demand.

Despite the best efforts by GOI in implementing the National Policy of Education-1986 (revised 1992), and establishment of knowledge commission the technical education system has faced several difficulties. Some of these are:

a) Due to multiple controls on the system, most institutions lack authority.
b) Resource constraint combined with low resources utilization.
c) Wastage of available resources in the form of high dropout and failure rates.
d) Lack of quality and relevance of programme offerings;

e) Low quality of teachers and severe teacher shortages in areas critical for enhancing economic competitiveness.

f) Inadequate number of technical universities in spite of proliferation in the number of engineering colleges.

From time to time, to study and to improve the functioning of various institutions, and programmes and for critical examination of key sector issues, GOI has set up various committees. These include:

a) Knowledge commission report 2009-10.

b) Raju Committee Report on Networking of Engineering Institutions (2001)

c) Indiresan Committee Report on Technical Teachers' Training Institutes (November 2000)

d) IT Advisory Committee recommendations for upgrading REC's to the level of IIT's (2000)

e) Mashelkar Committee Report on Regional Engineering Colleges (1998).

f) Rama Rao Committee Report on Post Graduate Education in Engineering and Technology (1998).

g) India 2020 – a Vision for the New Millennium, based on TIFAC Reports (1998).

It is evident from the above efforts that GOI has attached high value to higher education including science and technology education for national development and have provided support through policy and substantial public funds. GOI policy is outlined in policy statements and Five Year Plan Documents, NEP – 1986 (revised 1992) supports major reforms at all levels of education. In technical education, the focus is on quality, relevance, resource mobilization institutional autonomy and accountability, networking, research and equity.

Shri G.S. Institute of Technical and Science (SGSITS), Indore established in 1952 is recognized as an Autonomous Institute in 1989 on the recommendation of Government of Madhya Pradesh and University Grant Commission (UGC) as well as All India Council for Technical Education (AICTE), New Delhi. Since then, efforts have been made by the Institute authority to get the Deemed University status. Government of Madhya Pradesh has always been favoring the stand adopted by the Institute in this noble Endeavour.

The present campus of the institute is spread over 35 acres of land, on which various Departments with Laboratories ,Workshops, Class rooms, Administrative complex, Sports

facilities, CWN, Electrical substations, Boys & Girls hostels and Staff quarters have been created through Govt. of MP funds over the years.

The Institute has presently Nine Engineering, Three Applied Sciences and Pharmacy departments. These departments offer Undergraduate, Postgraduate and Doctoral programs leading to the degrees of B.E./B.Pharm./M.E./M.Tech./M.Pharm./MCA/Ph.D.

It is envisaged that the technological institutes in the entire region of Malwa will attain academic excellence through the direct control by SGSITS with its 58 years of unique record of being The Most Preferred Institute of Technology and Science in the entire state of Madhya Pradesh. The Govt. of Madhya Pradesh has been always adopting a very positive stand to see that the Institute achieves its long cherished desire.

Table-34:

Institutional Project Budget for Sub-Component 1.2

Note: For details of permissible and non-permissible expenditures, please see Table-18 (for Government funded and aided institutions) and Table-19 (for private unaided institutions)

(Rs. In Crore)

S. No	Activities	Project Life Allocation	Financial year				
			2010-11	2011-12	2012-13	2013-14	2014-15
1	Infrastructure improvements for teaching, training and learning through:						
	(i) Establishment of new laboratories for new and existing PG programmes, faculty research, etc.	3.75	0.50	1.00	1.00	0.75	0.50
	(ii) Up-gradation of learning resources	0.50	0.10	0.10	0.10	0.10	0.10
	(iii) Procurement of furniture	0.35	0.05	0.10	0.10	0.05	0.05
	(iv) Modernization and strengthening of libraries and increasing access to knowledge resources	0.56	0.20	0.16	0.10	0.05	0.05
	(v) Refurbishment (Minor Civil Works)	0.37	0.07	0.15	0.15	-	-
2	Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	2.50	0.50	0.50	0.50	0.50	0.50
3	Enhancement of R&D and institutional consultancy activities	0.62	0.05	0.20	0.20	0.10	0.07
4	Faculty and Staff development for improved competence based on TNA	1.25	0.25	0.25	0.25	0.15	0.35
5	Enhanced interaction with Industry	0.45	0.10	0.10	0.10	0.10	0.05
6	Institutional Management Capacity enhancement	0.25	0.05	0.05	0.05	0.05	0.05
7	Implementation of institutional reforms	0.40	0.05	0.05	0.10	0.15	0.05
8	Academic support for weak students	0.25	0.05	0.05	0.05	0.05	0.05
9	Incremental Operating Cost	1.25	0.20	0.20	0.25	0.25	0.35
	TOTAL	**12.50**	**2.17**	**2.91**	**2.95**	**2.3**	**2.17**

d.

