Minutes

6th Board of Governors Meeting

of

KLE Technological University,

Hubballi, Karnataka February 17th, 2017



KLE Technological University (Established under Karnataka Act No.22, 2013)

Agenda

Item No.	Particulars	Page No
BOG 6.1	To read & confirm the minutes of the previous meeting held on 27 th October	1
	2016.	
BOG 6.2	To confirm the action taken report on the minutes of the meeting of the Board	
	of Governors held on 27 th October 2016.	
BOG 6.3	To consider and approve the recommendations of the Executive Council held	6
	on 27 th December 2016 on the resolutions of Finance Council of the University	
	held on 22/12/2016.	
	 To consider and approve the Audited Statements of the Financial Year 2015-16 	
	• To consider and approve the Budget proposal for the year 2017-18.	
	 To consider the issue of Fee Fixation for Government Quota, University Quota & Lateral Entry seats of the University. 	
	• To consider and approve term loan of Rs. 5 crores during F.Y 2016-17	
	and Rs. 10 crores in F.Y. 2017-18 for major capital expenditures	
BOG 6.4	To consider the Schemes and Syllabi as listed below of Undergraduate Minor	
	Degree Programmes of 2017-18 batches and approve the same. These are as	
	per the recommendations of the respective Board of studies and approvals by	
	the Academic Council and the Executive Council:	
	I. Minor in Entrepreneurship	
	II. Minor in Computer Science & Engineering	
	III. Minor in Electronics	
	IV. Minor in Innovation and Product Development	
	V. Minor in Robotics	
BOG 6.5	To consider and approve Bachelor of Science (B.Sc) programs that are to be	10
	instituted by the University from the academic year 2017-18. These are as per	
	the recommendations of the respective Board of studies and approvals by the	
	Academic Council and the Executive Council:	
	a. Scheme and Syllabi of B.Sc Programs	
	b. Modifications in B.Sc regulations	
BOG 6.6	To review and discuss the 'Strategic Plan' of the KLE Technological University	
BOG 6.7	To discuss and approve the University Annual Report for the academic year	13
	2015-16	
BOG 6.8	Any other subject with the permission of the Chair.	14

BOG 6.1	To read & confirm the minutes of the previous meeting held on 27 th October 2016	
BOG 5.1:	To read and confirm the minutes of the meeting of the Board of Governors held on 5th April 2016	
	Resolution 5.1: Read & confirmed the minutes of the previous meeting held on 5th April 2016.	
BOG 5.2:	To approve the action taken report on the minutes of the meeting of the Board of Governors held on 5th April 2016. Resolution 5.2: Resolved to approve the action taken report on the minutes of the previous meeting held on 5th April 2016.	
BOG 5.3:	To consider and approve the resolutions of Finance Council of the University.	
	• To consider and approve the audited statements of the financial year 2015-16.	
	•To consider and approve the Budget for the year 2017-18	
	Resolution 5.3: Resolved to defer the agenda as Executive Council has not yet reviewed the recommendations of the Finance Committee.	
BOG 5.4:	To consider and approve the report submitted by the Admission Committee for the academic year 2016-17	
	Resolution 5.4: Resolved to approve the report submitted by the Admission	
	Committee for the academic year 2016-17 and BOG complimented the University for the excellent admissions during the first year itself.	
BOG 5.5:	To consider and approve the report submitted by the Research Council.	
BOG 5.6:	To nominate Experts on Faculty Selection Committees.	
	Resolution 5.6: Resolved to approve list of experts to be nominated on Faculty	
BOG 5.7:	To review the results of the Even and Summer Semesters of all programs	
	Resolution 5.7: BOG reviewed the results of the Even and Summer Semesters of all	
	programs and expressed their satisfaction.	
BUG 5.8.	Tech. to KLE Technological University	
	Resolution 5.8: Resolved to ratify the transfer of teaching faculty from B. V.	
	Bhoomaraddi College of Engg. & Tech. to KLE Technological University	
BOG 5.9	Any other subject with the permission of the Chair.	
	Table Agenda 9(a): To consider raising of term toan for the proposed construction of E	
	a C Building, Architecture Building, Civil Building and CTIE Building and up gradation	
	of existing buildings on the campus of KLE Technological University.	
	The subject was taken up for discussion as an additional one.	
	Resolution 9a: Briefing the Board on the subject the Registrar said, there is acute need	
	for construction of E & C Building, Architecture Building, Civil Building and CTIE	
	Building on the campus of KLE Technological University Hubballi. He said it is	
	estimated to have construction of 57,233 sft comprising of ground floor, first floor,	
	second floor, third floors. He further said, the project will cost approximately Rs.6.49	

Crores. We need to raise a term loan of approximately Rs Five crores to implement the project.

After discussion the Board of Governors authorized Sri B.L.Desai, Registrar, KLE Technological University to obtain sanction of term loan to the tune of Rs Five crores from the Syndicate Bank BVB Campus, Hubballi Branch, by mortgaging the proposed construction.

9 (b): To authorize the Vice Chancellor to open S.B. Account in the State Bank of Mysore.

Resolution 9b: Resolved to authorize the Vice Chancellor to open S.B. Account in the State Bank of Mysore, Unkal Branch in the name of "The Registrar, KLE Technological University, Hubballi (UG Aided Courses).

Action Requested: To confirm the minutes of the previous meeting held on 27th October 2016.

Discussion:

Resolution 6.1: Resolved to confirm the minutes of the previous meeting held on 27th October 2016.

BOG 6.2	To confirm the action taken report on the minutes of the meeting held on 27 th October 2016	of the Board of Governors
Item No.	Description	Action Taken
BOG 5.1:	To read and confirm the minutes of the meeting of the Board of Governors held on 5th April 2016	Noted
	Resolution: Read & confirmed the minutes of the previous meeting held on 5 th April 2016.	
BOG 5.2:	To approve the action taken report on the minutes of the meeting of the Board of Governors held on 5th April 2016.	The BOG NOTED the actions taken on the minutes of the 4 th BOG meeting held on 5 th April 2016
	Resolution: Resolved to approve the action taken report on the minutes of the previous meeting held on 5th April 2016	
BOG 5.3:	To consider and approve the resolutions of Finance Council of the University.	No action required
	 To consider and approve the audited statements of the financial year 2015-16. 	
	 To consider and approve the Budget for the year 2017-18 	
	Resolution: Resolved to defer the agenda as Executive Council has not yet reviewed the recommendations of the Finance Committee.	
BOG 5.4:	To consider and approve the report submitted by the Admission Committee for the academic year 2016-17	No action required
	Resolution: Resolved to approve the report submitted by the Admission Committee for the	
	academic year 2016-17 and BOG complimented the University for the excellent admissions during the first year itself.	
BOG 5.5:	To consider and approve the report submitted by the Research Council.	Research Committee has been
	Resolution: Resolved to approve the report submitted by the Research Council.	benchmarking process.

BOG 5.6:	To nominate Experts on Faculty Selection Committees. Resolution: Resolved to approve list of experts to be nominated on Faculty Selection	School coordinators/ Department heads have been informed about the panel of experts and asked them to invite them as and when required.
	Committees for each of the Schools/ Departments	
BOG 5.7:	To review the results of the Even and Summer Semesters of all programs	No action required
	Resolution: BOG reviewed the results of the Even and Summer Semesters of all programs and expressed their satisfaction.	
BOG 5.8:	To consider the issues of transfer of faculty from B.V. Bhoomaraddi College of Engg. & Tech. to KLE Technological University.	No action required
	Resolution: Resolved to ratify the transfer of teaching faculty from B. V. Bhoomaraddi College of Engg. & Tech. to KLE Technological University.	
BOG 5.9	Any other subject with the permission of the Chair.	
	Table Agenda 9(a): To consider raising of term loan for the proposed construction of E & C	Process of raising term loan of Rs.5.00
	Building Architecture Building Civil Building and CTIE Building and up gradation of existing	crores from the Syndicate Bank has
	building, Arcintecture building, civil building and crite building and up gradation of existing	heen initiated
	buildings on the campus of KLE Technological University.	been mitiated.
	The subject was taken up for discussion as an additional one.	
	Resolution 9a: Briefing the Board on the subject the Registrar said, there is acute need for	
	construction of E & C Building, Architecture Building, Civil Building and CTIE Building on the	
	campus of KLE Technological University Hubballi. He said it is estimated to have construction	
	of 57,233 sft comprising of ground floor, first floor, second floor, third floors. He further said,	
	the project will cost approximately Rs.6.49 Crores. We need to raise a term loan of	
	approximately Rs Five crores to implement the project.	
	After discussion the Board of Governors authorized Sri B.L.Desai, Registrar, KLE Technological	
	University to obtain sanction of term loan to the tune of Rs Five crores from the Syndicate	

Bank BVB Campus, Hubballi Branch, by mortgaging the proposed construction.
9 (b): To authorize the Vice Chancellor to open S.B. Account in the State Bank of Mysore.
Resolution 9b: Resolved to authorize the Vice Chancellor to open S.B. Account in the State
Bank of Mysore, Unkal Branch in the name of "The Registrar, KLE Technological University,
Hubballi (UG Aided Courses).

Action Requested: The BOG is requested to confirm the action taken report on the minutes of the previous meeting held on 27th October 2016

Discussion:

Resolution 6.2: Resolved to confirm the action taken report on the minutes of the previous meeting held on 27th October 2016

BOG 6.3	 For consider and approve the recommendations of the Executive Council held on 27th December 2016 on the resolutions of Finance Council of the University held on 22/12/2016. To consider and approve the Audited Statements of the Financial Year 2015-16 To consider and approve the Budget proposal for the year 2017-18. To consider the issue of Fee Fixation for Government Quota, University Quota & Lateral Entry seats of the University. To consider and approve term loan of Rs. 5 crores 		
	for maid	or capital expenditures.	
	The 1 st finance council meeting was held on 22 nd December 2016 and recommendations were placed before the Executive Council on 27 th December 2016 review. The recommendations of the EC are placed before the Board for considerationary and approval.		
	The details of the mi Agenda Point 1.1:	nutes of the finance council meeting are as below. To consider and approve the Audited Statements of the Financial Year 2015-16	
	Resolution 1.1: The audited statements of the year 2015-16 were approved. is recommended for consideration and approval by the Executive Council. (<i>Ref:</i> Section 54 of Chapter VI of KLE Technological University Act 2012 and Section chapter IV of the statutes of KLE Technological University)		
	Agenda Point 1.2:	To consider and approve the Budget proposal for the year 2017- 18.	
	Resolution 1.2:	The budget for the year 2017-18 is approved. The same is recommended for consideration and approval by the Executive Council.	
	(Ref: Section 19.8(i) of	chapter IV of the statutes of KLE Technological University)	
	Agenda Point 1.3	To discuss and approve the operation, maintenance and monitoring of the following funds;	
		 Permanent Statutory Endowment Fund University Endowment Fund General Fund and Development Fund. 	
	Decision requested:	The Finance Council is requested to discuss and approve the operation, maintenance and monitoring of Permanent	

	Statutory Endowment Fund, University Endowment Fund,
	General Fund, Development Fund.
Resolution 1.3	Resolved to approve the operation, maintenance and
	monitoring of the following funds:
(Ref: Section 48,49,50,5 section 23 of chapter V	 Permanent Statutory Endowment Fund as per the provisions of the KLE Technological University Act – 2012. University Endowment Fund as per the provisions of the KLE Technological University Act – 2012. General Fund as per the provisions of the KLE Technological University Act – 2012. Development Fund as per the provisions of the KLE Technological University Act – 2012. Development Fund as per the provisions of the KLE Technological University Act – 2012. Of chapter VI of KLE Technological University Act 2012 respectively and of the statutes of KLE Technological University)
Agenda Point 1.4	To consider the issue of Fee Fixation for Government Quota, University Quota & Lateral Entry seats of the University.
Decision requested:	The Finance Council is to discuss and approve Fee Fixation for Government Quota, University Quota & Lateral Entry seats of the University
Resolution 1.4 (Ref: Section 34 of cha _l chapter II of the Regula	Resolved to approve the fee structure as prescribed by the Government for CET and Comedk. For University Quota & Lateral Entry the same is recommended for consideration and approval by the Board. <i>Deter V of the statutes of KLE Technological University and Section 5 of tions of KLE Technological University</i>)
Table Agenda	To consider and approve term loan of Rs. 5 crores during F.Y 2016-17 and Rs. 10 crores in F.Y. 2017-18 for major capital expenditures.
Resolution:	Resolved to approve the term loan of Rs. 5 crores during F.Y 2016- 17 and Rs. 10 crores in F.Y. 2017-18 for major capital expenditures.
Table Agenda	To ratify opening of Saving /Fixed Deposit Account in the name of Registrar, KLE Technological University with AXIS bank, Vidyanagar branch, Hubballi.
Resolution	Resolved to ratify the opening of Saving /Fixed Deposit Account in the name of Registrar, KLE Technological University with AXIS bank, Vidyanagar branch, Hubballi.
Table Agenda	To approve opening of Saving /Fixed Deposit Account in the name of Registrar, KLE Technological University with RBL Bank

	Ltd at Hubballi branch.
Resolution	Resolved to approve opening of Saving /Fixed Deposit Account
	in the name of Registrar, KLE Technological University with RBL
	Bank Ltd at Hubballi branch.
Enclosures:	
Annexure 1: The audit	ed statements of the financial year 2015-16
Annexure 2: Budget pr	roposal for the year 2017-18
Annexure 3: Fee struct	ture for the year 2016-17
Resolution of E	C: Executive Council in its meeting held on
27 th Decemb	er 2016 resolved to approve the
recommendatio	ons of Finance Council of the University and
recommend it t	o the BUG.

Action Requested: BOG is requested to consider and approve the recommendations of the Executive Council.

Discussion:

Resolution 6.3: BOG considered the recommendations of the Executive Council and approved the following:

- 1. Audited Statements of the Financial Year 2015-16
- 2. Budget proposal for the year 2017-18
- 3. Operation, maintenance and monitoring of the following funds:
 - Permanent Statutory Endowment Fund as per the provisions of the KLE Technological University Act 2012.
 - University Endowment Fund as per the provisions of the KLE Technological University Act 2012.
 - General Fund as per the provisions of the KLE Technological University Act – 2012.
 - Development Fund as per the provisions of the KLE Technological University Act – 2012.
- 4. The fee structure of the University

- 5. Term loan of Rs. 5 crores during F.Y 2016-17 and Rs. 10 crores in F.Y. 2017-18 for major capital expenditures
- 6. Opening of Saving /Fixed Deposit Account in the name of Registrar, KLE Technological University with AXIS bank, Vidyanagar branch, Hubballi.
- 7. Opening of Saving /Fixed Deposit Account in the name of Registrar, KLE Technological University with RBL Bank Ltd at Hubballi branch.

To consider the Schemes and Syllabi as listed below of	
Undergraduate Minor Degree Programmes of 2017-18	
batches and approve the same. These are as per the	
recommendations of the respective Board of studies and	
approvals by the Academic Council and the Executive	
Council:	
I. Minor in Entrepreneurship	
II. Minor in Computer Science & Engineering	
III. Minor in Electronics	
IV. Minor in Innovation and Product Development	
V. Minor in Robotics	
KLE Technological University strives to produce Engineers with multidisciplinary s and abilities, to succeed in the technologically complex world. Earning a minor de along with engineering major degree is a great way to broaden education, enha technical, managerial and business skills. Minors are intended to encourage officially acknowledge the attainment of a fair measure of expertise and knowledg more than one academic field, with the goal of broadening a student's education, have an advantage in the competitive job market.	
KLE Tech offers multi-term, on campus minors consisting of 15 Credits of course work specified by the School / Department / Centre offering the minor.	
Enclosures:	
Annexure 4: Minor in Entrepreneurship	
Annexure 5: Minor in Computer Science & Engineering	
Annexure 6: Minor in Electronics	
Annexure 7: Minor in Innovation and Product Development	

Action Requested: The BOG is requested to discuss and approve the schemes and syllabi of the UG Minor Degree Programmes approved & recommended by both the Academic Council and the Executive Council.

Discussion:

- Resolution 6.4: BOG considered the recommendations of the Executive Council and approved the schemes and syllabi of the following UG Minor Degree Programmes:
 - **1.** Minor in Entrepreneurship
 - 2. Minor in Computer Science Engineering
 - 3. Minor in Electronics
 - 4. Minor in Innovation and Product Development
 - 5. Minor in Robotics

BOG 6.5	To consider and approve Bachelor of Science (B.Sc) programs that are to be instituted by the University from the academic year 2017-18. These are as per the recommendations of the respective Board of studies and approvals by the Academic Council and the Executive Council: • Scheme and Syllabi of B.Sc Programmes • Modifications in B.Sc regulations
	Proposed B.Sc program combines both the theoretical and hands-on training along with the industrial exposure, so as to bridge the gap between learning and practically applying the concepts.
	B.Sc programs have been created with the objective of not only preparing students for competitive jobs in industry but also to make them ready for higher studies.
	The program is structured on industrial work-integrated learning in collaboration with industries/companies for personnel of industry. During this program students shall have access to the functions of industries / companies.
	The program shall be conducted as per a MoU between industry/ company and the University.
	The degree program shall be conducted by the University in collaboration with industry / company in a particular specialization (as per the collaborating industry/ company).
	The program shall be only for employees/trainees of collaborating industry / company.
	The department running this program shall belong to the school to which the specialization belongs.
	Enclosures:
	Annexure 9: Scheme and Syllabi of B.Sc (Computer Science – Industry Track)
	Annexure 10: Scheme and Syllabi of B.Sc (Electronics – Industry Track)
	Annexure 11: Modifications in B.Sc regulations

Action Requested: The BOG is requested to discuss and approve Bachelor of Science (B.Sc) programs that are to be instituted by the University from the academic year 2017-18, which are approved by both the Academic council & the Executive Council.

Discussion:

- Resolution 6.5: BOG considered the recommendations of the Executive Council and approved the 'Scheme and Syllabi' & 'Modifications in regulations' of the following Bachelor of Science (B.Sc) programs that are to be instituted by the University from the academic year 2017-18:
 - B.Sc (Computer Science Industry Track)
 - B.Sc (Electronics Industry Track)

BOG 6.6	To review and discuss the `Strategic Plan' of the KLE Technological University
	The Strategic Plan provides an overarching framework of goals and objectives that establishes priorities and informs decision making and annual budgets. KLE Technological University Strategic Plan 2017-22, as the guiding document for the institution, will be reviewed and reflected upon annually.
	Enclosure: Annexure 12: Strategic Plan of the KLE Technological University

Action Requested: The BOG is requested to review and discuss the 'Strategic Plan' of the KLE Technological University that has been already presented to the Academic Council and the Executive Council.

Discussion:

Resolution 6.6: BOG considered the recommendations of the Executive Council and approved the Strategic Plan of the University along with the vision and mission of the University written accordingly.

BOG 6.7	To discuss and approve the University Annual Report for the academic year 2015-16		
	The KLE Technological University has completed its first year and the annual report for the academic year 2015-16 has been placed before the academic council for approval.		
	Enclosure: Annexure 13: Annual Report for the academic year 2015-16		

Action Requested: The BOG is requested to discuss and approve the University Annual Report for the academic year 2015-16 that has been approved by the Academic Council and the Executive Council.

Discussion:

Resolution 6.7: BOG considered the recommendations of the Executive Council and approved the Annual report of the University for the academic year 2015-16.

BOG 6.8	Any other subject with the permission of the Chair
	NIL

List of annexures enclosed

- Annexure 1: The audited statements of the financial year 2015-16
- Annexure 2: Budget proposal for the year 2017-18
- Annexure 3: Fee structure for the year 2016-17
- Annexure 4: Minor in Entrepreneurship
- Annexure 5: Minor in Computer Science & Engineering
- Annexure 6: Minor in Electronics
- Annexure 7: Minor in Innovation and Product Development
- Annexure 8: Minor in Robotics
- Annexure 9: Scheme and Syllabi of B.Sc (Computer Science Industry Track)
- Annexure 10: Scheme and Syllabi of B.Sc (Electronics Industry Track)
- Annexure 11: Modifications in B.Sc regulations
- Annexure 12: Strategic Plan of the KLE Technological University
- Annexure 13: Annual Report for the academic year 2015-16

ANNEXURE 1

[The audited statements of the financial year 2015-16]



KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI

AUDIT REPORT

We have conducted the audit of the financial transactions of KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI for the year ended on 31/03/2016 and examined the Balance Sheet of the institution as on 31/03/2016 and Income & Expenditure Account for the year ended on that date and the same are in agreement with the books of accounts maintained.

These financial statements are the responsibility of the Management of the University. Our responsibility is to express an opinion on these statements based on our audit.

We have conducted our audit in accordance with auditing standards generally accepted in India. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements/financial transactions revealed in the books and records maintained are free of material misstatement. An audit includes examining on a test basis, Evidence supporting the amounts and disclosures made. Accordingly we have carried out reasonable test checks and sampling techniques as deemed appropriate keeping in view the scope of audit. We believe that our audit provides a reasonable basis for our opinion.

We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of the audit

In our opinion and to the best of our information and according to explanations given to us, and as per the Scope of Audit, our verification results into the specific observations given in the annexure enclosed hitherto, the said accounts, read with notes thereon, give,

- I) In case of Income & Expenditure A/c for the year ended on 31st March 2016, a true and fair view of the Surplus of the institution and
- ii) In case of Balance Sheet, the State of Affairs as on that date.

For: Chenni Associates Chartered Accountants Firm Regn. No. 0006225

Sd/-CA Suresh K Chenni Proprietor M No. 26214

PLACE: HUBBALLI DATE : 20-09-2016



KLE TECHNOLOGICAL UNIVERSITY BVB College Campus, Vidyanagar, Hubballi-31 BALANCE SHEET AS ON 31st MARCH 2016

Α	SOURCE OF FUNDS	Schedule	Amount (Rs)
1	UNRESTRICTED FUNDS		
	Corpus	1	102,062,500
	General Fund	2	80,191,404
	Designated / Earmarked Funds	3	5,425,335
2	RESTRICTED FUNDS	4	
3	LOANS/BORROWINGS	5	
	Secured		
	Unsecured		
4	CURRENT LIABILITIES & PROVISIONS	6	10,827,887
	TOTAL (A)		198,507,126
В	APPLICATION OF FUNDS		
1	FIXED ASSETS	7	
	Tangible Assets		25,067,595
	Intangible Assets		1,865,179
	Capital Work-In -Progress		35,989,095
2	INVESTMENTS	8	
	Long Term		102,414,500
	Short Term		
3	CURRENT ASSETS	9	25,871,205
4	LOANS, ADVANCES & DEPOSITS	10	7,299,552
	TOTAL (B)		198,507,126

Note : 1. The Accompanying Notes 1 To 10 are an integral part of the Financial Statements

2. Previous year figures are not given since this is the first year of its operation

As per our report of even date. Chenni Associates Chartered Accountants

Sd/-Finance Officer KLE Technological University Hubballi Sd/-Registrar KLE Technological University Hubballi

4

Sd/-CA Suresh K Chenni Proprietor M No. 26214 FRN 000622S



KLE TECHNOLOGICAL UNIVERSITY BVB College Campus, Vidyanagar, Hubballi-31

INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD ENDING 31-03-2016

(Amount in Rs)

CI		C 1	U	nrestri	cted Funds	Restri	
SI. No.	Particulars	-dule	Corpus	Desig -nated Fund	General Fund	-cted Fund	Total
Α	INCOME						
	Academic Receipts	11			139,028,390		139,028,390
	Grants and Donations	12					
	Income from Investments	13			8,250,000		8,250,000
	Other Incomes	14			3,381,442		3,381,442
	Total(A)		-	-	150,659,832	-	150,659,832
B	EXPENDITURE						
	Staff Payments & Benefits	15			30,591,007		30,591,007
	Academic Expenses	16			15,366,798		15,366,798
	Administrative & General Expenses	17			17,341,694		17,341,694
	Transportation Expenses	18					
	Repairs & Maintenance	19			4,752,877		4,752,877
	Finance Costs	20			1,552		1,552
	Other Expenses	21					
	Total(B)				68,053,928		68,053,928
С	Balance being excess of Income		-	-	82,605,904	-	82,605,904
	over Expenditure (A-B)						
	<u>Transfer to:</u>						
	Corpus Fund				2,062,500		2,062,500
	University Development Fund				252,000		252,000
	University Endowment Fund				100,000		100,000
D	Balance Being Surplus carried		-	-	80,191,404	-	80,191,404
	to General Fund						

Note : 1. The Accompanying Notes 11 To 21 are an integral part of the Financial Statements 2. Previous year figures are not given since this is the first year of its operation

As per our report of even date. Chenni Associates Chartered Accountants

Sd/-Finance Officer KLE Technological University Hubballi Sd/-Registrar KLE Technological University Hubballi

5

Sd/-CA Suresh K. Chenni Proprietor M No. 26214 FRN 000622S



Schedules Forming Part of Balance Sheet & Income and Expenditure Account

SCHEDULE 1 - CORPUS

Particulars	Amount (Rs)
Balance as at the beginning of the year	-
Add: Contributions towards Corpus	102,062,500
Deduct: Asset written off during the year created out of corpus	-
BALANCE AT THE YEAR-END	102,062,500

SCHEDULE 2 - GENERAL FUND

Particulars	Amount (Rs)
Balance as at the beginning of the year	-
Add: Contributions towards General Fund	-
Add: Balance of Net income trf from the Income & Exp A/c	80,191,404
BALANCE AT THE YEAR-END	80,191,404

SCHEDULE 3 - DESIGNATED/EARMARKED FUND

	FUND	FUND WISE BREAK UP		
Particulars	Depreciation Reserve	Development Fund	University Endowment Fund	TOTAL
a) Opening Balance of the funds	-	-	-	-
b) Additions to the funds:	-	-	-	-
I) Doantion/grants	-	-	-	-
ii) Income from investments made of the funds	-	-	-	-
iii) Accrued interest on investments of the funds	-	-	-	-
iv) Current Year Depreciation	5,073,335	-	-	5,073,335
v) Other additions (Tr. From General Fund)	-	252,000	100,000	352,000
TOTAL (a+b)	5,073,335	252,000	100,000	5,425,335
c) Utilization/Expenditure towards	-	-	-	-
objectives of funds				
i) Capital Expenditure	-	-	-	-
- Fixed Assets	-	-	-	-
- Others	-	-	-	-
Total	-	-	-	-
ii) Revenue Expenditure	-	-	-	-
- Salaries, Wages and allowances etc.	-	-	-	-
- Rent	-	-	-	-
- Other Administration expenses	-	-	-	-
Total	-	-	-	-
TOTAL (c)	-	-	-	-
NET BALANCE AS AT THE YEAR-END (a+b+c)	5,073,335	252,000	100,000	5,425,335



SCHEDULE 4 - RESTRICTED FUNDS

Particulars	FUND	WISE BRI	EAK UP	TOTAL
a) Opening Balance of the funds	_	_	-	-
b) Additions to the funds:				-
i) Donation/grants	-	-	-	-
ii) Income from investments made on account of funds	-	-	-	-
iii) Accrued interest on investments of the funds	-	-	-	-
iv) Other additions (Specify)	-	-	-	-
TOTAL (a+b)	-	-	-	-
c) Utilization/Expenditure towards objectives of funds				-
i) Capital Expenditure				-
- Fixed Assets	-	-	-	-
- Others	-	-	-	-
Total	-	-	-	-
ii) Revenue Expenditure				-
- Salaries, Wages and allowances etc.	-	-	-	-
- Rent	-	-	-	-
- Other Administration expenses	-	-	-	-
Total	-	-	-	-
TOTAL (c)	-	-	-	-
NET BALANCE AS AT THE YEAR-END (a+b+c)	_	-	-	-

