



NAAC Accredited-2015

'B' Grade (CGPA-2.62)

## **SOLAPUR UNIVERSITY, SOLAPUR**

### **RASHTRIAY UCHCHATAR SHIKSHA ABHIYAN (RUSA)**

**INSTITUTIONAL DEVELOPMENT PLAN (IDP)  
(With reference to meeting dtd. 17/12/2017)**

**SUBMITTED**

**TO**

**STATE PROJECT DIRECTORATE (SPD), RUSA  
MUMBAI, MAHARASHTRA**

**DECEMBER, 2017**

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## RUSA INSTITUTIONAL DEVELOPMENT PLAN (IDP) OF SOLAPUR UNIVERSITY

### 1. INSTITUTIONAL BASIC INFORMATION:

#### 1.1 Institutional Identity:

- Name of the Institution : Solapur University, Solapur
- Is the Institution approved by regulatory body? : Yes
- Furnish approval No. 2 (F) : UGC Letter f.No.9-17/2004 (CPP-I)  
Dated. 21<sup>st</sup> March, 2005
- 12 (B) : UGC Letter f. No.9-17/2004 (CPP-I/PU)  
Dated. 23<sup>rd</sup> May, 2013
- Type of Institution : Affiliating  
unaided/Autonomous/Other
- Status of Institution : State University  
University/Non-autonomous/Deemed  
University/Constituent Institution
- **Name of the Head of Institution and Project Nodal Officers**

Head and Nodal Officer	Name	Phone Number (office)	Mobile Number	Fax Number	E-mail Address
Head of the Institution	Dr. N. R. Karmalkar	0217-2351300		0217-2351300	vco@sus.ac.in
RUSA Institutional Coordinator	Prof. Dr. V. B. Patil	0217-2744777	9422532521	0217-2351300	vbpatil@sus.ac.in drvbpatil@gmail.com
Nodal Officers for:					
Academic Activities	Prof. Dr. V. B. Patil	0217-2744777	9422532521	0217-2351300	vbpatil@sus.ac.in drvbpatil@gmail.com
Civil work including Environment Management	Dr. G. R. Manza	0217-2744776	7774043982	0217-2351300	registrar@sus.ac.in
Financial Aspects	Dr. B. C. Shewale	0217-2744762	7774043984	0217-2351300	fao@sus.ac.in
Equity Assurance Plan Implementation	Dr. G. R. Manza	0217-2744776	7774043982	0217-2351300	registrar@sus.ac.in

## 1.2 Academic Information:

### • UG/PG/Ph.D. programs offered during the Academic year 2016-17

Sr. No.	Title of programs	Level (UG,PG,Ph.D.)	Minimum Duration (Years)	Year of starting	Sanctioned Intake	Total student strength
1	Masters	PG	2	2004	1008	859
2	Doctorate	Ph.D.	3	2006	100	37

- Whether Institution is accredited? : Yes
- Grade - B (CGPA-2.62)
- When - 2015

### Accreditation Status of UG programs: NA

Title of UG programs being offered	Whether eligible for accreditation or not?	Whether accredited as on 31 <sup>st</sup> March 2017	Whether "Applied for" as on 31 <sup>st</sup> March 2017
NA	NA	NA	NA

### Accreditation status of PG programs:

Title of PG programs being offered	Whether Eligible for accreditation or not?	Whether accredited as on 31 <sup>st</sup> March 2017	Whether "Applied for" as on 31 <sup>st</sup> March 2017
Total Programs (MA/M.Sc/M.Com/MCA /Ph.D)	<b>Accredited</b>	<b>Yes</b> Valid up to 16 <sup>th</sup> Nov. 2020	NA

### 1.3 Faculty Status (Regular/On-Contract Faculty as on March 31<sup>st</sup>, 2017)

Faculty Rank	No of sanctioned Regular Posts	Present Status : Number in Position by Highest Qualification												Total Number of regular faculty in position	Total Vacancies	Total Number of Contract faculty in Position
		Doctoral Degree				Master's Degree				Bachelor Degree						
		Engineering Disciplines		Other Disciplines		Engineering Disciplines		Other Disciplines		Engineering Disciplines		Other Disciplines				
R	C	R	C	R	C	R	C	R	C	R	C	R	C			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Prof.	5	-	-	07*	-	-	-	-	-	-	-	-	-	07*	03	-
Asso. Prof	10	-	-	05	-	-	-	-	-	-	-	-	-	05	04	-
Asst. Prof	22	-	-	05	06	-	-	10	32	-	-	-	-	15	03	38
<b>Total</b>	<b>37</b>	-	-	17	06	-	-	10	32	-	-	-	-	<b>27</b>	<b>10</b>	<b>38</b>

Prof=Professor, Asso. Prof=Associate Professor, Asst. Prof=Assistant Professor,  
R=Regular, C-Contract

\* Professor under CAS: 05 , Direct Recruited: 02

### 1.4 Baseline Data (all data given for the following parameters to all discipline)

S.No	Parameters	
1	Total strength of students in all programs and all years of study in the year 2016-17	<b>859</b>
2	Total women students in all programs and all years in the year 2016-17	<b>421</b>
3	Total SC students in all programs and all years in the year 2016-17	<b>113</b>
4	Total ST students in all programs and all years in the year 2016-17	<b>02</b>
5	Total OBC students in all programs and all years in the year 2016-17	<b>397</b>
6	Number of fully functional P-4 and above level computers available for students in the year 2016-17	<b>410</b>
7	Total number of textbooks and reference books available in <b>Knowledge Resource Centre</b> for UG and PG students in the year 2016-17	<b>36758</b>
8	Student-teacher ratio	<b>31.8:1</b>
9	% of UG students placed through campus interviews in the year 2016-17	<b>NA</b>

10	% of PG students placed through campus interviews in the year 2016-17	<b>05</b>
11	% of high quality undergraduates (>75% marks) passed out in the year 2016-17	<b>NA</b>
12	% of high quality postgraduates (>75% marks) passed out in the year 2016-17	<b>19</b>
13	Number of research publications in Indian refereed journals in the year 2016-17	<b>16</b>
14	Number of research publications in International referred journals in the year 2016-17	<b>63</b>
15	Number of patents obtained in the year 2016-17	<b>--</b>
16	Number of patents filed in the year 2016-17	<b>01</b>
17	Number of sponsored research projects completed in the year 2016-17	<b>06</b>
18	The transition rate of students in percentage from 1st year to 2nd year in the year 2016-17 for: (i) all students (ii) SC (iii) ST (iv) OBC	<b>i) 89.43 ii) 86.84 iii) 66.67 iv) 99.50</b>
19	IRG from students' fee and other charges in the year 2016-17 (Rs. In lakhs)	<b>1931</b>
20	IRG from externally funded R&D projects, consultancies in the year 2016-17 (Rs. In lakhs)	<b>49.00</b>
21	Total IRG in the year 2016-17 (Rs. In lakhs)	<b>1979</b>
22	Total annual recurring expenditure of the institution in the year 2016-17 (Rs. In lakhs)	<b>2306</b>

## 1.5 University wise Students and Teachers

Names of University	University Dept. & Constituent Colleges				Affiliated Colleges			
	Number of Departments	Number of Students (All Levels)	Number of Teachers in Position	Student Teacher Ratio	Number of Colleges	Number of Students (All Levels)	Number of Teachers in Position	Student Teacher Ratio
Solapur University	17	859	27	31.8:1	109	73919	2851	25.9:1



Executive Summary  
of  
Solapur University Institutional Development Plan (IDP)  
2017-2020

**Vision:**

To become a dynamic knowledge Centre that amalgamates high quality teaching and research with a sense of belonging and commitment to the society.

**Mission:**

To create young persons of impeccable quality through a combination of high quality curricula, innovative pedagogy of higher education and cutting edge research to fearlessly face the challenges of the ever changing world scenario and to contribute towards creation of a benevolent and compassionate society.

The objectives of RUSA insists upon improved access, equity and quality in higher education. In this view, the University has planned horizontal and vertical development of higher education in the jurisdiction of Solapur district. This is targeted through true spirit of CBCS pattern. Subject electives and open electives are taught to students in the school and across the school within the campus. As this University was established in 2004 and recently the land of 482 acres has been free from the ban due to Great Indian Bustard (In Marathi MALDHOK). Over a span of 13 years, University has gained momentum to become one of the fore front University in the core area of Teaching, Research and Extension domain of higher education.

**Access:** University has multi lingual and multi-cultural environment with emphasis on 'Unity in diversity'. Social, political and economic transformations are the major constraints of access for the higher education. Eventually, University has better access to the aspirants of higher education from the bordering states of Karnataka and Telengana apart from Solapur District. University has incepted 50 Gold Medals from the endowment donations for the meritorious in specific subjects. University has instituted a fellowship scheme for the Ph.D students out of its own funds. Quick access to information has been made available through the official web site. Due to these Facilities University is reaching to the unreached sector of society and aspirants of the higher education for enhanced access. It has resulted in the enhancement in the Gross Enrolment Ratio (GER) and employability. University plans to achieve the GER as set out by State and Central Governments in 2020.

**Equity:** University has exhaustive policy for gender sensitization. University has organized gender disparity awareness campaigns, workshops, seminars and conferences to create gender sensitization. University is adopting the government policies for inclusion of all the deprived classes of the society for better access of equity in higher education. The requisite reservation quotas for Women's, Differently abled persons and all deprived classes of the society are implemented on the merit basis and government rules.

**Quality:** Quality Assurance is important requisite of today's scenario in higher education. Quality enhancement and sustenance are two sides of a coin. In view of this University has setup a separate Quality Assurance Cell (called as NAAC-IQAC) for monitoring quality enhancement and sustenance initiatives within the University and Academic Schools on the campus. University has young and dynamic, student's friendly academicians who are committed to raise the level of recognition level to cope up with Global Standards. The faculty members have published their research paper in peer reviewed journals with high impact factor and good h-index.

**CENTRE OF EXCELLENCE  
THEME  
ON  
CENTRE FOR SMART CITIES  
AT  
SOLAPUR UNIVERSITY, SOLAPUR**

**VISION: "TO ESTABLISH ITSELF AS A CENTRE OF EXCELLENCE WITH SOCIAL COMMITMENT BY INTEGRATING MODERN, SCIENTIFIC AND TECHNOLOGICAL KNOWLEDGE AND SKILLS WITH REFERENCE TO DELIVER SMART SOLUTIONS FOR SMART CITIES"**

**PREAMBLE:**

The Smart City Mission (SCM) was launched on 25th June, 2015 by the ministry of Urban Development, Government of India (MOUD) and is being rolled out in 100 cities geographically spread across the country. The objective of the Smart City Mission is to promote cities that provide job opportunities and improve the livability of cities, so as to create a Clean and Sustainable Environment and 'Smart' solutions.

To realize these objectives, Smart City Mission have strategic components such as, e-Governance and Citizen Services, Energy Management, Waste Management, Urban Mobility, Water Management and others in which smart solutions are applied covering larger parts of the city.

In the approach of the Smart Cities Mission, the objective is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a light house to other aspiring cities.

In this context, MS-RUSA Council has directed all the Universities in Maharashtra that, setting up Integrated Education, Research and Development Centre (IERDC) on various themes in the Universities within the jurisdictions of State Government of Maharashtra through SPD-RUSA. Accordingly, Solapur University, Solapur has planed the theme of Centre of Excellence on Smart Solutions for Smart Cities. Where the best of researchers engage in addressing problems of the Smart Cities in Maharashtra and India too, and engage in skill, technology and entrepreneurship outreach in the surrounding cities can bring about radical transformation while enriching the vision of smart cities through its set out smart solutions.



Educations being the key to empowerment of society, Universities have to enhance its quality and make it accessible to all. Universities need to prepare youth to be effective and beneficiaries of the emerging A3 (Anyone, Anytime and Anywhere) society. In this respect university has put forth its proposed centre on the theme of Smart Solutions to the Smart Cities in Maharashtra and India too. This centre will as act as state-of-the-art institution to cater the needs of likeminded researchers in the proposed domains working across affiliated colleges of University, institutions across state, outside state and the country.

#### **OBJECTIVES OF THE UNIVERSITY:**

The objectives of the University, in general, shall be to disseminate, create and preserve knowledge and understanding by teaching, research and development, skill development, training and education, extension and service and by effective demonstration and influence of its corporate life on society in general, and in particular, the objects shall be as depicted in Maharashtra Public Universities Act 2016 u/s 4 of sub-section 1 to 18.

#### **University shall have powers and duties as depicted in Maharashtra Public Universities Act 2016 u/s 5 of sub-section 68, 69, 70, 72, 73, 74, 77 i.e.**

- 68 to create knowledge and disseminate it and foster high quality research which is contemporary, globally competitive and locally as well as regionally and nationally relevant.
- 69 to have a learner-centric approach and perform the role of being a knowledge creator.
- 70 to strengthen education at under-graduate, post-graduate level, enhance research and development culture and relevant degree programmes and cultivate desire for entrepreneurship.
- 72 to exploit the power of 'learning by collaboration' and 'participation' with use of information and communication technology.
- 73 to cultivate research parks, technology incubators and other engagement entities to translate university research to commercial domain and coordinated projects involving multiple faculty groups from several disciplines that address some important issues before the state.
- 74 to identify skills to which students need to be exposed to, by taking into account the local needs, training facilities available, emerging needs and new employment opportunities.
- 77 to facilitate mobility of teachers to collaborating institutions such as industries, research and development laboratories, non-Government organizations, engaged in societal development, to enable translation of knowledge to viable real life applications and in turn enrich university programmes.

## **PROPOSED CENTRES OBJECTIVES:**

Taking into consideration the objectives and powers of the University, the prime of focus of the proposed research centre are as follows:

1. Design and development of smart IoT sensors for addressing problems in smart city
2. Establishing incubation centre for research in design and development of these smart devices
3. Promoting startups which are ready to go for research and mass production of such devices through infrastructure and technical support
4. Implementation of finger print based attendance system integrated with face recognition system for smart classroom/smart University project
5. Establishment of medical imaging center to study health related hazards due to pollution and develop smart robotic medical tools and devices
6. Develop the novel visible light active doped photocatalytic materials to be used in photocatalytic water purification and water splitting to generate H<sub>2</sub> fuel.
7. To explore the practical methodologies for transforming water, based on polymeric nanocomposite membrane to improve efficiency and reduce cost
8. To develop and set up a highly sensitive LPG gas sensor, a prototype model and facilities for development of a Wireless Sensor Network for gas leakage detection, and low cost wireless soil moisture sensors
9. Develop protection or remediation strategies and practices for watershed management using Geospatial techniques
10. Characterization and effects of wastewater on environment, designing and fabrication of pilot scale treatment plant
11. Identify the places of Suspended Particulates Matter (SPM) and classify the types of suspended particulates matter.
12. Investigate Solapur city bus route network, deficiencies which prevent equal spatial accessibility bus services to all group of society
13. To study spiritual, cultural heritage, agricultural and medical aspects with the view on enhancing tourism for Solapur city
14. Documentation and excavation of ancient monument sites and use of data for site conservation
15. Investigate causes of slow industrial development, explore potentiality of making Solapur industrial hub, and explore public private partnership in industries
16. Find out weak forward and backward linkages of agriculture marketing, develop new agricultural marketing model
17. To establish incubation centre for applied research on various issues of Solapur
18. To increase digital literacy, awareness about smart city concept among public, increase public participation in smart city programs.

## **Justification**

1. Since many Indian cities are transforming into smart cities, parallel development of smart devices play important contribution in smart city concept
2. The current process of student record maintenance is very redundant because of use of manual attendance books for student attendance
3. In today's health care, imaging plays an important role throughout the entire clinical process from diagnostics and treatment planning to surgical procedures
4. The products available in the market for the detection and alerting of LPG gas leakage are expensive, time and power consuming and show cross sensitivity for other gases

5. The Solapur District being a draught prone area, the development of agriculture sensors is an exercise of building a laboratory prototype and taking it to the field for trials, feedback and improvements
6. The study on tourism promotion will help the increasing level of income, employment, increase number of industries, and development of agricultural activities
7. Solapur and Osmanabad districts have rich heritage and tremendous potential for archaeological, historical and spiritual tourism and have potentiality of attracting tourists from across India and abroad
8. Solapur city have high potential for massive industrialization
9. A new marketing model for agricultural products contribute to inclusive development of Solapur city

### **EXPECTED DELIVERABLES OF CENTRES OF EXCELLENCE**

1. Development of devices necessary which contribute for smart city project, promote the incubation centre for the Engineering students and graduates, assist the startup industries in initiating in these projects and introducing new courses in the related field
2. Increased learning process by students, increase in student passing percentage and improved student feedback system since it is integrated with the biometric system
3. Development of medical simulation products, policy on impact of pollution on the health of citizen
4. Development of novel photocatalytic materials based on bismuth, iron, titanium, and metal chalcogenides and development of efficient and cost-effective polymeric membranes.
5. Cost effective and highly sensitive LPG gas sensor device and low cost wireless soil moisture sensors
6. Long-term management goals concerned to watershed
7. Waste water treatment process can serve for domestic as well as industrial wastewater treatment and is assured process, if the selective plants are used and suitable technique are developed. This is needful in every state, municipal corporations, municipal councils and industrial areas including the smart city areas in the state of Maharashtra.
8. Bring first hand quantitative information on the various risk prone areas, finger print and demarked hazardous zones in the city and outskirts and plan the line of action to reduce the pollutant intensity for smart city
9. Recommendation for possible improvements on the city bus transport network and its operation
10. The study on tourism and work on archaeological heritages will increase tourism, generates employment, increase living standard and facilities for pilgrims, help in maintaining harmony in society, creates link between rural and urban citizens to increase farming income and improve medical tourism
11. The study on industrial hub will help individual entrepreneur who want to start new business
12. The study on market research results in new marketing model and private players, NGO and other institutions can use the model
13. The incubation centre for applied research will provide quality input to policy makers, introduce innovative certificate courses and skilled human resources
14. The digital literacy project reaches public through audio-visual and digital media, and useful for documentation and timely evaluation of smart city activities.