(a) TARGETS AGAINST THE DELIVERABLES GIVEN IN TABLE 35.

Table-35 : Project Targets[1] for Institutions under Sub-Component 1.2

S. No.	Deliverables	Base-line	Targets to be achieved	
			At the end of 2 years of joining the Project	By Project closing
1	Number of students registered for (a) Masters in Engineering programme (b) Doctoral Programme in Engineering	 279 07	 430 16	 900 25
2	Revenue from externally funded R&D projects and Consultancies in total revenue (Rs. in lakh)	269	300	350
3	*Number of* *(a) Research publications in refereed journals* • *National journals* • *International journals* *(b) Citations* *(c) Patents obtained / filed* *(d) Books* *(e) No. of R&D projects commercialized*	 *13* *69* *225* *15* *06* -	 *35* *80* *300* *20* *10* *2*	 *75* *300* *400* *25* *20* *5*
4	IRG as % of total recurring expenditure	50%	55%	65%
5	Number of co-authored publications in refereed journals (a) National (b) International	 - -	 - -	 - -
6	Student credentials (a) Campus placement rate of • UG students • PG students (b) Average salary of placement package for (Rs. in lakh) • UG students • PG students	 50.73% 13.77% 3.42 Lac 3.15 Lac	 65% 20% 3.60 Lacs 3.40 Lacs	 75% 35% 4.25 Lacs 3.90 Lacs
7	Number of collaborative programmes with Industry	1	2	4
8	Accreditation Status (obtained and applied for)	Applied for	At least 75% of eligible UG programmes and 60% of eligible PG programmes	100% for UG and PG programmes
9	Vacancy position for faculty and staff	22 Prof. 54 Reader 55 Lecturer	Vacancy reduced to 15% or less specially for UR Quota	5 % vacancy under UR Quota
10	Percentage of regular faculty with PhD in Engineering disciplines	36%	40%	45%
11	Any other (maximum three)			
(i)	To initiate R&D activities with Patent development	-	-	-
(ii)	To increase more MOUs with Industries and research Organizations	06	08	10
(iii)	To create centre of excellence of international standard in cutting edge technology	-	01	01
(iv)	To enhance more interdisciplinary R&D activities in the institute	-	01	01

(Note: The accreditation targets for Undergraduate and Postgraduate programme are for **NBA accreditation of programmes**.)

(b) PLAN FOR ACHIEVING THE TARGETS ENUMERATED IN TABLE-35.

(1) Students increasing registration for Masters & Doctoral Programmes:

Steps involved in increasing the students registration for masters & doctoral programmes will comprise of:

(I) Advertisement of the Institute through Broachers to be circulated amongst NITs, IITs & other Lead Institutes.

(II) Information about the Institute thorough website.

(III) Improving the academic standards at UG/PG Levels.

(IV) Use of students as Brand Ambassadors.

(2) Revenue from externally funded R&D Projects & Consultancies:

For achieving this objectives quantum of proposals for onwards submission will be increase exponentially. Faculties will be empowered and encouraged for research and development in the field of specialization. Institute Industry Interaction Cell will use their offices strengthen the relations with the industries in around Indore.

(3) Publications, Citations, Books/ R&D Projects Commercialization:

(I) All these parameters are dependent upon the growth of faculty in the Institute and Institute is already involved in enhancement of the above objectives with the availability of funds under TEQIP Phase-II special in facilities will be taken and all necessary support will be provided to the faculties in above aspects.

(II) In gating patents extra financial support and other infrastructure facilities will be provided to achieve the above objectives.

(III) Leading publishers of National and International repute are requesting about our faculties to write their experiences and technical knowledge in the form of text books. But due to shortage of funds involved in this aspect, this aspect is neglected by the faculties. With availability of funds under TEQIP Phase-II this objective can also be achieved.

(IV) Institute is already involved in R&D Projects with National organization i.e. Department of Space, Department of Science and Technology, Department of Electronics etc. Industries also participate with the institute, now onwards the commercialization aspect will also be care of.

(4) IRG as Percentage of total recurring expenditure:

(i) IRG is dependent upon the financial grant received from the State government as well as the Central Government and this aspect will be take care of by increase in the fees structure which is minimum in the State.

(ii) Increase in the consultancies

(iii) Requesting State and Central Government for additional funding.

