

# ANNUAL QUALITY ASSURANCE REPORT (AQAR) (2017-18)

*submitted to*



## National Assessment and Accreditation Council (NAAC)

*An Autonomous Institution of the University Grants Commission*

P. O. Box. No. 1075, Opp: NLSIU, Nagarbhavi, Bangalore - 560 072, India.

*by*



**Amrutvahini Sheti & Shikshan Vikas Sanstha's**

## **Amrutvahini College of Engineering**

**(‘A’ Grade Accredited by NAAC with a CGPA 3.01)**

**(Three Times Accredited by NBA, New Delhi)**

**Sangamner – 422608, Dist.: Ahmednagar (M.S.), India.**

# The Annual Quality Assurance Report (AQAR) of the IQAC

## Part – A

**AQAR for the year**

**2017-18**

### 1. Details of the Institution

1.1 Name of the Institution

**Amrutvahini College of Engineering,  
Sangamner**

1.2 Address Line 1

A/P - Ghulewadi, Tal-Sangamner, Dist-  
Ahmednagar

Address Line 2

Amrutnagar, S.K.

City/Town

Sangamner

State

Maharashtra

Pin Code

422 608

Institution e-mail address

principal@avcoe.org

Contact Nos.

02425-259016

Name of the Head of the Institution:

Dr. M. A. Venkatesh

Tel. No. with STD Code:

02425-259016

Mobile:

9972132130

Name of the IQAC Co-ordinator:

Prof. R. S. Tajane

Mobile:

9850265484

IQAC e-mail address:

naac@avcoe.org

1.3 NAAC Track ID

OR

1.4 NAAC Executive Committee No. & Date

1.5 Website address:

Web-link of the AQAR:

### 1.6 Accreditation Details

Sr. No.	Cycle	Grade	CGPA	Year of Accreditation	Validity Period
1	1 <sup>st</sup> Cycle	'A'	3.01	March 17, 2016	March 16, 2021

1.7 Date of Establishment of IQAC:   
DD/MM/YYYY

1.8 Details of the previous year's AQAR submitted to NAAC after the latest Assessment and Accreditation by NAAC

- i. AQAR 2015-16 submitted to NAAC on 29/09/2016
- ii. AQAR 2016-17 submitted to NAAC on 29/09/2017

### 1.9 Institutional Status

University: State  Central  Deemed  Private

Affiliated College: Yes  No

Constituent College: Yes  No

Autonomous college of UGC: Yes  No

Regulatory Agency approved Institution (AICTE) Yes  No

Type of Institution: Co-education  Men  Women

Urban  Rural  Tribal

Financial Status: Grant-in-aid  UGC 2(f)  UGC 12B

Grant-in-aid + Self Financing  Totally Self-financing

#### 1.10 Type of Faculty/Programme

Arts  Science  Commerce  Law  PEI (Phys Edu.)

TEI (Edu)  Engineering  Health Science  Management

Others (Specify)

#### 1.11 Name of the Affiliating University

**Savitribai Phule Pune University, Pune,  
Maharashtra.**

#### 1.12 Special status conferred by Central/ State Government-- UGC/CSIR/DST/DBT/ICMR etc.

Autonomy by State/Central Govt. / University

University with Potential for Excellence  UGC-CPE

DST Star Scheme  UGC-CE

UGC-Special Assistance Programme  DST-FIST

UGC-Innovative PG programmes

Any other  
(Specify)

**AICTE  
Affiliated**

UGC-COP Programmes

## 2. IQAC Composition and Activities

2.1 No. of Teachers

1 (Principal) + 1 (Director) + 12

2.2 No. of Administrative/Technical staff

01

2.3 No. of students

01

2.4 No. of Management representatives

01

2.5 No. of Alumni

02

2.6 No. of any other stakeholder and community representatives

01

2.7 No. of Employers/ Industrialists

01

2.8 No. of other External Experts

01

2.9 Total No. of members

22

2.10 No. of IQAC meetings held

08

2.11 No. of meetings with various stakeholders: No.  Faculty

Non-Teaching Staff  Students  Alumni  Others

2.12 Has IQAC received any funding from UGC during the year? Yes  No

If yes, mention the amount

2.13 Seminars and Conferences (only quality related)

(i) No. of Seminars/Conferences/ Workshops/Symposia organized by the IQAC :

(ii) Themes

1. Quality improvement and maintenance
2. Industrial Training
3. Funding proposal for research

2.14 Significant Activities and contributions made by IQAC

- For all staff and involved personnel to maintain and improve the quality of teaching learning with supportive functions, the ISO 9001:2015 training and audit induction and documentation workshop proposed and conducted.
- For regular and appropriate conduct of academic and administrative audits core committee were amended comprising of Principal, Dean, IQAC Coordinator, ISO Coordinator and Head of Depts.
- Stake holder's feedback was taken for the academic year 2017-18.
- Stake holder's feedback was taken and suggestion form it was adopted for betterment in curriculum and planning.
- IQAC had promoted Research Publications in National and International journals.
- Initiatives taken by imposing new policy for qualification up gradation of faculties.
- Four days faculty training programme on "Aviation Technology" June 2018.
- Awareness programme on "Intellectual Property Rights (IPR)"
- International, National Workshop/ Conferences/ Seminars were organised.
- IQAC had initiated conduction of classes for softs skill, aptitude development, and academic development of students.
- Departmental orientation programme conducted for internal quality improvement by senior staff to newly join and junior members.

2.15	Plan of Action by IQAC/Outcome	
	The plan of action chalked out by the IQAC in the beginning of the year towards quality enhancement and the outcome achieved by the end of the year *	
	<b>Plan of Action</b>	<b>Achievements</b>
	To make campus green with plantation.	Planation of approximate 1500 trees nearby and within the campus.
	To adopt and implement solar energy system ( 100 kwp)	The trial and tested method used for NET METERING with MSEB.
	To identify needs and problems of slow learner and identification of Fast/ active learner.	Remedial classes were conducted to improve their academic performance and active learners were promoted for competitive study to grab adequate employment and also involved in study circle.
	Academic Calendar improvement as to other activities and co-curricular aspect implementation.	Executed through departmental conduction of activity as per respective department Academic Calendar.
	To schedule Quality checks through IQAC in association with ISO Audits.	Execution and implementation was audited and recorded.
	To plan for Social, Environmental Awareness and Activities. And branding activities as well.	Execution did through – Fire & Safety Audit, Green Audit, Dandakaranya Abhiyan, Swachha Sanaganmner Abhiyan, Unnat Maharashtra Abhiyan Rain Water Harvesting, Renewable Energy Utilisation.
	To offer consultancy services and Market surveys if any	Consultancies did by institution and revenue generated around Rs. 443304.00
	To encourage students to learn foreign language and arrangement of GATE and Competitive exam coaching.	Six students get placed in Cognizant based on Japanese language skill. Two students get placed, based on German language skill.
	To make ready for NBA accreditation.	Procedures and Pre qualifier prepared and disbursed.
	* The Academic Calendar of the year (2017-18) is attached as Annexure i.	

2.15 Whether the AQAR was placed in statutory body

Yes

No

Management

Syndicate

Any other body

Provide the details of the action taken

- Tree plantation drive was arranged.
- Committee for Solar 100 kWh project formed and deployed.
- Curricular and co-curricular review and evaluation did by administration for effective management of slow learners.
- Updatons and review of planning for Social, Environmental Awareness and Activities included and initiated in line with academic calendar.
- Requirements and completions of Construction essentials.
- Availability of additional ICT and other learning resources for encouragement for skill, Knowledge and Behavioural development.
- To associate with TUV- SUD {ISO (9001:2015)} and amendment of formal committees for implementation of proposed activities., NBA, NAAC,
- Planned for Industrial associations.



## Part – B

### Criterion – I

#### 1. Curricular Aspects

##### 1.1 Details about Academic Programmes

Level of the Programme	Number of existing Programmes	Number of programmes added during the year	Number of self-financing programmes	Number of value added / Career Oriented programmes
Ph.D.	01	Nil	01	Nil
P.G.	08	Nil	08	Nil
U.G.	08	Nil	08	28
P.G. Diploma	-	-	-	-
Advanced Diploma	-	-	-	-
Diploma	-	-	-	-
Certificate				-
Others				
<b>Total</b>	17	Nil	17	28

Inter-disciplinary	--	--	--	--
Innovative	--	--	--	--

##### 1.2 (i) Flexibility of the Curriculum: CBCS/Core/Elective option / Open options

##### (ii) Pattern of programmes:

Pattern	Number of programmes
Semester	17
Trimester	--
Annual	--

1.3 Feedback from stakeholders\* Alumni  Parents  Employers  Students

(On all aspects)

Mode of feedback: Online  Manual  Co-operating schools (for PEI)

*\*Provided an analysis of the feedback in the Annexure – ii*

1.4 Whether there is any revision/update of regulation or syllabi, if yes, mention their salient aspects.

- In third year engineering credit system is introduced.
- Updation in syllabus for various subject is given below-