### Short-Term, Mid-Term and Long-Term Goals

Based on the components as set out by the RUSA University has prepared and submitted University IDP for the financial year 2017 to 2020. Accordingly, the details of component wise short, mid and long terms goals are as stated below:

Sr. No.	Comp No	Name of the Component	Short-Term Goals Up to March 2017	Mid-Term Goals 2018-19	Long Term Goals 2019-20
1	03	Infrastructure (Includes: Building, Equipment's and Up gradation / Renovation of buildings )	To facilitate the basic amenities for the stake holder of the University to meet the standard of higher education.	To face lift the existing infrastructure to meet the present scenario of higher education.	To build the world class state-of-the-art infrastructural facilities for students and conducive environment on the campus.
2	08	Research, Innovation and Quality Improvement	To avail the basic research facilities for the researchers and to inculcate advent research skills.	To uplift the researcher's research to meet the frontier research in thrust areas.	To be a part of cutting edge technological developments in the world.
3	09	Equity Initiatives	Inclusion of Gender Equity, Economically Weaker Sections of the society and differently abled person in the main stream of the society.	To create sustenance of facilities available for women, Economically weaker sections of the society and differently abled persons for enhancing capacity building.	To benchmark with best initiative on equity initiatives in the University.
4	11	Faculty Improvement	To upgrade quality of teaching to meet the standard of recent trends in teaching pedagogies.	To encourage the faculty members to showcase their research talent in National and international forums.	To adopt the present skills in teaching, research and extension activities at par with world class Universities.

## **Component wise Implementation Strategy plan:**

### **Component No :3: (Part-A and B) Infrastructure:**

**MISSION: "To develop the state-of-the-art infrastructure to serve future needs of academicians, researchers and to contribute in the overall development of University"**

University was established 13 years ago. Besides 12(B) status in 2013, NAAC accreditation was awarded in 2015. In light of this university has ample scope to create infrastructural amenities on campus. University has its developed land admeasuring 517.5 acres with well-versed master plan of infrastructural facilities such as: Administrative Building, PG Academic Schools, Examinations Building, Sports Complex, Teachers and Non-teaching residential quarters, Vice-Chancellor's and other Statutory Officers villas, Hostels for Boys and Girls, Bank, Consumer Store, ATM, Post Office, Health Centre, Guest House, Canteen/Cafeteria and other amenities needed for institution imparting higher education.

At present the University is having acute shortage of infrastructural facilities and finding difficulty to manage the day to day activities like Teaching, Research, Administrative, Examinations and other extension activities of the University. At present, University Administrative sections are housed in Knowledge Resource Centre (Library Building) which includes General Administration, Academic and Research Section, Examinations and Evaluation sections, Finance and Accounts Sections, etc. This has severely hampered the expansion of University Knowledge Resource Centre, which will cause a huge impact on the learning activity of students and research scholars.

Under this component University is submitting proposals of a research centre prepared based on the theme provided by the MS RUSA council's sub-committee towards streamlining the IDPs. This centre is based on the concept of technological developments and social transformations for the smart city development with overall state-of-the-art facilities for all the aspirants of higher education. In the part- B Educational facility up-gradation such as, e-books, e-library, books, academic software, classroom up-gradation, library up-gradation and others are included.

Accordingly, the University has set priority for the construction of three innovative research centre admeasuring 10000 Square meters with financial outlay of Rs. 2800 lakhs. The funds will be utilized in three terms, in first phase (short term) Rs. 700 Lakhs and midterm Rs. 900 Lakhs and long term Rs. 1200 Lakhs, respectively. These buildings are the primary needs of the University for its day to day functioning of centres. Further, the same will contribute in the speedy growth of University and also serve the objectives of RUSA towards the uplifting the universities at par with global standard.

Establishment of infrastructural facility for research centre will bring all the facilities under the one umbrella, which is more convenient for staffs, students and academicians to easily access different units of centres. It will also create great ambience to the stake holders of the University. All state-of-the-art facilities are available in conducive environment for the research and development.

For educational facility up-gradation under this component, University has proposed Rs. 10 crores for acquiring e-book, e-library facilities, books classroom up-gradation, library up-gradation, lab-up gradation and others facilities required for the higher learning.

## **Component No: 8 Research and Innovation:**

**MISSION: "Capacity building for high quality research and innovation through empowerment of teachers, researchers and students leading to transformation in society"**

University has highly qualified faculty members with good research potential, which is the major strength of the University. University has laid an emphasis to uplift the research and development activities to cope up with the recent trends in higher education and meet the objectives of Central, State and Apex bodies. The faculty members of the university have published their research outcome in the peer reviewed journals with good impact factor and high h-index. The Institute is in the process of identifying research thrust areas which will be current trends on par with the global standards. University is striving hard to render facilities to the researchers to get research proposals from various funding agencies and to enhance overall infrastructure and research facilities for researchers in University. It has Research and Consultancy Policy for providing facilities and utilization of consultancy revenue generated by the researchers.

University faculty members have published 633 research papers in the reputed peer reviewed journals with impact factor ranging from 0.2 to 5.54 and h-index ranging from 1 to 30. At present University has received 06 patents and 06 patents are filed. The number of completed research projects per faculty is 0.33 and ongoing research project per faculty is 0.18 respectively. The output of M.Phil and Ph.D per faculty is 0.11 and 1.88 respectively. The research programs are as per the new UGC guideline 2017.

Under RUSA component no. 8 (Research and Innovations) University is submitting a proposal for innovative research centre for smart cities. To achieve the mission to raising the quantum of research output and improving its quality. University has adopted a multi-pronged strategy addressing the issues of enhancing the number of research scholars and the faculty strength and for augmenting resources.

A number of measures are planned that are aimed in improving research:

- Improving the research input in terms of both human and infrastructural resources
- A process for continuous performance improvement at the University.
- Improving research scholar intake in schools on the campus.
- Enhance Financial Support to the researchers.
- Single Window System for clearance of Administrative approvals in University Administration.
- Introducing maximum open access e-journal (Peer revised) for research scholars and their supervisors/guides, through INFLIBNET/LAN.
- Each School will introduce Research & Consultancy Cell for the benefiter/stakeholders.
- Various Authorities of University to monitoring and flawless, seamless financial Implications.
- Introducing research oriented courses which have high rate of employability
- Introducing M. Phil course in the departments, where it is not available at present.

Research and Innovations will nurture the research atmosphere amongst the faculty and researchers which visualize the real name and fame of the University in the domain of higher education. The University is aspiring that every faculty member will have at least one research project to his credit prior to 2020.



## **Component No: 9 Equity Initiatives:**

**MISSION: Empower underprivileged, women and differently abled students by providing financial support and strengthening academically to make them sustainable in competitive society.**

University is at forefront in providing all required facilities for the underprivileged, women and differently abled students as well as staff to eliminate discrimination and make them comfortable with the environment. University conducts the entrance examinations for admission to all courses and provide admission based on the merit and reservation policy laid down by the Government of Maharashtra. It strictly follows the state rules for implementing the reservation policies in recruitment and promotion of teachers and non-teaching staff. Various committees are constituted to address the grievances raised by staff and student community in the working environment.

Most of the students admitted to the University are from rural background coming from farmers' family and economically weaker section. Appropriate policies are framed by University to accommodate these students in providing hostel facility and support through other resources. University officers are very much approachable to students, parents and other stake holders in the society in hearing the problems confronted by them and quickly respond in addressing any such problem. Necessary infrastructure such as ramp, lift, etc. are available, wherever necessary, to facilitate needy persons. University provided modified vehicle for the differently abled persons. University also has a policy of earning while learning known as "earn and learn" for needy students. Under this scheme meritorious students from underprivileged and economically weaker section are given highest preference. The selected students can manage their fee and hostel costs by working for two hours per day in the campus.

To support the above stated policies university proposed many measures in the proposal. It has proposed research fellowship for at least 10% of the students representing various segments of society, specifically based on the socio-economic conditions of the society to pursue research degree in different schools and departments of the university. The nearest distance to any other premier institution and university offering Post Graduate and Ph.D. Research degrees is over 230 km for Solapur University. Therefore, providing Research Fellowship for women, SC, ST and OBC shall trigger a game changing platform in achieving youth and gender accessibility, equity and empowerment. Thus, 10% of these students on merit be given fellowship @ Rs. 12,000/- per month and contingency grant of Rs. 20,000/- per year for meeting their research expenditure. For the purpose, a sum of Rs. 1.25 Crores is projected in the proposal. The fellowship shall promote inclusiveness in transforming society. Many other innovative proposals are included under this components to support women, economically weaker students, differently abled students, such equal opportunity cells, remedial classes, development of infrastructure and amenities for disabled friendly campus, student competitions, staff training, career planning, fellowships for girls, etc.

## **Component No: 11 Faculty Development:**

**MISSION: Strengthen the teaching fraternity with requisite knowledge and skill to architect future citizens of the society who could contribute to the nation building. Carry out cutting edge research to transform the life of common man.**

Teachers are the pillars of any institution, who immensely contributes for its growth. The ranking and reputation of institution will mostly depend on the academic and research strength of teachers. Solapur University provides every facility to strengthen the faculty in acquiring latest knowledge and teachers enjoy freedom to attend seminars, conferences, symposia and workshops to gain lead in research. Recruitments are held in the transparent manner and highly deserving candidates get the opportunity to serve in the institution. Promotions are done on timely bases so that no injustice is meted out to any deserving and eligible faculty members.

University implemented many programmes for support and growth of the teachers. Orientation and refresher courses are particularly helpful for young faculty to strengthen their subject knowledge and improve their teaching skill. Teachers are encouraged to attend orientation and refresher courses whenever needed by deputing them on leave. University embarked funds from its own resources for the teachers to attend and present papers in conferences both within India and abroad. For this it has framed a policy based on the UGC guidelines and same are followed for any such applicant. Initial grants are given for the young faculty to initiate research. Solapur University has institutionalized seed money to encourage the newly recruited teacher for carrying out research work and establish to generate additional R & D funding by way of improving their publications. University invites the proposal from the faculty every year and grants are sanctioned to the selected proposals. This is a time bound scheme and progress of such selected research projects under this scheme are closely monitored and regular assessment is performed. In the similar line senior faculties are encouraged to undertake research by offering seed money. Under these schemes teachers can procure IT infrastructure facilities such as computers, printers and minor equipment and other necessary accessories. University has framed a comprehensive policy to undertake consultancy works. Teachers are appropriately given their honorarium in the revenue generated under the consultancy work. The revenue generated will also be utilized to strengthen the infrastructure facilities in the schools/departments. Every Year University gives **Best Teacher Award** to the deserving teachers. The selection of best teacher will be based on his/her all-round performance.

To support the above stated policies university proposed many measures in the proposal. In order to encourage the faculty members to know and understand the recent trends in research the Symposium / Conferences provide a common platform for sharing the research ideas. Participation of young faculty in national and international Symposium / Conference, will motivate them to bring new research line. Grant of Rs. 5 Lakhs is proposed under this proposal. Many other funds are proposed for other programmes to strengthen the teaching faculty.

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Summary of Component No. 3: Infrastructure Grants**

**A) Ceration of New Facility: Only Civil work including new constructions and renovation & up-gradation related to the center of excellence theme** (25 % Out of 100 Crs.)

Sr. No.	NAAC CRITERIA	Name of the Centre	Facilities	No. of units	Facility type	Demand			
						Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)
1	Infrastructre and Learning Resources	Centre for Smart Cities	New Study Centre	24	Laboratories	2400	600	600	0
				30	Facility Rooms	1080	270	270	0
				30	Class Rooms	1200	300	300	0
				6	Seminar Hall/Auditorium	1200	300	300	0
				3	Office	120	30	30	0
				6	Common Room	300	75	75	0
				3	Store Room	300	75	75	0
				45	Toilets	900	225	225	0
				3	Common Area	1500	375	375	0
				6	Lift/Staircase		300	300	
1	Archaeological Museum	1000	250	250	0				
			<b>Grand Total</b>	<b>157</b>		<b>10000</b>	<b>2800</b>	<b>2800</b>	<b>0</b>

**Summary of Component No. 3: Infrastructure Grants**

**B) Educational facility Up-Gradation (e-book, e-library, books, classroom up-gradation, library up-gradaiion etc.**

**(10 % Out of 100 Crs.)**

Sr. No.	NAAC CRITERIA	Name of the School/Department	Facilities	No. of units	Facility type	Demand			
						Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)
1	Infrastructure and Learning Resources	Chemical Sciences	Classrooms	0	Classroom up-gradation	0	20	20	0
2		Chemical Sciences	Laboratory	0	Lab Up-Gradation	0	100	100	0
3		Computational Sciences	Laboratory	0	Lab Up-Gradation	0	100	100	0
4		Administration	Others (Modular Storage System)	0	Up-gradation	0	125	125	0
5		Knowledge Resource Centre	Library	0	Library Up-Gradation	0	150	150	0
6	Students Support and Progression	Administration (Physical, Computational, Earth and Social Science Schools)	Classrooms	0	Classrooms Up-gradation	0	80	80	0
7	Curricular Aspects	Knowledge Resource Centre	Books/ Journals	0	e-book, e-library, books	0	145.77	100	45.77
8		knowledge Resource Centre	E-Resources	0	e-book, e-library, books	0	100	100	0
9	Teaching Learning and Evaluation	Computational	Computers	0	Up-gradation	0	75	75	0
10		Knowledge Resource Centre	Others (Anti-plagiarism)	0	E-Resources	0	50	50	0

11		Examinations	Computer Centre (Data Centre)	0	Computer Centre up-gradation	0	100	100	0
			<b>Grand Total</b>	<b>0</b>		<b>0</b>	<b>1045.77</b>	<b>1000</b>	<b>45.77</b>

**Total (A) + (B)**

Sr. No.	Name of the (A) + (B)	Facilities	No. of units	Facility type	Demand			
					Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)
1	A) Ceration of New Facility: Only Civil work including new constructions and renovation & up-gradation related to the center of excellence theme	Creation of New Centre	157	Infrastructure	10000	2800	2800	0
2	B) Educational facility Up-Gradation (e-book, e-library, books, classroom up-gradation, library up-gradaiion etc.	Educational Facilities	0	Infrastructure	0	1045.77	1000	45.77
		<b>Grand Total</b>	<b>157</b>		<b>10000</b>	<b>3845.77</b>	<b>3800</b>	<b>45.77</b>

**Component No. 3 : Infrastructure Grants for University**

**A) Ceration of New Facility: Only Civil work including new constructions and renovation & up-gradation related to the center of excellence theme**

**Infrastructure and Learning Resources**

Sr. No.	Centre	Facilities	No. of units	Facility type	Demand				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (laks)	Funds Sought from RUSA	Funds raised from other sources (One Year)		
	Centre for Smart Cities	New Study Centre	156	Creation of new facility	3258	2550	2550	0	<p>1. Since many Indian cities are transforming into smart cities, parallel development of smart devices play important contribution in smart city concept</p> <p>2. The current process of student record maintenance is very redundant because of use of manual attendance books for student attendance</p> <p>3. In today's health care, imaging plays an important role throughout the entire clinical process from diagnostics and treatment planning to surgical procedures</p> <p>4. The products available in the market for the detection and alerting of LPG gas</p>	<p>1. Development of devices necessary which contribute for smart city project, promote the incubation centre for the Engineering students and graduates, assist the startup industries in initiating in these projects and introducing new courses in the related field</p> <p>2. Increased learning process by students, increase in student passing percentage and improved student feedback system since it is integrated with the biometric system</p> <p>3. Development of medical simulation products, policy on impact of pollution on the health of citizen</p> <p>4. Development of novel photocatalytic materials based on bismuth, iron, titanium, and metal chalcogenides and development of efficient and</p>

								<p>leakage are expensive, time and power consuming and show cross sensitivity for other gases</p> <p>5. The Solapur District being a draught prone area, the development of agriculture sensors is an exercise of building a laboratory prototype and taking it to the field for trials, feedback and improvements</p> <p>6. The study on tourism promotion will help the increasing level of income, employment, increase number of industries, and development of agricultural activities</p> <p>7. Solapur and Osmanabad districts have rich heritage and tremendous potential for archaeological, historical and spiritual tourism and have potentiality of attracting tourists from across India and abroad</p> <p>8. Solapur city have high potential for massive industrialization</p> <p>9. A new marketing model for agricultural products</p>	<p>cost-effective polymeric membranes.</p> <p>5. Cost effective and highly sensitive LPG gas sensor device and low cost wireless soil moisture sensors</p> <p>6. Long-term management goals concerned to watershed</p> <p>7. Waste water treatment process can serve for domestic as well as industrial wastewater treatment and is assured process, if the selective plants are used and suitable technique are developed. This is needful in every state, municipal corporations, municipal councils and industrial areas including the smart city areas in the state of Maharashtra.</p> <p>8. Bring first hand quantitative information on the various risk prone areas, finger print and demarked hazardous zones in the city and outskirts and plan the line of action to reduce the pollutant intensity for smart city</p> <p>9. Recommendation for possible improvements on the city bus transport network and its operation</p> <p>10. The study on tourism and work on archaeological heritages will increase tourism, generates employment, increase living</p>
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									<p>contribute to inclusive development of Solapur city</p>	<p>standard and facilities for pilgrims, help in maintaining harmony in society, creates link between rural and urban citizens to increase farming income and improve medical tourism</p> <p>11. The study on industrial hub will help individual entrepreneur who want to start new business</p> <p>12. The study on market research results in new marketing model and private players, NGO and other institutions can use the model</p> <p>13. The incubation centre for applied research will provide quality input to policy makers, introduce innovative certificate courses and skilled human resources</p> <p>14. The digital literacy project reaches public through audio-visual and digital media, and useful for documentation and timely evaluation of smart city activities.</p>
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**Component No. 3 : Infrastructure Grants for University**

**B) Educational facility Up-Gradation (e-book, e-library, books, classroom up-gradation, library up-gradation etc.**

**Infrastructure and Learning Resources**

Sr. No.	School/ Department	Facilities	No. of units	Facility type	Demand				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)		
1	C1: Chemical Sciences	Classrooms	1	classrooms up-gradation		20	20	0	There is a need to add department library, separate boys and girl common rooms.	The School of Chemical Sciences is expecting a growth in admissions in PG and research streams. To serve the future needs will equipped classrooms will significantly contribute.
2	Chemical Sciences	Laboratory		Lab Up-gradation		100	100	0	It is required to create high-tech facility for R and D activities.	The School of Chemical Sciences is expecting a growth in admissions in PG and research streams. To serve the future needs labs will significantly contribute.