(5) Number of Co-authored publications in referred Journals:

Research and Development and Publications of research papers is the strength of our institute. Collaborative projects with International agencies along with the National organizations will help us to achieve this objective.

(6) Students Credential:

Campus Recruitment and Salary Pay scale is time based phenomena. Looking to the need of the Country, Companies' policies vary. Institute's Training & Placement Cell will take this aspect.

(7) Number of Collaborative Programmes:

Collaborative Programmes depends upon the potential growth of the academic curricular. Academic Council of the Institute needs twice in a year to upgrade and revise schemes and the syllabus of the UG and PG Courses. Full care will be taken that scheme and syllabus are at par with the National and International levels so that joint academic collaborative projects can be strengthen. Participation of the students in the competition like BAHA organized by Automobile industries can be increase further.

(8) Accreditation Status:

4 PG courses are accredited. NBA Expert Committee has visited our institute for Accreditation of 5 PG Courses in the last month. Application of 4 PG Courses pending with NBA, New Delhi.

(9) Vacancy Positions:

Appointment/Recruitment is the routine activity of the Establishment Section.

(10) Percentage of regular faculty with Ph.D. in Engineering Disciplines:

Incitation will be taken to encourage the faculty to upgrade their qualification (Ph.D.) by providing them all the facilities including funds.

e. CONTINUATION OF COMMITMENT OF EXCELLENCE

(a) Excellence in academic activities in such areas as postgraduate education, doctoral programs, faculty development, participation in National/International conferences, maintenance of equipment, R&D and consultancy services, improved curricular practices, etc. will be of special significance.

As is evident from the "VISION" statement, the Institute is committed to the enhancement and continues enrichment of the technological academic activities. In the last 10 Years, the Institute received three major projects from the world Bank , Department of Atomic Energy and Department of Electronics, Govt. of India. It is worth mentioning that the facilities created through such liberal funding have been functional for all these years and the students are the best beneficiaries. With such constructive experiences, it is envisaged that the present ambitious proposal will be fruitful, productive and result- oriented even in the next decade. The ongoing doctoral research in most of the departments will receive a huge impetus and the overall standard of R&D activities in the institute will be elevated significantly. Undoubtedly, the active research oriented faculty members will be motivated and sponsored to participate in national/international topical conferences/symposia.

Resources will be generated either through consultancy and testing or through various projects submitted to leading national funding agencies such as AICTE, DST, UGC, etc. to upgrade the existing laboratory facilities and maintenance of the sophisticated equipments purchased from the TEQIP proposal. While concentrating attention to PG and Doctoral activities, equal emphasis will also be given to the wide range of UG as well as PG courses in terms of continuous updating of the academic curricula, encouraging UG final year students to take-up industries oriented projects at various R&D organizations in the vicinity of Indore. The top and middle rank executives in the wide range of industrial houses around Indore will be specially approached to deliver lecture series and supervise the project work of the UG/PG students. At Institute level, the information system will be developed through the introduction of e-Library and digital library system.

(b) Improved institutional management practices including administrative and financial management practices, higher internal efficiencies etc.

The entire work force comprising of both the faculty and technical support staff as well as the administrative staff will be motivated through various kinds of realistic incentives such as special allowances, special casual leave attend academic assignment, foreign visits in connection with the project related programmes or attending conference/symposia etc. Moreover, emotionally, the entire staff should be energetic and motivated which will enhance the working efficiencies and achievable through delicate humanitarian and positive attitude of the management towards the staff.

(c) Networks for academic and research activities

By establishing constant interaction process and developing a faithful partnership between the Lead Institute and the Network Institute in the noble academic endeavor. This will yield a long-term objective of sustaining the networking of the sophisticated laboratory facilities.

(d) Interaction with industry

- Establishment of linkages of industries and organizations to the institute via cell
- Industrial interaction with meeting.
- Project from the Industries.
- PG Projects at industrial site.
- Students short term project.
- Industrial visit of faculty and students.
- Visit of Industrialist personal to the Institute.
- Expert lectures by the industrialist on specialized topic and latest invention for the staff and the students.
- Technology transfer amongst the institute and other organization.

(e) Exercise of autonomies, etc.

All sorts of autonomies desirable in the smooth sustenance of the Programme will be exercised as already approved by Govt. of M.P. in terms of administrative, academic financial and managerial capabilities.