Subject	Salient aspects
<b>1. Civil Engineering</b>	
Environmental Engineering – II	Design of storm water system, Methods of sampling, Physical, Quality requirements for disposal and recycle/reuse of sewage as per CPCB norms, National river cleaning plan, Pollution due to improper disposal of sewage, Operational problems and maintenance in ASP, Concept of Sequential batch reactor (SBR), Septic tank, up-flow anaerobic filter. and Package, Sewage Treatment Plant, Introduction to MBR, MBBR and FMBR, <b>Recycle &amp; reuse of treated wastewater:</b> Gardening, sewage farming, W.C. Flushing, reuse in industry.
Transportation Engineering	Road development in India - Vision 2021 & Rural Road Development Vision 2025, Current road projects in India, highway lighting, Modified Bitumen (Cutbacks, Emulsions, Crumbed Rubber Modified Bitumen – CRMB, Polymer Modified Bitumen-PMB, Foamed Bitumen), Marshall Stability Mix Design and Test, Introduction; flexible pavements – Computation of design traffic (Vehicle Damage Factor VDF, Lane distribution factor LDF, Traffic growth rate); stresses in flexible pavements, joints in CC pavements, problems, joints in CC pavements, problems, Dry lean Concrete (DLC), Pavement Quality Concrete (PQC).
Structural Design III	Introduction to flat slab, Design of prestressed two way flat slab by direct design method, Introduction to single and multi-degree of freedom systems: free, forced, un-damped and damped vibration, Introduction to limit state design of water tanks.
Structural Design of Bridges	Design of slab culvert, design of well foundation.
Systems Approach in Civil Engineering	Graphical solutions to LP problems, Games Theory – 2 persons games theory, various definitions, application of games theory to construction Management. Replacement of items whose maintenance and repair cost increase with time, ignoring time value of money,
Adv. Concrete Tech.	Geo polymer concrete, Basalt fibres
<b>2. Computer Engineering</b>	
Artificial Intelligence and Robotics	Design smart system using different informed search / uninformed search or heuristic approaches. Identify knowledge associated and represent it by ontological engineering to plan a strategy to solve given problem. Apply the suitable algorithms to solve AI problems

Data Analytics	Case studies in Business Analytic and Intelligence using mathematical models. Present a survey on applications for Business Analytic and Intelligence. Provide problem solutions for multi-core or distributed, concurrent/Parallel environments
Machine Learning	Apply different preprocessing methods to prepare training data set for machine learning. Design and implement supervised and unsupervised machine learning algorithm. Implement different learning models
Information and Cyber Security	Identify information security and cyber security threats. Analyze threats in order to protect or defend it in cyberspace from cyber-attacks. Build appropriate security solutions against cyber-attacks
<b>3. Information Technology Engineering</b>	
Information and Cyber Security	IDS system, Elliptic curve cryptography, Law and Ethics in , information , Risk management
Machine Learning and Applications	Regression and generation, Trends in Machine Learning
Software Design and Modeling	Interaction and behavior modeling, GRASP principles, GOF design pattern
Elective-I - Wireless Communications	Different wireless system, Emerging trends in wireless communication
Elective -I- Usability Engineering	Usability different test planning, Ethics and future development in Usability
Elective -II- Gamification	Use of Gamification in Mobile and Web Applications, Multi-core or distributed, concurrent/Parallel environments
Elective -II- Software Testing and Quality Assurance	Software testing techniques, Test automation concepts and estimation cost, Quality assurance models
Audit Course-V Emotional Intelligence	Know and manage your emotions
Distributed Computing System	Principles and desired properties of distributed systems, Distributed-ness of computing resources, Security in distributed system
Ubiquitous Computing	Ubiomp and its applications, Actuators and controllers in real time application, Ubiomp privacy along with ubiomp management.
Elective-III - IOT	IOT smart object, IOT platforms and services in cloud computing.
Elective-III - Multimedia Techniques	Image and Video processing, Animation and Virtual Reality
Elective-IV Rural Technologies and Community Development	Importance of technologies in rural and community development.
Elective-IV Parallel Computing	Challenges and opportunities in parallel computing, OPENMP and MPI programming
Audit Course-VI IOT	Concept of IOT and IIoT, Different IOT devices.
<b>4. Electronics and Telecommunication Engineering</b>	
VLSI Design & Technology	Analog CMOS Design part is excluded from syllabus. System on chip topics are included.
Computer Networks & Security	Network security new unit added in this subject.

Radiation & Microwave Techniques	Microwave terrestrial and satellite communication system, radiation hards and protection part is included.
Digital Image and Video Processing	Video processing unit is added.
Electronics Product Design	No changes in syllabus.
Mobile Communication	Switching techniques for voice and data topics are added. New topic of evolution of mobile technology added.
Broadband Comm. Systems	In practicals tutorials are mandatory.
PLC s and Automation	SCADA and DCS part added. Introduction to PLC and Industrial automation part added.
Audio Video Engineering	HDTV, Curved HD and LED TVs are added. Audio basics in unit six are added.
Wireless Sensor Networks	This subject is completely updated in context of sensor networks instead of telecommunication networks.
<b>5. Electronics Engineering</b>	
VLSI Design	MOS circuits as per the requirements of Industrial sector, The detailed information of CAD tools is included, The course is learnt by the students after studying FHDL, therefore more scope for the students to excel.
Advanced power electronics	Dual Converters and Power factor improvement of converters, Multilevel Inverters and Cycloconverters, DC Motor & Induction Motor drives, Special purpose motor drives like Brushless DC drives, Stepper motor drive, Servo motor drive, Switched reluctance motor drive etc, Solar and Wind power System
Electronic System Design	Hardware design of analog & digital circuits, Software Design and Testing for Electronic Product & debugging tools for software's, PCB Design and EMI/EMC testing standards, Low drop out Regulated Power Supply & Data Acquisition system is included in practical's.
Internet of Things	Fundamentals & emerging trends of IOT, IoT Protocols and Security, WSN & Cloud Computing, Implementation of IoT, Big Data - Data Storage and Analytics, Modern trends in IoT
Mobile Communication	The concepts & different standards of wireless cellular communication systems, Mobile radio wave propagation mechanisms, Modulation, Equalization & Diversity Techniques, Detail Study of different generation of cellular system such as 1G, 2G, 3G, 4G. Different wireless networks
Computer Networks & Security	Introduction to Computer Networks & Reference models-OSI & TCP/IP, Detail study of functions of Physical, data link, Network, Transport & Application layers, Network Security and Network administration basics.
Process Instrumentation	Process dynamics, Various control actions and control schemes, Process loop tuning, Multi variable and batch control, Process control design
Optical & Microwave Communication	Fundamentals of FOC & different optical sources & detectors, Multichannel Systems used in FOC, Fundamentals of microwave communication Microwave Devices and Components, High Power Microwave Sources, Microwave Solid State Devices and Applications
Robotics	History and early beginnings of automated manufacturing & Robotics. Robotics Components, Path planning and robotic programming, Applications & technological opportunities in robotics.

<b>6. Electrical Engineering</b>	
Control System II Applications	Unit -3 Stability analysis of a closed loop system in Z- plane using Jury test, Bilinear transformation
Audit Course V	Two subjects are introduced A) Hydrogen Energy System B) Foreign language - German
Audit Course VI	Energy Storage Systems- new subject is introduced
PLC & SCADA applications	In unit -1 specifications, comparison of various PLCs manufactured by Allen Bradley, Siemens, ABB, Mitsubishi, GE, Fanuc and Schneider. Unit-2 Absolute Transducers, Limit switches, proximity sensors Control Elements- Mechanical, Electrical, Fluid valves Unit-4 PLC Applications in developing systems- Tank level controller using analog signals, temperature controller using RTD, speed control of electric motor.
Power Quality	Unit-1 Classification of power quality events Unit-2 classification of voltage sags, Factors governing severity of voltage sag. Critical distance. Classification of equipment's based on its sensitivity to various characteristics of voltage sag. Voltage tolerance curve, SEMI F47 curve, investigation of sensitivity of equipment's to voltage sags. Voltage sag mitigation techniques at equipment level, LT power entrance and medium voltage. Voltage sag indices. Study of important provisions in IEEE Std 1346. Unit-3 pre insertion reactors to control capacitor switching transients, Ferroresonance, Factors governing severity of flicker. Flicker measurement, Flicker mitigation solutions. Unit-4 & 5 Classification of harmonics harmonic & its effect. Unit-6 Types of power quality monitoring
<b>7. Mechanical Engineering</b>	
Finite Element Analysis	Mathematical modelling of field problems in engineering, Types of Analysis: Linear static analysis, Non-linear analysis, Dynamic analysis, Linear buckling analysis, Thermal analysis, Fatigue analysis, Crash analysis, Ggeometry associative mesh, quality checks Finite Element formulation using Galerkin's approach for composite wall and thin Fin
CAD CAM and Automation	Introduction to 3D transformation, Perspective projections, Coordinate system, Working principal of CNC Lathe, Turning Centers, Milling Machine, Product Life Cycle: Introduction, Need, Components/Elements of PLM, Collaborative Engineering. Types of Automation - Hard and Soft Automation, Flexible Manufacturing System – Types, Advantages, Limitations, AGVs and AS/RS, Variant & Generative methods of CAPP, advantages of CAPP
Hydraulics and Pneumatics	Basics of Fluid Power and Pumps, Actuators and Power Unit, Fluid Power Control, Hydraulic Circuits and Contamination Control, Pneumatics – Components, Control Valves and Circuits, System Analysis and Design
Dynamics of Machinery	Introduction to Physical and Mathematical modeling of vibratory systems : Bicycle, Motor bike and Quarter Car, Half power bandwidth method, Combined rectilinear and angular motion
Energy Audit and Management	Concept of energy conservation and energy efficiency, Energy reforms, Concept of Pinch analysis, Lighting system performance assessment and efficiency improvement, Case study: Energy Audit of Institute/Department, Introduction to Trigeneration