3	Computational Sciences	Laboratory	2	Lab Up-gradation		100	100	0	There is no separate lab and required infrastructure for Ph. D. Scholars and temporary setup is being provided for these students with minimum infrastructure facilities. In coming days, teachers proposed to carry research in area of biometrics, computer vision, pattern recognition, artificial intelligence, process monitoring and control, fuzzy mathematics etc. To facilitate research in these areas high end equipment specific to each research domain are necessary. The other infrastructure facilities like furniture and fixture are also needed.	The School of Computational Sciences is expecting a growth in admissions in PG, Ph. D. Students in Computational Sciences research streams. To serve the future needs labs will significantly contribute.
4	Administration	Others (Modular Storage System)		Up-Gradation		125	125	0	Due to space problem many important office documents are stored in safe rooms at far away distances from the University main building. They have not only occupied the rooms but	Modular storage system will bring neatness, compactness and discipline in storing official records. As the records is backbone of University Administration so it is

									also created difficulty in access them quickly. Creation of compact storage system will help in storing these documents in the office and they can be accessed quickly.	enormously needed.
5	Knowledge Resource Centre	Library		Library Up-gradation		150	150		Once the Administration, Examinations and Finance sections will move to the new locations, the entire building will be utilized by the library.	Its renovation and up gradation is necessary since it has to be renovated according to the structure and needs of a library.
		<b>Grand Total</b>	<b>1</b>			<b>495</b>	<b>495</b>	<b>0</b>		

### Students Support and Progression

Sr. No.	School / Department	Facilities	No. of units	Facility type	Infrastructure Demanded				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)		
6	Administration (Physical, Computational, Earth and Social Sciences)	Classrooms		Classrooms Upgradation	0	80	80	0	In the first phase of RUSA Grants University has procured 16 technologically enabled class room facilities. To serve the future needs due to opening of new departments in the campus, more such IT facilities in classroom are needed.	Use of these facilities had made good impact on the teaching and learning activity. Since more number of departments is being added in the next three years, providing these teaching technological facilities will also support these new departments with new technology. Such as (Physical, Computational, Earth and Social Science Schools.
<b>Grand Total</b>			<b>0</b>		<b>0</b>	<b>80</b>	<b>80</b>	<b>0</b>		

### Curricular Aspects

Sr. No.	School / Department	Facilities	No. of units	Facility type	Demand				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUS A	Funds raised from other sources (One Year)		
7	Knowledge Resource Centre	Books / Journals		e-book, e-library, books,		145.77	100	45.77	This proposal is from Knowledge Resource Centre (University <b>Knowledge Resource Centre</b> ). The objective of the proposal is to improve the <b>Knowledge Resource Centre</b> facilities by increasing reference books, e-books and subscription of national and international journals, also, procurement of furniture and civil work.	Books are the basic needs of any educational institution. Increase in the reference books will serve to impart more knowledge to the students. Subscription of Scientific journals will help access to recent research works for the research scholars and teachers. Present generation of students are very much IT savvy. Presentation of these books in the form of e-resource will further help the students and researchers to access these resources from any place at any time, without physically being present in the knowledge resource centre.

8	Knowledge Resource Centre	E-Resources		e-book, e-library, books,		100	100	0	This proposal is from Knowledge Resource Centre (University <b>Knowledge Resource Centre</b> ). The objective of the proposal is to improve the <b>Knowledge Resource Centre</b> facilities by increasing reference books, e-books and subscription of national and international journals, also, procurement of furniture and civil work.	Books are the basic needs of any educational institution. Increase in the reference books will serve to impart more knowledge to the students. Subscription of Scientific journals will help access to recent research works for the research scholars and teachers. Present generation of students are very much IT savvy. Presentation of these books in the form of e-resource will further help the students and researchers to access these resources from any place at any time, without physically being present in the knowledge resource center.
		<b>Grand Total</b>	<b>0</b>			<b>245.77</b>	<b>200</b>	<b>45.77</b>		

### Teaching Learning and Evaluation

Sr. No.	School/ Department	Facilities	No. of units	Facility type	Demand				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (laks)	Funds Sought from RUSA	Funds raised from other sources (One Year)		
9	Computational Sciences	Computers		Up-gradation		50	50	0	It and Computer Science is one of the rapidly developing subject and its infrastructure need continuous up gradation. The syllabus is revised every three years and with revision of syllabus new technologies are introduced in the curricula. To meet the technology introduced in the curricula procurement of computers with latest configuration is needed.	Access to the latest high speed computing facilities will help students to learn and carry out their projects with latest technologies available in the market. It will have direct impact on their chance of employability. Since mini projects on every semester are the part of their project, students can undertake live projects as their semester projects.

10	Knowledge Resource Centre	Others (Anti-plagiarism)		E-Resources		50	50	0	The major focus is on procurement of anti-plagiarism software. As we all are aware that plagiarism in research articles, thesis and project reports are negatively impacting on image of institutions. Hence institution is in need of strong anti-plagiarism software which can perform in depth analysis of articles, thesis and reports and provide wide variety of reports on possibility of plagiarism in the document.	Procurement and use of strong anti-plagiarism software will bring improvement in research articles and Ph.D. thesis without plagiarized content. It will help in imposing good ethics in research articles and thesis. As per the UGC Regulation 2009 this University is pioneer University which has completed flow last process of Ph. D. Entrance Test (PET 6) and admitted Ph. D. Students for the Course. Further, as mandate each and every theses should be accepted by checking plagiarism.
11	Examination	Computer Centre (Data Centre)		Computer Centre up-gradation		100	100	0	Data Entry and Processing Centre There is no separate centralized data center in the University for Storage and processing of students data, and University is paying rent of Rs. 4.8 lakhs per year to the external agency. Establishment of data center has many	At present University has hired Data center on rental basis. Owing to this will have to establish a new data center for University Examination, for achieving higher level of safety, security and confidentiality of University Examination related data as well as



									advantages, such as security to personal data of students (biometric information, contact details, etc.), and will save university funds paid as rent. Rajesh Agrawal committee has also recommended to establish a separate own data center with requisite IT infrastructure.	heard wares such as data server (higher configuration) with all computer related amenities.
		<b>Grand Total</b>	<b>0</b>		<b>0</b>	<b>200</b>	<b>200</b>	<b>0</b>		

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

<b>COMPONENT 8: RESEARCH AND INNOVATION</b>										
<b>Sr No</b>	<b>Name of the Centre</b>	<b>Department Where Located</b>	<b>Principal Investigator</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>Total</b>	<b>Funds sought from RUSA</b>	<b>Funds from other sources</b>	<b>Justification</b>
1	Centre for Smart Cities	Solapur University, Solapur.	Prof. Dr. V. B. Patil, Prof. R. S. Hegadi, Prof. L. P. Deshmukh, Prof. V. B. Ghute, Dr. R. B. Bhosale, Dr. A. A. Ghanwant, Dr. V. P. Dhulap, Dr. D. D. Kulkarni, Dr. P. G. Vhankade, Dr. R. B. Chincholkar, Dr. Mrs. M. J. Patil, Dr. P. N. Kolekar, Dr. M. G. Mali	189163783	184733133	71688834	445585750	441117750	4468000	<p><b>Under RUSA component no. 8 (Research and Innovations) University is submitting a proposal for innovative research centre for smart cities. To achieve the mission to raising the quantum of research output and improving its quality.</b></p> <ol style="list-style-type: none"> <li><b>1. Since many Indian cities are transforming into smart cities, parallel development of smart devices play important contribution in smart city concept</b></li> <li><b>2. The current process of student record maintenance is very redundant because of use of manual attendance books for student attendance</b></li> <li><b>3. In today's health care, imaging plays an important role throughout the entire clinical process from diagnostics and treatment planning to surgical procedures</b></li> <li><b>4. The products available in the market for the detection and alerting of LPG gas leakage are expensive, time and power consuming and show cross sensitivity for other gases</b></li> <li><b>5. The Solapur District being a draught</b></li> </ol>

										<p>prone area, the development of agriculture sensors is an exercise of building a laboratory prototype and taking it to the field for trials, feedback and improvements</p> <p>6. The study on tourism promotion will help the increasing level of income, employment, increase number of industries, and development of agricultural activities</p> <p>7. Solapur and Osmanabad districts have rich heritage and tremendous potential for archaeological, historical and spiritual tourism and have potentiality of attracting tourists from across India and abroad</p> <p>8. Solapur city have high potential for massive industrialization</p> <p>9. A new marketing model for agricultural products contribute to inclusive development of Solapur city</p>
	<b>TOTAL in Lakhs</b>			<b>189163783</b>	<b>184733133</b>	<b>71688834</b>	<b>445585750</b>	<b>441117150</b>	<b>4468000</b>	

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Summary of Funds required in Research and Innovation - Component - 8**

All Figures in Rs. Lakh

Sr No	Center		Name of the Project	Department Where Located	Principal Investigator	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Centre for Smart Cities	1	Smart Devices for Health Care	Solapur University, Solapur	Prof. R. S. Hegadi	69676000	22626000	9102000	101404000	96936000	4468000	
		2	IoT for Smart City		Prof. R. S. Hegadi	28558000	28558000	3846000	60962000	60962000		
		3	Smart Classroom, Smart University		Prof. R. S. Hegadi	12098533	12473533	12054734	36626800	36626800		
		4	Effective Watershed Management: Planning, Implementation, and Evaluation for Smart cities		Dr. D.D Kulkarni	1196000	9798000	1748000	12742000	12742000		
		5	Design and Development of Novel Constructed Wetlands for Urban Wastewater treatment in Smart cities		Dr.V. P. Dhulap	2001000	10948000	2231000	15180000	15180000		
		6	Study of Total Suspended Particulates in and Around Solapur Municipal Corporation: An Elucidation for Smart City		Dr.V. P. Dhulap	4582750	6923000	6923000	18428750	18428750		
		7	Designing of novel semiconductive nanomaterials for environmental remediation		Prof. Dr. V. B. Patil, Dr. M. G. Mali	494500	43475500	1115500	45085500	45085500		
		8	Development of smart water filter devices based on polymeric nanocomposites		Dr. M. G. Mali, Prof. Dr. V. B. Patil,	644500	6532000	1265500	8442000	8442000		

9	Composting of Biodegradable Organic Wasten	Prof. R. B. Bhosale	494500	3990500	1115500	5600500	5600500		
10	Green and Sustainable Technology for Environmental Cleanup in the smart cities and produce raw materials of Pulp for Paper industries and composting	Dr. A.A. Ghanwat Dr. V. P. Dhulap	4416000	5198000	1656000	11270000	11270000		
11	Intelligent real time smart air quality monitoring and controlling system	Prof.L.P. Deshmukh	5902000	2102000	1602000	9606000	9606000		
12	Wireless Sensor Network for Smart Protection Systems Against Gas Leakage	Prof.L.P. Deshmukh	5902000	2102000	1602000	9606000	9606000		
13	Design and Development of Multi-Sensor Wireless Sensor Nodes and Their Networking for Smart Irrigation in Agriculture Sector	Prof.L.P. Deshmukh	30704000	3104000	2802000	36610000	36610000		
14	Development of Efficient Public Transportation Model for Smart City	Prof. V. B. Ghute	6704000	3854000	4142000	14700000	14700000		
15	The Incubation Centre for Applied Research	Dr. P. G. Vhankade	1290000	2090000	2280000	5660000	5660000		
16	An Exploration New Marketing Model for Agriculture	Dr. P. G. Vhankade	972200	1672200	1862200	4506600	4506600		
17	An Exploration of Potentiality of Solapur for Making asan Industrial Hub	Dr. P. G. Vhankade	1195000	1895000	2085000	5175000	5175000		
18	Smart Citizens for Smart City (Skill Development Project for Citizens Digital Literacy )	Dr. R. B. Chincholkar	1338600	2953200	2953200	7245000	7245000		
19	Documentation & Study of Archaeological Heritage sites in the Smart city & Adjacent places for Conservation & Tourism Purposes.	Dr. Mrs. Maya J. Patil	989000	4669000	4669000	10327000	10327000		

	20	A study of Historical Cultural & Economical Aspects of tourism and Its impacts on the Development of the Solapur Smart City	DR. P.N. Kolekar	2898200	3398200	3598200	9894600	9894600		
	21	Encapsulated immobilised bio media for advanced water treatment	Dr. A.A. Ghanwat	3266000	2898000	1460500	7624500	7624500		
	22	Sustainable low cost water purifier based on UF (Hollow fibre membrane) for POU water	Dr. A.A. Ghanwat	3841000	3473000	1575500	8889500	8889500		
			<b>Total</b>	<b>189163783</b>	<b>184733133</b>	<b>71688834</b>	<b>445585750</b>	<b>441117750</b>	<b>4468000</b>	

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
1	Establishment of well equipped medical imaging centre for research and development of tools for robotics medical simulation. Tools provide assistance to psycho-motor skill trainer, preoperative planning system, intra-operative assistance system and medical diagnosis assistance system, Medical cognitive system. Lab will provide state of art devices to conduct diverse research in medical imaging including pathological images.	Smart Devices for Health Care	Department of Computer Science, Solapur University, Solapur	Computer Science, Mathematics	1. University of South Dakota, USA 2. Dr. BAMU, Aurangabad 3. SRTMU Sub centre Latur 4. SRTMU Nanded 5. Mysore Medical College 6. Prism Lab Solapur 7. Ashwini Hospital Solapur 8. Ayyar Hospital Solapur 9. Phi-Robotics Research Pvt. Ltd., Mumbai	Prof. R. S. Hegadi	1. Dr. Santosh K. C., USD, USA 2. Dr. Praveen Yannavar, Dr. BAMU, Aurangabad 3. Dr. R. R. Manza, Dr. BAMU, Aurangabad 4. Dr. V. T. Humbe, SRTMU Subcentre, Latur 5. Dr. Neelangouda Patil, Mysore Medical College, Mysore 6. Dr. Kulkarni, Ayyar Hospital, Solapur 7. Dr. Jamma, Ashwini Hospital 8. Mashale J.D., Solapur University, Solapur 9. Dr.B.Surendranath Reddy, School of Mathematical Sciences, SRTMU, Nanded 10. Dr.R.S.Jain,School of Mathematical Sciences, SRTMU, Nanded

