



**NITTE**  
EDUCATION TRUST

**N.M.A.M. INSTITUTE OF TECHNOLOGY**

(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)

Nitte – 574 110, Karnataka, India

(ISO 9001:2015 Certified)

Accredited with 'A' Grade by NAAC

# Annual Quality Assurance Report (AQAR)

For the Academic year 2017-18

Submitted to

**National Assessment and Accreditation Council (NAAC)**

P.O.Box: 1075, Nagarbhavi

Bangalore 560 072.

# Annual Quality Assurance Report (AQAR)

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## Part – A

AQAR for the year (for example 2013-14)

2017-18

### 1. Details of the Institution

1.1 Name of the Institution

N.M.A.M.Institute of Technology

1.2 Address Line 1

NITTE

Address Line 2

NITTE, Karkala Taluk, Udupi District

City/Town

NITTE

State

Karnataka

Pin Code

574110

Institution e-mail address

Principal\_nmamit@nitte.edu.in

Contact Nos.

08258 281039

Name of the Head of the Institution:

Dr.Niranjan Chiplunkar

Tel. No. with STD Code:

08258 281264

Mobile:

9611266900

Name of the IQAC Co-ordinator:

Dr. Subrahmanya Bhat K

Mobile:

9449258142

IQAC e-mail address:

subrahmanyabhat@nitte.edu.in

1.3 NAAC Track ID (For ex. MHCogn 18879)

KACOGN21141

**1.4 NAAC Executive Committee No. & Date:**

EC(SC)/04/A&amp;A/67 10/12/2014

(For Example EC/32/A&A/143 dated 3-5-2004.  
This EC no. is available in the right corner- bottom  
of your institution's Accreditation Certificate)

1.5 Website address: www.nmamit.nitte.edu.in

Web-link of the AQAR:

www.nmamit.nitte.edu.in/AQAR2017-18.doc

**1.6 Accreditation Details**

Sl. No.	Cycle	Grade	CGPA	Year of Accreditation	Validity Period
1	1 <sup>st</sup> Cycle	B	2.70	December 2014	5 years
2	2 <sup>nd</sup> Cycle	A	3.11	December 2017	5 years
3	3 <sup>rd</sup> Cycle				
4	4 <sup>th</sup> Cycle				

1.7 Date of Establishment of IQAC : 01/02/2001 (Revamped in March, 2016)

1.8 Details of the previous year's AQAR submitted to NAAC after the latest Assessment and Accreditation by NAAC ((for example AQAR 2010-11 submitted to NAAC on 12-10-2011)-NA

- i. AQAR\_\_2014-15 submitted to NAAC on 28/02/2017 (DD/MM/YYYY)
- ii. AQAR\_\_2015-16 submitted to NAAC on 05/07/2016 (DD/MM/YYYY)
- iii. AQAR\_\_2016-17 submitted to NAAC on 28/08/2017 (DD/MM/YYYY)

**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

Yes  No 

(eg. AICTE, BCI, MCI, PCI, NCI)

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 (*for the Colleges*)

Visvesvaraya Technological University (VTU),  
Belagavi

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*)

UGC-COP Programmes

## 2. IQAC Composition and Activities

2.1 No. of Teachers	<input type="text" value="10"/>
2.2 No. of Administrative/Technical staff	<input type="text" value="01"/>
2.3 No. of students	<input type="text" value="01"/>
2.4 No. of Management representatives	<input type="text" value="01"/>
2.5 No. of Alumni	<input type="text" value="01*"/>
2.6 No. of any other stakeholder and community representatives	<input type="text" value="01**"/>
2.7 No. of Employers/ Industrialists	<input type="text" value="01**"/>
2.8 No. of other External Experts	<input type="text" value="01* (same as Alumni)"/>
2.9 Total No. of members	<input type="text" value="16"/>
2.10 No. of IQAC meetings held	<input type="text" value="04(during 2017-18)"/>
2.11 No. of meetings with various stakeholders:	No. <input type="text" value="27"/> Faculty <input type="text" value="4"/>
	Non-Teaching Staff <input type="text" value="2"/> Students <input type="text" value="5"/> Alumni <input type="text" value="2"/> Others <input type="text" value="HoDs-10 (during last 1 year)"/>
2.12 Has IQAC received any funding from UGC during the year?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	If yes, mention the amount <input type="text"/>
2.13 Seminars and Conferences (only quality related)	
(i) No. of Seminars/Conferences/ Workshops/Symposia organized by the IQAC	
Total Nos.	<input type="text" value="Nil"/> International <input type="text"/> National <input type="text"/> State <input type="text"/> Institution Level <input type="text"/>
(ii) Themes	

## 2.14 Significant Activities and contributions made by IQAC

### Activities

- Conducting regular meetings to monitor the quality of the teaching learning process
- Department budgetary provisions made for attending conformance /FDP/conduct FDP
- Monitoring the academic activities of all programmes by arranging the meeting of HoD's to oversee the attainment of course outcomes and programme outcomes.
- Monitoring the Accreditation activities(both NBA and NAAC)

### Contributions

- NAAC Reaccreditation with “A” grade and score of 3.11 CGPA. NAAC peer team visited the institution during 11<sup>th</sup> to 13<sup>th</sup> September 2017.
- Compiled data for NIRF( 2018) and got ranking in the band of 101 – 150.
- Adherence to time table, examination time lines and feed-back are monitored and discussed.
- Streamline of MoUs.
- Selecting students for Japan Exchange program and their visit to Japan
- Timely completion of Academic and Administrative Audit.

## 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 \*

Plan of Action	Achievements
1. Apply for Reaccreditation for NAAC and get good grade	1. Reaccredited with GPA of 3.11 till 20.10.2022.
2.Measuring the attainment of course outcomes for all courses of various programmes by the end of the semester	2. HoD's submitted the course outcome attainments for odd semester and even semester
3. Faculty to improve the number and quality of research publication in reputed journal/conferences.	3.Publications improved significantly during 2017-18
4. To obtain NBA Accreditation for the eligible programmes.	4. Obtained Accreditation for three UG programmes(E&E,BTE and Civil) on 27.02.2018 for three years till 30.06.2021.
5.To construct a separate Civil Block of about 40,000 Sq.ft.	5. Construction is in progress.
6.Academic Audit need to be conducted by December 2017.	6.Academic Audit was conducted during 19.12.2017 to 23.12.2017

\* Attach the Academic Calendar of the year as Annexure.

Academic calendar is attached as Annexure-I

2.16 Whether the AQAR was placed in statutory body Yes  No

Management  Syndicate  Any other body

Provide the details of the action taken

Approved by IQAC in the meeting held on 24.11.2018 and Governing Council Meeting on 08.12.2018

## 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
PhD	10		10	
PG	13		13	
UG	7		7	
PG Diploma				
Advanced Diploma				
Diploma				
Certificate				
Others				
<b>Total</b>	30	nil	30	
Interdisciplinary				
Innovative				

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

(ii) Pattern of programmes:

Pattern	Number of programmes
Semester	all
Trimester	
Annual	



1.3 Feedback from stakeholders\* Alumni  Parents  Employers  Students   
(On all aspects)

Mode of feedback : Online  Manual

Co-operating schools (for PEI)

*\*Please provide an analysis of the feedback in the Annexure  
Analysis of the feedback is provided in the Annexure-II*

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

**Yes,**  
The syllabus of all programmes has been revised by keeping in mind the industry requirements by involving the experts from industry in BOS and approved in Academic Council. Active learning and Self study components are introduced. Details are in the **Annexure-III**

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

- **NMAMIT-Fronius Centre For Welding Technology:**  
The NMAMIT-Fronius Centre for Welding Technology is fully operational. Welding course has been implemented since June 2018 and students are trained on Virtual Welding simulator. Total of 270 students (1<sup>st</sup> & 3<sup>rd</sup> semester UG) given hands-on demo in welding using FRONIUS virtual welding machine. Certification course on welding will begin from January 2019.
- **Automotive Learning Factory:**  
The Laboratory has received a BMW Engine-Transmission system on Free basis through BMW SkillNext initiative. The Automotive Learning Factory is used for newly admitted (2018 batch admission) 1<sup>st</sup> year students to train them as a part of 1<sup>st</sup> semester Physics Cycle, Laboratory Course on “Mechanical Engineering Workshop Practices” for the sections H to P.
- **Active Learning in Robotics Laboratory:**  
The Active learning & Industrial Robotics Laboratory is fully operational from August 2018. Active learning component in Industrial Robotics (ME703) has been introduced and practised in 7th semester since 2017-18.
  - NVDCA server for Deep Learning related projects procured at a cost of Rs. 12 lakh.

## Criterion – II

### 2. Teaching, Learning and Evaluation

2.1 Total No. of permanent faculty	Total	Asst. Professors	Associate Professors	Professors	Others
	<b>321</b>	<b>228</b>	<b>39</b>	<b>54</b>	<b>-</b>

2.2 No. of permanent faculty with Ph.D.

<b>89</b>
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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
<b>228</b>	<b>-</b>	<b>39</b>	<b>-</b>	<b>54</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>321</b>	<b>-</b>

2.4 No. of Guest and Visiting faculty and Temporary faculty

<b>10</b>	<b>5</b>	<b>nil</b>
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2.5 Faculty participation in conferences and symposia:

No. of Faculty	International level	National level	State level
Attended	<b>51</b>	<b>28</b>	<b>141</b>
Presented papers	<b>49</b>	<b>8</b>	<b>-</b>
Resource Persons	<b>-</b>	<b>1</b>	<b>4</b>

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

Use of ICT –Teaching Aids, Introduction of self study component, Audit courses and non credit mini projects. Use of NPTEL videos.

Every lecture is followed by interactive session. Through Simulations, management games, case studies, presentation, teaching learning is made more effective. Students are also asked to browse the internet to get the updates of the subjects taught in the class. Internal assessment is based on the assignments, presentations, mini projects, viva-voce in addition to internal assessment examination marks. Students are advised to participate in intra and inter collegiate competitions, present papers in seminars, carryout dissertation and project work. Weekly seminars are held to build confidence and to develop reading habits among the students.

MBA Dept: Every lecture is followed by interactive session. Through Simulations, management games, case studies, presentation, teaching learning is made more effective. Students are also asked to browse the internet to get the updates of the subjects taught in the class. Internal assessment is based on the assignments, presentations, mini projects, viva-voce in addition to internal assessment examination marks. Students are advised to participate in intra and inter collegiate competitions, present papers in seminars, carryout dissertation and project work. Weekly seminars are held to build confidence and to develop reading habits among the students. They are encouraged to organise group studies and concentrate their effort on self-study in addition to class room learning

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

**200 days**

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

**All in place**

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

**130**

**10**

**20**

2.10 Average percentage of attendance of students

**91%**

2.11 Course/Programme wise distribution of pass percentage :

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
CLASS : I SEM (Credit System) EXAMS : DEC.2017-JAN.2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	214	163	20	3	1	27	187	87.38
ELC	181	127	21	4	1	28	153	84.53
ELE	67	40	8	6	3	10	57	85.07
CIV	123	43	18	13	2	47	76	61.79
BTE	69	26	11	2	1	29	40	57.97
MEC	212	104	37	11	5	55	157	74.06
IFS	118	74	14	6	1	23	95	80.51
TOTAL	984	577	129	45	14	219	765	77.74
RESULT IN %		58.64	13.11	4.57	1.42	22.26		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
CLASS : III SEM (Credit System) EXAMS : DEC. 2017-JAN.2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	256	172	29	5	2	48	208	81.25
ELC	219	99	16	5	4	95	124	56.62
ELE	74	31	12	0	1	30	44	59.46
CIV	149	62	32	10	3	42	107	71.81
BTE	50	29	11	3	0	7	43	86.00
MEC	250	108	46	7	1	88	162	64.80
IFS	126	89	18	3	0	16	110	87.30
TOTAL	1124	590	164	33	11	326	798	71.00
RESULT IN %		52.49	14.59	2.94	0.98	29.00		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : V SEM (Credit System) EXAMS : DEC. 2017-JAN.2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	222	190	14	0	0	18	204	91.89
ELC	212	87	53	9	2	61	151	71.23
ELE	70	36	15	4	0	15	55	78.57
CIV	151	92	28	10	1	20	131	86.75
BTE	47	35	2	1	0	9	38	80.85
MEC	224	130	21	7	1	65	159	70.98
IFS	79	62	8	2	0	7	72	91.14
<b>TOTAL</b>	<b>1005</b>	<b>632</b>	<b>141</b>	<b>33</b>	<b>4</b>	<b>195</b>	<b>810</b>	<b>80.60</b>
<b>RESULT IN %</b>		<b>62.89</b>	<b>14.03</b>	<b>3.28</b>	<b>0.40</b>	<b>19.40</b>		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : VII SEM (Credit System) EXAMS : DEC.2017-JAN.2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	228	197	23	0	0	8	220	96.49
ELC	208	137	42	6	0	23	185	88.94
ELE	69	47	17	0	1	4	65	94.20
CIV	138	110	14	2	0	12	126	91.30
BTE	39	23	12	0	0	4	35	89.74
MEC	230	123	57	10	1	39	191	83.04
IFS	80	62	7	3	0	8	72	90.00
<b>TOTAL</b>	<b>992</b>	<b>699</b>	<b>172</b>	<b>21</b>	<b>2</b>	<b>98</b>	<b>894</b>	<b>90.12</b>
<b>RESULT IN %</b>		<b>70.46</b>	<b>17.34</b>	<b>2.12</b>	<b>0.20</b>	<b>9.88</b>		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - PG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : I SEM (Credit System) EXAMS : MAR.2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
MCA	47	19	7	4	1	16	31	65.96
MBA	180	107	59	1	0	13	167	92.78
LEC	9	5	2	0	0	2	7	77.78
SCS	22	19	2	0	0	1	21	95.45
MES	2	1	1	0	0	0	2	100.00
CCT	12	11	1	0	0	0	12	100.00
LVS	11	11	0	0	0	0	11	100.00
MMD	4	4	0	0	0	0	4	100.00
SCN	5	5	0	0	0	0	5	100.00
EPE	1	1	0	0	0	0	1	100.00
IBT	1	1	0	0	0	0	1	100.00
SSE	2	2	0	0	0	0	2	100.00
CST	20	15	1	0	0	4	16	80.00
<b>TOTAL</b>	<b>316</b>	<b>201</b>	<b>73</b>	<b>5</b>	<b>1</b>	<b>36</b>	<b>280</b>	<b>88.61</b>
<b>RESULT IN %</b>		<b>63.61</b>	<b>23.10</b>	<b>1.58</b>	<b>0.32</b>	<b>11.39</b>		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - PG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : III SEM (Credit System) EXAMS : MAR.2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
MCA	116	73	19	0	0	24	92	79.31
MBA	158	129	10	0	0	19	139	87.97
LEC	8	7	0	0	0	1	7	87.50
SCS	18	18	0	0	0	0	18	100.00
MES	6	6	0	0	0	0	6	100.00
CCT	17	17	0	0	0	0	17	100.00
LVS	6	6	0	0	0	0	6	100.00
MMD	16	16	0	0	0	0	16	100.00
SCN	1	1	0	0	0	0	1	100.00
EPE	3	3	0	0	0	0	3	100.00
CST	16	16	0	0	0	0	16	100.00
<b>TOTAL</b>	<b>365</b>	<b>292</b>	<b>29</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>321</b>	<b>87.95</b>
<b>RESULT IN %</b>		<b>80.00</b>	<b>7.95</b>	<b>0.00</b>	<b>0.00</b>	<b>12.05</b>		



N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - PG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : V SEM (Credit System) EXAMS : MAR.2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
MCA	114	104	6	0	0	4	110	96.49
TOTAL	114	104	6	0	0	4	110	96.49
RESULT IN %		91.23	5.26	0.00	0.00	3.51		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : II SEM (Credit System) EXAMS : MAY-JUNE 2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	214	167	21	3	0	23	191	89.25
ELC	181	134	20	4	1	22	159	87.85
ELE	67	39	10	5	0	13	54	80.60
CIV	123	52	19	9	1	42	81	65.85
BTE	68	29	8	3	0	28	40	58.82
MEC	212	107	34	11	3	57	155	73.11
IFS	118	75	13	3	0	27	91	77.12
TOTAL	983	603	125	38	5	212	771	78.43
RESULT IN %		61.34	12.72	3.87	0.51	21.57		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : IV SEM (Credit System) EXAMS : MAY-JUNE 2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	256	163	29	6	0	58	198	77.34
ELC	219	101	23	8	2	85	134	61.19
ELE	73	24	16	8	0	25	48	65.75
CIV	148	71	21	2	0	54	94	63.51
BTE	50	34	9	1	1	5	45	90.00
MEC	249	119	25	6	2	97	152	61.04
IFS	126	92	15	2	2	15	111	88.10
TOTAL	1121	604	138	33	7	339	782	69.76
RESULT IN %		53.88	12.31	2.94	0.62	30.24		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : VI SEM (Credit System) EXAMS : MAY-JUNE 2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	222	189	17	3	0	13	209	94.14
ELC	212	148	29	7	1	27	185	87.26
ELE	70	50	9	2	0	9	61	87.14
CIV	151	100	22	6	1	22	129	85.43
BTE	47	36	6	1	0	4	43	91.49
MEC	224	114	31	16	4	59	165	73.66
IFS	79	65	9	1	0	4	75	94.94
TOTAL	1005	702	123	36	6	138	867	86.27
RESULT IN %		69.85	12.24	3.58	0.60	13.73		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - UG-AFTER MAKEUP EXAM (SGPA WISE)  
 CLASS : VIII SEM (Credit System) EXAMS : MAY-JUNE 2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
COM	228	222	3	0	0	3	225	98.68
ELC	208	192	6	0	0	10	198	95.19
ELE	69	63	4	1	0	1	68	98.55
CIV	138	128	7	0	0	3	135	97.83
BTE	39	31	8	0	0	0	39	100.00
MEC	230	203	2	0	0	25	205	89.13
IFS	80	76	1	0	0	3	77	96.25
TOTAL	992	915	31	1	0	45	947	95.46
RESULT IN %		92.24	3.13	0.10	0.00	4.54		



N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - PG - AFTER MAKEUP EXAM  
 CLASS : II SEM (Credit System) EXAMS :MAY-JUNE 2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
MCA	47	24	9	4	0	10	37	78.72
MBA	180	94	76	2	0	8	172	95.56
LEC	9	5	1	0	0	3	6	66.67
SCS	22	21	0	0	0	1	21	95.45
MES	2	1	1	0	0	0	2	100.00
CCT	12	11	1	0	0	0	12	100.00
LVS	11	10	1	0	0	0	11	100.00
MMD	4	4	0	0	0	0	4	100.00
SCN	5	5	0	0	0	0	5	100.00
EPE	1	1	0	0	0	0	1	100.00
IBT	1	1	0	0	0	0	1	100.00
SSE	2	2	0	0	0	0	2	100.00
CST	21	19	0	0	0	2	19	90.48
TOTAL	317	198	89	6	0	24	293	92.43
RESULT IN %		62.46	28.08	1.89	0.00	7.57		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
 BRANCHWISE RESULT ANALYSIS - PG - AFTER MAKEUP EXAM  
 CLASS : IV SEM (Credit System) EXAMS :MAY-JUNE 2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
MCA	116	86	19	3	0	8	108	93.10
MBA	158	113	30	1	0	14	144	91.14
LEC	8	7	0	0	0	1	7	87.50
SCS	18	18	0	0	0	0	18	100.00
MES	6	6	0	0	0	0	6	100.00
CCT	17	17	0	0	0	0	17	100.00
LVS	6	5	0	0	0	1	5	83.33
MMD	16	16	0	0	0	0	16	100.00
SCN	1	1	0	0	0	0	1	100.00
EPE	3	3	0	0	0	0	3	100.00
CST	16	16	0	0	0	0	16	100.00
TOTAL	365	288	49	4	0	24	341	93.42
RESULT IN %		78.90	13.42	1.10	0.00	6.58		

N M A M INSTITUTE OF TECHNOLOGY, NITTE  
BRANCHWISE RESULT ANALYSIS - PG - PROVISIONAL  
CLASS : VI SEM (Credit System) EXAMS :MAY-JUNE 2018

BRANCH	Appeared	>=7.75	>=6.75<7.75	>=5.75<6.75	>=5<5.75	<5.0/Fail	PASS	%
MCA	112	104	0	0	0	8	104	92.86
TOTAL	112	104	0	0	0	8	104	92.86
RESULT IN %		92.86	0.00	0.00	0.00	7.14		

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

- Conducting regular meeting with HODs to discuss the effectiveness of teaching learning process, analysis of attainment of course outcomes.
- IQAC monitors the feedback analysis of students.
- Performance appraisal of faculty members.

2.13 Initiatives undertaken towards faculty development

<i>Faculty / Staff Development Programmes</i>	<i>Number of faculty benefitted</i>
Refresher courses	38
UGC – Faculty Improvement Programme	10
HRD programmes	05
Orientation programmes	02
Faculty exchange programme	03
Staff training conducted by the university	02
Staff training conducted by other institutions	25
Summer / Winter schools, Workshops, etc.	108
Others	25

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	<b>406</b>	-		-
Technical Staff	<b>107</b>	-		-

## Criterion – III

### 3. Research, Consultancy and Extension

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

1. Continuing with the full time Ph. D programme
2. Making publication of research paper mandatory for all faculty members
3. Continuing with performance incentive scheme
4. Continuing with research incentive scheme

#### 3.2 Details regarding major projects

	Completed	Ongoing	Sanctioned	Submitted
Number	0	14	14	47
Outlay in Rs. Lakhs	0	251.55941	251.55941	725.82078

#### 3.3 Details regarding minor projects

	Completed	Ongoing	Sanctioned	Submitted
Number	0	8	8	-
Outlay in Rs. Lakhs	0	5.48	5.48	-

#### 3.4 Details on research publications

	International	National	Others
Peer Review Journals	130	2	0
Non-Peer Review Journals	-	-	-
e-Journals	-	-	-
Conference proceedings	54	2	0

#### 3.5 Details on Impact factor of publications:

Range  Average  h-index  Nos. in SCOPUS

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

Nature of the Project	Duration Year	Name of the funding Agency	Total grant sanctioned	Received
	18 Months	BIRAC, CRSDBT	48,97000	-
	1 Year	University of Agriculture and Horticultural Research station, Brahmavara	10,00,000	10,00,000
	2 Years	VGST	20,00,000	10,00,000
	1 Year	VGST	5,00,000	5,00,000
	3 Years	AICTE, New Delhi	4,35,294	4,35,294

	3 Years	AICTE, New Delhi	10,17,647	10,17,647
	2 years	Management & KCTU, Bangalore	77,28,000	-
Minor Projects				
Interdisciplinary Projects				
Industry sponsored				
Projects sponsored by the University/ College				
Students research projects <i>(other than compulsory by the University)</i>				
Any other(Specify)				
<b>Total</b>			<b>1,75,77,941</b>	<b>30,56,147</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	3	2			
Sponsoring agencies		DRDO, Bangalore			

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

3.13 No. of collaborations International  National  Any other

3.14 No. of linkages created during this year

3.15 Total budget for research for current year in lakhs:

From funding agency  From Management of University/College

Total

3.16 No. of patents received this year

Type of Patent		Number
National	Applied	3
	Granted	0
International	Applied	-
	Granted	-
Commercialised	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
7	3	4				

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

3.19 No. of Ph.D. awarded by faculty from the Institution

3.20 No. of Research scholars receiving the Fellowships (Newly enrolled + existing ones)

JRF  SRF  Project Fellows  Any other

3.21 No. of students Participated in NSS events:

University level  State level

National level  International level

3.22 No. of students participated in NCC events:

University level  State level

National level  International level

3.23 No. of Awards won in NSS:

University level	<input type="text" value="-"/>	State level	<input type="text" value="-"/>
National level	<input type="text" value="-"/>	International level	<input type="text" value="-"/>

3.24 No. of Awards won in NCC:

University level	<input type="text" value="-"/>	State level	<input type="text" value="-"/>
National level	<input type="text" value="-"/>	International level	<input type="text" value="-"/>

3.25 No. of Extension activities organized

University forum	<input type="text" value="-"/>	College forum	<input type="text" value="-"/>		
NCC	<input type="text" value="-"/>	NSS	<input type="text" value="6"/>	Any other	<input type="text" value="-"/>

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

**Senior Citizens day:** On **24-8-2018** at Dept. Of Business Administration, Samvedana club had organized Senior Citizenship Day where we felicitated the senior employee Mr. Sanjeeva, the gardener of the institution. Dr. sudhir Raj K of JKSHIM was the guest of the day and he addressed students and faculty members about the importance of elders in the family in shaping an individual's life. He also spoke about his life incidents which helped him stay focused and determined throughout his life. He told us how Mr. Sanjeeva loved and cared for the institution and how determined he was towards his work. Mr. Sanjeeva was felicitated for his service over fourteen years in the institution. Director Dr. K Sankaran gave the Presidential remarks highlighting the importance of elders and their strategic road map towards the success of the family. Samvedana had organised an Essay competition and the Staff Co-ordinator of the club Dr.C K Manjunath announced cash prizes were distributed to the winners by Dr. K Sankaran, Director, JKSHIM Nitte. Monisha Rajesh II year MBA got 1st place and Vaishnavi Pai of II year MBA for 2nd place. The program was compared by Ms.Monisha Rajesh, welcomed by Mr. Nithin B V President of Samvedana and Vote of thanks proposed by Mr.Murali, Secretary of Samvedana club.



**Teacher's day celebration at Dept. Of Business Administration on 05<sup>th</sup> Sept. 2018** campus organised by Samvedhana Group.: The guest of the day, Dr. Sudhir Raj K addressed all the students sharing his valuable experience. He remembered his student life journey and the influence made by all his teachers in achieving his goal. He shared few important milestones that he achieved as a teacher and his bonding with

the students. Prof. Sandhya Rao shared her Professional experience and wished all the students on this occasion. All the faculty members were felicitated on this occasion.



**Celebration of Friendship day** – Dept. Of Business Administration: “Friendship Starts With million Little Things” says Ms. Nayana, R J, RED FM, 93.5 We are living in a fast growing world. People have very less time to spend with each other. Interaction throughout the world has become easier but talking to neighbours is really a difficult task, as such, people have started perceiving social media friends as real friends though they have never met each other – said Radio Jackie Ms. Nayana. She was addressing the students and the faculty members at the Friendship Day Celebration at Justice K S Hegde Institute of Management, Nitte on 3rd August 2018, at the institute auditorium. She addressed the audience about importance of making friends and the sanctity of it. She gave plenty of her live examples and interacted with students by clarifying their queries. She also spoke about her journey of Radio Jockeying and advised students to grab opportunity as and when it knocks their door. Dr. K Sankaran, Director, JKSHIM concluded the program by handing over memento to Ms. R J Nayana. As a mark of friendship, students tied friendship band to R J Nayana and the Director. Under the guidance of Samvedana Coordinator Dr. C.K.Manjunath the Program was organized. Students of II year MBA Ms.Swapna, Ms Bhagyashree compared the program, Ms. Aishwarya Acharya welcomed the gathering and Ms Esha Sukumar proposed the vote of thanks.