Design of Machine Elements – I	Design cycle, Design considerations - Strength, Rigidity, Manufacture, Assembly and Cost, Transmission shaft:- Theoretical treatment only, Fatigue design of components under combined stresses:- Theoretical treatment only.
Heat Transfer	Thermal contact Resistance, Boundary and initial conditions: Temperature boundary condition, heat flux boundary condition, convection boundary condition, radiation boundary condition, Spectral and total emissive power, real and grey surfaces, Irradiation and radiosity, Electrical analogy in radiation
Theory of Machine – II	Methods to avoid interference, Minimum number of teeth on gear and pinion only, Force analysis and Friction in gears. Analytical synthesis using kinematic coefficient in four bar mechanism
<b>8. Production Engineering</b>	
Machine Tool Design	In Practical case study is added on Machine Tool-Testing,Safety,and Calibration and also credit system is introduced,
Automation & Control Engineering	One extra unit on Hydraulic circuit design is included, UnitVI is newly introduced related to advance automation systems, and Robotics etc is included. All study practicals are converted to experiments.
Operations Research	CPM /PERT topic is removed and Decision theory topic is included in new syllabus.
Elective I	Analysis tool (Design for Manufacture),Case studies in PLM
Elective II	Additive Manufacturing techniques, Biomedical Applications
Project Phase-I	Pre-requisite about industrial training / implant training /in-house project based learning/project related skill development course/ industrial survey added to syllabus. Report of same to be submitted before project registration.
Industrial Robotics	Fundamentals of robotics
Elective III	Sustainability Engineering ,Supply Chain Management Automobile Engineering- Electrical Systems and Suspension System Entrepreneurship, Human Resource Management
Elective IV	Intelligent Manufacturing System, Energy Management, World Class Manufacturing, Finite Element Analysis, Environmental Engineering

1.5 Any new Department/Centre introduced during the year. If yes, give details.

No
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## Criterion – II

### 2. Teaching, Learning and Evaluation

2.1 Total No. of permanent faculty	Total	Asst. Professors	Associate Professors	Professors	Others
	206	91	12	08	95

2.2 No. of permanent faculty with Ph.D. 

14
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2.3 No. of Faculty Positions Recruited (R) and Vacant (V) during the year	Asst. Professors		Associate Professors		Professors		Others		Total	
	R	V	R	V	R	V	R	V	R	V
	05	-	-	-	-	-	-	-	05	-

2.4 No. of Guest and Visiting faculty and Temporary faculty 

19
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16
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42
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2.5 Faculty participation in conferences and symposia:

No. of Faculty	International level	National level	State level
Attended Seminars/ Workshops	70	43	29
Presented papers	56	09	11
Resource Persons	01	07	05

2.6 Innovative processes adopted by the institution in Teaching and Learning:

- Interactive teaching learning approach.
- Use of flash animations.
- Use of models, charts, analogy, puzzles, storytelling, brain storming.
- Use of open educational resources, E-learning - resources such as NPTEL, Khan Academy Lectures and Notes etc.
- Intranet institute repository of teacher's notes and question bank
- Weekly assignments( since Dec 2016)
- Regular conduction of Value added courses and Career guidance programmes
- Practical orientation is insisted in the form of workshops, industrial visit and guest lectures.

- Field exposure is imparted through conduction of hardware project exhibition “Amrut Expo2018”
- Teaching and Learning process is strengthened with the help of e-learning resources
- Faculty attends the NPTEL Certification courses conducted by IIT, NMEICT, MHRD sponsored courses, workshops, Training programme and Faculty Development Programs to strengthen the teaching learning process.
- Skills based sessions are conducted to enhance the students skills for project development and software knowledge.
- Linking with industry for skill development of students Training Programs arranged on New Technologies.
- To enhance awareness of faculty with the industry training programme on Aviation Technology was organized at HAL, Nasik under AeSI Nasik branch
- Japanese & German language (foreign) certification courses.
- Task based training(TBT) for faculty in embedded systems & robotics through hands on experience on Firebird V Robotic platform of e-yantra initiative by IIT, Bombay
- To enhance the awareness of faculty with industry requirements faculty attended the training program on trends & practices in electronics/electrical manufacturing industries organized by L & T & DTE Mumbai.

2.7 Total No. of actual teaching days during this academic year

192 (104+88)
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2.8 Examination/ Evaluation Reforms initiated by the Institution (for example: Open Book Examination, Bar Coding, Double Valuation, Photocopy, and Online Multiple Choice Questions)

Institute adheres to the examination rules and regulations framed by Savitribai Phule Pune University, Pune.

- Credit-Grade based performance and assessment system
- Open Book Examination for PG
- Barcoding
- Photocopy of answer sheets
- Moderation of answer sheets

In addition to this Monthly internal unit test & Weekly Test( since Dec 2016) for SE per semester for every subject, Prelim, Mock MCQ and oral examination are conducted.

2.9 No. of faculty members involved in curriculum restructuring/revision/syllabus development as member of Board of Study/Faculty/Curriculum Development workshop

02	08	23
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2.10 Average percentage of attendance of students

78.69%

2.11 Course/Programme wise distribution of pass percentage:

Title of the Programme	Total no. of students appeared	Division				
		Dist <sup>n</sup> %	I %	II %	III %	Pass %
Civil Engineering	181	56.90	32.04	1.10	NIL	NIL
Computer Engineering	138	69.56	27.53	2.173	NIL	NIL
Mechanical Engineering	201	56.21	25.87	0.99	NIL	NIL
Production Engineering	66	40.90	48.48	6.06	NIL	NIL
Electronics Engineering	82	79.26	18.29	1.21	NIL	NIL
Electronics & Telecom Engineering	61	86.88	13.11	NIL	NIL	NIL
Information Technology	86	60.46	34.88	2.325	NIL	NIL
Electrical Engineering	63	90.47	7.936	NIL	NIL	NIL
MBA	36	13.08	55.55	22.22	NIL	NIL

2.12 How does IQAC Contribute/Monitor/Evaluate the Teaching & Learning processes:

- This IQAC checks course files, lab manuals, theory and practical attendance sheets, Record-Conduction-Viva (RCV) status, staff feedback in every semester and submits the report of the same to the Principal.
- Student attendance monitoring and reporting of the same to the parents by SMS and letters.
- Mid semester and end semester teacher feedback given by the students. Based on the feedback received from the students, staff members are informed about their weakness and suggestions are given for improvement & if required staff is also changed.
- Result analysis of internal examinations i.e. monthly class tests and prelims and taking remedial measures.
- Tutor meetings are conducted twice in a month to counsel the students and to discuss issues related to academics, hostel, mess, overall facilities & personal issues. Tutor also renders guidance in studies & career planning.

### 2.13 Initiatives undertaken towards faculty development

<b><i>Faculty / Staff Development Programmes</i></b>	<b><i>Number of faculty benefitted</i></b>
Refresher courses	30
UGC – Faculty Improvement Programme	07
HRD programmes	27
Orientation programmes	49
Faculty exchange programme	01
Staff training conducted by the university	16
Staff training conducted by other institutions	32
Summer / Winter schools, Workshops, etc.	67
Others	13

### 2.14 Details of Administrative and Technical staff

Category	Number of Permanent Employees	Number of Vacant Positions	Number of permanent positions filled during the Year	Number of positions filled temporarily
Administrative Staff	30	-	-	10
Technical Staff	44	-	-	21

## Criterion – III

### 3. Research, Consultancy and Extension

#### 3.1 Initiatives of the IQAC in Sensitizing/Promoting Research Climate in the institution

- The institute has organized two days Faculty Development Programme on “**A Novel Approach to become the Best Teacher**” in association with IQAC, to understand and implement the best teaching learning practices for the sustainable development of Student, Teacher, Institute and the Nation
- The institute organizes annual national level mega technical event for the students. The event includes technical paper presentation, project exhibition, coding competition, quizzes, technical games, aptitude test and robotics competition to develop scientific temper and research culture in students.
- The institute has conducted awareness Programme on “**Intellectual Property Rights (IPR)**” in association with IQAC, to create awareness about the Intellectual Property Rights in the field of Engineering and Technology.
- The institute sponsors the students for attending project and paper presentation, science exhibition, seminars, workshops, and other technical events.
- The institute gives recognition for student innovations.
- The institute encourages students to attend research webinars.
- The institute has organized visits to research institutes such as Giant Meter Wave Radio Telescope (GMRT), Khodad, Pune; Maharashtra Engineering Research Institute (MERI), Nashik; Water and Land Management Institute (WALMI), Aurangabad; Indo German Tool Room (IGTR), Aurangabad; Vehicle Research and Development Establishment (VRDE), Ahmednagar.
- The institute has digital library for students which has on line research journals along with e-books.
- Students are involved in the faculty research projects related to BCUD and Aakash Project of IIT, Mumbai.
- Students are also motivated to participate in inter college / university level competitions like project competition (Avishkar, DIPEX) and PGCON (conference for PG students).
- The institute offering consultancy in manufacturing of CNC products. Also providing CMM (Coordinate Measuring Machine) testing services to industries.
- Training programme on CNC, CMM and Robot.
- Institute has Students’ chapters of IEI, IEEE, IETE, CSI and ISTE through which various technical programs such as expert lectures of renowned scientists, workshops and technical fest are organized

3.2 Details regarding major projects

	<b>Completed</b>	<b>On going</b>	<b>Sanctioned</b>	<b>Submitted</b>
<b>Number</b>	--	--	--	--
<b>Outlay in Rs. Lakhs</b>	--	--	--	--

3.3 Details regarding minor projects

	<b>Completed</b>	<b>On-going</b>	<b>Sanctioned</b>	<b>Submitted</b>
<b>Number</b>	--	2	--	--
<b>Outlay in Rs. Lakhs</b>	--	4.00	--	--

3.4 Details on research publications

	<b>International</b>	<b>National</b>	<b>Others</b>
<b>Peer Review Journals</b>	23	30	0
<b>Non-Peer Review Journals</b>	6	6	0
<b>e-Journals</b>	15	0	0
<b>Conference Proceedings</b>	47	28	1

3.5 Details on Impact factor of publications:

Range	0.25 to 5.250
Average	2.750
Maximum h-index	12
Nos. in SCOPUS	13

3.6 Research funds sanctioned and received from various funding agencies, industry and other organizations

Nature of the Project	Name of the funding Agency	Total grant sanctioned	Received
Major projects	--	--	--
Minor Projects	BCUD, Pune	7,59,000	4,22,150
Interdisciplinary Projects	--	--	--
Industry sponsored	AVCOE Sangamner	15,000	15,000
Projects sponsored by the University/ College	SPPU,AVCOE	5,10,000	5,10,000
Students research projects <i>(other than compulsory by the University)</i>	--	--	--
Any other(Specify)	NVIDIA,ISTE	36,500	36,500
<b>Total:</b>		<b>13,20,500</b>	<b>9,83,650</b>

3.7 No. of books published i) With ISBN No.  Chapters in Edited Books

ii) Without ISBN No.