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	0	0	0	0	0	0	
2	SRF : (1 Nos) Rs.50000 + 20%HRA for 1 & 2nd yrs & 55000 + 20%HRA for 3rd yr	720000	720000	792000	2232000	2232000	0	
	JRF : (6 Nos) Rs.40000 + 20%HRA for 1 & 2nd yrs & 45000 + 20%HRA for 3rd yr	3456000	3456000	3888000	10800000	9000000	1800000	
	Lab Assistant: (1 No) Rs.20000 + 20%HRA for 3 years	288000	288000	288000	864000	864000	0	
3	Contingency (Please specify)	2512000	2512000	2512000	7536000	7036000	500000	
4	Equipment (Item wise)	61000000	14000000	0	75000000	73000000	2000000	
5	Travel	1000000	1000000	1000000	3000000	3000000	0	
6	Institutional/Administrative overheads	500000	500000	500000	1500000	1500000	0	
7	Others	200000	150000	122000	472000	304000	168000	
	<b>Total (in Rs.)</b>	<b>69676000</b>	<b>22626000</b>	<b>9102000</b>	<b>101404000</b>	<b>96936000</b>	<b>4468000</b>	



<b>Equipment (in Rs.)</b>					
		<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>Total</b>
1	Geomagic® Touch™ Haptic Device	200000	0	--	200000
2	Geomagic® Touch X Haptic Device (2 Nos)	1800000	0	--	1800000
3	Omega 6 Haptic Device (2 Nos)	2000000	0	--	2000000
4	Ascension 3D Guidance Trackstar,6 DOF (2 Nos)	700000	0	--	700000
5	Optical Tracking Systems (2 Nos)	2500000	0	--	2500000
6	Stereo Glasses (2 Nos)	500000	0	--	500000
7	Cyber Data Glove (2 Nos)	1000000	0	--	1000000
8	Motion sensors	1000000	1000000	--	2000000
9	Workstation / Laptop (5 Nos)	10000000	5000000	--	15000000
10	SAN storage	5000000	0	--	5000000
11	High Performance Cluster Heterogenous research work - 60 Teraflops	20000000	0	--	20000000
12	DGX-1 AI Computer with parallel GPU'S	11000000	0	--	11000000
13	IBM's New Power System S822LC For Big Data (4 Nos)	2500000	2500000	--	5000000
14	High Dimensional Data Storage Facility (2 Nos)	1000000	1000000	--	2000000
15	Electronic/Optic Microscope (Nano Scale)	600000	0	--	600000
16	Micro Controller (2 Nos)	500000	0	--	500000
17	Video Conferencing Unit	1000000	0	--	1000000
18	Symthes Surgical Drill (2 Nos)	200000	0	--	200000

19	Haptic SDK	100000	0	--	100000
20	Robotic SDK	100000	0	--	100000
21	Openhaptics® Toolkit Developer – Software	100000	0	--	100000
22	RTOS (VxWorks)	2000000	2000000		4000000
23	Hardware Interfaces	200000	0		200000
24	3D Printer	500000	500000		1000000
25	Artificial Skeleton(1)	2000000	2000000		4000000
	<b>Total</b>	<b>61000000</b>	<b>14000000</b>		<b>75000000</b>

<b>Contingency (in Rs.)</b>					
1	Contingency For JRF @3000/-	216000	216000	216000	648000
2	Contingency For SRF @5000/-	60000	60000	60000	180000
3	Artificial Bones	300000	300000	300000	900000
4	Drill Attachable (Bits, Saw, Guide Wire, Fluoroscopic Guide Wire)	300000	200000	200000	700000
5	Implant Tools (Nuts Bolts, Plates, Rod)	186000	186000	186000	558000
6	Soft Artificial Bone Models (FE Model)	300000	200000	200000	700000
7	Microscope Slides	50000	50000	50000	150000
8	Sensors	200000	400000	400000	1000000
9	Consumables	300000	300000	300000	900000
10	Microscope Lances	100000	100000	100000	300000
11	Surgical/ Clinical Instruments	500000	500000	500000	1500000
12	<b>Total</b>	<b>2512000</b>	<b>2512000</b>	<b>2512000</b>	<b>7536000</b>

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
2	Under the first phase of Smart City Project launcher by the Government of India, Solapur was the one of the cities selected for the implementation. Smart city project has many components, which need development of smart devices and sensors. We propose to develop such kinds of unique and cost effective devices towards addressing many issues faced by the cities. These are the sensors required to build any smart city project, these basic sensors sense the any atmospheric quantity like sound, light, distance, touch, smell etc. without these sensors it is difficult to build smart applications.	IoT for Smart City	Department of Computer Science, Solapur University, Solapur	Department of Electronics, Solapur University, Solapur	Department of Electronics, Shivaji University, Kolhapur	Prof. R. S. Hegadi	1. Prof. V. B. Patil, Solapur University, Solapur 2. Prof. Dr. R. K. Kamat, Shivaji University, Kolhapur

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	0	0	0	0	0		
2	SRF : (0 Nos) Rs.50000 + 20%HRA for 1 & 2nd yrs & 55000 + 20%HRA for 3rd yr	0	0	0	0	0		
	JRF : (4 Nos) Rs.40000 + 20%HRA for 1 & 2nd yrs & 45000 + 20%HRA for 3rd yr	2304000	2304000	2592000	7200000	7200000		
	Lab Assistant: (1 No) Rs.20000 + 20%HRA for 3 years	360000	360000	360000	1080000	1080000		
3	Contingency (Please specify)	444000	444000	444000	1332000	1332000		
4	Equipment (Item wise)	25000000	25000000	0	50000000	50000000		
5	Travel	300000	300000	300000	900000	900000		
6	Institutional/Administrative overheads	100000	100000	100000	300000	300000		
7	Others	50000	50000	50000	150000	150000		
	<b>Total (in Rs.)</b>	<b>28558000</b>	<b>28558000</b>	<b>3846000</b>	<b>60962000</b>	<b>60962000</b>		

Equipment (Item wise)		
1	Necessary infrastructure for development of smart city devices, establishment of incubation centre, etc.	50000000
	<b>Total</b>	<b>50000000</b>

Contingency (in Rs.)		
1	Contingency For JRF @3000/-	432000
2	Consumables	900000
	<b>Total</b>	<b>1332000</b>

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
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**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
3	Learning process of students is mostly dependent on how much time he/she is spending in the classroom attending classes conducted by the teachers. Since the current practice of obtaining attendance is manual, there are every possibilities of proxy attendance, modification of information in later stages, loss of attendance sheets, etc. Due to its many disadvantages, biometrics enables solution would eliminate all these discrepancies in the system. In this proposal we propose to introduce a finger print and face recognition based student attendance system integrated with the student feedback system, student mentor system, internal assessment system and other student related activities.	Smart Classroom, Smart University	Solapur University, Solapur	Department of Computer Science, Solapur University, Solapur	-	Prof. R. S. Hegadi	-

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	0	0	0	0	0		
2	SRF : (0 Nos) Rs.50000 + 20%HRA for 1 & 2nd yrs & 55000 + 20%HRA for 3rd yr	0	0	0	0	0		
	JRF : (4 Nos) Rs.40000 + 20%HRA for 1 & 2nd yrs & 45000 + 20%HRA for 3rd yr	2304000	2304000	2592000	7200000	7200000		
	Lab Assistant: (0 No) Rs.20000 + 20%HRA for 3 years	0	0	0	0	0		
3	Contingency (Please specify)	444000	444000	444000	1332000	1332000		
4	Equipment (Item wise)	8333333	8333333	8333334	25000000	25000000		
5	Travel	200000	200000	200000	600000	600000		
6	Institutional/Administrative overheads @15%	817200	1192200	485400	2494800	2494800		
7	Others	0	0	0	0	0		
	<b>Total (in Rs.)</b>	<b>12098533</b>	<b>12473533</b>	<b>12054734</b>	<b>36626800</b>	<b>36626800</b>		

Equipment (Item wise)		
1	Wireless Biometrics Devices (100)	7000000
2	Integrated application	2000000
3	Wireless cameras (50)	2000000
4	Server, workstations, Laptops, and other devices	4000000
5	other smart class room devices	10000000
	<b>Total</b>	<b>25000000</b>
Contingency (in Rs.)		
1	Contingency For JRF @3000/-	432000
2	Consumables	900000
	<b>Total</b>	<b>1332000</b>

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
4	<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Study of climate, geology, hydrology, soil, vegetation, and the human community of the smart city</li> <li>2. Scientific planning is to characterize the present watershed conditions for the smart city</li> <li>3. Define management objective, identify and prioritize watershed problems of the study area</li> <li>4. Develop protection or remediation strategies and practices for watershed management using Geospatial techniques</li> <li>5. Ground water recharges through rainwater harvesting and studying variations in water quality.</li> </ol> <p><b>Deliverables / Outcomes:</b>            The stakeholders will help identify issues and concerns in the watershed and set up long-term management goals.</p> <p><b>Other Outcomes:</b></p> <ol style="list-style-type: none"> <li>1. 1. Number of High Quality Publications, Books, and Monographs will be produced</li> <li>2. Number of municipal corporation employees and students will be trained</li> <li>3. Number of workshops/Training programs will be conducted for students, Industry and Society</li> </ol>	<p style="text-align: center;">Effective Watershed Management: Planning, Implementation, and Evaluation for Smart cities</p>	<p style="text-align: center;">School of Earth Sciences, Solapur University, Solapur</p>	<p style="text-align: center;">Nil</p>	<p style="text-align: center;">Nil</p>	<p style="text-align: center;">Dr. D .D Kulkarni</p>	<p style="text-align: center;">Dr.V.P.Dhulap Prof. P.Prabhakar</p>

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil				
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	240000	720000	720000	1680000		Nil	Nil
3	Contingency (Please specify)	200000	200000	200000	600000			
4	Equipment (Item wise)	500000	7500000	500000	8500000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads @ 15 %	156000	1278000	228000	1662000			
7	Others	0	0	0	0			
	<b>Total (in Rs.)</b>	<b>1196000</b>	<b>9798000</b>	<b>1748000</b>	<b>12742000</b>		Nil	Nil

<b>Equipments</b>	
Digital Data	2000000
DGPS	3000000
GIS Softwares	2000000
Computers and Laptops	500000
Jambo Scanner and Printer	1000000
	8500000



**Solapur University, Solapur**  
**Rashtriya Uchchatar Shiksha Abhiyan (RUSA)**  
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**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
5	<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Characterization and effects of wastewater on environment.</li> <li>2. Design and fabricate pilot scale treatment plant.</li> <li>3. Remediation (Treatment &amp; Reclamation) of wastewater using aquatic, semiaquatic, submerged rooted plants, combination of gravel, sand and soil.</li> <li>4. Study of microbial species in the bed media, rhizosphere and endo-rhizosphere.</li> <li>5. Study of toxicological evaluation of both treated and untreated wastewater.</li> <li>6. Preparation of consortium for bioremediation of wastewater.</li> <li>7. Efficacy of pilot model for Lab to Land and Assess the Cost Benefit Analysis.</li> </ol> <p><b>Deliverables / Outcomes:</b></p> <ol style="list-style-type: none"> <li>1. This treatment process can serve for domestic as well as industrial wastewater treatment and is assured process, if the selective plants are used and suitable technique are developed. This is needful in every state, municipal corporations, municipal councils and industrial areas including the smart city areas in the state of Maharashtra.</li> <li>3. The ability of the project to maximize the application and commercialization of research outcomes and contribute to economic growth and diversity (including gender) in the State and India.</li> <li>4. The companies, the Municipal Corporations, industries and common households can utilize the results of the project.</li> <li>5. Expected outcomes and benefits from the project:            Number of High Quality Publications, Books, Monographs will be produced            Number of Patents files will be published and granted            Number of Students will be trained            Number of workshops/Training programs will be conducted for students, Industry and Society            Number of people in society benefited through water recycle and job generation</li> </ol>	Design and Development of Novel Constructed Wetlands for Urban Wastewater treatment in Smart cities	School of Earth Sciences, Solapur University, Solapur	School of Chemical Sciences, Solapur University, Solapur		Dr.V. P. Dhulap	Dr. M.G.Mali Dr. V.D. Kadu

**Justification:** The present work proposes to make the use of constructed wetland for the treatment of waste water by adopting Phytoremediation technology in the form of constructed wetlands. The core focus will be on the scientific and technical aspects of the construction of wetland. The use of such treated water will reduce the use of fresh water for gardening. Depending on the suitability, this technology will be useful in low income and peri-urban areas. It may be added that the use of such suitable technology at the domestic level, would be ideal to achieve a goal of 'ZERO DISCHARGE & ZERO POLLUTION'. This concept needs to be established in the community. The present research work on biological aspects has been carried out by many researchers but no systematic efforts have been made on correlating the scientific work with the engineering aspects and lacking enlarges scale applicability in the field. The gap will be fulfilled by present investigation.

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	100000	400000	50000	550000			
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	240000	720000	720000	1680000	Nil	Nil	Nil
3	Contingency (Please specify)	300000	300000	200000	800000			
4	Equipment (Item wise)	1000000	8000000	870000	9870000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads @ 15 %	261000	1428000	291000	1980000			
7	Others	0	0	0	0			
	<b>Total (in Rs.)</b>	<b>2001000</b>	<b>10948000</b>	<b>2231000</b>	<b>15180000</b>	Nil	Nil	Nil

<b>Equiement Deatils</b>		
<b>Generic Name</b>	<b>Quantity</b>	<b>Estimated Cost in INR</b>
Biosafety Cabinet / Laminar Air Flow Chamber	1	115000
UV/VIS Spectrophotometer	1	800000
Flame photometer	1	700000
Bacteriological incubator	1	100000
COD meter and Multiparameter Photometer	1	250000
Atomic Absorption spectrophotometer	1	5500000
Portable Lux meter	1	20000
Digital pH meter	1	60000
Digital EC meter	1	70000
Digital DO meter	1	75000
Turbidity meter	1	70000
Homogenizer	1	60000
Nano-Colorimeter	1	90000
Hot plate with stirrer	2	50000
Analytical Balance (micro)	1	110000
Seed Germination Chamber	1	100000
Plant growth Chamber	1	200000
Microscope with camera attachment	1	1500000
	<b>Total Cost</b>	<b>9870000</b>

**Solapur University, Solapur**  
**Rashtriya Uchchar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
6	<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Identify the places of Suspended Particulates Matter (SPM) and classify the types of suspended particulates matter.</li> <li>2. Find out the causes of Total Suspended Particles Matters (TSPM) and the area of maximum occurring of suspended particles using Fine Particulate Sampler</li> <li>3. Find out the effects of Suspended Particulates on other resources in and around city.</li> <li>4. Study and assess the nature, characteristics and type particulates.</li> <li>5. Study of impact of SPM on human health.</li> </ol> <p><b>Sampling Sites:</b>            Samplings will be performed from seasons to seasons at different sites. Samples are collected buy using Dust Sampler, Fine Particulate sampler and Handy Sampler. Sites includes Residential, commercial, parks, open places, industrial sites and traffic signal areas.</p> <p><b>Deliverables / Outcomes:</b>            This study will enabled to bring first hand quantitative information on the various risk prone areas. This will help to finger print and demarked hazardous zones in the city and outskirts study area. This will definitely help to plan the line of action to reduce the pollutant intensity for smart city.</p>	<p style="text-align: center;">Study of Total Suspended Particulates in and Around Solapur Municipal Corporation : An Elucidation for Smart City</p>	<p style="text-align: center;">School of Earth Sciences, Solapur University, Solapur</p>			<p style="text-align: center;">Dr.V. P . Dhulap</p>	<p style="text-align: center;">Prof. P.Prabhakar Dr. D.D.Kulkarni</p>

**Other Outcomes:**

1. Number of High Quality Publications, Books, Monographs will be produced
2. Number of Patents files will be published and granted
3. Number of municipal corporation employees and students will be trained
4. Number of workshops/Training programs will be conducted for students, Industry and Society 4. Number of workshops/Training programs will be conducted for students, Industry and Society

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	0	0	0	0			
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	240000	720000	720000	1680000	Nil	Nil	Nil
3	Contingency (Please specify)	200000	200000	200000	600000			
4	Equipment (Item wise)	3445000	5000000	5000000	13445000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads @ 15 %	597750	903000	903000	2403750			
7	Others	0	0	0	0			
	<b>Total (in Rs.)</b>	<b>4582750</b>	<b>6923000</b>	<b>6923000</b>	<b>18428750</b>	Nil	Nil	Nil

Equiement Deatils		
Generic Name	Quantity	Estimated Cost in INR
Air Fine Dust Sampler with gases kit	10	1500000
Handy Dust and gases sampler	2	80000
Weather Monitoring stations	5	1350000
Biosafety Cabinet / Laminar Air Flow Chamber	1	115000
UV/VIS Spectrophotometer	1	800000
Bacteriological incubator	1	100000
Atomic Absorption spectrophotometer	1	5500000
GIS Software - Arc GIS latest verison	1	1500000
High Resolution satelite data of Solapur City (Foreign Data)	1	1000000
Microscope with camera attachment	1	1500000
	<b>Total Cost</b>	<b>13445000</b>