SCHEDULE 5 - LOANS/BORROWINGS SECURED LOANS

	Particulars		Amount (Rs)
1.	Central Government		-
2.	State Government (Specify)		-
3.	Financial Institutions a) Term Loans b) Interest accrued and due	-	-
		-	
4.	 Banks a) Term Loans b) Interest accrued and due c) Other Loans (specify) Interest accrued and due 	-	
5.	Other Institutions and Agencies		-
6.	Debentures & Bonds		-
7.	Others (Specify)		-
	Total	-	-

Note: Amounts due within one year





	Particulars		Amount(Rs)
1.	Central Government		-
2.	State Government (Specify)		-
3.	Financial Institutions		-
4.	Banks		-
	a) Term Loans	-	
	b) Other Loans (specify)	-	
5.	Other Institutions and Agencies		-
6.	Debentures & Bonds		-
7.	Fixed Deposits		-
8.	Others (Specify)		-
	Total		-

Note: Amounts due within one year

SCHEDULE 6 - CURRENT LIABILITIES & PROVISIONS

		Particulars		Amount(Rs)
A.	CURRE	NT LIABILITIES		
	1. Depo	sits from students	160,000	160,000
	2. Sund	lry Creditors		5,990,130
	a) Fo	or Goods & Services		
	i.	ACC Limited	1,275,150	
	ii.	Osaw Industries Products Pvt Ltd	612,627	
	iii.	E-Sutra Chronicles Pvt Ltd	160,302	
	iv.	K Swaminathan	282,105	
	V.	New Home Infrastructure	746,124	
	vi.	Pooja Electricals	8,179	
	vii.	Ramesh B	1,203	
	viii.	Shankrappa Engineering & Contractors	120,213	
	ix.	The President Hotel	12,164	
	Х.	Vadiraj Electricals	337,344	
	xi.	Tontadarya Press	47,694	
	xii.	BVB Vat cell	1,270,486	
	xiii.	SJS Enterprises	51,840	
	b) Otl	hers		
	i.	Security Deposit from Contractors	1,064,699	
	3. Adva	nces Received		-
	4. Interest Accrued but not due on:'			-
	5. Statutory Liabilities			1,058,460
	a) Ove	rdue	-	
	b) Oth	ers		

AUDIT REPORT 2015-16



SCHEDULE 7 - FIXED ASSETS

Particulars		Amount(Rs)
1.Tangible Assets		25,067,595
a) Automobile Department 1st Floor Building	7,548,673	
b) Computers and Networkings	5,028,284	
c) Equipments	7,003,331	
d) Furnitures & Fixtures	4,898,361	
e) Books	358,992	
f) Vehicle	229,954	
2. Intangible Assets		1,865,179
a) Computer Software	1,629,000	
b) Mail Server	236,179	
3. Capital Work-in-progress		35,989,095
a) KLE Technological University Building	28,323,893	
b) Architecture Department 1st Floor Building	2,674,062	
c) Civil Department 1st Floor Building	2,181,578	
d) IP Department 1st Floor Building	2,809,562	
Total		62,921,869

9





SCHEDULE 8 - INVESTMENTS A) INVESTMENTS FROM EARMARKED/ENDOWMENT FUNDS

Particulars		Amount (Rs)
1. In Central Government Securities		-
2. In State Government Securities		-
3. Other approved Securities		-
4. Shares		-
5. Debentures and Bonds		-
6. Others		102,414,500
FD with Syndicate Bank Hbl -124440511564/1 (Development Fund)	252,000	
FD with Syndicate Bank Hbl - 124440511550/1 (University Endowment Fund)	100,000	
FD with Syndicate Bank Blg 05044570000040/1 (Corpus Fund)	50,000,000	
FD with Syndicate Bank Blg 05044570000040/2 (Corpus Fund)	50,000,000	
FD with Syndicate Bank Hbl 124440511547/1 (Corpus Fund)	2,062,500	
Total (A)		102,414,500

B) INVESTMENTS OTHERS

Particulars	Amount (Rs)
1. In Central Government Securities2. In State Government Securities	
3. Other approved Securities	-
4. Shares	-
5. Debentures and Bonds	-
6. Others (to be specified)	-
Total (B)	
TOTAL (A+B)	102,414,500



SCHEDULE 9 - CURRENT ASSETS

	Particulars		Amount (Rs)
1.	Stock:		-
2.	Sundry Debtors:		-
3.	Cash balances in hand (including cheques/drafts & imprest)	2,749	2,749
4.	Bank Balances (to be further classified as pertaining to earmarked fund or otherwise)"		15,554,606
	a)With scheduled Banks: - In Current Accounts - In Term deposit Accounts Fixed Deposit with Syndicate Bank-12444570000058/2	-	
	- In Savings Accounts		
	Earmarked/Designated Funds		
	Syndicate Bank A/c No. 201/19313	1,000	
	Syndicate Bank A/c No. 201/19293	1,000	
	Syndicate Bank A/c No. 201/19309	1,000	
	General		
	Syndicate Bank A/c No. 201/18548	2,532	
	Syndicate Bank A/c No. 201/9267	524,056	
	Syndicate Bank A/c No. 201/17082	914,237	
	Syndicate Bank A/c No. 201/17078	2,264,201	
	Syndicate Bank A/c No. 201/17097	515,315	
	Syndicate Bank A/c No. 201/17102	792,820	
	Syndicate Bank A/c No. 201/9271	538,446	
	b)With non-scheduled Banks: - In Current Accounts - In Term deposit Accounts - In Savings Accounts	- - -	
5.	Post Office- Savings Accounts		
6.	Fees Receivable		10,313,850
ТО	TAL		25,871,205





SCHEDULE 10 - LOANS, ADVANCES & DEPOSITS

	Particulars		Amount (Rs)
1.	Advances to employees: (Non-interest bearing) a) Advance to staff for office expenses	377,297	377,297
2.	Long Term Advances to employees: (Interest bearing)		-
3.	Advances and other amounts recoverable in cash or in kind or for value to be received:" <u>Advance To contractors</u>		3,000,005
	a) Installation India	2,700,005	
	b) Lighting Concepts Pvt Ltd	100,000	
	c) Shrusti Constructions	200,000	
4.	Prepaid expenses		-
5.	Deposits		-
6.	Income Accrued		1,359,500
	a) On Investments from Earmarked/Endowment Funds	1,237,500	
	b) On Investments - Others	122,000	
	c) On Loans and Advances		
	d) Others (includes income due unrealised- Rs)		
7.	Other Receivable		2,562,750
	i) TDS on Interest	860,076	
	ii) BVB College of Engineering & Technology- UG UA	1,702,674	
	TOTAL		7,299,552



AUDIT REPORT 2015-16

SCHEDULE 11-ACADEMIC RECEIPTS

Particulars	Amount(Rs)	Amount (Rs)
Fees From Students		
Academic		
1. Tuition Fees	107,226,590	
2. Registration Fees	3,666,000	
3. NASA Fees	122,000	
4. Specific Fees By Govt	630,120	
5. E-Learning Fees	534,000	
6. Specific Fees By University	2,039,880	
7. PHD Tution Fees	265,000	
8. PHD Registration Fees	128,000	
Total (A)		114,611,590
Examinations		
1. Annual Examination Fees	2,095,200	
Total (B)		2,095,200
Other Fees		
1. Other Fees	13,695,800	
2. Tablet, Drawing Tool Fees	8,422,000	
3 Eligibility Fees	138,200	
Total (C)		22,256,000
Sale of Publications		
1. Sale of PHD Application Forms	65,600	
Total (D)		65,600
GRAND TOTAL (A+B+C+D)		139,028,390

SCHEDULE 12-GRANTS & DONATIONS

	Particulars	Amount (Rs)
1.	Central Government	
2.	State Government(s)	-
3.	Government Agencies	-
4.	Institutions/Welfare Bodies	-
5.	International Organisations	-
6.	Others (Specify)	-
ТО	TAL	-



SCHEDULE 13- INCOME FROM INVESTMENTS

Particulars	Amount (Rs)
Investment from Earmarked/Endowment Fund	
1. Interest	
a) On Govt. Securities	-
b) Other Bonds/Debentures	-
c) FD Interest from Corpus Fund	8,250,000
2. Income Received	
a) Each fund seperately	
3. Income accrued	
a) Each fund seperately	-
4. Others (Specify)	-
TOTAL	8,250,000

SCHEDULE 14- OTHER INCOME

	Particulars		Amount (Rs)
A.	Income from Land & Building		-
B.	Sale of Institute's publications		-
C.	Income from Holding Events		-
D.	Interest on Term Deposits		350,765
	a) With Scheduled Banks	350,765	
	b) With Non- Scheduled Banks	-	
	c) With Institutions	-	
	d) Others	-	
E.	Interest on Savings Accounts		1,223,527
	a) With Scheduled Banks	1,223,527	
	b) With Non- Scheduled Banks	-	
	c) With Institutions	-	
	d) Others	-	
F.	Interest on Loans		
G.	Interest on Debtors & Other Receivables		
Η.	Others		
	1. Cancellation of seats	1,807,150	1,807,150
TO	TAL		3,381,442

SCHEDULE 15 - STAFF PAYMENTS & BENEFITS

	Particulars		Amount (Rs)
A)	Salaries & Wages		27,591,563
	Teaching Staff	26,347,368	
	Non - Teaching Staff	1,244,195	
B)	Contribution to provident fund		1,057,721
C)	Group Gratuity		1,785,858
D)	TA/DA expenses		155,865
	TOTAL		30,591,007



SCHEDULE 16 - ACADEMIC EXPENSES

	Particulars		Amount (Rs)
A)	Seminar/ Workshop		243,053
B)	Payment to visiting Faculty		40,501
C)	Examination		1,962,194
D)	Publications		210,000
E)	Others (specify)		12,911,050
	i. Meeting Expenditure	482,062	
	ii. Hand Book	395,865	
	iii. Identity Card expenses	31,200	
	iv. Membership Fees	67,697	
	v. Reading Room expenditure	4,200	
	vi. Registration Fees	81,754	
	vii. Sports Activities	237,036	
	viii. Student Activities	2,389,000	
	ix. Tablet, Drawing Tool etc	7,620,486	
	x. Training to Students	1,478,000	
	xi. Uniforms	123,750	
ΤΟ	FAL		15,366,798

SCHEDULE 17 - ADMINISTRATIVE & GENERAL EXPENSES

Particulars		Amount (Rs)
A) Electricity & Power		2,081,196
B) Rent, rates & Taxes (including property tax)		750,979
i. Professional Tax Registration Charges	4,500	
ii. Property Tax	746,479	
C) Postage & Telegram		3,668
D) Telephone & Internet Charges		1,894,242
E) Printing & Stationery		548,151
F) Professional Charges		2,863
G) Advertisement & Publicity		4,106,071
H) Others		2,881,189
i. Consumables	1,935,734	
ii. Security Charges	925,000	
I) Depreciation (As per Sch-17A)		5,073,335
TOTAL		17,341,694



SCHEDULE 18 - TRANSPORTATION EXPENSES

Particulars	Amount (Rs)
1. Vehicles (owned by University)	
a) Running Expenses	
b) Repairs & Maintenance	
c) Insurance expenses	-
2. Vehicles taken on rent/ lease	
a) Rent/lease expenses	-
TOTAL	-

SCHEDULE 19 - REPAIRS & MAINTENANCE

Particulars		Amount (Rs)
a) Building		43,986
b) Furniture & Fixtures		19,342
c) Plant & Machinery		-
d) Office Equipments		-
e) Cleaning Material & Services		-
f) Others		4,689,549
i. Software Maintenance	352,468	
ii. Campus and Garden Maintenance	4,233,566	
iii. Computer Maintenance	90,386	
iv. Electrical Maintenance	13,129	
TOTAL		4,752,877

SCHEDULE 20 - FINANCE COSTS

Particulars	Amount (Rs)
a) Interest on fixed Loans	-
b) Interest on other Loans	-
c) Bank charges	1,552
d) Others (Specify)	-
TOTAL	1,552

SCHEDULE 21 - OTHER EXPENSES

Particulars	Amount (Rs)
a) Others (Specify)	-
TOTAL	-

As per our report of even date. Chenni Associates Chartered Accountants

Sd/-Finance Officer KLE Technological University Hubballi Sd/-Registrar KLE Technological University Hubballi

16

Sd/-CA Suresh K Chenni Proprietor M No. 26214



SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS A: SIGNIFICANT ACCOUNTING POLICIES

I) BASIS OF ACCOUNTING

The accounts are maintained under the historical cost convention on accrual basis as a going concern and in accordance with the applicable accounting standards issued by the Institute of Chartered Accountants of India.

2) FIXED ASSETS AND DEPRECIATION

Fixed assets are stated at cost of acquisition inclusive of inward freight, duties and taxes and incidental and direct expenses related to acquisition (Gross Block). During the year Depreciation is charged as per the Income Tax Act 1961. The Land and Buildings have been taken from KLE Society, Belagavi under lease.

3) **RECOGNITION OF INCOME**

Fees Income is recognized as and when it becomes due. Examination fee is recognized on receipt basis as and when the examinations are conducted.

4) INCOME ON INVESTMENTS (INTEREST)

Interest on Fixed Deposits is recognized on accrual basis and taking into account the amount of deposits and due entry at the year end is shown in income receivable and credited to Interest account.

5) INCOME ON EARMARKED FUNDS

Interest on Investments of Earmarked Funds is credited directly to the respective Earmarked Funds.

6) INVESTMENTS

Investments are stated at cost of acquisition.

7) FOREIGN CURRENCY TRANSACTIONS

Transactions denominated in the Foreign Currency will be accounted for at the exchange rate prevailing at the date of transaction.

8) IMPAIRMENT OF ASSETS

Management periodically assesses, using external and internal sources, whether there is an indication that an asset may be impaired. Impairment occurs where the carrying value exceeds the present value of future cash flows expected to arise from the continuing use of the asset and its eventual disposal, the impairment loss to be expected is determined as the excess of the carrying amount over the higher of the asset net sales price or present value as determined above.

9) PROVISIONS, CONTINGENT LIABILITIES AND CONTINGENT ASSETS

Provisions are recognized for liabilities that can be measured only by using a substantial degree of estimation, if

- a) The institution has a present obligation as a result of a past event.
- b) A probable outflow of resources is expected to settle the obligation and
- c) The amount of the obligation can be reliably measured.

Reimbursement expected in respect of expenditure required to settle a provision is recognized only when it is virtually certain that the reimbursement will be received. Contingent liability is disclosed in the case of

AUDIT REPORT 2015-16



- a) A present obligation arising from a past event, when it is not probable that an outflow of resources will be required to settle the obligation.
- b) A possible obligation, unless the probability of outflow of resources is remote.

Contingent assets are neither recognized nor disclosed.

B: NOTES FORMING PARTS OF ACCOUNTS

- I) Interest earned on Corpus Fund is treated as Interest income and such income is credited to Income & Expenditure Account.
- 2) Liabilities and Assets

Balances grouped under Advances recoverable, Advances payable, etc are subject to confirmation from respective parties.

For, Chenni Associates Chartered Accountants

Sd/-Finance Officer KLE Technological University Hubballi Sd/-Registrar KLE Technological University Hubballi Sd/-CA Suresh K Chenni Proprietor M No. 26214 FRN 000622S
Depreciation Schedule

Amount (Rs)

Description		GROSS B	LOCK		DEPRECIATION				NET BLOCK
	Cost/Valuation as at beginning of the year	Additions during the year	Deduction during the year	Cost/ Valuation at the year end	As at the beginning of the year	On additions During the year	On deductions during the year	Total as on 31-03- 2016	As on 31-03-2016
I. Land:									
a) Freehold				-				-	-
b) Leasehold				-				-	-
II. Buildings:				-				-	-
a) On Freehold Land				-				-	-
b) On Leasehold Land								-	-
i) Automobile Dept 1st Floor Building		7,548,673.00		7,548,673.00		480,625.00		480,625.00	7,068,048.00
c) Ownership Flats/Premises				-				-	-
d) Superstuctures on Land not belonging to educational institutions				-				_	-
III. Plants, machinery & equipment		7,003,331.00		7,003,331.00		660,870.00		660,870.00	6,342,461.00
IV. Vehicle		229,954.00		229,954.00		17,247.00		17,247.00	212,707.00
V. Furniture & Fixtures		4,898,361.00		4,898,361.00		394,156.00		394,156.00	4,504,205.00
VI. Office Equipment				-				-	-
VII. Computer/ Peripherals		6,893,463.00		6,893,463.00		3,375,305.00		3,375,305.00	3,518,158.00
VIII. Electric Installations				-				-	-
IX. Library books		358,992.00		358,992.00		145,132.00		145,132.00	213,860.00
X. Tube wells & Water supply				-				-	-
XI. Other fixed Assets				-				-	-
A. TOTAL	-	26,932,774.00	-	26,932,774.00	-	5,073,335.00	-	5,073,335.00	21,859,439.00
XII. Capital work-in-progress				-				-	-
a)KLE Technological University Building		28,323,893.00		28,323,893.00				-	28,323,893.00
b)Architecture Department 1st Floor Building		2,674,062.00		2,674,062.00				-	2,674,062.00
c)Civil Department 1st Floor Building		2,181,578.00		2,181,578.00				-	2,181,578.00
d)IP Department 1st Floor Building		2,809,562.00		2,809,562.00				-	2,809,562.00
TRANSFER TO ASSETS	ļ								-
B. NET WORK-IN-PROGRESS	-	35,989,095.00	-	35,989,095.00	-	-		-	35,989,095.00
TOTAL (A+B)	-	62,921,869.00	-	62,921,869.00	-	5,073,335.00	-	5,073,335.00	57,848,534.00

Notes to Statement of Accounts of KLE Technological University for the F.Y 2015-16

1.Bank Guarantee of Rs. 5 Crores is given by Syndicate Bank, Nehru Nagar, Belagavi.

2. Only income of Aided section of University is accounted in the books of accounts whereas major expenditures of aided section is accounted in BVB College, Hubbali.

3. Corpus fund mentioned in schedule 1 is another name for Permanent Statutory Endowment Fund.

ANNEXURE 2

[Budget proposal for the year 2017-18]



KLE TECHNOLOGICAL UNIVERSITY

BVB COLLEGE CAMPUS, HUBBALLI-580031

BUDGET ESTIMATES OF UNAIDED COURSES FOR THE YEAR 2017-18

						Amount (Rs)
SI. No	INCOME	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Α	Revenue Income					
	Academic Receipts	I - 1	119,096,000.00	125,115,690.00	250,159,050.00	415,975,000.00
	Grants and Donations	I - 2	-	-	-	6,000,000.00
	Income from Investments	I - 3	-	8,250,000.00	8,400,000.00	8,540,000.00
	Other Income	I - 4	775,000.00	2,830,861.00	2,400,000.00	2,750,000.00
В	<u>Capital Receipts</u> Long Term Borrowings Depreciation Reserve		-	5,021,495.00	50,000,000.00 -	100,000,000.00 -
	Deficit		3,472,920.00			
	Total		123,343,920.00	141,218,046.00	310,959,050.00	533,265,000.00

SI. No	EXPENDITURE	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
С	Revenue Expenditure					
	Staff Payments & Benefits	E - 1	65,020,000.00	30,631,508.00	109,300,000.00	165,420,000.00
	Academic Expenses	E - 2	9,187,920.00	14,815,644.00	21,275,000.00	27,420,000.00
	Administrative & General Expenses	E - 3	13,660,000.00	12,749,771.00	17,970,000.00	24,485,000.00
	Transportation Expenses	E - 4	110,000.00	-	245,000.00	395,000.00
	Repairs and Maintenance	E - 5	7,851,000.00	4,743,884.00	10,650,000.00	17,125,000.00
	Finance Costs	E - 6	-	1,352.00	5,000.00	6,733,800.00
	Research & Development	E - 7	2,235,000.00	-	4,000,000.00	20,000,000.00
	Depreciation	E - 8	-	5,021,495.00	-	-
D	Capital Expenditure					
	Buildings		14,800,000.00	43,537,768.00	95,000,000.00	150,000,000.00
	Equipments including Computers		8,295,000.00	13,435,551.00	15,000,000.00	60,000,000.00
	Furniture & Fixtures		1,790,000.00	4,898,361.00	6,000,000.00	10,000,000.00
	Library Books		395,000.00	358,992.00	600,000.00	4,000,000.00
	Principal Repayment of Borrowings				-	8,330,000.00
	Reinvestment In Funds		-	2,414,500.00	8,400,000.00	8,540,000.00
	Surplus			8,609,220.00	22,514,050.00	30,816,200.00
	Total		123,343,920.00	141,218,046.00	310,959,050.00	533,265,000.00

Summary of Revenue and Capital Income and Expenditure

		······································		<u>Amount (Rs)</u>
INCOME	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Total Revenue Income	119,871,000.00	136,196,551.00	260,959,050.00	433,265,000.00
Total Capital Receipts	-	5,021,495.00	50,000,000.00	100,000,000.00
Deficit	3,472,920.00			
Total	123,343,920.00	141,218,046.00	310,959,050.00	533,265,000.00

EXPENDITURE	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Total Revenue Expenditure	98,063,920.00	67,963,654.00	163,445,000.00	261,578,800.00
Total Capital Expenditure	25,280,000.00	62,230,672.00	116,600,000.00	232,330,000.00
Reinvestment In Funds	-	2,414,500.00	8,400,000.00	8,540,000.00
Surplus		8,609,220.00	22,514,050.00	30,816,200.00
Total	123,343,920.00	141,218,046.00	310,959,050.00	533,265,000.00

<u>KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI-31</u> Schedules Annexured to Income Budget of Unaided Courses

Academic Receipts

Schedule I - 1	
4 (D)	

	1						Amount (Ks)
SI. No	Particulars	Scł	. 6	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	Under Graduate Program						
	Tuition Fees			82,920,000.00	82,441,600.00	175,015,000.00	316,810,000.00
	Examination Fees	Annex	ure	2,542,000.00	2,529,200.00	5,462,200.00	12,138,000.00
	Other Fees	A		9,676,000.00	16,295,200.00	25,780,850.00	36,261,000.00
	University Registration Fees			2,050,000.00	2,057,500.00	2,087,500.00	2,250,000.00
		Total		97,188,000.00	103,323,500.00	208,345,550.00	367,459,000.00
2	Post Graduate Program						
	Tuition Fees			8,110,000.00	8,089,990.00	15,525,000.00	15,045,000.00
	Examination Fees	Annex	ure	403,200.00	394,800.00	742,100.00	912,900.00
	Other Fees	В		844,800.00	871,600.00	1,833,400.00	1,842,100.00
	University Registration Fees			384,000.00	508,800.00	368,000.00	384,000.00
		Total		9,742,000.00	9,865,190.00	18,468,500.00	18,184,000.00
3	MBA Program						
	Tuition Fees			5,800,000.00	5,840,000.00	11,720,000.00	12,620,000.00
	Examination Fees	Annex	ure	226,800.00	226,800.00	418,200.00	566,100.00
	Other Fees	С		475,200.00	475,200.00	1,027,800.00	1,140,900.00
	University Registration Fees			270,000.00	270,000.00	270,000.00	300,000.00
		Total		6,772,000.00	6,812,000.00	13,436,000.00	14,627,000.00
4	MCA Program						
	Tuition Fees			4,350,000.00	4,125,000.00	8,100,000.00	12,750,000.00
	Examination Fees	Annex	ure	243,600.00	231,000.00	442,800.00	867,000.00
	Other Fees	D		510,400.00	484,000.00	1,096,200.00	1,788,000.00
	University Registration Fees			290,000.00	275,000.00	270,000.00	300,000.00
		Total		5,394,000.00	5,115,000.00	9,909,000.00	15,705,000.00
	Grand Total			119,096,000.00	125,115,690.00	250,159,050.00	415,975,000.00

Grants & Donation

Schedule I - 2 Amount (Rs)

SI. No	Particulars	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	Research Grant		-	-	-	6,000,000.00
	Total		-	-	-	6,000,000.00

Income From Investments

Schedule I - 3

Schedule I - 4

						Amount (Ks)
SI. No	Particulars	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	FD Interest From Designated Funds			8,250,000.00	8,400,000.00	8,540,000.00
	Total		-	8,250,000.00	8,400,000.00	8,540,000.00

Note: In F.Y 2015-16 there is an interest income of Rs.8250000 which is from Corpus fund & 25% was reinvested in the corpus fund in 2015-16, For F.Y 2016-17 & 2017-18, 100% reinvestement of corpus income is anticipated.

Other Income

SI. No	Particulars	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	SB & FD Interest from Bank		575,000.00	1,350,431.00	1,500,000.00	1,600,000.00
2	Rental Income				400,000.00	450,000.00
3	Miscellaneous Income		200,000.00	1,480,430.00	500,000.00	700,000.00
	Total		775,000.00	2,830,861.00	2,400,000.00	2,750,000.00

Note: Miscellaneous Income in F.Y 2015-16 includes admission cancellation income which was not budgeted.

<u>KLE TECHNOLOGICAL UNIVERSITY</u> <u>Schedules Annexed to Expenditure Budget of Unaided Courses</u>

Staff Payment and Benefits

					Amount (Rs)
SI. No	Pariculars	Budget Estimates 2015- 16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Salary To Staff	58,900,000.00	27,591,563.00	98,000,000.00	148,500,000.00
2	Management Contribution to P.F	2,400,000.00	1,057,721.00	4,000,000.00	6,120,000.00
3	Management Contribution to Gratuity	3,450,000.00	1,785,858.00	6,700,000.00	10,000,000.00
4	TA/DA To Staff	200,000.00	155,865.00	250,000.00	300,000.00
5	Honorarium to Visiting Staff	70,000.00	40,501.00	350,000.00	500,000.00
	Total	65,020,000.00	30,631,508.00	109,300,000.00	165,420,000.00

Note: Salary in the year 2015-16 is lower than the budget as anticipated salary was for 12 months but staff transfer In University took place in the month of september 2015.

Academic Expenses

					Amount (Rs)
SI. No	Pariculars	Budget Estimates 2015- 16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Exam Expenditures	3,500,000.00	1,945,094.00	3,100,000.00	5,000,000.00
2	Events & Functions	2,500,000.00	2,389,000.00	3,500,000.00	4,500,000.00
3	Hand Book	400,000.00	395,865.00	500,000.00	650,000.00
4	Identity Card Expenses	30,000.00	28,000.00	75,000.00	50,000.00
5	Journals & Periodicals	250,000.00	210,000.00	500,000.00	2,500,000.00
6	Student Development & Sports	1,850,000.00	1,715,036.00	2,500,000.00	4,000,000.00
7	Tablets and Kits to Students	-	7,620,486.00	8,300,000.00	8,800,000.00
8	Uniform Expenses	150,000.00	123,750.00	200,000.00	220,000.00
9	Faculty Development	480,000.00	384,213.00	900,000.00	1,200,000.00
10	Other Academic Expenses	27,920.00	4,200.00	1,700,000.00	500,000.00
		9,187,920.00	14,815,644.00	21,275,000.00	27,420,000.00

Note: 1. Tablets and Kits to students was not considered either in other fees income or as an expenditure in Budget 2015-16, hence there is a deviation.

Administrative and General Expenses

Schedule E- 3

Schedule E-1

Schedule E-2

					Amount (KS)
SI. No	Pariculars	Budget Estimates 2015- 16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Advertisement & Publicity	4,300,000.00	4,106,071.00	4,400,000.00	4,800,000.00
2	Consumables	1,640,000.00	1,935,734.00	3,000,000.00	4,500,000.00
3	Postage & Telegram	5,000.00	3,668.00	20,000.00	35,000.00
4	Printing & Stationery	750,000.00	547,501.00	500,000.00	600,000.00
5	Audit & Professional Charges	100,000.00	2,863.00	150,000.00	150,000.00
6	Meeting Expenditure	600,000.00	482,062.00	800,000.00	1,100,000.00
7	Rent, Rates & Taxes (Incl. Lease Rent)	800,000.00	750,979.00	600,000.00	800,000.00
8	Security Services	1,050,000.00	925,000.00	1,800,000.00	2,700,000.00
9	Telephone & Internet Charges	2,000,000.00	1,894,242.00	2,400,000.00	3,600,000.00
10	Water & Electricity	2,215,000.00	2,101,651.00	2,600,000.00	3,600,000.00
11	General Insurance	200,000.00	-	400,000.00	600,000.00
12	Other Expenses		-	1,300,000.00	2,000,000.00
		13.660.000.00	12.749.771.00	17.970.000.00	24.485.000.00

Transportation Expenses

					Amount (Rs)
SI. No	Pariculars	Budget Estimates 2015- 16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Vehicle Running Expenses	80,000.00		150,000.00	280,000.00
2	Vehicle Maintenance	30,000.00		20,000.00	35,000.00
3	Vehicle Insurance			75,000.00	80,000.00
		110,000.00	-	245,000.00	395,000.00

Note: New vehicle for University was anticipated to be purchased in the year 2015-16, but purchased in 2016-17, hence there is no transportation expenses accounted for F.Y 15-16.