3.8 No. of University Departments receiving funds from

UGC-SAP  CAS  DST-FIST

DPE  DBT Scheme/funds

3.9 For colleges Autonomy  CPE  DBT Star Scheme

INSPIRE  CE  Any Other(specify)

3.10 Revenue generated through consultancy

3.11 No. of conferences organized by the Institution.

Level	International	National	State	University	College
Number	03	03	03	02	04
Sponsoring agencies	SPPU AICTE,IEEE	ISTE, Self BCUD	Self	SPPU	SELF

3.12 No. of faculty served as experts, chairpersons or resource persons 18

3.13 No. of collaborations      International 01 National 06 Any other 00

3.14 No. of linkages created during this year 6

3.15 Total budget for research for current year in:

From Funding agency 723745/- From Management of University/College 545029/-

Total: 1268774/-

3.16 No. of patents received this year

Type of Patent		Number
National	Applied	03
	Granted	02
International	Applied	--
	Granted	--
Commercialized	Applied	--
	Granted	--

3.17 No. of research awards/ recognitions received by faculty and research fellows of the institute in the year

Total	International	National	State	University	Dist.	College
03	--	--	--	02	01	--

3.18 No. of faculty from the Institution 01 01  
 who are Ph.D. Guides and students registered under them

Research guide and students attached to research Centre	<input type="text" value="09*"/>	<input type="text" value="26"/>
3.19 No. of Ph.D. awarded by faculty from the Institution	<input type="text" value="--"/>	
3.20 No. of Research scholars receiving the Fellowships (Newly enrolled + existing ones)		
JRF	<input type="text" value="--"/>	SRF
	<input type="text" value="--"/>	Project Fellows
	<input type="text" value="--"/>	Any other
		<input type="text" value="01"/>
3.21 No. of students Participated in NSS events:		
University level	<input type="text" value="110"/>	State level
	<input type="text" value="--"/>	<input type="text" value="--"/>
National level	<input type="text" value="--"/>	International level
	<input type="text" value="--"/>	<input type="text" value="--"/>
3.22 No. of students participated in NCC events:		
University level	<input type="text" value="--"/>	State level
	<input type="text" value="--"/>	<input type="text" value="--"/>
National level	<input type="text" value="--"/>	International level
	<input type="text" value="--"/>	<input type="text" value="--"/>
3.23 No. of Awards won in NSS:		
University level	<input type="text" value="01"/>	State level
	<input type="text" value="--"/>	<input type="text" value="--"/>
National level	<input type="text" value="--"/>	International level
	<input type="text" value="--"/>	<input type="text" value="--"/>
3.24 No. of Awards won in NCC:		
University level	<input type="text" value="--"/>	State level
	<input type="text" value="--"/>	<input type="text" value="--"/>
National level	<input type="text" value="--"/>	International level
	<input type="text" value="--"/>	<input type="text" value="--"/>
3.25 No. of Extension activities organized		
University forum	<input type="text" value="--"/>	College forum
	<input type="text" value="--"/>	<input type="text" value="01"/>
NCC	<input type="text" value="NA"/>	NSS
	<input type="text" value="NA"/>	<input type="text" value="15"/>
		Any other
		<input type="text" value="01"/>

3.26

Major Activities during the year in the sphere of extension activities and Institutional Social Responsibility.

1. Tree plantation under Dandkaranya abhiyan.
2. Swachha Bharat abhiyan.
3. Blood donation camp and round a clock blood help line.
4. Donate sport kit @ velhale deaf and dump school.
5. Water conservation program.(place)
6. Conducted technical training session for faculty & students (T.E and B.E.) under center of excellence established with Texas Instrument, India.
7. Cleaning India – Green India (Sangamner town).
8. Counseling citizen about dissociation of wet garbage and dry garbage separation.
9. Rain water harvesting and kitchen garden motivation.
10. Microsoft student partnership program.
11. Cleanliness campaign.
12. Spread awareness, counseling and encouragement regarding harm in using plastic carry bags, usefulness of water conservation, wet garbage etc. in Sangamner city.
13. Lecture Series on “Carrier Opportunities after 12<sup>th</sup>” to junior college students by faculty.
14. Computer literacy programme for villagers.
15. Digital transaction through Bhim App.
16. Soil health card for nearby villagers.



## Criterion – IV

### 4. Infrastructure and Learning Resources

#### 4.1 Details of increase in infrastructure facilities:

Facilities	Existing	Newly created	Source of Fund	Total
Campus area	92080 sq. mts. (23.02 Acres)	Nil	Institute	92080 sq. mts (23.02 Acres)
Class rooms	44	Nil	Institute	44
Laboratories	98	Nil	Institute	98
Seminar Halls	09	Nil	Institute	09
No. of important equipment's purchased ( $\geq$ 1 lakh) during the current year.	175	49	MODROB (AICTE) / BCUD (SPPU, Pune) & Institute	224
Value of the equipment purchased during the year (Rs. in Lakhs)	693.94/-	51.12	MODROB (AICTE) / BCUD (SPPU, Pune) & Institute	745.06
Others (Tutorial Rooms)	15	0	Institute	15

#### 4.2 Computerization of administration and library

##### **Computerization of administration:**

Ananosoft (EMS) system is used for administration activities as following tabs

- Admission
- Registration
- Fee Receipt & Payments
- Attendance (Student)
- Attendance (Staff)
- Library Management System
- Scholarship Management
- Students Results

- Certificate Generation
- Hostel Management
- Store Management
- Internal Approval System (DP Management)
- Event Management
- Principal Desk
- Training & Placement
- Alumni
- Notice Viewer
- Student Comments

**Computerization of Library:**

- Online library portal (FTP Server) is made available through intranet within the Campus for access library electronic resources such as NPTEL videos, e-books and notes of faculty.
- Library provided OPAC (Online Public Access Catalogue) facility.
- All the department library are connected by LAN and also equipped with NPTEL and technical videos, notes, etc. placed on desktop computers.
- CCTV cameras are installed in the department and library at various places for security purpose.

4.3 Library services:

	Existing		Newly added		Total	
	No.	Value	No.	Value	No.	Value
<b>Text Books</b>	62,268	2,21,95,615/-	1864	12,02,871	64131	2,33,98,486/-
<b>Reference Books</b>						
<b>e-Books</b>	261	0	00	00	261	00
<b>Journals</b>	123	3,36,195	00	3,37,707	123	3,37,707/-
<b>e-Journals</b>	4,867	17,55,106/-	00	00	4,523	11,22,514/-
<b>Digital Database</b>	06		00	00	04	
<b>CD &amp; Video*</b>	1,490	--	92	00	1582	00
Others (specify Weeding (Hard & Soft)	1,913		60	1,60,931/17	1,973	1,77,056/17

\*Complimentary with books

#### 4.4 Technology up gradation (overall)

	Total Computers	Computer Labs	Internet	Brows- ing Centres	Computer Centres	Office	Depart- ments	Others
<b>Existing</b>	1268	35	100mbps	10	12	02	35	04
<b>Added</b>	40	--	--	--	--	-	-	04
<b>Total</b>	1308	35	100mbps	10	12	02	35	08

#### 4.5 Computer, Internet access, training to teachers and students and any other programme for technology up-gradation (Networking, e-Governance etc.)

##### A. Dept. of Electrical Engineering

- Simulation & Design of AC drives:

##### B. Dept. of Computer Engineering

- Course on “RHCSA-Red hat Certification”

##### C. Dept. of Electronics Engineering

- Introduction to MATLAB.
- Workshop on “Arduino”
- Variable Frequency Drives (VFDs) by Fox Solutions, Nashik
- Internet of Things (IOT)
- LabView Programming
- Workshop on “Java Fundamental”
- Basics of Robotics Programming
- Basics of Computer Languages-JAVA, PHP and SQL.

##### D. Dept. of Mechanical Engineering

- CATIA
- ANSYS

##### E. Dept. of E&TC Engineering

- A Two Days Workshop on Arduino Based IOT
- Industrial Electronics and Its Applications
- Training on Variable Frequency Drives, FoX Solutions Pvt. Ltd., Nashik

##### F. Dept. Of IT Engineering

- Android

4.6 Amount spent on maintenance in lakhs:

i) ICT

97.75

ii) Campus Infrastructure and facilities

55.78

iii) Equipment's

76.06

iv) Others

39.78

**Total:**

**269.38**

## Criterion – V

### 5. Student Support and Progression.

#### 5.1 Contribution of IQAC in enhancing awareness about Student Support Services.

The Student support Services and progression are primarily looked after by the Dean of our institution. Introduction of student centric welfare schemes, addressing various requirements of residential students and providing necessary support system for student related issues are managed by the Dean in consultation with Deans of the Faculties, wardens of the Hostels and Student representatives. The IQAC has a very limited role to play in these activities. The institute publishes its updated prospectus/handbook annually and this prospectus are distributed among students with application form who applies for different disciplines.

The accountability of these all is done annually by providing information to the students as below.