## 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, Acres	119.01	--	Nitte Education Trust	119.01
Class rooms, Sq.m/(Nos.)	8850.05/(94)	--	-do-	8850.05/ (94)
Laboratories, Sq.m/(Nos.)	7670.93/(73)	--	-do-	7670.93/(73)
Seminar Halls, Sq.m/(Nos.)	1828.86/(14)	--	-do-	1828.86/(14)
No. of important equipments purchased ( $\geq$ 1-0 lakh) during the current year.	299	51	-do-	350
Value of the equipment purchased during the year (Rs. in Lakhs)	1247.41	68.75	-do-	1316.16
Others (Rs. in Lakhs)	628.5	120.75	-do-	749.25

#### 4.2 Computerization of administration and library

- 1. Administration:** i) Employee salary database through Human Resources Management System (HRMS) ii) Employee leave details through Smart Campus.
- 2. Library:** i) The library user services are automated ii) Books are Bar Coded. iii) Circulation of books is aided by the computer systems iv) The library information is available for students in smart campus v) The stock verification is through system scanning of bar code vi) availability of online digital library and repository (offline) of learning resources vii) Availability of all syllabus, notes, question papers etc on the college Intranet (Moodle). Viii) Full-fledged audio-visual section for self-study.

#### 4.3 Library services:

	Existing		Newly added		Total	
	No	Value (Rs. Lakhs)	No	Value (Rs. Lakhs)	No	Value (Rs. Lakhs)
Text Books	78765	245.39	4270	29.00	83035	245.68
Reference Books	5728	28.64	550	2.75	6278	31.39
e-Books	13139	11.00	15832	15.00	28971	26.00
Journals	242	6.79	3	0.05	245	6.82
e-Journals	6197	11.00	8079	15.00	14276	41.00
Digital Database	400000	25.37	66749	30.00	1067496	55.37



			6			
CD & Video	2601	52.02	85	0.20	2686	52.22
Others (Specify)	Union Catalogue of Books: 26593612 Union List of Journals: 38184 Union Catalogue of Journals: 20235					

#### 4.4 Technology up gradation (overall)

	Total Computers	Computer Labs	Internet	Browsing Centres	Computer Centres	Office	Departments	Others
Existing	1400	32	100 mbps	1	7	7	7	-
Added	200	1	210	0	0	0	0	-
Total	1600	33	310 mbps	1	7	7	7	-

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

NIL
-----

#### 4.6 Amount spent on maintenance in lakhs :

i) ICT	3.10
ii) Campus Infrastructure and facilities	177.50
iii) Equipments	9.6
iv) Others	101.38
<b>Total :</b>	<b>291.58</b>

## Criterion – V

### 5. Student Support and Progression

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

College website and Notice board – The college website is regularly updated to provide information about the college facilities, activities and programs, faculty and other facilities available. Student related information are regularly put in the website and notice board, including examination results. Notice boards are regularly made use for providing information on a day to day basis. SMS facility is made use of providing urgent and important information and individual exam result.

- College calendar and magazine – This provides information about the courses offered in different programs, electives, number of credits, rules and regulations etc. College magazine provides yearly report of all activities carried out in the college.
- Grievance Redressal Cell – This cell addresses the grievances of students and parents on a regular basis.
- Placement & Training Centre – This centre provides all support to the students for placement and internships. They are regularly trained on various aspects like written test, group discussion and interviews.
- Library & Information centre – This provides all information about books, e-resources, journals and magazines for academic and other related activities.
- National Service Scheme (NSS) – The college has an active NSS cell, which organizes several activities which are useful to the students, college and the nearby villages. This includes Blood donation camps, planting samplings, awareness about environmental degradation and pollution etc.
- Student associations – Student associations of various departments conduct several programs for the benefit of the students. This is meant to provide a platform to the students to exhibit their talents and skills.
- Hobby clubs – There are a number of hobby clubs, which take up several activities for the benefit of the student community and nearby communities. This includes photography, dance and music, drama, conservation of the environment, utilization of waste food etc.

## 5.2 Efforts made by the institution for tracking the progression

The progression of a student both academically and otherwise is done regularly through various modes. This helps in keeping track of the growth and development of a student and providing him / her necessary support for the overall development of personality. Some of the systems that are available include are as follows –

- Class Advisors – At the department level, there are class advisors for each class, who help, guide and monitor the students with regard to academic performance which includes attendance and marks.
- Class Committee – This works at the department level for redressing departmental level grievances, which include academic and others.
- Student monitoring cell – There is an exclusive cell for monitoring the students at the first year level, headed by a First year Coordinator.
- Result Analysis – This is done by the faculty at the individual and at the department level and students are counselled to improve their performance.
- Student feedback – This is collected regularly to improve the teaching-learning process.
- Remedial Classes- Conducted for the needy students.
- Parent meetings – A parent meeting is held once every semester, particularly for poor performers at the first year level. During this meeting parents interact with the Principal, Deans and teachers to get their feedback.
- IQAC – IQAC monitors all issues related to academics, administration, infrastructure and other student related matters. Student representatives are invited to the IQAC meetings. IQAC tries to improve the quality level in the organization.

5.3 (a) Total Number of students

UG	PG	Ph. D.	Others
4110	800	85	-

(b) No. of students outside the state

429

(c) No. of international students

-

Men	No	%	Women	No	%
	2707	66		1403	34

Last Year						This Year					
General	SC	ST	OBC	Physically Challenged	Total	General	SC	ST	OBC	Physically Challenged	Total
2189	291	80	2322	06	4888	2018	258	67	1762	05	4100

Demand ratio 984/1080                      Dropout % 0.02

#### 5.4 Details of student support mechanism for coaching for competitive examinations (If any)

Coaching classes for students to attend UPSC and defence service examinations are arranged from professional trainers.

Department associations arrange Gate coaching classes for the interested students.

Humanities department organizes coaching classes by external recourse persons

No. of students beneficiaries

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

NET	<input style="width: 40px; height: 20px;" type="text"/>	SET/SLET	<input style="width: 40px; height: 20px;" type="text"/>	GATE	<input style="width: 40px; text-align: center;" type="text" value="4"/>	CAT	<input style="width: 40px; height: 20px;" type="text"/>
IAS/IPS etc	<input style="width: 40px; height: 20px;" type="text"/>	State PSC	<input style="width: 40px; text-align: center;" type="text" value="01"/>	UPSC	<input style="width: 40px; height: 20px;" type="text"/>	Others	<input style="width: 40px; text-align: center;" type="text" value="33"/>

#### 5.6 Details of student counselling and career guidance

- Abhyuday celebrates volunteerism through Abhyuday Diwas
- Focussing on Primary Prevention, conducts Fresher' Orientation with trained senior students' active involvement to help freshers feel comfortable, belong, wipe out ragging and know what engineering is. (900+100)
- 'Mission Prerana for Change' every Wednesday afternoon to march towards our vision of an NMAMITian – a wholesome, world class, caring citizen. 900 in 2 batches over 12 sessions of 110 minutes weekly.
- Help lateral entry students through LOP to boost morale, belong, know where to seek help and work on deficiencies. (160)
- M.Tech. and MCA orientation to guide them towards employability (100+120)
- Preparation for Placements through interaction, Crack the Campus by campus' placed students in Aptitude, Technical, Group Discussions and HR interview preparation.
- **Remedial Programmes for non placed and Non IT students with the assistance of CS & IS faculty, assistance in English for non placed students with collaboration of Humanities department**
- Professional Counselling Services to deal with issues personal in nature, mental illnesses, adjustments, growth oriented.
- Guidance to recreational student clubs.
- Use of Peers to help the academically needy.
- **Creative Minds Foundation Scholarship for deserving students**
- Employing community service to deal with serious misdemeanours.
- Prevention of Sexual harassment at all levels.

No. of students benefitted

5.7 Details of campus placement

<i>On campus</i>			<i>Off Campus</i>
Number of Organizations Visited	Number of Students Participated	Number of Students Placed	Number of Students Placed
<b>70</b>	<b>962</b>	<b>657</b>	<b>03</b>

5.8 Details of gender sensitization programmes

The Institution has an “Prevention of Sexual Harassment Committee(PROSH)”. The Institution celebrated International Women’s Day on 27.03.2018.

5.9 Students Activities

5.9.1 No. of students participated in Sports, Games and other events

State/ University level  National level  International level

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
Financial support from institution	570	4,69,59,431
Financial support from government	2966	8,05,80,590
Financial support from other sources	478	2,00,00,000
Number of students who received International/ National recognitions		

### 5.11 Student organised / 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:

No major grievances are received from students in this academic year.

## Criterion – VI

### 6. Governance, Leadership and Management

#### 6.1 State the Vision and Mission of the institution

**Vision:** Pursuing Excellence, Empowering people, Partnering in Community Development.

**Mission:** To develop NMAM Institute of Technology, Nitte, as Centre of Excellence by imparting Quality Education to generate Competent, Skilled and Human Manpower to face emerging Scientific, Technological, Managerial and Social Challenges with Credibility, Integrity, Ethics and Social Concern.

#### 6.2 Does the Institution has a management Information System

YES

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

##### 6.3.1 Curriculum Development

Every year, the Curriculum is upgraded and modified looking at the needs of Industry and latest technological developments. For this, the BoS members of all UG and PG programs in engineering and management drawn from Industry, Alumni and leading Institutes, discuss and formulate a curriculum, which is in line with the current trends. Course outcomes, program outcomes and program educational objectives are clearly spelt and their attainments are evaluated. From the academic year 2017-18, for the students of 2<sup>nd</sup> year, flexible choice based credit system has been implemented wherever possible. Further from the academic year 2018-19, all UG students can opt for a 'Global Elective', which is non-engineering based and include courses on Introduction to Yoga, Physical Education Principles, Overview of Indian Culture and Arts and Introduction to French Language. Students who take this elective are exempted from taking one elective in their engineering discipline. To encourage students to undergo self-learning, they are motivated to take up MOOCs courses in any semester from 3<sup>rd</sup> semester onwards and are required to submit their course completion certificate, to get a grade card from the college. The first year curriculum from the academic year 2018-19 has been formed based on AICTE Model Curriculum and VTU, Belagavi guidelines, reducing the total number of credits for both UG and PG programs.

### 6.3.2 Teaching and Learning

Teaching and learning is student oriented. Efforts are being made to use different pedagogies like project based learning, active learning etc and some departments have started pursuing it rigorously with perceptible improvement in student learning and better results. Faculty and students are encouraged to use E-resources like E-learning tools and MOOCs in the teaching-learning process. Faculty are encouraged to produce video lectures, which are made available to the students to support 'self directed learning'. Students and faculty make use of the Youtube videos and resources available in the digital library of the college. Efforts are being made to give credits for courses registered and completed through MOOCs to the students. Faculty are encouraged to complete NPTEL MOOC courses, as NMAMIT is a center for the same and there has been a significant increase in faculty pursuing these courses.

### 6.3.3 Examination and Evaluation

Questions in the question papers are formed strictly based on Bloom's taxonomy. From the academic year 2018-19, based on the AICTE Examination Reforms Manual, it has been decided to include PO and CO in the question papers of MSE and SEE. Proper rubrics are developed and used for seminar and project evaluation. Equal weightage is given both for Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE). Evaluation involves both internal and external components. Keeping in the mind the motto for giving academic autonomy to engineering colleges, from the academic year 2018-19, it has been decided to have only internal question paper setting with rigorous quality checks, with external setting for only a few courses and programs. Evaluation of few of the courses is regularly subjected to moderation, to improve the standards of evaluation. Coding of the answer scripts are being implemented to bring in secrecy. The marks scored by the students in SEE in various courses are being provided to individual departments for calculation of CO and PO attainment.

### 6.3.4 Research and Development

Separate Centre for Research and innovation has been established. The Dean (R&D) manages the regular R & D activities of the institution. Research incentives are provided to the faculty for publications, application and obtaining patents, obtaining external funding, review of technical papers of reputed journals and conferences. Full time research scholars are now being admitted. Interdisciplinary research is being encouraged. A number of funded projects from leading govt. agencies like AICTE, New Delhi, DST, New Delhi, VGST, Bangalore, DBT, New Delhi etc. are being implemented successfully. Efforts are being made to encourage faculty to publish their research papers in Scopous indexed journals and conferences. There has been a considerable in the funded projects and publications by the faculty.

### 6.3.5 Library, ICT and physical infrastructure / instrumentation

Membership to all major online research journals (like IEEE, Taylor & Francis etc.) pertaining to all the programs at an annual subscription of about **Rs.23 lakhs** has been taken. Institute continues to be a member of DELNET. More than **60000** volumes of engineering books have been stacked in the library. A digital library has been established with all standard E-resources including NPTEL videos, DVDs of lectures from leading repositories of the world as well as lecture videos by internal faculty are available. A 310Mbps internet leased line and campus wide Wi-Fi has made accessibility to all these e-resources by students very easy, even in hostels.

### 6.3.6 Human Resource Management

The Institute has a well-defined HR and promotion policy. All the teaching faculty positions have been filled. More than **85** faculty members are with Ph.D. qualifications and about **100** faculty members are pursuing their Ph.D. Faculty members with PG qualification are encouraged to do their Ph.D. This is done either on part-time basis or on full time basis through deputation to well known institutes like IITs and NITs. Regular training for non-teaching staff on topics like communication, interpersonal skills and basic skills of computer is arranged centrally by inviting resource persons from the Nitte (Deemed-to-be) University Staff Development College. Faculty and staff of the institution are given free medical facilities. They are also provided with state of the art sports facilities like gymnasium, sports ground etc. for playing sports during the evenings for relaxation. FDPs and FIPs are regularly arranged for the benefit of the faculty in emerging areas of engineering and technology by inviting external experts and internal resource persons.

### 6.3.7 Faculty and Staff recruitment

Once in a year, advertisements are given in the leading News papers to fill up vacancies in faculty and staff positions if any. The recruitment of faculty and staff is done based on a well established procedure. Faculty with Ph.D and research experience are being preferred during recruitment. Stress is also being placed on the research credentials of the person, when he or she is recruited, in terms of the number of publications made, research degree, postdoc experience etc.

### 6.3.8 Industry Interaction / Collaboration

The Institute has very active MoUs with Industries like Infosys, Atrimed Pharmaceuticals Pvt. Ltd, Pinaka Informatics Pvt. Ltd., Fiabilite Network Solutions Pvt. Ltd. etc., for faculty and student training. Student internships are being provided for selected students from among the campus placed students. Intel and Nvidia have provided their processor kits, free of cost for the student training. Lamina Foundry and Lamina Suspensions Pvt. Ltd., which are two process oriented companies, run by our own Management help the concerned students to undertake projects and practical training at their facility. Students from MCA department are being given exposure to real time projects from Industries by having the presence of some leading IT companies in the campus. There is a full time Director (Industry-Institute-Interaction) with considerable experience, helping all departments in forming MOUs and building rapport and understanding with leading industries. More number of students in the 8<sup>th</sup> semester are going for internship ranging from four to six months for their final project work and subsequently getting placed.

### 6.3.9 Admission of Students

Every year since its inception 32 years back, the Institute has been getting almost all its approved seats filled. In the recent years, we have seen an improvement in the quality of student intake. Over the years, the number of UG and PG programs and the sanctioned intake in these various programs has been increasing. Some initiatives taken to encourage students to seek admission in the institution include seats under sports quota and scholarships for meritorious students. Students with more than 85% in the qualifying examinations, selected under management quota are given 25% fee concession as scholarships.



6.4 Welfare schemes for

Teaching	YES
Non teaching	YES
Students	YES

6.5 Total corpus fund generated

6.6 Whether annual financial audit has been done Yes  No

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

Audit Type	External		Internal	
	Yes/No	Agency	Yes/No	Authority
Academic	YES	NVT QC and External experts	YES	Dean (Academic)
Administrative	YES	NVT QC and External experts	YES	Chairman, GC

6.8 Does the University/ Autonomous College declares results within 30 days?

For UG Programmes Yes  No

For PG Programmes Yes  No

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

Evaluation of answer scripts include internal as well as external component. Coding of answer scripts is being implemented to maintain secrecy. Bloom's taxonomy levels are included in the QPs to indicate the level of learning, along with course outcome and program outcomes. This helps to understand the level of attainment of the same during the examinations. A well drafted examination procedure and manual is in place, which includes pre-examination, examination and post examination, covering all the aspects. Students and faculty are well informed about all the important events through the academic calendar and academic schedule. Email and SMS is used very effectively to inform the faculty and students about all matters related to examination. Efforts are thus being made to reduce the use and consumption of paper and adopt environmental friendly measures. The COE conducts orientation program for the newly joined faculty regarding examination process / scheme of evaluation. All PG project reports are subjected to compulsory plagiarism check using TURNITIN software and a similarity index of < 25% is permitted to improve the teaching – learning process. To ensure continuous learning by students, the focus is on CIE and accordingly 50% weightage is given to it in the evaluation. CIE includes MSE and other components like tests, quizzes, assignments, mini project etc.

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

The Institute has a registered Alumni Association called “Wenamitaa” with its Chapters in Middle East and Bangalore. Alumni help our current students by giving them some useful talks and guidance throughout the year. This helps them in getting better placements and also in starting some entrepreneurial activities. Every year, during the graduation day, Alumni association gives silver medals for students of all the programs. One best project from each program of engineering is given project funding from the Alumni Association. Also best Outgoing student Award from each discipline of engineering and also an overall award winner is being instituted and given by a distinguished alumni. Silver reunion of the alumni are being organized starting with the first batch students, which happened in 2015 and this year it was the fourth batch of students. Necessary infrastructure for housing the alumni office and for conduction of its activities regularly is getting ready.

6.12 Activities and support from the Parent – Teacher Association

At present we do not have a Parent-Teacher association.

6.13 Development programmes for support staff

Every year at least one or two staff development programs are being conducted for the benefit of our nonteaching staff by involving experts from our Staff Development College at Nitte (Deemed-to-be-University). About 50 staff members every year get benefited from such programs.

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

The Institute has a “Green Cell” through which some initiatives like keeping the campus green and clean have been taken up. Every year, during the monsoon, about 300 assorted saplings are planted in the campus. Water collected from rain water harvesting is used both in the college and the Hostel. Sewage Treatment Plants have been installed to recycle the used water in garden and for use in wash rooms. Green Audit has been initiated in the campus from 2015. The institute has started a Bio-fuel plant for processing different varieties of oil seeds, with funding from Karnataka government. The biofuels produced are being mixed with diesel and used in the colleges buses run by the college, to reduce pollution and reduce diesel consumption. World Environment day, World Earth day and World Ozone day are being organized in the campus to create awareness among all the stakeholders about pollution, global warming, environment and sustainability. Solid Liquid Resource Management (LSRM) process is in place to recycle the different types of waste collected in the campus.

**MBA campus:** The present campus abounds in greenery and is saved from onslaught of pollution as it is located away from main city. Plans are afoot to turn the campus as a solar energy driven and reduce its’ carbon foot print.

## 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/(dept). Give details.

##### ➤ Department of Biotechnology

1. **Open Ended Experiments:** The experiments were designed so that they could replicate the concepts learnt in theory as well as other demonstrated practical with a new goal in Biochemistry lab, Microbiology lab, Biokinetics lab, downstream processing lab.
  - Effectiveness: The attainment of course outcomes were improved, skill sets such as hands on knowledge and analytical skills were improved.
2. **Group study:** In numerical based theory courses, group study method was introduced. Same method was successfully demonstrated in 2016-17 for Bioprocess calculations. Students were grouped based on their merit in previous semester, in such a way that each team comprised 1 student each from upper and lower quartile and 2 from middle quartile. This ensured a homogeneous team comprising a weak and bright student. The students were made to sit in groups during class/tutorial, and solve the problems or derivations. Bright students helped the slow learners on spot and thus a necessity for remedial classes was eliminated.
  - Courses that adapted this method: Bioprocess Calculations (3<sup>rd</sup> Sem) and Thermodynamics (4<sup>th</sup>sem)
  - Improvements: There was not much improvement in both courses, however, the CO attainments and overall pass percentage did not drop down w.r.t. previous batch. This result may be considered as an improvement given the reduced input quality of compared to previous batch. Moreover, this exercise reduced the number of students appearing for remedial classes.
3. **Visit to institution of higher learning:**
  - Cell & Developmental Biology (4<sup>th</sup>sem): Students were taken to Manipal Museum of Anatomy and Pathology. Students could see the real anatomical structures displayed and acquire visual knowledge of the concepts learnt in theory. Students also prepared demo models of various anatomical structures.
    - The foundation knowledge of human anatomical structure improved.
  - Latest case studies and group discussions were conducted in theory courses
4. **Entrepreneurship camp:** Students undergone full day workshop on Forensic Science & technology and Industrial Management & Entrepreneurship  
OUTCOME: Student satisfaction survey shows that students are happy with new developments in teaching learning process.

##### ➤ Department of CIVIL ENGG

1. **Project based learning:** is introduced in Subject Estimation and costing (CV702). In this subject an AutoCAD model of building is prepared, and estimation of each element is worked from the model.
2. This helps the student to understand the measurement of quantity of each element in the building. In Transportation engineering II (CV603) videos and animated diagrams are shown. The real time images are shown to understand concepts of transportation engineering in a better way. Real time animation of Aeroplane landing in a runway video are also shown to the students in visualising the runway components. ICT is used in almost all subjects.

➤ **Department of Computer Science Engineering**

1. Use of technology such as MOOCs for faculty to further improve the quality of education. Towards this, both faculty and students cleared of MOOC courses with the following statistics during 2017-18:
  - Students – 26 Nos.
  - Faculty – 18 Nos.
2. Development of certain courses in the curriculum through Project Based Learning (PBL) – Internet of Things and Python Programming.
3. Students' innovations through Start-up Projects and Hackathons.

➤ **Department of E&CE:**

1. Project based learning was introduced as a part of curriculum. One course in each semester is associated with a lab at the end of the lab session the students have to implement a project. Students get better clarity of the concepts while implementing projects.
2. Active learning lab was introduced for the subjects requiring additional inputs.
3. Flip Courses were introduced.
4. Separate section for lateral entry and non-regular students in second year so that individual care can be given.

➤ **Department of E&EE:**

1. **Summer research Internships:** The students are guided in the area of design of power electronics systems. The following summer research projects are taken up during the academic year 17-18.

**Impact:**

- a) Hardware skill of students is enhanced
  - b) More students Participate in technical paper presentations and won prizes
    - Mr. Prajwal Puranik, Mr. Akash Shenoy of 4<sup>th</sup> Sem won the 3<sup>rd</sup> prize for their project titled “Home Automation” in “Shristi 2017” held at RVCE Bangalore during 28<sup>th</sup> -29<sup>th</sup> May 2017.
    - Mr. PrajwalPuranik and Mr. Ganesh M. Acharya have secured 1<sup>st</sup> Place in Paper presentation contest in “KAGADA 2017” 14<sup>th</sup> National Student Conference contest held at UVCE Bengaluru by presenting the paper titled “3 Phase Induction motor soft started by SPWM techniques using MC56F84789.
    - 16 Students have participated in “National level Technical Symposium on Power and Energy” on 28-09-2018 at VidyaVardaka College of Engineering Mysore and won 3 prizes in paper presentations
2. **Project based learning:** One course in each semester is associated with a project component and evaluated for 20 marks on successful completion of the project. MSE-1 and MSE-2 carries 15 marks each. Total CIE is for 50 marks.

**Impact:**

    - a) The students are exposed on the development of hardware which helped them in understanding the theory in a better way.
    - b) Enhanced learning outcomes and confidence in building hardware
  3. **Flip courses:** The students of III sem are given an option to register for signals & systems EE302 or Network analysis EE405 either in 3<sup>rd</sup> or in 4<sup>th</sup> semesters. This helped to enhance learning as the class strength is reduced and students can focus better on numerical oriented subjects.
  4. **Separate Classes:** for lateral entry third sem students are taken to provide individual care and enhance learning by them.

5. **General electives:** The following general electives are offered at the institutional level from academic year 2018-19.
  - Introduction to yoga
  - Physical education principles
  - Overview of Indian culture and arts
  - Introduction to German language
  - Introduction to French language
  - MOOC courses ( as recommended by the department)

➤ **Department of ISE:**

1. Undergoing MOOC Courses to enhance the knowledge in new domain areas:  
Students: 02  
Faculty: 04
2. Project Based Learning in some courses like Mobile Application Development, C# and .NET Technologies, Internet of Things, Operating Systems, Python(5).
3. Incorporated Product development projects (2) by final year students and participation of students in Smart Hackathons (3members).
4. Video tutorials on various lab experiments/theory in some courses(FAFL, MP, CG).

➤ **Department of Mechanical Engg.**

1. Project based learning in Kinematics of Machines (ME402) has been added in the curriculum to motivate innovations in final year project work.
2. A one week training programme on “Introduction to MATLAB/SIMULINK” had been arranged for the second year Mechanical Engg. Students (B &D sections) during August 1<sup>st</sup> to 8<sup>th</sup>, 2018.
3. Active learning component in Industrial Robotics(ME703).
4. An interdisciplinary summer research internship programme was introduced in the Centre for System Design, Fabrication and Testing during June-July 2018.Three students from Electronics and Communication Engineering Department have undergone 2 months of Research Internship in the area of Mechatronics at the Center for System Design, Fabrication and Testing, Department of Mechanical Engineering, with the project entitled “Position Control of Stepper Motor using Closed Loop Control System”.
5. One day workshop on “Welding for Maintenance” was arranged in technical collaboration with Indian Welding Society and Fronius India on June 28, 2018.
6. An AICTE - ISTE Faculty Induction Programme on “Teaching Engineering and Pedagogy for Effective Implementation of Outcome Based Education” was arranged during 16th to 21st of July 2018.
7. Active learning in Automotive Engineering (ME603) and upgradation of Automotive laboratory.
8. A one-week Faculty Development Programme on “Theoretical and Computational Mechanics-II” was organized during July 9th to 14th, 2018.
9. Inauguration of the “NMAMIT-Fronius Center for Welding Technology” was done on 28<sup>th</sup> June 2018. It is developed as a full-fledged laboratory.
10. Introduction of welding simulator (Gas welding, Metal Arc Welding, Shielded Metal Arc Welding) for Mechanical Engineering Workshop Practice (First Year) and Foundry, Forging and Welding lab (ME309)
11. Some topics of Computer Aided Engineering Graphics (ME115) have been uploaded as Video lecture by our faculty in NMAMIT Mechanical YouTube channel.
12. Automotive Learning Factory has been set up.
13. An android app on AIMS, the branch association of Mechanical Engineering Department (Association for the Interaction of Mechanical Students) developed by one of our own students is available for download in Google Play store. All the circulars and notifications of the department are being circulated via the app for effective communication.