(f) ENSURING ADEQUATE FUND FLOW

The Institute, in the past, has been awarded with large number of proposal by various body including AICTE, DST, DAE, DOE, etc. and these projects could be completed successfully and in subsequent years, these facilities have been maintained from the funds received from newer and newer projects in the relevant areas. The Corpus Fund is a definite source for maintenance but definitely not the only fund. Fresh research projects with more relevance to the future generation of technology will fetch more funds and the continuity will lead to the long-term sustenance of the facilities crated under TEQIP.

The Block grant pattern approved by Govt. of M.P. with revised budget ensures the financial security of the faculty members and the supporting technical and administrative staff while the internal revenue generated through tuition fees of students, testing consultancy, sell of tender forms, application forms for students/staff have been identified as another permanent source of fund flow to sustain and attain academic excellence in coming years.

Provide Procurement Plan for the first 18 months for Goods and Civil Works in Table-36 and Consultant Services in Table-37 with budget and timeframe.

Provide any other information related to special academic achievements of the institution.

(a) MOU has been signed with Indian Institute of Science for Joint research work in the area of Nanotechnology.

(b) MOU has been signed with University of Trieste, Italy for research work in the area of wireless communication.

(g) It has been observed that certain section of students lack in English proficiency communication skill and presentation of their technical capabilities. Special coaching classes will be conducted for such students in a Phase manner on the basis of feedback form from the companies though the Training & Placement Officer of the Institute. Such type of activities have carried-out in TEQIP Phase-I and it has resulted in increased employment of such students. The details are as under:

Name/Details of Activity	**No of beneficiaries**
Special coaching classes for be 2nd year students	150
English & personality development classes	63
Expert lectures series of seminars	61
Personality development classes for students	81
Motivation seminar	107
Motivation seminar	108
English & personality development classes	57
Utilization of Kitchen waste	Campus Students

These pertain to the entity participating in the Project which may either be the whole stand alone institution or the Faculty / Department / constituent institution of a University or Faculty / Department of a Technical Deemed University.

Technical Education Quality Improvement Programme (TEQIP) Phase-II

Action Planning for July 2014 to December 2016

Name of the Institution: Shri G. S. Institute of Technology and Science, Indore (MP) ..... Sub-component : 1.2

Financial figures to be furnished in Rs. Lakh

Activities	Sub-Activities	May-Jun 2015		Jul-Sep 2015		Oct-Dec 2015		Jan-Mar 2016		Apr-Jun 2016		Jul-Sep 2016		Oct-Dec 2016		Total	
		Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physiacl Target (Nos.)	Financial Estimate (Rs. Lakh)
Procurement	ICT enabled learning, related softwares & hardware.	4	8.00	5	10.00	5	10.00	4	10.00	4.00	10.00	2.00	2.00	-	-	24	50.00
	New laboratory for new PG programs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	New laboratory for existing PG programs	10	20.00	14	40.00	16	50.00	20	60.00	16	42.38	16	40.00	10	35.00	102	287.38
	Library i.e. books,e-books, journals, e-journals course specific softwares	-	-	1,000	5.00	650	4.53	1,000.00	10.00	1,000.00	12.00	-	-	-	-	3,650	31.53
	membership of online journals & consortium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Digital/Virtual learning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Equipments for Institutional TEQIP unit.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Civil Work	1	15.00	-	-	1	18.00	1	4.00	-	-	-	-	-	-	3	37.00
	Others - FURNITURE	1.00	10.00	-	-	1.00	15.00	-	-	1.00	10.00	-	-	-	-	3	35.00
	Sub-total	16	53.00	1,019	55.00	673	97.53	1,025	84.00	1,021	74.38	18	42.00	10	35.00	3,782	440.91
Assistantships	Masters students enrolled with TEQIP teaching assistantship	64	15.36	64	15.36	64	15.36	64	15.36	64	15.36	64	15.36	64	15.36	448	107.52
	PhD students enrolled with TEQIP research assistantship	8	4.32	8	4.32	8	4.32	12	6.48	12	6.48	12	6.48	12	6.48	72	38.88
	Others	20	0.80	40	1.96	40	2.00	50	2.00	40	1.50	40	1.80	40	1.80	270	11.86
	Sub-total	92	20.48	112	21.64	112	21.68	126	23.84	116	23.34	116	23.64	116	23.64	790	158.26
R&D	Research projects taken by UG /PG students	3	0.30	5	0.50	5	0.50	5	0.50	4	0.40	4	0.40	4	0.40	30	3.00
	Seed grants for research by faculty	3	0.50	-	-	3	0.50	-	-	2	0.30	-	-	2	0.30	10	1.60
	Research publications in engineering in refereed journals	6	0.50	10	1.00	10	1.00	15	1.50	15	1.50	15	1.53	8	0.50	79	7.53
	Organising conferences on R&D topics	3	3.00	3	3.00	8	8.00	8	8.00	8	8.00	5	5.00	6	6.00	41	41.00
	Patenting of technologies	2	0.25		-	2	0.50	2	0.50	4	1.00	2	0.50	2	0.50	14	3.25
	Others	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	28	2.80
	Sub-total	21	4.95	22	4.90	32	10.90	34	10.90	37	11.60	30	7.83	26	8.10	202	59.18
FSD	Enrollment of faculty with BTech for MTech degree	2	0.50		-	2	0.50		-	4	1.00		-	4	1.00	12	3.00
	Enrollment of faculty with MTech for PhD degree	-	-	6	1.00	-	-	6	1.00	-	-	6	1.00	-	-	18	3.00
	Faculty training in subject domain	5	0.60	-	-	20	2.40		-	20	2.40		-	20	2.40	65	7.80
	Faculty training in pedagogy	6	0.50	12	1.00	25	4.00	16	1.98	12	1.00	25	2.00	20	1.50	116	11.98
	Organising inhouse training workshops in teaching/research subjects	3	3.00	3	3.00	6	6.00	8	8.00	8	8.00	8	8.00	6	6.00	42	42.00
	Paticipation of faculty in outstation seminar/ conferences/ workshops etc	30	2.00	20	3.00	20	3.00	30	4.00	40	6.00	30	4.00	35	2.75	205	24.75
	Training/Development of technial/support staff	15	1.00	15	1.50	20	3.00	20	3.50	20	3.50	10	1.00	15	2.50	115	16.00
	Others		-		-		-		-		-		-		-	-	-
	Sub-total	61	7.60	56	9.50	93	18.90	80	18.48	104	21.90	79	16.00	100	16.15	573	108.53