Repairs & Maintenance

Schedule E- 5

Schedule E-4

Amount	(Rs)
¹ xmount	1.0

Sl. No	Pariculars	BudgetParicularsEstimates 2015- 16		Budget Estimates 2016-17	Budget Estimates 2017-18
1	Building Maintenence	2,000,000.00	43,986.00	1,000,000.00	1,200,000.00
2	Campus and Garden Maintenance	4,500,000.00	4,233,566.00	7,000,000.00	12,000,000.00
3	Computer Maintainence	176,000.00	90,386.00	200,000.00	350,000.00
4	Electrical Maintenance	425,000.00	13,129.00	200,000.00	300,000.00
5	Furniture Maintenance	350,000.00	10,349.00	50,000.00	75,000.00
6	Software Maintenance	400,000.00	352,468.00	2,200,000.00	3,200,000.00
		7,851,000.00	4,743,884.00	10,650,000.00	17,125,000.00

Note: Major maintenanace expenses was accounted in BVB College in F.Y 2015-16.

Finance Costs

Schedule E-6

Amount	(Rs)

Sl. No	Pariculars	Budget Estimates 2015- 16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18	
1	Bank Charges & Commission	-	1,352.00	5,000.00	7,500.00	
2	Interest on Borrowings				6,726,300.00	
		-	1,352.00	5,000.00	6,733,800.00	

Research and Development

Schedule E-7

					Amount (Ks)	
SI. No	Pariculars	Budget Estimates 2015- 16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18	
1	Research and Development	2,235,000.00	-	4,000,000.00	20,000,000.00	
		2,235,000.00	-	4,000,000.00	20,000,000.00	

Note: All Research and Development Activities for the year 2015-16 was accounted in BVB College.

Depreciation

Schedule E-8	
Amount (Rs)	

Sl. No	Pariculars	Budget Estimates 2015- 16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Depreciation		5,021,495.00		
		-	5,021,495.00	-	-

Notes :

- 1 Some major Construction of Buildings and procurement of equipments took place in the year 2015-16, hence there are deviations in the Capital expenditure budgets and actuals.
- 2 Library books and periodicals & journals Budget estimates for 2017-18 is is budgeted higherin comparison to previous years as a Book Fund was received in BVB and the same is not anticipated to be received in University.
- 3 Budget 2017-18 capital expenditure of Buildings includes expansion of various department buildings and construction of an indoor stadium.
- 4 Principal and interest repayment of Term Loans relates to Rs.5cr loan for 9 months and another Rs.5cr Loan for 4 months @ anticipated Interest rate of 12% p.a

Annexures to Schedule I - 1

Annexure - A Budgeted strength of the students and fees for the year 2017-2018 of Under Graduate Course

1.Tution Fees

Tution Fees - 1st Year

	Civil	Mechanical	Electronics &	Electrical &	Computer	Bio	Architecture	Automation &
Particulars		meenamear	Communication	Electronics	Science	Technology	/	Robotics
Government Quota	27	81	81	27	108	27	27	27
University Quota	33	99	99	33	132	33	33	33
TOTAL	60	180	180	60	240	60	60	60
Government Quota Fee	55,000.00	55,000.00	55,000.00	55,000.00	55,000.00	55,000.00	55,000.00	55,000.00
structure (Rs)								
University Quota Fee Structure	170,000.00	170,000.00	170,000.00	170,000.00	170,000.00	100,000.00	170,000.00	135,000.00
(,								
Government Quota Fees (Rs)	1,485,000	4,455,000	4,455,000	1,485,000	5,940,000	1,485,000	1,485,000	1,485,000
University Quota Fees (Rs)	5,610,000	16,830,000	16,830,000	5,610,000	22,440,000	3,300,000	5,610,000	4,455,000
TOTAL (Rs)	7,095,000	21,285,000	21,285,000	7,095,000	28,380,000	4,785,000	7,095,000	5,940,000
						1	FOTAL - A (Rs)	102,960,000

Tution Fees -2nd Year								
Particulars	Civil	Mechanical	Electronics & Communication	Electrical & Electronics	Computer Science	Bio Technology	Architecture	Automation & Robotics
Government Quota (Including Lateral)	31	100	100	30	136	22	26	30
University Quota (Including Lateral)	58	120	112	47	134	35	33	39
TOTAL	89	220	212	77	270	57	59	69
Government Quota Fee structure (Rs) University Quota Fee Structure (Rs)	55,000.00 170,000.00	55,000.00 170,000.00	55,000.00 170,000.00	55,000.00 170,000.00	55,000.00 170,000.00	55,000.00 100,000.00	55,000.00 170,000.00	55,000.00 135,000.00
Government Quota Fees (Rs) University Quota Fees (Rs) TOTAL (Rs)	1,705,000 9,860,000 11,565,000	5,500,000 20,400,000 25,900,000	5,500,000 19,040,000 24,540,000	1,650,000 7,990,000 9,640,000	7,480,000 22,780,000 30,260,000	1,210,000 3,500,000 4,710,000	1,430,000 5,610,000 7,040,000	1,650,000 5,265,000 6,915,000
						1	TOTAL - B (Rs)	120,570,000

Tution Fees -3rd Year

Particulars	Civil	Mechanical	Electronics & Communication	Electrical & Electronics	Computer Science	Bio Technology	Architecture	Automation & Robotics
Government Quota (Including Lateral)	30	96	97	-	132	20	24	27
University Quota (Including Lateral)	48	124	111	-	130	28	32	38
TOTAL	78	220	208	-	262	48	56	65
Government Quota Fee structure University Quota Fee Structure	45,000.00 150,000.00	45,000.00 150,000.00	45,000.00 150,000.00	-	45,000.00 150,000.00	45,000.00 100,000.00	45,000.00 150,000.00	45,000.00 120,000.00
Government Quota Fees (Rs) University Quota Fees (Rs) TOTAL (Rs)	1,350,000 7,200,000 8 550 000	4,320,000 18,600,000 22,920,000	4,365,000 16,650,000 21,015,000	-	5,940,000 19,500,000 25 440 000	900,000 2,800,000 3 700 000	1,080,000 4,800,000	1,215,000 4,560,000 5,775,000
	0,000,000	22,320,000	21,015,000		23)440,000	5,700,000	TOTAL -C (Rs)	93,280,000
							- (- /	, ,
						GRAND TOT	AL A+B+C (Rs)	316,810,000

2. University Examination Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
Annual Examination Fees	2,500.00	2890	7,225,000.00
Internal Examination Fees	1,700.00	2890	4,913,000.00
		Total	12,138,000.00

3.Other fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	18,400.00	900	16,560,000.00
2nd & 3rd Year	9,900.00	1990	19,701,000.00
		Total	36,261,000.00

4. University Registration Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	2,500.00	900	2,250,000.00
		Total	2,250,000.00

Note: 1st year student strength is sanctioned strength and latter is anticipated.

Annexure - B Budgeted Strength of the Students for the year 2017-18 of Post Graduate Courses

1.Tution Fees

Particulars	Govt. Quota	Amount (Rs)	TOTAL (Rs)	University Quota Amount (Rs)		TOTAL (Rs)
1st Year						
Digital Electronics	21	75,000.00	1,575,000.00	3	125,000.00	375,000.00
Computer Science	21	85,000.00	1,785,000.00	3	125,000.00	375,000.00
VLSI Design & Embedded Systems	21	75,000.00	1,575,000.00	3	125,000.00	375,000.00
Machine Design	21	85,000.00	1,785,000.00	3	125,000.00	375,000.00
2nd Year						
Digital Electronics	21	75,000.00	1,575,000.00	0	125,000.00	-
Computer Science	21	85,000.00	1,785,000.00	0	125,000.00	-
VLSI Design & Embedded Systems	18	75,000.00	1,350,000.00	1	125,000.00	125,000.00
Machine Design	19	85,000.00	1,615,000.00	3	125,000.00	375,000.00
		TOTAL A	13,045,000.00		TOTAL B	2,000,000.00
				GRAND TO	TAL (A+B) (Rs)	15,045,000.00

2.Examination Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
Annual Examination Fees	3,400.00	179	608,600.00
Internal Examination Fees	1,700.00	179	304,300.00
	Total		912,900.00

3.Other Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	8,900.00	96	854400
2nd Year	11,900.00	83	987700
	То	1842100	

4. University Registration Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	4,000.00	96	384,000.00
		Total	384,000.00

Note: 1st year student strength is sanctioned strength and 2nd year is anticipated.

ANNEXURE C

Budgeted Strength of the students and fees for the year 2017-2018 of MBA Course

1.Tution Fees

Particulars	Govt quota	University Quota	Total (Rs)
1st Year			
No of Students	40	20	60
Fees (Rs)	100,000.00	140,000.00	
Total (A) (Rs) 4,000,000.00	2,800,000.00	6,800,000.00
2nd Year			
No of Students	33	18	51
Fees (Rs)	100,000.00	140,000.00	
Total (B) (Rs) 3,300,000.00	2,520,000.00	5,820,000.00
	Gr	12,620,000.00	

2. Examination Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
Annual Examination Fees	3,400.00	111	377,400.00
Internal Examination Fees	1,700.00	111	188,700.00
		Total	566,100.00

3.Other Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	8,900.00	60	534,000.00
2nd Year	11,900.00	51	606,900.00
		Total	1,140,900.00

4. University Registration Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	5,000.00	60	300,000.00
		Total	300,000.00

Note: 1st year student strength is sanctioned strength and 2nd year is anticipated.

Annexure D Budgeted Strength of the Students and fees for the year 2017 -2018 of MCA Course

1.Tuition Fees

Particulars	Govt Quota	University Quota	Total Students	Fees (Rs)	Amount (Rs)
1st Year	35	25	60	75,000.00	4,500,000.00
2nd Year	37	18	55	75,000.00	4,125,000.00
3rd Year	34	21	55	75,000.00	4,125,000.00
				TOTAL	12,750,000.00

2.Examination Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
Annual Examination Fees	3,400.00	170	578,000.00
Internal Examination Fees	1,700.00	170	289,000.00
		Total	867,000.00

3.Other Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	8,900.00	60	534000
2nd Year	10,900.00	55	599500
3rd Year	11,900.00	55	654500
		Total	1788000

4.University Registration Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	5,000.00	60	300,000.00
		Total	300,000.00

Note: 1st year student strength is sanctioned strength & latter is anticipated.



KLE TECHNOLOGICAL UNIVERSITY

BVB COLLEGE CAMPUS, HUBBALLI-580031

BUDGET ESTIMATES OF AIDED COURSES FOR THE YEAR 2017-2018

						Amount (RS)
SI. No	INCOME	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Α	Revenue Income					
	Academic Receipts	I - 1	12,132,000.00	13,912,700.00	24,301,800.00	35,865,100.00
	Grants and Donations	I - 2	24,400,000.00	-	45,900,000.00	72,250,000.00
	Income from Investments	I - 3	-	-	-	-
	Other Income	I - 4	245,000.00	550,581.00	512,000.00	515,000.00
В	Capital Receipts Depreciation Reserve		-	51,840.00	-	-
	Deficit		4,279,000.00		424,200.00	780,900.00
	Total		41,056,000.00	14,515,121.00	71,138,000.00	109,411,000.00

SI.	EXPENDITURE	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
C	Revenue Expenditure					
	Staff Payments & Benefits	E - 1	33,450,000.00	-	61,450,000.00	94,795,000.00
	Academic Expenses	E - 2	195,000.00	28,591.00	2,637,000.00	2,585,000.00
	Administrative & General Expenses	E - 3	930,000.00	650.00	1,300,000.00	1,805,000.00
	Transportation Expenses	E - 4	-	-	-	-
	Repairs and Maintenance	E - 5	2,120,000.00	8,993.00	2,750,000.00	3,925,000.00
	Finance Costs	E - 6	1,000.00	200.00	1,000.00	1,000.00
	Research & Development	E - 7	1,000,000.00	-	1,000,000.00	2,000,000.00
	Depreciation	E - 8	-	51,840.00	-	-
D	Capital Expenditure					
	Equipments including Computers		3,000,000.00	691,197.00	1,500,000.00	3,500,000.00
	Furniture & Fixtures		250,000.00	-	300,000.00	500,000.00
	Library Books		110,000.00	-	200,000.00	300,000.00
	Surplus			13,733,650.00		
	Total		41,056,000.00	14,515,121.00	71,138,000.00	109,411,000.00

Summary of Revenue and Capital Income and Expenditure

				<u>Amount (Rs)</u>
INCOME	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Total Revenue Income	36,777,000.00	14,463,281.00	70,713,800.00	108,630,100.00
Total Capital Receipts	-	51,840.00	-	-
Deficit	4,279,000.00		424,200.00	780,900.00
Total	41,056,000.00	14,515,121.00	71,138,000.00	109,411,000.00

EXPENDITURE	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Total Revenue Expenditure	37,696,000.00	90,274.00	69,138,000.00	105,111,000.00
Total Capital Expenditure	3,360,000.00	691,197.00	2,000,000.00	4,300,000.00
Surplus		13,733,650.00		
Total	41,056,000.00	14,515,121.00	71,138,000.00	109,411,000.00

KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI-31 Schedules Annexed to Income Budget of Aided Courses

Academic Receipts

						<u>Amount (Rs)</u>
SI. No	Particulars	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	Under Graduate Program					
	Tuition Fees		5,220,000.00	5,115,000.00	9,990,000.00	16,630,000.00
	Examination Fees	Δηροχικο Δ	744,000.00	757,800.00	1,422,900.00	3,280,200.00
	Other Fees	Annexure A	2,832,000.00	4,861,400.00	7,226,700.00	9,771,900.00
	University Registration Fees		600,000.00	499,500.00	600,000.00	600,000.00
	Total		9,396,000.00	11,233,700.00	19,239,600.00	30,282,100.00
2	Post Graduate Program					
	Tuition Fees		1,920,000.00	1,880,000.00	3,600,000.00	3,880,000.00
	Examination Fees	Appovuro B	201,600.00	192,700.00	369,000.00	494,700.00
	Other Fees	Annexure b	422,400.00	418,300.00	901,200.00	992,300.00
	University Registration Fees		192,000.00	188,000.00	192,000.00	216,000.00
	Total		2,736,000.00	2,679,000.00	5,062,200.00	5,583,000.00
	Grand Total		12,132,000.00	13,912,700.00	24,301,800.00	35,865,100.00

Grants & Donation

Schedule I - 2 Amount (Rs)

Schedule I - 1

SI. No	Particulars	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	State Govt. Maintenenace Grant		24,400,000.00	-	45,900,000.00	72,250,000.00
	Total		24,400,000.00	-	45,900,000.00	72,250,000.00

Note: State Government Maintenenace Grant was anticipated to be released in the name of University, however it was released in the name of BVB in the F.Y 2015-16.

Income From Investments

						Amount (KS)
SI.	. Particulars	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
No		••••				
1	FD Interest From Designated Funds					
	Total		-	-	-	-

Other Income

SI. Particulars Sch Budget 2015-16 Actual 2015-16 Budget 2016-17 Budget 2017-18 No 500,000.00 500,000.00 1 SB & FD Interest from Bank 245,000.00 223,861.00 2 Miscellaneous Income 326,720.00 12,000.00 15,000.00 Total 245,000.00 550,581.00 512,000.00 515,000.00

Schedule	I	-	3

Schedule I - 4 Amount (Rs)

neuure	1 0	
Amount	(Rs)	

<u>KLE TECHNOLOGICAL UNIVERSITY</u> <u>Schedules Annexed to Expenditure Budget of Aided Courses</u>

Staff Payment and Benefits

Schedule E- 1 Amount (Rs)

Schedule E-2

SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Salary To Staff (UG)	28,300,000.00		54,000,000.00	85,000,000.00
2	Salary To Staff (PG)	5,000,000.00		7,200,000.00	9,500,000.00
3	TA/DA To Staff	50,000.00		100,000.00	120,000.00
4	Honorarium to Visiting Staff	100,000.00		150,000.00	175,000.00
	Total	33,450,000.00	-	61,450,000.00	94,795,000.00

Note: As Salary grant was released in the name of BVB in 2015-16, the salary payment was made from BVB.

Academic Expenses

					Amount (Rs)
SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Hand Book	24,000.00		30,000.00	32,000.00
2	Identity Card Expenses	10,000.00	3,200.00	12,000.00	15,000.00
3	Journals & Periodicals	8,000.00		15,000.00	20,000.00
4	Student Development & Sports	140,000.00		200,000.00	300,000.00
5	Faculty Development		8,291.00	100,000.00	150,000.00
6	Tablets & Kits to Students			1,920,000.00	1,968,000.00
7	Other Academic Expenses	13,000.00	17,100.00	360,000.00	100,000.00
		195,000.00	28,591.00	2,637,000.00	2,585,000.00

Administrative and General Expenses

					rinoune (Rs)
SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Consumables	500,000.00		750,000.00	900,000.00
2	Postage & Telegram	20,000.00		20,000.00	25,000.00
3	Printing & Stationery	35,000.00	650.00	40,000.00	60,000.00
4	Audit & Professional Charges	15,000.00		20,000.00	20,000.00
5	Rent, Rates and Taxes	175,000.00		190,000.00	400,000.00
6	Telephone & Internet Charges	120,000.00		200,000.00	300,000.00
7	Other Expenses	65,000.00		80,000.00	100,000.00
		930,000.00	650.00	1,300,000.00	1,805,000.00

Transportation Expenses

Schedule E-4

Amount (Rs)

Sl. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Vehicle Running Expenses				
2	Vehicle Maintenance				
3	Vehicle Insurance				
		-	-	-	-

Repairs & Maintenance

					Amount (Rs)
SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Building Maintenence	100,000.00	8,993.00	200,000.00	250,000.00
2	Campus and Garden Maintenance	2,000,000.00		2,500,000.00	3,600,000.00
3	Computer Maintainence	20,000.00		50,000.00	75,000.00
		2,120,000.00	8,993.00	2,750,000.00	3,925,000.00

Finance Costs

Schedule E- 3

Amount (Rs)

-

Schedule E-5

Schedule E- 6

Amount (Rs)

Sl. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Bank Charges & Commission	1,000.00	200.00	1,000.00	1,000.00
		1,000.00	200.00	1,000.00	1,000.00

Research and Development

Schedule E-7

Amount (Rs)

SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Research and Development	1,000,000.00		1,000,000.00	2,000,000.00
		1,000,000.00	-	1,000,000.00	2,000,000.00

Depreciation

Schedule E-8

Amount (Rs)

SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015- 16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Depreciation		51,840.00		
		-	51,840.00	-	-

Note: In F.Y 2015-16 only income from fees was accounted in aided section and major capital and revenue expenditures was accounted in BVB College.

Annexures to Schedule I - 1

Annexure - A

Budgeted strength of the students & fees for the year 2017-2018 of Under Graduate Course - Aided

1. Tuition Fees

Tuition Food 1st Yoar	Civil Mechanical		Electronics &	Electrical and
Tutton rees - 1st real			Communication	Electronics
Government Quota	57	57	57	57
University Quota	3	3	3	3
TOTAL	60	60	60	60
Government Quota Fees (15000 Rs)	855,000.00	855,000.00	855,000.00	855,000.00
University Quota Fees (170000 Rs)	510,000.00	510,000.00	510,000.00	510,000.00
TOTAL (Rs)	1,365,000.00	1,365,000.00	1,365,000.00	1,365,000.00
			TOTAL - A (Rs)	5,460,000.00

Tuition Fees -2nd Year	Civil	Mechanical	Electronics & Communication	Electrical and Electronics
Government Quota (Including Lateral)	65	66	67	66
University Quota (Including Lateral)	3	3	2	3
TOTAL	68	69	69	69
Government Quota Fees (15000 Rs)	975,000.00	990,000.00	1,005,000.00	990,000.00
University Quota Fees (170000 Rs)	510,000.00	510,000.00	340,000.00	510,000.00
TOTAL (Rs)	1,485,000.00	1,500,000.00	1,345,000.00	1,500,000.00
			TOTAL - B (Rs)	5,830,000.00

Tuition Fees -3rd Year	Civil	Mechanical	Electronics & Communication	Electrical and Electronics
Government Quota (Including Lateral)	63	64	65	64
University Quota (Including Lateral)	2	3	2	3
TOTAL	65	67	67	67
Government Quota Fees (15000 Rs)	945,000.00	960,000.00	975,000.00	960,000.00
University Quota Fees (150000 Rs)	300,000.00	450,000.00	300,000.00	450,000.00
TOTAL (Rs)	1,245,000.00	1,410,000.00	1,275,000.00	1,410,000.00
	5,340,000.00			
	16,630,000.00			

2.University Examination Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
Annual Examination Fees	2,500.00	781	1,952,500.00
Internal Examination Fees	1,700.00	781	1,327,700.00
		Total (Rs)	3,280,200.00

3.Other fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	18,400.00	240	4,416,000.00
2nd & 3rd Year	9,900.00	541	5,355,900.00
		Total (Rs)	9,771,900.00

4. University Registration Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)	
1st Year	2,500.00	240	600,000.00	
		Total (Rs)	600,000.00	

Note: 1st year student strength is sanctioned strength and latter is anticipated.

Annexure - B Budgeted Strength of the Students for the year 2017-18 of Post Graduate Courses - Aided

1.Tuition Fees

Particulars	Govt. Quota	Amount (Rs)	Total (Rs)
1st Year			
Structural Engineering	18	40,000.00	720,000.00
Energy System	18	40,000.00	720,000.00
Production Management	18	40,000.00	720,000.00
2nd Year			
Structural Engineering	17	40,000.00	680,000.00
Energy System	13	40,000.00	520,000.00
Production Management	13	40,000.00	520,000.00
		TOTAL (Rs)	3,880,000.00

2.Examination Fees

Particulars	Ecos (Ps)	1st Year		
Faiticulais	rees (ns)	No of Students	Total (Rs)	
Annual Examination Fees	3,400.00	97	329,800.00	
Internal Examination Fees	1,700.00	97	164,900.00	
	То	494,700.00		

3.Other Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	8,900.00	54	480,600.00
2nd Year	11,900.00	43	511,700.00
	То	992,300.00	

4. University Registration Fees

Particulars	Fees (Rs)	No of Students	Total (Rs)
1st Year	4,000.00	54	216,000.00
	Total (Rs)		216,000.00

Note: 1st year student strength is sanctioned strength and 2nd year is anticipated.



KLE TECHNOLOGICAL UNIVERSITY

BVB COLLEGE CAMPUS, HUBBALLI-580031

CONSOLIDATED BUDGET ESTIMATES FOR THE YEAR 2017-2018

						<u>Amount (Rs)</u>
SI. No	INCOME	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Α	Revenue Income					
	Academic Receipts	I - 1	131,228,000.00	139,028,390.00	274,460,850.00	451,840,100.00
	Grants and Donations	I - 2	24,400,000.00	-	45,900,000.00	78,250,000.00
	Income from Investments	I - 3	-	8,250,000.00	8,400,000.00	8,540,000.00
	Other Income	I - 4	1,020,000.00	3,381,442.00	2,912,000.00	3,265,000.00
В	Capital Receipts Long Term Borrowings Depreciation Reserve		-	5,073,335.00	50,000,000.00 -	100,000,000.00 -
	Deficit		7,751,920.00			
	Total		164,399,920.00	155,733,167.00	381,672,850.00	641,895,100.00

SI. No	EXPENDITURE	Sch	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
С	Revenue Expenditure					
	Staff Payments & Benefits	E - 1	98,470,000.00	30,631,508.00	170,750,000.00	260,215,000.00
	Academic Expenses	E - 2	9,382,920.00	14,844,235.00	23,912,000.00	30,005,000.00
	Administrative & General Expenses	E - 3	14,590,000.00	12,750,421.00	19,270,000.00	26,290,000.00
	Transportation Expenses	E - 4	110,000.00	-	245,000.00	395,000.00
	Repairs and Maintenance	E - 5	9,971,000.00	4,752,877.00	13,400,000.00	21,050,000.00
	Finance Costs	E - 6	1,000.00	1,552.00	6,000.00	6,734,800.00
	Research & Development	E - 7	3,235,000.00	-	5,000,000.00	22,000,000.00
	Depreciation	E - 8	-	5,073,335.00	-	-
D	Capital Expenditure Buildings Equipments including Computers Furniture & Fixtures Library Books Principal Repayment of Borrowings Reinvestment In Funds		14,800,000.00 11,295,000.00 2,040,000.00 505,000.00	43,537,768.00 14,126,748.00 4,898,361.00 358,992.00 2,414,500.00	95,000,000.00 16,500,000.00 6,300,000.00 800,000.00 - 8,400,000.00	150,000,000.00 63,500,000.00 10,500,000.00 4,300,000.00 8,330,000.00 8,540,000.00
	Surplus Total		164,399,920.00	22,342,870.00 155,733,167.00	22,089,850.00 381,672,850.00	30,035,300.00 641,895,100.00

Summary of Revenue and Capital Income and Expenditure

				Amount (Rs)
INCOME	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Total Revenue Income	156,648,000.00	150,659,832.00	331,672,850.00	541,895,100.00
Total Capital Receipts	-	5,073,335.00	50,000,000.00	100,000,000.00
Deficit	7,751,920.00			
Total	164,399,920.00	155,733,167.00	381,672,850.00	641,895,100.00

EXPENDITURE	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
Total Revenue Expenditure	135,759,920.00	68,053,928.00	232,583,000.00	366,689,800.00
Total Capital Expenditure	28,640,000.00	62,921,869.00	118,600,000.00	236,630,000.00
Reinvestment In Funds	-	2,414,500.00	8,400,000.00	8,540,000.00
Surplus		22,342,870.00		
Total	164,399,920.00	155,733,167.00	359,583,000.00	611,859,800.00

KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI-31 Schedules Annexured to Income Budget of Aided & Unaided Courses

Academic Receipts

Schedule I - 1

Amount	(Rs)
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						()
51.	Particulars		Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
NO						
1	Under Graduate Program					
	Tuition Fees		88,140,000.00	87,556,600.00	185,005,000.00	333,440,000.00
	Examination Fees		3,286,000.00	3,287,000.00	6,885,100.00	15,418,200.00
	Other Fees		12,508,000.00	21,156,600.00	33,007,550.00	46,032,900.00
	University Registration Fees		2,650,000.00	2,557,000.00	2,687,500.00	2,850,000.00
		Total	106,584,000.00	114,557,200.00	227,585,150.00	397,741,100.00
2	Post Graduate Program					
	Tuition Fees		10,030,000.00	9,969,990.00	19,125,000.00	18,925,000.00
	Examination Fees		604,800.00	587,500.00	1,111,100.00	1,407,600.00
	Other Fees		1,267,200.00	1,289,900.00	2,734,600.00	2,834,400.00
	University Registration Fees		576,000.00	696,800.00	560,000.00	600,000.00
		Total	12,478,000.00	12,544,190.00	23,530,700.00	23,767,000.00
3	MBA Program					
	Tuition Fees		5,800,000.00	5,840,000.00	11,720,000.00	12,620,000.00
	Examination Fees		226,800.00	226,800.00	418,200.00	566,100.00
	Other Fees		475,200.00	475,200.00	1,027,800.00	1,140,900.00
	University Registration Fees		270,000.00	270,000.00	270,000.00	300,000.00
		Total	6,772,000.00	6,812,000.00	13,436,000.00	14,627,000.00
4	MCA Program					
	Tuition Fees		4,350,000.00	4,125,000.00	8,100,000.00	12,750,000.00
	Examination Fees		243,600.00	231,000.00	442,800.00	867,000.00
	Other Fees		510,400.00	484,000.00	1,096,200.00	1,788,000.00
	University Registration Fees		290,000.00	275,000.00	270,000.00	300,000.00
		Total	5,394,000.00	5,115,000.00	9,909,000.00	15,705,000.00
	Grand Total		131,228,000.00	139,028,390.00	274,460,850.00	451,840,100.00