➤ **Department of MCA**

1. 'Centre of Innovation for studies on Automatic Natural Language Processing and Speech Disorder Problems in Kannada Language 'has been established under the VGST – KFIST scheme
2. Sun Plus unit has been established in the department with three employees and five V semester students.
3. RedHat Project/Product Development Centre with six students.

➤ **Department of MBA**

**1.Bloomberg Market Concepts (BMC):** Over 100 students underwent Bloomberg Market Concepts (BMC) training program. BMC is an 8-hour self-paced e-learning course that provides a visual introduction to the financial markets. BMC consists of four modules — Economics, Currencies, Fixed Income and Equities — woven together from Bloomberg data, news, analytics and television. This has increased the students' level of discussions in the class.

**2.Capstone Business Simulation Program:** Capstone Business Simulation Program is a world-renowned Simulation game that gives participants an opportunity to integrate, synthesize and apply all their previous learning both within and outside the management classroom. The Capstone Business Simulation is used by more than 600 business schools world-wide including Wharton, Harvard, Kellogg, etc. Working in teams students manage a company, make strategic and tactical decisions in all domains of the business: product design and development, marketing and sales, human resources and employee relations, operations and production, management and finance – with an overlay of corporate governance and strategic management for a period of 2 months. This program benefits the students by integrating their entire learning of the MBA Program and enhancing their analytical ability along with business acumen, which prepares them to be competent business managers in the corporate world.

**Impact on learning outcomes:** This course has four practice rounds, eight game rounds and one detailed comprehensive international examination called “Comp-XM”. The “Comp – XM” exam is a individual multiple choice paper for 1000 marks. This will be an open book exam spanning 6 hours spread over 3 days. Using an extensive bank of equivalent questions, every exam is unique because each multiple choice question is randomized. And since the questions are based on specific responses from each student's own simulation, there is no opportunity to share answers. It is an assessment tool to determine and demonstrate what participants have learned though the Capsim® business simulation experience.

**3.MS Project- EM I:**

The concept of MS project is introduced, where the students will have a clear idea of project planning and execution in a real life scenario. Here in this assignment, the student will analyze a video from Grand Design Series- (a Civil Engineering construction series) and then plan accordingly the tasks as to have optimized execution.

#### 4.ERP Next- EM II

In this project, the students will themselves design an ERP system for an Hypothetical company and will involve the following cycles. Ie: Manufacturing cycle, Purchase cycle, Sales order cycle and Human resource cycle. They have to run the business and need to have an effective flow of resources.

#### 5. IBM Innov 8- Business Process management Simulation EM I

Each student will individually simulate and learn concepts through simulation using INNOV 8 supply chain management simulation game and other games for operations management. They have to critically analyze and appreciate different aspects of business process management.

**6.Strategic Management study:** Integration of Strategic Management course to the Bloomberg Lab. The application of Bloomberg Lab in the course helps the students to understand various concepts through the data. The concept such as a Merger and Acquisitions, Diversification etc. are observed through the data and help the students to clarify the doubts through the data.

**Impact:** This has helped students to participate in the discussion and overall class participation has increased.

**7.NPTEL Online courses:** Two courses in the III Semester MBA Finance Specialisation i.e. Advanced Financial Management and Project Management have been integrated with the NPTEL Online Certifications. These NPTEL Courses are being offered by IIT Rourkela and 119 students have registered for the same. The main advantage of this course is that they are prepared by experts from IITs and that specialisation students could learn from best in the field at no additional cost.

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

#### ➤ Department of Biotechnology

- **Action plan 1:** To improve the COs of all courses as well as POs, tasks should be given in all courses.
  - Action Taken: It was ensured that tasks were given in all the courses. Since MSE did not cover CO5 (unit 5), tasks were given for this CO. This ensured the attainment of CO through CIE component.
- **Action Plan 2:** Tasks given should not be restricted only to certain types of work.
  - Action Taken: Different types of tasks such as quiz, self-study and seminar, group work, report writing was given as task along with conventional tasks such as assignment and class test.
- **Action Plan 3:** Students should be encouraged to attempt Unit 5 questions in SEE
  - Action Taken: Usually, due to lack of time, in some courses 5<sup>th</sup> unit or 5<sup>th</sup> CO was not fully covered or completed in a hurry. Consequently, students weren't keen in attempting questions pertaining to these units. This year, it was suggested to utilize extra available hours to complete the syllabus in time. Still improvement is not observed. This needs further analysis of reasons and more critical action plan for next year.
- **Action Plan 4:** More numericals needs to be solved.
  - Action Taken: In numerical based courses such as Unit operations, Bioprocess Calculations, Thermodynamics, Reaction Engineering enough sample problems were solved and type problems were given as assignment. Students were provided with a set of numericals comprising simple as well as real world problems.

➤ **Department of Civil Engineering:**

At the end of each semester attainment of CO and PO are evaluated from direct and indirect methods. In the courses where the target CO is not attained following actions are implemented.

1. In difficult courses remedial classes are conducted to slow learners. The students scoring less than 50% of gross mark are considered as slow learners.
2. Additional problems from previous end semester question papers are solved in the units where CO attainment are lesser than target attainment.
3. Additional classes are taken in the corresponding units where CO attainment are lesser than target attainment.
4. Video based teaching is adopted in selected courses.

➤ **Department of CSE:**

1. To introduce project-based learning (PBL) in one course during each semester.
2. To empower more students to summer research internships during the vacation.
3. For students, to carry out exhaustive research literature review and carry out a detailed analysis of the project-oriented and research results.
4. To encourage more students to take part in research/project internship.
5. To conduct quality workshops on advanced tools such as Hadoop, Android Studio, R Studio, and so forth.
6. To involve more student participation in various co-curricular and extra-curricular activities in other colleges that are planned.
7. More skill development programs are planned to encourage students to learn beyond the curriculum to sustain the interest in pursuing higher learning to quick learn to adapt to fast changing needs of the industry to adapt themselves to technological changes.

➤ **Department of E&CE:**

1. Module coordinators were formulated who will monitor the CO, PO attainments for the subjects in their module.
2. Gap analysis was carried out for all subjects that do not meet the threshold level fixed for the academic year.

➤ **Department of E&EE:**

1. Analysis of CO & PO attainment is done in PAC meeting and faculty members have given action plan to implement the suggestions in view of improvement of the same.
2. Class committee meeting before MSE I and after MSE I arranged which involves students and faculty advisors.
3. Remedial class for arrear students
4. Remedial class for students less than 10 in MSE I and MSE II
5. Project based learning in the subjects AEC, Microcontroller, LIC , PSAS
6. To facilitate advanced learning. Summer research internships are offered to students and they have been trained in power electronics related hardware development.
7. FDP on “Design, Analyses & Hardware implementation of switched mode power converters” is conducted from 23-28 July 2018.

➤ **Department of ISE:**

1. Project Based Learning introduced in at least one course during 5<sup>th</sup> to 7<sup>th</sup> semester (3).
2. To empower students in advanced learning, Audit courses/Summer Internship projects are implemented in vacation period (3).
3. Introduced exhaustive research literature review and preparation of publication papers in reputed conferences and Journals in seminar course.



4. Motivating students' to do projects related to community/research oriented/product based projects (22).
5. Conduction of Quality workshops on new Trending Technologies like Cyber Security, Python, usage of GitHub(3).
6. Students' participation in Industry based training courses and certifications (Salesforce, DellEMC, Oracle, VMWare and AWS).
7. Giving extra inputs on current trends to incorporate learning beyond syllabus.
8. Students' participation in Co-Curricular activities like paper competition, Poster presentation, Youth Talk, Hackathon, Coding competition (4 Students).
9. Crash courses on courses required to make our students placed in companies (4).
10. Employability Skill development courses to enhance aptitude skills to our students for placements.

➤ **Department of Mechanical Engineering:**

- 1.The Active learning & Industrial Robotics Laboratory is fully operational from August 2018. Active learning component in Industrial Robotics (ME703) has been introduced and practised in 7th semester since 2017-18.
- 2.The NMAMIT Automotive Laboratory is fully operational since beginning of 2018.
- 3.The NMAMIT-Fronius Centre for Welding Technology is fully operational. Welding course has been implemented since June 2018 and students are trained on Virtual Welding simulator.

➤ **Department of MCA**

1. TR for Admission improvements by organizing Teck-KNO, an inter-collegiate competition for IT related undergraduate students and visits to various under graduate colleges.
2. Implemented Proctor System for MCA students throughout the course.
3. Remedial Classes for students with poor performance in MSE-I. This has resulted in improvement in the performance of the students in the later examinations.
4. Mentoring the students in their projects
5. ATR for improving MCA students' internship and placements in various companies and organizations.

➤ **Department of MBA :**

1. The number of modules is reduced to five from seven/eight. This is done to increase the depth and quality in the course.
2. Development of workbooks to integrate various courses with Bloomberg for providing the hands-on experience to the students.
3. To increase the number of cases administered across all the courses.
4. Introduction of leadership simulation to measure the 'Leadership (one of the PO)'.

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

**i). Project Based Learning**

- Department of E&C conducts project based learning for a lab course in all semesters
- Department of E&EE organizes ELIXIR: Students project exhibition "ELIXIR" is organized every year where students do the projects to explain the theoretical concepts in a better way.
- **Department of Mechanical Engineering** conducts project based learning in Kinematics of Machines (ME402)

## ii) Management In Action (MIA)

- a) MIA will be like mini consulting group project to be undertaken by all the students as per the groups formed for the purpose under the supervision of a faculty guide. Each group is attached to an organization. MIA would spread during the Second and Third Semester MBA. The purpose of the project is to make students see the worth of management theory through its working in simple situations and help them relate these to practical situations.
- b) A candidate shall submit 2 copies of MIA report to the Institute or to the Chairman, DPGC on or before the specified date. The report shall be in the format prescribed by the Institute/DPGC. The candidate shall submit a report duly approved by the guide. The MIA Report shall be countersigned by the guide and the Director.
- c) The MIA Report shall be submitted atleast two weeks before the closure of the Third Semester. The date of submission of the MIA Report may be extended up to a maximum of four academic years, from the date of commencement of the first semester in which the candidate has taken admission to the course. Extension of time, usually not exceeding 3 months at a stretch, from the announced last date for submission of the MIA Report may be granted by the C.O.E on recommendation from the DPGC or Director.
- d) MIA shall carry 50 Marks as internal assessment to be awarded by the faculty guide. The Report evaluation and Viva-Voce Examination shall carry 50 marks to be awarded by the faculty guide/Panel. The total Marks scored by the students out of 100 shall be included in the Marks card of the Third Semester MBA. A candidate shall secure a minimum of 40% of marks in aggregate, in the internal assessment, evaluation of project reports and Viva-Voce examination. In the event of his failing to secure the 40% marks he shall have to re-do the MIA.
- e) If the Examiner/s conducting the Viva Voce examination, finds it necessary, the MIA Report with necessary modifications shall be resubmitted to the Director with due approval of the concerned guide.

*\*Provide the details in annexure (annexure need to be numbered as i, ii,iii)*

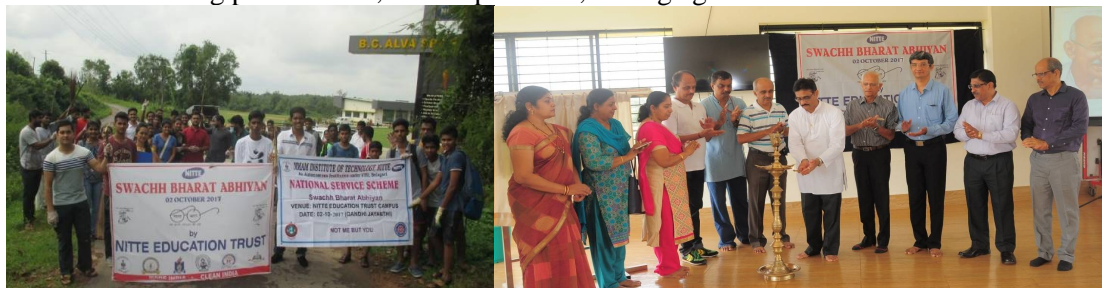
### 7.4 Contribution to environmental awareness / protection

- Bio technology Students were engaged in activities such as World Environment Day and World Biofuels Day
- During Induction programme for first years, Head of the Mechanical Engineering department gave a talk on environmental awareness and the same matter was addressed to the higher semesters also.

#### ➤ **SWACHH BHARATH ABHIYAN: 2nd October 2017**

- Swachh Bharath Abhiyan was organized by the Nitte Education Trust on 2<sup>nd</sup> October 2017 on the occasion of Mahatma Gandhi and Lal Bahaddur Shastri Jayanthi in the campus. Dr. Niranjan N. Chiplunkar Principal, NMAMIT inaugurated and delivered the inaugural address. Mr. Yogeesh Hegde, Registrar, Nitte Campus emphasized on the importance of Swachh Bharath program. Dr. I.R. Mithanthaya, Vice-Principal and Dean Academic, Dr. Srinivas Rao B.R., Vice-Principal and COE, Mr. Prashanth Holla, Principal, NRAM Polytechnic, Dr. Veena B.K., Principal, Dr. NSAM First grade College, Nitte., Mr. Ashok Adyanthaya, Industrialist, were present during the programme. Dr. Srinath Shetty, Resident Engineer and Professor, Civil Engineering Department gave presentation of Solid and Liquid Resource Management (SLRM). Prof. Pushparaj, Department of Civil Engineering, NMAMIT, welcomed the gathering. Dr. Janardhan Nayak, NSS Programme Officer and Professor, Department of Chemistry, delivered vote of thanks.
- The Programme was sponsored by Nitte Education Trust. 500 students of the NMAMIT NSS Unit, NRAM (Aided) Polytechnic NSS unit, Dr. NSAM First grade College NSS unit, Dr.

NSAM PU College and Dr. NSAM English Medium School students cleaned the N.E.T campus including public roads, Hostel premises, College garden etc.



### ➤ World Biofuel Day

- World Biofuel Day was celebrated by Department of Biotechnology Engineering in association with Udupi District Bioenergy Research, Information & Demonstration Centre (BRIDC), and National Service Scheme (NSS) in NMAMIT, Nitte campus on 10th of August 2018. World biofuel day is celebrated in the memory of the first usage of biofuel (peanut oil) in diesel engine by Dr. Rudolf Diesel on 10th of August 1893. Principal of NMAMIT Nitte Dr. Niranjana N. Chiplunakr, Vice Principal Dr. I Ramesh Mithanthaya, Registrar Sri Yogesh Hegde, NSS unit Chairman Dr. Janardhana Nayak, Special Officer Mr. Aravinda Hegde planted different varieties of biofuel saplings.
- The faculty and students of Biotechnology Engineering headed by Dr. C. Vaman Rao planted about 160 biofuel samplings. The seeds obtained from these plants are useful in producing non-edible oil which can be converted to Biodiesel. Biodiesel can be used in any diesel engine by mixing with petroleum diesel. The usage of biodiesel will reduce environment pollution and also minimizes problems associated with non-renewable sources of energy. The Department of Biotechnology at NMAMIT houses Biofuel Production Centre and is actively involved in Biofuel research.



### ➤ WORLD ENVIRONMENT DAY CELEBRATION AT NITTE

- World Environment Day 2017 was celebrated by planting saplings of Biofuel plants like Honne, Simauruba, Hippe around the NET campus, Nitte on 13th of June 2017. The program was inaugurated by Dr. Niranjana N. Chiplunakar, the Principal, NMAMIT Nitte by planting Honne sapling in NET Campus, Nitte. He appreciated the initiatives taken by the staff and students of Biotechnology Department for its concern towards nature. During this programme Vice Principal Dr. Shreenivasa Rao, Registrar of NET Campus Sri Yogesh Hegde, Sri Aravinda Hegde, Dr. Subrahmanya Bhat, Dr. Uday Kumar, Dr. C. Vaman Rao Prof. & Head of BT Department, Staff & students of BT department, staff of Udupi district Biofuel information and demonstration centre, Nitte were present. Later, students and staff of Biotechnology department under the leadership of Dr. C. Vaman Rao planted about 80 saplings around the NET campus.





➤ **World Ozone Day**



ನಿಟ್ಟ ಸಮೂಹ ವಿದ್ಯಾಸಂಸ್ಥೆಗಳ ಪತಿಯಿಂದ ವಿಶ್ವ ಓಝೋನ್ ದಿನಾಚರಣೆ ಕಾರ್ಯಕ್ರಮ: ನಿಟ್ಟ ಸಮೂಹ ವಿದ್ಯಾಸಂಸ್ಥೆಯ ನಿಟ್ಟ ಕ್ಯಾಂಪಸ್‌ನಲ್ಲಿ ಸೆ.೦೮ ರಂದು ವಿಶ್ವ ಓಝೋನ್ ದಿನವನ್ನು ಆಚರಿಸಿತು. ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿಯ ರಾಜಶೇಖರ್ ಪುರಾಣಿಕ್ ಹಾಗೂ ಡಾ. ಎಚ್ ಲಕ್ಷ್ಮೀಕಾಂತ್ ಕಾರ್ಯಕ್ರಮದ ಮುಖ್ಯ ಅತಿಥಿಗಳಾಗಿ ಆಗಮಿಸಿದ್ದರು. ರಾಜಶೇಖರ್ ಪುರಾಣಿಕ್ ಅವರು ತಮ್ಮ ದಿಕ್ಕುಚಿ ಭಾಷಣದಲ್ಲಿ "ನಾವು ಪರಿಸರವನ್ನು ಸಂರಕ್ಷಿಸಿದರೆ ನಮಗೆ ಪರಿಸರವು ರಕ್ಷಣೆ ನೀಡುತ್ತದೆ. ನಮ್ಮ ಅವೈಜ್ಞಾನಿಕ ಕಸವಿಲೇವಾರಿಯು ಓಝೋನ್ ಪದರದ ಸವಕಳಿಗೆ ಮುಖ್ಯಕಾರಣವಾಗಿದೆ. ಮುಂದಿನ ದಿನಗಳಲ್ಲಿ ಪ್ಲಾಸ್ಟಿಕ್‌ನಂತಹ ಪರಿಸರಶತ್ರುವಿನ ಉಪಯೋಗವನ್ನು ನಿಯಂತ್ರಿಸಬೇಕಿದೆ" ಎಂದರು. ಡಾ. ಎಚ್. ಲಕ್ಷ್ಮೀಕಾಂತ್ ಅವರು "ಓಝೋನ್ ಪದರದ ಸಂರಕ್ಷಣೆಯಲ್ಲಿ ಮಾನವನ ಪಾತ್ರ ಅತಿ ಪ್ರಾಮುಖ್ಯ. ಪರಿಸರದ ಬಗೆಗೆ ಕಾಳಜಿ ತೋರದಿದ್ದರೆ ಕೆಂಪು ಮಳೆ, ಆಸಿಡ್ ಮಳೆ ಮುಂತಾದ ಪ್ರಕೃತಿವಿಕೋಪಕ್ಕೆ ನಾವು ಬಲಿಪಶುಗಳಾಗುವ ದಿನ ದೂರವಿಲ್ಲ" ಎಂದರು. ನಿಟ್ಟ ತಾಂತ್ರಿಕ ಮಹಾವಿದ್ಯಾಲಯದ ಪ್ರಾಂಶುಪಾಲ ಡಾ.ನಿರಂಜನ್ ಎನ್.ಚಿಪ್ಪೂರ್ ತಮ್ಮ ಅಧ್ಯಕ್ಷೀಯ ನುಡಿಗಳಲ್ಲಿ "ಪರಿಸರ ಸಂರಕ್ಷಣೆಯೊಂದಿಗೆ ನಿತ್ಯಬಳಕೆಗೆ ಅಗತ್ಯವಿರುವ ಇಂಧನವನ್ನು ನೈಸರ್ಗಿಕ ತಂತ್ರಗಳ ಮೂಲಕ ಹೇಗೆ ತಯಾರಿಸಬಹುದು ಹಾಗೂ ಇದರಿಂದ ಓಝೋನ್ ಪದರವನ್ನು ಹೇಗೆ ಸಂರಕ್ಷಿಸಬಹುದು ಎಂದು ಚಿಂತಿಸಬೇಕಾಗಿದೆ" ಎಂದರು.

ಕಾರ್ಯಕ್ರಮದಲ್ಲಿ ಉಪಪ್ರಾಂಶುಪಾಲ ಡಾ.ರಮೇಶ್ ಮಿತ್ತಂತಾಯ, ಡಾ.ಶ್ರೀನಿವಾಸ ರಾವ್, ವಿವಿಧ ಸಹಸಂಸ್ಥೆಯ ಪ್ರಾಂಶುಪಾಲರು, ವಿವಿಧ ವಿಭಾಗಗಳ ಮುಖ್ಯಸ್ಥರು, ಪ್ರಾಧ್ಯಾಪಕರು ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳು ಉಪಸ್ಥಿತರಿದ್ದರು.

ನಿಟ್ಟ ಕ್ಯಾಂಪಸ್‌ನ ರಿಜಿಸ್ಟ್ರಾರ್ ಶ್ರೀ.ಯೋಗೀಶ್ ಹೆಗ್ಡೆ ಸ್ವಾಗತಿಸಿದರು. ಕ್ಯಾಂಪಸ್‌ನ ರೆಸಿಡೆಂಟ್ ಇಂಜಿನಿಯರ್ ಡಾ. ಶ್ರೀನಾಥ್ ಶೆಟ್ಟಿ ವಂದಿಸಿದರು. ನಿಟ್ಟ ತಾಂತ್ರಿಕ ಕಾಲೇಜಿನ ಹ್ಯುಮ್ಯಾನಿಟೀಸ್ ವಿಭಾಗದ ಅಸಿಸ್ಟೆಂಟ್ ಪ್ರೊಫೆಸರ್ ವಿಶ್ವನಾಥ್ ಕಾರ್ಯಕ್ರಮ ನಿರೂಪಿಸಿದರು.

➤ **Waste to Resource initiative**

- First stall under 'waste to resource' initiative opened at Nitte
- V. Sunil Kumar, MLA, inaugurated the first stall to sell products generated by the Solid and Liquid Resource Management Plant at Nitte campus near Karkala on December 8th 2018. The

stall has been established under the ‘Swachh Udupi’ initiative launched by the district authorities.

- The district administration has already tied up with India Green Services, Vellore, Tamil Nadu, to make Udupi a garbage-free district by October 2, 2018.
- Deputy Commissioner Priyanka Mary Francis visited both the plant and the stall at Nitte. She urged consumers to make use of the recycled products generated at the plant and sold at the stall.
- A team of five people, trained under a solid waste management programme organised by the district administration earlier, now visit the wards in their jurisdiction and collect waste daily. This waste will be brought to the plant, converted into recycled products and sold. Some members of the team will be present at the plant from 7 a.m. to 7 p.m. to monitor the operations.
- The products
- There will be waste segregation at source under the project. This will help in creating recycled products. For instance, the cloth pieces picked up from tailor shops will be used for making pillows. The skin of lemon and other citrus fruits will be used for making utensil washing powder. Dry flowers will be used for making rangoli powder. Besides these, cloth bags, doormats, organic insecticides and organic fertilizers will be sold at the stall.
- At presently, waste for the plant is being collected from 250 houses in Nitte. This scheme is being implemented as a pilot project in Nitte Gram Panchayat. The plan is to extend it to other gram panchayats in the district eventually.
- N. Vinaya Hegde, President of Nitte Education Trust, Principal of NMAM Institute of Technology Dr.Niranjan N Chiplunkar, Lakshmi Shetty, President of the Nitte GP, Malini Shetty, President of Karkala Taluk Panchayat, Reshma Shetty, zilla panchayat member, were among those present at the launch of the stall.