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
7	<p>In the past few decades, wide-ranging research efforts have been dedicated for the improvement of heterogeneous photocatalytic technology for eliminating organic pollutants as well as for production of clean fuel H<sub>2</sub> from water splitting reaction. Overall water splitting to generate H<sub>2</sub> and O<sub>2</sub> over a semiconductor surface is a promising process for the large-scale production of clean and recyclable H<sub>2</sub> as a future fuel. The technology of semiconductor based photocatalytic water splitting to produce hydrogen using solar energy has been considered as one of the most important approaches to solving the world energy crisis. Therefore, the improvement of the essential semiconductor photocatalysts has undergone extensive research. The search for active semiconductor photocatalysts that directly split water under visible-light irradiation or effectively decompose organic pollutants remains one of the most challenging tasks for solar energy utilization for benefit of mankind. Photocatalysis assisted splitting of water over semiconducting oxides having proper band gap is an economic and clean technology to resolve</p>	<p>Designing of novel semiconductive nanomaterials for environmental remediation</p>	<p>School of Chemical Sciences, Solapur University, Solapur</p>	<p>School of Physical Sciences, Solapur University, Solapur</p>	<p>Nil</p>	<p>Prof. V. B. Patil Dr. M. G. Mali</p>	<p>Mr. V. D. Kadu</p>

<p>the problems of energy consumption. This project mainly aims to develop the novel visible light active doped photocatalytic materials to be used in photocatalytic water purification and water splitting to generate H<sub>2</sub> fuel.</p> <p>Possible Deliverables: 1) Development of novel photocatalytic materials based on bismuth, iron, titanium, and metal chalcogenides.  2) Publication of Research papers -05  3) Human resources -02  4) Patents - 02  5) Device - Development of new Tandem cell electrodes for efficient water splitting</p>					
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	180000	720000	720000	1620000			
3	Contingency (Please specify)	150000	150000	150000	450000			
4	Equipment (Item wise)		41400000		41400000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads	64500	1105500	145500	1315500			
7	Others	Nil	Nil	Nil	Nil	Nil		
	<b>Total (in Rs.)</b>	<b>494500</b>	<b>43475500</b>	<b>1115500</b>	<b>45085500</b>			



<b>List of Equipments</b>					
<b>Sr.No.</b>	<b>Description</b>	<b>Make</b>	<b>Rs. in Lakh</b>	<b>Quantity</b>	<b>Total</b>
1	Potentiostat (Double channel battery versastat) with RDE (roating disc electrode)	Versastat	2500000	1	2500000
2	Gas chromatograph (Schimadzu) With 8 way valve	Schimadzu	2000000	1	2000000
3	New port lamp (450 watt)	New port	700000	1	700000
4	Cut off filter set / narrow band pass filter	New port	500000	1 Set	500000
5	Glow box		700000	1	700000
6	FESEM - EDS		20000000	1	20000000
7	Raman Spectrometer		15000000	1	15000000
				<b>Total</b>	<b>41400000</b>

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
8	<p>Introduction            Pure water is a basic human need, and technologies for water purification are required over a wide range of scales and applications from drinking water to irrigation to recovery of wastewater from hydro fracking. Currently, effluents containing organic dyes from the textile, printing, and dyeing industries are a serious environmental concern. Especially, Textile is one of the fastest growing waste ever generated and the landfill is almost. Organic dyes are prototypical synthetic dyes that has been used for various applications including dyeing of cotton and wool, coating and coloring of paper, and as a hair colorant. Organic dyes are, in general, not readily biodegradable. Hence, many traditional water treatments fail to remove organic dyes. Highly efficient and cost-effective techniques for removal of organic dye impurities are needed to address this issue. Accordingly, wastes utilization in the textile industry is gaining energetic importance in the Indian textile industry as international legislations are also to come into force in our country. As one means of addressing this need, polymeric composites containing carbonaceous materials such as graphene, carbon nanotubes, and carbon nanofibers for use in water purification have attracted significant attention from the scientific and engineering communities.</p> <p>Proposed work and objectives</p>	Development of smart water filter devices based on polymeric nanocomposites	School of Chemical Sciences, Solapur University, Solapur	School of Physical Sciences, Solapur University, Solapur & School of Earth Sciences, Solapur university, Solapur	Nil	Dr. M. G. Mali Prof. V. B. Patil	Mr. V.D. Kadu Dr. V. P. Dhulap

<p>To explores the practical methodologies for transforming water, based on polymeric nanocomposite membrane</p> <ul style="list-style-type: none"> <li>• Includes the most up-to-date information on nanotechnology applications and research methods for water purification and treatment.</li> <li>• Presents applications of nanotechnology and engineered nanomaterials in drinking water purification to improve efficiency and reduce cost.</li> <li>• Provides water purification research methods that are important to water quality, including precipitation, adsorption, membrane separation, and ion exchange.</li> <li>• Covers the potential risks of nanotechnology, such as the toxicological effects of engineered nanomaterials in water and how to minimize risks based on research studies.</li> </ul> <p>Outcome</p> <ul style="list-style-type: none"> <li>• Development of efficient and cost-effective polymeric membranes.</li> <li>• The fabrication of a light, thin, small, and most importantly, portable novel polymeric membrane based filters for separation and purification of waste water of textile industries, capable of supplying sufficient amounts of purified water.</li> <li>• The reuse of sufficiently purified water for further reprocessing in textile industries and other multiple applications such as development of renewable energy sources through photocatalytic hydrogen generation.</li> </ul> <p>Possible Deliverables: 1) Development of novel polymeric smart filters for separation and purification of waste water of textile industries</p> <p>2) Publication of Research papers -05  3) Human recourses -02  4) Patents - 02 5) Device - Smart water filters</p>						
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff	180000	720000	720000	1620000	1620000		
3	Contingency (Please specify)	300000	300000	300000	900000	900000		
4	Equipment (Item wise)	Nil	4560000	Nil	4560000	4560000		
5	Travel	100000	100000	100000	300000	300000		
6	Institutional/Administrative overheads	64500	852000	145500	1062000	1062000		
7	Others	Nil						
	<b>Total (in Rs.)</b>	<b>644500</b>	<b>6532000</b>	<b>1265500</b>	<b>8442000</b>	<b>8442000</b>		

<b>List of equipments</b>					
Sr. No.	Description	Make	Rate in	Quantity	Total Rs.
			Rs.		
1	Electro-spinning unit	-	2000000	1	2000000
2	Photocatalysis assembly	-	200000	2	400000
3	Tubular furnace with quartz tube	-	600000	1	600000
4	Vacuum furnace	-	500000	2	1000000
5	Spin coater	-	150000	1	150000
6	Doctors blading instrument	-	150000	1	150000
7	Hot air oven	-	60000	1	60000
8	Microbalance with 0.1 mg accuracy	Perkin elmer	100000	2	200000
	<b>Total</b>				<b>4560000</b>

**Solapur University, Solapur**  
**Rashtriya Uchchar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
9	<p>Biological decomposition of organic waste is known as composting. In India, majority of the waste produced is organic which makes composting a viable technique to handle waste. The technologies used for composting are:</p> <p>Windrow composting:            In this type of composting, the organic waste is stacked into windrows. The windrows are stacked to maximize the exposure to air. They are also constantly turned using mechanical turners. The finished product is rich in organic matter and nutrients with C/N ratio of 20:1 and moisture content of 30 to 35%.</p> <p>Aerated static pile composting:            The waste is placed over piles which are directly above a system of pipes connected to blowers. This helps ensure better aeration, hence, fermentation time and the fuel spent on mechanical turners (in windrow composting) is saved.</p> <p>In-vessel composting:            The composting of waste is done inside a closed vessel like drum, silo, digester bin or tunnel. Conditions like air-flow, moisture content, agitation mechanism and temperature are controlled. This allows more waste to be decomposed in less time. Moreover, with proper care the odour and leachate production can be reduced.</p> <p>Decentralized composting:            Since organic waste decomposes, it is better not to waste</p>	Composting of Biodegradable Organic Wastes	School of Chemical Sciences, Solapur University, Solapur		Nil	Prof. R. B. Bhosale	

<p>time in collection and transportation but rather treat it at the source itself. Decentralized composting is done either at community level in boxes with capacities of 3-5 tons or at individual household level in bins.</p> <p>Vermi composting: This is composting of bio-degrade able waste with help of earthworms. The resultant compost is rich in nutrients and can be used as a soil conditioner. Ideally, the vermin-compost beds must have a moisture content of 30-40% and a temperature range of 20-30°C.</p>						
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil				
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	180000	720000	720000	1620000	Nil	Nil	Nil
3	Contingency (Please specify)	150000	150000	150000	450000			
4	Equipment (Item wise)	Nil	2500000	Nil	2500000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads	64500	520500	145500	730500			
7	Others	Nil	Nil	Nil	Nil			
	<b>Total (in Rs.)</b>	<b>494500</b>	<b>3990500</b>	<b>1115500</b>	<b>5600500</b>	Nil	Nil	Nil

**Solapur University, Solapur**  
**Rashtriya Uchchatar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
10	<p><b>Introduction:</b>            Constructed wetlands are artificial wastewater system consisting of shallow ponds or channels which have been planted with aquatic plants and which rely upon natural microbial, biological, physical and chemical process to treat wastewater. Constructed wetlands using biofloaters have been used to treat a variety of wastewater including urban runoff, municipal, industrial, agricultural and acid mine drainage. In this biofloaters, Phytoremediation is the process which uses certain aquatic plants to clean up water contaminated with organic contaminants such as oil, solvents, poly aromatic hydrocarbons and metals. In this method aquatic plants remediate contaminants or toxicants by plant uptake. These aquatic plants can be used to remove or degrade contaminants from the wastewater. This technology has aesthetically pleasing mechanism that can reduce remedial costs, restoring habitat and clean up contaminants in place rather than something it in place or transporting the problem to another site. The paper pulp synthesized from stalk of water Hyacinth can be used to produce blotting paper, greeting cards etc. this work is useful to reduce/ control water pollution through Water Hyacinth.</p> <p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. To Design and develop on site Biofloaters using Eichhornia crassipes for urban sewage treatment.</li> <li>2. To characterise sewage before and after treatment using biofloaters.</li> <li>3. To study the microbial and toxicological evaluation of urban sewage.</li> <li>4. To study effectiveness of pilot model for lab to land and assess cost benefit analysis.</li> <li>5. To prepare paper from Water Hyacinth used in the Biofloaters</li> </ol> <p><b>Outcomes:</b></p> <ol style="list-style-type: none"> <li>1. This is needful in every state, municipal corporations, municipal councils and industrial areas including the smart city areas in the state</li> </ol>	<p style="text-align: center;">Green and Sustainable Technology for Environmental Cleanup in the smart cities and produce raw materials of Pulp for Paper industries and composting</p>	<p style="text-align: center;">School of Earth Sciences, Solapur University, Solapur</p>	<p style="text-align: center;">School of Chemical Sciences, Solapur University, Solapur</p>	<p style="text-align: center;">Dr. A.A.Ghanwat Dr. V. P. Dhulap</p>		<p style="text-align: center;">Mr. S.N.Shringare</p>

<p>of Maharashtra.</p> <p>2. The ability of the project to maximize the application and commercialization of research outcomes and contribute to economic growth and diversity (including gender) in the State and India.</p> <p>3. The companies, the Municipal Corporations, industries and common households can utilize the results of the project.</p> <p>4. It ultimately helps to reduce water pollution and forest conservation.</p> <p>5. Expected outcomes and benefits from the project:</p> <ul style="list-style-type: none"> <li>- Separation of cellulose fiber from water Hyacinth and its conversion into pulp.</li> <li>- This will produce number of High Quality Publications, Books and Monographs.</li> <li>- This will produce and granting number of Patents</li> <li>- This will produce training to Students, employees of municipal corporation etc.</li> <li>- Number of workshops/Training programs will be conducted for students, Industry and Society</li> <li>- Number of people in society benefited through water recycle and job generation</li> </ul> <p>Justification: The present work proposes to make the use of biofloatres for the sewage treatment in smart cities by adopting Phytoremediation technology in the form of constructed wetlands. The core focus will be on the scientific and technical aspects of the biofloaters using free floating constructed wetland. The use of such treated water will reduce the use of fresh water load for gardening. Depending on the suitability, this technology will be useful in low income and peri-urban areas. The present research work on biological aspects has been carried out by few researchers but no systematic efforts have been made on correlating the scientific work with the engineering aspects and lacking enlarges scale applicability in the field. The gap will be fulfilled by present investigation.</p>					
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any (For Development of Biofloaters on Sewage lines)	200000	400000	50000	650000			
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	240000	720000	720000	1680000	Nil	Nil	Nil
3	Contingency (Please specify)	300000	300000	200000	800000			
4	Equipment (Item wise)	3000000	3000000	370000	6370000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads @ 15 %	576000	678000	216000	1470000			
7	Others	0	0	0	0			
	<b>Total (in Rs.)</b>	<b>4416000</b>	<b>5198000</b>	<b>1656000</b>	<b>11270000</b>	Nil	Nil	Nil

<b>Equiement Details</b>		
<b>Generic Name</b>	<b>Quantity</b>	<b>Estimated Cost in INR</b>
Biosafety Cabinet / Laminar Air Flow Chamber	1	115000
UV/VIS Spectrophotometer	1	800000
Flame photometer	1	700000
Bacteriological incubator	1	100000
COD meter and Multiparameter Photometer	1	250000
Portable Lux meter	1	20000
Digital pH meter	1	60000
Digital EC meter	1	70000
Digital DO meter	1	75000
Turbidity meter	1	70000
Homogenizer	1	60000
Nano-Colorimeter	1	90000
Hot plate with stirrer	2	50000
Analytical Balance (micro)	1	110000
Seed Germination Chamber	1	100000
Plant growth Chamber	1	200000
Microscope with camera attachment	1	1500000
Small paper recycling machine plant 787mm.	1	2000000
	<b>Total Cost</b>	<b>6370000</b>

**Solapur University, Solapur**  
**Rashtriya Uchchatar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
11	<p>1. INTRODUCTION</p> <ul style="list-style-type: none"> <li>• The present status for the measurement of air pollution in most of the cities is to measure air pollutants using a collection of large environmental monitoring stations and data logger systems. These stations provide air quality data, but their high cost often limits the quantity of deployments, resulting in gaps in coverage and are time and power consuming.</li> <li>• The aim of this proposal is to develop a key technology for air quality sensing and real-time pollution monitoring.</li> <li>• Analysis of large-scale data (uninterrupted and continuous from long-lived sensor nodes) using this innovative system.</li> <li>• Our effort in this plan is to divert or switch or reduce the pollution generating sources (e.g on road vehicles, industries, population and other related)----- requisite for smart city.</li> <li>• Focus of this planning is to develop an Intelligent Electronic nose (I-EN) wireless sensor network within whole city that will acquire and monitor real time data and display.</li> <li>• Development of an android app for smart phone as well as internet monitoring.</li> </ul> <p>2. OBJECTIVES</p> <ul style="list-style-type: none"> <li>• Development of a portable and low cost intelligent</li> </ul>	Intelligent real time smart air quality monitoring and controlling system	Solapur University, Solapur	Department of Electronics Science, Solapur University, Solapur	No	Prof.L.P. Deshmukh	Dr.M.S. Kasbe

<p>electronic nose system for air quality monitoring</p> <ul style="list-style-type: none"> <li>• Internet of Things (IoT) based air quality monitoring and management for smart cities.</li> <li>• To develop hardware system to detect the combustible and pollutant gases emitted by the industries, vehicles and other sources using gas sensors.</li> <li>• To develop sensor node(s) with gas sensor array suitable for particular area within the city.</li> <li>• To develop and simulate LabVIEW based GUI from collected data analysis</li> </ul> <p>3. PROJECT JUSTIFICATION</p> <ul style="list-style-type: none"> <li>• The goal of building a smart city is to improve quality of life by using technology to improve the efficiency of services and meet resident's needs.</li> <li>• The wireless sensor networks are very popular and are studied widely with the hardware and software configurations and modeling of the network performance.</li> <li>• Information and Communication Technology allocate officials to interact directly with the public to tell what is happening in the city with respect to air quality, how the city is evolving, and how to enable a better quality of life using Smart Phone, Sensors, Cloud / Big Data, Internet of Things, Internet connection.</li> </ul> <p>4. DELIVERABLES</p> <ul style="list-style-type: none"> <li>• Low cost, portable and environmentally safety I-EN development.</li> <li>• Monitoring and controlling air quality smartly.</li> <li>• An Intelligent electronic nose system.</li> </ul>						
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (designation wise rows are to be filled) Project Fellows : (1 Nos) Rs.25000 + 20%HRA for 1 & 2nd yrs. & 28000 + 20%HRA for 3rdyr	402000	402000	402000	1206000	1206000		
3	Contingency (Please specify)							
i.	Consumables	1000000	1000000	500000	2500000	2500000		
ii.	Contingency & other costs	300000	200000	200000	700000	700000		
4	Equipment (Item wise)							
i.	LabVIEW, MATLAB etc.	1000000			1000000	1000000		
ii.	TGS gas sensors, AAA Batteries, solar panels, MFC, Exhaust Fan, GSM shield, raspberri-pi etc	200000			200000	200000		
iii.	Gas Cylinders and Air tight gas chamber and PCB Setup	500000			500000	500000		
iv.	ZigBee Network Sensor Nodes/ Controllers, Boards, etc., DAQ CARD, arduino microcontroller, color TFT, LabVIEW based Wireless DAQ, UV Color printer, PC or laptop, etc	2000000			2000000	2000000		
5	Travel	500000	500000	500000	1500000	1500000		
6	Institutional/Administrative overheads							
7	Others							
	<b>Total (in Rs.)</b>	<b>5902000</b>	<b>2102000</b>	<b>1602000</b>	<b>9606000</b>	<b>9606000</b>		

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
12	<p>1. INTRODUCTION:            The products available in the market for the detection and alerting of LPG gas leakage are expensive. But the protection from hazardous gases is the need of the present days and our goal is to make the cost-effective product for the smart purpose. Solapur city is in the race of becoming a smart city, hence the aim of our project is to develop a smart network for smart city. The sensors and modules available in the market show cross sensitivity for other gases. We plan to use WSN (Wireless Sensor Network), a powerful, low cost and innovative technology that cover large area within a city.</p> <ul style="list-style-type: none"> <li>• Our aim is to design and develop a sensor and module which are less expensive, requires low power consumption and it must be highly sensitive to low concentration of LPG gas.</li> <li>• We intend for a smart use of developed system for :                leakage detection at LPG/CNG operated gas vehicle, leakage detection at common gas supply facility in homes(colonies), apartments and leakage detection at pipeline LPG gas.</li> </ul>	Wireless Sensor Network for Smart Protection Systems Against Gas Leakage	Solapur University, Solapur	Department of Electronics Science, Solapur University, Solapur	No	Prof.L.P. Deshmukh	Dr.T.H. Mujawar

• The most important part of the proposed project is the monitoring and controlling gas leakage through establishment in industrial /domestic platforms.