Grants & Donation

<u>Schedule I - 2</u>

Amount (l	Rs)
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SI. No	Particulars	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	State Government Maintenance Grant	24,400,000.00	-	45,900,000.00	72,250,000.00
2	Research Grant	-	-	-	6,000,000.00
	Total	24,400,000.00	-	45,900,000.00	78,250,000.00

Income From Investments

					Amount (Rs)
SI. No	Particulars	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	FD Interest From Designated Funds	-	8,250,000.00	8,400,000.00	8,540,000.00
	Total	-	8,250,000.00	8,400,000.00	8,540,000.00

Other Income

Schedule I - 4

Schedule I - 3

Amount (Rs)

SI. No	Particulars	Budget 2015-16	Actual 2015-16	Budget 2016-17	Budget 2017-18
1	SB & FD Interest from Bank	820,000.00	1,574,292.00	2,000,000.00	2,100,000.00
2	Rental Income	-	-	400,000.00	450,000.00
3	Miscellaneous Income	200,000.00	1,807,150.00	512,000.00	715,000.00
	Total	1,020,000.00	3,381,442.00	2,912,000.00	3,265,000.00

KLE TECHNOLOGICAL UNIVERSITY Schedules Annexed to Expenditure Budget of Aided and Unaided Courses

Staff Payment and Benefits

Schedule E-1 Amount (Rs)

SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Salary To Staff	92,200,000.00	27,591,563.00	159,200,000.00	243,000,000.00
2	Management Contribution to P.F	2,400,000.00	1,057,721.00	4,000,000.00	6,120,000.00
3	Management Contribution to Gratuity	3,450,000.00	1,785,858.00	6,700,000.00	10,000,000.00
4	TA/DA To Staff	250,000.00	155,865.00	350,000.00	420,000.00
5	Honorarium to Visiting Staff	170,000.00	40,501.00	500,000.00	675,000.00
	Total	98,470,000.00	30,631,508.00	170,750,000.00	260,215,000.00

Academic Expenses

Schedule E- 2 Amount (Rs)

Schedule E-3

SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Exam Expenditures	3,500,000.00	1,945,094.00	3,100,000.00	5,000,000.00
2	Events & Functions	2,500,000.00	2,389,000.00	3,500,000.00	4,500,000.00
3	Hand Book	424,000.00	395,865.00	530,000.00	682,000.00
4	Identity Card Expenses	40,000.00	31,200.00	87,000.00	65,000.00
5	Journals & Periodicals	258,000.00	210,000.00	515,000.00	2,520,000.00
6	Student Development & Sports	1,990,000.00	1,715,036.00	2,700,000.00	4,300,000.00
7	Tablets and Kits to Students	-	7,620,486.00	8,400,000.00	8,950,000.00
8	Uniform Expenses	150,000.00	123,750.00	200,000.00	220,000.00
9	Faculty Development	480,000.00	392,504.00	2,820,000.00	3,168,000.00
10	Other Academic Expenses	40,920.00	21,300.00	2,060,000.00	600,000.00
		9,382,920.00	14,844,235.00	23,912,000.00	30,005,000.00

Administrative and General Expenses

Amount (Rs) SI. **Budget Estimates Budget Estimates Budget Estimates** Actuals 2015-16 **Pariculars** 2015-16 2016-17 2017-18 No 4,400,000.00 1 Advertisement & Publicity 4,300,000.00 4,106,071.00 4,800,000.00 2,140,000.00 1,935,734.00 2 Consumables 3,750,000.00 5,400,000.00 Postage & Telegram 3 25,000.00 3,668.00 40,000.00 60,000.00 4 Printing & Stationery 785,000.00 548,151.00 540,000.00 660,000.00 5 Audit & Professional Charges 115,000.00 2,863.00 170,000.00 170,000.00 6 Meeting Expenditure 600,000.00 482,062.00 800,000.00 1,100,000.00 7 Rent, Rates and Taxes 1,200,000.00 975,000.00 750,979.00 790,000.00 8 Security Services 1,050,000.00 925,000.00 1,800,000.00 2,700,000.00 9 Telephone & Internet Charges 1,894,242.00 3,900,000.00 2,120,000.00 2,600,000.00 10 Water & Electricity 2,215,000.00 2,101,651.00 2,600,000.00 3,600,000.00 11 General Insurance 200,000.00 400,000.00 600,000.00 -12 Other Expenses 65,000.00 1,380,000.00 2,100,000.00 14,590,000.00 12,750,421.00 19,270,000.00 26,290,000.00

Transportation Expenses

					Amount (Rs)
SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Vehicle Running Expenses	80,000.00	-	150,000.00	280,000.00
2	Vehicle Maintenance	30,000.00	-	20,000.00	35,000.00
3	Vehicle Insurance	-	-	75,000.00	80,000.00
		110.000.00	-	245,000.00	395,000.00

Repairs & Maintenance

Schedule E- 5 Amount (Rs)

Schedule E-4

SI. No	Pariculars	Budget Estimates 2015-16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18
1	Building Maintenence	2,100,000.00	52,979.00	1,200,000.00	1,450,000.00
2	Campus and Garden Maintenance	6,500,000.00	4,233,566.00	9,500,000.00	15,600,000.00
3	Computer Maintainence	196,000.00	90,386.00	250,000.00	425,000.00
4	Electrical Maintenance	425,000.00	13,129.00	200,000.00	300,000.00
5	Furniture Maintenance	350,000.00	10,349.00	50,000.00	75,000.00
6	Software Maintenance	400,000.00	352,468.00	2,200,000.00	3,200,000.00
		9,971,000.00	4,752,877.00	13,400,000.00	21,050,000.00

Finance Costs

Schedule E- 6

Amount (Rs)

Sl. No	Pariculars	Budget Estimates 2015-16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18	
1	Bank Charges & Commission	1,000.00	1,552.00	6,000.00	8,500.00	
2	Interest on Borrowings	-	-	-	6,726,300.00	
		1,000.00	1,552.00	6,000.00	6,734,800.00	

Research and Development

Schedule E-7

Amount (Rs)

Sl. No	Pariculars	Budget Estimates 2015-16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18	
1	Research and Development	3,235,000.00	-	5,000,000.00	22,000,000.00	
		3,235,000.00	-	5,000,000.00	22,000,000.00	

Depreciation

Schedule E-8

Amount (Rs)

Sl. No	Pariculars	Budget Estimates 2015-16	Actuals 2015-16	Budget Estimates 2016-17	Budget Estimates 2017-18	
1	Depreciation (Annexure - I)	-	5,073,335.00	-	-	
		-	5,073,335.00	-	-	

Annexure I to Sch- E 8

Depreciation Schedule

Description	GROSS BLOCK			DEPRECIATION				NET BLOCK	
	Cost/Valuation as at beginning of the year	Additions during the year	Deduction during the year	Cost/ Valuation at the year end	As at the beginning of the year	On additions During the year	On deductions during the year	Total as on 31-03- 2016	As on 31-03-2016
I. Land:									
a) Freehold				-				-	-
b) Leasehold				-				-	-
II. Buildings:				-				-	-
a) On Freehold Land				-				-	-
b) On Leasehold Land								-	-
i) Automobile Dept 1st Floor Building		7,548,673.00		7,548,673.00		480,625.00		480,625.00	7,068,048.00
c) Ownership Flats/Premises				-				-	-
d) Superstuctures on Land not belonging to educational institutions				-				_	-
III. Plants, machinery & equipment		7,003,331.00		7,003,331.00		660,870.00		660,870.00	6,342,461.00
IV. Vehicle		229,954.00		229,954.00		17,247.00		17,247.00	212,707.00
V. Furniture & Fixtures		4,898,361.00		4,898,361.00		394,156.00		394,156.00	4,504,205.00
VI. Office Equipment				-				-	-
VII. Computer/ Peripherals		6,893,463.00		6,893,463.00		3,375,305.00		3,375,305.00	3,518,158.00
VIII. Electric Installations				-				-	-
IX. Library books		358,992.00		358,992.00		145,132.00		145,132.00	213,860.00
X. Tube wells & Water supply				-				-	-
XI. Other fixed Assets				-				-	-
A. TOTAL	-	26,932,774.00	-	26,932,774.00	-	5,073,335.00	-	5,073,335.00	21,859,439.00
XII. Capital work-in-progress				-				-	-
a)KLE Technological University Building		28,323,893.00		28,323,893.00				-	28,323,893.00
b)Architecture Department 1st Floor Building		2,674,062.00		2,674,062.00				-	2,674,062.00
c)Civil Department 1st Floor Building		2,181,578.00		2,181,578.00				-	2,181,578.00
d)IP Department 1st Floor Building		2,809,562.00		2,809,562.00				_	2,809,562.00
TRANSFER TO ASSETS									-
B. NET WORK-IN-PROGRESS	-	35,989,095.00	-	35,989,095.00	-	-	-	-	35,989,095.00
TOTAL (A+B)	-	62,921,869.00	-	62,921,869.00	-	5,073,335.00	-	5,073,335.00	57,848,534.00

ANNEXURE 3

[Fee structure for the year 2016-17]

KLE TECHNOLOGICAL UNIVERSITY HUBBALLI

FEES STRUCTURE OF UNDER GRADUATE COURSES FOR THE ACADEMIC YEAR 2016-17

U A	CET		GOI		ELIGIBILITY FEES	
Arch	Aided	Un Aided	Aided	UN-ADIED	N.K	1,600.00
5,540.00	2,450.00	5,540.00	15,000.00	55,000.00	SAARC COUNTRY	3,500.00
12,500.00	10,500.00	10,500.00	7,140.00	7,140.00	FOREIGN COUNTRY	7,500.00
2,500.00	8,100.00	8,100.00	10,500.00	10,500.00		
6,500.00	2,500.00	2,500.00	8,100.00	8,100.00		
			2,500.00	2,500.00		
27,040.00	23,550.00	26,640.00	43,240.00	83,240.00]	

I AND II SEMESTER (2016-17 BATCH)

			COMEI	D-K AND MANA	GEMENT QUO	ТА
PARTICULARS	FREE	FREE	MECH, EC, CSE, CIVIL & EE	ВТ	A&R	B-ARCH
TUITION FEES	15,000.00	55,000.00	170,000.00	100,000.00	135,000.00	170,000.00
KLETU REG. FEES	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
KLE TU E-LEARNING FEES	500.00	500.00	500.00	500.00	500.00	500.00
SPECIFIC FEES BY GOVT.	590.00	590.00	590.00	590.00	590.00	590.00
SPECIFIC FEES BY KLETU	1,950.00	1,950.00	1,950.00	1,950.00	1,950.00	1,950.00
COLLEGE OTHER FEES	10,500.00	10,500.00	10,500.00	10,500.00	10,500.00	10,500.00
NASA FEES	-	-	-	-		2,000.00
EXAM FEES	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
	33,540.00	73,540.00	188,540.00	118,540.00	153,540.00	190,540.00
Tablet & Drawing Tools Charges	8,100.00	8,100.00	8,100.00	8,100.00	8,100.00	6,500.00
Grand Total	41,640.00	81,640.00	196,640.00	126,640.00	161,640.00	197,040.00

III AND IV SEMESTER (2015-16 BATCH)

			COME	D-K AND MANA	AGEMENT QUO	ТА
PARTICULARS	FREE	FREE	MECH, EC, ISE, CSE, CIVIL & EE	ВТ	A&R	B-ARCH
TUITION FEES	15,000.00	45,000.00	150,000.00	100,000.00	120,000.00	150,000.00
KLE TU E-LEARNING FEES	500.00	500.00	500.00	500.00	500.00	500.00
SPECIFIC FEES BY GOVT.	240.00	240.00	240.00	240.00	240.00	240.00
SPECIFIC FEES BY KLE TU	1,710.00	1,710.00	1,710.00	1,710.00	1,710.00	1,710.00
COLLEGE OTHER FEES	9,100.00	9,100.00	9,100.00	9,100.00	9,100.00	9,100.00
NASA FEES	-	-	-	I	-	2,000.00
EXAM FEES	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
	29,050.00	59,050.00	164,050.00	114,050.00	134,050.00	166,050.00

KLE TECHNOLOGICAL UNIVERSITY HUBBALLI

FEES STRUCTURE FOR THE YEAR ACADEMIC 2016-17

M.TECH - I AND II SEMESTER

SL	PPANCH	TUITION FEES		KLETECH	OTHERS		CET	MNGT
NO.	DRANCH	CET MNGT FEES	FEES	FEES	EAAIVI FEES	TOTAL	TOTAL	
1	STRUCTURAL ENGG.	40,000.00	75,000.00	4,000.00	10,600.00	3,400.00	58,000.00	-
2	ENERGY SYSTEMS	40,000.00	75,000.00	4,000.00	10,600.00	3,400.00	58,000.00	-
3	PRODUCTION MANANGMENT	40,000.00	75,000.00	4,000.00	10,600.00	3,400.00	58,000.00	-
4	COMPUTER SCIENCE & ENGG.	85,000.00	125,000.00	4,000.00	10,600.00	3,400.00	103,000.00	143,000.00
5	DIGITAL ELECTRONICS	75,000.00	125,000.00	4,000.00	10,600.00	3,400.00	93,000.00	143,000.00
6	VLSI DESIGN & TESTING	75,000.00	125,000.00	4,000.00	10,600.00	3,400.00	93,000.00	143,000.00
7	MACHINE DESIGN	85,000.00	125,000.00	4,000.00	10,600.00	3,400.00	103,000.00	143,000.00

M.TECH - III AND IV SEMEMSTER

SL	RDANCH	τυιτια	TUITION FEES		OTHERS	EYAM EEES	CET	MNGT
NO.	BRANCH	СЕТ	MNGT	FEES	FEES		TOTAL	TOTAL
1	STRUCTURAL ENGG.	40,000.00		2,500.00	11,100.00	3,400.00	57,000.00	-
2	ENERGY SYSTEMS	40,000.00		2,500.00	11,100.00	3,400.00	57,000.00	-
3	PRODUCTION MANANGMENT	40,000.00		2,500.00	11,100.00	3,400.00	57,000.00	-
4	COMPUTER SCIENCE & ENGG.	85,000.00	125,000.00	2,500.00	11,100.00	3,400.00	102,000.00	142,000.00
5	DIGITAL ELECTRONICS	75,000.00	125,000.00	2,500.00	11,100.00	3,400.00	92,000.00	142,000.00
6	VLSI DESIGN & TESTING	75,000.00	125,000.00	2,500.00	11,100.00	3,400.00	92,000.00	142,000.00
7	MACHINE DESIGN	85,000.00	125,000.00	2,500.00	11,100.00	3,400.00	102,000.00	142,000.00

MBA & MCA FEES STRUCTURE FOR THE ACADEMIC YEAR 2016-17

SL		I & II SE	MESTER	III AND IV SEMESTER			
NO.	FEES PARTICULARS	CET	MNGT	CET	MNGT		
1	TUITION FEES	100,000.00	140,000.00	100,000.00	140,000.00		
2	KLE TECH UNIVERSITY FEES	5,000.00	5,000.00	2,500.00	2,500.00		
3	OTHER FEES	10,600.00	10,600.00	10,100.00	10,100.00		
4	EXAM FEES	3,400.00	3,400.00	3,400.00	3,400.00		
5	ALUMINI ASSOCIATION	-	-	1,000.00	1,000.00		
	TOTAL FEES	119,000.00	159,000.00	117,000.00	157,000.00		

MBA

IVICA	Μ	CA
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SL		1&11	III & IV
NO.	FLESFARTICULARS	SEMESTER	SEMESTER
1	TUITION FEES	75,000.00	75,000.00
2	KLE TECH UNIVERSITY FEES	5,000.00	2,500.00
3	OTHER FEES	10,600.00	10,100.00
4	EXAM FEES	3,400.00	3,400.00
5	ALUMINI ASSOCIATION	-	-
	TOTAL FEES	94,000.00	91,000.00

KLE TECHNOLOGICAL UNIVERSITY

HUBBALLI

LATERAL ENTRY IIIrd & IVth SEMESTER FEE STRUCTURE FOR THE YEAR 2016-17

				MANAGEMENT QUOTA	
SL NO.	PARTICULARS	AIDED	UNAIDED	MECH,EC,CS,CIVIL & EE	A & R
1	TUTION FEE	15,000.00	45,000.00	150,000.00	120,000.00
2	KLETU REG FEES	2,500.00	2,500.00	2,500.00	2,500.00
3	E-LEARNING FEES	500.00	500.00	500.00	500.00
4	SPECIFIC FEES BY GOVERNMENT	590.00	590.00	590.00	590.00
5	SPECIFIC FEES BY KLETU	1,910.00	1,910.00	1,910.00	1,910.00
6	COLLEGE OTHER FEES	10,500.00	10,500.00	10,500.00	10,500.00
7	EXAM FEES	2,500.00	2,500.00	2,500.00	2,500.00
	GRAND TOTAL	33,500.00	63,500.00	168,500.00	138,500.00

ANNEXURE 4

[Minor in Entrepreneurship]

Minor Degree in Entrepreneurship

Syllabus

Offered by CTIE in collaboration with

University of Massachusetts, Lowell, USA



Course Coordinator:

Praveen H J, Asst Professor, CTIE

KLE Technological University

Offered by: Centre for Technology Innovation and Entrepreneurship, KLE Technological University, Hubli







Course Code and Title	M16E CTC 201
	Principles of Innovation and Entrepreneurship
Pre requisites	NA
Recommended books	Innovation and Entrepreneurship, 3rd ed., by John
	Bessant and Joe Tidd
	ISBN: 978-1-118-99309-5
Course duration in hours	40 hours

This course is designed to understand the importance of innovation and entrepreneurship in today's global economy and cultivate an entrepreneurial mindset among students.

It will cover

- Different forms of entrepreneurship such as small businesses, growth ventures, corporate entrepreneurship and social entrepreneurship.
- Types of innovation, turning innovation into an ongoing new venture and on the entrepreneurial process.
- Innovation and entrepreneurship theories and concepts will be discussed with real life examples and cases.

After successful completion of this course, students must be able to

- 1. Understand and articulate the impact of innovation and entrepreneurship on economic development. (4.1.1) L2
- 2. Develop an awareness and understanding of entrepreneurship and the entrepreneurial process. (4.2.1)
- 3. Integrate entrepreneurial thinking and problem-solving into their academic and professional aspirations.(11.3.2) L6
- 4. Articulate the different pathways to entrepreneurship including lifestyle businesses, high-tech/high growth entrepreneurship, corporate entrepreneurship and social entrepreneurship.(8.2.1) L4





Syllabus:

Part 1: Entrepreneurial goals and Context (6 hrs)

- 1. Innovation Imperative
- 2. Social Innovation
- 3. Innovation, globalization and Development
- 4. Sustainability- led innovation

Part 2: Recognizing the opportunity (10 hrs)

- 5. Entrepreneurial Creativity
- 6. Sources of Innovation
- 7. Search strategies for innovation

Part 3: Finding the Resources (8 hrs)

- 8. Building the case
- 9. Leadership and Teams
- 10. Exploiting Networks

Part 4: Developing the Venture (10 hrs)

- 11. Developing new products and services
- 12. Creating new ventures
- 13. Developing business and talent through corporate venturing
- 14. Growing the enterprise

Part 5: Creating Value (6 hrs)

- 15. Exploiting knowledge and Intellectual property
- 16. Business Models and capturing value
- 17. Learning to Manage Innovation and Entrepreneurship





Grading

Sets	Particulars	Marks
Α	Assignments	20
В	Case analysis presentations	30
	Group Project and Presentation	40
С	Attendance and Class Participation	10
	Total	100

Individual Assignments

Each student is responsible for completing 2 written course assignments that will introduce them to innovation and entrepreneurship. (Based on interaction with entrepreneurs)

Cases:

1. Zara

- 2. Threadless.com
- 3. Pixar

4. P & G

- 5. CS Dyson and the bag-less vacuum cleaner
- 6. Arvind Eye Clinics





Group Project

All students will participate on a student team which must develop a proposal for a new venture, product or solution that solves a problem that matters.

Toolkit and a pitch presentation PPT (an example will be handed out in class). Participation on the team, active involvement in the research component, development of both written and visual presentation aids and participation in the final presentation will all count toward each student's final grade on this assignment.

Class Participation

There are two components to the participation grade.

- Attendance In order to benefit from the class lectures, team activities and discussions, students must attend class.
- Participation Participation in class discussions and team activities will be recorded and weighted when assigning participation credit. Participation includes participating in each class by asking questions, answering other's questions, sharing pertinent observations in class and contributing resources to your team projects, both in class and outside of class.

Participation grade will be based on attendance, general preparedness, interaction with the class and your group members, and attentiveness.

Instructor's resource:

http://bcs.wiley.com/he-bcs/Books?action=index&itemId=1118993098&bcsId=9615

Student resources:

https://www.researchgate.net/publication/285734411_Innovation_and_Entrepreneurship

http://www.innovation-portal.info/online-resources-for-innovation-entrepreneurship/







Course Code and Title	M16E CTC 202			
	Managing Innovation			
Pre requisites	NA			
Recommended books	Strategic Management of Technological Innovation, 4th ed., by Melissa A. Schilling ISBN: 978-0-07-802923-3			
Course duration in hours	40 hours			

This course examines theories of innovation and their application to real-world business opportunities. A particular focus is placed on emerging scientific and technical innovations and the opportunities and challenges they present to both existing businesses and new venture entrepreneurs.

Student examine innovation stratégies, planning models, evaluation models, licensing and the commercialization process required to launch new businesses around innovative products and technologies.

The overall goal of this course is to help you to understand, appreciate, and learn to manage the technology innovation process.

After successful completion of this course, students will be able to:

- 1. Articulate the importance of innovation and technology management to individual businesses and managers; (4.1.1) L2
- 2. Apply a conceptual framework for assessing the innovation and technological capabilities of a business organization; (2.2.2) L3
- 3. Analyze successful and unsuccessful examples of how companies have responded to innovation and technological change; (5.2.2) L4
- 4. Illustrate business development strategies for a specific field of scientific or technological research.(4.2.2) L4





PART ONE: Industry Dynamics of Technological Innovation (12 hrs)

- 1. Introduction
- 2. Sources of Innovation
- 3. Types and Patterns of Innovation
- 4. Standards Battles and Design dominance
- 5. Timing of entry

PART TWO: Formulating Technological Innovation strategy (14 hrs)

- 6. Defining the organization's strategic direction
- 7. Choosing innovation projects
- 8. Collaboration strategies
- 9. Protecting innovation

PART THREE: Implementing Technological Innovation strategy (14 hrs)

- 10. Organizing for innovation
- 11. Managing the new product development process
- 12. Managing the new product development teams
- 13. Crafting a deployment strategy

Grading

<u>Sets</u>	Particulars	Marks
Α	Assignments	20
В	Case analysis presentations	30
	Group Project and Presentation	40
С	Attendance and Class Participation	10
	Total	100




All students will participate in a team (3-4 students), which must choose a company and act as a new product development team hired to create a new product. They need to examine the industry dynamics, current innovation strategy of the company, an opportunity analysis as to why their new product will be successful, and how they will market the product to customers.

Participation on the team, active involvement in the research component, development of both written and visual presentation aids and participation in the final presentation will all count toward each student's final grade on this assignment.







Course Code and Title	M16E CTC 301 New Product and Services Management	
Pre requisites	Business Canvas Model workshop	
Recommended books	New Products Management (11 th edition, 2014) authored by Crawford and Di Benedetto, McGraw- Hill/Irwin Publishing: ISBN-10: 007802904X; ISBN-13: 978-0078029042	
Course duration in hours	40 hours	

This course focuses on the process of new product and service development and marketing. Emphasis is given on market opportunity identification, R&D-marketing interface, business model development, market potential estimation, and market entry timing.

This course is designed to familiarize students with the principles and practices in the conceptualization, design, testing, forecasting, and launching of new products and services.

A business model canvas workshop will be held as a prerequisite to this course.

- The students will undergo a 2 day workshop similar to CTIE -Intel Ideation Camp. (Held in the first week of August 2017)
- This workshop shall be a precursor for this course to help students to understand and connect to the course contents

After successful completion of this course, students must be able to:

- 1. Generate Strategic elements of new product development (3.2.4) L4
- 2. Demonstrate Product protocol, design, development, and sales forecasting (5.2.2) L4
- 3. Experience Teamwork, product use testing, and market-entry strategy, and Launch planning and management guidelines (7.1.1) L5
- 4. As a team identify one idea for product/Service to work through Concept generation, evaluation, testing, and screening (8.3.3) L6





Part 1: Overview and Opportunity identification/selection (5 hrs)

- 1. The Strategic elements of Product Development
- 2. The New Products Process
- 3. Opportunity identification and section: Strategic planning for new products

Part 2: Concept Generation (7 hrs)

- 4. Creativity and the Product Concept
- 5. Finding and solving customer's problems
- 6. Analytical Attribute Approaches: Introduction and Perceptual Mapping
- 7. Analytical Attribute Approaches: Trade-off Analysis and Qualitative techniques

Part 3: Concept/Project evaluation (8 hrs)

- 8. The Concept Evaluation System
- 9. Concept Testing
- 10. The Full Screen
- 11. Sales Forecasting and Financial Analysis
- 12. Product Protocol

Part 4: Development (8 hrs)

- 13. Design
- 14. Development Team Management
- 15. Product Use Testing

Part 5: Launch (12 hrs)

- 16. Strategic Launch Planning
- 17. Implementation of the Strategic Plan
- 18. Market Testing
- 19. Launch Management
- 20. Public Policy Issues

Grading

Sets	Particulars	Marks
А	Assignments	20
В	Case analysis presentations	30
	Group Project and Presentation	40
С	Attendance and Class Participation	10
	Total	100







CASE ANALYSIS

Cases will be drawn from the textbook. Case notes will illustrate how new product concepts and tools apply to real world situations. Typically, there is no single "right" answer to a case, but there are many weak answers resulting from inadequate data and analysis.

When working for a case write-up, assume that you are a marketing manager who has been given responsibility for the situation and decision making as described in the case. Your recommendations should be based on quantitative and qualitative analysis of case data.

Case notes will be at least 1 page each (double-spaced, Times New Roman, 12 point font). Each class note will be worth 1 point and will be graded as a pass/fail (that is, 1 point or 0 points for each assignment).

Students who complete all 14 case notes will receive 15 points toward their final grade; all others will receive the number of points = the number of satisfactorily completed case notes. For example, 12 completed case notes will equal 12 out of 15 points. Please note that any case notes that are identical to another student's case notes will be worth 0 points. The cases are noted in burnt orange in the schedule. Cases may be emailed

SI No	Chapter	Case Title
1	Chap 2 - New products process	The LEVACOR Heart Pump
2	Chap 3 - Opportunity identification and selection:	New Product Strategy at Kellogg
	Strategic planning for new products	
3	Chap 3 - Opportunity identification and selection:	The Honda Element
	Strategic planning for new products	
4	Chap 6 - Analytical attribute approaches: Intro and	Comparing Smartphones (A)
	perceptual mapping	
5	Chap 7 - Analytical attribute approaches: Trade-off	Rubbermaid, Inc.
	analysis and qualitative techniques	
6	Chap 9 – Concept testing	a) Concept Development Corporation
		b) Domino's
7	Chap 11 - Sales forecasting and financial analysis	Bay City Electronics
8	Chap 13 - Design & development	DuPont
9	Chap 14 - Development team management	The Mini
10	Chap 15 - Product use testing	Ford Fusion
11	Chap 16 - Strategic launch planning	New Consumer Nondurables
12	Chap 17 - Implementation of the strategic plan	Dodge Nitro
13	Chap 18 - Market testing	PepsiCo-Pepsi Kona and Pepsi One

Cases:





GROUP PROJECT

A group project will apply the textbook concepts and case lessons to a practical situation of a new product or service development and launching. Students, as a group, will conduct data collection, situation analysis, model or method applications, and strategic recommendations for the group project including the company and product or service. Research for the following topics in each section will be documented and presented as a collaborative progress report. The expectation is that each team member contributes to each progress report.