**7.5 Whether environmental audit was conducted?**

Yes

No

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



➤ **Dept. of Biotechnology**

SWOC Analysis	
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Team work of faculty and supporting staff</li> <li>Strong work ethics and commitment to quality, positive morale, commitment to seek opportunities during adversity</li> <li>Close relationship between student and academic professionals</li> <li>Willingness to recognize weaknesses and make improvements, e.g., willingness to openly discuss challenges faced by the department – students campus recruitment, develop plans for making improvements</li> <li>Learning environment for the students with multiple programmes, students clubs, guest lectures and industrial visits.</li> <li>Industry Institute interactions strengthened with internships and inter-related projects</li> <li>Interdisciplinary growth across departments</li> <li>Tapping donors – Alumni, businesses – Improve perception of the foundation of department</li> <li>Implementation of audit courses for skill enhancement.</li> <li>Sufficient research infrastructure is available</li> </ul>	<ul style="list-style-type: none"> <li>Deficiency in Inter-institutional interactions</li> <li>Geographically distant from a large urban area</li> <li>Lack of industrial collaboration and consultancy</li> </ul>
OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>Practice-based research</li> <li>Increased research funding</li> <li>Inter institutional joint research programs</li> <li>Increase and strengthen internal collaborations and external collaborations</li> <li>Focus on excellence with an emphasis on specified areas of interest</li> <li>Establish stronger relationships with R&amp;D organizations</li> <li>Development of innovative products through R &amp; D.</li> <li>Scope for improving the Industry Institute interaction for better placements of students.</li> </ul>	<ul style="list-style-type: none"> <li>Updated curriculum with requirements as defined by the demands of stakeholders. Improvement of graduate programmes at par with industrial requirement</li> <li>Research growth improvement</li> <li>Industry oriented courses with laboratory experience</li> <li>Increasing research output by way of publications in indexed peer reviewed journals</li> </ul>

➤ **Dept. of Civil Engineering:**

SWOC Analysis	
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Qualified, Experienced and Committed Faculty with an Average 15 years' Experience</li> <li>Good Number of Faculty with Doctorate Degree</li> <li>Active Involvement in Consultancy and Research Work</li> </ul>	<ul style="list-style-type: none"> <li>Location disadvantage</li> <li>Ranking of Students Joining the Program Being Average</li> <li>Marginal Placement Opportunities in Core Companies</li> <li>Less Number of Students Joining for Higher Studies and Appearing for</li> </ul>

<ul style="list-style-type: none"> <li>Well-Equipped Laboratories</li> <li>Recognized Research Center</li> </ul>	Competitive Examinations
<b>OPPORTUNITIES</b>	<b>CHALLENGES</b>
<ul style="list-style-type: none"> <li>To have a P.G Programs in Hydraulics &amp; Water Resource Engineering / Geotechnical Engineering / Infrastructural Engineering / Transportation Engineering</li> <li>To Obtain Research Funded Projects in every Academic Year</li> <li>Enhancement in Research Facility</li> <li>Training Students for Competitive Exams</li> </ul>	<ul style="list-style-type: none"> <li>More Innovative Research Work of Societal Importance</li> <li>Tie up with Industry for R &amp; D Work</li> <li>MOU with Govt. Agencies</li> </ul>

➤ **Dept of CSE**

SWOC Analysis	
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>High state/regional reputation</li> <li>Excellent placements</li> <li>Close contact and cooperation with the IT industry</li> <li>Qualified and committed academic staff</li> <li>Competent and efficient support staff</li> <li>Uniform age profile for the academic staff</li> <li>Many bachelor and master's students</li> <li>Adequate infrastructure</li> <li>Rigorous B.E. &amp; MTech program</li> </ul>	<ul style="list-style-type: none"> <li>Too low percentage of external funding</li> <li>Collaborations with research organizations is too low</li> <li>Too few diversity in the academic staff</li> <li>Too few full time PhD students</li> </ul>
OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>High demand for high-qualified IT-professionals for Bachelors, Masters and PhDs</li> <li>Excellent opportunities for interdisciplinary research</li> </ul>	<ul style="list-style-type: none"> <li>Fierce competition with other universities and IT industry to hire the most talented young people</li> <li>Intense national competition for faculty/staff</li> <li>Salary market-place competition</li> </ul>

○ **Action taken for addressing the opportunities:**

- The new IT core companies have brought in for campus placements during 2017-18. The list of companies are mentioned below:
  - Walmart Labs
  - Novigo Solutions
  - IBM India Software Labs
  - Loco Technologies
  - EVIVE Software Analytics Pvt Ltd
  - Netskope Software India Pvt Ltd
  - Mercedes Benz
  - BRIDGEi2i Analytics Solutions
- Involvement of students and faculty in:
  - Obtaining and executing external funded research projects.
  - Accomplishing internships both in-house and outside (industry & universities).
  - Visiting abroad to participate in interdisciplinary research projects.

○ **Converting weakness to opportunities / strengths:**

- The department has taken huge step to obtain more external funded research projects. During 2017-18, the number of new projects applied for external agency is 20.

➤ **Dept. of E&CE:**

SWOC Analysis	
STRENGTHS	WEAKNESSES
<p>Academic:</p> <ul style="list-style-type: none"> <li>• Faculty are extremely committed</li> <li>• Academic Autonomy</li> <li>• Excellent methodical evaluation of students(Grading Policy)</li> <li>• Encouragement to pursue Research &amp; Development.</li> <li>• Excellent placement for students.</li> <li>• Regular system checks (auditing, feedback etc)</li> </ul> <p>Infrastructure: Lab Facilities: The Dept. has adequate labs, communication and computing facilities with state of art equipment and software tools in the area of VLSI Design, Signal Processing, Communication and Embedded Systems and labs are regularly upgraded to meet the technology changes.</p>	<p>Academic:</p> <ul style="list-style-type: none"> <li>• Inter departmental research programs in infancy.</li> </ul> <p>Infrastructure:</p> <ul style="list-style-type: none"> <li>• Lack of staff room.</li> </ul> <p>Miscellaneous:</p> <ul style="list-style-type: none"> <li>• Locational disadvantage.</li> </ul>
OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>• Opportunities for continuous learning, higher studies, learning new technologies and tools.</li> <li>• Opportunities for attending short term courses.</li> <li>• Opportunity for research interaction with other universities/ organizations/ industries in India and abroad.</li> <li>• Opportunities for joint R&amp;D with industry.</li> <li>• Opportunity to work with motivated students.</li> <li>• Opportunity for entrepreneurship.</li> <li>• Establish center of excellence in the department.</li> </ul>	<ul style="list-style-type: none"> <li>• More number of institutions coming up (in the region as well as state).</li> </ul>

➤ **Dept. of E&EE**

SWOC Analysis	
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Academic Autonomy</li> <li>• VTU Recognized research center</li> </ul>	<ul style="list-style-type: none"> <li>• External research funding</li> <li>• Collaborations with research organizations</li> </ul>



<ul style="list-style-type: none"> <li>Well Qualified and committed teaching faculty</li> <li>Competent and efficient support staff</li> <li>Adequate infrastructure</li> <li>Center for Research on Power Electronics</li> </ul>	<ul style="list-style-type: none"> <li>Industrial consultancy.</li> <li>Less placements in Core Companies</li> </ul>
<b>OPPORTUNITIES</b>	<b>CHALLENGES</b>
<ul style="list-style-type: none"> <li>High demand for Electrical engineers due to popularisation of Electric Vehicle and solar power</li> <li>Excellent opportunities for research in power electronics &amp; power systems</li> </ul>	<ul style="list-style-type: none"> <li>Fierce competition by other universities</li> <li>Training students in diverse industry requirements</li> </ul>

○ **Action taken for addressing the opportunities:**

- Introduction of Electives: students have registered for the following electives.
  - Computer control of electric drives
  - VLSI circuit design
  - FACTS
  - Smart grid
- Following **new electives** are offered.
  - AI application to power systems
  - Solar plant design operation and maintenance
- Summer research internships are offered to students in power electronic hardware development.

○ **Converting weakness to opportunities / strengths:**

- The department has received research grant from VGST (KSTePS/VGST-RGS/F/GRD/No. 737/2017-18) to carryout the project titled “**Gallium Nitrite (GaN) based multiphase solar battery charger**” .during 2017-18
- More research proposals are submitted for VGST and AICTE.
- Collaboration with Dept. of Electrical Engineering of IIT Hyderabad is requested for the research on “ GaN Solar Micro inverter”.

➤ **Dept. of ISE:**

SWOC Analysis	
STRENGTHS	WEAKNESSES
<ol style="list-style-type: none"> <li>Academic Autonomy</li> <li>Research Oriented Faculty</li> <li>Good Placements for students</li> <li>Vibrant Industry Institute Interaction</li> <li>Good Campus &amp; Infrastructure</li> </ol>	<ol style="list-style-type: none"> <li>Research Quality to be improved</li> <li>Consultancy activities need to be improved</li> <li>Research Grants from External Agencies funding to be emphasized</li> </ol>
OPPORTUNITIES	CHALLENGES
<ol style="list-style-type: none"> <li>Good student admission ratio</li> <li>Use of latest technology</li> <li>Good placement track record</li> <li>Awareness of Entrepreneurship/Incubation Center in the campus</li> </ol>	<ol style="list-style-type: none"> <li>Quickly emerging Technologies</li> <li>Competition-Admission of quality students</li> <li>Faculty retention</li> <li>Training students to face various competitive examinations at State, National &amp; International levels</li> </ol>

- **Actions taken in addressing the opportunities:**
  1. Constant interaction with stakeholders(Alumni, Parents, Students)
  2. MoUs with Industries(4).
  3. More student participation in Hackathons/other technical events (3).
  4. Training PUC/Diploma students on current trends (2).
  5. Enhancing student participation in building projects using NVIDIA Server (2 Projects).
- **Converting weakness to opportunities/strengths:**
  1. Quality papers published in reputed conferences/Journals(6).
  2. Consultancy projects with Nitte University (2).
  3. Applied for VGST/DST funding (2).

➤ **Dept. of Mechanical Engineering:**

SWOC Analysis	
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Well qualified and experienced faculty</li> <li>• Department has well equipped laboratories, good brand name and committed Visionary management.</li> <li>• The courses offered by the department are autonomous.</li> <li>• It has decades of expertise.</li> <li>• The placements are good.</li> <li>• Good campus and infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• <b>The college is located far away from industries in a remote area</b></li> <li>• <b>The research outcomes are to be improved.</b></li> </ul>
OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>• University status</li> <li>• New campuses/programmes in engineering</li> <li>• Collaboration with industries</li> <li>• Developing more Centres of excellence</li> </ul>	<ul style="list-style-type: none"> <li>• Foreign universities entry</li> <li>• Competition- admission of quality students</li> <li>• Opening of newer engineering colleges in the nearby area.</li> </ul>

➤ Dept. of MBA:


SWOC Analysis	
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Adequate infrastructure and Learning atmosphere.</li> <li>• Bloomberg database.</li> </ul>	<ul style="list-style-type: none"> <li>• Rural place and far away from the industry.</li> </ul>
OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>• To expand research output by publications in indexed International Journals and obtaining patents.</li> <li>• To Strengthen and Enhance alumni interactions and participation and contribute for development</li> </ul>	

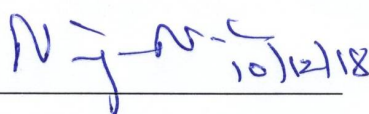
**8. Plans of institution for next year**

- To submit more number of research project proposals for funding agencies.
- To strengthen Industry-Institution Interaction.
- The institution is planning to affiliate under the ambit of Nitte Deemed to be University from 2019 on getting clearance from UGC.
- To complete Civil Block of about 40,000 Sq.ft. and extend the same by about 30,000 Sq.ft

Name **Dr.Subrahmanya Bhat K**

Name **Dr. Niranjana N. Chiplunkar**

 10/12/18

 10/12/18

Signature of the Coordinator, IQAC

Signature of the Chairperson, IQAC

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ANNEXURE-I**TENTATIVE****NMAM INSTITUTE OF TECHNOLOGY**

(An Autonomous Institution affiliated to VTU, Belagavi)  
(ISO 9001:2015 Certified)

Nitte – 574110, Karkala, Udupi District, Karnataka, India



☎: 08258 – 281039 (O)

(EPBAX) 281263, 281461, 281248, 281349, 281462

Fax: 08258 – 281265

Date: 9-6-2017

**ACADEMIC CALENDAR for B.E. 2017 – 2018 - ODD Semester**

S.No.	Event	I, III, V, VII Semester B.E.
1	<b>REOPENING OF ODD SEMESTER</b>	July 28, 2017
2	Registration of Courses	July 28 - August 1, 2017
3	<b>Commencement of Classes</b>	August 1, 2017
4	<b>MSE I</b>	September 7 - 9, 2017
5	Last day for dropping the course	September 21, 2017
6	<b>MSE II</b>	October 13 - 16, 2017
7	Last day for withdrawal	October 31, 2017
8	Additional MSE	November 2 - 4, 2017
9	<b>Last Working Day</b>	<b>November 16, 2017</b>
10	<b>Practical Examination</b>	On or before November 25, 2017
11	<b>Theory Examination</b>	November 27 - December 18, 2017
12	<b>REOPENING OF EVEN SEMESTER *</b>	<b>December 28, 2017</b>
13	Registration of Courses	December 28, 2017 - January 1, 2018
14	Announcement of Result	December 30, 2017
15	<b>Commencement of classes</b>	January 1, 2018
16	Last Date for applying for <b>Revaluation</b>	January 1, 2018
17	Last Date for registration of <b>Make up Examination</b>	January 2, 2018
18	DUGC Valuation & Paper Seeing	January 10, 2018
19	Revaluation Result	January 15, 2018
20	Make up Examination	January 19 - 29, 2018
21	Announcement of Make up Result	February 10, 2018
22	<b>Last Working Day of Even Semester</b>	<b>April 17, 2018</b>

\* Reopening may be advanced by 10 days for Final Year students based on internship opportunities.

Sd/-  
**CONTROLLER OF EXAMINATIONS**

Sd/-  
**PRINCIPAL**



\*Dp/-

email: [coe.nmamit@nitte.edu.in](mailto:coe.nmamit@nitte.edu.in)





# NMAM INSTITUTE OF TECHNOLOGY

(An Autonomous Institution affiliated to VTU, Belagavi)  
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☎: 08258 – 281039 (O)

(EPBAX) 281263, 281461, 281248, 281349, 281462

Fax: 08258 – 281265

**TENTATIVE**

Date: 4-12-2017

## ACADEMIC CALENDAR for B.E. 2017 – 2018 - Even Semester

S.No.	Event	II, IV, VI, VIII Semester B.E.	
1	<b>REOPENING OF EVEN SEMESTER</b>	<b>December 28, 2017</b>	
2	Registration of courses	Dec. 28, 2017 – Jan. 1, 2018	
3	Commencement of classes	January 1, 2018	
4	<b>MSE I</b>	February 5 - 7, 2018	
5	Last day for dropping the course	February 17, 2018	
6	<b>MSE II</b>	March 19 - 21, 2018	
7	Last day for withdrawal	March 31, 2018	
8	Additional MSE	April 2 - 4, 2018	
9	Project Exhibition (Final Year)	April 6, 2018	
10	<b>Last Working Day</b>	<b>April 18, 2018</b>	
11	Practical Examination / Project Viva voce	On or before April 25, 2018	
12	<b>Theory Examination</b>	April 26 - May 16, 2018	
13	<b>Vacation Break</b>	May 17 - July 27, 2018	
14	Announcement of Result	May 24, 2018	
15	<b>Supplementary Semester (7<sup>th</sup> and 8<sup>th</sup> Sem. Lab with exam)</b>	May 11 - 22, 2018	
16	<b>Supplementary Semester</b>	May 24 - June 29, 2018	
17	Last Date for Registration of Make up Examination / Supplementary Semester	May 25, 2018	
18	Last date for applying for Revaluation	May 26, 2018	
19	Commencement of Supplementary Semester Classes	May 26, 2018	
20	DUGC Valuation & Paper seeing	June 2, 2018	
21	Revaluation Result	June 7, 2018	
22	<b>Make up / Supplementary Examination</b>	Theory	June 30 - July 19, 2018
		Lab	on or before July 23, 2018
23	<b>Reopening of ODD Semester (2018-2019)</b>	<b>July 28, 2018</b>	
24	Registration of Courses	July 28 - August 1, 2018	
25	Commencement of Classes	August 1, 2018	

Sd/-

**CONTROLLER OF EXAMINATIONS**

Sd/-

**PRINCIPAL**



\*Dp/-

email: [coe.nmamit@nitte.edu.in](mailto:coe.nmamit@nitte.edu.in)

## Internal Quality Assurance Cell (IQAC)

### Academic Calendar (2017-18)

Month	Activities
August 2017	<ul style="list-style-type: none"> <li>• Course registration for odd semester(UG)</li> <li>• Familiarization/Orientation for first year students</li> <li>• First IQAC Meeting</li> <li>• Submission of training need analysis for faculty members by HoD's</li> <li>• Inauguration of student associations and activities</li> <li>• Class Committee formation and announcing the meeting schedule by HoD's of all the departments</li> <li>• Identification and monitoring of arrear students (student monitoring cell)</li> </ul>
September 2017	<ul style="list-style-type: none"> <li>• Course registration for odd semester(PG)</li> <li>• Orientation program for first year students(PG)</li> <li>• Guest lectures(Departments)</li> <li>• Mid Semester Exam – I(UG)</li> <li>• Analysis of students performance and identification of slow learners</li> <li>• Conduction of remedial classes for slow learners</li> <li>• Internal audit for ISO 9001:2015</li> </ul>
October 2017	<ul style="list-style-type: none"> <li>• Collection of mid semester feedback from students</li> <li>• Guest lectures(Departments)</li> <li>• Mid Semester Exam – II(UG)</li> <li>• Analysis of students performance and identification of slow learners</li> <li>• Identifying students with less than 85% attendance and collecting assignments from them(departments)</li> </ul>
November 2017	<ul style="list-style-type: none"> <li>• Additional Mid Semester Exam</li> <li>• Analysis of students performance in CIE</li> <li>• Second IQAC Meeting</li> <li>• Collection and analysis of CO attainment from CIE(departments)</li> </ul>
December 2017	<ul style="list-style-type: none"> <li>• Semester End Examination</li> <li>• IQAC workshop</li> <li>• Conduction of the Academic audit by IQAC</li> <li>• Faculty Development workshops</li> </ul>
January 2018	<ul style="list-style-type: none"> <li>• Registration of courses for even semester(both UG&amp;PG)</li> <li>• Collection and analysis of gross CO attainment from CIE and SEE(departments)</li> </ul>
February 2018	<ul style="list-style-type: none"> <li>• Mid Semester Exam – I</li> <li>• Analysis of students performance and identification of slow learners</li> <li>• Conduction of remedial classes for slow learners</li> <li>• Technical and cultural fest</li> <li>• Third IQAC Meeting</li> <li>• Collection of mid semester feedback from students</li> </ul>

March 2018	<ul style="list-style-type: none"> <li>• Internal audit for ISO 9001:2015</li> <li>• Parents Meet(First year slow learners)</li> <li>• Mid Semester Exam – II</li> <li>• Analysis of students performance and identification of slow learners</li> <li>• Guest lectures(Departments)</li> </ul>
April 2018	<ul style="list-style-type: none"> <li>• External audit for ISO 9001:2015</li> <li>• Additional Mid Semester Exam</li> <li>• Analysis of students performance and identification of slow learners</li> <li>• Final year Project Exhibition(EXPRO)</li> <li>• Collection and analysis of CO attainment from CIE(departments)</li> </ul>
May 2018	<ul style="list-style-type: none"> <li>• Semester End Examination</li> <li>• IQAC workshop</li> <li>• Registration of courses for supplementary semester(both UG&amp;PG)</li> <li>• Fourth IQAC Meeting</li> <li>• BOS meeting</li> <li>• International Conference on emerging trends in Engineering</li> </ul>
June 2018	<ul style="list-style-type: none"> <li>• Faculty Development workshops</li> <li>• Semester End Examination(SEE)</li> <li>• Collection of Parents Feedback</li> </ul>
July 2018	<ul style="list-style-type: none"> <li>• Faculty Development workshops</li> <li>• Internships/Summer workshops/Audit Courses</li> <li>• Graduation Day</li> <li>• Collection and analysis of gross CO attainment from CIE and SEE(departments)</li> </ul>

**Dr. Subrahmanya Bhat K**

**Director-IQAC**

**Dr. Niranjana N. Chiplunkar**

**Chairman-IQAC**

## ANNEXURE-II

### Department of Master of Computer Applications

#### Parents Feedback – 2017 - 2018

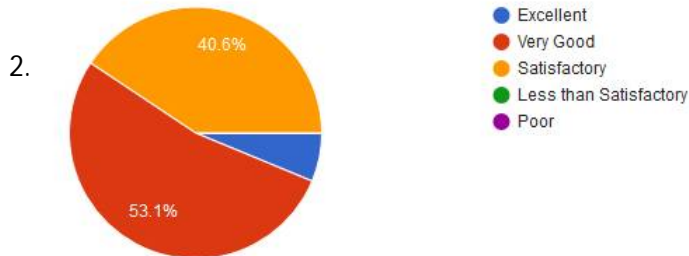
		1	2	3	4	5	Total	Average
1	How happy are you with the performance of the student?	--	--	2	11	1	14	3.93
2	Improvement in the student's personality as compared to the same at the time of joining the Institute?	--	--	2	10	2	14	4
3	Improvement in the student's communication skills as compared to the same at the time of joining the Institute?	--	1	--	11	02	14	4
4	How well did we do in transforming the student into a good and responsible citizen?	--	--	1	11	2	14	3.93
5	Feedback received by you from the student with regard to teaching.	--	--	2	8	4	14	4.14
6	Feedback received by you from the student with regard to extra-curricular activities.	--	--	1	8	5	14	4.29
7	Feedback received by you from the student with regard to laboratory facilities.	--	--	--	7	7	14	4.5
8	Feedback received by you from the student with regard to computer facilities.	--	--	--	5	9	14	4.64
9	Feedback received by you from the student with regard to general infrastructural facilities.	--	--	--	9	05	14	4.36
10	Feedback received by you from the student with regard to hostel facilities (only if applicable).	--	--	--	2	4	6	4.67
11	Feedback received by you from the student with regard to student's ability to cope with other students.	--	--	1	6	7	14	4.23
12	Feedback received by you from the student with regard to the administration of the Institute.	--	--	1	5	8	14	4.5
13	Given the circumstances under which you admitted the student in the Institute, your level of satisfaction in realizing your objectives.	--	--	1	11	2	14	4.07
14	How strongly would you consider this Institute for admitting another student, if you have to	--	--	1	8	5	14	4.23

**H.O.D**

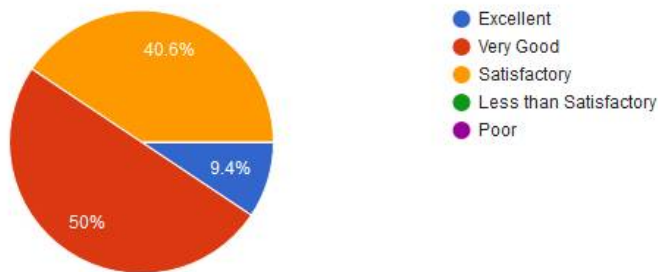


## PARENT FEEDBACK(Mechanical)

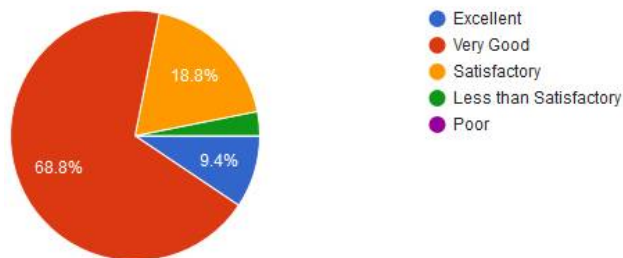
1. How happy are you with the performance of the student?



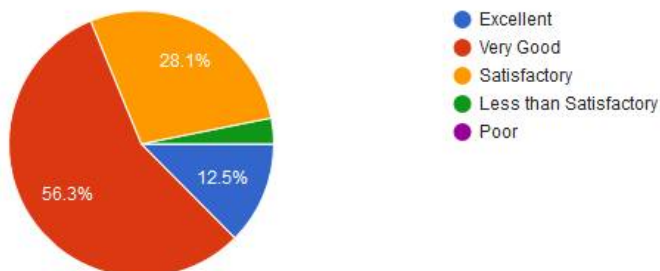
2.Improvement in the student's personality as compared to the same at the time of joining the Institute?



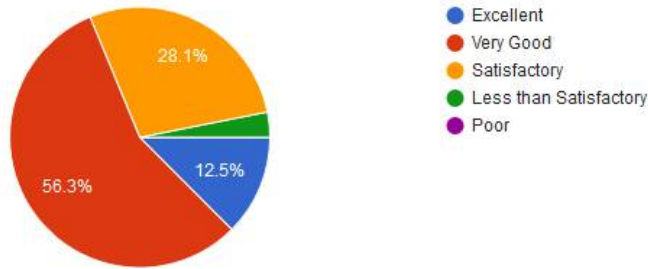
3. Improvement in the student's communication skills as compared to the same at the time of joining the Institute?



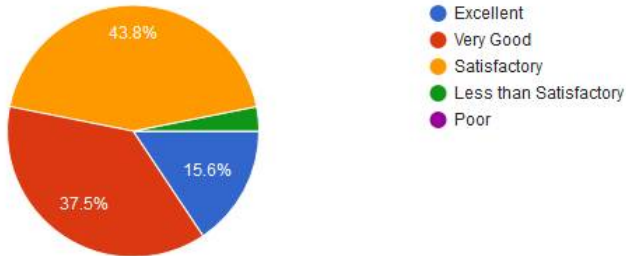
4. How well did we do in transforming the student into a good and responsible citizen?