**2. PROJECT OBJECTIVES:**

Ø To develop and set up a highly sensitive LPG gas sensor, a prototype model and facilities for development of a Wireless Sensor Network for gas leakage detection (in our own laboratory).

Ø To develop a portable, reliable and handy module for LPG leakage detection, monitoring and controlling.

Ø To set up a dynamic system that can detect the gas leakage in kitchens, homes, industries, in apartments and LPG gas pipelines.

Ø In actual, the system is development of cost effective wireless nodes for gas leakage detection practices.

Ø The design is based on the Android and LabVIEW control systems.

Ø Involves wirelessly monitoring of the system and display in the internet server at the web address (URL) given by LabVIEW.

**3. JUSTIFICATION:**

The products available in the market for the detection and alerting of LPG gas leakage are expensive, time and power consuming and show cross sensitivity for other gases. The proposed system is an exercise of building a laboratory prototype and taking it to the field for trials, feedback and improvements. It is an iterative process needing re-designs and rejections of a few prototypes. Similarly, deployment of large number of WSN modules in the field for testing, their operation and

reliability is likely to raise the consumable itinerary. Among the consumable items, it would be electronic components including the sensors, signal conditioners, processors and trans-receivers, PCBs, connectors, switches, enclosures, etc.

**4. DELIVERABLES:**

- i. Low cost wireless sensor nodes
- ii. A portable, reliable and handy module for LPG leakage detection, monitoring and controlling.
- iii. The system would be fully automated, android controlled and remotely monitored.



Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (designation wise rows are to be filled) Project Fellows : (1 Nos) Rs.25000 + 20%HRA for 1 & 2nd yrs. & 28000 + 20%HRA for 3rdyr	402000	402000	402000	1206000	1206000		
3	Contingency (Please specify)			500000	500000	500000		
i.	Consumables	1000000	1000000	200000	2200000	2200000		
ii.	Contingency & other costs	300000	200000		500000	500000		
4	Equipment (Item wise)							
i.	LabVIEW	1000000			1000000	1000000		
ii.	AAA Batteries, MFC, Exhaust Fan, GSM shield etc	200000			200000	200000		
iii.	Gas Cylinders and Air tight gas chamber and PCB Setup	500000			500000	500000		
iv.	ZigBee Network Sensor Nodes/ Controllers, Boards, etc., DAQ CARD, LabVIEW based Wireless DAQ, UV Color printer.	2000000			2000000	2000000		
5	Travel	500000	500000	500000	1500000	1500000		
6	Institutional/Administrative overheads							
7	Others							
	<b>Total (in Rs.)</b>	<b>5902000</b>	<b>2102000</b>	<b>1602000</b>	<b>9606000</b>	<b>9606000</b>		

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
13	<p>1. INTRODUCTION            The project aims to • Focus on a local wireless sensor network that will acquire and monitor real time soil property data including volumetric water content, electrical conductivity and temperature at different soil horizons and locations.</p> <ul style="list-style-type: none"> <li>• Develop a method to continuously and seamlessly monitor soil properties with the sensor network that covers large territories for irrigation and horticulture purposes.</li> <li>• Smart and sustainable water utilization (Millennium Development Goal -6) strategies in the dynamic scenario of climate change and chronic drought prone situations (e.g. Solapur) [open land irrigation and polyhouse horticulture and thereby make India surplus from water deficit.</li> </ul> <p>2. PROJECT OBJECTIVES            The objectives of our project are:</p> <ol style="list-style-type: none"> <li>i. Development of low cost wireless soil moisture sensors.</li> <li>ii. To set up a prototype model and facilities for development of a Wireless Sensor Network for agriculture purpose.</li> <li>iii. Development of a cost effective wireless node</li> </ol>	<p style="text-align: center;">Design and Development of Multi-Sensor Wireless Sensor Nodes and Their Networking for Smart Irrigation in Agriculture Sector</p>	<p style="text-align: center;">Solapur University, Solapur</p>	<p style="text-align: center;">Department of Electronics Science, Solapur University, Solapur</p>	<p style="text-align: center;">No</p>	<p style="text-align: center;">Prof.L.P. Deshmukh</p>	<p style="text-align: center;">Dr.T.H. Mujawar</p>

for water management practices.

iv. Development of water irrigation system (preferably drip irrigation) based on Android and LabVIEW based control systems.

3. PROJECT JUSTIFICATION

The Solapur District being a draught prone area, the proposed system is an exercise of building a laboratory prototype and taking it to the field for trials, feedback and improvements. It is an iterative process needing re-designs and rejections of a few prototypes. Similarly, deployment of large number of WSN modules in the field for testing, their operation and reliability is likely to raise the consumable itinerary. Among the consumable items, it would be electronic components including the sensors, signal conditioners, processors and trans-receivers, PCBs, connectors, switches, enclosures, etc. Some chemicals for surface treatment and coating of sensors, tools and raw materials needed for assembly and testing of the circuits will also be a part of consumables. Further, a host of full functional WSN nodes would also add up to the list.

4. DELIVERABLES

i) Low cost wireless soil moisture sensors.

ii) Laboratory prototype Wireless Sensor Network based drip irrigation system (pilot plant in University premises to educate farmers)

iii) Smart irrigation system.

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	20000000			20000000			
2	Staff (designation wise rows are to be filled) Project Fellows : (4 Nos) Rs.25000 + 20%HRA for 1 & 2nd yrs. & 28000 + 20%HRA for 3rdyr	1404000	1404000	1602000	4410000			
3	Contingency (Please specify)							
i.	Consumables	1000000	1000000	500000	2500000			
ii.	Contingency & other costs	300000	200000	200000	700000			
4	Equipment (Item wise)							
i.	LabVIEW	1000000			1000000			
ii.	MATLAB software	1000000			1000000			
iii.	Data storage devices, printer &	200000			200000			
iv.	Network devices and printers	300000			300000			
	ZigBee Network Sensor Nodes/ Controllers, Boards, etc., DAQ CARD, LabVIEW based Wireless DAQ, UV Color printer.	5000000			5000000			
5	Travel	500000	500000	500000	1500000			
6	Institutional/Administrative overheads							
7	Others							
	<b>Total (in Rs.)</b>	<b>30704000</b>	<b>3104000</b>	<b>2802000</b>	<b>36610000</b>			

**Solapur University, Solapur**  
**Rashtriya Uchchatar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
14	<p>Transport is the backbone of urban life. It is one of the factors which determines the form and socio-economic development of the city. Public transport is one of the social facilities which are provided with the aim of improving social welfare. However providing equitable and efficient public transport for the ever increasing demand with the limited resources available is a challenge in the developing countries. The cost of maintaining, expanding and extending public transport service is very high for cities. Thus there is a need to evaluate current public transport efficiency to identify opportunities and deficiencies. In public transport, efficiency measures can be used to monitor resource and service distribution, identify deficiencies and opportunities.</p> <p>The proposed research investigates Solapur bus transport service efficiency and bus route network deficiencies, aiming for equitable bus service to all groups of society in the city. Due to insufficiency of public bus route network and bus service, people spend</p>	Development of Efficient Public Transportation Model for Smart City	Dept. of Statistics, School of Computational Sciences, Solapur University, Solapur	-		Prof. V. B. Ghute Dept. of Statistics, School of Computational Sciences, Solapur University, Solapur	Mr. C. G. Gardi Dept. of Statistics, School of Computational Sciences, Solapur University, Solapur

<p>more time and money on travel. Therefore, network and service deficiencies under current physical, financial and instrumental constraints have to be investigated to improve the transport service of the city. The proposed research identifies areas with inadequate level of service such as upgrading routes, encouraging private participation, increasing frequency of service and bus priority measures in order to improve the system for benefit of the society. The research uses statistical analysis to evaluate cross-sectional efficiency of the system and develop efficient practical model for public transportation in Solapur city. Objective of the proposed work: To investigate city bus transport efficiency and bus route network deficiencies which prevent equal spatial accessibility of bus service to all groups of society and make recommendations on possible improvements on the networks and the operations. The proposed model can also be applicable for public transport in other cities.</p>						
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	0	0	0	0	0		
2	SRF : (2 Nos) Rs.50000 + 20%HRA for 1 & 2nd yrs & 55000 + 20%HRA for 3rd yr	0	0	0	0	0		
	JRF : (4 Nos) Rs.40000 + 20%HRA for 1 & 2nd yrs & 45000 + 20%HRA for 3rd yr	2304000	2304000	2592000	7200000	7200000		
	Lab Assistant: (1 No) Rs.20000 + 20%HRA for 3 years	0	0	0	0	0		
3	Contingency (Please specify)	400000	400000	400000	1200000	1200000		
4	Equipment (Item wise)	2850000	0	0	2850000	2850000		
5	Travel	400000	400000	400000	1200000	1200000		
6	Institutional/Administrative overheads @ 15 %	150000	150000	150000	450000	450000		
7	Others	600000	600000	600000	1800000	1800000		
	<b>Total (in Rs.)</b>	<b>6704000</b>	<b>3854000</b>	<b>4142000</b>	<b>14700000</b>	<b>14700000</b>		

Equipment (Item wise)		
1	i) Desktop Computers	300000
2	ii) Laptop	550000
3	iii) Software for advanced computing	1500000
4	iv) Multifunction Laser Printers	300000
5	v) Printers	50000
6	Vi) LED Monitor (70")	150000
	<b>Total</b>	<b>2850000</b>

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
15	<p>The solapur was city is declared as a smart city in Dec 4, 2015. The solapur will get the enormous fund under the smart city scheme. This fund will be utilized for the development of the city. But before utilizing the fund it needs the proper research. The solapur city has some inherent problems such as mass unemployment, less developed industries and industrial area, backward state of agriculture, inefficient administration and pollution. These problems require special attention and proper applied research. Through this we can get tangible as well as actionable solution. The proposed incubation center for the applied research will cater the research demand of the smart city. The center will undertake applied research on various issues. It will also provide quality input to the administrator. The objectives of the incubation center</p> <ol style="list-style-type: none"> <li>1. To undertake applied research various issues of solapur city</li> <li>2. To create skilled manpower</li> <li>3. To provide consultancy services to the stakeholders</li> </ol> <p>The expected outcomes incubation center are</p> <ol style="list-style-type: none"> <li>1. The center will provide quality input to the policy makers.</li> <li>2. The center will provide innovative certificate courses in applied research</li> <li>3. The center will create skilled human resources</li> </ol>	The Incubation Centre for Applied Research	School of Social Sciences, Solapur University, Solapur	Nil	Nil	Dr. P. G. Vhankade	Nil



Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (05) JRF (30000*36*5)	800000	1200000	1240000	3240000	3240000		
3	Contingency (Please specify)	50000	200000	200000	450000	450000		
4	Equipment (Item wise)	50000	200000	200000	450000	450000		
5	Travel	50000	150000	300000	500000	500000		
6	Institutional/Administrative overheads	340000	340000	340000	1020000	1020000		
7	Others	Nil	Nil	Nil	Nil	Nil		
	<b>Total (in Rs.)</b>	<b>1290000</b>	<b>2090000</b>	<b>2280000</b>	<b>5660000</b>	<b>5660000</b>		

**Solapur University, Solapur**  
**Rashtriya Uchchatar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
16	<p>The agriculture was considered as backbone of Indian economy. Its contribution towards national income, employment and production was significant as compared to the industry and service sector. It also acted as a cushion during the economic turbulence. But now agriculture is no more backbone of the economy. The recent NSSO survey shows that the Gross Value Addition made by the agriculture is less than the dairy industry. The share of agriculture in GDP, Employment and production has been continuously declining. Now agriculture becomes the risky venture. The profitability of agriculture sharply comes down. This has increases the distress, suicides of the farmers and agitation. There are various initiatives taken by the government regarding irrigation, fertilizer subsidy, soil health card, doubled the income of the farmers up to 2022 and son on. But still agricultural vagaries are hampering the development. It needs the deep structural overhaul. The remedy for all agricultural problem lies in the generation of profitability in agriculture. This profitability is depends on cost of input, quantity of production, quality of marketing the agriculture produce. The objectives of the research project are</p> <ol style="list-style-type: none"> <li>1. To find out weak forward and backward linkages of agriculture marketing</li> <li>2. To develop new agriculture marketing model</li> <li>3. To explore the role public and private for agriculture marketing.</li> </ol> <p>The extensive analytical study is required for the understanding the problems and issues of agriculture. To find out solution to the agricultural problem field insights, the</p>	An Exploration New Marketing Model for Agriculture	School of Social Sciences, Solapur University, Solapur	Nil	Nil	Dr. P. G. Vhankade	Nil

<p>experiences of the developed countries where agriculture flourished such as Israel will be examined.</p> <p>Justification</p> <p>The development of agriculture is needed for the development of the any region. In this context to make solapur smart it also require to pay attention to the agriculture also. If this flourished indirectly it will contribute to the inclusive development of the solapur region.</p> <p>The expected outcome of the projects are</p> <ol style="list-style-type: none"> <li>1. The research project can develop alternative marketing model for agriculture.</li> <li>2. The Local, state and central government can use outcome of the research for the formulation of the agriculture policy.</li> <li>3. The private players, NGO and other institutes can be use this research for the development of agriculture.</li> <li>4. Human recourses-03</li> <li>5. Publication - 05</li> </ol>						
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (03) JRF (30000*36*3)	800000	1200000	1240000	3240000	3240000		
3	Contingency (Please specify)	50000	200000	200000	450000	450000		
4	Equipment (Item wise)	50000	100000	100000	250000	250000		
5	Travel	50000	150000	300000	500000	500000		
6	Institutional/Administrative overheads	22200	22200	22200	66600	66600		
7	Others							
	<b>Total (in Rs.)</b>	<b>972200</b>	<b>1672200</b>	<b>1862200</b>	<b>4506600</b>	<b>4506600</b>		

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
17	<p>The solapur was listed among the ten selected smart city scheme. This smart city scheme is basically for the providing smart services to make citizen smart. To the large extent smartness of the citizen is determine by income and other factors. The income is depend on the quality of employment. And finally generation of employment is depend on the Industry. Therefor the status of industrialization of the particular region can play an important role in determining success of the smart city programme. Historically solapur is known for textile industries. The second large cotton industries was started in solapur after the Bombay way back in early 19th century. Since then solapur has enjoyed the historical legacy in the concentration of the industries. Till the globalization the solapur was placed among the top districts of the Maharashtra. But after post globalization era the industries of solapur started declining. The industrial development of the solapur has been worsening in recent. Now few industries are running in the industrial area. Textile industries are facing existential problem. The beedi industries is known as dominant industries in providing the employment opportunities for the majority of the women are also threatened by the policy of the government. The unorganized sector is not that much organized to provide alternative</p>	<p>An Exploration of Potentiality of Solapur for Making asan Industrial Hub</p>	<p>School of Social Sciences, Solapur University, Solapur</p>	<p>Nil</p>	<p>Nil</p>	<p>Dr. P. G. Vhankade</p>	<p>Nil</p>

employment to the unemployed people. The present crisis is the result of various factors. Scarcity of visionary political leaders and administrators, absence of the good numbers of entrepreneur, lack of infrastructure and weak backward and forward marketing linkages are the factor which acting as barriers for the entry of new industries. In this context the research proposal will focus on how to transform industrially less developed region to industrially well-developed region.