The reports will be consolidated into the final report near the end of the semester. The final report will presented near the end of the semester with accompanying PowerPoint slides (15 minute presentation). The final paper will be submitted during exam week. It is expected that final papers will have integrated comments from the previous progress reports.

Section I: Introduction (4 hrs)

- 1. Description of the new product or service
- 2. Outline of the industry, company, and target market
- 3. Product Innovation Charter (PIC)

Section II: An Assessment of Competition and Market Potential (12 hrs)

- 1. SWOT analysis and description
- 2. Perceptual map and description, include competitors
- 3. Discussion of new product strategy

Section III: Concept Testing and Sales Forecasting (10 hrs)

- 1. Concept testing and positioning decisions
- 2. Selection of forecasting models and methods (e.g. ATAR model, diffusion curve)
- 3. Sales forecasting for the first 3 years

Section IV: Market Testing and Entry Strategy (10 hrs)

- 1. Product use testing: alpha, beta, and/or gamma
- 2. Entry strategy recommendations (type of demand sought, Scope of market entry)
- 3. Selection and explanation of market testing methods (pseudo, controlled, or full)
- 4. Concluding remarks, lessons learned, and real-world applications from this project

Section V. Concluding remarks (4 hrs)

To be included in presentation and final paper





Course 4

Course Code and Title	M16E CTC 302	
	Finance and Marketing for Emerging Entrepreneurs	
Pre requisites	MOOC on Basics of Accounting	
Recommended books	Finance:	
	Financial Management by M.Y Khan (6" Edition)	
	ISBN-13: 978-0-07-106785-0	
	Projects by Prasanna Chandra (7 th edition)	
	ISBN: 13: 978-0-07-007793-5	
	Marketing :	
	Principles of Marketing by Philip Kotler (15 th	
	edition), 978-0078028984	
	the set of the set of the	
	Management of a Sales Force by Spiro (11	
	edition), 978-0-07-058511-9	
Workshop faculty	a) Mr. Karthik Shetty, Charted Accountant, S.B	
	Shetty and Co, Hubli	
	b) Mr. Baily Varma, Charted Accountant and	
	Of IVIT. Rajiv Varina, Charley Accountant and	
Course duration in house		
Course duration in nours	40 nours	

Finance course:

This course is delivered through two workshops of two days each that covers financial aspects of an entrepreneurial venture from its start to a potential sale.

The purpose of this course is to provide an understanding of the financial issues associated with pursuing an entrepreneurial venture.

Upon successful completion of workshops students must be able to:

- 1. Learn the basics of accounting (1.1.2) L2
- 2. Construct basic financial statements and ratios (4.2.2) L5
- 3. Development of financial projections for their new venture (5.2.3) L5
- 4. Examine the cost of capital and valuation techniques(3.2.1) L4
- 5. Interpret alternative financing choices for entrepreneurial ventures, including debt, equity and crowdfunding(5.2.3) L4





Syllabus:

Unit 1: Financial Accounting – An Introduction (Workshop 1)

- <u>Introduction</u>: Meaning of Accountancy, book-keeping and Accounting, Accounting Process, Basic terminologies, Accounting Concepts, Principles, Bases and Policies.
- <u>Trial Balance and Final Accounts</u>: Preparing trail balance, Trading and Profit-Loss Account, Income Statement, Depreciation, Balance Sheet

Unit 2: Financial Statement Analysis: (Workshop 1)

- <u>Ratio Analysis</u> Classification of ratios and analysis
- *Funds Flow Analysis* Working Capital and funds flow statement analysis
- Cash Flow Analysis Cash Flow from Operating Activities

Unit 3: Costing (Workshop 1)

- <u>Understanding cost</u> Methods of Costing, Technique of Costing, Classification of Cost, Elements of Cost, Statement of Cost Sheet
- <u>Marginal Costing and Break Even Analysis</u>: Difference between Absorption Costing and Marginal Costing, Cost Volume Profit (CVP) Analysis, Break Even Chart, Break Even Point, Profit Volume ratio and Margin of Safety
- <u>Decisions Involving Alternative Choices</u>: Make or Buy Decisions, Addition / Discontinuance of a Product line, Sell or Process Further, Operate or Shut down, Exploring New Markets, Maintaining a desired level of profit

Unit 4: Budgetary control (Workshop 2)

- Essential features of Budgetary Control, Steps in budgetary Control, Types of Budgets, Cash Budget, Flexible Budget
- Simulation Software like Tally/ERP -FICO

Unit 5: Bootstrapping, Business Evaluation and Valuation (Workshop 2)

- Raising Capital Equity, Pure Debt and Mixed; Crowd Funding
- Return on Investment
- Sources of raising capital Bootstrapping -> Debt, Venture Capitalist
- Merger and Acquisitions valuation
- Taxation





Workshop 1	Workshop 2	
This workshop shall be held for 2 days during first week of the summer term	This workshop shall be held for 2 days during last week of the summer term	
 Basics of Accounting Working Capital, Ratios Trading and PL accounts Balance sheets 	 (June) and covers the following topics, Costing and Budgeting Financial Projections Bootstrapping Evaluation of firm and analysis 	

Students are expected to complete the assignments given at the end of each workshop.

Marketing

This course covers mainly three sections;

- I. Basics of Marketing Marketing principles and theories
- II. Marketing tools and strategies Integrated Marketing Communications and Branding
- III. Sales and CRM The Sales and Customer Relations Management course is designed to provide the student with a working knowledge of sales and service as they relate to marketing systems.

Outcomes:

After completion of this course student must be able to

- Develop IMC planning process and evaluate it. (4.2.2) L3
- Map the customer's buying process and the role individuals play in the complex selling process. (5.2.3) L5
- Manage the sales cycle process through several sales and account management cases.
 (7.2.2) L5
- Conduct sales efforts in an effective, ethical manner for their firm. (10.1.2) L6

Syllabus

Unit 1: Introduction to Marketing

- a) What is marketing?
- b) Marketing management
- c) Marketing process
- d) Marketing environment
- e) Marketing in the internet age.
- f) Marketing Mix





Unit 2: Integrated Marketing Communications -

- a) Promotional Mix
- b) IMC Planning process
- c) Creative strategy for advertisements
- d) Digital Marketing and Brand Management

Unit 3: Sales and CRM

- a) Sales Process and Sales force management
- b) CRM tools and techniques

Finance Content evaluation	Marks
Completion of MOOC on Accounting	10
Completing the activites of Workshop 1	10
Completing the activites of Workshop 2	10
TOTAL	30

Marketing Content evaluation	Marks
Attendance and Class Participation	10
Case analysis presentations	10
TOTAL	20

Final Pitch	Marks
Pitch on B-Plan	50
TOTAL	100

- > B Plan presentations are evaluated by 7 star mentoring team;
- Rubrics of Capstone SEE are to be used.





Course 5

Course Code and Title	M16E CTC 303	
	Starting New Venture	
Pre requisites	NA	
Recommended books	Entrepreneurship – Successfully Launching New Ventures (4 th Edition) by Bruce R Barringer and R.Duane Ireland ISBN 13:978-0-13-255552-4 and 10:0-13- 255552-2	
Course duration in hours	40 hours	

This course is designed for students with a curiosity and interest in starting a new business. It helps students to identify, evaluate, and obtain control over opportunities that can be exploited by starting new companies.

- In this course, students will explore the entrepreneurship process including how entrepreneurs discover and evaluate the sources and opportunities for new business ventures;
- How they assemble the resources, how they operate and grow a new business; and finally how they harvest their hard work as successful entrepreneurs.
- The course covers a variety of topics associated with launching and running a new venture, such as marketing, financing, building the venture team, legal and regulatory issues, and social and environmental issues.

Upon successful completion of the course, student should be able to:

(1) Discover and evaluate the sources and opportunities for new business ventures; (2.2.3) L2

(2) Review the process of assembling the resources necessary to launch a new venture; (8.3.1) L2

(3) Analyze through case studies - Concepts associated with launching and running a new venture, such as marketing issues, financing issues, global and ethical issues, political, legal and regulatory issues, social and environmental issues, and issues involving rapidly changing technology. (8.1.2) L4

(4) Pitch their Product / Service idea at B-plan contests held outside the institution (Mandatory to participate in atleast one such event) and launch their venture (8.3.3) L6





Syllabus:

Part 1:	Decision to Become an Entrepreneur (5hrs)
	Chapter 1: Introduction to Entrepreneurship
Part 2:	Developing Successful Business Ideas (10hrs)
	Chapter 2: Recognizing Opportunities and Generating Ideas
	Chapter 3: Feasibility Analysis
	Chapter 4: Writing a Business Plan
	Chapter 5: Industry and Competitor Analysis
	Chapter 6: Developing an Effective Business Model
Part 3:	Moving from an Idea to an Entrepreneurial firm (15hrs)
	Chapter 7: Preparing the proper Ethical and Legal foundation
	Chapter 8: Assessing a New Venture's Financial Strength and Viability
	Chapter 9: Building a new venture team
	Chapter 10: Getting Financing or Funding
Part 4:	Managing and Growing an Entrepreneurial Firm (10hrs)
	Chapter 11: Unique Marketing Issues
	Chapter 12: The importance of Intellectual Property
	Chapter 13: Preparing for and evaluating the challenges of Growth
	Chapter 14: Strategies for Firm Growth
	Chapter 15: Franchising

Grading

Sets	Particulars	Marks
Α	Assignments	20
В	Case analysis presentations	30
	Final pitch on their venture	50
	Total	100

- B Plan presentations are evaluated by 7 star mentoring team;
- Rubrics of Capstone SEE are to be used.





(1) Business Feasibility Study Related Assignments:

The major deliverable for the course is the Business Feasibility Study (BFS) based on business ideas of student teams. They may choose the business idea on their own or interview potential entrepreneurs to obtain an idea.

(2) Case Analysis Presentation

Students are required to sign up as a team to prepare and present one case to the entire class. They must read the cases using the questions as a guideline, and then write an analysis report addressing these questions from the list. In addition, each team will prepare a PowerPoint, Prezi, or other presentation for the class and ability to apply those readings to the discussion.

They should use the theories or concepts we discuss in class to analyze the case and answer the questions. The written cases are only the starting point for each team. They are expected to research each case in addition to the information provided in the cases.

Case Studies

SI No	Chapter	Case Title
1	Chap 2 – Recognizing Opportunities and Ideas	ScriptPad
2	Chap 3 – Feasibility Analysis	Modify Watches
3	Chap 5 – Industry and Competitor analysis	Local Dirt
4	Chap 6 – Developing effective Business Model	Etsy
5	Chap 7 Preparing the proper ethical and legal foundation	SmartyPants
6	Chap 8 - Assessing financial strength/viability	Fundbox
7	Chap 9 - Building a new venture team	Zappos
8	Chap 10 - Getting financing or funding	Kickstarter
9	Chap 11 - Unique marketing issues	ModCloth

(3) Business Model Presentation

Students need to visually depict their initial business model using the Business Model Canvas Framework in 10 minutes. They must assume that they are presenting to a room full of venture capitalists when the firm is in its start-up stage. During or after the presentation the instructor will ask the audience of venture capitalists how the presented business model makes money. Likewise, the audience will be asked how the business model has changed the world. Hopefully, the presentation will have addressed these points so that the audience can easily answer the instructor's questions.

ANNEXURE 5

[Minor in Computer Science & Engineering]

KLE TECH.	FORM ISO 9001: 2008 Department of Computer Science & Engineering	Document #: FMCD2005	Rev: 1.0
Curriculum Co	Page 1 of 9		
			Year: 2015-19

Program: Minor Degree – Computer Science & Engg.

No	Code	Course	Category	L-T-P	Credits	Contact	CIE	SEE	Total	Exam
						Hours				Duration
1	M16CSC201	Data Structures and A Igorithms	PSC	3-0- 1	4	5	50	50	100	3 hours
2	M16CSC202	Computer Organization and Operating System	PSC	2-1- 0	3	4	50	50	100	3 hours
3	M16CSC301	Object Oriented Program with JAVA	PSC	2-0- 1	3	4	50	50	100	3 hours
4	M16CSC302	Database Management System	PSC	2-0- 1	3	4	50	50	100	3 hours
5	M16CSP303	Project	PRJ	0-0- 2	2	3	50	50	100	3 hours
		TOTAL		9-1-5	15	20	250	250	500	

CIE: Continuous Internal Evaluation SEE: Semester End Examination L: Lecture T: Tutorials P: Practical

Date:

Program Head



Program: Minor Degree				
Course Title: Data Structures and Algorithms Course Code: M16CSC201				
L-T-P: 3-0-1	Credits: 4	Contact Hrs: 5hrs/week		
CIE Marks: 50	SEE Marks: 50	Total Marks: 100		
Teaching Hrs: 40	Exam Duration: 3 hrs			

Unit –	I	
1	Introduction to Data Structures	
	Primitive Data structures in C, Arrays, pointers, functions, structures, Notion of	
	Algorithm, Fundamentals of Algorithmic Problem Solving, Asymptotic	
	Notations and Basic Efficiency Classes, Mathematical Analysis of Non-	0.61
	Recursive Algorithms and Non-Recursive algorithms.	06 hrs
2	Stacks and Queues	
	Stack Introduction, Implementation of stack, Applications, Queue introduction,	06 has
	Queue implementations, applications	UO IIIS
3	Lists	0.4.1
	Introduction to Lists, Implementation, types of Lists, Applications	04 hrs
Unit –	П	
4	Tree and Hash Data structures	
	Tree: Introduction to graphs, Trees, Binary Search trees, Tree Traversals, and	
	Applications, Hashing: General Idea, Hash Function, Collision Resolution	061
	Techniques	06 hrs
5	Sorting	
	Sorting, Bubble sort, Insertion Srt, selection sort, Merge Sort, Quick Sort, Heap	061
	sort	06 nrs
6	Graphs and Graph Algorithms	
	DFS, BFS, Topological sort, Shortest Path Algorithms, Minimum Spanning Tree,	051
	implementation and applications.	US nrs
Unit –	111	-
7	Algorithm Design techniques	
	Greedy algorithms, Divide and conquer	04 hrs
8	Algorithm Design techniques (contd)	
	Dynamic programming, Randomized algorithms, Backtracking algorithms.	04 hrs



Curriculum Content- Course wise

Text Books:

1. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", 2nd Edition, Pearson Education, 2010.

References:

- Ellis Horowitz, Sartaj Sahani, and Susan Anderson Freed, "Fundamentals of Data Structures in C", 2nd Edition, Orient Blackswan 2008.
- 2. Aron M. Tenenbaum, et. al, "Data Structures using C", PHI, 2006.
- 3. Levitin A., "Introduction to the Design and Analysis of Algorithms", 2nd Edition, Pearson Education, 2008.

Experiments	Lab assignments/experiments		
2-Demonstration	Programming Assignments on C language Features, structures to complexity calculations		
6-Exercise	Stack, Queue, Linked List, Tree ,Hash, Sorting and Searching Algorithms		
1-Structured Enquiry	Graphs and Dynamic Programming		
1- Course Project	Develop a real world application by selecting appropriate data structure and algorithms.		



Program: Minor Degree					
Course Title: Computer Organization and Operating System Course Code: M16CSC202					
L-T-P: 2-1-0	Credits: 3	Contact Hrs: 4hrs/week			
CIE Marks: 50	SEE Marks: 50				
Total Marks: 100	Teaching Hrs: 30 hrs	Exam Duration: 3 hrs			

Unit –	I	
1	Introduction	
-	Computer Types, Functional units, Basic operational concepts, Bus structure,	
	Memory location and Address, Instruction sequencing, Addressing modes.	04 hrs
2	Memory	
-	Memory hierarchy, Random Access Memory, Memory chip organization, Cache	
	memory, Virtual memory.	04 hrs
3	Input/ Output Organization	
	Accessing i/o devices; Interrupts: Interrupt hardware, Enabling & disabling	
	interrupts, Handling multiple devices, Direct memory access; Buses; Interface	
	circuits - parallel port, serial port. Standard I/O Interface	04 hrs
Unit –	II	
4	Process Management	
-	Operating system definition; Operating System operations; Different types of	
	operating system , Operating System Services; System calls; Operating System	
	structure; Operations on processes; Inter-process communication. Multi-	
	Threaded Concept. Process Scheduling: Scheduling criteria; Scheduling	
	algorithms	06hrs
5	Process Synchronization and Deadlock Management	
-	Synchronization: The Critical section problem; Peterson's solution; Semaphores	
	and Classical problems; Deadlocks: Deadlock characterization; Methods for	
	Deadlock prevention and Deadlock avoidance.	06 hrs
Unit –	111	
6	Memory Management and File system	
-	Memory Management Strategies: Swapping; Contiguous memory allocation;	
	Paging; Segmentation. Virtual Memory Management: Demand paging; Page	
	replacement; File System: File concept; Access methods; Directory structure;	
	File system mounting; File sharing; Protection.	06 hrs



Text Books:

- 1. Computer Organization Carl Hamacher, Zvonks Vranesic, SafeaZaky, 5th Edition, McGraw Hill.
- 2. Operating System Concepts Abreham Silberchatz, Peter B. Galvin, Greg Gagne, 8th Edition, John Wiley.

Reference Books:

- 1. Computer Organization and Architecture William Stallings 6th Edition, Pearson
- Operating Systems Internals and Design Principles, Stallings, 6th Edition 2009, Pearson Education.

Plan of Tutorials

Tutorial / Hands on sessions on Instruction level execution, interfacing, process management, IPC, deadlock management, file system and memory management.



Program: Bachelor of Engineering				
Course Title: Object Oriented Programming with Java Course Code: M16CSC301				
L-T-P: 2-0-1	Credits: 3	Contact Hrs: 4 hrs/week		
CIE Marks: 50	SEE Marks: 50	Total Marks: 100		
Teaching Hrs: 30	Exam Duration: 3 hrs			

	Unit –I			
1	Introduction to Object Oriented Programming Introduction and principles of object oriented programming, Object Oriented Programming paradigm, Class diagrams-UML notations.	4 hrs		
2	Classes and Objects Class Fundamentals, declaring objects, assigning object reference variables, introducing methods, Constructors, this keyword (or pointer), Garbage collection/destructors.	8 hrs		
	Unit –II			
3	Methods and Classes Overloading: Methods, Constructors. Using objects as Parameters, Returning objects, Access control. Understanding static and final keywords. Introducing nested and inner classes.	6 hrs		
4	Inheritance and Polymorphism Inheritance: Basics, types of inheritance, implementing inheritance, Method overriding, Dynamic method dispatch, Abstract classes, Object class.	6 hrs		
	Unit –III			
5	Packages, Interfaces & Exception handling Packages and Interfaces: Packages: creating and importing, Access protection. Interfaces: creating, implementing. Exception Handling: Fundamentals, Exception Types, Uncaught Exceptions, Using try, catch, throw, throws and finally, Multiple catch, Nested try statements, User defined exceptions.	6 hrs		
Text B	Books: Herbert Schildt: The Complete Reference C++ / Java			
Refere	nce Books:			
1. 2.	Kathy Sierra and Bert Bates, Head First JAVA, 2, O'Reilly Media, 2005. Object-Oriented Programming with C++, A K Sharma			

Experiments	Lab assignments/experiment
2-Demonstration	Java Basics, NetBeans ID
4-Exercise	Classes and objects, Inheritance, Exceptions Handling
3-Structured Enquiry	Inheritance, Exceptional Handling



Curriculum (Content-	Course	wise
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Program: Minor Degree				
Course Title: Database Management System Course Code: M16CSC302				
L-T-P: 2-0-1	Credits: 3	Contact Hrs: 4 hrs/week		
CIE Marks: 50	SEE Marks: 50	Total Marks: 100		
Teaching Hrs: 30	Exam Duration: 3 hrs			

Unit –	I	
1	Introduction and ER Model	
	Introduction to DBMS and an example ; Data models, schemas and instances;	
	Three-schema architecture; Database languages; Using High-Level Conceptual	
	Data Models for Database Design; An Example Database Application; Entity	
	Types, Entity Sets, Attributes and Keys, Relationship types, Relationship Sets.	
	Roles and Structural Constraints; Weak Entity Types; Refining the ER Design;	06 hrs
	ER Diagrams, Naming Conventions and Design Issues.	
2	Relational Data Model	
	Relational Model Concepts; Relational Model Constraints and Relational	
	Database Schemas; Update Operations and dealing with constraint violations;	
	Unary Relational Operations: SELECT and PROJECT; Binary Relational	
	Relational Database Design Using FR- to-Relational Manning	06 hrs
Unit _	Kelational Database Design Osing EX- to-Kelational Mapping.	
0 mt		
3	Database Design	
	Informal Design Guidelines for Relation Schemas; Functional Dependencies;	06 h.m.s
	Normal Forms Based on Primary Keys; 3rd Normal Form.	00 IIIS
4	SQL	
	SQL Data Definition and Data Types; Specifying basic constraints in SQL;	
	Schema change statements in SQL; Insert, Delete and Update statements in SQL;	
	Basic queries in SQL, JOIN operations, Complex SQL Queries.	06 hrs
Unit –	111	
5	Introduction to Transaction Processing and Concurrency Control	
	Introduction to Transaction Processing; Transactions and System concepts;	
	Desirable Properties of Transactions; Characterizing schedules based on Serializibilty.	06 hrs



Curriculum Content- Course wise

Text Books:

1. Elmasri R. and Navathe S., Fundamentals Database Systems, 6th edition, Pearson Education, 2011.

References:

- 1. Ramakrishnan S. and Gehrke J., Database Management Systems, 3rd edition, McGraw Hill, 2007.
- 2. Silberschatz A., Korth H.F. and Sudharshan S., Data base System Concepts, 5th Edition, Mc- GrawHill, 2006.

Experiments	Lab assignments/experiment
3-Demonstration	SQL
4-Exercise	Set Theory Operators, Cartesian Product, Aggregate Functions, Nested Queries, Joins
2-Structured Enquiry	Database Design, Complex SQL queries



Program: Minor Degree		
Course Title: Project		Course Code: M16CSP303
L-T-P-S: 0-0-2	Credits: 2	Contact Hrs: 4 hrs/week
CIE Marks: 50	SEE Marks: 50	Total Marks: 100
Teaching Hrs: 39 hrs	Exam Duration: 3 Hrs	

Student Evaluation Matrix

Continuous Internal	Assessment	Weightage in Marks
Evaluation Minor -1		
	Problem Definition	04
	Identifying module's functionality	04
	Module wise algorithmic design	08
	Report(SRS & SDD)	04
	Presentation skills and team work	05
	Total	25
Continuous Internal	Modern tool Usage	03
Evaluation	Coding	08
Minor -2	Integration and testing	06
	Project Report	04
	Presentation skills and Viva-voce	04
	Total	25

ANNEXURE 6

[Minor in Electronics]



K

Minor in Electronics (Eligibility: Mech. Civil, CS, A&R)

No	Course	Category	L-T-P	Credits	Contact Hours	
1	Electronic Circuits & Digital System Design	PSC	2-0-1	3	4	
2	Signal handling & Data Converters	PSC	2-0-1	3	4	
3	Embedded Systems and IoT	PSC	3-0-1	4	6	
4	Elective focusing on eligible discipline					
		PSE				
		PSE	3-0-0	3	3	
		PSE				
5	Project	PSP	0-0-2	2	5	
	TOTAL		10-0-5	15	22	

Scheduled delivery of the courses

Academic	Jan-May-2017	June-July 2017	Aug-Dec 2017	Jan-May 2018	June-July 2018	
batch 2015-19	4 th Semester	Summer term	5 Semester	6 Semester	Summer term	
2013-13	Electronic circuits and Digital System Design (2-0-1)	Signal Handling and Data Converters (2-0-1)	Embedded Systems and IoT (3-0-1)	Elective focusing on eligible discipline (2-0-1)	Project (0-0-2)	



Minor in Electronics						
Course Title: Electronic cire	cuits and Digital System Design	Course Code:	Hours			
L-T-P: 2-0-1	Credits: 3	Contact Hours: 3Hrs/week				
CIE Marks: 50	SEE Marks:50	Total Marks: 100				
Teaching Hours: 40 Hrs	Examination Duration:03 Hrs					
	Unit – I					
Chapter 1: Introduction to A	Analog components					
Basic Electric components	and circuits: Charge, Current, Volta	age and Power, Voltage and	08Hrs			
Current Sources, Ohm's Lav	v. Circuit Analysis Techniques: Linear	ity and Superposition, Source				
Transformations, Thevenin's	and Norton's Equivalent Circuits, Ma	ximum Power Transfer, Delta-				
Wye conversion.						
Chapter 2: Introduction to A	Analog devices		06Hrs			
Introduction to Linear and N	Ionlinear Devices (elements), MOSFET	, Enhancement and Depletion				
type MOSFET, Dependence	of Drain Current with Drain to Source	e Voltage, Drain and Transfer				
Characteristics, Expression	for Drain Current in Triode Region ar	nd Saturation Region, Channel				
length Modulation, Applicat	ion as a Switch.					
Chapter 3: Introduction to L	ogic devices		02Hrs			
Logic families – TTL and CM	OS families, Fan-in, Fan-out and Noise	e Margin, datasheets of Digital				
IC, Comparison of logic families.						
Unit –II						
Chapter 4: Combinational C	ircuits		08Hrs			
Definition Digital Circuit si	mplification techniques, code conve	erters, Cascading full adders,				
Adders, subtractors, Decode	rs, Encoders, Digital multiplexers, cor	nparators.				
Chapter 5: Introduction to S	equential Circuits		06Hrs			
Basic Bistable Element Latch	les, Triggering of flip flops, The Master	-Slave Flip-Flop, Characteristic				
Equations.	11-14 111					
Chamber C. Desisters and Co	Unit –III		OCUre			
Chapter 6: Registers and Co	Synchronous and asynchronous of	ounter design Design of a	UOHIS			
Sunchronous mod n counters:	Synchronous and asynchronous co	bunter design, Design of a				
Synchronous mod in counter	s using rip-riops.					
Chapter 7: Applications			04Hrs			
Processor organization, Arithmetic logic unit, Design of Arithmetic circuits, Design of logic						
circuit, Design of arithmetic	logic unit, design of shifter, Design of a	accumulator.				
Text Books						
1. Engineering Circuit A	Analysis, 8" Edition, by William H. Hay	t, Jack E. Kemmerly and Steven	M. Durbin			
2. Electronic Devices a	2. Electronic Devices and Circuits, by Millman Halkias.					
3. Donald D Givone, Di	gital Principles and Design, Tata McGr	aw Hill Edition, 2002.				
4. John M Yarbrough,	Digital Logic Applications and Design,	i nomson Learning, 2001.				
Kererences						

- 1. Charles H Roth, Jr; Fundamentals of Logic Design, Thomson Learning, 2004.
- 2. "ARM Assembly Language Fundamentals and techniques" by William Hohl, CRC Pess 2009.