- A. The academic schedule of the academic year with test date, Parent teacher meeting, and other activities.
- B. The students could also find the various co-curricular and extracurricular activities.
- C. Summarize each department with Intake, Staff Strength, Laboratories, software, equipment's, and Result with toppers list.
- D. Detail information of department of Master of Business Administration with campus photo given in Boucher.
- E. Highlights about Gymkhana, sports, Shopping complex, Mess and canteen, Transportation etc.
- F. Provide Information of college Library with facility of reading hall, and etc. in this given information about the various scholarship provided by the institute.
- G. Mention the various committee information available in the institute like Anti ragging, Women's Grievance cell, Discipline Committee.
- H. The institute is providing academic calendar.
- I. Providing Information of various events organised and conducted by the institution like Seminar, Workshop, Value addition course, Training Programme, Expert lecture, Conference etc.
- J. Sport activity played by students indoor and outdoor games and achievement by students at various level like District, State, zonal and Regional level etc.

- K. Each department has its own association under this conducting various activities for students are like Group discussion, Debate etc.
- L. Prospects contain the information about the Admission of students.
- M. Regular Checking of Course file in every start of academic year for smooth conduction of lecture for students.
- N. Conduction of regular meeting with IQAC and Student member for better improvement of student support.

5.2 Efforts made by the institution for tracking the progression

1. Effective Interaction between class teachers & students.
2. Conducting Regular test , alumni meet, feedback from Stake holders , Group discussion , Surprise test, Learning Process and social networking
3. Result evaluation, Placements. Research papers writing by students.
4. Motivates to participate in Project Competition, Trainings, different events etc.
5. Motivates the students by giving Amrut Meritious Scholarship to those students who have secured more than 80% in University exams.

5.3 (a) Total Number of students: **3457**

UG	PG	Ph. D.	Others
3239	213	05	00

(b) No. of students outside the state 08

(c) No. of international students 00

Men	No	%
	2149	62.16

Women	No	%
	1308	37.83

Last Year						This Year					
General	SC	ST	OBC	Physically Challenged	Total	General	SC	ST	OBC	Physically Challenged	Total
963	273	81	2199	02	3518	904	281	82	2186	04	3457

Demand ratio: **NA\***

Dropout %: **1.85%**

\* All seats are allocated through centralized admission by Director of Technical Education

5.4 Details of student support mechanism for coaching for competitive examinations

#### Summary of Competitive Exam Training

Year	Expert Lectures	Workshops/ Training	Total
2017-18	02	01	03

#### Competitive Exam Cell

Coaching for Competitive exams: 1<sup>st</sup> July-2017 to 30<sup>th</sup> June 2018

Sr. No	Year with Date	Event/Expert lecture/ Workshop/ Test	Resource Person/Organization	Target Audience	Remark
01	23/12/17	Preparation for Scholarship	Mr. Zakir Shaikh	BE (All branches)	Career Plan & Goal Setting
02	14/07/17	MPSC preparation	Er. A.B. Kawade	TE, BE (All branches)	Student Get Motivated
03	25/01/18	Preparation of competitive exam in small sector	Mr. Mahipal Reddy (Career Academy, Nagar)	BE (All branches)	Student Get Motivated
No. of students beneficiaries					<b>700</b>

### 5.5 No. of students qualified in these examinations

NET	<input type="text" value="--"/>	SET/SLET	<input type="text" value="--"/>	GATE	<input type="text" value="14"/>	CAT	<input type="text" value="00"/>
IAS/IPS etc.	<input type="text" value="--"/>	STATE PSC	<input type="text" value="--"/>	UPSC	<input type="text" value="--"/>	Others	<input type="text" value="00"/>

### 5.6 Details of student counseling and career guidance

Mentoring Scheme is practiced a Tutor/Mentor (faculty) is allotted to students from first to final year. Meetings are conducted by the mentor with the students to discuss academic performance and progress. Mentors render guidance in studies, career planning and also address personal and psycho social issues.

#### **A. Academic**

The institute provides regular counseling to the students to address issues relating to their academic shortfall and obstacles. The institute has a tutor scheme where a group of students are placed under the guidance of tutor. The Tutor looks after their academic requirements and makes arrangements for remedial and tutorial classes.

#### **B. Personal**

The Tutors fulfil his responsibilities in regards to the students allotted in mentorship individually. The students are provided the parental and friendly environment for sharing of their personal problem even, to make them comfortable. The tutors maintain secrecy of any personal information and takes necessary corrective steps in consultation with senior official staffs, thereby addressing personal problems.

#### **C. Career**

The students are guided by the faculty in choosing appropriate branch. They are informed about the scope and nature of the various subjects form syllabus. They are counseled adequately to shape their career. Personalized counseling and parental care is made available by mentor schemes practiced in the institute. The institute also encourages the students towards taking Higher Education and Research by arranging in house special training for Competitive Exams, Soft Skills, and Aptitude Tests etc.

#### **D. Psycho-Social**

The candidates at times come face to face with certain social issues or problems which tend to bring the inferiority complex in them. The teachers make it sure that no such deterioration happens with the psycho social understanding of the students. They are counseled to become better human beings and advised to stand tall for the social cause.



Sr. No	Event	Resource Person/ Organization	Class & Branch	Conduction Date
1	Expert Lecture on "Research Methodology" for PG students	Dr.U.S.Bhadade	All PG Students	15/09/2017
2	Security in cyberspace	Dr. Samant Khajuria (Denmark)	All UG IT Students	17/09/2017
3	English communication	Mrs. Pratibha Patil	SE Mech Students	11/09/2018 to 12/09/2017
4	Quality Assurance in industry	Abhay Kumar	TE Mech students	22/09/2017
5	Advance Practices in I.T. management	Tomio Isoagai	All UG IT Students	13/01/2018
6	Opportunities with Department of Atomic Energy	Dr. Devashish Rath	UG(ETC, ELECT) Students	20/01/2018
7	Career Guidance on Amazon Web services	Mr. Aftab Kotwal (Western Union Site Reliability Engineering)	UG Comp Students	22/01/2018
8	Cyber security	Mr. Tanmay Dixit	UG IT Students	02/2/2018
9	Natural Disaster Management	Mr. Yogendra S. Patil	ALL UG Students	13/03/2018
10	Applications of Ferro cement Technology	Er Chandramohan Hangekar	SE CIVIL Students	27/03/2018

No. of students benefitted

**2627**

Details of campus placement.

5.7

<i>On campus</i>			<i>Off Campus</i>
Number of Organizations Visited	Number of Students Participated	Number of Students Placed	Number of Students Placed
71	650	387	20

## 5.8 Details of gender sensitization programmes

### **Gender sensitization**

It refers to the modification of behavior by raising awareness of gender equality concerns. This can be achieved by conducting various sensitization campaigns, workshop, programs etc.

Sensitization in the domain of Humanities and Social Sciences, is seen an awareness informed propensity or disposition which aims at changing behavior so that it is sensitive to certain issues.

Gender sensitization may be seen as "the awareness informed disposition or propensity to behave in a manner which is sensitive to gender justice and equality issues.

It is interlinked with gender empowerment.

Gender sensitization theories claim that modification of the behavior of teachers and parents (etc.) towards children can have a causal effect on gender equality.

Gender sensitizing "is about changing behavior and instilling empathy into the views that we hold about our own and the other gender.

It helps people in "examining their personal attitudes and beliefs and questioning the 'realities' they thought they know."

Point Discussed under this issue:

1. Safety of Girls health issues. Personality Development.
2. Personality Development.
3. Awareness of Maintaining Hemoglobin.

To overcome all this problems & understanding of gender equality, empowerment our college has arranged the various Guest Lectures to motivate students on Gender Sensitization.

#### **1. Self-Confidence & Commitment to society.**

The Program Titled "**Self-Confidence & Commitment to society.**" for girl students was organized on **18<sup>th</sup> January 2018**, For the session renowned Resource Person was **Prof. Mrs. Suvarna Benake**. Total 350 students & staff members were present for programme. All the session was interactive & full of Knowledgable

## 2. Women Hygiene & health.

The Program Titled “Woman Hygen & Health” for girls student **was organized on 08<sup>th</sup> March 2018**, For the session the person invited was **Dr. Shraddha Wani** . She is a famous gynochologist of Sangamner. Total 250 girl students & Ladies staff members were present for programme. The session was interactive & full of Knowledgable which helps our students to develop their health issues.

### 5.9 Students Activities

#### 5.9.1 (i) No. of students participated in Sports, Games and other events

State/ University level  National level  International level

#### (ii) No. of students participated in cultural events

State/ University level  National level  International level

#### 5.9.2 No. of medals /awards won by students in Sports, Games and other events

**Sports:** State/ University level  National level  International level

**Cultural:** State/ University level  National level  International level

### 5.10 Scholarships and Financial Support

	Number of Students	Amount
<b>Financial support from institution</b>	371	17,14,290/-
<b>Financial support from government</b>	2589	13,97,47,357/-
<b>Financial support from other sources</b>	08	2,55,000/-
<b>Number of students who received International/ National recognitions</b>	03	2,45,000/-

5.11 Student organized / initiatives

**Fairs:** State/ University level  National level  International level

**Exhibition:** State/ University level  National level  International level

5.12 No. of social initiatives undertaken by the students

5.13 Major grievances of students (if any) redressed:

## Criterion – VI

### 6. Governance, Leadership and Management

6.1 State the Vision and Mission of the institution.

**Vision:-**

To create opportunities for rural students to become able engineers and technocrats through continual excellence in engineering education.

**Mission:-**

Our mission is to create self-disciplined, physically fit, mentally robust and morally strong engineers and technocrats with high degree of integrity and sense of purpose who are capable to meet challenges of ever advancing technology for the benefit of mankind and nature.

We, the management, the faculty and staff, therefore promise to strive hard and commit ourselves to achieve this objective through a continuous process of learning and appreciation of needs of time.