The main objective of the studies are

1. To find out the causes of low development of the industries
2. To explore the potentiality of the solapur for making an industrial hub
3. To explore the role of private and public sector for enhancing the development of industries

Justification

The solapur was listed among the ten selected smart city scheme. This smart city scheme is basically for the providing smart services to make citizen smart. To the large extent smartness of the citizen is determine by income and other factors. The income is depend on the quality of employment. And finally generation of employment is depend on the Industry. Therefor the status of industrialization of the particular region can play an important role in determining success of the smart city programme.

The expected outcome of the projects are

1. The outcome of the research project will be useful for the individual entrepreneur who want to start their business.
2. The Local, state and central government will be the outcome of the research in the formulation of industrial policy.
3. The academician can also use for further researching in this field.

4. Human Recourse-03
5. Publication- 05

Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (03) JRF (30000*36*3)	800000	1200000	1240000	3240000	3240000		
3	Contingency (Please specify)	50000	200000	200000	450000	450000		
4	Equipment (Item wise)	50000	100000	100000	250000	250000		
5	Travel	50000	150000	300000	500000	500000		
6	Institutional/Administrative overheads	225000	225000	225000	675000	675000		
7	Others	20000	20000	20000	60000	60000		
	<b>Total (in Rs.)</b>	<b>1195000</b>	<b>1895000</b>	<b>2085000</b>	<b>5175000</b>	<b>5175000</b>		

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
18	<p>Digital Media has become an extension of common man and can be used to transform society with shared experiences. A city can be transformed into smart city only through people's participation in it. This can be achieved through digital inclusion of all citizens including senior citizens, women and other citizens. This project is aimed at improving digital skills of citizens of Solapur city for enabling them to use new media technologies. This is a skill development project for citizen's digital literacy. Digital Media is a powerful tool to inform, educate and involve citizens in the developmental activities related to smart city activities. Digital Media can directly reach to people irrespective of the educational, social and financial standing of any community. Digital media is powerful to deliver messages about clean energy, clean city, health and other issues related to smart city initiative. The digital media infused with new developmental messages can become source of inspiration to citizens for participating in the process of change and development. This project is intended to inculcate digital skills among citizens to keep them active, regular and energized for participating and sharing their experiences to achieve the goal of smart city.</p>	<p>Smart Citizens for Smart City (Skill Development Project for Citizens Digital Literacy)</p>	<p>School of Social Sciences, Solapur University, Solapur</p>	<p>Nil</p>	<p>Nil</p>	<p>Dr. R. B. Chincholkar</p>	<p>Nil</p>

<p>Objectives:</p> <ol style="list-style-type: none"> <li>1) To inculcate digital literacy skills among citizens.</li> <li>2) To increase awareness of people about smart city initiatives.</li> <li>3) To increase peoples participation in smart city related programs.</li> <li>4) To create citizen forums for bridging ties between society and municipal authorities.</li> <li>5) To create special smart city web portal, plan and produce programs for TV channels and radio, news and articles for newspapers and social media.</li> <li>6) To inform people about smart city activities.</li> </ol> <p>Outcome:</p> <ol style="list-style-type: none"> <li>1) This project is useful for digital inclusion of citizens.</li> <li>2) This project is useful for giving smart city related developmental messages to larger audience in Solapur city.</li> <li>3) This project is beneficial to involve people in smart city activities.</li> <li>4) This project will be helpful to reach people through audio-visual and digital media.</li> <li>5) This project is useful for documentation and timely evaluation of smart city activities.</li> </ol>						
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (designation wise rows are to be filled) 02 SRF @Rs. 25000+20% HRA for two and half years	240000	720000	720000	1680000	1680000		
	01 technical assistant Rs. 20000+20%HRA for two and half year	144000	288000	288000	720000	720000		
3	Contingency (Please specify)	30000	60000	60000	150000	150000		
4	Equipment (Item wise)	500000	1000000	1000000	2500000	2500000		
5	Travel	250000	500000	500000	1250000	1250000		
6	Institutional/Administrative overheads 15%	174600	385200	385200	945000	945000		
7	Others	Nil	Nil	Nil	Nil	Nil		
	<b>Total (in Rs.)</b>	<b>1338600</b>	<b>2953200</b>	<b>2953200</b>	<b>7245000</b>	<b>7245000</b>		

**Solapur University, Solapur**  
**Rashtriya Uchchar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
19	<p>Solapur and adjacent district (Osmanabad) have rich cultural heritage. These districts are at the borders of Karnataka state. The capital of Later Chalukya is near about 40 k.m. from Osmanabad district. This part of Maharashtra is earthquake affected zone. Most of the ancient temples, caves &amp; other monuments from these districts are in dilapidated condition. As a smart city, it is necessary to protect our heritage from natural calamities as well as manmade calamities. Hence documentation, excavations &amp; conservation is essential. The research reveals that Ter dist-Osmanabad had ancient trade with Rome. It is necessary to study comparable, contemporary antiquities of these places.</p> <p>Objectives-</p> <ol style="list-style-type: none"> <li>1. Documentation of ancient monuments will be done and excavation of the ancient sites will be done</li> <li>2. Data will be used for conservation of the monuments.</li> </ol> <p>Justification- Solapur &amp; Osmanabad districts have rich heritage. This area has tremendous potential for archaeological, historical &amp; spiritual tourism. To attract tourists from all corners of India &amp; abroad, we need to conserve these monuments supported by world class infrastructure. So study and</p>	<p>Documentation &amp; Study of Archaeological Heritage sites in the Smart city &amp; Adjacent places for Conservation &amp; Tourism Purposes.</p>	<p>School of Social Sciences, Solapur University, Solapur</p>	<p>Nil</p>	<p>Nil</p>	<p>Dr. Mrs. Maya J. Patil</p>	<p>Nil</p>

documentation should be done Outcome- 1. Being a smart city awareness will be generated about our heritage 2. Tourism will be increased & employment generated. 3. Publication of Research papers-05 4.. Human Resources -02							
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (designation wise rows are to be filled)	240000	720000	720000	1680000	1680000		
3	Contingency (Please specify)	50000	500000	500000	1050000	1050000		
4	Equipment (Item wise)	200000	2400000	2400000	5000000	5000000		
5	Travel	50000	600000	600000	1250000	1250000		
6	Institutional/Administrative overheads	449000	449000	449000	1347000	1347000		
7	Others	Nil	Nil	Nil	Nil	Nil		
	<b>Total (in Rs.)</b>	<b>989000</b>	<b>4669000</b>	<b>4669000</b>	<b>10327000</b>	<b>10327000</b>		

**Solapur University, Solapur**  
**Rashtriya Uchchar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
20	<p>Solapur having the rich cultural heritage this region has Social, Religious and Political diversity. In the Ancient period 3rd century to 14th century A.D. Solapur was under the Influence of Satvahana Chalukya &amp;Yadav in the Medieval Period Solapur was a part of Bhamani Kingdom &amp; the Maratha Kingdom. In Modern Period Solapur region was included British Empire. Solapur was developed as the multilingual and religious and Cultural miscellany center. Various religion cult had been given the great contribution to develop the Cultural Heritage Site &amp; Maintain communal harmony in to the surrounding of the Solapur region. Solapur is place of Pilgrims Pandharpur, Akkalkot, Tuljapur Magalvedha and Gangapur and Barshi Attract the Devotees toward the Solapur. If we provide the Additional Facilities and Amenities to the Tourist than This Religious tourism Also Play the Important role tin Smart City. Apart from this Pilgrims So Many Historical And Archaeological Heritage Site has its own significant. If The Proper Guidance and Propaganda of it, will be helpful for increase Solapur popularity. In Late 19 Century Solapur Emerged as the Textile industry city and Agricultural production also had been increased. Since Late 20th Century Solapur Provide the Medical Facility to Rural society. Hence So many adjacent district people attract toward the Solapur for Medical Tourism. Agro Tourism Also play the huge role in tourism because Solapur has the different kind of Cropping pattern Jawar, Pomegranate ,Sugarcane are major crop.</p>	<p>A study of Historical Cultural &amp; Economical Aspects of tourism and Its impacts on the Development of the Solapur Smart City</p>	<p>School of Social Sciences, Solapur University Solapur</p>	<p>Nil</p>	<p>Nil</p>	<p>DR. P.N. Kolekar</p>	<p>Nil</p>

<p>Foreign &amp; Metro city People want to spend their holiday in Rural area They are interest to invest money in agro tourism. so that rural community people will get the benefit of it and it will helpful for strengthen the rural economy</p> <p>Objective :</p> <ol style="list-style-type: none"> <li>1)To Study the Spiritual, cultural heritage, agricultural and medical aspects of the tourism in the context of Solapur City</li> <li>2) To Study the Linkages of the tourism with Employment and other activity</li> <li>3 To Explore the new model of tourism and development for the improving economy of the city.</li> </ol> <p>Justification:</p> <p>Solapur was among the first 10 cities which are selected for smart city scheme. The smartness of the city will depend on various economic component such as level of income, employment, and number of industry and the development of the agriculture. The tourism is known for generating ample opportunities for the employment. In this context present research project will explore various aspects of tourism for the development of Solapur city</p> <p>Expected Outcome :</p> <ol style="list-style-type: none"> <li>1) The Study is Use full for Increasing Tourism sector in Smart City</li> <li>2)People will get the Employment from the Tourism</li> <li>3) Religious And Cultural Tourism will helpful to the increase living standard and other facilities in pilgrims</li> <li>4)Tourism maintain the Social and Cultural Assimilation of the Society it will helpful for maintaining social harmony</li> <li>5) Agro tourism Link the Metro and rural Community and increase the Income of the Farming Sector</li> <li>6) Medical tourism will provide the affordable rate facilities to the poor and weaker section</li> </ol>						
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7) Tourism will play the real role to the overall development of the city hence developing city will get the status of the Smart City							
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any	Nil	Nil	Nil	Nil	Nil		
2	Staff (designation wise rows are to be filled) 03 JRF @Rs. 30000*3*36	1080000	1080000	1080000	3240000	3240000		
	01 Technical assistant Rs. 24000*1*36	288000	288000	288000	864000	864000		
3	Contingency (Please specify)	100000	200000	200000	500000	500000		
4	Equipment (Item wise)	500000	600000	700000	1800000	1800000		
5	Travel	500000	800000	900000	2200000	2200000		
6	Institutional/Administrative overheads 15%	430200	430200	430200	1290600	1290600		
7	Others	Nil	Nil	Nil	Nil	Nil		
	<b>Total (in Rs.)</b>	<b>2898200</b>	<b>3398200</b>	<b>3598200</b>	<b>9894600</b>	<b>9894600</b>		

**Solapur University, Solapur**  
**Rashtriya Uchchar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Department s within University	Collaboration with other universitie s	Principal Investigator	Co Prinicpal Investiga tor
21	<p>Introduction:  Recently, interest in nitrification and/or denitrification has increased due to stringent legislative pressure. The need for nitrogen removal in waste water treatment arises from water quality concerns over the eutrophication of the receiving water body. Nitrogen removal is also required for groundwater recharge or other reuse applications such as agricultural and recreational irrigation. Nitrification is usually accomplished by various kinds of biological nutrients removal (BNR) processes in advanced wastewater treatment plants, where suspended biomass metabolizes the organic carbon and nutrients. However, the principle limitations of these kinds of processes lie in the slow growing nitrifying bacteria that require a long sludge retention time. Immobilization techniques provide an alternative solution. They maintain high cell concentrations and their application for wastewater treatment has been gaining importance in the last few decades. Enhanced nitrification can be expected from the</p>	Encapsulated immobilised bio media for advanced water treatment	School of Chemical Sciences, Solapur University, Solapur			Dr. A.A. Ghanwat	Dr. P. N. Honkhambe, Prakash Home Care and Specialty Products

<p>immobilization techniques due to the high cell concentration in the media. The immobilization system also allows for an easier solid–liquid separation in a settling tank. Furthermore, the sensitivity to temperature of the nitrification process is less in the case of the immobilized bacteria, which is good for many BNR plants suffering from cold temperature in the winter. There are two types of immobilization technique: attachment and encapsulation. Immobilization by attachment can be obtained by spontaneous biomass adhesion onto porous support media such as polyurethane foam and inorganic matrix. Encapsulation is accomplished using porous polymeric materials such as alginate, agar, polyacrylamide, carrageenan, cellulose acetate and polyvinyl alcohol (PVA) to confine the migration of microorganisms.</p> <p>Objectives:</p> <ol style="list-style-type: none"> <li>1. To treat wastewater using the encapsulation technique, PVA as support material needs to satisfy physical stability requirements.</li> <li>2. To make water insoluble PVA based bio media with higher cell concentration and porosity.</li> <li>3. To achieve the greater performance in nitrification/denitrification process in advanced waste water treatment.</li> </ol> <p>Outcomes:</p> <ol style="list-style-type: none"> <li>1. Pure nitrogen free water</li> <li>2. No sludge formation during the process</li> <li>3. The water can reuse for agricultural and recreational irrigation, cooling, sanitation etc.</li> </ol>						
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any (For Development of Bioreactor)	200000	400000	50000	650000			
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	240000	720000	720000	1680000	Nil	Nil	Nil
3	Contingency (Please specify)	300000	300000	200000	800000			
4	Equipment (Item wise)	2000000	1000000	200000	3200000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads @ 15 %	426000	378000	190500	994500			
7	Others	0	0	0	0			
	<b>Total (in Rs.)</b>	<b>3266000</b>	<b>2898000</b>	<b>1460500</b>	<b>7624500</b>			

Equipment Details		
Generic Name	Quantity	Estimated Cost in INR
Fluidized bio reactor	1	1800000
UV/VIS Spectrophotometer	1	800000
Digital pH meter	1	25000
conductivity meter	1	7000
COD meter and Multiparameter Photometer	1	250000
Nitrogen analyzer	1	20000
Digital DO meter	1	63000
Turbidity meter	1	65000
Homogenizer	1	60000
Analytical Balance (micro)	1	110000
	<b>Total Cost</b>	<b>3200000</b>

**Solapur University, Solapur**  
**Rashtriya Uchchatar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component 8: Research & Innovation**

Sr. no.	Project details	Name of the Project	Department Where Located	Collaborating Departments within University	Collaboration with other universities	Principal Investigator	Co Principal Investigator
22	<p><b>Introduction:</b>            UF is the abbreviation for ultra-filtration membrane, which is a similar membrane to RO membranes but with bigger pores which cannot remove dissolved salts from water. The big advantage of UF water purifiers is that it will work without electricity and completely remove all microorganisms from water including the smallest of viruses. So a UF water purifier is the ideal water purifier for tap water in big cities, where you can be sure that you will always get good tap water without chemical contamination. This is because a UF water purifier is capable of removing from water even the smallest of germs, the viruses, but UF cannot take out dissolved solids from water. This study is investigating the preparation of outside-in hollow fibre and its application in preparations of low cost water purifier</p> <p><b>Advantages of UF Water Purifier</b></p> <ul style="list-style-type: none"> <li>• Works without electricity.</li> <li>• Easy to handle.</li> <li>• Actually removes the germs from water.</li> <li>• Can purify even cloudy turbid muddy water.</li> <li>• Better than boiled water.</li> <li>• No need of annual maintenance contract.</li> <li>• Long lasting.</li> </ul>	Sustainable low cost water purifier based on UF (Hollow fibre membrane) for POU water	School of Chemical Sciences, Solapur University, Solapur	Prof. V. B. Patil School of Physical Sciences, Solapur University, Solapur		Dr. A.A. Ghanwat	Dr. P. N. Honkhambe, Prakash Home Care and Speciality Products

<ul style="list-style-type: none"> <li>• Fail Safe.</li> <li>• Filters out even eggs of Germs .</li> <li>• As good as RO purifier.</li> </ul> <p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Development of outside-in hollow fibre for UF</li> <li>2. Development of antibacterial coating for UF hollow fibre</li> <li>3. Development of prototype for house hold application</li> <li>4. Performance testing of prototype</li> </ol> <p><b>Outcomes:</b></p> <ol style="list-style-type: none"> <li>1. Potable water</li> <li>2. No electricity required</li> <li>3. Zero maintamnce for long time</li> </ol>							
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Sr. No.	Budget Heads	2017-18	2018-19	2019-20	Total	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
1	Civil work for new centre if any (For Developement of Biofloaters on Sewage lines)	200000	400000	50000	650000			
2	Staff (designation wise rows are to be filled) 02 JRF @ Rs.30000/- PM	240000	720000	720000	1680000	Nil	Nil	Nil
3	Contingency (Please specify)	300000	300000	200000	800000			
4	Equipment (Item wise)	2500000	1500000	300000	4300000			
5	Travel	100000	100000	100000	300000			
6	Institutional/Administrative overheads @ 15 %	501000	453000	205500	1159500			
7	Others	0	0	0	0			
	<b>Total (in Rs.)</b>	<b>3841000</b>	<b>3473000</b>	<b>1575500</b>	<b>8889500</b>	Nil	Nil	Nil

<b>Equiement Details</b>		
<b>Generic Name</b>	<b>Quantity</b>	<b>Estimated Cost in INR</b>
Hollow fibre processing set up including, needle, dosing pump, nitrogen pressure etc	1	2500000
Hollow fibre testing set up including, flow test , prototype making and testing	1	1000000
Prototype preparation	1	500000
house hold model	10000	300000
	<b>Total Cost</b>	<b>4300000</b>

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component No: 09 Equity & Initiatives**

**Summary of Funds required in Equity component**

**(10 % Out of 100 Crs)**

Sr. No.	Details	Funds needed 2017-2020 Rs. (In Lakhs)	Funds sought from RUSA Rs. (In Lakhs)	Funds from other sources (One Year)	Private funding if any planned
1	Equal Opportunity Cells	50	50	0	
2	Plan to Create remedial classes computer classes, etc.	50	50	0	
3	Hostels (SC/ST/OBC/Females)	0	0	0	
4	Disabled Friendly Campus	106	50	56	
5	Enhancing Soft Skills of Students	0	0	0	
6	Other innovative schemes/programs to enhance equity & inclusion ( PhD fellowship for SC/ST/OBC/Women/Differently abled person)	125	115	10	
7	Others (Computational)	6	6	0	
8	Others (Placement Cell)	30	30	0	
9	Others (Training)	43	43	0	
10	Others (Career Planning)	41	41	0	
11	Others (NAMAMI CHANDRABHAGA)	100	100	0	
12	Others (Plantation and Campus Development)	200	200	0	
13	Girl's Fellowship (Social Sciences)	300	300	0	
14	Other Quality Awareness	20	20	0	
	<b>Total</b>	<b>1071</b>	<b>1005</b>	<b>66</b>	

*V. Patil*  
**Prof. Dr. V. B. Patil**  
 Officer on Special Duty  
 Academic, Research and Development

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**Institutional Development Plan (IDP)**

**Component No: 09 Equity & Initiatives Students Support and Progression**

Sr. No.	School/ Department	Facilities	No. of units	Facility type	Demand				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)		
7	CS: Computational	Others (Competition)		Awareness		6	6	0	From last four years this student competition is being conducted with meagre financial support from the University. The financial support from RUSA grants will help to take up this event on larger scale.	This event will bring the competitiveness among the students and provides a common platform for the interaction with undergraduate and post graduate students from different institutions. The financial support will help in making this event a real national level event.