Minor in Electronics				
Course Title: Signal Handlir	ng and Data Converters	Course Code:	ours	
L-T-P: 2-0-1	Credits: 3	Contact Hours: 3 Hrs/week		
CIE Marks: 40	SEE Marks:50	Total Marks: 100		
Teaching Hours: 40 Hrs	Examination Duration: 03 Hrs			
	Unit – I			
Chapter 1: Introduction			05Hrs	
Signals and Systems, type quantization , introduction	s of signals with examples, digital to Fourier series and Transforms.	and discrete signals, sampling ,		
Chapter 2: IC and OP AMP Fabrication of monolithic IC, integration of circuit components, Limitations of ICs, Advantages of IC's over analog circuits, Operational Amplifier (OP AMP), Basic operations of OP AMP, Applications of OP AMP				
Chapter 3: OPAMP charact	eristics		05Hrs	
Ideal and non-ideal OPAI Offset voltage, Small signal	MP terminal characteristics, Input and Large signal bandwidth.	and output impedance, Output		
	Unit –II		1	
Chapter 4: OPAMP with Fe	edback		08Hrs	
OPAMP under Positive and Negative feedback, Impact of Negative feedback on Bandwidth, Input and Output impedances, Offset voltage under negative feedback, Follower property & Inversion Property under linear mode operation.				
Chapter 5: Linear applications of OPAMP				
DC Amplifiers, AC Amplifiers, Summing, Scaling and Averaging amplifiers (Inverting, Non- inverting and Differential configuration), Integrator, Differentiator, Current amplifiers, Instrumentation amplifier, Phase shift oscillator, Tuned Oscillators, Crystal Oscillator, Active Filters –First order Low pass & High pass filters, Active filters- Second order Low pass & High pass filters, ADC and DAC Converters.				
	Unit –III			
Chapter 6: Nonlinear appli	cations of OPAMP		05Hrs	
Crossing detectors (ZCD. Comulti-vibrator Triangular/re Oscillator.	omparator), Inverting Schmitt trigge ectangular wave generators Wavefo	er circuits Mono stable& A-stable rm generator, Voltage controlled		
Chapter 7: Nonlinear appli	cations of OPAMP		05Hrs	
Precision rectifiers, Limiting Log and antilog amplifiers,	g circuits, Clamping circuits, Peak de Multiplier and divider.	tectors, sample and hold circuits,		
Text Book				
 A.S. Sedra & K.C. Smith, "Microelectronic Circuits", 5th Edition, Oxford Univ. Press, 1999. Jacob Millman and Christos Halkias, "Integrated Electronics", McGraw Hill, Ramakant A. Gayakwad, Op - Amps and Linear Integrated Circuits, 				
References				
 David A. Bell, "Electronic Devices and Circuits" 4th edition, PHI publication 2007. Grey, Hurst, Lewis and Meyer, "Analysis and design of analog integrated circuits," 4th edition. Thomas L. Floyd, "Electronic devices", Pearson Education, 2002 Richard R. Spencer & Mohammed S. Ghousi, "Introduction to Electronic Circuit Design Education, 2002 				
 J. Millman & A. Grabe Sergio Franco, Desigr 	el, "Microelectronics"-2 nd edition, M n with Operational Amplifiers and Ar	cGraw Hill, 1987 alog Integrated Circuits.		



Earlier known as B. V. B. College of Engineering & Technology

- 7. David A. Bell, Operational Amplifiers and Linear Ics.
- 8. Behzad Razavi "Design of analog integrated circuits"

Kech



Minor in Electronics					
Course Title: Embedded S	ystems and IoT	Course Code:	Hours		
L-T-P: 3-0-1	Credits: 4	Contact Hours: 6 Hrs/week			
CIE Marks: 40	SEE Marks:40	Total Marks: 100			
Teaching Hours: 40Hrs	Examination Duration:03 Hrs				
	Unit – I		I		
Chapter 1: Introduction			06Hrs		
Introduction to embedded	systems: Introduction, Classificati	on of Embedded System, Major			
Application Areas, Purpos	e of Embedded System. Characte	eristics and quality attributes of			
Embedded Systems, Challe	enges in Embedded System Design	h. Design Process: Requirements,			
Specifications, Architectur	e Design, Designing of Compone	nts, System Integration. Design			
Netric and Optimizing the	metrics.		OCUre		
Tunical Embedded Syst	em Architecture	Annony Sonsor and Actuators	UOHIS		
Communication Network	Embedded Eirmware, Components	of Embedded System			
Devices Serial and Parallel	Communication Buses for Devices	Network formalization of system			
design Design process and	design examples Skills required for	or an embedded system designer			
I/O types and examples.	Serial communication devices-US	ART. USB. Parallel device ports.			
Introduction to wireless de	vices-Zigbee, Bluetooth.				
	Unit –II		1		
Chapter 3: Device Drivers a	and Interrupts Service Mechanism		06 Hrs		
Device access without i	nterrupts, ISR concept, Interrup	ot sources, Interrupt servicing			
mechanism, Multiple inte	rrupts, Context and the periods	for context-switching, interrupt			
latency and deadline, Class	sification of processors' interrupt	service mechanism from context-			
saving angle.					
Embedded Design Cycle:	Embedded product development	life cycle, Trends in Embedded			
applications	ii & large embedded system like	wasning Machine, Automotive			
Chanter A:Program design	and Analysis		08Hrs		
Components of Embedded	system: State machines: stream o	riented programming and circular	001113		
buffers, queues. Models of	of programs: data flow graph and	control flow graphs. Assembly.			
linking and loading. Basic	compilation techniques: Stateme	nt translation, procedures, data			
structures. Program optim	ization: Expression simplification, o	lead code elimination, procedure			
in-lining, loop transform	nations, register allocation, scl	neduling, instruction selection,			
interpreters and JIT comp	pilers. Program level performance	analysis, software performance			
optimization, program leve	el energy and power analysis, anal	ysis and optimization of program			
size. Program validation an	nd testing: Clear box testing, black	box testing, evaluating function			
tests.					
	Unit-III				
Chapter 5: The IoT Netwo	rking Core		07Hrs		
rechnologies involved in I	OI Development, IoT Architectur	e, MZM – Machine to Machine,			
Web of Things, IOT protocols Applications: Remote Monitoring & Sensing, Remote Controlling,					
protocol Architecture. The 6LoW/PAN Security aspects in LoT					
Chanter 6: Case Study & advanced IoT Applications					
In applications in home infrastructures buildings security industries. Home appliances					
other IoT electronic equipments. Use of Big Data and Visualization in IoT. Industry 4.0					
concepts. Sensors and se	ensor Node and interfacing using	g any Embedded target boards			
(Raspberry Pi / Intel Galileo	/ARM Cortex/ Arduino)	, ,			
Text Books:					



1. Introduction to Embedded Systems, by Shibu K V

Reference Books:

- 1. Embedded Systems Architecture: Programming and Design –Rajkamal, 2nd Edition, Tata McGraw Hill, 2008.
- 2. Computers as Components Principles of Embedded Computing System Design: Wayne Wolf, second edition, Morgan Kaufmann Publishers is an imprint of Elsevier.
- 3. Internet of Things: Converging Technologies for Smart Environments and Integrated Ecosystems, Dr. OvidiuVermesan, Dr. Peter Friess, River Publishers.
- 4. Interconnecting Smart Objects with IP: The Next Internet, Jean-Philippe Vasseur, Adam Dunkels, Morgan Kuffmann



Minor in Electronics					
Course Title: Project		Course Code:	ours		
L-T-P: 0-0-2	Credits: 2	Contact Hours: 5 Hrs/week			
CIE Marks: 50	SEE Marks:50	Total Marks: 100			
Teaching Hours: 5Hrs	Examination Duration: 02 Hrs				
Theme : Embedded Applic	cations				
Project Work for minor Co	orse in Electronics includes.				
Tasks:					
Sensor Selection and Characterization to acquire real world data					
Signal Conditionin	g for acquired data				
Signal processing	and interfacing with suitable control	Oller using proper communication			
protocol					
Actuator selection	n and Interfacing				
Deliverables					
Complete ES to de	emonstrate the functionalities of the	chosen application			

ANNEXURE 7

[Minor in Innovation and Product Development]



Board of Studies approved

Minor in Innovation and Product Development

Curriculum Structure and Syllabus 2015 – 19 Batch (2015-16 Admission)

School of Mechanical Engineering November 30, 2016



Earlier known as



MIPD Curriculum structure & Syllabus 2015 – 19 Batch

Preface

Innovation and new products drive today's businesses. Innovations, customer pain points, collusion of technologies and market opportunities lead to new products. In current academic environment innovation and new product development processes are not emphasized. Students seeking job opportunities as well as entrepreneurial ventures need to be equipped with new product development processes and problem solving skills leading to innovations. The proposed minor program shall address these gaps in the curriculum.

The minor program is open for all disciplines within engineering and will focus on experiential learning. Interactions with industry experts and teachers with industry experience shall further enhance the learning of students. The students shall go through complete life-cycle of product development, starting with problem statement to prototype and finally ending with a product during this program. Students will work in multidisciplinary teams and develop team behavioural skills.

Students at the end of this program shall be able to

- 1. Develop road-map to convert an idea into product specifications
- 2. Evaluate business viability of product ideas, product concepts and products
- 3. Develop product solutions based on elucidated and unelucidated customer needs
- 4. Analyse customer needs, Benchmark competition products
- 5. Develop product strategies and product lifecycle management road-maps
- 6. Develop prototype of a product based on product specifications
- 7. Generate product verification and validation plan



Semester: IV

No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Tota 1	Exam Duration
1	M16EPDC201	Product Innovation	PC	1-1-1	3	5	60	40	100	Continuous
TOTAL			1-1-1	3	5				evaluation	

Semester: Summer I

No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
1	M16EPDC202	New Product Introduction	PC	1-1-2	4	7	60	40	100	Continuous
TOTAL			1-1-2	4	7				evaluation	

	Semester: V										
No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Tota l	Exam Duration	
1	M16EPDC301	Organizational Behavior and Business Analytics for Product Development	РС	1-1-0	2	3	60	40	100	00 Continuous evaluation	
TOTAL			1-1-0	2	3						

Semester: VI

No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Tota 1	Exam Duration
1	M16EPDC302	Product Development and Realization	PC	1-1-2	4	7	60	40	100	Continuous
TOTAL				1-1-2	4	7				evaluation

Semester: Summer II- One elective to be chosen

No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Tota I	Exam Duration
1	M16EPDE301	Robust and Lean Product Design	PE	1-0-1	2	3	60	40	100	
	M16EPDE302	System Design and Introduction to IOT	PE	1-0-1	2	3	60	40	100	Continuous evaluation
TOTAL				1-0-1	2	3				

ISA: In Semester Assessment, ESA: End Semester Assessment,

L: Lecture; T: Tutorials; P: Practical.

BS: Basic Science **ES**: Engineering Science,

PC: Program Core,

PE: Program Elective



Assessment Scheme for all MIPD courses (Tentative)

Minor 1	Minor 2	Assignment	Total ISA	Course Project – ESA	Total
20	20	20	60	40	100

Minors:

Students shall attend two minors; Minors could be

- Case analysis and presentation individually or team
- Project presentations
- Written exam

Tutorials:

- Students shall apply their learning on real life examples;
- Use analytical and empirical tools for assignments.
- Tutorials shall be assessed every week where applicable

Projects:

- Multi-disciplinary teams shall work together to achieve project goals.
- Team work, leadership skills and group interactions shall be encouraged.
- The team shall work hands-on to develop a product.
- Assessment shall be done during the course as well as semester end based on presentation of course project



IV Semester

Curriculum Content

Course Code: M16EPDC201	Course Title: Product Innov			
L-T-P: 1-1-1	Credits: 3	Contact Hrs: 5		
ISA Marks: 60	ESA Marks: 40	Total Marks: 100		
Teaching Hrs: 12	Tutorial + Project Hrs: 48	Exam Duration: Continuous evaluation		

Course Outcomes

After successful completion of this course, students shall be able to

- 1. Develop an idea into an innovation using innovation processes and tools
- 2. Analyse why and how innovations happen
- 3. Manage innovations by allocating resources and prioritization.
- 4. Enumerate future trends in technologies and products based on fore-sighting tools
- 5. Understand IP protection methods

Topics	Lecture
Technological Innovation	3 hours
Introduction, Sources of Innovation, Types and Patterns of Innovation, Standards Battles and Design dominance, Timing of entry	
Technological Innovation strategy	3 hours
Defining the organization's strategic direction; Choosing innovation projects, Collaboration strategies, Protecting innovation	
Innovation Process and Methods	4 hours
TRIZ – Theory of innovative problem solving, ToC – Theory of Constraints, Managing Ideation processes, 8 Steps of Innovation, Open Innovation process	
Innovation Tools	2 hours
Fore-sighting, S-curve for technology and consumer, Time cone and contextual map,	
Functional Analysis	
References	
Playbook for strategic foresight and Innovation – Stanford University	
8 Steps of Innovation – R. T. Krishnan and V. Dabholkar	
TRIZ and ToC – Handouts	
A Unified Innovation Process Model for Engineering Designers and Managers (In Design T Skogstad, P., Leifer, L.edited by Meinel, C., Leifer, L., Plattner, H. Springer Berlin Heidelberg. 2011: 19–43	`hinking)


Summer – I

Curriculum Content

Course Code: M16EPDC202	Course Title: No	ew Product Introduction
L-T-P: 1-1-2	Credits: 3	Contact Hrs: 7
ISA Marks: 60	ESA Marks: 40	Total Marks: 100
Teaching Hrs: 12	Tutorial + Project Hrs: 72	Exam Duration: Continuous evaluation

Course Outcomes

After successful completion of this course, students shall be able to

- 1. Analyze customer needs/pains and evaluate market opportunity
- 2. Comprehend how to convert a product market opportunity into product solution
- 3. Develop product specifications using QFD and other tools from VoC
- 4. Evaluate different product concepts using quantitative and qualitative methods

Topics	Lecture
Customer and Market Analysis	4 hours
VoC – Voice of Customer gathering techniques	
Prioritization Methods	
AHP – Analytic Hierarchic Process	
Needs, Wants and WOWs	
Market opportunity and potential evaluation Market and Customer segmentation	
warket opportainty and potential evaluation, warket and eastoniel segmentation	
Competitive Analysis	2 hours
Identifying competitor, substitutes, Benchmarking – Product, Technology and Business, Competition value chain analysis, Competitive strategies for products	
VoC to Product Specifications	4 hours
QFD methods to develop product specification from VoC	
Concept development methods, Concept selection methods (Pugh Matrix, Customer Focus Groups, Delphi method), Gap analysis, Rapid prototyping techniques, First Order analysis of concepts.	
Design for "X"	2 hours
X = Manufacturability, Assembly, Quality, Cost, Sustainability methodology;	2 110015
Knowledge based engineering design techniques	
References:	
Product Management by Donald Lehmann, and Russell	



Semester V

Curriculum Content

Course Code: M16EPDC301	Course Title: Organizationa Analytics fo	ll Behavior and Business or Product Development
L-T-P: 1-1-0	Credits: 2	Contact Hrs: 3
ISA Marks: 60	ESA Marks: 40	Total Marks: 100
Teaching Hrs: 12	Tutorial Hrs: 24	Exam Duration: Continuous evaluation

Course Outcomes

After successful completion of this course, students shall be able to

- 1. Analyze and evaluate business viability for a product business opportunity
- 2. Develop product pricing and costing strategies
- 3. Understand different aspects of team dynamics and organizational behavior
- 4. Develop a road-map for product program

Topics	Lecture
Business Analytics for Product Development	6 hours
Engineering Economics – Basics, Product and Customer economics, Finance for product development, Product pricing and costing techniques, Evaluation of product business opportunity - Return on Investment for a product business	
Organizational Behaviour for Product Development	4 hours
Organizational structure for product development, Conflict resolution and negotiation techniques; Understanding team dynamics and influencing without authority, Professional communication skills,	
Project and Program Management (Stage-gate process)	2 hours
References	
The Standard for Program Management – PMI	
Finance Basics by Harvard Business Review	



Semester VI

Curriculum Content

Course Code: M16EPDC302	Course Title: Product Development and Realization		
L-T-P: 1-1-2	Credits: 4	Contact Hrs: 7	
ISA Marks: 60	ESA Marks: 40	Total Marks: 100	
Teaching Hrs: 12	Tutorial + Project Hrs: 72	Exam Duration: Continuous evaluation	

Course Outcomes

After successful completion of this course, students shall be able to

- 1. Develop a manufacturing road-map for a product
- 2. Layout Product Verification and Validation plan for a product duty cycle, load goals
- 3. Imbibe how to develop a product family from a successful product
- 4. Develop a technology development strategy and a technology road-map for a product

Topics	Lecture
Product Development Process	4 hours
Part manufacturing processes, Design and functional review methods, Assembly process and virtual builds, Quality goals and control plans	
Product Verification and Validation	4 hours
Load goals and duty cycle definition, Reliability and durability goals, Virtual prototyping techniques, Accelerated product verification methods	
Product family management	2 hours
Product lifecycle management; Evolution of product models and families, Modeling of product family lifecycle, Product Strategy, Product market positioning, Product positioning – psychological, Brand, customer segment.	
Technology management	
Technology management Technology management methods, Technology as a competitive tool, Critical Component Development Process, Technology Development Process	2 hours
References	
Product Design and Development by Karl Ulrich and Steven Eppinge	
The PDMA Handbook of New Product Development. Second Edition by Kenneth B. Kahn	
Innovation in Product Design: From CAD to Virtual Prototyping by Monica Bordegoni (Editor), Caterina Rizzi (Editor)	



Summer – II

(Any one elective to be opted)

Curriculum Content

Course Code: M16EPDE301/302		Course Title: Elective
L-T-P: 1-0-1	Credits: 2	Contact Hrs: 3
ISA Marks: 60	ESA Marks: 40	Total Marks: 100
Teaching Hrs: 12	Tutorial Hrs: 24	Exam Duration: Continuous evaluation

	Elective – 1 – Robust and Lean Product Design (M16EPDE301)	Lecture
1.	Definition of a robust product design $-\frac{1}{2}$ hour	12
2.	Understanding of variability in product parameters $-\frac{1}{2}$ hour	hours
3.	Design Optimization techniques – 4 hours	
4.	Design for Six Sigma methodology – 4 hours	
5.	Lean Design techniques – 3 hours	
	Elective – 2 – System Design and Introduction to IOT (M16EPDE302)	
1.	Systems approach to product design and development -2 hours	12
2.	Simulation of systems -2 hours	hours
3.	System level thinking to solve problems – 2 hours	
4.	Introduction to IOT – Electronics faculty – 6 hours	
Refere	nces	
Quality	Engineering Using Robust Design by Madhav S. Phadke	
Design and Analysis of Experiments, 8th Edition by Douglas C. Montgomery		
Systems Engineering Principles and Practice by Alexander Kossiakoff		

ANNEXURE 8

[Minor in Robotics]



Minor in Robotics

SI No	Course / Lab	Credit
		L+P
1	Analog & Digital Electronics	3
2	Kinematics of machinery	3
3	Robot analysis & design	3
4	Mobile robots & Image processing	3
5	Machine Learning	2
6	Project	2
	Total	16



Course Content

Course Code:	Course Title: Analog and Digital Electronic Circuits	
L-T-P-SS: 2-0-1-0	Credits:3	Contact Hrs: 30
CIE Marks: 50	SEE Marks: 50	Total Marks: 100
Teaching Hrs: 50		Exam Duration: 3 hrs

Content	Hrs	
Unit - 1		
Chapter No. 1. : Linear circuits and analog electronic devices Basics of Linear Circuits, Impedance, Semiconductor Electronic Devices, Operational Amplifiers.	5	
Chapter No. 2. : Digital Electronic Devices Digital Electronic Devices, Digital and Analog I/O and Their Computer Interface, D/A and A/D Converters and Their Computer Interface ,Problems.	5	
Unit - 2		
Chapter No.3. : Signal conditioning circuits Introduction to Measurement Devices, Measurement Device Loading Errors, Protection, Filtering, Wheatstone bridge, Pulse modulation, Power transfer, Problems.	5	
Chapter No. 4 : Sensors Position Sensors, Velocity Sensors, Acceleration Sensors, Strain, Force, and Torque Sensors, Pressure Sensors, Temperature Sensors, Problems.		
Unit - 3		
Chapter No.5: Electrical Actuators and Drive technology Energy Losses in Electric Motors, Solenoids, DC Servo Motors and Drives, AC Induction Motors and Drives, Step Motors, Linear Motors, DC Motor: Electromechanical Dynamic Model, Problems.	10	

Text Book (List of books as mentioned in the approved syllabus)

1. Sabri Centikunt, Mechatronics with experiments, Second edition, Wiley, 2015

References

1. W. Bolton, Mechatronics: Electronic control systems in mechanical and electrical engineering, 4th Edition, Pearson, 2010



Course Code: Course Title: Kinematics of Machinery					
L-T-P	L-T-P: 3-0-0 Credits:3 Contact Hrs: 3				
CIE Marks: 50 SEE Marks: 50 Total Marks: 100					
Teach	ing Hrs: 40		Exam Duration: 180 minutes/3 Hrs		
		Unit I			
No	Content			Hrs	
1	INTRODUCTION TO KINEMA Introduction, Mechanisms, kinematics, mobility, four bar mechanism, slider cr	TICS mechanism terminology, ank mechanism, techniqu	kinematic diagrams, kinematic inversion, es of mechanism analysis.	4	
2	POSITION ANALYSIS Vector algebra and analysis, position, c simple mechanisms – analytical analys	lisplacement, position ana	lysis, position analysis applications to	5	
3	VELOCITY ANALYSIS Velocity of a point, velocity of a link, l analytical velocity analysis: relative ve instantaneous center of rotation, veloci	inear and angular velociti locity method, algebraic s ty curves.	es, relative velocity, velocity image, olutions for common mechanisms,	6	
	· · · · · · · · · · · · · · · · · · ·	Unit II			
 ACCELERATION ANALYSIS Linear acceleration of a point, acceleration of a link, normal and tangential acceleration, relative acceleration analysis: analytical method, algebraic solutions for common mechanisms, acceleration of a general point on a floating link, coriolis acceleration, equivalent linkages, acceleration 			5		
 CAMS: DESIGN AND KINEMATIC ANALYSIS Introduction, Types of Cam, Types of Followers, Prescribed follower motion, Follower motion schemes, Graphical disk cam profile design, Pressure angle, Design Limitations, Analytical disk cam profile design. 			5		
6	 GEARS: KINEMATIC ANALYSIS AND SELECTION Types of gears, spur gear terminology, involute tooth profiles, spur gear kinematics, rack and pinion kinematics, gear trains, idler gears, planetary gear trains. 			5	
		Unit – III			
10	BELTS AND CHAIN DRIVES Introduction, Belts, Belt drive geomet kinematics.	ry, Belt drive kinematics,	Chains, Chain drive geometry, Chain drive	5	
11	SCREW MECHANISMS Introduction, Thread features, Thread f torques, Differential screws, Auger scr	orms, Ball screws, Lead, ews.	Screw kinematics, Screw forces and	5	
Text	Text Book:				
 David ri Myszka, Machines and mechanisms, Frenuce Hall. Kenneth J Waldron, Gary L.Kinzel, "Kinematics, Dynamics, & Design of Machinery", John Wilev & Sons India 				ndia	

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Course Content

Course Code: ARC Course Title: Robot Analysis & Design		& Design		
L-T-P-SS: 3-0-0-0		Credits: 3	Contact Hrs: 40	
CIE N	Aarks: 50	SEE Marks: 50	Total Marks: 10	00
Теас	hing Hrs: 40		Exam Duration	: 3 Hrs
	IJ	NIT – I	I	
No	Con	tent		Hrs
1	Chapter 1: Introduction to Robotics and Applications Introduction, What is a robot, Classifications of Robots, What is Robotics, Advantages & Disadvantages of Robots, Robot Components, Robot Degrees of Freedom, Robot Joints, Robot Coordinates, Robot Reference Frames, Programming Modes, Robot Characteristics, Robot Workspace, Robot Languages, and Robot Applications.			5
2	Chapter 2: Coordinate Frames, Mapping and Transforms Coordinate frames, Description of objects in space, Transformation of vectors, Inverting a homogeneous transform, Fundamental rotation matrices, Forward and Inverse Kinematic Equations: Position and Orientation.			5
3	Chapter 3: Symbolic Modeling of Robots-Direct Kinematic Model Mechanical structure and notations, description of links and joints, Kinematic modeling of the manipulator, Denavit-Hartenberg Representation of Forward Kinematic Equations of Robots, The Inverse Kinematic Solution of Robots.			5
UNIT - II				
	Chapter 3: Differential Motion and Statics			
4	Introduction, Differential Relationships, Jacobian, Differential Motions of a Frame, Differential Translations, Differential Rotations about the Reference Axes, Differential Rotation about a General Axis q, Differential Transformations of a Frame, Interpretation of the Differential Change, Differential Changes between Frames, Differential Motions of a Robot and Its Hand Frame, How to Relate the Jacobian and the Differential Operator, Inverse Jacobian, Static analysis.			6

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	Chapter 4: Dynamic Analysis and Forces				
5	Introduction, Lagrangian Mechanics: A Short Overview, Effective Moments of Inertia, Introduction to Dynamic Equations for Multiple-DOF Robots, Introduction to Static Force Analysis of Robots.	5			
	Chapter 6: Trajectory planning				
6	Introduction, Path versus Trajectory, Joint-Space versus Cartesian-Space Descriptions, Basics of Trajectory Planning, Joint-Space Trajectory Planning, Third-Order Polynomial Trajectory Planning, Fifth-Order Polynomial Trajectory Planning, Linear Segments with Parabolic Blends, Linear Segments with Parabolic Blends and Via Points, Higher-Order Trajectories, Other Trajectories, Cartesian-Space Trajectories, Continuous Trajectory Recording.	4			
	UNIT - III				
	Chapter 6: Robot Sensors and Environment				
7	Sensors in robotics, kinds of sensors used in robotics, Range sensing, Proximity sensing, Touch sensing, Force & Torque sensing, Robot grippers, Feeding devices.	5			
	Chapter 8: Control of Robot Manipulators				
8	Open-and Close-loop control, Linear control schemes, Control of the robot in internal coordinates, control of the robot in external coordinates, control of the contact force.	5			
TEXT	BOOKS:				
1. Saeed B. Niku., "Introduction to Robotics, Analysis, Systems, Applications, PHI Learning private limited. 2009.					
REFERENCE:					
1. Fu K.S., Gonzalez R.C., and Lee C.S.G., "Robotics control, sensing, Vision and intelligence, McGraw-Hill Book Co.,					
	 Groover M.P., "Industrial robotics Robotics, programming and applications ", McGraw-Hill Book Co., 1995. 				
	3. Ashitavia Ghoshal, "Robotics Fundamental Concepts & Analysis, Oxford University Press.				
	 John J. Craig, "Introduction to Robotics-Mechanics & Control", Pearson Education, Inc., 20 T. Baid, M. Miheli, J. Lenarcic, A. Stanovnik, M. Munih "Robotics". Springer. Vol 43. 	05.			