6.2 Does the Institution has a management Information System

1. Ananosoft (ERP) system is used for administration, finance, hostel and academic work.
2. All India survey on higher education (AISHE)

In this we are storing college related and infrastructure related information, hostel capacity, department wise strength, results, staff information (teaching / non-teaching), budget, scholarships, loans and accreditation etc. information.

6.3 Quality improvement strategies adopted by the institution for each of the following:

**6.3.1 Curriculum Development.**

1. Exposure to international language (German, Japanese)
2. Communication and Soft Skill Courses.
3. Club activities like SITES and PHOENIX started.
4. Add on modules related to industry requirements started to enhance

### 6.3.2 Teaching and Learning

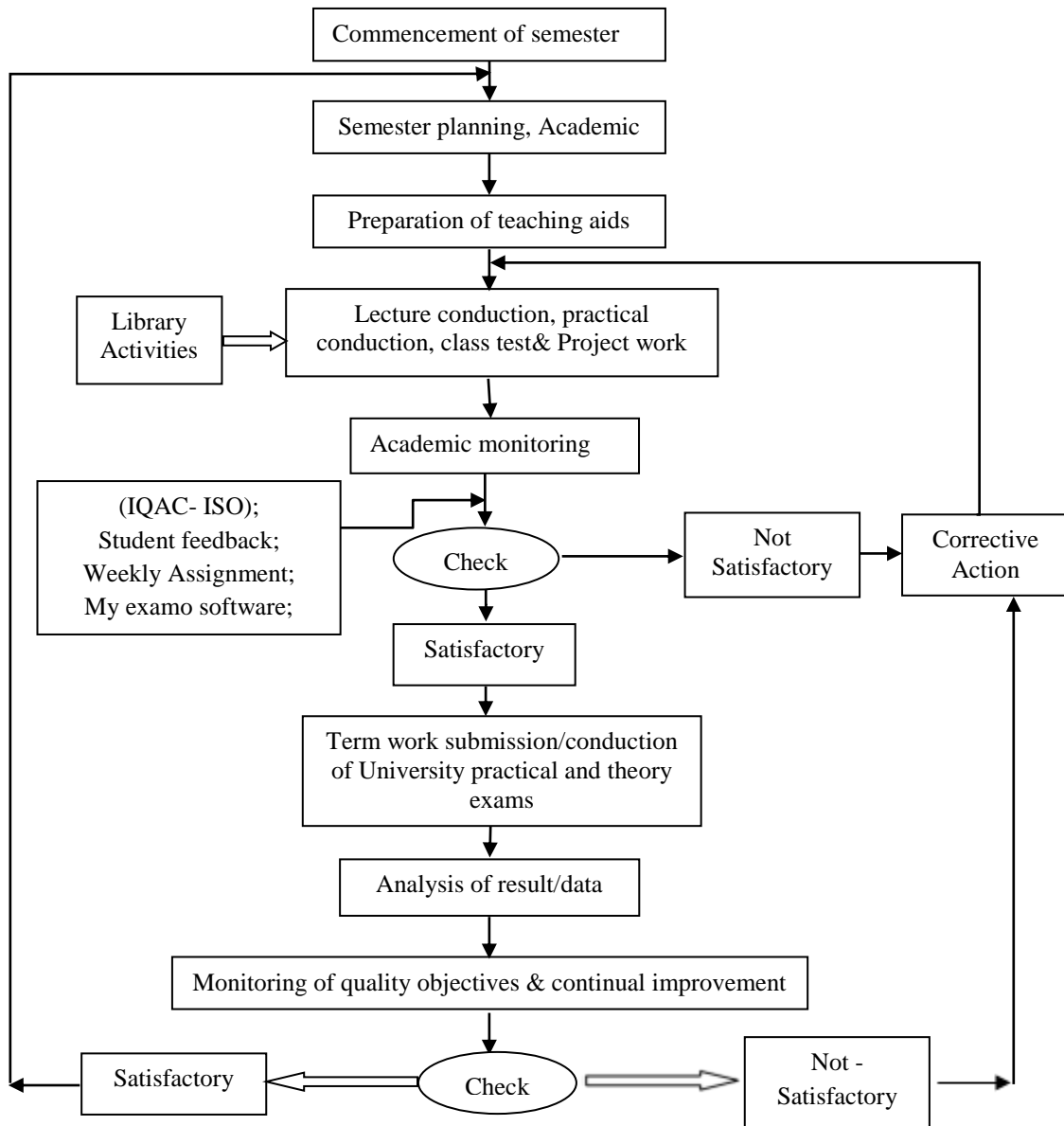


Fig. 6.1: Effective Implementation of Curriculum

#### ❖ Teaching and Learning –

1. Make up classes for weaker students.
2. Standardization of feedback formats.
3. Sharing course notes on AVCOE repository
4. Learning practices on MCQ's via Myexamo online software

### 6.3.3 Examination and Evaluation (refer: 2.8)

Institute adheres to the examination/ evaluation rules and regulations framed by Savitribai Phule Pune University, Pune. University conducts

1. Online examinations for First year & Second year Engineering.
2. In semester examinations for Third year & Final Year Engineering.
3. End semester examination for FE to BE.

Other than this Institute conducts

1. Weekly Assignments
2. Self-Learning Assignments.
3. Mock online examination
4. Internal Class test.
5. Pre University test.
6. Performance is evaluated and conveyed through SMS to the Parent.

### 6.3.4 Research and Development

1. Identifying departmental thrust areas and leveraging consultancy work by the faculty, based on these thrust areas.
2. Open Source Initiative Centre of Excellence Lab
3. Identifying training needs of the faculty and deputing them to attend various seminars workshops and conferences to fulfil those needs.
4. Criteria based additional financial incentive for research and publications by faculty

## **Library**

1. Central Library is using the Library Software with various modules for all library activity.
2. Bar coded based issue / return of books.
3. Central Library has started SMS service.
4. Softcopy of old question papers
5. Repository of Question Bank, MCQ's, Notes

## **ICT**

1. Broadband connection – connectivity speed improved. 100 MBPS 1:1 BW and 10 MBPS at Girls hostel.
2. PC configuration – up gradation of PCs Physical Infrastructure
3. Campus security using surveillance cameras
4. Renovation of T&P facility

- **Library Physical Infrastructure:**

Total Area Utilized for Library is 1222 sq.m

### 6.3.6 Human Resource Management

1. Deputation of Staff for FDP / Workshops / Training / Conferences / Symposium.
2. Faculty encouragement for higher studies.
3. Formulation of institute policies and communicating the same to the staff.
4. Systematic performance appraisal process.
5. Revised API system

### 6.3.7 Faculty and Staff recruitment

Transparent staff recruitment policy as per UGC/AICTE/ DTE/SPPU/ norms.

### 6.3.8 Industry Interaction / Collaboration (IIP Cell):

- ❖ **Industry Interaction / Collaboration**

1. Placement activity
2. Guest lectures
3. Workshops
4. Professional Development Courses
5. Industrial visit
6. Communication skills and aptitude based training



### 6.3.9 Admission of Students:

1. Encouraging students to participate at Engineering activities of repute at National and International level (Robocon, World Skills International competition, BAJA, Supra etc.), E – Yantra, National level project competitions etc, making a wide publicity of the institution across the nation.
2. Organizing technical Engineering events at National and International level.
3. Organizing a Guest Lectures at high school level, creating an affection towards engineering (Free training is provided to all participants)

### 6.4 Welfare schemes for

Teaching Non- teaching Employees	<p><b>Teaching and Non-teaching</b></p> <ol style="list-style-type: none"> <li>1. Group insurance policy drawn for teaching and nonteaching staff (100%).</li> <li>2. Funds availability to staff in case of medical emergency.</li> <li>3. Maternity leave to ladies staff.</li> <li>4. Gratuity scheme applicable.</li> <li>5. Uniforms to class IV staff.</li> <li>6. Tuition fees collected in Equal Monthly Installments (EMI) for wards of the staff.</li> <li>7. 15 % fee waiver for wards of the staff members in schools run by Sanstha</li> <li>8. Residential and recreational facility for the staff members.</li> <li>9. Loan facility from staff society.</li> </ol>
Students	<ol style="list-style-type: none"> <li>1. Travel facility by college bus is provided for Akole, Sangamner and Sinnar resident students</li> <li>2. Residential hostel facility is provided.</li> <li>3. Group insurance policy.</li> <li>4. Book bank facility</li> <li>5. Earn and learn scheme</li> </ol>

6.5 Total corpus fund generated:

Rs. **33853/-**

6.6 Whether annual financial audit has been done Yes  $\checkmark$  No --

6.7 Whether Academic and Administrative Audit (AAA) has been done?

Audit Type	External		Internal	
	Yes/No	Agency	Yes/No	Authority
Academic	Yes	Expert Committee	Yes	Internal Quality Audit Cell and ISO (Once in a semester)
Administrative	Yes	Expert Committee	Yes	Internal Quality Audit Cell and ISO (Once in a semester)

6.8 Does the University/ Autonomous College declares results within 30 days  
For UG Programmes Yes  $\checkmark$  No --

For PG Programmes Yes  $\checkmark$  No --

6.9 What efforts are made by the University/ Autonomous College for Examination Reforms?  
NA

6.10 What efforts are made by the University to promote autonomy in the affiliated/constituent colleges?  
NA

6.11 Activities and support from the Alumni Association

1. Alumni association organizes alumni meet every year, this helps the current students in their overall development.
2. Campus placement support is obtained from alumnae every year.
3. Financial help is also provided by some alumnae for financially weaker students.
4. Industrial visit, training and project to the students are arranged with the support of alumnae as a part of curriculum.
5. Advisory Committee is formed by association of Alumni

6.12 Activities and support from the Parent – Teacher Association.

In our college we don't have Parent teacher association but every year by conducting parent meet in our college we try to communicate with parents by giving information about the new activities in college, teaching learning process, placement and try to understand their expectation from college and teacher. We also take feedback from parents regarding facilities provided by college, additional

courses conducted for students, so that we can improve in next academic year.