8		Others (Place ment Cell)		Placem ent Activie s	0	30	30	0	Student placement and alumni activities are very important student related activities which have multidimensional effect on overall growth of students and institution. Strengthening the student placement and increasing alumni activities are needed to be taken up.	A strong placement cell will help to bring leading industries and companies for placement and boost the probability of placement towards higher end. Alumni role is also equally important in students' employability and growth of University. With strengthening of alumni activities, the University will find forward growth.
		<b>Grand Total</b>	<b>0</b>		<b>0</b>	<b>36</b>	<b>36</b>	<b>0</b>		

**Governance and Leadership**

Sr. No.	School/ Department	Facilities	No. of units	Facility type	Demand				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)		
9	Administration	Others (Training)		Training to Administrative Staff	0	43	40		Employees in class III and IV lack it and communication skills. Regular training is required to enhance their skill sets. Skill development centre will take up the task in providing regular training to these staff members.	The outcome of skill development programmes is improved communication skills, speedy in their regular office activities, specifically in operating with computers. Highly skilled employee will definitely contribute in overall growth of the institution.



10		Others (Career Plannin g)		Career Planning for Personal ity Develop ment	0	41	40		Career planning basically focuses on over all personality development of students. University is currently reserving Rs. 1 lakh under this scheme annually. Under this scheme eminent personalities are invited to train the students for employability. The focus of these training programmes will be on improving the communication skills, personality development, etc.	Since students from this region are very poor in their communication skill and lack confidence, this program will help in improving their communication skills and overall personality. It helps in building confidence in the students to face challenges in their professional life after post-graduation.
		<b>Grand Total</b>	<b>0</b>		<b>0</b>	<b>84</b>	<b>80</b>			

### Institutional Values and Best Practices

Sr. No.	School /Department	Facilities	No. of units	Facility type	Demand				Justification	Outcome
					Physical Value in Sq.mts	Financial Value (lakhs)	Funds Sought from RUSA	Funds raised from other sources (One Year)		
1	Administration	Others (NAMAMI CHANDRABHAGA)		National Mission (Clean river)	0	100	100	0	NAMAMI CHANDRABHAGA Pandharpur is Well-known Pilgrimage which is situated on the bank of Bhima River which is also called Chandrabhaga in Solapur district of Maharashtra in India. The Pandhurang alias Vithoba temple attracts millions of pilgrims during the yatras (Wari) take place here, in Ashadhi & Karthiki as per Hindu calendar are main yatras Devotees gather in Pandharpur to celebrates the yatra of lord vithoba. During theseYatras millions of pilgrims stay in Pandharpur and there are no permanent and sufficient basic facilities like; Toilets, Bathrooms and Dhobi Ghats, hence devotees practice open defecation open bath and washing cloth in the river with. In order to bring awareness	National Mission for Clean Ganga (NMCG) for Rejuvenation, Protection, Survival and Management of River Ganga i.e. NAMAMI GANGE. In accordance with the same, the State Government of Maharashtra has initiated Namami Chandrabhaga. The concept is to clean, rejuvenate, non-pollute and clean the holy river Chandrabaga. There are four major waris in a year that makes the holy river polluted due to open defecation, cloths washing and bathing in the basin of chandrabhaga. The deliverable are to rejuvenate, protect, survival, better management of river, to in plant of sewage plant wherever necessary and safeguard the divine holiness of river forever. University

									among the devotees not to pollute the river, awareness camps are organized. If the devotees are provided with basic amenities like; bio toilets, temporary sanitation, ecosystem can be maintained properly.	will join hands with the technological and scientific support for this said project such as water testing, Water testing, calibration, Establishment of Sewage Plant, Awareness Campus etc.
12		Others (Plantation and Campus Development)		Plantation Development	0	100	100	0	In this context, the University proposes to have a MoU with affiliated colleges of Solapur University, Solapur through NSS programme. All the volunteers from various college will actively participate in this programme to eradicate the pollution of Bhima River and join hands with Swachh Bharat Abhiyan clean India campaign.	Small scale plantation has already been taken up in the 517 acres University land. A large scale plantation and their growth plan could be undertaken with the proposed funds. The plantation will contribute to the ecological system. With this fund campus development activities like rain water harvesting will contribute in increasing ground water level significantly and University can become water self-sustained.
13	Social Sciences	Girl's Fellowship			0	300	300	0	1. To arrange Remedial coaching classes for slow learners. 2. Introduce Fellowships and Scholarships for girl students and socially, economically Backward students.	As a part of NAAC it is expected that all the students should be at one level. As on today the number of girls students enrolling for Ph.D courses is inadequate hence in order to enhance the admission for Ph.D. girls students University will encourage girls students to participate in this curriculum and meet standards.

14	NAA C- IQAC	Other (Quality Culture)	Quality Awareness	0	20	20	0	<p>A central mechanism to monitor and record all the activities and developments along with proper analysis and strategies is need of every Higher Education Institute. Therefore NAAC-IQAC looks upon up-bringing the institutional development from wider angle and spirits. This will look into the future prospects of the university and its stakeholders from various points of views like progress, prosperity, achievements etc. This mechnism will bring fruitful results through SWOT analysis at every level of Higher learning and can function smoothly for the welfare of society and students. Therefore establishing a Separate set-up of Internal Quality Assurance cell so as to analyze and plan the quality movement in post accreditation phase.</p> <p>under this we have to procure : filld back mechanicsm software Online AQAR software Data collection, various repository</p>	<p>Awareness of quality assurance in Higher Education at par with State National and International level to meet the present status of global initiatives for quality assurance.</p> <p>This will enrich the academic, administrative excellence for getting at a glanss data and relevent information retrivel from the software.</p>
<b>Grand Total</b>				<b>0</b>	<b>520</b>	<b>520</b>	<b>0</b>		

**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**COMPONENT 11: FACULTY DEVELOPMENT DETAILS**

Sr. No.	Name of the FDP	No. of teachers trained in 3 years	Training duration	No. of trainings per year	Cost of Training for 3 years
1*	Smart Devices for Health Care	200	07 Days	5	150
2**	IoT for Smart City	320	08 Days	8	200
3#	Effective Watershed Management: Planning, Implementation, and Evaluation for Smart cities	160	07 Days	4	100
4**	Smart Citizens for Smart City (Skill Development Project for Citizens Digital Literacy )	320	07 Days	8	200
5*	Historical, Cultural and Economical aspects of Tourism	200	07 Days	5	150
6#	Composting of Biodegradable Organic Wastes	160	08 Days	4	100
7#	Green and Sustainable Technology for Environmental Cleanup	160	10 Days	4	100
8##	Futuristic Studies in the context of Smart City.	360	07 Days	9	250
9##	Archaeological sites in the smart city	360	08 Days	9	250
10@	Development of efficient public transportation	400	10 Days	10	300
11*	Workshop for PCB Design	200	07 Days	5	150
12@@	Workshop for IPR	240	07 Days	6	160
	<b>Total</b>	<b>3040</b>		<b>77</b>	<b>2110</b>

\* Sr. No. 1, 5 and 11 Programs 40 participants per batch of 5 training programs for 1 batch approximate expenditure of Rs. 30 Lakh.

\*\* Sr. No. 2 and 4 Programs 40 participants per batch of 8 training programs for 1 batch approximate expenditure of Rs. 25 Lakh.

# Sr. No. 3, 6 and 7 Programs 40 participants per batch of 4 training programs for 1 batch approximate expenditure of Rs. 25 Lakh.

## Sr. No. 8 and 9 Programs 40 participants per batch of 9 training programs for 1 batch approximate expenditure of Rs. 28 Lakh.

@ Sr. No. 10 Programs 40 participants per batch of 10 training programs for 1 batch approximate expenditure of Rs. 30 Lakh.

@@ Sr. No. 12 Programs 40 participants per batch of 6 training programs for 1 batch approximate expenditure of Rs. 27 Lakh.

**Solapur University, Solapur**  
**Rashtriya Uchchatar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**  
**TENTATIVE EXPENDITURE FOR 7 DAYS TRAINING PROGRAM**

**COMPONENT 11: FACULTY DEVELOPMENT DETAILS**

Sr. No.	Event	Number of Participants + Officers of University	Rate Per item	Total Amount in Rs.	Remark
1	Registration Kit printed study materials	40+10	250	12,500	
2	Banner, Poster, Standees		1800	10,800	1800 X 6
3	Inauguration and Valedictory ceremony(Garland, bequest and flowers decoration with high tea )	40+10		12,000	
4	Tea, Break Fast, Lunch, Evening Tea (Biscuits) and Dinner	40+10	400	1,40,000	Package X 7 Days
5	Lodging (for Outside Participates)	20	700	98,000	Per Day Tariff 700 X 20 X 7
6	T.A (for Participants)	40	2000	80,000	
7	Eminent Recourse Persons	14	8000	56,000	Per Day 2 Recourse Person T.A. + Remuneration 4000 + 4000
8	Miscellaneous Expenditure			15,000	
	<b>Total</b>			<b>4,24,300</b>	<b>4,24,300 X 7 = 29,70,100</b>

Tentative Expenditure for 7 days Training Program to the tune of Rs. 29,70,100.

**Solapur University, Solapur**  
**Rashtriya Uchchar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component : 11 Faculty Improvement**

**Summary of Funds required in Faculty improvement component**

	Details	Funds needed 2017-2020	Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned
Creation of new facilities	New Study Centres	0	0	0	0
	Auditorium	0	0	0	0
	Administrative Buildings	0	0	0	0
	Laboratory	0	0	0	0
	Computer Centre	0	0	0	0
	Classrooms (including technologically enabled classrooms)	0	0	0	0
	Common rooms for students	0	0	0	0
	Canteen/Cafeteria	0	0	0	0
	Others (please specify)	0	0	0	0
	Hostels (Separate for boys and girls)	0	0	0	0
Toilets (Separate for boys and girls)	0	0	0	0	
Renovation/Upgradation of existing facilities	New Study Centres	0	0	0	0
	Auditorium	0	0	0	0
	Administrative Buildings	0	0	0	0
	Laboratory	0	0	0	0
	Computer Centre	0	0	0	0
	Classrooms (including technologically enabled classrooms)	0	0	0	0
	Common rooms for students	0	0	0	0

	Canteen/Cafeteria	0	0	0	0
	Others (please specify)	0	0	0	0
	Hostels (Separate for boys and girls)	0	0	0	0
	Toilets (Separate for boys and girls)	0	0	0	0
New equipment/facilities	Lab equipment	0	0	0	0
	Computers	0	0	0	0
	Books/Journals	0	0	0	0
	E-resources	0	0	0	0
	Sports Facility	0	0	0	0
	Others (Please specify)	543.72	540	3.72	0
Courses	No. of refresher courses to be organized	50	50	0	0
	Academic faculty	1366	1080	286	0
	Administrative and support staff	360	360	0	0
	Consumables	10	10	0	0
	Contingency	10	10	0	0
	Program cost	10	10	0	0
	% of vacancy in permanent faculty position	0	0	0	0
	Other* (Honorarium/Travel)	65	50	15	0
<b>Total in Rs. In lakhs</b>		<b>2414.72</b>	<b>2110</b>	<b>304.72</b>	<b>0</b>



**Solapur University, Solapur**  
**Rashtriya Uchcharat Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**

**Component No: 11 Faculty Improvement**

Facility Type	Infrastructure facilities	NAAC Theme: Governance, Leadership & Management		Funds sought from RUSA	Funds from other sources (One Year)	Private funding if any planned	Details of UGC funds for ASC
		Physical value (area in Sq. Mt)	Financial value (Rs. in lakh)				
Creation of new facilities	New Study Centres		0				
	Auditorium		0				
	Administrative Buildings		0				
	Laboratory		0				
	Computer Centre		0				
	Classrooms (including technologically enabled classrooms)		0				
	Common rooms for students		0				
	Canteen/Cafeteria		0				
	Others (please specify)		0				
	Hostels (Separate for boys and girls)		0				
Toilets (Separate for boys and girls)		0					
Renovation/ Upgradation of existing facilities	New Study Centres		0				
	Auditorium		0				
	Administrative Buildings		0				
	Laboratory		0				
	Computer Centre		0				

	Classrooms (including technologically enabled classrooms)		0				
	Common rooms for students		0				
	Canteen/Cafeteria		0				
	Others (please specify)		0				
	Hostels (Separate for boys and girls)		0				
	Toilets (Separate for boys and girls)		0				
New equipment/facilities	Lab equipment		0				
	Computers		0				
	Books/Journals		0				
	E-resources		0				
	Sports Facility		0				
	Others (Faculty participation in Conf + Industry Interaction)		543.72	540	3.72		
Courses	No. of refresher courses to be organized (5)		50	50			
	Academic faculty (Contract teachers 60*6,00,000*3)		1366	1080	286		
	Administrative and support staff (60*20,000*3)		360	360			
	Consumables		10	10			
	Contingency		10	10			
	Program cost		10	10			
	% of vacancy in permanent faculty position (Load-140, vacancy-113)	80%	0				
	Other* (Honorarium/Travel)		65	50	15		
<b>Total in Rs. In lakhs</b>			<b>2414.72</b>	<b>2110</b>	<b>304.72</b>	<b>0</b>	<b>0</b>

**Solapur University, Solapur**  
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**Institutional Development Plan (IDP)**

<b>Component 3/7: Infrastructure</b>				<b>Component 8: Research and Innovation</b>				<b>Component 9: Equity</b>			
<b>Civil Work</b>	<b>E-governance</b>	<b>Others</b>	<b>Total Component Cost</b>	<b>Equipments</b>	<b>HR</b>	<b>Others (Civil Work, Contingency, Travel, Institutional/ Administrative, Others)</b>	<b>Total Component Cost</b>	<b>Civil Work</b>	<b>E-governance</b>	<b>Others</b>	<b>Total Component Cost</b>
2800	-	1000	3800	2701	744	966	4411	-	150	855	1005

**Solapur University, Solapur**  
**Rashtriya Uchchar Shiksha Abhiyan (RUSA)**  
**Institutional Development Plan (IDP)**  
**Summary of Financial Plan**

Sources of Funds for the proposed Institutional Development Plan:

(All figures in Rs. Lakh)

Sr. No.	Name of the RUSA Component	Proposed source of funds								
		Government				Local Community	Industry			
		Govt. of India (MHRD)/State Govt. (HTE)	Consultancy Services	Research Grants	RUSA	Panchayat Raj Institutions, Urban Local Bodies etc.	Consultancy, Research, Curriculum Development, CSR	Total	Other funds (One Year)	Grand Total
1	03	-	-	-	3800			3800	46	3846
2	08	-	-	-	4411			4411	44	4455
3	09	-	-	-	1005	-	-	1005	66	1071
4	11	-	-	-	2110	-	-	2110	304	2414
					<b>11326</b>	<b>Total</b>		<b>11326</b>	<b>460</b>	<b>11786</b>

*V. Patil*  
**Prof. Dr. V. B. Patil**  
 Officer on Special Duty  
 Academic, Research and Development