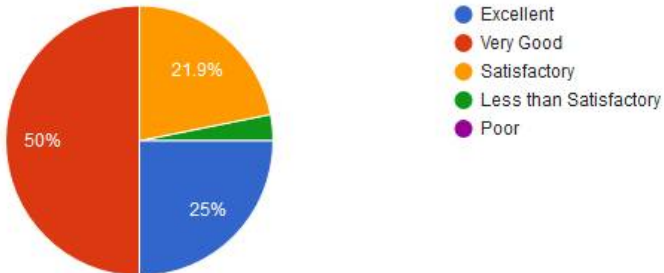
5. Feedback received by you from the student with regard to teaching



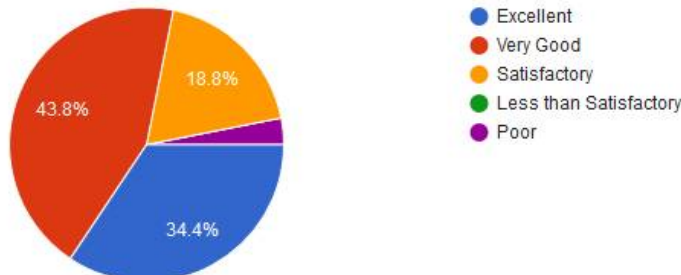
6. Feedback received by you from the student with regard to extra-curricular activities



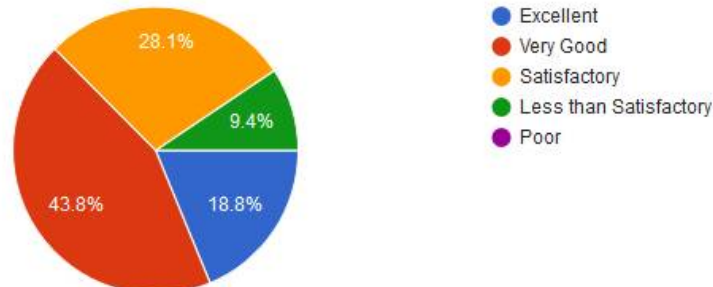
7. Feedback received by you from the student with regard to laboratory facilities



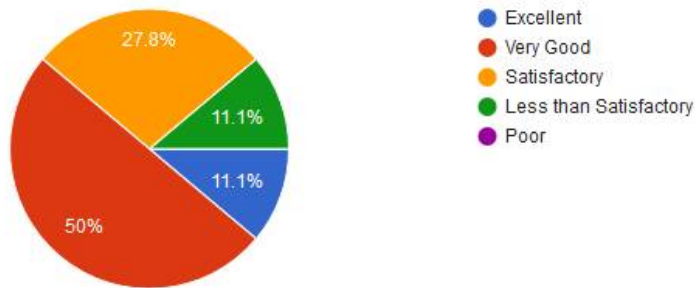
8. Feedback received by you from the student with regard to computer facilities



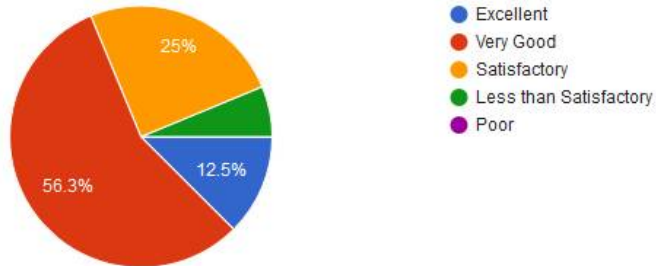
9. Feedback received by you from the student with regard to general infrastructural facilities



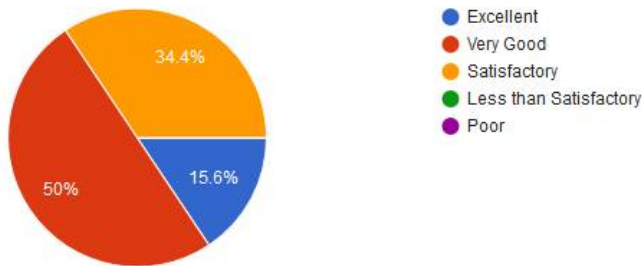
10. Feedback received by you from the student with regard to hostel facilities (only if applicable)



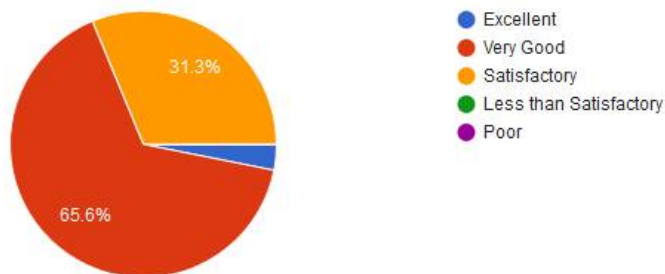
11. Feedback received by you from the student with regard to the student's ability to cope with other students



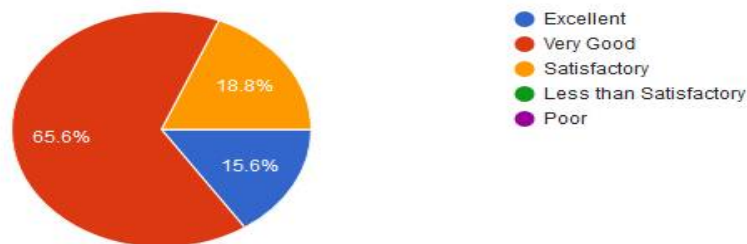
12. Feedback received by you from the student with regard to the administration of the Institute



13. Given the circumstances under which you admitted the student in the Institute, your level of satisfaction in realising your objectives



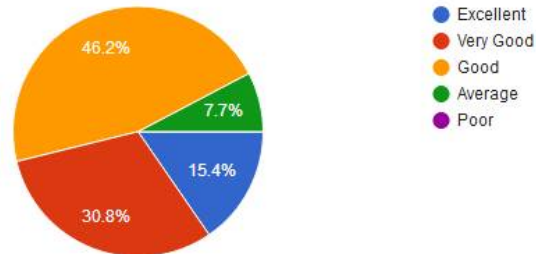
14. How strongly would you consider this Institute for admitting another student, if you have to?



# Alumni Feedback on Curriculum(Mechanical)

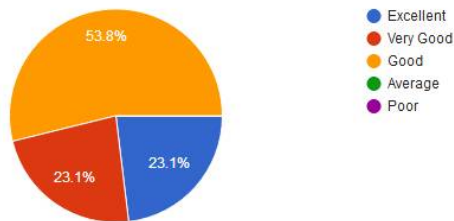
## Fulfillment of Objectives

13 responses



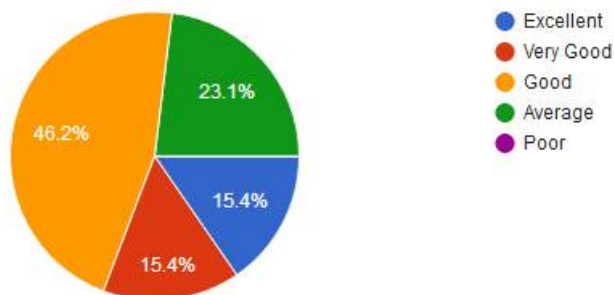
## Depth of Coverage

13 responses



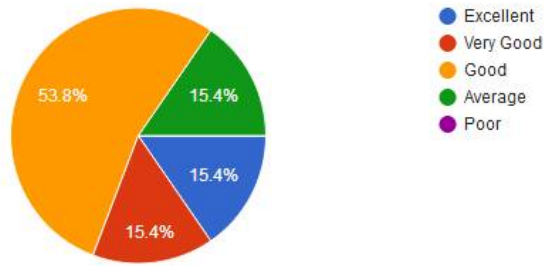
## Courses that are in tune with emerging National and International standards

13 responses



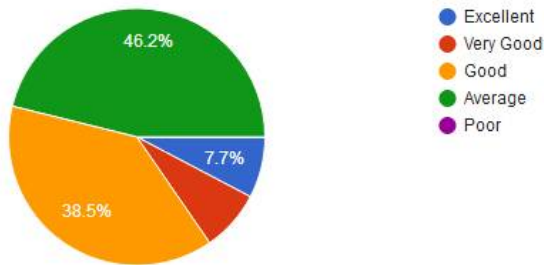
### Relevance of courses with both theory and practical

13 responses



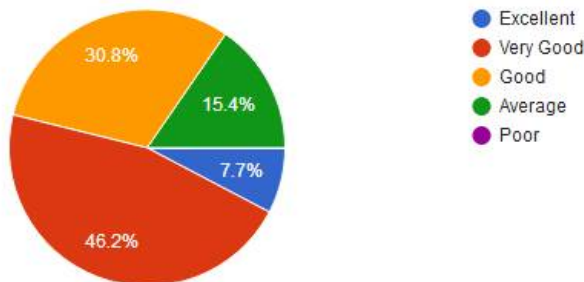
### Applicability of subjects for placements/ industry/ R&D requirements

13 responses



### Learning value (in terms of knowledge, concepts, soft skills, analytical abilities and broadening perspectives)

13 responses



## Suggestions

Focus should be more on practical and visual learning as it's the need of the hour.

More practical classes required

Give placement importance to all the departments.

If you only concentrate on getting IT sector companies why do you offer other courses?

Make NMAMIT as a computer science engineering college. Don't spoil the career of other branch students.

Teach with videos... It will be helpful

Inclusion of teaching more features in 3d modelling softwares (mechanical)

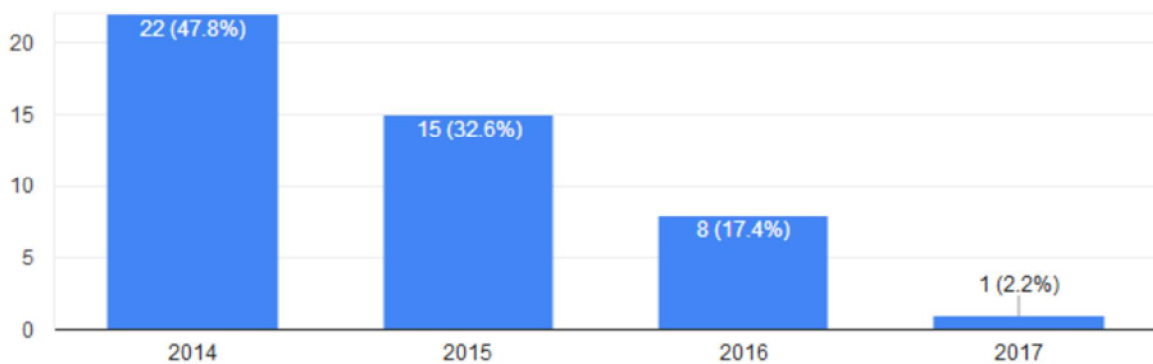
Curriculum is as good as it gets,do not change anything.

Give more focus to up to date technology

Subjects like manufacturing especially industry related in mechanical engineering stream,i would suggest to take the students to an industry or a workshop and explain them how actually the process takes place,because it would be more effective to learn and analyse things if we watch the working process and it would help the students to visualize and think of innovations and I would also request the teaching faculties to relate things with the growing technology so that the students find it interesting and it makes them to attain more intrest and enthusiasm to learn more about a subject.

## Alumni Feedback on PEOs

Year of passing/ Batch  
46 responses





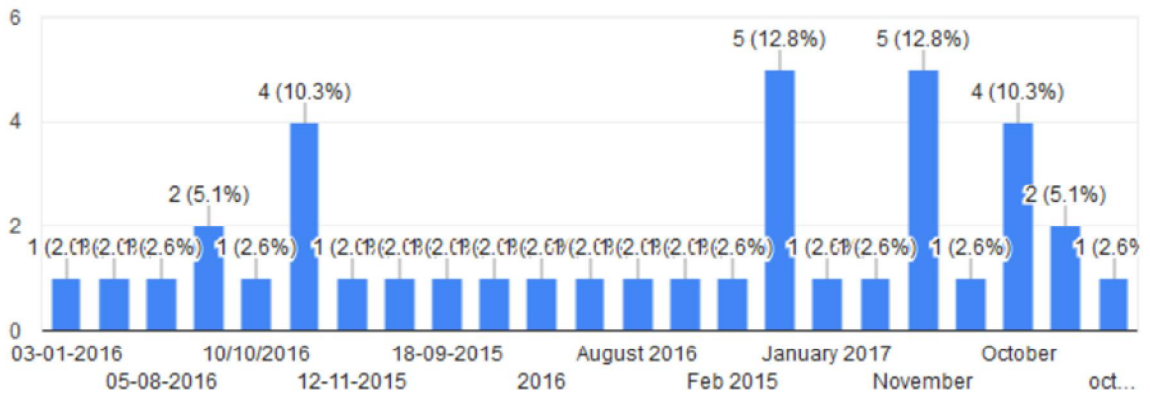
### . Name & Address of your Organization

46 responses

Infosys (8)
Wipro (5)
L&T IES (4)
Nmamit (3)
Nmamit (3)
Infosys (3)
Kef holdings krishnagiri (2)
NAM Plastic Industries, Mangalore.
Accenture
Nmamit nitte
Allegion
Anvin engineers private limited pune

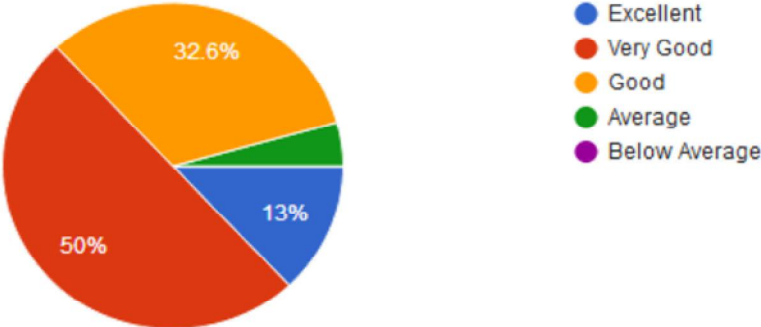
### . Date of joining of the current Organization

39 responses



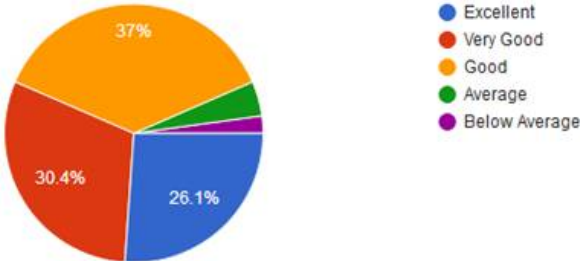
Are you able to research, design, develop, test, evaluate, and implement engineering solutions to problems that are of a complexity encountered in professional practice:

46 responses



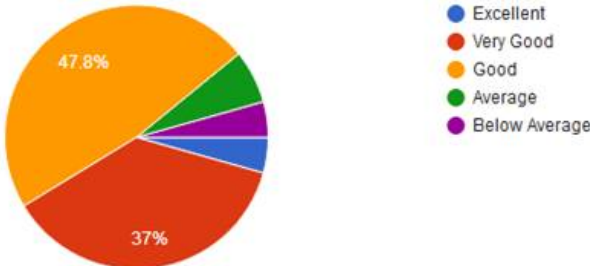
Are you able to communicate and perform as an effective engineering professional in both individual and team based project environments?

46 responses



Are you able to consider the ethical implications and societal impacts of engineering solutions?

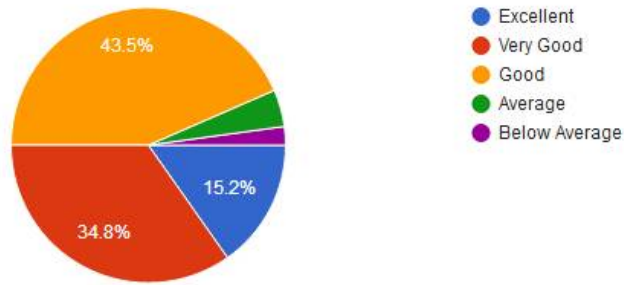
46 responses





## Are you able to continuously improve through lifelong learning?

46 responses



## Any other suggestions to improve the syllabus

46 responses

Improve the lab facilities (2)
Class room teaching must be improved (2)
More Industrial Visits
Improve course content
Overall syllabus is good but NIT standard is required.
nil
More practical classes are required
Nil
Improve teaching methods
More importance to practical learning is required.
Improve the lab

**Course Exit Survey 2017-18**  
**Semester / Section : IV / D**

Course Title: **Manufacturing Process – II**

**Course code: 16ME404**

Dear Student

In your opinion, how will you grade yourself in the attainment of the following Course

Outcomes after undergoing **Manufacturing Process – II** course:

(Please tick (√) in the appropriate column)

Excellent – 5, Very Good – 4, Good – 3, Average – 2, Below Average – 1

<b>Responses</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Total</b>	<b>Avg</b>
CO 1: Suggest suitable cutting tools and process parameters for conventional machining and also estimate various force components and tool life in metal cutting operations.	0	0	6 (27%)	8 (36%)	8 (36%)	22	4.1
CO 2: Summarize the construction and working of centre lathe, capstan and turret lathe, drilling machines and the various machining operations performed on them.	0	1 (5%)	4 (18%)	9 (41%)	8 (36%)	22	4.1
CO 3: Appreciate the construction and working of milling machines and various milling operations including gear milling.	0	1 (5%)	3 (14%)	7 (32%)	11 (50%)	22	4.3
CO 4: Explain the working principle of different grinding machines, manufacture, marking and selection of grinding wheels	0	0	4 (18%)	8 (36%)	10 (45%)	22	4.3
CO 5: Contrast the working principles of non-conventional machining processes like EDM, ECM.PAM, LBM, USM, AJM etc. with their specific characteristics.	0	0	3 (14%)	8 (36%)	11 (50%)	22	4.4

## Semester / Section : VI / C

Course Title: Operation Research

**Course code: 15ME601**

Dear Student

In your opinion, how will you grade yourself in the attainment of the following Course Outcomes after undergoing Operation Research:

(Please tick (√) in the appropriate column)

Excellent – 5, Very Good – 4, Good – 3, Average – 2, Below Average – 1

<b>Responses</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Total</b>	<b>Avg</b>
CO 1: Appreciate the use of Operations Research for solving problems in real life by selecting appropriate modeling technique. Use of linear programming for formulating and solving problems.	2 (10%)	1 (5%)	1 (5%)	5 (24%)	12 (57%)	21	4.1
CO 2: Use of transportation and assignment technique to find solutions to real life problems.	2 (10%)	0	2 (10%)	5 (24%)	12 (57%)	21	4.2
CO 3: Use sequencing technique to solve real life problems and simulation for solving a variety of real life problems.	2 (10%)	0	2 (10%)	4 (19%)	13 (62%)	21	4.2
CO 4: Appreciate the use of queuing theory to solve real life problems and game theory for working out strategies in conflict situations.	2 (10%)	1 (5%)	0	7 (33%)	11 (52%)	21	4.1
CO 5: Use of network analysis techniques for planning and scheduling complex projects and to determine critical paths.	2 (10%)	0	3 (14%)	4 (19%)	12 (57%)	21	4.1

## Semester / Section : VIII / A

Course Title: Heat Transfer

**Course code: 14ME801**

Dear Student

In your opinion, how will you grade yourself in the attainment of the following Course

Outcomes after undergoing Heat Transfer course:

(Please tick (√) in the appropriate column)

Excellent – 5, Very Good – 4, Good – 3, Average – 2, Below Average – 1

<b>Responses</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Total</b>	<b>Avg</b>
CO 1: Outline the modes of heat transfer, basic laws governing them and principles of steady state conduction.	3 (9%)	1 (3%)	0	2 (6%)	<b>27 (82%)</b>	<b>33</b>	4.5
CO 2: Explain heat transfer through finned surfaces and principles of unsteady conduction.	3 (9%)	1 (3%)	0	5 (15%)	<b>24 (73%)</b>	<b>33</b>	4.4
CO 3: Utilize basics of radiation heat transfer, governing laws, and study+ the use of radiation shields.	3 (9%)	1 (3%)	0	4 (12%)	<b>25 (76%)</b>	<b>33</b>	4.4
CO 4: Understand the principles of boundary layer theory in heat transfer, forced and free convection heat transfer.	3 (9%)	1 (3%)	0	4 (12%)	<b>25 (76%)</b>	<b>33</b>	4.4
CO 5: Know boiling and condensation heat transfer, heat exchangers and fundamentals of mass transfer.	3 (9%)	1 (3%)	0	6 (18%)	<b>23 (70%)</b>	<b>33</b>	4.4

## ANNEXURE-III

### **Modifications to the Scheme and Syllabi of BE, MCA, and M.Tech :**

#### **BOS meeting held in all Departments during first and second week of May 2017**

Department of MBA:

The Department practices revision of syllabus at the beginning of every academic year. There is a structured process for developing the content of each paper involving a process of consultation with faculty members, functional area heads and the Director.

Changes in the allocation of credits.

Total number of core subjects reduced from 8 to 7 in the I and II semester.

Integration of Statistics with Research Methodology.

Changes in the orientation of subjects like Financial Accounting, Managerial Economics, International Business Environment.

General Management Electives in the III and IV Semester.

Introduction of a new subject -Business Analytics as a General management elective.

Shifting of Strategic Management to II Semester and Business Ethics and Corporate Governance to IV Semester.

Introduction of Simulation games in the III Semester (2 Credits) and IV Semester (1 credit).

Introducing Logistics and supply chain management as a Marketing specialization elective in the place of International Marketing.

Similarly the growing importance of business intelligence, a paper has on business analytics has been offered for the first time. The Department has future plans to expand Business Analytics to certificate level courses to cater to the needs of the business and industry. Similarly, in view of the growing use of social media and e-commerce, a specialization paper has been introduced in 'Digital Marketing' and 'Social Media marketing'.

### **Department of Biotechnology : UG**

**Major Changes incorporated** (Scheme, Course titles)

- 10.3. The course 17BT120 Biology for Engineers (earlier a MLC) is converted to a 2 credit course without any additional modifications in syllabus.
- 10.4. There is no change in scheme for 5<sup>th</sup> & 6<sup>th</sup> semester (15BT series) and 7<sup>th</sup> & 8<sup>th</sup> semester (14BT

series) for the academic year 2017-18. The finalized and approved scheme for these two series is enclosed.

**10.4.** Two Major changes were incorporated in the **scheme of 16BT series** and onwards. The incorporations are based on the recommendation from academic council to bring in the choice based credit system. The modifications in scheme are as follows:

**10.4.1** The syllabus content of **courses with 39 lecture hours** are converted to 3 units from 5 units. This was based on the feedback received from question paper setters, BoE and Controller of Examination, who expressed difficulty in setting question papers in the existing question paper scheme. It is difficult to set questions of 40 marks from a unit covered in 6 to 7 hours and not repeating them in consecutive academic years. It was observed over last few years that many questions were redundant for these courses. The examination scheme for these courses will be as follows:

**Mid Sem Exam:** MSE1 from Unit 1, MSE2 from Unit 2; In each MSE, 3 questions of 10 marks each to be asked of which student has to answer 2 questions.

**Sem End Exam:** 3 questions of 20 marks from unit 1 & unit 2, and 2 questions of 20 marks from unit 3 to be asked. Of these, 2 questions from Unit 1 & Unit 2, One question from Unit 3 to be answered by the student.

**The question paper schemes for other courses remain unchanged.**

**10.4.2 Rearrangement of Electives for Choice based credit system**

The three credit electives are regrouped into 4 categories as Program Elective (Applied Bioscience Domain), Program elective (Applied Engineering Domain), Global Elective, Open Elective.

Elective	Semester	Total No.	Offered by
Group 1 - Program Elective (Applied Bioscience Domain)	5 <sup>th</sup> to 8 <sup>th</sup>	3	Dept. of BTE
Group 2 - Program elective (Applied Engineering Domain)	5 <sup>th</sup> to 8 <sup>th</sup>	3	Dept. of BTE
Group 3 - Open Elective	6 <sup>th</sup>	1	Other Dept.
Group 4 - Global Elective	5 <sup>th</sup> to 8 <sup>th</sup>	1	Other Dept./ Dept. of BTE

The courses under each group of elective and the remarks (if any) are given in the attached scheme for 16BT series. BOS has suggested adding NPTEL and other reputed MOOCs under departmental and global elective list. Since the weightage of such courses differ, the decision of awarding 3 credits to the opted MOOCs should be approved by DUGC.

Based on the prerequisites for respective electives of applied bioscience domain and applied engineering domain, student will be allowed to choose and register for the elective in the respective semester.

A student can choose **global elective** in any semester between 5<sup>th</sup> to 8<sup>th</sup> semester as an alternative to applied bioscience or engineering elective and make up for the total credits required for the completion of degree. All together, a candidate should have completed **8 electives** before graduation, where the candidate has to register for 7 electives offered by the

- department or **6** electives offered by the department and one **global elective**, and completing the course work of one open elective before graduation is compulsory.
- 10.5** The scheme of 16BT series was redesigned for 6<sup>th</sup> and 7<sup>th</sup> semester in order to address some of the missing components in the curriculum. The changes incorporated are as below:
- 10.5.1** A 3 credit program core course **16BT601 Fermentation Technology** has been (L-T-P-S : 3-0-0-0, 39 hr) incorporated. This course deals with fermenter, types and operations, heat and mass transfer requirements in a fermenter.
- 10.5.2** The program core course **Bioprocess Dynamics & Control** was shifted to 7<sup>th</sup> semester (**16BT704**) without any other changes in its scheme.
- 10.5.3** The credits of three courses in 7<sup>th</sup> semester (**16BT701 - Immunology, 16BT702 - Bioethics, Biosafety & IPR, 16BT703 - Plant Design & Economics**) was reduced to 3 from 4 credits. The Lecture hours for these courses is reduced to 39 from 52.
- 10.5.4** The laboratory course in 6<sup>th</sup> semester, Bioprocess Control & Instrumentation Lab is withdrawn and in its place a new laboratory course **16BT604 Fermenter Operations & Instrumentation Lab** is introduced.
- 10.6** This committee has been informed that the Institution level offered core course **16HU311 Enhancing Self Competence** (by Humanities department) the LTPS has been changed to 1-0-2-0 from 2-0-0-0. Credits remain unchanged.
- 10.7** Following corrections are suggested during the meeting for incorporation in the syllabus content of B.E. Biotechnology program –during academic year 2017-18.
- 9.2.1. 16BT307 Biochemistry Lab**  
Experiment 1 on buffer preparation is renamed.  
Experiment on estimation of cholesterol is added.
- 9.2.2. 16BT403 Thermodynamics**  
Unit 3: Gibbs Duhem equation is removed.
- 9.2.3. 16BT404 Structural Biology**  
Unit 4: Topic on glycoinformatics is added.
- 9.2.4. 16BT406 Cell & Developmental Biology**  
Five units are restructured into 3 Units. Some topics have been eliminated and updated with new topics in all the units.
- 9.2.5. 15BT503 Bioinformatics & Applications**  
Unit 1: Retitled as Introduction to Sequencing, Omics & Genome Projects  
Unit 2: Topic on Cn3D & EMP is removed.
- 9.2.6. 15BT506 Biokinetics Lab**  
Experiment on Packed Bed reactor is removed.  
Experiment on Enzyme extraction and estimation of specific activity is added.
- 9.2.7. 15BT624 Clinical Studies & Data Management**  
Unit 3: Ecological study design is removed.
- 9.2.8. 15BT606 Upstream Processing Lab**  
Experiment on Induction of invertase enzyme in packed bed reactor using immobilized yeasts is added.

### **9.2.9. 14BT702 Bioethics, Biosafety & IPR**

Unit 2: altering human germline is renamed as germline therapy. Ethics and Environmental Impact is removed.

### **10.8.1 Approval of Audit Course Curriculum**

The curriculum for the Audit courses (June-July 2017) were discussed and approved.

**10.8.2** The panel of examiners for UG semester examinations (Academic year 2017-18) was approved by the BOS. The list is enclosed.

### **10.9 Additional suggestions made during the meeting are as follows:**

**10.9.1.** It is suggested to include online resource materials in the reference for the respective courses

**10.9.2.** Some BOS members were of the opinion that in 16BT scheme, 7<sup>th</sup> semester load should be reduced in order to provide ample opportunity to carry out project work. Hence it was suggested to relook into 6<sup>th</sup> & 7<sup>th</sup> semester scheme of the said series in the next BOS meeting.

## **M.Tech. Industrial Biotechnology (Full Time) Program**

**3.1** As per the instructions of Academic Council, course code was revised as per NMAMIT Autonomous format. The format is 17IBT1XY for 1<sup>st</sup> semester and thereon.

**3.2** The scheme for **M.Tech. Industrial Biotechnology programme** was approved during the B.O.S meeting. Approved scheme is attached.

**3.2.1** The first 2 semester have three 5 credit core courses with L-T-P-S = 4-0-2-0 and two 4 credit elective courses with L-T-P-S = 4-0-0-0 in each.

**3.2.2** A seminar based course **Research Experience through Practice** is offered in the first two semesters. The student, under the supervision of a faculty, will be reviewing the literature on a given topic and need to come out with a research proposal, a review article and present the same in the open seminar. The student, if interested, may continue this work as minor research project and major research project in the subsequent semesters.

**3.2.3** BOS was of the opinion that one or two audit courses need to be offered to students in these semesters to fill the gaps or industry requirements.

**3.2.4** 3<sup>rd</sup> semester and 4<sup>th</sup> semester have only industrial training, seminar and Projects. Details are given in the scheme.