6.13 Development programmes for support staff

- Industrial training (HAL)
- Incentives for higher studies
- Absorption in teaching cadre once they acquire requisite qualification and if found suitable
- Language training
- Technical training

6.14 Initiatives taken by the institution to make the campus eco-friendly.

Green audit is regularly conducted by checking water quality, noise level and energy consumption. Fire and Safety audit is conducted regularly. Energy audit is conducted for saving of electrical power. Solar water heaters used in boys and girls hostel. Also solar street lights are installed in campus. Hybrid power (5 KW Wind Solar) generation plant drives Electrical Engineering departments lighting road. Water harvesting is initiated and optimum use of water by drips and sprinklers. NSS conducted one day workshop on water management for active motivation among all the students to use minimum water. Dandkaranya Abhiyan and NSS are actively running for free plantation. Cleanliness is maintained in campus and less hazardous waste is generated. The major e-waste such as out of use instruments / equipment's, CRTs, Printers, Computers, Electronic gadgets, Circuits, Kits have been written off and then it is sold out to buyers by auctioning.

## Criterion – VII

### 7. Innovations and Best Practices

7.1 Innovations introduced during this academic year which have created a positive impact on the functioning of the institution. Give details.

- **Usage of Modern Communication Media for Academics:** Every department is circulating information among students through digitized tools like Whatsapp, Facebook and Google groups. It is used in curricular and cocurricular processes to shares important technical and student related information.
- **PMKVY (Pradhan Mantri Kaushalya Vikas Yojana):** This scheme is best implemented for.
- **Learning Process:** Continues conduction of activities like seminar on theory topics by students. Students learn more through peer learning.
- **Teaching Learning Process:** Self-Learning, Study Circle, animated Videos, additional lectures for Teaching Learning Process.
- **Student support services:** Students uses hassle-free facility of obtaining Leaving certificate withdrawal, Education loan documents, bonafide Certificates, etc.
- **NPTEL study center:** More number of faculty and students are registered for NPTEL Certification courses and completed.
- **IEEE SIGHT (Special Interest Group on Humanitarian Technology)** has initiated by E&TC Department where students are performing the various activities which will help the society.
- **Samprashikshan Internship Program:** Department of Civil Engineering has planned samprashikshan internship program for BE students by which they will get their bread and butter instantly after pass out from academic. Purpose behind this program is making student mentally robust and practically trained according to mission and vision of institute
- **Soil Testing Facility:** Soil sample was collected from the nearby area and following tests were performed on it: 1. NPK test 2. Electrical Conductivity test 3. PH test, samples were collected and tested. Report cards of testing are prepared and distribute to the land owner.

- **Big Data Analytics Centre Of Excellence:** Under Big Data Initiative the following Softwares Taught by Resource person are Hadoop 2.6.3, Mysql, MongoDB, Zeppelin, Cassandra, Sqoop, Hive, Yarn, HBase, Python.
- **AAKASH Research Centre:** AAKASH are available for application development and all students are actively using it.
- **Competitive exam Centre:** IT Department has conducted Certification course and technical lectures with awareness of competitive exam for student bridge the gap between university syllabus and academia and appreciates to the students who recognize by ORACLE professional certified.
- **Redhat Academy Partner:** Established interaction and exchange of concepts with respect to vitality of global IT certification course.

7.2 Provide the Action Taken Report (ATR) based on the plan of action decided upon at the beginning of the year

- **To prepare and follow Academic Calendar:** At the beginning of semester, Institute calendar was prepared. After that department Academic Calendar was prepared. Every faculty prepares his teaching plan accordingly and follows it.
- **To identify slow and advanced learner students:** Based on earlier result analysis and mock test slow and advanced learner students were identified. Study circle was formed by which advanced learner students mentor the slow learner student. Also Batch wise, tutor wise students WhatsApp group created to share study material.
- **Student-tutor mentoring:** Through Student-tutor meetings conducted twice in a month by respective tutors, discussing their academic and non-academic issues which are then forwarded to Dean Academic through Department coordinator.
- **In plant training for students:** Department identified few Industries in nearby industrial areas such as Nashik, Pune, Aurangabad, etc. which promotes students for In plant training.
- In overall ISO committee responsible for Monitoring of quality objectives & continual improvement beginning of the year. ISO Audit conducts internal and external audit in which PDCA (Plan, Do, Check, and Act) are evaluated and corresponding corrective measures taken. During last year no any major

discrepancies found.

- Before starting semester, planning of Academic, Co-curricular and extracurricular activities is circulated to all teaching, supporting staff and students.
- Academic monitoring conducted by senior faculties of another department for Lecture conduction, practical conduction. Also student's feedback is conducted for student's satisfaction. Notice is issued to faculties if performance of particular faculty is not Satisfactory.
- Feedback obtained and Opportunity is given at first time for teacher who has less feedback. Notices are issued to faculties with not improvement in feedback. At the end of semester term work submission completed based on continuous assessment and University practical and theory exams completed after which Results Analysis carried out and notice issued to those faculties if result is not satisfactory.

7.3 Give two Best Practices of the institution(*please see the format in the NAAC Self-study Manuals*)

1. **“Amrut Meritorious Scholarship.”** (*annexure-iii*)

2. **“Employability Enhancement through campus placements.”** (*annexure-iv*)

7.4 Contribution to environmental awareness / protection

#### **Utilization of Non-conventional Energy Sources:**

- Solar Energy Project: 100 kWh solar power project installed and commenced which will satisfy requirement of electrical energy for institute and connected to MSEB grid.
- 4 KVA Solar – wind hybrid power plant already driving electrical engineering load.
- Bio gas Project: Canteen waste foods are collected and biogas is created out of it.
- Effective utilization of renewable energy is carried out by utilizing solar water heaters and solar street lights.

#### **Green Audit:**

- This year also green audit have been conducted by regularly checking water quality, noise level and energy consumption also energy audit for checking

electrical consumption. Every day water quality in academic building and hostels have been checked by supporting staff.

#### **Tree Plantation:**

- Plantation of more number of trees in campus is carried out and maintained in good condition.
- Special persons are appointed for maintenance of garden which carries out regular tree plantation and resulted in pleasant atmosphere in campus.
- The trees and lawns are maintained with water drips and sprinklers respectively.

#### **Awareness Campaigns:**

- NSS and *Dandakaranya Abhiyan* are creating awareness among the young generation to protect and save the environment.
- In each lab is of department the plate of indication is written as "SWITCH OFF THE FANS AND LIGHTS" when you are leaving class room/ Laboratories.

7.4 Policy decisions have been taken for less usage of papers and noise free generator etc.

7.5 Whether environmental audit was conducted?

Yes, This year also green audit have been conducted by regularly checking water quality, noise level and energy consumption also energy audit for checking electrical consumption. Every day water quality in academic building and hostels has been checked by supporting staff.

7.6 Any other relevant information the institution wishes to add. (for example SWOT Analysis)

#### **SWOC Analysis**

##### **Strengths:**

The strength of the institute includes

- 1 Sprawling campus spread over 25 acres away from city with calm and well maintained, pleasant environment, ample greenery and nonpolluting ambience.
- 2 NAAC accredited with A grade.
- 3 Three times accreditation by NBA, New Delhi.

- 4 Certificate Updated from ISO 9001:2008 to ISO 9001:2015 by TUV-SUD.
- 5 Five UG courses permanently affiliated to SPPU, Pune.
- 6 Ranked in top among most renowned institutions as per the survey conducted by various agencies in past few years.
- 7 Adequate infrastructural facilities such as ICT enabled classrooms, well equipped laboratories with advanced equipment and machinery, auditorium, playground, hostels and gymnasium.
- 8 Well qualified and experienced staff having more than 10 years retention period.
- 9 60% placement has been achieved by well-established and dedicated TPO cell.
- 10 High speed internet connectivity with a 100 mbps leased line and Wi-Fi campus.

**Weaknesses:**

- 11 Situated in rural area.
- 12 Inadequate number of Ph.D qualified faculty.
- 13 Consultancy and extension activities need improvement.

**Opportunities:**

- 14 Collaboration with leading research institutions and industries for research projects and consultancy.
- 15 Enhancing industry institute interactions.
- 16 Encouraging faculty for upgrading their qualification.
- 17 Establishing center of excellence in respective engineering disciplines.
- 18 To work out for interdisciplinary research projects.

**Challenges:**

- 19 Attracting and retaining faculty having PhD qualification.
- 20 Imparting soft skills to the students from rural background.
- 21 Achieving 100% placements.
- 22 Attracting students with higher PCM and CET scores.
- 23 Development and transfer of technology useful for the rural masses.