Course Content

Course Code: Course Title: Mobile Robots & Image Processing					
L-T-P-SS: 3-0-0-0	Γ-P- SS : 3-0-0-0 Credits:3 Contact Hrs: 3/Week				
CIE Marks: 50 SEE Marks: 50 Total Marks: 100					
Teaching Hrs: 40		Exam Duration: 180 minute	es/3 Hrs		
	Unit I	·			
Content					
Chapter 1: Introduction to Mobile Robotics, Mechanics and Locomotion A brief history of mobile robotics, applications and market. Recent advances in the mobile robotics for RISE (Risky Intervention and Surveillance Environment) applications. Definition of robot, laws of robotics, autonomy and control in robots. Locomotion, key issues for locomotion, legged mobile robots, wheeled mobile robots.					
Chapter 2: Robot Hardware Robot Sensors, Robot Actuators, Example: The Mobile Robot Forty Two, The Need for Sensor Signal Interpretation.			4		
Chapter 3: Navigation. Principles of Navigation: Navigational Frame of Reference, Landmark-Based Navigation: Piloting, Fundamental Navigation Strategies of Animals and Humans: Piloting, Path Integration, Survey Knowledge: The Navigation of Birds, Human Navigation, Robot Navigation: Guided Vehicles, Navigation Systems, Case Studies of Navigating Robots: GRASMOOR: Ant-like Robot Navigation, Map-Building, Experiment : Localisation Using Perception					
	Unit II				
Chapter 4: Vision, the Challenge Introduction—Man and His Senses, The Nature of Vision: The Process of Recognition, Tackling the Recognition Problem, Object Location, Scene Analysis, From Automated Visual Inspection to Surveillance. Images and Imaging Operations: Gray Scale Versus Color, Image Processing Operations: Some Basic Operations on Grayscale Images, Basic Operations on Binary Images, Convolutions and Point Spread Functions, Sequential Versus Parallel Operations			5		
Chapter 5: Basic Image Filtering Operations					
Noise Suppression by Gaussian Smoothing, Median Filters, Mode Filters, Reducing Computational Load, Sharp_Unsharp Masking, Shifts Introduced by Median Filters, Discrete Model of Median Shifts, The Role of Filters in Industrial Applications of Vision, Color in Image Filtering			5		

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Chapter 3: Decision Trees

The Basics of Decision Trees, Uses for Decision Trees Advantages of Decision Trees, Limitations of Decision Trees, Different Algorithm Types, Decision Trees in Weka.

Chapter 4: Bayesian Networks

Chapter 2: Planning for Machine Learning

The Machine Learning Cycle, Building a Data Team, Data Processing, Data Storage, Data Privacy, Data Quality and Cleaning, Thinking about Input Data, Thinking about output Data.

Chapter 1: Introduction to Machine learning

Software Used in machine learning field.

Introduction to machine learning Examples of Machine Learning Applications, machine learning in Engineering fields, Algorithm Types for Machine Learning Languages for Machine Learning

Chapter 8. Analysis of Robot Behaviour

Problems with Approach—Some Alternative Schemes.

Chapter 6: Thresholding Techniques

Motivation, Statistical Analysis of Robot Behaviour: Normal Distribution, Binomial Distribution, Case Studies of Performance Evaluation and Analysis: Quantitative Comparison of Map-Building Systems

Basic Theory of Edge Detection, The Template Matching Approach, Theory of 333 Template Operators, The Design of Differential Gradient Operators, The Concept of a Circular Operator, Detailed Implementation of Circular Operators, The Systematic Design of Differential Edge Operators,

Recommended Text Book:

Chapter 7: Edge Detection

1. Roland Siegwart and Illah R. Nourbakhsh "Introduction to Autonomous Mobile Robots", 2nd edition, The MIT Press.

Unit III

- 2. Ulrich Nehmzow "Mobile Robotics: A Practical Introduction", 2nd edition, Springer
- 3. E. R. DAVIES "Computer and Machine Vision: Theory, Algorithms, Practicalities", 4th Edition, 2012 Elsevier.

Machine Learning Syllabus

5hrs

3hrs

4hrs

Region-Growing Methods, Thresholding, Adaptive Thresholding, More Thoroughgoing Approaches to Threshold Selection, The Global Valley Approach to Thresholding, Practical Results Obtained



5

5

5

Ì	KLE Technological University
KLE TECH	Creating Value
KLE TECH.	Leveraging Knowledge

Using the Global Valley Method, Histogram Concavity Analysis

Text-Book:

KLE TECH.

Network Walkthrough

- 1. Jason Bell, Machine Learning Hands-On for Developers and Technical Professionals, John Wiley & Sons, Inc.
- 2. Tom M. Mitchell, Machine Learning, McGraw-Hill Science/Engineering/Math, 1997.
- 3. Stuart J. Russell and Peter Norvig, Artificial Intelligence, A Modern Approach, 2, Pearson Education, 2010.

Chapter 5: Artificial Neural Networks

Artificial Neural Network Uses, Breaking Down the Artificial Neural Network, Data Preparation for Artificial Neural Networks, Artificial Neural Networks with Weka, Implementing a Neural Network in Java.

Graph Theory, Probability Theory, Bayes' Theorem, Bayesian Networks Working, a Bayesian

Chapter 6: Clustering Introduction, Mixture Densities, k-Means Clustering, Expectation-Maximization Algorithm,

Mixtures of Latent Variable Models, Supervised Learning after Clustering

Chapter 7: Machine learning with Apache Spark

Scala basics, Introduction to Spark, Writing Standalone Programs with Spark, Spark Streaming, MLib: The Machine Learning Library.

Chapter 8: Machine Learning with R

The R Basics, Simple Linear Regression, Accessing R from Java, R and Hadoop



4hrs

4hrs

4hrs

3hrs

3hrs

ANNEXURE 9

Scheme and Syllabi of

B.Sc (Computer Science – Industry Track)

Approved by (Use Initials) Signature MSM NC GKJ SDD VG BSA Ş SS <P J

Image: I		Course with course code									
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Image: I	(14-4-3)= 21	17SCSP102 Data Structures and Algorithms Lab (0-0-3)	17SCSC106 Computer Networking (4-2-0)	17SCSC105 Operating System (4-2-0)	17SCSC104 Data Structures and Algorithms (4-0-0)	17SCSH102 Environmental Science (2-0-0)	=			ture-Overall	Computer Sci
Page 1 of 1Page 1 of 1Year: 2017Year: 2017ITSCSC204Data Mining, (4-2-0)ITSCSE302 Programming (4-2-0)ATSCSC206ITSCST301 Software Testing (4-0-0)ITSCST301 (Anagement (4-2-0)ITSCST302 (Anagement (0-0-2)ITSCSP202 Software Testing LabITSCSW301 (0-0-2)ITSCSW302 (0-0-2)ITSCSW302 Major Project-I (0-0-6)ITSCSW302 Major Project-II (0-0-12)ITSCST202 Major Project-II (0-0-2)ITSCSW302 (0-0-12)Software Testing LabITSCSW301 (0-0-6)Major Project-II (0-0-12)Major Project-I Major Project-II (0-0-12)Major Project-II (0-0-2)Major Project-II (0-0-12)Major Project-II (0-0-2)Major Project-II (0-0-2)Major Project-II (0-0-2)Major Project-II (0-0-2)Major Project-II (0-0-2)Major Project-II (0-0-2)Major Project-II (0-0-2)Major Project-II (0-0-2)Major Project-II (0-0-2)Major P	(12-4-5)= 21	17SCST201 Web technologies (0-0-2)	17SCSP201 RDBMS Lab (0-0-3)	17SCSC203 Programming C++ (4-2-0)	17SCSC202 Software Engineering (4-2-0)	17SCSC201 RDBMS (4-0-0)		Sem			ence &
VPage 1 of 1 Year: 201717SCSE301VI17SCSE302 Programming (4-2-0)17SCSE303 N/W Management (4-2-0)17SCST301 Software Project (0-0-2)17SCST302 R-Programming (0-0-2)17SCSW301 Major Project-I (0-0-6)17SSCW302 Major Project-II (0-0-12)(8-4-8)= 20(8-4-14)= 26	(12-4-5)= 21	17SCST202 Software Testing Lab 0-0-2	17SCSP202 Distributed & Cloud Computing Lab (0-0-3)	17SCSC206 Software Testing (4-0-0)	17SCSC205 Data Mining. (4-2-0)	17SCSC204 Distributed & Cloud Computing. (4-2-0)	VI	ester			
VI 17SCSE303 N/W Management (4-2-0) 17SCSE304 Soft computing (4-2-0) 17SCST302 R-Programming (0-0-2) Major Project-II (0-0-12) (8-4-14)= 26	(8-4-8)= 20		17SCSW301 Major Project-I (0-0-6)	17SCST301 Software Project Management (0-0-2)	17SCSE302 Programming in JAVA (4-2-0)	17SCSE301 Scripting (4-2-0)	<				
	(8-4-14)= 26		17SSCW302 Major Project-II (0-0-12)	17SCST302 R-Programming (0-0-2)	17SCSE304 Soft computing (4-2-0)	17SCSE303 N/W Management (4-2-0)	VI		Year: 2017	Page 1 of 1	Rev: 1.0

FORM ISO 9001: 2008 - BVBCET

Document #: FMCD2003



Program: B.Sc in Computer Science – Industrial Track				
Course Title: Professional Communi	Course Code: 17BSCA101			
L-T-P : 2-0-0 Credits:2		Contact Hours:2 hours/week		
CIE Marks:50	SEE Marks:50	Total Marks:100		
Teaching Hours:28	Examination Duration:3 Hours			
Unit I Chapter 1.Linguistic data installation: E-Course Introduction, Explanation of detection, Usage of tenses	template mix-ups with correct usage	es & necessity of grammar in error		
Chapter 2.Grammar & Vocabulary:				
Vocabulary, Word Formation and struct	ural practice.			
Unit II				
Chapter 3. Bouncing Practice:				
Definition and types of bouncing and its	practice with examples			
Chapter 4.Rephrasing Practice:				
Comprehension and Rephrasing, PNQ	Paradigm			
Unit III				
Chapter 5. Dialogues:				
Introduction of dialogues, Construction of Dialogues with Exclamation, Interrogation, Question tags etc, Active and Passive Voice				
Chapter 6. Business Communication:				
Covering letter, Construction of paragraphs on any given general topic.				
Text Books				
 Collins Cobuild Advanced Learner's English Dictionary Raymond Murphy - Intermediate English Grammar, Cambridge University Press 				
Reference Books:				
1 Martin Llaurinana Advisional	Ta allah Osanana ay Oasah sida a Usiyas	alter Deala		

1. Martin Hewings- Advanced English Grammar, Cambridge University Press



ISO 9001: 2008 – KLE Tech

Document

Page 1 of

Curriculum Content- Course wise

Program: B.Sc CS-IT

-		
Course Title: Mathematics	Course Code: 17SCSC103	
L-T-P 4-2-0	Credits: 4	Contact Hours:4 hours/week
CIE Marks:50	SEE Marks:50	Total Marks:100
Teaching Hours:50	Examination Duration:3 hours	

UNIT I

Graph theory

Definitions and examples of graph, Subgraphs, Components, Graph Isomorphism, Vertex Degree, Euler Trails and Circuits, Planar Graphs, Hamilton Paths and Cycles, Graph Colouring and Chromatic Polynomials.

Trees

Definitions, Properties, examples, Rooted trees and Binary rooted trees, preorder and post order traversals, sorting, spanning trees, prefix codes and weighted trees, Optimization and Matching- Dijkstra's shortest path algorithm, Minimum spanning trees, Kruskal and prim's algorithms.

UNIT II

Description of data

Introduction-Data, Type of Variables, One dimensional and two dimensional tables, mean, weighted mean, median, mode, Quartiles, Variance, Coefficient of variation, skewness, Histogram, Box plots, Quantile plots, Quantitle Qunatile plots, Scatter plot, Loess curve fitting.

Correlation and Regression

Meaning of correlation and regression, coefficient of correlation, Linear regression, Multiple regression, Logistic Regression.

Probability

Introduction-Definition, Interpretation of probability value, addition rule, multiplication rule, Baye's rule, Applications: Data Classification Methods - Decision Tree Induction, Bayesian Classification.

UNIT III

Matrices and System of linear equations

Introduction to system of linear equations and its solutions, elementary row operations-echelon form, Rank of a matrix. Consistency of system of linear equation, solution of system of equations by (i) Direct methods-Gauss elimination, Gauss Jordon method (ii) Iterative methods- Guass-Seidal method.

- David C. Lay, "Linear Algebra and its Applications", 3rd Ed., Pearson Education, 2005. 1.
- Discrete Mathematics and its applications., Kenneth H Rosen, Mcgrawhill, 7th ed, 2011. 2.
- J. Susan Milton, Jesse C. Arnold, Introduction to Probability and Statistics: Principles and Applications for Engineering and 3. the Computing Sciences, 4th Ed, TATA McGraw-Hill Edition 2007.
- 4. Jiawei Han, Micheline Kamber, Data Mining: Concepts and Techniques, Morgan Kaufmann Publishers, 2005.



ISO 9001: 2008 - KLE Tech

Document #: **FMCD2005**

Page 1 of

Curriculum Content- Course wise

Year: 2017 -18

Program: B.Sc CS-IT

Course Title: Programming in C	Course Code:17BSCC101	
L-T-P 4-0-0	Credits: 4	Contact Hours:4 hours/week
CIE Marks:50	SEE Marks:50	Total Marks:100
Teaching Hours:50	Examination Duration:3 hours	

Unit I

UNIT - I:

Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging,

Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.

C Tokens.

Basics of C programming language

Characteristics and uses of C, Structure of C program, C Tokens: Keywords, Identifiers, Variables, Constants, Operators, Data-types, Input and Output statements, and library functions.

Unit II

Functions

Introduction, Function declaration, definition, call, returns statement, passing parameters to functions, introduction to macros.

Decision control statements

Conditional branching statements: if statement, if else statement, else if ladder, switch statement, unconditional branching statements: break, continue.

Iterative statements

while, do while, for, nested statements

Arrays

Introduction, Declaration, Accessing elements, Storing values in arrays, Operations on one dimensional array, Operations on two dimensional arrays.

Pointers

Introduction, declaring pointer, pointer variables, pointer expression and arithmetic, passing arguments to functions using pointers, pointers and arrays, passing an array to a function.

Unit III

Structures and Unions

Introduction, passing structures to functions, Array of structures, Unions

Files

Creating Processing, Opening and Closing a data file.

Text Books

1. Introduction to C Programming by Reema Thareja, Oxford University Press; 2 edition (10 July 2015)

2. E Balagurusamy, Programming in ANSI C.6th edition, TMH, 2012.

- 1. H. Schildt. C: The Complete Reference, 4th Edition. TMH Edition, 2000.
- 2. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.



Page 1 of

Curriculum Content- Course wise

Year: 2017 -18

Program: B.Sc CS-IT

Course Title: Computer Organization	Course Code:17BSCC102	
L-T-P 4-2-0	Credits: 6	Contact Hours:4 Hours/week
CIE Marks:50	SEE Marks:50	Total Marks:100
Teaching Hours:50	Examination Duration:3 Hours	

Unit I

Introduction : Basic organization of the computer and block level description of the functional units as related to the execution of a program; Fetch, decode and execute cycle; role of operating systems and compilers;

Unit II

Machine instructions and addressing modes: Assembly language programming, instruction set, instruction cycles, registers and storage, addressing modes; discussions about RISC versus CISC architectures:

Inside a CPU: Information representation, computer arithmetic and their implementation; control and data path, data path components, design of ALU and data path, controller design, Instruction pipelining;

Unit III

Memory and IO access: Memory maps, Read Write operations, Programmed IO, Concept of handshaking, Polled and Interrupt driven IO, DMA data transfer; IO subsystems: Input Output devices such as Disk, CDROM, Printer etc.; Interfacing with IO devices, keyboard and display interfaces;

Inside the Memory: Memory organization, static and dynamic memory; Cache memory and Memory Hierarchy; cache memory access techniques; Virtual memory; Introduction to Multiprogramming and Multiprocessing; Introduction to pipelined operation and architecture.

Text Books

1. Computer Organization and Architecture: Designing for Performance, 9th edition, Stallings William -2013.

Reference Books:

1. Computer Organization: Carl Hamacher, Zvonko Vranesic, Safwat Zaky, McGraw-Hill Higher Education; 5 edition 20011.



ISO 9001: 2008 - KLE Tech

Document #: **FMCD2005**

Page 1 of

Year: 2017 -18

Curriculum Content- Course wise

Program: B.Sc CS-IT

Course Title: Operating System	Course Code:17BSCC103	
L-T-P 4-2-0	Credits:6	Contact Hours:4 hours/week
CIE Marks:50	SEE Marks:50	Total Marks:100
Teaching Hours:50	Examination Duration:3 Hours	

Unit I

Introduction: System Software, Resource Abstraction, OS strategies.

Types of operating systems - Multiprogramming, Batch, Time Sharing, Single user and Multiuser, Process Control & Real Time Systems.

Operating System Organization: Factors in operating system design, basic OS functions, implementation consideration; process modes, methods of requesting system services – system calls and system programs.

Unit II

Process Management

Process concept; Process scheduling; Operations on processes; Inter-process communication. Multi-Threaded Programming, Process Scheduling, Multiple-Processor scheduling; Thread scheduling.

Process Synchronization

Synchronization: The Critical section problem; Peterson's solution; Synchronization hardware; Semaphores; Classical problems of synchronization; Monitors.

Deadlocks

Deadlocks: System model; Deadlock characterization; Methods for handling deadlocks; Deadlock prevention; Deadlock avoidance; Deadlock detection and recovery from deadlock

Unit III

Memory Management: Mapping address space to memory space, memory allocation strategies, fixed partition, variable partition, paging, virtual memory

Security and protection: Overview - threats, intruders; cryptography; protection mechanisms; authentication; insider attacks; malware; defences - protection, access control; backups.

Text Books

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Principles, 8, Wiley-India, 2008

- 1. William Stallings, Operating System Internals and Design principles, 5, Pearson Education, Asia, 2005
- 2. Gary Nutt, Operating System, 3, Pearson Education, 2004

KLE TECH. SCHOOL HOUSE	FORM ISO 9001: 2008 – KLE Tech School of Computer Science & Engineering	Document #: FMCD2005	Rev: 1.0
Curriculur	Page 1 of		
	Year: 2017 -18		

Program: B.Sc CS-IT					
Course Title: Programming in C Lab	Course Code:17BSCL101				
L-T-P 0-0-3	Credits:3	Contact Hours:			
CIE Marks:80	SEE Marks:20	Total Marks:100			
Teaching Hours: Examination Duration:2 Hours					
Unit I					
Programming exercises on					
 Flow Control and Boolean Operations Looping and recurrence 					

- 3. Functions
- 4. Pointers
- 5. Arrays
 6. Strings and File I/O



Curriculum Content- Course wise

ISO 9001: 2008 - KLE Tech

Page 1 of Year: 2017 -18

Program: B.Sc CS-IT Course Code:17BSCC104 Course Title: Data Structures and Algorithms L-T-P 4-0-0 Credits:4 Contact Hours:4 hours/week **Total Marks:100 CIE Marks:50** SEE Marks:50 **Teaching Hours:50 Examination Duration:3 hours** Unit I Chapter No. 1. Introduction to Data Structures and Algorithm Analysis Primitive Data structures in C, Custom Data Types, Arrays, Recursive Functions, Recursion Vs. Iteration, Model, Running Time Calculations, Space and Time Complexities, Order of an Algorithm. Chapter No. 2. Stacks Implementation of stack, Applications-recursion, conversion and evaluation expressions, Unit II Chapter No. 3.Lists List Implementation, Types of Lists, Applications 7 hrs Chapter No. 4. Queues and Hashing Queue implementation, types of queues, applications Hashing: General Idea, Hash Function, Collision **Resolution Techniques.** Unit III Chapter No. 5. Trees Introduction to graphs, Trees, Binary Search trees, AVL Trees, Tree Traversals, B+ Trees, and Applications. Chapter No. 6.Sorting Sorting, Bubble sort, Selection Sort, Insertion Sort, Merge Sort, Quick Sort, Heap Sort. Chapter 7 Analysis of Space and Time complexity. **Text Books** 1. Mark Allen Weiss, Data Structures and Algorithm Analysis in C, 2, Pearson Ed, 2010 **Reference Books:** 1. Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman, Data Structures and Algorithms, 1, Addison We, 1983 2. Aron M. Tenenbaum, et. al, Data Structures using C, 3, PHI, 2006 3. Levitin A, Introduction to the Design and Analysis of Algorithms, 2, Pearson Ed, 2008



FORM

Document #: **FMCD2005**

Page 1 of

Curriculum Content- Course wise

Year: 2017 -18

Program: B.Sc CS-IT

Course Title: Software Engineering		Course Code:17BSCC105
L-T-P 4-2-0	Credits:6	Contact Hours:4 hours/week
CIE Marks:50	SEE Marks:50	Total Marks:100
Teaching Hours:50	Examination Duration:3 hours	

Unit I

Introduction and Software Engineering process

Chapter 1: Introduction: Professional software Development, Software Engineering ethics, Case studies, SDLC, Software Processes Models – Waterfall, Iterative and Agile software development, Conventional Software development VS Agile methods, Agile values and principles.

Chapter 2: Design and Development-Agile Design Practices, Agile Design Philosophies, Agile Lifecycle, User story and tools, Implementation: pair programming, ping-pong pairing

Unit II

Chapter 3: Agile Software Development Methods: Extreme Programming, Scrum, FDD, Crystal, DSD

Chapter 4: Testing: Automated acceptance, integration and unit testing using the principles of Acceptance Test Driven Design (ATDD) and Unit Test Driven Design (TDD).

Unit III

Chapter 5: Project Management-Project Selection Techniques, Scope Management(Work Breakdown Structures, change and configuration management, and scope control), Time Management, Cost management, Risk management.

Text Books"

- 1. Agile Software Development: Principles, Patterns and Practices "Robert C. Martin
- 2. "Agile Project Management: Creating Innovative Products", Jim Highsmith

- 1. "Software Engineering", Ian Somerville
- 2. Software Engineering-A practitioner's approach", Roger Pressman



ISO 9001: 2008 - KLE Tech

Document #: **FMCD2005**

Page 1 of

Curriculum Content- Course wise

Year: 2017 -18

Program:	B.Sc	CS-IT
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Course Title: Computer Networking		Course Code:17BSCC106
L-T-P 4-2-0	Credits:6	Contact Hours:4 hours/week
CIE Marks:50	SEE Marks:50	Total Marks:100
Teaching Hours:50	Examination Duration:3 hours	

Unit I

Introduction: Computer Communications and Networking Technologies; Uses of Computer Networks; Network Devices, Nodes, and Hosts; Types of Computer Networks and their **Topologies**

Networking Models, Network Architecture and the OSI Reference Model; Example Networks: The Internet, X.25, Frame Relay, ATM

Unit II

Data Link Layer: Design issues, Framing, Error Detection and Correction; Sliding Window Protocols: One-bit, Go Back N and Selective Repeat

Data Link Layer: Media Access Control: ALOHA, Slotted ALOHA, CSMA, Collision free protocols; Random Access Protocols, Token Passing Protocols; Token Ring

Unit III

Introduction to LAN technologies, Network topologies, Subnet, Addressing schemes.

Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing;

Text Books

1. Behrouz A Forouzan, "Data Communications and Networking", McGraw Hill.2014

KLE TECH. PROBULACION	FORM ISO 9001: 2008 – KLE Tech School of Computer Science & Engineering	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 1 of
			Year: 2017 -18

Program: B.Sc CS-IT				
Course Title: Data Structures and A	Course Code:17BSCL102			
L-T-P 0-0-3	Credits:3	Contact Hours:		
CIE Marks:80	SEE Marks:20	Total Marks:100		
Teaching Hours:	Examination Duration:2 hours			

Programming exercises on

- 1. C Language Features and Basics of Algorithms
- 2. Stacks
- 3. Lists
- 4. Queues and Hashing
- 5. Trees
- 6. Sorting
- 7. Searching,

ANNEXURE 10

Scheme and Syllabi of B.Sc (Electronics – Industry Track)

RIE TECH, Schlad	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2003	Rev: 1.0
Title: Cur	riculum Structure-Overall		Page 1 of 1
B.Sc Electro	onics- Industrial Track	Total Credits: 130	Year: 2017-20

	I	П	III	IV	V	VI
codes	Professional Communication 2-0-0 17SECH101	Environmental Science 2-0-0 17SECH102	Data Structures and Algorithms 4-2-0 17SECC201	Adv Programming 4-0-0 17SECC204	IC Fabrication 4-2-0 17SECE 301	Advanced Custom Layout 4-2-0 17SECE 303
	Programming in C 4-0-0 17SECC101	Microcontroller& Applications 4-2-0 17SECC104	Adv Digital Design 4-2-0 17SECC202	Embedded System Design 4-2-0 17SECC205	Basics Custom Layout 4-2-0 17SECE 302	Reliability verification of Custom Layout 4-2-0 17SECE 304
se with credits and	Mathematics 4-2-0 17SECC102	Electronics circuits & Devices 4-2-0 17SECC105	CMOS VLSI 4-0-0 17SECC206	Signals & System 4-2-0 17SECC203	Standard cell layout 0-0-2 17SECI301	CADENCE SKILL Programming 0-0-2 17SECI302
Cour	Basic Electrical & Electronics 4-2-0 17SECC103	Basic Digital Design 4-0-0 17SECC106	Automation–PERL/Shell scripting 0-0-2 17SECI201	Adv Programming Lab 0-0-3 17SECP201	Major Project-I 0-0-8 17SECW301	Major Project-II 0-0-10 17SECW302
	Programming in C Lab 0-0-3 17SECP101	Basic digital design Lab 0-0-3 17SECP102	CMOS VLSI Lab 0-0-3 17SECP202	Circuit Design & Simulation 0-0-2 17SECI202		
Credits	21	21	21	21	22	24

KLE TECH. Stream and the	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 2 of 10
B.Sc in Electronics-Industrial Track			Year: 2017 - 18

Cours	e Title: Professional Communication	Course Code: 17SECH101		
L-T-P	:2-0-0	Credits: 2 Contact Hrs: 2 Hrs/week		
CIE N	CIE Marks; 50SEE Marks: 50Total Marks: 100			
Teach	ing Hrs: 27		Exam Duration: 90 min	
No		Content		Hrs
1	Chapter 1. Linguistic data installation: E Course Introduction, Explanation of t grammar in error detection, Usage of ter	template mix-ups w nses	ith correct usages & necessity of	05Hrs
2	Chapter 2. 2 Grammar & Vocabulary: Vocabulary, Word Formation and structural practice.			05Hrs
Chapter 3. Bouncing Practice: 3 Definition and types of bouncing and its practice with examples			03 Hrs	
4	Chapter 4.Rephrasing Practice: Comprehension and Rephrasing, PNQ F	Paradigm		05 Hrs
5	Chapter 5. Dialogues: Introduction of dialogues, Construction Question tags etc, Active and Passive	of Dialogues with E Voice	xclamation, Interrogation,	04 Hrs
6	Chapter 6. Business Communication: Covering letter, Construction of paragraphs on any given general topic.			05 Hrs
Refere 1. 2. 3.	ences: Collins Cobuild Advanced Learner's English Dic Raymond Murphy - Intermediate English Gramm Martin Hewings- Advanced English Grammar, Ca	tionary ar, Cambridge Universi ambridge University Pr	ty Press ess.	

KLE TECH.	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 3 of 10
B.Sc in Ele	Year: 2017 - 18		

	B.Sc (Electronics-Industri	al Track)		
Course Title: Programming i	n C	Course Code: 17SECC101	_	
L-T-P: 4-0-0	Credits: 4	Contact Hours:4 Hrs/week	Teaching	
CIE Marks: 50	SEE Marks:50	Total Marks: 100	Hours	
Teaching Hours: 50 Hrs	Examination Duration:03 Hrs			
UNIT - I: C fundamentals Character set - Identifier and keywords - data types - constants - Variables - Declarations - Expressions - Statements - Arithmetic, Unary, Relational and logical, Assignment and Conditional Operators - Library functions. Problem Solving skills				
Data input output functions - control structures - Switch, b	Simple C programs - Flow of control reak and continue, go to statements -	l - if, if-else, while, do-while, for loop, Nested Comma operator.	10 hrs	
Functions -Definition - proto Static, Register Variables - M	UNIT - II: -types - Passing arguments - Recursic Iulti-file programs.	ons. Storage Classes - Automatic, External,	10 hrs	
Arrays - Defining and Processing - Passing arrays to functions - Multi-dimension arrays - Arrays and String. Structures - User defined data types - Passing structures to functions - Self-referential structures - Unions - Bit wise operations.				
UNIT - III: Pointers - Declarations - Passing pointers to Functions - Operation in Pointers - Pointer and Arrays - Arrays of Pointers - Structures and Pointers - Files : Creating Processing ,Opening and Closing a data file.			10 hrs	
Text book 1. Introduction to C Progr References: 1. H. Schildt. C: The Complete 2. Kanetkar Y., Let us C, BPB F	ramming by Reema Thareja, Oxford Univ Reference, 4 th Edition. TMH Edition, 200 Pub., New Delhi, 1999.	versity Press; 2 edition (10 July 2015) 00.		