**3.3** The syllabus content for **M.Tech. Industrial Biotechnology programme** was reviewed & approved during the B.O.S meeting. Following corrections were incorporated.



### **3.3.1. 17IBT101 - Applied Statistics & Design of Experiments**

Practicals on statistical analysis, experimental design and analysis are incorporated. Hands on training for use of Software are provided during these practical courses.

### **3.3.2. 17IBT102 - Fermentation Technology-I**

Experiments pertaining to Fermentation Technology from earlier laboratory course on Fermentation Technology & Molecular Biology lab (16IBT105) were transferred to this course.

### **3.3.3. 17IBT103 - Advanced Molecular Biology**

Experiments pertaining to Molecular Biology from earlier laboratory course on Fermentation Technology & Molecular Biology lab (16IBT105) were transferred to this course.

### **3.3.4. 17IBT201 - Food Process Engineering**

Experiments pertaining to Food Processing from earlier laboratory course on Food Processing & Downstream Operations Lab (16IBT205) were transferred to this course.

### **3.3.5. 17IBT202 - Fermentation Technology II**

Experiments pertaining to Downstream operations from earlier laboratory course on Food Processing & Downstream Operations Lab (16IBT205) were transferred to this course.

### **3.3.6. 17IBT202 - Research Methodology, Biosafety & IPR**

A topic on Concept of project to product in unit 2 is introduced.

Practical case studies and IPR proposal preparations are introduced to the Practical components of this course. Students are expected to gain hands on experience in IPR related documentation and procedures.

### **3.3.7. Elective courses are restructured with 3 electives in a group**

### **3.3.8. Elective course Bioprocess Engineering and Bioreaction Engineering are renamed as Advanced Bioprocess Engineering and Advanced Bioreaction Engineering without any changes in their curriculum.**

### **3.3.9. Two courses "Quality and safety Management" & "Project Management" are offered as audit courses during 1<sup>st</sup> & 2<sup>nd</sup> semesters.**

**Changes incorporated:**

1. In the new subject Building Materials and Construction which has been introduced in 3<sup>rd</sup> semester, BOS members felt that more importance should be given for **Steel** in the topic of other building materials and some topics like vinyl flooring, modern construction technology and well foundation can be introduced in self-study component.
2. BOS members advised to restrict the Course Learning Objectives to five in all the subjects.
3. BOS members agreed to have concrete technology as core subject in 4<sup>th</sup> semester and they felt that Concrete Technology laboratory should come in early semesters either in 4<sup>th</sup> or 5<sup>th</sup> semester.
4. BOS members suggested to swap the concrete and highway lab with 5<sup>th</sup> semester CAD lab and to add the basic syllabus of CAD drawing in Building Planning and Drawing of 4<sup>th</sup> semester.
5. BOS members suggested to give more importance on software analysis in CAD Drawing laboratory.
6. BOS members agreed to introduce Design of RCC Structural Elements in 5<sup>th</sup>Sem, Design of Structural Steel elements in 6<sup>th</sup>Sem, Design of RCC and Steel Structures in 7<sup>th</sup>Sem and Detailing of RCC and Steel Structures in 8<sup>th</sup> semester.
7. BOS members suggested to introduce a new elective on Building Code & Practice in 7<sup>th</sup> semester.
8. BOS members suggested to include a two week internship programme for UG students and they have to give presentation on it in 8<sup>th</sup> semester. This can be introduced in scheme by opting between SOCT and Internship.
9. BOS members felt that Detailing of RCC and Steel Structures should be done with CAD software and suggested to implement it.

**1) M.Tech in Structural Engineering :-**

For **2017** admission students the following corrections, additions, deletions and suggestions were proposed by the BOS members.

1. HOD briefed about the change in 2017 scheme for PG to have 3 Core Subjects of 5 Credits and 2 Elective of 4 Credits. Introduction of Research Experience through practice – I during 1<sup>st</sup> semester and Research Experience through practice – II during 2<sup>nd</sup> Semester. At the end of the practice students will present a research paper.
2. Members suggested the use of software's for all courses.
3. They also suggested for casting and testing of structural members in structures lab.
4. They insisted to keep an elective on programming skills relevant to structures.
5. Members suggested to keep design of curved beams in advanced RCC design and removal of ductile detailing of RCC structures since it is already explained in Design of Earthquake Resistant Structures.

6. The members insisted to keep PSC as an elective and explained the importance of this course.
7. They insisted to add computational mechanics with plates and shells.

## 2) **M.Tech in Construction Technology :-**

For 2017 admission students the following corrections, additions, deletions and suggestions were proposed by the BOS members.

1. HOD briefed about the change in 2017 scheme for PG to have 3 Core Subjects of 5 Credits and 2 Elective of 4 Credits. Introduction of Research Experience through practice – I during 1<sup>st</sup> semester and Research Experience through practice – II during 2<sup>nd</sup> Semester. At the end of the practice students will present a research paper.
2. Construction Planning and Control [17CCT101] to be renamed as "*Construction Planning and Control Management*", adding topics on Risk Register, introduction to Risk Management, usage of Primavera Software along with MS Project., introduction of Mat Lab were discussed.
3. Syllabus on Advances in Construction Materials [17CCT102] will be renamed as "*Advanced Concrete Technology*" and this course will be offered as elective under Group I during 1<sup>st</sup> semester.
4. It was discussed that Quantitative Methods in Construction [17CCT116] will be offered as elective and the syllabus to be tailored for the needs of Civil Engineering related topics instead of pure mathematics.
5. For the course on Construction Economics and Finance [17CCT213], it is decided to have this as core instead of elective during 1<sup>st</sup> Semester. Syllabi of this course has been discussed in detail. Members felt to add the practical component which includes case studies of Balance Sheet Analysis, Site visit, listing of ongoing site activities and CPM Charts.
6. It is discussed to make Unit I, II & III as a single unit in the course Construction Quality and Safety [17CCT202] and to add few topics from Quantitative Methods in constructions from unit I & II to this course. It is decided to include the practical components on case studies on Quality Compliance Requirements, Preparation of Quality Checklist, and Preparation of Quality Manuals. Mr. P K Raghavendra suggested to have a guest Lecture by Er. Vishwanath D N from Shapoorji Pallonji & Co.
7. Mr. P K Raghavendra suggested to include 50% legal case studies and 50% of legal Aspects as a practical component in Construction & Contracts Management [17CCT203]. He also informed to add International Federation of Consulting Engineers (FIDIC) document version 2004.
8. The Chairman informed that for all the courses at least two textbooks are mandatory and relevant reference books are to be added.
9. The members suggested to offer new elective courses such as Human Resource Management, Risk Management, Operation Research along with the existing electives

- The new scheme for **2016-20 batch** is as per the Choice Based Flexible Credit System (CBFCS) and were discussed in detail from 3<sup>rd</sup> semester to 8<sup>th</sup> semester. This new scheme will be implemented from 2<sup>nd</sup> year BE onward from the academic year 2017-18.
- It has been recommended and decided to have the following courses in 3<sup>rd</sup> semester and 4<sup>th</sup> semester for AY 2017-18, and the syllabus for the same is approved:
  - In **3<sup>rd</sup> semester**: Generating functions & Combinatorics, Digital Systems Design, Data Structures, Data Communications, Discrete Mathematics, and Computer Organization & Architecture (**Total Credits: 27**).
  - In **4<sup>th</sup> semester**: Probability theory & Linear algebra, Design & Analysis of algorithms, Programming with Java, Principles & Practices of Software Engineering, and Microprocessors & Peripherals (**Total Credits: 25**).
- It has been suggested to give credits for the **tutorial and self-study** components for the work carried under these sections. Also, it has been suggested to have credits for all non-credit mandatory courses.
- It has been felt that the **number of courses in a semester** are more and hence it is suggested to increase the credits for courses instead of courses itself.
- **Flipping of core courses** between the semesters of the particular year was proposed by HOD, but external experts felt that this flipping will not serve any purpose and also some courses will not satisfy pre-requisites completely. Hence, it is decided not to flip the core courses between 3<sup>rd</sup> & 4<sup>th</sup> semesters.
- In each of 2<sup>nd</sup> year, 3<sup>rd</sup> year, and 4<sup>th</sup> year, there is one **crash course** which is credit-less mandatory courses but these courses will reflect in the student grade card. External experts felt that these courses shall be credited and there must be a well-defined evaluation method for these courses.
- Since Programming with C++ is a crash course during the beginning of 4<sup>th</sup> semester and Programming with Java is a core subject, so, while teaching C++ course, **OOP concepts** are expected to be emphasised instead while teaching Programming with Java.
- In order to satisfy the pre-requisites and for smooth flow of courses in the higher semesters, it has been recommended to shift **Microprocessor & Peripherals(MP)** core course from 5<sup>th</sup> semester to 4<sup>th</sup> semester by moving **Relational Database Management Systems (RDBMS)** core course from 4<sup>th</sup> semester to 5<sup>th</sup> semester.
- In order to have lab component for the course and credit rearrangement, it has been recommended to shift **Operating System** core course from 4<sup>th</sup> semester to 5<sup>th</sup> semester by adding a Lab component in the place of Cryptography & Network Security in 5<sup>th</sup> semester.
- Since there is an Advanced UNIX Programming course as an elective in 5<sup>th</sup> semester, it has been suggested to have **fundamentals of UNIX** programming as a part of Operating System lab.
- It has been suggested that **Employability Skill Development(ESD)** course may be given with **one credit** instead of credit-less mandatory course.

- It has been suggested that ***Cryptography & Network Security*** core course to shift from 5<sup>th</sup> semester to 6<sup>th</sup> semester in place of ***Introduction to Cyber Security*** core course and shift the Introduction to Cyber security to elective course.
- It has been suggested that ***Web programming*** elective course may be moved to 6<sup>th</sup> semester elective course and ***Mobile Application Development (MAD)*** elective course to 5<sup>th</sup> semester.
- It has been suggested that enough care should be taken for possible ***overlapping*** in the ***contents*** of the courses such as Machine Learning, Artificial Neural Network & Deep Learning courses.
- In 7<sup>th</sup> semester, it has been suggested that ***Object Oriented Modeling Design (OOMD)*** course can be made as core course and ***Human Computer Interaction (HCI)*** may be moved to elective and also Advanced Computer Architecture and Parallelism shall be renamed as ***Advanced Computer Architecture***.
- It has been suggested that the syllabus contents of software project management course shall be carefully designed such that the ***contents*** of engineering management course will not ***overlap*** each other.
- HOD discussed about equivalent ***MOOC courses*** for every elective from 5<sup>th</sup> semester to 8<sup>th</sup> semester. That is, student can either register for elective in the department or obtain a certificate from MOOC of equivalent credit course. But external experts suggested to have such courses only for one semester to begin with and at the same time there must be some mechanism for evaluating MOOC courses.
- In 6<sup>th</sup> semester, it has been recommended that the ***Digital Signal Processing (DSP)*** elective course can be replaced with ***Digital Image Processing (DIP)*** elective course.
- It has been suggested that in the higher semesters, the courses Distributed computing and Advanced DBMS can be introduced as elective subjects.
- It has been suggested to look into the number of ***hours*** allotted for ***projects*** which is not matching with the number of credits.
- The ***technical open elective*** offering in 8<sup>th</sup> semester is moved to 6<sup>th</sup> semester, as per the demand by most of the stakeholders and the same is approved.
- The total number of “***Electives***” that will be taken by the students in the new scheme is ***seven*** as given below:

Departmental Electives (6 Nos.)

- 5<sup>th</sup> semester – 1 elective
- 6<sup>th</sup> semester – 1 elective
- 7<sup>th</sup> semester – 2 electives
- 8<sup>th</sup> semester – 2 electives
- During 5<sup>th</sup> to 8th semester – 1 ***Global elective***: This elective is chosen by the student either from set of “***non-technical open elective***” or “***department elective***” during ***5<sup>th</sup> to 8th semester***. The suggested list of non-technical open electives are : Introduction to Yoga, Physical Education Principles, overview of Indian culture and arts, Foreign

languages, Entrepreneurship Development, Research Methodology, Publishing Scopus Indexed papers, Mini projects with/without associating with Technical clubs, and Summer Internship in reputed Companies /Industries / Institutes. The same has been approved.

- For all courses under global elective list, it has been suggested that there must be some well-defined evaluation method. Similarly, publishing research paper by students need to have suitable evaluation parameters.
- It has been discussed about “Biology for Engineers” course for first year will be made 2 credit course, whereas CIPE and Environmental Engineering will be made credit-less mandatory courses and the same has been approved.
- Discussions took place about the number of contact hours for “*Enhancing Self Competence*” course is increased from 2 to 3 hours (L-T-P-S: 1-0-2-0) and the same has been approved.
- Discussions took place about *three credit courses* can have only 3 units (instead of 5 units) with 3+3+2 questions asked from each unit in the Semester End Exam. Students must answer 2+2+1 questions respectively. The same has been approved.
- The courses that are designed by industry listed below were discussed and the same has been approved:
  - Business Intelligence
  - Software Testing & Automation
  - Mobile Application Development

**FOLLOWING ARE THE MINUTES FOR THE CHANGES RECOMMENDED UNDER THE EXISTING SCHEME:**

- The major modifications proposed in the syllabus of the following electives courses in the existing scheme are accepted and is approved:
  - Web 2.0 and Rich Internet Applications is replaced by Advanced Web Technologies, and
  - Artificial Intelligence & Machine Learning course is replaced by Machine Learning
- The minor changes in the syllabus of the following courses in the existing scheme are accepted and is approved:
  - Program Verification (in 5<sup>th</sup> semester as an elective course)
  - Software Architecture (in 7<sup>th</sup> semester as a core course)
- Introduction of following new electives in the existing scheme are accepted and the syllabus for the same is approved:
  - Internet of Things (in 5<sup>th</sup> semester)
  - Business Intelligence (in 7<sup>th</sup> semester)
  - Social & Web Analytics (in 8<sup>th</sup> semester)
  - Big-Data Analytics (in 8<sup>th</sup> semester)
- As per the MoU between NMAMIT and IBM, the agreement comes to an end in the year 2017. Hence, removal of the following electives designed by IBM in the existing scheme discussed by HOD and the same is approved:

- Managing the Cloud (in 7<sup>th</sup> semester)
  - Virtualization and Cloud (in 7<sup>th</sup> semester)
  - Cloud Application Development with Lab (in 7<sup>th</sup> semester)
  - Social & Web Analytics with Lab (in 7<sup>th</sup> semester)
  - Introduction to IoT (in 8<sup>th</sup> semester)
  - Big-Data Analytics (in 8<sup>th</sup> semester)
  - Security in Cloud (in 8<sup>th</sup> semester)
  - BA for Industries (in 8<sup>th</sup> semester)
- Introducing Lab component for Python programming in 7<sup>th</sup> semester and L-T-P-S: (3+0+2+0).
  - Revision of Vision, Mission, Program Educational Objectives and Program Specific Outcomes were discussed.
  - The panel of examiners for both odd and even semesters of AY 2016-17 is approved.

### **M.Tech. in Computer Science & Engineering:-**

1. The new scheme for **2017-19 batch** is as per the Choice Based Flexible Credit System (CBFCS) and were discussed in detail from 1<sup>st</sup> semester to 4<sup>th</sup> semester. This new scheme has been recommended and hence it is implemented from the academic year 2017-18.
2. In each semester, it is recommended to have **3 core subjects, 2 Electives**, and a common course of **Research Experience through Practice-I** in the first semester and **Research Experience through Practice-II** in the second semester. Also, it has been suggested that both for **Research Experience through Practice-I** and **Research Experience through Practice-II** to focus only on tutorial and practical component and not on self-study component.
  - a. At the end of Research Experience through Practice-I in the first semester, PG students should be able to identify a research problem, with clear objectives and methodologies backed by extensive literature review. All the PG students may be asked to submit a research proposal and a presentation at the end of the first semester.
  - b. At the end of Research Experience through Practice-II in the second semester, students are expected to write a full research paper based on the Mathematical modelling / Design calculations / computer simulations / Preliminary experimentation / testing carried out during second semester.
3. **Allotment of guides** for individual PG Students to the individual faculty members shall be based on student's area of research interest, specialization of faculty members in the beginning of the first semester.
4. It has been suggested to have recent edition of **Textbooks** and **standard format** to be followed for specifying the textbook description in syllabus.
5. There has been a suggestion to have '**Bioinformatics and Genetic Algorithm**' course as an elective.
6. It has been recommended that the **evaluation for lab** component for a particular course in CIE can be of 30 marks for theory and 20 marks for Lab part so that student will take seriously both theory and lab that follows LTP concept.
7. To give more emphasis on research based learning at PG level, it has been recommended to have **only two Continuous Internal Evaluation (CIE) Tests** per semester as Mid Semester Examination-I and Mid Semester Examination-II instead of six CIE tests. Mid Semester Examination-III may be offered for only those who could not appear for MSE-I or MSE-II due to valid reason.

8. Discussions took place about electives in both first and second semester and it has been suggested to have streams of electives so that it helps student to master in one particular stream. To this end, the following **stream based electives** have been suggested:

Group – 1	Group – 2	Group – 3	Group – 4
Distributed Systems	Information Theory and Coding / Web Technologies	Big Data Analytics	Social And Web Analytics
Analysis of Computer networks	Cloud computing architecture and Implementation	Cryptography and Network Security	Internet of Things
Graphics, Multimedia and Gaming Techniques	Soft computing	Compiler Optimization & Multi-core Architecture	General Purpose Computation on GPU
Business Intelligence	VLSI and CAD		

9. It has been suggested that self-study component in Advanced DBMS can be converted into **mini project** or study/present a research paper.
10. There was a suggestion of having a separate lab (computing lab) which includes the experiment from all the subjects to avoid negligence of lab by students.
11. It has been recommended that in Advanced DBMS course, the '**NOSQL**' topic could be added as one full unit whereas Object oriented and Distributed databases could be combined as one unit instead of two separate units.
12. Conduction of Project Part-II consists of Project Progress Evaluation-I, Project Progress Evaluation-II, and Project Progress Evaluation-III. It has been felt difficult to conduct **three Project Progress Evaluations** in the fourth semester. Hence it has been discussed to have only **two Project Progress Evaluations** in the fourth Semester, during third week of February and third week of April.
13. The **courses** that are designed by **industry** listed below were discussed and the same has been approved:
- Business Intelligence (Infosys)
  - Software Engineering Practices (Infosys)
14. Discussion took place about **Audit course** and it has been suggested that the audit course can be done during first week of the second semester begins.
15. The courses related to programming could be added as an elective such as Python programming.
16. It has been suggested that in 3<sup>rd</sup> semester, **Mini-project and Seminar topics** chosen by the student shall not be the same and these topics shall be more on research oriented.
17. Discussions took place to have an **external examiner** for the final evaluation of M.Tech. major project in the fourth semester.
18. The **panel of examiners** both for odd and even semesters of the academic year 2016-17 is approved in the meeting.

### **M.Tech. in Software Engineering:-**

- The new scheme for **2017-19 batch** is as per the Choice Based Credit System (CBCS) and were discussed in detail from 1<sup>st</sup> semester to 4<sup>th</sup> semester. This new scheme has been recommended and hence it is implemented from the academic year 2017-18.



2. In each semester, it is recommended to have **3 core subjects, 2 Electives**, and a common course of **Research Experience through Practice-I** in the first semester and **Research Experience through Practice-II** in the second semester. Also, it has been suggested that both for **Research Experience through Practice-I** and **Research Experience through Practice-II** to focus only on tutorial and practical component and not on self-study component.
  - a. At the end of Research Experience through Practice-I in the first semester, PG students should be able to identify a research problem, with clear objectives and methodologies backed by extensive literature review. All the PG students may be asked to submit a research proposal and a presentation at the end of the first semester.
  - b. At the end of Research Experience through Practice-II in the second semester, students are expected to write a full research paper based on the Mathematical modelling / Design calculations / computer simulations / Preliminary experimentation / testing carried out during second semester.
3. **Allotment of guides** for individual PG Students to the individual faculty members shall be based on student's area of research interest, specialization of faculty members in the beginning of the first semester.
4. It has been suggested to have recent edition of **Textbooks** and **standard format** to be followed for specifying the textbook description in syllabus.
5. In 'Software Engineering Practices' core course, it has been suggested to include the topic 'SCRUM in Agile Methodology'.
6. Discussions took place about electives in both first and second semester and it has been suggested to have streams of electives so that it helps student to master in one particular stream. To this end, the following **stream based electives** have been suggested:

Group – 1	Group – 2	Group – 3	Group – 4
Decision support system and ERP	Design patterns	Supply chain management/ Software design	Formal methods in software engineering
Software requirement Engineering	Software design	Software process management	Agile technologies
Distributed OS	Computer system performance analysis	Information retrieval	Software tools for large scale data analysis
Distributed systems	Web services	Data mining and Data warehousing	Software system safety
Mathematical Foundation for Computer Science	Soft computing	General purpose computation on GPU	Adv. storage area networks
Advances in Computer networks	Information and network security	Performance Engineering of Real time Embedded systems	Software Engineering for Internet of Things

7. It has been suggested to add more courses related to Software Engineering under elective courses such as Software Architecture course.
8. To give more emphasis on research based learning at PG level, it has been recommended to have **only two Continuous Internal Evaluation (CIE) Tests** per semester as Mid Semester Examination-I and Mid Semester Examination-II instead of six CIE tests. Mid Semester Examination-III may be offered for only those who could not appear for MSE-I or MSE-II due to valid reason.
9. The **courses** that are designed by **industry** listed below were discussed and the same has been approved:
  - a. Software Testing (Infosys)

- b. Security in Cloud (IBM)
  - c. Mobile Application Development (Infosys)
10. Conduction of Project Part-II consists of Project Progress Evaluation-I, Project Progress Evaluation-II, and Project Progress Evaluation-III. It has been felt difficult to conduct *three Project Progress Evaluations* in the fourth semester. Hence it has been discussed to have only *two Project Progress Evaluations* in the fourth Semester, during third week of February and third week of April.
  11. Discussions took place to have an *external examiner* for the final evaluation of M.Tech. major project in the fourth semester.

◦ **Department of Electrical & Electronics Engineering - UG**

1. Vision and Mission of the department, Program Educational Objectives (PEO), Program Outcomes (PO) for the undergraduate program B.E (E&E) were presented and approved.
2. CO Attainment analysis for the odd and even semesters of 2015-16 and odd semester of 2016-17 is presented.
3. Department has offered two audit courses 1) Lab VIEW applications 2) Electrical Appliance Repair and Maintenance during July 2017.
4. Panel of examiners for the Semester End Examinations is approved.
5. E Books / MOOC / NPTEL materials related to each course (wherever available) is mentioned in the reference section.
6. The suggestions given by BOS members in advance through email are deliberated and considered for revision of curriculum.
7. 17EE105- Basic Electrical Engineering syllabus is reviewed and it is decided to exclude the introduction of network theorems as dealt in detail in network theory in 3/4 semester for E&E/E&C.
8. The 16EE302- Signal and Systems syllabus is revised to maintain the flow of contents related to continuous time signals and respective transforms, discrete time signals and related transforms.
9. 16EE403 –Microcontroller Syllabus is reviewed and Case Studies are introduced in the 5<sup>th</sup> Unit. Topic related to MSP430 is excluded.
10. 15EE502 – DSP syllabus is revised to ensure continuity in the syllabus from Signals and Systems. The content of signals and Systems has been removed from UNIT-1 since it is already covered in 15EE302.
11. New elective course “15EE613 - Introduction to ASIC and FPGA Design” is introduced in place of Digital System Design Using VHDL as majority of the contents are covered in 15EE305- Logic Design.
12. 15EE623- Advanced Microprocessor title is renamed as “ARM System Architecture”
13. 14EE715- Micro Electro Mechanical Systems syllabus is revised based on the faculty feedback to match the contents of reference books.
14. New scheme for 2016-20 batch under choice based credit system is proposed. Some of the key features of the scheme are

- a. Two courses i.e “Signals and System” & “Network analysis” are offered in both 3<sup>rd</sup> and 4<sup>th</sup> semesters. Students can register for any one course in each semester.
- b. The department will offer one elective each in 5<sup>th</sup> and 6<sup>th</sup> semester, two electives each in 7<sup>th</sup> and 8<sup>th</sup> Semester
- c. Students can register for a Global Elective of 3 credits anywhere between 5<sup>th</sup> and 8<sup>th</sup> Semester which includes Yoga, Physical Education, Foreign Language, Mini Project, Industrial Internship etc. Students can select any one course. If they do not wish to opt Global Elective they can register for Department General Elective.
- d. Open elective course is shifted from 8<sup>th</sup> semester to 6<sup>th</sup> semester.

### **M.Tech in Power Electronics :-**

1. Vision and Mission of the department, Program Educational Objectives (PEO), Program Outcomes (PO) for M.Tech (Power Electronics) program were presented.
2. Panel of examiners for the Semester End Examinations is approved.
3. As per the common guidelines for M.Tech Courses in the institution, 3 Core courses of 5 credit each and two elective courses of 4 credits each to be included in the first and second semesters. The 5 credit courses will have either a lab component (of two hours) or a self-study component (of 6 hours). These guidelines are implemented as below.
  - a. Power Semiconductor Devices, Solid State Power controllers and Switched mode Power Supply are offered as core courses with lab components in the first semester.
  - b. “AC and DC Drives”, “Modeling & Simulation of Power Electronic Systems”, and “Application of Power Electronics to HVDC and FACTS” are offered as core courses with lab components in the second semester.
  - c. “Applied Mathematics” and “Advanced Control Systems” which were core courses in 2016-18 scheme will be offered as elective courses in the first semester.
  - d. “PWM Converters and Applications”, a core course offered in second semester is revised and offered as an elective course in the second semester with a new title “PWM Controlled Power Electronics Converters”.
  - e. Following New electives are introduced in first and second semester.
    - i. 17EPE 114 MPPT in Solar Systems
    - ii. 17EPE212 Multi-Terminal DC Grids
    - iii. 17EPE214 Hybrid Electric Vehicles
    - iv. 17EPE 222 Converters for Solar and Wind Power Systems
    - v. 17EPE 224 Multilevel Converters for Industrial Applications
4. As per the new guidelines framed for all M.Tech courses Research Experience through Practice-I and Research Experience through Practice-II are introduced for 2 credits each in first and second semesters respectively.
  - a. At the end of **Research Experience through Practice-I** in the first semester, PG students should be able to identify a research problem, with clear objectives and methodologies backed by extensive literature review. Department specific/PG Programme specific skill sets required for carrying out a research work may be offered to the students like software tools for system/device simulation and analysis, software/ hardware tools for signal acquisition, data processing, control simulation, Testing/measuring equipment used in

research and Testing/measuring procedure. All the PG students may be asked to submit a research proposal and a presentation at the end of the first semester.