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Activities	Sub-Activities	May-Jun 2015		Jul-Sep 2015		Oct-Dec 2015		Jan-Mar 2016		Apr-Jun 2016		Jul-Sep 2016		Oct-Dec 2016		Total	
		Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physiacl Target (Nos.)	Financial Estimate (Rs. Lakh)
Industry Institute Interactions	Collaborative academic programs: BTech/MTech/PhD with industry	6	0.50	8	1.00	10	1.20	8	1.00	10	1.20	10	1.20	8	1.00	60	7.10
	Short term workshops with industry	1	0.50	2	1.50	4	2.00	4	2.00	4	2.00	4	2.00	2	1.00	21	11.00
	Academic networking with industry/research institutions including industry-exposure to	2	0.50	-	-	2	0.50	-	-	2	0.50	-	-	2	0.50	8	2.00
	Campus placements of graduates (UG & PG)	-	-	10.00	1.50	8.00	1.00	4.00	0.50	2.00	0.24	10.00	1.50	10.00	1.50	44	6.24
	Students internship at industry	-	-	12.00	0.80	12.00	0.80	12.00	0.80	12.00	0.80	12.00	0.80	12.00	0.80	72	4.80
	Joint activities with industry	3	1.00	2	0.50	4	1.50	4	1.50	4	1.50	4	1.50	4	1.50	25	9.00
	Others	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-
	Sub-total	12	2.50	34	5.30	40	7.00	32	5.80	34	6.24	40	7.00	38	6.30	230	40.14
Capacity development	Exposure/Training of senior teaching/non-teaching members in management capacity development	8	2.00	14	4.50	12	3.50	12	3.50	12	3.50	12	3.50	12	3.50	82	24.00
	Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sub-total	8	2.00	14	4.50	12	3.50	12	3.50	12	3.50	12	3.50	12	3.50	82	24.00
Reforms	Fee for NBA accreditation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Activities / Innovations aiming at improvement in quality of education	-	-	-	-	1.00	6.00	-	-	1.00	6.87	-	-	-	-	2	12.87
	Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sub-total	-	-	0	-	1	6.00	0	-	1	6.87	0	-	0	-	2	12.87
Academic support for weak students	Support to academically weak students to enhancement their knowledge and skills	4	2.00	4	2.00	5	3.00	6	4.00	8	5.48	6	4.00	6	4.00	39	24.48
	Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sub-total	4	2.00	4	2.00	5	3.00	6	4.00	8	5.48	6	4.00	6	4.00	39	24.48
Incremental operating cost	IOC	-	8.00	-	10.00	-	15.00	-	16.00	-	15.56	-	20.00	-	20.00	-	104.56
	GRAND TOTAL	214	100.53	1,261	112.84	968	183.51	1,315	166.52	1,333	168.87	301	123.97	308	116.69	5700.00	972.93

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