## 8. Plans of institution for next year

- Plan to apply for entrance examination conduction to felicitate admissions of high JEE/MHCET merit students and provide a curricular and extracurricular campus ambience.
- Planned achievement of Programme outcomes and course objectives.
- Brand building activities for AVCOE.
- Initiation and structuring the research culture in AVCOE by organising International, National and state level events as well.
- To implement procure and deploy UBA/PMKVY/AICTE /BCUD /DST/UGC grants from Government and other sources.
- Introduction and planning for value addition technical and Soft Skills development courses using AVCOE's infrastructure.
- GATE and competitive exam Coaching and orientation to develop culture.
- Services offered and provided outside such as Offer lab. Facilities, projects and product development for other institutes and industry.
- Consultancies in various areas offered.
- Planned purchase of equipment's for Mechanical/Production/Computer Engineering.
- Organize inter institute cultural event "MEDHA-2018"
- Establishment of incubation centre.
- Renewable Energy Planning
  1. 300 kWh with net metering with Maharashtra State Electricity Board.
  2. Bio Gas Plant working on Degradable waste of perishables of Canteens and trees.
  3. Tree Plantation, Rain water Harvesting.
- Governance of ethical and moral activities
- Under QIP –BCUD workshop, seminar @ national international and state level.
- Academic Planner for the academic year 2017-18 is attached in *Annexure –iv*

***Prof. R. S. Tajane***

*Signature of the Coordinator, IQAC*

***Dr. M. A. Venkatesh***

*Signature of the Chairperson, IQAC*

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## Analysis of the feedback

Amrutvahini College of engineering has well established feedback mechanism. Ananosoft Technology Pvt. Ltd. is our service provider for online feedback.

- **Feedback types & modes**

Sr. No.	Feedback type	Frequency	Mode	Standard Out come
1	Student Feedback (Overall Academic Performance)	One's in year	Manual	Stated in ISO Qua. Obj.
2	Teacher Performance by student	Twice in Sem	Nano/Manual	75%
3	Student to Institute	Twice in Sem	Nano	Suggestions
4	Student to Library	One's in year	Manual	Suggestions
5	Lab Assistant / Technical Assistant	One's in Sem	Manual	Suggestions
6	Teacher to student	One's in year	Nano	Suggestions
7	Teacher to Institute	One's in year	Manual	Suggestions
8	Hostel	One's in year	Manual	Suggestions
9	Parents	Meet/ Walking	Manual	Suggestions
10	Employer	Feasibility	Manual/Mails	Suggestions
11	Alumni	Meet/ Walking	Manual/Mails	Suggestions

The feedback on faculty performance by students was conducted for odd & even semester.

The details are given in following table

- **Report on feedback- odd semester 2017-18**

Programme	Feedback no.	% of respondent	No. of faculty scored less than threshold value (75%)
UG	1	43.76	00
	2	63.78	00

Intimations were issued for the faculties having feedback less than 75% for improving their performance.

- **Report on feedback- even semester 2017-18**

Programme	Feedback no.	% of respondent	No. of faculty scored less than threshold value (75%)
UG	1	42.81	00
	2	36.15	00

Intimations were issued for the faculties having feedback less than 75% for improving their performance.

### 7.3.1 Best Practice

#### 1. Title of the Practice 1: “*Amrut Meritorious Scholarship.*”

#### 2. Objectives:

- To uplift the overall quality result of the students.
- To make the students competitive in academics by honoring them.
- To provide financial support for the scholar students.

#### 3.The Context

- Any Institute need to develop the students who can meet the requirements of the stakeholders with good academic result.
- Teaching and learning activity is the most important activity in educational institute. So it requires the equal involvement of teachers as well as the students for particular topic to be understood.
- Students involvement plays important role in academic result hence quality results hence it needs to make them competitive by providing some platforms.

#### 4.The Practice

- Amrut Meritorious scholarship (AMS): If the student will get more than 80% or more than 9.5 SGPA in particular semester then after declaration of result the scholarship will be given to those students in next semester with Rs.1000/- per month for six months which cover total of Rs. 6000/- per semester.
- Every semester notice is circulated to all the students about Amrut Meritorious scholarship and awareness is created among them.
- The Institute has adopted ISO 9001-2008 policy by maintains the academic discipline and good learning environment.
- All faculties are attempting to cover complete syllabus by effective teaching and learning system has outcome in better results.
- The institute has taken initiative in arranging makeup classes to complete syllabus in scheduled period.
- Study circle activities are carried out in batch-wise in which high merit students discuss and solve the syllabus, practical related queries of other students.
- Skill based activities are initiated for the students which clears the theoretical and

practical concepts in detail.

- For better performance in online examinations, web based multiple choice questions (MCQ) bank is provided to students and also practice sessions are conducted.
- Teaching learning is well supported by state of art equipments and infrastructural learning facilities.
- Mentor scheme for students counseling includes one faculty member for maximum 20 students, who conducts regular meeting and discuss academic progress.
- Students are assigned self-learning assignments based on web material, Text books, reference books and NPTEL video lectures.

### **5.Evidence of Success**

- The evidence of improved system is reflected in student academic results
- More number of Students who received Amrut Meritorious scholarship (AMS).
- Student's quality results are improved and they become competitive.
- Students have to maintain their consistency in quality result for the benefit of scholarship.

### **6.Problems Encountered and Resources Required**

- An individual role of the student is very much important in this activity.
- Number of students benefitted is still in less number but it creates attentions towards quality result.
- Students having less percentage are not even think of this scholarship.
- Revaluation results are declared late so some of the students may include late in scholarship.

### **7. Notes:**

For effective involvement of average students stepwise percentage plan is to be implemented.

a. **Title of the Practice 2**

***“Employability Enhancement through campus placements.”***

b. **Goal**

The aim of institute is to,

- Check the availability of various employability options.
- Give focused training to the students to increase the employability, which results into good placement.
- Maintain healthy relations with Corporate for proper Industry- Academia Interaction.

c. **The Context**

Amrutvahini College of Engineering, Sangamner lies in Golden quadrangle of Industrial Cities Mumbai, Pune, Nasik and Aurangabad. Hence this point was taken as very positive feature by the institute and started proper interaction with this companies in ways like Delivery of Expert lectures, Internships, Sponsor Projects, Pre- Placement Talk, and then Final Placements. But initially there was poor response from the industry, as Corporate were not able to give sufficient time for this activities. But with proper approach from the institute in terms of providing the Finished Products, this was welcomed by Corporate and then after actively participated in institute activities.

d. **The Practice**

Considering the multidimensional 360 degree development of the students, Institute is offering various soft skill programs to the students of all years. Department and Professional agencies/ trainers are putting the efforts for upgrading the skill sets of students. Aptitude Training is specially conducted for Final year Students. For the companies like TCS, MU-Sigma, CTS, Infosys company specific training is done, in which the exam pattern and most likely questions are taken by third party agency. Online Aptitude is conducted monthly for final year students. Various pre-placement activities such as Group Discussion, debate, extempore, technical and general aptitude test, Technical quiz, Mock Interviews etc. are allocated in academic calendar and under the department students association conducted accordingly. Special Training and Placement Officer is appointed who is responsible of training and placement activities. Separate

budget is allocated for placement; TCS recognized the remarkable efforts of students in TCS on line aptitude test. Institute is TCS accredited. Global competencies have been achieved by arranging foreign language classes. Through third party GATE coaching classes have been conducted for final year students. Competitive examination cell conducts various activities throughout the year.

### **3. Evidence of Success:**

Number of students trained for various companies are ---- and total students are placed --- in industries/organizations. This count is increasing every year as institute is putting more efforts for training conduction.

### **4. Problems Encountered and Resources Required**

As the Institute is in rural area, the maximum input i.e. the students come from different culture and rural areas. So the main problem is to enhance the communication and other employability skills. The need to enhance the employability skills is taken as the most important priority of Institute which is very important for successful career of students. Various Third party agencies as resource are appointed by institute for delivery of various Personality Development and Soft skills Programs. Initially Resources like additional man power for coordinating the department level activities was necessary for proper coordination for achieving long term goals.

### **5. Notes:**

Regular planning of industry based training activities are important for effective placements. Training activities plays a crucial role in placements. The purpose of training should be employability skills enhancement required by the companies which leads to good placement.





Sr. No.	Activities Planned	Remark
1	Display of Master Time Table and Distribution of Individual Time Table	
2	Start of Semester Meeting by Principal	
3	Students Registration	Start of semester
4	Commencement of Teaching (U.G.)	
5	Course File Checking by IQAC /ISO	Start of semester
6	Tutor Meeting	Once in a month
7	Guest Lecture	Once in a month
8	Commencement of Teaching (MBA)	
9	Mock interview (T.E. & B.E.)	End of semester
10	Students Association Activities (GD, Debate, TQ, etc.)	
11	Commencement of Teaching (M.E.)	
12	Industrial Visit (S.E.)	Once in a semester
13	Seminar Finalization (M.E. / T.E.)	
14	Unit Test-I/ Feedback	
15	Feedback/ Monthly Attendance Record Submission	
16	Display Provisional detention – I	Once in a semester
17	Annual Social Gathering (MEDHA 2K18)	Once in a year
18	Alumni Meet	Once in a year
19	Online Exam (F.E. & S.E.)	
20	In-Sem Exam (T.E. & B.E.)	Once in a semester
21	Alumni Interaction	
22	Mid-term Project assessment	Once in a semester
23	Students Association Activities (GD, Debate, TQ, etc.)	
24	Unit test II/ Feedback	Once in a semester
25	Display Provisional detention - II	Once in a semester
26	International/National Level Event	Once in a year
27	Concluding of Teaching	

28	Concluding Meeting by Principal	
29	Preliminary exam/ Feedback	Once in a semester
30	Detention List	Once in a semester
31	Internal ISO Audit	Once in a semester
32	Mock practical exam & remedial classes	
33	Submission	
34	Concluding of Teaching (M.E.) (P.G.)	
35	Subject Distribution for Next Semester	
36	Concluding of Teaching MBA	
37	Theory examination (U.G.)	
38	University Oral/ Prac. exam (U.G.)	
39	University Oral/ Prac. exam (P.G.)	
40	Theory examination (P.G.)	
<b>* The Principal /HOD meeting every Monday at 2.30 pm</b>		
<b>* The department meeting by HOD meeting every Tuesday at 4:00 pm</b>		
<b>* One Value Addition course for each class (U.G.) per semester</b>		
<b>* IQAC Checks the lectures and practical's of all faculty once per semester</b>		

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