**b. Research Experience through Practice-II (In the Second Semester):** In the second semester, the students are expected to carry out Mathematical modeling/Design calculations/computer simulations/Preliminary experimentation/testing of the research problems identified during **Research Experience through Practice-I** carried out in the first semester. At the end of the second semester, students are expected to write a full research paper based on the Mathematical modeling/ Design calculations/computer simulations/Preliminary experimentation/testing carried out during second semester.

5. Suggestions of BoS Members received in advance through email are deliberated for possible incorporation and syllabus is revised accordingly.
6. BoS approved 'Lab VIEW Basics' which was offered as an audit course in Second Semester in the academic year 2016-17 and the same is continued for the academic year 2017-18.

### **Department of Electronics & Communication Engineering - UG**

1. Implementation of Choice Based Flexible Credit System (CBFCS) where two core subjects in every semester can be taken either in the Odd Semester or in the Even semester.
2. Proposal for New elective in place of Error Control Coding since it is part of Information Theory and Coding.
3. Any other modifications / suggestions to be incorporated as per the directions / advice of BoS members.

After detailed discussions / deliberations the following decisions were taken (For 2017-2020 batch onwards)

- 1) Project based Learning is proposed for the following subjects where the students are expected to come out with a project as one of the course outcomes.
  - i. **III Semester** : Digital Electronic Circuits (**15EC304**)
  - ii. **IV Semester** : Digital System Design using Verilog (**15EC406**)
  - iii. **V Semester** : Linear Integrated Circuits and Applications (**15EC402**)
  - iv. **VI Semester** : Computer Organization & Architecture (**New Course** in place of System Design Using Microprocessor/Microcontroller **14EC504**)
- 2) Project based Learning subject associated lab which is of 2 credits will be evaluated based on the project work (3 students per batch) carried out during the semester (50 marks) and the CIE for the lab (50 marks).
- 3) It was recommended to have simulation experiments in Digital Electronics Circuits Lab (**15EC307**).
- 4) In Analog Electronic Circuits (**15EC302**) it was suggested to go for MOS analysis instead of BJT. BJT to be dealt only in the first unit.
- 5) It was recommended to use NG-Spice for circuit simulations in Analog Electronic Circuits Lab (**15EC306**).
- 6) In Linear Integrated Circuits and applications (**15EC402**), as table and monostable operations may be included without using 555 timer.
- 7) Digital Signal Processing (**15EC501**) and Digital Signal Processing Lab (**14EC605**) will be shifted to IV semester.

- 8) Linear Integrated Circuits and Applications (**15EC402**) and Linear Integrated Circuits and Applications (**15EC407**) Lab will be shifted to V semester.
- 9) It is recommended to replace the subject System Design Using Microprocessor/Microcontroller (**14EC504**) with Computer Organization & Architecture with ARM Processor as a case study followed by ARM Lab.
- 10) Computer Organization & Architecture (New Course in place of **14EC504**) and ARM Lab (new course in place of **14EC505**) will be shifted to VI semester.
- 11) Embedded Systems (**15EC601**) will be shifted to VIII Semester.
- 12) Information Theory and Coding (**14EC801**) will be shifted to VI Semester.
- 13) Proposed modifications in syllabus for different subjects were approved (2017- 18 onwards).
- 14) The following new electives are proposed:
  - a. Automation using Scripting Language
  - b. Advanced VLSI Design & Verification
  - c. PIC & ARM Microcontrollers
  - d. Introduction to Sensors and Actuators
- 15) Choice Based Flexible Credit System
  - a. Network Analysis (**15EC303**) and Control System(**15EC403**) can be offered under CBFCS in III/IV Semester.
  - b. VLSI circuits (**15EC603**) and Information Theory and Coding (**14EC801**) can be offered under CBFCS in V/VI Semester.
  - c. Embedded Systems (**15EC601**) and Computer Communication Networks (**14EC701**) can be offered under CBFCS in V/VI Semester.

The BoS decided on the Department offering the following subjects for the 2016-2020 batch :

### **III Semester**

<b>SI No</b>	<b>Subject Title</b>
1	Vector Calculus and Transform Techniques
2	Network Analysis/ Control Systems
3	Analog Electronic Circuits
4	Digital Electronic Circuits
5	Signals and Systems
6	Analog Electronic Circuits Lab
7	Digital Electronic Circuits Lab
8	Enhancing Self Competence

### **IV Semester**

<b>SI No</b>	<b>Subject Title</b>
1	Probability Theory and Numerical Methods
2	Control Systems /Network Analysis
3	Analog Communication
4	Digital Signal Processing
5	Digital System Design using Verilog
6	Electromagnetic Theory
7	Digital Signal Processing Lab
8	Digital System Design Lab

### **V Semester**

SI No	Subject Title
1	Information Theory and Coding/ VLSI
2	Digital Communication
3	Linear Integrated Circuits and Applications
4	Transmission Lines and Waveguides
5	Elective I/II
6	Basic Communication Lab
7	Linear Integrated Circuits and Applications Lab
8	Immersive Group Workshop
9	Employability Skill Development

**VI Semester**

SI No	Subject Title
1	VLSI/ Information Theory and Coding
2	Antennas & Wave Propagation
3	Computer Organization and Architecture
4	Microwave Devices and Communication
5	Elective I/II
6	Open Elective
7	Advanced Communication Lab
8	ARM Processor Lab

**VII Semester**

SI No	Subject Title
1	Computer Communication Networks/ Embedded Systems
2	Power Electronics
3	Wireless Communication
4	Elective I/II
5	Elective I/II
6	VLSI Lab
7	Seminar
8	Project

**VIII Semester**

SI No	Subject Title
1	Computer Communication Networks/ Embedded Systems
2	Elective I/II
3	Elective I/II
4	Power Electronics Lab
5	Project

<b>List of Electives:</b>	
<b><i>ELECTIVE I</i></b>	<b><i>ELECTIVE II</i></b>
<ol style="list-style-type: none"> <li>1. Object Oriented Programming using C++</li> <li>2. Fiber Optics</li> <li>3. Modern Radar and Navigational aids</li> <li>4. Embedded Linux</li> <li>5. Computer Operating Systems</li> <li>6. Automation using Scripting Language</li> <li>7. Machine Learning and its Applications</li> <li>8. Biomedical Instrumentation</li> <li>9. Spread Spectrum Communication</li> <li>10. Image Processing</li> <li>11. Cryptography</li> <li>12. PIC &amp; ARM Microcontroller</li> <li>13. Automotive Electronics</li> <li>14. Low Power VLSI</li> <li>15. Advanced VLSI Design &amp; Verification</li> <li>16. Multimedia Communication</li> <li>17. Speech Processing</li> <li>18. Real Time Operating Systems</li> <li>19. Adhoc and Sensor Networks</li> <li>20. Cognitive Radio</li> </ol>	<ol style="list-style-type: none"> <li>1. DSP Processors and Architecture</li> <li>2. Project Management</li> <li>3. Consumer Electronics</li> <li>4. Fuzzy Logic</li> <li>5. Advanced Signal Processing</li> <li>6. Database Management Systems</li> <li>7. RF Circuit Design</li> <li>8. Satellite Communication Systems</li> <li>9. Pattern Recognition</li> <li>10. Data Structures using C++</li> <li>11. Artificial Intelligence</li> <li>12. Introduction to Sensors and Actuators</li> <li>13. Object Oriented Programming in Java</li> <li>14. Analog and Mixed Mode VLSI Design</li> <li>15. High Performance Communication Networks</li> <li>16. Biomedical Signal Processing</li> <li>17. Optical Computing</li> <li>18. Finance Management</li> <li>19. Big Data Analytics</li> <li>20. Optical Communication and Networks</li> </ol>

NOTE:

1. Non-Technical Open Elective can be opted from Semester V to Semester VIII.
2. Students may opt for department elective only if pre-requisite is met.

### **1) M.Tech. in Digital Electronics & Communication:-**

#### **Major Changes incorporated**

1. Deliberations 1, 2 and 3 made by the BoS on 21-05-2016 for the 2017 batch cannot be implemented because of the Uniform Scheme to be adopted at the Institution Level.
2. BoS members have suggested the following core subjects for the 2017-18 batch.
3. Core Subjects – Semester 1
  1. 17DEC101- Embedded System Design
  2. 17DEC102- Statistical Signal Processing
  3. 17DEC103- Advanced Digital Communication
4. Core Subjects – Semester 2
  1. 17DEC201- Error Control Coding
  2. 17DEC202- RF and Microwave Circuit Design
  3. 17DEC203- Advanced Wireless Communication
5. Advanced Embedded Systems(16DEC101) has been renamed as Embedded System Design (17DEC101)

6. Advanced Signal Processing (16DEC102) is renamed as Statistical Signal Processing (17DEC102).
7. Advances in VLSI design (16DEC201) is to be removed from II Semester core subject list. In place of which Error Control Coding (17DEC201) is made a core subject in Semester II.
8. Multirate Systems and Filter banks (16DEC202) has been shifted to Elective IV. In place of which RF and Microwave Circuit Design (17DEC202) is made a core subject in Semester II.
9. In Statistical Signal Processing, Unit I is made 10 Hrs. Unit IV is made 12 Hrs.
10. In Advanced Digital Communication, Unit II can be replaced with Advanced Modulation Schemes.
11. Application lab (DEC104) experiments are to be added in the corresponding core courses.
12. BoS members have suggested the following Elective subjects for the 2017-18 batch
13. Elective I list
  1. 17DEC111- Advanced Computer Architecture
  2. 17DEC112- Linear Algebra
  3. 17DEC113- Optical Communication and Networking
  4. 17DEC114- Speech and Audio Processing
14. Elective II list
  1. 17DEC121- Cryptographic Systems
  2. 17DEC122- Detection and Estimation
  3. 17DEC123- Digital Signal Compression
  4. 17DEC124- Unified Communication
15. Elective III list
  1. 17DEC211-Spread Spectrum Communication
  2. 17DEC212-Image and Video Processing
  3. 17DEC213-Pattern and Voice Recognition
  4. 17DEC214- Cloud Computing
16. Elective IV list
  1. 17DEC221-Multirate Systems and Filter Bank
  2. 17DEC222-MIMO Systems
  3. 17DEC223-Software Defined Radio
  4. 17DEC224- Wireless and Mobile Networks
17. Synthesis and Optimization of Digital Circuits(16DEC111) to be removed from Elective I list of Semester I in place of which Advanced Computer Architecture has been shifted to Elective I from Elective III
18. Cryptographic systems is to be shifted to Elective II from Elective IV
19. Mixed Signal VLSI design (16DEC122) is to be removed from I Semester Elective II in place of which Detection and Estimation is shifted to Elective II from Elective IV. In place of Detection and Estimation, MIMO Systems has been introduced in Elective IV.



20. Unified communication is introduced in Elective II in place of RF and microwave circuit design which is now a core subject Semester II.
21. Spread Spectrum communication is introduced in Elective III in place of Advanced Computer Architecture
22. Cloud computing is introduced in Elective III in place of Wireless and ATM Networks.
23. Software Defined Radio is introduced in Elective IV in place of Error Control Coding.
24. VLSI System and Architecture (16DEC224) to be removed from Elective IV in place of which Wireless and Mobile Networks has been shifted to Elective IV from Elective III.
25. Wireless and ATM Networks has been renamed as Wireless and Mobile Networks.
26. Modifications in the syllabus proposed for “Embedded System Design”, “Statistical Signal Processing”, “Error Control Coding”, and “Multirate Systems and Filter Bank” were approved.
27. BoS suggested that syllabus has to be framed for Unified Communication (17DEC124), Spread Spectrum Communication (17DEC211), Cloud Computing (17DEC214), MIMO Systems (17DEC222), Software Defined Radio (17DEC223) and reframed for Advanced Computer Architecture (17DEC111), Multirate Systems and Filter Bank (17DEC221), Image and Video Processing (17DEC212), Pattern and Voice Recognition (17DEC213) and Wireless and Mobile Networks(17DEC224).

**Observations made by BoS:**

- Having lab component along with theory subjects is not appreciated and retaining of application lab is recommended. However if Research Experience through Practice Part I and II are to be included, then the number of credits has to be increased.
- Having lab components in theory may lead to the following difficulties
  - Evaluation of the student on lab component for 10 marks would lead to no scope for the conduction of tasks for theory concepts
  - Also evaluation of the lab concepts for only 10 marks would be inappropriate.
  - As the conduction of task has been completely shifted to lab component from theory, the concept of Continuous Internal Evaluation remains incomplete.
- Thus the BoS has strongly recommended to have separate evaluation for theory and lab.

## M.Tech. in Digital Electronics & Communication

### List of subjects for 2017-18 Batch

#### I Semester

##### Core Subjects:

1. 17DEC101- Embedded System Design
2. 17DEC102- Statistical Signal Processing
3. 17DEC103- Advanced Digital Communication

##### Elective Subjects:

###### **Elective I:**

1. 17DEC111- Advanced Computer Architecture
2. 17DEC112- Linear Algebra
3. 17DEC113- Optical Communication and Networking
4. 17DEC114- Speech and Audio Processing

###### **Elective II:**

1. 17DEC121- Cryptographic Systems
2. 17DEC122- Detection and Estimation
3. 17DEC123- Digital Signal Compression
4. 17DEC124- Unified Communication

#### II Semester

##### Core Subject:

1. 17DEC201- Error Control Coding
2. 17DEC202- RF and Microwave Circuit Design
3. 17DEC203- Advanced Wireless Communication

##### Elective Subjects:

###### **Elective III:**

1. 17DEC211-Spread Spectrum Communication
2. 17DEC212-Image and Video Processing
3. 17DEC213-Pattern and Voice Recognition
4. 17DEC214- Cloud Computing

###### **Elective IV:**

1. 17DEC121- Cryptographic Systems
2. 17DEC122- Detection and Estimation
3. 17DEC123- Digital Signal Compression
4. 17DEC124- Unified Communication

### III Semester

17DEC301	Industrial Training / Mini-Project
17DEC302	Seminar on special topics
17DEC303	Project-part I

### IV Semester

17DEC401	Project –part II *PPE - I PPE - II PPE - III Report Submission, Evaluation & Viva-voce
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## 2) M.Tech. in VLSI Design and Embedded Systems:-

After detailed discussions/ deliberations the following decisions were taken to be implemented for 2017 Batch:

1. The Ratification taken on Project Part II in the BoS of 2015-2016 stands cancelled because of uniform institutional policy and the institutional scheme to be followed.
2. Application Lab is replaced by Research Experience through Practice and the labs are now integrated labs due to uniform institutional policy.
3. Few of the suggested courses for 2017 batch have been incorporated.
4. Unit scheme cannot be abolished because of uniform institutional policy.
5. Evaluation is conducted with full autonomy. Course outcome for every course is reduced to 5.
6. If the course has an integrated lab then the evaluation pattern to be considered is :
  - o Two MSE of 30 marks each reduced to 15 marks.
  - o Lab CIE of 20 Marks.
  - o The student has to score a total minimum of 20 marks in MSE and Lab CIE to be eligible to write the SEE.
7. Change in title of the subject Advanced Embedded Systems (AES) (**16VDE101**) to Embedded System Design (ESD) (**17VDE101**) was approved.
8. It was proposed that the subject Embedded System Design (**17VDE101**) will have 4 Lecture hours and 2 hours of lab component, no self study component to be included.
9. The syllabus for Embedded System Design (**17VDE101**) was approved.
10. Change in title of the subject Modeling of Digital Systems using VHDL (**16VDE111**) to Modeling of Digital Systems using HDL (**17VDE111**) was suggested.
11. BoS suggested modifications in Advances in VLSI Design (**17VDE201**). It was proposed that the subject will have 4 Lecture hours and 2 hours of lab component, no self study component to be included.
12. Title of the subject Design of Analog and Mixed mode VLSI circuits (**16VDE202**) to Design of Analog VLSI circuits (**17VDE202**) was approved. BoS suggested modifications in the syllabus.

13. The syllabus for RTOS was approved and it was proposed that the subject will have an Integrated Lab with 4 Lecture hours and 2 hours of Lab.
14. BoS suggested replacing Advanced Microcontroller (**16VDE211**) with Advanced Computer Architecture (**17VDE211**) since MSP430 under Advanced Microcontroller is now being taught under UG Curriculum.
15. The syllabus for Low Power VLSI Design (**17VDE213**) was approved.
16. The syllabus for System Design using Embedded Processors (**17VDE221**) was approved.
17. The subject ASIC Design is to be introduced under Elective I (**17VDE114**).
18. The subject Synthesis and Optimization of Digital Circuits is to be introduced under Elective II (**17VDE124**).
19. The subject Nanotechnology is to be introduced under Elective III (**17VDE214**).
20. The subject CMOS RF Circuit Design is to be introduced under Elective IV (**17VDE224**).
21. The panel of examiners was approved by the BoS.

### **DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING - UG**

- For the AY 2014-2018, following are the modifications
  - VII Semester
    - 1) Software Testing (3 Credits) is replaced by Information and Network Security (4 Credits)
    - 2) Business Intelligence and its Applications (3 credits) is moved to elective and it is replaced by Advanced Computer Architecture (4 credits)
    - 3) Business Intelligence Lab (1 credit) is removed.
    - 4) Seminar + Technical paper title is modified as Seminar
    - 5) Due to the removal of L-T-P format from this batch, Compiler Design lab is separated from its theory
    - 6) New set of Electives are added like Human Computer Interaction, Machine Learning and Software Defined Networks.
  - Following are the suggestions proposed by BOS members
    - 1) In the coming batches an attempt should be made to replace Advanced Computer Architecture with parallel computing and programming
    - 2) Advanced Computer Architecture title should be renamed as computer architecture.
    - 3) Multicore Architecture can be offered as an elective in 8 sem.
    - 4) 2015-19 or 2016-20 can have computer architecture in 3rd year and Multicore in 7<sup>th</sup> sem.
    - 5) Mention the Prerequisites with electives.
    - 6) Machine Learning with R title can be modified as Machine Learning.
    - 7) Human Computer Interaction and Software Defined Networks groups can be interchanged.
  - VIII Semester

- 1) Information Security (4 credits) is replaced by Big Data and Analytics(4 credits)
- 2) New Electives like Operation Research, Cyber Security and Cyber Laws, Intrusion Detection system is introduced
- 3) Major Project Phase II credit is reduced to 9 credits.
  - Following are the suggestions proposed by BOS members
    - 1) Operation Research can be renamed as System Dynamics
    - 2) In the coming batches, Operation Research should be offered before Machine Learning.
    - 3) Real Time Systems (Suggested Author Rajib Mall) need to be offered as an elective and it should be made as pre requisite for Embedded Real Time Systems (Suggested Author Shantanu Chattopadyay)
    - 4) Real Time Systems can be offered in 6<sup>th</sup> sem.
    - 5) Due to an overlap of syllabus content of Cyber Security and Cyber Laws and Intrusion Detection System, BOS members suggested the two subjects to be merged into a single subject.
    - 6) In Cyber Security and Cyber laws, topics related to cyber laws can be reduced.
    - 7) In Supply Chain Management and Enterprise Resource Planning, topics related to Supply chain management can be removed and subject title can be re-framed as Enterprise Resource Planning.
- For the AY 2015-2019, following are the modifications
  - V Semester
    - 1) Database and Java Lab are combined to one single lab.
    - 2) Program Verification, Unix System Programming, Client Server Computing and Operations Research are the new set of electives introduced for 5<sup>th</sup> semester.
  - Following are the suggestions proposed by BOS members
    - 1) There should be co-relation of DBMS and JAVA lab programs.
    - 2) External members suggested to have a briefing of Nosql, Mongo DB content in the last unit of Relational Database Management System.
    - 3) External members suggested to have a lab for Operating System.
    - 4) Object Oriented Modeling and Design contents should start from SDLC and UML.
    - 5) Mention pre requisite for electives.
    - 6) Software Architecture elective should be moved to 7<sup>th</sup> semester
  - VI semester.
    - 1) Software Testing is moved to elective.
    - 2) Artificial Intelligence is introduced instead of software Testing.
    - 3) Web Technology, Software Project Management, Fundamentals of Image Processing are the new electives introduced for VI Semester.
    - 4) Subject Level changes in Software testing was done.

- Following are the suggestions proposed by BOS members
  - 1) Artificial Intelligence syllabus should be fine tuned to avoid overlapping of Machine Learning Concepts.
  - 2) Rajib Mall book can be referred for Software Project Management subject.
  - 3) Real Time Systems can be introduced as an elective.
- VII Semester
  - i. Total number of hours for Compiler Design Lab is increased from 2 hours to 4 Hours, to make it a project based learning course.
- For the AY 2016-2020(Choice Based Credit System), following are the modifications
  - III Semester
    - 1) As a part of choice based credit system, flip subjects are offered between III and IV Semester.
    - 2) Programming with C++ can be offered as crash course in the beginning of the semester.
    - 3) Programming with C++ is replaced by Java Programming (4 Credits).
    - 4) Digital Design Theory and Lab is moved to IV Semester.
    - 5) Software Engineering (3 Credits) is moved from IV Semester to III Semester in place of Digital Design.
    - 6) Computer Organization in III Semester and Data Communication in IV Semester are offered as flip subjects.
    - 7) Discrete Mathematical Structures Credits is changed to 3 credits.
  - Following are the suggestions proposed by BOS members
    - 1) Programming with C++ should be retained.
    - 2) Java can be taken up in later semesters.
    - 3) Software Engineering syllabus can be modified such that SDLC and later topics can be taken up in OOMD . Refer book Fundamentals of Software Engineering by Rajib Mall.
    - 4) Applications of Discrete Mathematical Structures must be included at the end of each topic.
  - IV Semester
    - 1) UNIX and Shell programming Theory is moved to V Semester.
    - 2) UNIX Lab is removed.
    - 3) Digital Design Theory and Lab is introduced in place of UNIX Theory and Lab.
    - 4) Object Oriented Modeling and Design is introduced instead of Software Engineering.
    - 5) Probability Theory and Numerical Methods title is renamed as “Linear Algebra and Probability Theory”
    - 6) The units IV&V dealing with numerical methods of the subject, are replaced by some topics of Linear Algebra like matrix, vector space and linear transformation. These will be units I & II of revised syllabus. Sampling Theory is shifted from unit II to unit V, Curve fitting is included in unit IV and units I, II & III will be units III, IV&V of revised syllabus. The teaching hours for all units are redistributed accordingly.
    - 7) Data Communication is offered as flip subject.
  - V<sup>th</sup> semester
    - 1) Number of department electives that will be taken by students
      - 5th semester – 1 elective
      - 6th semester – 1 elective
      - 7th semester – 2 electives
      - 8th semester – 2 electives
    - 2) Global Elective or department elective during 5th to 8th semester.
    - 3) List of Global Electives

Introduction to Yoga  
Physical Education Principles  
Overview of Indian culture and arts  
Foreign Language Learning  
Entrepreneurship courses  
Mooc courses

4) Operating System and Data Mining are offered as flip subjects for V<sup>th</sup> and VI<sup>th</sup> Semester

➤ Following are the suggestions proposed by BOS members

- 1) Java can be retained in V<sup>th</sup> semester.
- 2) Operation Research should be moved to elective.
- 3) Multicast communication should be removed.
- 4) Computer Architecture subject can be introduced in 5<sup>th</sup> or 6<sup>th</sup> sem, which can be given as a base for Advanced Computer Architecture.
- 5) Multicore programming can be made core with lab.
- 6) Node JS and Angular JS topics can be included in web programming subject.

- Best Practices like paperless labs, challenging programs, Github account were discussed which can be implemented for students.
- UG- panel of examiners was approved by BOS members

#### **M.Tech. in Computer Networking**

- Enhancing Self Competence (ESC), IGW and Audit courses were the new additions to the current 2016-18 batch, which is approved by BOS members.
- BOS External suggested that LaTeX tool learning should be made compulsory in Research experience through practice-1 (17CNE104).
- BOS members recommended Probability Statistics and Queuing Theory (17CNE111) is more relevant course in PG so it should be converted into core subject instead of elective.
- Case studies should be added to the syllabus of Artificial Intelligence (17CNE116) and Multi-Core Architecture and Programming (17CNE126).
- BOS external members feel Network management (17CNE113) subject can be removed since no proper updated textbook is available.
- BOS External member suggested the addition of two new electives to the syllabus namely, “Software Defined Networking” and “Network Algorithmics” by George Varghese, M.K. publishers.
- For the subjects like Advanced Computer Networks and Web Technologies textbook called high performance browser networking by Ilya Grigorik can be introduced.
- BOS members specified renaming of courses like Machine learning (17CNE216) as Applications of Machine learning and Topics in Analysis of Network (17CNE214) as Analysis of Computer Networks.
- In labs more weightage can be given to the assignments and mini projects so that students can learn new things and get placed in good companies.
- Students should be given some inputs on github.

## 7. DEPARTMENT MECHANICAL ENGINEERING - UG

### Scheme 2014

Course/ Course code	Proposed Changes in the syllabus	Remarks/Status
Plastic Part Design & Manufacturing: 14ME728	A new elective on “Introduction of Product Development Process/Skill Development” of KH Designs is planned to be introduced.	<b>Approved</b>
IC Engines- 14ME721	Introduction to Thermodynamic analysis of S.I. Engine combustion is to be removed in Unit-I and number of hours to be reduced. In Unit-II, Introduction to Thermodynamic Analysis of C.I. Engine combustion to be removed and number of hours to be reduced. Evolution and implementation of <b>Bharath Stage norms</b> is to be added in Unit-III and number of hours to be increased. <b>Bio-diesel</b> to be added in Unit-IV and hours to be increased. In Unit-V, Stratified charge Engines to be removed and Fuel Cells working, properties, Merits and demerits to be added. Introduction to <b>Electric drives, hybrids</b> , Hartridge smoke meter and Future of IC Engines are to be added.	<b>Approved</b>
Industrial Robotics- 14ME703	In Unit-I, <b>Introduction to Drones</b> to be added. In Unit IV, Robot sensors topic is to be removed as the student’s study the same under Mechatronics course. Active learning of robot configuration to be added in Unit-I. In Unit-II, Active learning of 3D Transformations and direct kinematics for 3R robot to be added.	In Unit IV, Chapter title to be changed to Machine Vision. In Unit-V, VAL programming language, example, AML and VAL-II to be removed and hands-on robot programming is to be added.  Teaching hours has been increased to 5 (3+0+2+0) to balance the total teaching hours. Reference text book for newly added syllabus should be given.  <b>Approved.</b>
Mechatronics- 14ME704		Introduction to IoT (Internet of Things) was suggested to be added to Mechatronics in Unit-V. It was also suggested to add references.



Computer Integrated Manufacturing-14ME723	The entire syllabus has been reframed and an Industrial Visit to automated production lines is to be arranged.	<b>Approved.</b>
Heat transfer-14ME801		It was suggested to make it 3+2=5 hours/week.
Human Resource Management-14ME718		It was suggested that the subject can be a departmental elective as well as an open elective.
<b>Operations Management &amp; Entrepreneurship</b> (Open elective) - 14ME8X 28	In Unit-III, Control Charts For Attributes to be removed and Reliability And Life Testing to be added.	<b>Approved</b>
Industrial Pollution Control-14ME 8X 08 (Open elective)	In Unit-III Principal of working of thermal power station is to be added. In UNIT-IV Coal firing- Under feed and overfeed stocker to be removed. In UNIT-V problems associated with nuclear reactors to be added.	<b>Approved</b>

### Scheme 2015

Course/ Course code	Proposed Changes in the syllabus	Status/Remarks
Design for manufacturing-15ME613		It was suggested to change the subject title to “ <b>Design for Manufacturing and assembly</b> ”, and to be shifted from 7 <sup>th</sup> semester to 6 <sup>th</sup> semester.
Design of Thermal Systems-15ME616		BOS member Dr. Raviraj Suggested to give detailed syllabus, reference books and text books of Design of thermal systems.
Metrology & measurements-15ME504	In Unit II, advances in metrology is to be added	<b>Approved.</b>
Industrial Management and Entrepreneurship-	Topics on Introduction to Labor laws to be added in Unit-V.	<b>Approved.</b>

15ME505		
Metrology & Measurements Lab-15ME507	PART C: Allied measurements has to be added	It was suggested that Part-A can involve Metrology, Part-B can be Mechanical Measurements and Part-C can be Allied Measurements (Demonstration)  <b>Approved.</b>
Statistical Quality Control- 15ME513	Title to be changed to <b>“Total Quality Management”</b> . ISO-9000, ISO-14000, ISO-18000 series of standards to be added in Unit-I. The chapter on Reliability And Life Testing to be shifted to Operations Management & Entrepreneurship(Open Elective in 8 <sup>th</sup> semester) and a chapter on Design of Experiments is to be added in Unit-V.	However, in Unit V, the design of experiments title was suggested to be changed to <b>“Introduction to Design of Experiments”</b> .  <b>Approved.</b>
Computer Aided Design (CAD) (Product Design and Development) Tool: UG NX- 15ME516	Introduction of Product Development Process/Skill Development of KH Designs 5th through 7th semester	<b>Approved.</b>
Material Selection for Engineering Design - 15ME512	In Unit-I, statistical and reliability aspects to be removed and analysis of technical systems, case study and the causes of failure in service to be added. In Unit-II, effects of structure on material properties and Evolution of microstructure change in steel products to be added. In Unit-III, performance based design to be removed. In Unit-IV, topics on assembly, cost to be removed and selection charts, taxonomy of the process kingdom and effect of casting on properties to be added. In Unit-V, Hybrid design to be removed and introduction to hybrids and types to be added.	<b>Approved.</b>
Design of Machine Elements-II - 15ME602	In Unit-I, the chapter on “Cylinders and Cylinder heads” and the topic on lever design are to be removed.  In Unit-III, numerical problems on single plate clutches and single shoe	<b>Approved.</b>

	block brakes are to be removed.  In Units I,III and V, the number of teaching hours is to be reduced.	
15ME62X series	2 new electives to be offered namely, <b>Introduction to Piping Engineering</b> and <b>“Skill development in Welding Technology”</b> .	“Skill development in Welding Technology” title to be changed to <b>“Welding Technology”</b> . It was also suggested that in Unit-V, the chapter title be changed to <b>Developments and Applications in Welding Technology</b> .  <b>Approved.</b>
CAD/CAM - 15ME604	Proposed to add <b>Introduction to Virtual reality</b> in Unit-I.	It was suggested to add references to the topic.  <b>Approved.</b>
Automotive Engineering- 15ME603	Syllabus is to be updated to meet the industry needs. There was a proposal to include Automotive lab in Automotive Engg. Course.	The contact hours for the subject to be increased to 5 hours/week. (3+0+2+0) Suggested to give more reference books and text books. It was suggested to shift Automotive Engg from 6th semester to 7th semester for 2016 scheme, and the new course code will be 16ME701.  <b>Approved.</b>
Product Design & Development- 15ME619	Introduction of Product Development Process/Skill Development of KH Designs 5th through 7th semester	<b>Approved.</b>

### Scheme 2016

Course/Course code	Proposed Changes in the syllabus	Status/Remarks
Material Science & Metallurgy: 16ME302  Mechanics of Materials: 16ME305  Kinematics of Machines with project based	To give better choice based elective system to the students, Choice based courses are proposed and the students have to select any two of the four in the III and IV semester.	<b>Approved.</b>

learning.: 16ME402  Fluid Mechanics: 16ME405		
Material Science and Metallurgy - 16ME302	The syllabus has been reframed such that three credit courses have only 3 units (instead of 5 units).	<b>Approved.</b>
Basic thermodynamics- 16ME303	The syllabus has been reframed such that three credit courses have only 3 units (instead of 5 units). Unit-II has to be merged with Unit-I. The chapter on Second law of thermodynamics and entropy which were in Units-III, IV is to be shifted to Unit-II. Pure substances from Unit-IV and Ideal and real gas mixtures from Unit-V have to be merged in Unit-III. Introductory topics of Psychrometry have to be shifted from Basic Thermodynamics to Applied Thermodynamics.	Suggested to change to 4 hours/week (2+2+0+0) and total hours to be changed to 52 hours.  <b>Approved.</b>
Manufacturing Processes-I: 16ME304	The syllabus has to be reframed such that three credit courses have only 3 units (instead of 5 units). In UNIT-II, the topic <b>Introduction to 3D-printing</b> has to be added. Self-learning components are added for Units 1 and 3.	Suggested that the evaluation of the Self learning components to be done in tasks. Suggested to give more reference books and text books for newly added syllabus.  <b>Approved.</b>
Computer Aided Machine Drawing - 16ME306	The syllabus has been reframed such that three credit courses have only 3 units (instead of 5 units). Topics of units-III, IV is to be merged with Unit-II. Unit-V becomes unit-III.	<b>Approved.</b>
Foundry, Forging and Welding shop - 16ME309	A compulsory industrial visit to be arranged to one of the foundries.	Dr. C.R. Rajashekhar suggested that the students need to submit a report on the industrial visit. "Conduction and preparation" word to be changed to " <b>Demonstration of the following tests</b> ". <b>Approved.</b>
Enhancing Self Competence - 16HU311	Number of contact hours for "Enhancing Self Competence" subject is to be increased from 2 to 3	<b>Approved.</b>
Kinematics of Machines - 16ME402	Project based learning is added. Student teams will do and demonstrate at least one of the mechanism models.	<b>Approved.</b>

Applied Thermodynamics - 16ME403	Unit-I and Unit-II has to be merged. Unit-III and Unit-V are merged. Introductory topics of Psychrometry has to be added.	<b>Approved.</b>
Engineering Economics - 16ME406	The syllabus has to be reframed such that three credit courses have only 3 units (instead of 5 units).	<b>Approved.</b>
Machine Shop - 16ME408	An exercise on surface grinding operation is to be added. The models should be preserved to be used in Metrology & Measurements Lab 16ME507.	<b>Approved.</b>
Fluid Machinery - 16ME501		Suggested to change the subject title to <b>Turbo Machines.</b>
Dynamics of Machines - 16ME503		Suggested to change the subject title to <b>Dynamics of Machines</b> from Dynamics of Machinery (15ME503)
Fluid Mechanics and Machinery Lab- 16ME506		Suggested to change the subject title to <b>Fluid Mechanics and Machinery lab</b> from Fluid Machinery lab (15ME506)
Metrology & Measurements Lab - 16ME507	Machine shop models should be preserved to be used in Metrology & Measurements Lab.	<b>Approved.</b>
Finite Element Methods - 16ME603		It was suggested by BOS board members to make FEM as a core subject in place of Automotive Engg in 6 <sup>th</sup> semester. Syllabus of FEM has to be reframed such that it is relevant to thermal and thermo-structural aspects. Credits were suggested to change to 4. The new code will be 16ME603. Dr. C R Rajashekhar suggested that FEM can also be given as an open elective to other branches and for the branch it can be made as a regular subject.
CNC and Robotics lab - 16ME606		It was suggested to change the title to <b>CNC lab.</b>
		It was suggested that Active Learning and Robotics lab is to be added for 2016-20 batch.in 8 <sup>th</sup> sem
Global elective		It was suggested to check the possibilities of involving Management faculty to teach some relevant subjects that can be offered as a global elective.
Power Plant Engineering		It was suggested to make it as an elective in 6 <sup>th</sup> semester and the syllabus to be reframed to 3 units, with 3 Course credits.

Mechanical Vibrations - 16ME702	Dynamics Lab (15ME707) will be merged with Mechanical vibrations.	<b>Approved.</b>
Heat Transfer Lab - 16ME707		Heat transfer lab is included in 7 <sup>th</sup> semester
Renewable sources of energy- 16ME51X		One of the board members suggested including electives from thermal stream in V <sup>th</sup> semester. So Renewable sources of energy has been shifted to V <sup>th</sup> sem elective group for 2016 batch.
Introduction to Aircraft Design - 16ME61X	Proposed to revert back to the old syllabus from the current syllabus.	<b>Approved</b>
Operations Research- 15ME601		It was suggested to shift Operations Research from 6 <sup>th</sup> semester to 8 <sup>th</sup> semester and the new code will be 16ME801 and Heat Transfer is to be shifted from 8 <sup>th</sup> semester to 6 <sup>th</sup> semester. The new code for Heat transfer is 16ME601.
Open Elective- 16ME6XX	Open Elective has to be shifted to 6 <sup>th</sup> sem from 8 <sup>th</sup> sem	<b>Approved</b>
Global Elective	Students have to take one more additional elective either from set of “nontechnical open elective” or “department elective” during 5 <sup>th</sup> to 8 <sup>th</sup> semester.as decided on MoM dated 31 <sup>st</sup> March 2017 by Dean-Academics	<b>Approved</b>
Heat Transfer Lab - 16ME802		It was suggested to shift to 7 <sup>th</sup> semester and the new code will be 16ME707

## Scheme 2017

Course/Course code	Proposed Changes in the syllabus	Status/Remarks
EME-17ME104	In UNIT-II, the chapter on I.C. engines, - I.C. Engines parts, 2 stroke and 4 stroke Petrol engines, 4 stroke diesel engines to be removed and Introduction to electric vehicles to be added.  Unit III is shifted to last and made Unit 5.	2 stroke and 4 stroke diesel engine, four stroke petrol engine to be retained. Two stroke petrol engines to be removed. Demonstration of Machine tools in ESD lab can be done at the end which will go along with theory classes  BoS members suggested the topic on introduction to Bharat stage emission norms to be added.  <b>Approved</b>

ESD LAB-17ME106	In Part B, Demonstration of hand operated power tools and Demonstration of Robot to be added.	<b>Approved</b>
		It was also suggested by Dr. Raviraj Adhikari that some concepts of Civil engineering (like the basic concepts of surveying and material testing) could be added in the course on Elements of Civil Engineering.

## 1) M.Tech in Energy Systems Engineering:-

### Changes incorporated:

- 17ESE102: - Applied numerical analysis** title has been changed as **Applied Mathematics**– Unit IV and Unit V have been modified with a focus on applications.
- 17 ESE 223:** The title of subject has been changed from **POLLUTION CONTROL FROM THERMAL POWER STATIONS’ to ‘POLLUTION CONTROL IN THERMAL POWER STATIONS’**. Also, the fourth course outcome ‘The student should be knowledgeable about some pollution control acts and legal aspects associated with pollution control’ has been changed to ‘Students should be able to read, analyze and interpret latest research information on various types of pollution’.  
10 marks questions have been decided to be asked from research papers in SEE wherein a research book containing various papers will be given to students and they have to answer appropriately finding answer from the book (open book), thus the book serves as data base, however this is possible with prior permission of the controller of examinations.
- 17ESE 203: ENERGY SYSTEM MODELING AND ANALYSIS course:** The following topics **have been removed:** “Thermodynamic Properties-Need for mathematical modeling, Criteria or fidelity of representation, Linear regression analysis, Internal energy and enthalpy, Pressure temperature relationship at saturated `conditions, Specific heat, P- V- T equations, Overview of various technologies and conventional methods of energy conversion, Power cycles’ **and replaced with** ‘Recent Research work on application of dynamic programming, Lagrange multiplier method, LPP, geometric programming and Fibonacci search method”. This is to give more impetus to the study of field application of various methods of simulation and optimization of design, study of research papers has been included in the fifth unit.
- 17ESE 123: ADVANCED I.C ENGINES Course:** The topics ‘Ideal air standard Otto, Diesel and dual combustion cycles’ has been modified as ‘Brief review of Ideal air standard cycles & their comparison’ in order to keep the topic brief. The topic “Alternative Fuels for

Combustion Engines” has been moved from Unit III to Unit V for proper matching of topics. The topic “Exhaust emission” is removed from Unit V as it is already present in Unit IV.

5. **17ESE 201: UTILIZATION OF SOLAR ENERGY:**The topic on Photovoltaics **has been removed** as it has already been present in the course “Alternative Energy Systems 17ESE101”.
6. **17ESE212: ENERGY STORAGE:** Topics from Unit I ‘Testing of storage systems, Thermal modeling of energy storage systems, Total energy systems’ **have been replaced** with topics like “Electrical energy characteristic’s and basic load calculations, Performance characteristics of energy storage systems, &Types of load curves”. **This is in order to have basic ideas of electrical quantity and understand load graphs.**
7. **17ESE 214:ELECTRICAL DRIVES**course **is replaced** as 17ESE 217 AC & DC Drives
8. Alternative fuels laboratory (16ESE104) of 2 credits **is removed** from first semester M-Tech syllabus and “Research Experience Through Practice-I (17 ESE104)” with 2 credits **is included** in the **first semester**with CIE 50 & SEE50 marks
9. Energy Systems Modeling &Analysis Laboratory (16ESE204) with 2 credits**is removed** and “Research Experience Through practice-I (17ESE 204)” with 2 credits **is included** in **second semester**with CIE 50 & SEE 50 marks
10. **17ESE104:** The Laboratory experiments in “Alternative Fuels Laboratory(16ESE104)”**is to be included** as active Learning component in the “Alternative Energy Systems& Combustion Engineering” courses and Laboratory experiments in “Energy Systems modeling & Analysis Laboratory” should be included as the active Learning Component in the “Utilization of Solar Energy(17ESE201), Energy Conservationand Management (17ESE202)&Energy SystemModeling and Analysis(17ESE203)” Courses.
11. CFD Fluent laboratory experiments & MATLAB will be introduced as active Learning component under “Energy System Modeling and Analysis course(17ESE203)”.
12. Six Continuous Internal Evaluation (CIE) tests out of which four are considered for evaluation (CIE test each of 20marks) which was followed in 2016-2017 batch has been discontinued from 2017-2018 and only two mid semester examinations- MSE-I and MSE-II (Each of 20Marks) as used to be the earlier practice have been reintroduced from the academic year 2017-2018 to give more emphasis on research based learning in PG program. The CIE assessment is proposed to be discontinued due to its ineffectiveness based on feedback given by students and faculty members.
13. In the third Semester M-Tech, Industrial Training/Mini Project (16ESE301) of 8 weeks duration with a total credit of 6 is changed to 8 credits. In Project Part-I, the total number of weeks is increased to 10 weeks from the present 8 weeks.
14. In the fourth semester M-tech, three project progress evaluation (PPE-I, PPE-II, and PPE-III (17ESE401) is reduced to 2 project progress evaluations (PPE-I and PPE-II) for 100 marks



each with a total of 20 weeks' duration in the fourth semester due to difficulty in conducting three project progress evaluation in five months.

15. Fast learners have opportunities to enroll for Audit course 17AP007 - Acoustic emission science and its applications.
16. The Audit course offered during 2016-17 "Enhancing self competence-16AP008" is discontinued.
17. It was felt by the BOS members that if the students do the industrial projects through MoU with industries/research organizations/professional bodies then there is greater chance of employability for the PG students.
18. The Industry representatives of the BOS committee suggested having "optimization techniques" in the programme, which is already in place.
19. The BoS committee suggested encouraging the PG students to take up Energy Auditor/Energy Manager certification examination through BEE, Government of India.

## 2) M.Tech in Machine Design:-

### Changes incorporated:

1. Dynamics laboratory (16MMD104) and Seminar (16MMD105) each of 1 credit was removed from first semester M-Tech syllabus and Research experience through practice-I (17MMD104) with 2 credits was included in the **first semester** with CIE-100 marks
2. Advanced Modeling, Analysis and Simulation Laboratory (16MMD204) with 1 credit and Research Experience through practice (16MMD205) with 1 credit and CIE-10 marks, SEE-40 marks were removed and Research Experience through practice-II( 17MMD204) with 2 credits was included in **second semester** with CIE-100 marks.
3. The Laboratory experiments in "Dynamics laboratory" (16MMD104) is to be included as active Learning component in the "Theory of Vibrations" course and Laboratory experiments in "Advanced Modeling, Analysis and Simulation Laboratory" should be included as the active Learning Component in the "Finite Element Methods" Course
4. Active learning Experiments was included in Mechatronics System Design (17MMD123) syllabus in Unit- 1, 2, 3 and 5.
5. Inclusion of Active learning lab Experiments in Robotics (17MMD223) in Unit- 1, 2, and 3 syllabus
6. **Change in syllabus of Robotics (17MMD223).** Newton-Euler formulations from has been removed from UNIT-IV (Robot dynamics) and Force Control Strategies, Hybrid Force-Position Control Strategies, Impedance Force Torque Control Strategies from UNIT-V (Robot Trajectory Planning and Control) has been removed. More case studies are added on Lgrange-Euler Formulations like **derivation of dynamic equation of motion for different 2DOF and 3DOF robot configurations.**

7. Audit course “Enhancing Self Competence” (16AP008) which was included in 2016-17 scheme in second semester has been removed for the academic year 2017-2018.
8. Six Continuous Internal Evaluation tests (CIE test each of 20marks) which was followed in 2016-2017 batch has been discontinued from 2017-2018 and only two mid semester examinations- MSE-I and MSE-II (Each of 20Marks) have been proposed from the academic year 2017-2018 because of feedback received from students and faculties and to give more emphasis on research based learning in PG program.
9. In the third Semester M-Tech, Industrial training/mini project (16MMD301), total credit of 6 was changed to 8. In project part-I, the total number of weeks was increased to 10 weeks from 8 weeks.
10. It was felt by the BOS members that if the students do the industrial projects through MoU then there is greater chance of employability for the PG students.
11. The Industry representatives of the BOS committee suggested the PG students to undergo Certification courses on Condition Monitoring provided by **Vibration Institute, MOBIUS, BINDT and other institutes.**
12. In the fourth semester M-tech, three project progress evaluation (PPEI, PPEII, and PPEIII (17MMD401) is reduced to 2 project progress evaluation (PPE-I and PPE-II) for 100 marks each with a total of 20 weeks duration in the fourth semester due to difficulty in conducting three project progress evaluation in five months.
13. As per the suggestion of the industry experts, **an optimization technique** is included as an active learning component in FEM Subject.
14. The Panel of Examiners for PG Examinations of both odd and even semester has been approved.

## **8. DEPARTMENT OF PHYSICS**

### **Changes incorporated:**

- **Engineering Physics PH102**
  - Some corrections were made in course objectives and course outcomes.
  - Ambiguity in the some topics has been corrected, i.e. in **unit II**, *Quartz* has been changed to *Quartz (HCP)*. In **unit III**; *Fermi energy and Fermi factor for metals* has been corrected to *Fermi energy and Fermi factor*. In **unit V**; *Ultrasonic waves – generation* has been changed to *Ultrasonic waves – methods of generation (Qualitative)* and *Nano materials – preparations* has been changed to *Nano materials – preparations (Milling and PVD)*.
  - In **unit III**, repetition of *Fermi factor and Fermi energy in semiconductors* has been removed.
  - In **unit III**, *Experimental determination of carrier concentration* has been removed.
- **Engineering Physics Lab PH109**
  - One experiment on ‘I-V Characteristics of Solar Cell’ has been added/ substituted.

- Ten experiments are to be performed in the regular lab classes for the year 2017-18.
- It was also approved that, in Engineering Physics Lab manual is to be brought for continuous evaluation. At the time of Final Lab Exams (MSE &SEE) submission of Lab Manuals, as a proof of completion of Labs is mandatory.
- **Open electives**
  - The syllabi of the following open electives courses approved without any changes.
    1. **Advanced Materials Technology (PH 8X04)**
    2. **Optoelectronic Devices (PH8X19)**
    3. **Physics of Semiconductor Devices (PH8X29)**
  - **For the 2016-2020 batch, above 3 credit open elective courses with 5 units will be made into 3 units by redistribution of the topics was approved.**
- **Audit course**
  - Syllabus of the “Modern Optics” has been approved without any changes.

## **9. DEPARTMENT OF HUMANITIES**

Course contents of the subjects:

- English and Communication Skills : 17HU114
- Constitution of India and Professional Ethics : 17HU107
- Intellectual Property Rights : 14HU8X03
- Professional & Cognitive Communiqué : 14HU8X24
- Enhancing Self Competence : 16HU311/16HU411

were presented to the board. After thorough discussion, the course contents were approved by the board and decided to retain the existing content with no major changes. The BOS also approved the two audit courses offered by the Department to the students from all engineering programmes and semesters.

1. **Speak Up** – Offered by Mr. Vishwanatha

2. **Fundamental Writing Skills** – Offered by Mr. Joy Elvine Martis.

The board has also approved the evaluation pattern in course - Enhancing Self Competence (HU311/HU411) conducting four tasks for 20 marks and one mid-semester examination for 30 marks. This proposal for approval was made by the course owners with a due approval of the Principal to consider positively by the BOS.

The BOS also agreed to continue the course – 17HU107 with a changing status from credit to compulsory non-credit course.

## DEPARTMENT OF MATHEMATICS

### **Changes incorporated:**

- a. The units IV&V dealing with numerical methods of the subject, Probability Theory& Numerical Methods, sub. Code: 15CS401/15IS401 are replaced by some topics of Linear Algebra like matrix, vector space and linear transformation. These will be units I & II of revised syllabus. Sampling Theory is shifted from unit II to unit V, Curve fitting is included in unit IV and units I, II & III will be units III, IV&V of revised syllabus. The teaching hours for all units are redistributed accordingly. The subject is entitled as “Linear Algebra & Probability Theory” with sub. Code: 16CS401/16IS401.
- b. Five units of the open elective, Graph Theory, MA8X01 has been brought down to three units and teaching hours are redistributed.
- c. Five units of the open elective, Linear Algebra, MA8X02 has been brought down to three units and teaching hours are redistributed.
- d. These modified open electives are to be offered in the VI semester for the 2016-2020 batch and onwards.
- e. List of panel of examiners for both UG&PG for the academic year 2016-17 have been approved.

## DEPARTMENT OF CHEMISTRY

### **Changes incorporated:**

- **Engineering Chemistry - CY110** has been approved with following modifications.  
Unit I - Polymers- Synthesis of Teflon removed, Synthesis of polyurethane added.  
Unit II- Electrochemical Cells- Classification of electrodes removed.  
Battery Technology-Li-MnO<sub>2</sub> removed.  
Unit III- Corrosion – Anodic Protection removed.  
Unit IV- Water Technology-Priming and foaming removed.
- **Engineering Chemistry lab CY117** contains twelve experiments out of which only 10 experiments are to be performed in the regular lab classes for the year 2017-18.
- Open Electives CH8X21 and CH8X31 offered to VIII Semester students have been confined to only three units against previous five units.
- The title of the open elective **CH8X21-Natural Products Chemistry**’ changed as **Chemistry of Natural Products** for VIII Semester B.E. (Biotechnology) student has been approved without any modifications.
- Open elective - ‘**CH8X31 Corrosion Science**’ for VIII Semester B.E. (Mechanical, Biotechnology and Civil Engineering) students has been approved with slight modification.
- An audit course ‘**Paint technology**’ has been approved without any changes.

## DEPARTMENT OF MCA

### **Changes incorporated:**

The following points were discussed and approved by the members of the Board of Studies in the BOS meeting held on 13.05.2017

1. Database Systems along with the lab is moved from II semester to I semester to replace Object Oriented Programming with C++ and its lab.
2. Web Technologies and Applications along with the lab is moved from IV semester to II semester to replace Database Systems and its lab.
3. Enterprise Java along with the lab is moved from IV semester to III semester to replace .Net Framework and C# and its lab.
4. Cryptography and Security is moved from Problem Based Electives and replace Enterprise Java in the IV semester along with lab.
5. Lab component of Cryptography and Security is added to IV Semester.
6. Data Warehousing and Data Mining is moved from Project Based Electives to IV semester to replace Web Technologies and Applications.
7. Lab component of Data Warehousing and Data Mining is added to IV Semester.
8. Bioinformatics, Distributed Computing Systems, .Net Framework and C# and Semantic Web Technologies are added to Project Based Electives.
9. Software Architecture, Storage Technologies and Managerial Economics are added to General Electives.
10. Accountancy and Financial Management is added to Problem Based Electives.
11. Contents of Web 2.0 and Rich Internet Applications syllabus is modified to include Server side technologies and revisit on the Flash content.
12. Multimedia course is moved from General Electives to Project Based Electives.
13. Elaborate further on the top three Network layers in Data Communication and Computer Networks.
14. Changes in the contents of Web Technologies and Applications, Cryptography and Security.
15. Principles of User Interface course renamed as Human Computer Interaction.
16. Changes to the choice based selection
  - 1st semester – Unix Concepts and Programming, Professional Communication and Ethics.
  - 2nd semester – Web Technologies and Applications, Fundamentals of Computer Organization.
17. Changes to the choice based selection
  - 3<sup>rd</sup> semester – Data Communication and Computer Networks.
  - 4<sup>th</sup> semester – Data Warehousing and Data Mining.
18. Review of Credit allotment.
19. Mandatory Credit allotment to EEC.

20. CO, PO, PEO, Vision and Mission mapping.

21. Approval of Panel of Examiners for 2017-18.