KLE TECH.	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 4 of 10
B.Sc in Ele	Year: 2017 - 18		

B.Sc (Electronics-Industrial Track)				
Mathematics	Course Code: 17SECC102			
L-T-P : 4-2-0	Credits: 6	Contact Hrs: 8 hrs/Week	Teaching	
ISA Marks: 50	ESA Marks: 50	Total Marks: 100	nours	
Teaching Hrs: 50	Exam Duration: 3 h	rs		
Un	it - I			
Chapter No. 1. Functions and Graphs Trigonometric Functions, Exponential Functions and Logarithm	nic Functions		5 hrs	
Chapter No. 2. Limits and continuity Limit of a function, Infinite limits- graph, Continuity and disc equation using Bisection Method and Newton- Raphson Metho	continuity, Intermediate d	e value theorem statement, Roots of the	10 hrs	
Chapter No. 3. Derivatives and applications Definition and Interpretation of derivate as a rate of change, pro	operties of derivatives	(No derivation) Maxima, Minima.	5 hrs	
Uni	t - II		•	
Chapter No.4. Integral calculus Tracing of standard curves in Cartesian form, Parametric form	and Polar form.		5 hrs	
Chapter No. 5. Simultaneous Equation, Matrix Representation ,Gaussian elimi	nation , Cremer's rule		10hr	
Uni	t - III			
Chapter No. 6 Fourier Analysis Complex Sinusoids, Fourier series representations of four class Derivation of Complex Co-efficient of Exponential Fourier Se and phase spectra of a periodic signal. Properties of Fourier Ser Fourier representation of non-periodic signals, Magnitude and p	ses of signals, Periodic eries and Examples. Co ries. bhase spectra. Propertie	Signals: Fourier Series representations, onvergence of Fourier Series. Amplitude s of Fourier Transform.	10hrs	
 Text Books : 1. Early Transcendental Calculus- James Stewart, Thoms 2. Simon Haykin, Barry Van Veen, Signals and Systems References : 1. Calculus Single and Multivariable, Hughues- Hallett C 2. Calculus I, Jerrold Marsden and Alan Weinstein, Sprin 3. K.N. HariBhat & D.GaneshRao, Digital Communication 	son Books, 5e 2007. , John Wiley, 2002. Gleason, Wiley India Ec 1ger-Verlag,2e,1986. ons: A simplified Appr	l, 4ed, 2009. oach, 2 nd Ed, Sanguine,2005, Bangalore		

KLE TECH. Information	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 5 of 10
B.Sc in Electronics-Industrial Track		Year: 2017 - 18	

B.Sc (Electronics-Industrial Track)		Teaching	
Course Title: Basic Electrical & Electrical	conics	Course Code: 17SECC103	Hours
L-T-P: 4-0-0	Credits: 4	Contact Hours: 4 hrs/Week	
CIE Marks: 50	SEE Marks:50	Total Marks: 100	
Teaching Hours: 50 Hrs	Examination Duration:03 Hrs		
	Unit - I		
Chapter 1:Semiconductor physics Basics of Atom, different types semiconductor	of material –conductor insulator and semi	conductor, Band gap theory, Properties of	6 Hrs
Chapter 2 Semiconductor Diode and applications: Reverse Bias, Forward Bias, Diode Relationship (numerical example). Equivalent Circuit of Diode: Ideal Diode, Piecewise Linear Model, DC Load line, Dynamic Resistance, Approximate Model (numerical examples). Zener Diode,			8 hrs
Chapter 3 Rectification: Half-wave Rectification: Ripple factor, Power Conversion Efficiency, Full-wave Rectification: Ripple factor, Power Conversion Efficiency, Bridge Rectifier and Rectifier with Centre-Tapped (CT) Transformer, Capacitor filter circuit and Numerical Examples			6 hrs
	Unit – II Network Analysis		
Chapter 4 Basic Circuit Concepts: Voltage and Current Sources, Review of Resistors, Inductors, Capacitors. Circuit Analysis: Kirchhoff's Current Law (KCL), Kirchhoff's Voltage Law (KVL), Node Analysis, Mesh Analysis. DC Transient Analysis: RC Circuit- Charging and discharging with initial charge, RL Circuit with Initial Current, Time Constant, RL and RC Circuits With Sources, DC Response of Series RLC Circuits.		10 Hrs	
Chapter 5: Basics of Circuit Elements Active and passive circuit elements, Voltage & current sources, Resistive networks, Nodal Analysis, Super node, Mesh Analysis, Super mesh, Star – Delta Transformation. [Text 1: Chapter 4,5, 7			10 hrs

KLE TECH. Metada	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculur	n Content- Course wise		Page 6 of 10
B.Sc in Electronics-Industrial Track			Year: 2017 - 18

	Unit - III	
Chapt	er 5: Network Theorems	
Homog theo [Text	eneity, Superposition and Linearity, Thevenin's & Norton's Theorems, Maximum Power Transfer Theorem, Miller's orem, Reciprocity principle. 1 : Chapter 5]	10 hrs
Text Be	pok:	
1.	David A Bell, "Electronics Devices and Circuits", Fifth Edition, Oxford University Press.	
2.	Steven Durbin, William Hayt, Jack Kemmerly "Engineering Circuit Analysis", McGraw-Hill Education, 24-Aug- 2011 - Technology & Engineering	
3.	Hughes, Electrical & Electronic Technology, 8th edition, Pearson Education	
Referen	ices:	
1.	Jacob Millman and Christos Halkias, "Electronic Devices and Circuits" TMH	
2.	R P Feynman, Robert B Leighton, Matthew Sands, The Feynman Lectures on Physics Vol-II, Norosa Publishing House (1998).	
3.	Ben G Streetman, Solid State Electronic Devices, Prentice Hall, 1995	
4.	David G Alciatore and Michel B Histand, Introduciton to Mechatronics and Measurement Systems, 3 rd edition 2005, Tata McGraw Hill Education Private Limited, New Delhi.	
5.	Serway and Jewett, "Physics for Scientists and Engineers-with Modern Physics", 9th Edition, CENGAGE learning. 2014	

KLE TECH.	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 7 of 10
B.Sc in Electronics-Industrial Track			Year: 2017 - 18

B.Sc (Electronics-Industrial Track)			Teaching
Course Title: Microcontroller	Course Title: Microcontroller & Application Course Code: 17SECC104		Hours
L-T-P-SS: 4-2-0	Credits: 6	Contact Hours: 8 hrs/Week	
CIE Marks: 50	SEE Marks: 50	Total Marks: 100	
Teaching Hours: 50Hrs	Examination Duration: 3 Hrs		
	Unit I		
Chapter 1: Microprocessors and microco Architectures, Harvard & Von-1 The 8051 Architecture: Introdu- interfacing, Stacks.	ontroller. Introduction, Microprocessors an Neumann CPU architecture, Computer softwa ction, Architecture of 8051, Pin diagram of 80	nd Microcontrollers, RISC &,CISC CPU re. 051, Memory organization, External Memory	08Hrs
Chapter 2: Addressing Modes: Introduction, Instruction syntax, Data types, Subroutines, Addressing modes: Immediate addressing, Register addressing, Direct addressing, Indirect addressing, relative addressing, Absolute addressing, Long addressing, Indexed addressing, Bit inherent addressing, bit direct addressing. Instruction set: Instruction timings, 8051 instructions: Data transfer instructions, Arithmetic instructions, Logical instructions, Branch instructions, Subroutine instructions, Bit manipulation instruction.			10 Hrs
Unit II			
Chapter 3: 8051 programming: Assembler directives, Assembly language programs and Time delay calculations.			08 Hrs
Chapter 4: 8051 Interfacing and Applicat parallel and serial ADC, DAC,	ions: Basics of I/O concepts, I/O Port Oper Stepper motor interfacing and DC motor inter	ration, Interfacing 8051 to LCD, Keyboard, facing and programming	08 Hrs
	Unit III		
Chapter 5: 8051 Interrupts and Timers/counters: Basics of interrupts, 8051 interrupt structure, Timers and Counters, 8051 timers/counters, programming 8051 timers in assembly and C.			08 Hrs
Chapter 6:			08 Hrs
8051 Serial Communication: Data communication, Basics of Serial Data Communication, 8051 Serial Communication, connections to RS-232, Serial communication Programming in assembly and C.			
TEXT BOOKS:			
1. The 8051 Microcontroller and Embedded Systems – using assembly and C "-, Muhammad Ali Mazidi and Janice Gillespie Mazidi and Rollin D. McKinlay: PHI 2006 / Pearson 2006			
2. The 8051 Microcontroller By	Kenneth J. Ayala 3	n50in 2000	

KLE TECH. Schward	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 8 of 10
B.Sc in Electronics-Industrial Track			Year: 2017 - 18

B.Sc (Electronics-Industrial Track)			Teaching
Course Title: Electronic Circu	uits & Devices	Course Code: 17SECC105	Hours
L-T-P-SS: 4-2-0	Credits: 6	Contact Hours: 8 hrs/Week	
CIE Marks: 50	SEE Marks: 50	Total Marks: 100	
Teaching Hours: 50Hrs	Examination Duration: 3 Hrs		
Unit I Chapter 1: Introduction to BJT Bipolar Junction Transistor: BJT Construction and Operation: Biasing, Transistor Symbols, Operation, Early Effect.			04 Hrs
Chapter 2: MOSFETs structure and physical operation: Device structure, operation with no gate voltage, creating a channel for current flow, applying small vds, operation as vds is increased, derivation of the id-vds relationship, the P-channel MOSFET, complementary MOS or CMOS, operating the mos transistor in the sub threshold region. Current-voltage characteristics: circuit symbol, the id vs vds characteristics, finite output resistance in saturation, characteristics of the p-channel MOSFET, the role of the substrate-the body effect, temperature effects, breakdown and input protection MOSFET singular et DC			08 Hrs
Chapter 3: Introduction to FinFET			04 hrs
Unit II Chapter 4: MOSFET amplifiers Biasing in mos amplifier circuits, small signal operation and models, single stage MOS amplifiers, the MOSFET internal capacitance and high frequency model, frequency response of CS amplifier.(CD and CG),Cascode Connection: Implications on gain and Bandwidth		12 Hrs	
Chapter 5: Differential Amplifiers			08hrs
Chapter 5: Introduction operational amplif Non-inverting Amplifier. Linea Differentiator, Numerical Exam	Unit III iers: OP-AMP Architecture, Basic OP-AMP r Applications of OP-AMP: Summer Circuit ples.	Circuits: Inverting Amplifier, Virtual Ground, Subtractor. Voltage Follower, Integrator and	10 Hrs



FORM ISO 9001: 2008 – BVBCET

School of Electronics

Curriculum Content- Course wise B.Sc in Electronics-Industrial Track

Text Books

1. A.S. Sedra & K.C. Smith, "Microelectronic Circuits", 5th Edition, Oxford Univ. Press, 1999.

References

- 1. Jacob Millman and Christos Halkias, "Integrated Electronics", McGraw Hill.
- 2. David A. Bell, "Electronic Devices and Circuits" 4th edition, PHI publication 2007.
- 3. Grey, Hurst, Lewis and Meyer, "Analysis and design of analog integrated circuits," 4thedition.
- 4. Thomas L. Floyd, "Electronic devices", Pearson Education, 2002
- 5. Richard R. Spencer & Mohammed S. Ghousi, "Introduction to Electronic Circuit Design", Pearson Education, 2003
- 6. J. Millman & A. Grabel, "Microelectronics"-2nd edition, McGraw Hill, 1987.
- 7. Behzad Razavi, "Fundamentals of Microelectronics", reprint 2015 Wiley publications.

KLE TECH.	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Curriculum Content- Course wise			Page 10 of 10
B.Sc in Electronics-Industrial Track		Year: 2017 - 18	

B.Sc (Electronics-Industrial Track)			Teaching
Course Title: Basic Digital Design	itle: Basic Digital Design Course Code: 17SECC106		Hours
L-T-P-SS: 4-2-0	Credits: 6	Contact Hours: 8 hrs/Week	
CIE Marks: 50	SEE Marks: 50	Total Marks: 100	
Teaching Hours: 52Hrs	Examination Duration: 3 Hrs		
	Unit I		
Chapter 1: Digital Logic Number systems: Decimal, Binary, Octal and Hexadecimal number systems, Conversions, Addition and subtraction in binary number systems. Logic gates: Realization of simple logic functions using basic gates (AND, OR, NOT), Realization using universal gates (NAND, NOR). Boolean algebra: Theorems and postulates, DeMorgan's Theorems, simplification of logical expressions. Design of Half Adder and Full Adder. Parallel Adder using full adders.			
Chapter 2:Logic Families:			05 hrs
Logic Levels, Output switching time	s,Fan-In and Fan-Out,Comparision of	flogic families.	
Unit II Chapter 3: Principles of Combinational Logic: Definition of combinational logic, canonical forms, Generation of switching equations from truth tables, Karnaugh maps-3,4 variables, Incompletely specified functions (Don't care terms), Simplifying Maxterm equations.			08 Hrs
Chapter 4: Analysis and design of combinational logic: General approach, Decoders-BCD decoders, Encoders, Digital multiplexers- Using multiplexers as Boolean function generators. Adders and subtractors- Look ahead carry adders, Binary comparators.			10Hrs
Unit – III			
Chapter 5: Introduction to Sequential Circu	uits		
Basic Bistable Element, Latches, A SR Latch, Latch, The gated D Latch, The Master-Slave F Master-Slave JK Flip-Flop, Edge Triggered Fli	Application of SR Latch, A Switch I Flip-Flops (Pulse-Triggered Flip-Flop ip-Flop, Characteristic Equations.	De bouncer, The SR Latch, The gated SR s): The Master-Slave SR Flip-Flops, The	10Hrs
Chapter 6: Analysis of Sequential Circuits:			
Registers and Counters, Binary Ripple Count Synchronous counters, Design of a Synchronou	ters, Synchronous Binary counters, I us Mod-n Counter.	Ring and Johnson Counters, Design of a	05Hrs
Text Book			
 John M Yarbrough, Digital Logic Applicat Donald D Givone, Digital Principles and I M. Raffiquzzman&Rajan Chandra, Moder David Patterson and John Hennessy, Comp References 	tions and Design, Thomson Learning Design, Tata McGraw Hill Edition, 20 in Computer Architecture, Galgotia P puter Organization and Design, Elsev	, 2001. 02. ublications, 1990. ier, 2007.	
 Charles H Roth, Jr; Fundamentals of Logic ZviKohavi, Switching and Finite Automat Mono and Kim, Logic and Computer Desi David Harris Money and Sarah Harris Div 	c Design, Thomson Learning, 2004. a Theory, 2ed, TMH gn Fundamentals, Pearson, 2ed, 2001 gital Design and Computer Architectu	ire Morgan Kaufman 2007	
ANNEXURE 11

[Modifications in B.Sc regulations]

The original regulations and modified /new regulations are presented below

Regulation number		Earlier regula	ation			New r	regulation		
11.1	The candidate should be	employed / tra	inee for a perio	d of six months	Coll	aborating industry should depute	e it's employee	e/ traine	e to the University
	with collaborating industi	ry / company a	ssociated training	ng institution.	to c	o the B.Sc programme on full-tim	ne basis.		
18.3	The number of credits required to be earned for a degree programme			The	number of credits required to be	e earned for a l	B.Scdeg	ree programme	
	shall be calculated at an a	verage of TWE	ENTY TWO credi	its per regular	sha	l be 120 as per the guidelines of	UGC, however	20% de	eviation is
	semester with a margin o	f + 2.5%. For e	xample, a 3-yea	ir degree	per	nitted.Prescribed number of crea	dits is 120+10	(industr	y based project)
	programme shall compris	e of six regula	r semesters and	therefore					
	require 22 x 6 = 132 credi being 132 x 1.025 = 135 c	ts, the minimu redits.	ım being 132 an	id the maximum					
19.1	The minimum number of	f credits that i	must be earned	to be awarded	The	minimum number of credits that	t must be earn	ed to b	e awarded the B.Sc
	the B.Sc degree shall be 1	32 for regular	students.		deg	ree shall be 130 for regular stude	nts.		
	Various Courses to be of	ffered in Bach	elor of Science	programmes of	Various Courses to be offered in Bachelor of Science programmes of study				
	study shall be categorized	d into the follo	wing six types:		shall be categorized into the following six types:				
	A typical Break down of B.Sc program				A typical Break down of B.Sc program				
		Approximate	The extent	The extent		Components	Courses	Credit	Total Credits
		% of credits	which the	which the		I. Cor	e Course		
			University	Industry		Core Course (Theory)	12	04	48
	Subject Area		handles %	/company		40%		• •	
			wise	handles %		Core course Lab/Tutorial	Lab -04	03	12
			(approximate)	wise		20%	Tutorial-08	02	16
				(approximate)					Total : 28
	Humanities and Social	8-10	100	-		II. Elect	ive Course		
	Sciences (HSS)	10.10				Elective courses	Flective -04	04	16
	Basic Sciences (BS)	10-12	100	-		20%		•	
	Protessional Core	15 -20	70	30		Elective Lab / Tutorial 10%	Tutorial -04	02	08
	Professional Elective	25-30	50	50		Project	02	6+12	18
	Courses (PE) –	25-50	50	50		III. Ability Enhancem	ent Compulso	orv Cour	ses
	Open Elective Courses	5-7	100	-		Ability Enhancement	02	02	04
	(OE)					Compulsory Courses(AEC)3%			
	Project Work/Industrial	37-40	-	100		Skill Enhancement Courses 7%	04	02	08
	training/miniprojects					Total			130

ANNEXURE 12

[Strategic Plan of the KLE Technological University]

KLE Technological University, Hubballi Strategic Plan: 2016- 2020



Introduction

KLE Technological University (KLE Tech) has its roots in one of the premier engineering institution of Karnataka, B. V. Bhoomaraddi College of Engineering and Technology, Hubli (BVB). The founding organization KLE Society, Belgaum, established BVB college in 1947 with an aspiration of creating an institution that would lay the foundation of modern engineering education in northern region of Karnataka. Over the years, it evolved to reach and hold a unique position of pride in the technical education system of India. As we entered into the 21st century, the college undertook comprehensive reform process to adapt to the challenging global engineering education scenario. In pursuit of academic excellence, the college attained academic autonomy from University Grant Commission (UGC) in the year 2007. As an autonomous the college, BVB established its distinctive character in the academic space through its curriculum and outstanding student experience. Over the time it gained tremendous credibility with the industries and employers and emerged as a brand to reckon with. The Alumni of the Institute have done exceedingly well in all spheres of life at both national and international levels and brought name and fame for themselves as well as to their Alma Mater.

The times have changed, and the higher educational institutions need to continually innovate to maintain and enhance their relevance to meet the ever changing demands of global economies. Apart from delivering good quality education, the institutions are expected to develop their capacity in research and innovation. They also need to undergo a fundamental transformation in terms of their role in the society, mode of operation, and economic structure and the scale at which they operate.

Keeping the above challenges in mind BVB College of Engineering and Technology, undertook strategic initiative of transforming itself into a University of national distinction. In 2014 the college was recognized as a state private University by Government of Karnataka. The rich heritage of BVB College as one of the best engineering college combined with brand equity of KLE Society are the starting points for KLE Technological University to emerge as a University with a national distinction.

Vice-Chancellor's foreword

Dear Colleagues,

With the rich heritage of seven decades in engineering education, B. V. B. College of Engineering and Technology, Hubli, is on an exciting transformational journey of becoming a model University for the 21st century. Impressive growth of the institution over the years in size, stature and influence and further gaining of University status is a testament to the resilience and fortitude of faculty, staff and visionary leaders of institute and KLE society. Our capacity to continue to embrace and effect change will be critical as we chart our future course to emerge as a University with national distinction.

I am pleased to share the first strategic plan for the KLE Technological University. Today's global challenges and rapid pace of change that is happening in the landscape of higher education have raised the expectations we have from our Universities. The Universities of new century need to constantly innovate, craft new paths and embrace new ideas, to create value to the students and the society we serve. Guided by recently adopted strategic vision, mission and values, this strategic plan represents our aspirations and guides our future by laying out roadmap to anticipate and respond to challenges and opportunities that are unfolding nationally and globally. The strategic themes of our plan evolve from University's primary commitment to outstanding learning and student experience, impactful of research and engagement that shape and reinforce one another, define our aspirations and focus. The four cross-cutting enablers detailed in the strategic plan; people, governance, partnerships and infrastructure, are essential to achieve strategic goals envisaged for each of the themes.

The goals and strategic initiatives set forth in this plan are ambitious and achievable. Over the next five years, using institution's foundational strengths and our entrepreneurial spirit, we will propel KLE Tech. towards the bright future and compete successfully with the best in the world. Your energy, commitment, and ideas are key to our success. I look forward to your ongoing support as we continue on this exciting journey.

Yours sincerely

Dr. Ashok Shettar

Vice-Chancellor

KLE Technological University Hubballi Strategic Plan: 2016- 2020



MISSION

Vision

KLE Technological University will be a national leader in Higher Education –recognized globally for innovative culture, outstanding student experience, research excellence and social impact.

Mission

KLE Technological University is dedicated to teaching that meets highest standards of excellence, generation and application of new knowledge through research and creative endeavors.

The three-fold mission of the University is:

- To offer undergraduate and post-graduate programs with engaged and experiential learning environment **enriched by high quality instruction,** that prepares students to succeed in their lives and professional careers.
- To enable and grow disciplinary and inter-disciplinary areas of research, that build on present strengths and future opportunities aligning with areas of national strategic importance and priority.
- To actively engage in Socio-economic development of the region, by contributing our expertise, experience and leadership, to enhance competitiveness and quality of life.

As a unified community of faculty, staff and students, we work together with the spirit of collaboration and partnership to accomplish our mission.

Theme 1 Outstanding Student Experience

The KLE Technological University will offer learning experience that stimulates, challenges, and fulfils the potential of students, leading to meaningful careers and profound contributions to society.

We want students to be attracted to KLE Tech. for the distinctive content and quality of our degrees. Curriculum renewal is a vital strategy for enhancing the quality of learning and teaching at KLE Tech. The broad design of academic programs is aligned to the Graduate attributes specified by the global accreditation bodies and in consideration of future expectations of graduates.

KLE Tech. students will have the benefit of an extensive range of enrichment experiences within, or alongside, assessed curriculum. We will continually adapt and innovate learning-focused pedagogical models and technologies to provide outstanding experience to the students

We want our students to be 'work ready' and 'world ready'

1. Curriculum Distinctiveness

Provide a distinctive curriculum that is challenging, innovative, relevant, and consistent with the current and future needs of graduates.

- a. Implement curriculum development, curriculum revisions and program improvements through the use of appropriate curricular framework and adapting best practices from educational research.
- b. Ensure that curriculum strongly reflects relevant Graduate attributes and deliver high quality programs that meet national and international standards.
- c. Continually engage employers / industry in curriculum design
- d. Evolve Strong verticals that are connected to the industry trend and employment opportunities.

2. Learning experience

Deliver a transformative Learning experience that is experiential, global and Technology rich

- a. Provide opportunities for experiential and integrative learning in all programs. This can include projects, research, field work, internships.
- b. Create new and innovative physical and virtual learning spaces.
- c. Encourage co-curricular and extra-curricular activities, events that complement formal learning experiences and help students shape their future.

3. Teaching Innovation

Develop innovative, adaptive and creative approaches to educational delivery that are based on sound pedagogy and enhance effective student learning

- a. Promote and support research-informed innovation in teaching and learning that enhances student achievement and engagement
- b. Enhance the teaching skills and practices of faculty through effective induction, continuous training and professional development opportunities
- c. Improve the alignment between learning outcomes –teaching /learning process and assessment practices in all the courses.
- d. Enrich teaching, learning and outreach activities by drawing on international best practice
- e. Leverage new delivery models and technologies to provide flexible blended and / or online learning

4. Measure and Improve

Build a shared commitment by leaders, faculty and other key stakeholders towards the institutional culture of student learning outcome assessment and continuous program improvement.

a) Evolve student learning assessment plans and appropriate methods or instruments for gathering data to measure attainment of student learning outcomes.

- b) Specify procedures for analyzing and interpreting the evidence gathered in assessment learning outcomes at course level and program-level and coordinate institutional learning assessment activities.
- c) Identify the means by which information that results from assessment can be used the effectively in course design, curriculum review, and program development

Theme 2 Impactful Research

KLE Tech will actively nurture and organize its research efforts and creative endeavors to enhance regional, national and global impact and reputation as a research intensive University

Improving our performance in research metrics is a necessary step for obtaining credibility and resources needed to elevate KLE Tech in the Indian higher education system. A greater part of our research effort will be aligned / concentrated in the areas of national interest. We need to build on these areas to develop substantial research strength by selective strategic investments, research leadership and support. This selective strategic investment will need to be provided to inter-disciplinary and disciplinary areas.

1. Focus

Develop substantial research strengths by aligning the areas of present strengths and areas of national interest by selective strategic investments, leadership and support

- a. Evolve strategic research roadmap for each school by identifying research focus areas (RFA) that build on present strengths and future opportunities
- b. Ensure the alignment of RFA with areas of national strategic importance and priority.
- c. Implement an integrated and coherent University-wide approach to planning, delivering, managing and funding research across all the schools.

2. Interdisciplinary Research Centers

Build strategic aggregations of people and programs to strengthen interdisciplinary areas of research & development, that will allow us to compete successfully for large funding opportunities and provide the ability to create innovative solutions to societal needs.

- a. Promote and support interdisciplinary research and development centers, that leverage breadth of our expertise to address the complex problems faced by our nation and the world.
- b. Ensure that these centers give priority to problems/opportunity-focused projects/products that demonstrate successful interdisciplinary collaboration and address the market needs.

3. Funding

Foster a supportive environment for research by facilitating access to internal grants and providing strategic expertise to maximize external grants.

- a. Build, University research fund, for providing internal support to schools and centers to enhance their research profile.
- b. Establish appropriate process to provide seed funding for research projects that can be leveraged in obtaining external grants.
- c. Seek funding from governments, research agencies and industry to sustain the research initiatives and enable specific research projects
- d. Drive the commercialization of research and technology transfer, through mechanisms such as licensing, patents, creating spin-off companies and supporting external entrepreneurs.

4. Programs

Enhance quality and relevance of its doctoral research programs to emerge as an institution of choice for researchers.

- a. Continue to invest in research capacity development to attract and support more doctoral students in disciplinary and interdisciplinary RFA's
- b. Strengthen the interconnectivity between research and teaching/learning, including the participation of undergraduate and postgraduate students in University research programs.
- c. Evolve innovative enrollment strategies to recruit and support full time researchers and personnel from industry.

Theme 3 Societal Engagement

KLE Tech will actively seek out those strategic opportunities to contribute to the socio-economic development of North-Karnataka and benefit the people of the region. Societal engagement will be distinctive feature of learning and research endeavors at KLE Tech.

The University will strive hard to enhance quality of life in the region by contributing its expertize, experience and leadership. A more intimate engagement with society will not only enrich the community but will benefit our students as well. It will offer additional opportunities for research, for experiential learning, and for development of values of citizenship and social service. We will pursue this agenda through sustained partnership with public, private, non-governmental, professional bodies.

Universities form an important pillar in the competitiveness of the regions in which they are situated. They should create economic value by serving as magnets of talent, as engines of innovation and as incubators of new products and ideas. Our work in driving innovation and entrepreneurship in our region will be grounded on a strong entrepreneurial culture among our faculty and students.

Student – Society

Integrate civic engagement and service learning into student learning experience, wherein students can understand and connect to societal needs.

- a. Create educational experiences wherein students develop a greater understanding of social issues and take responsibility to evolve innovative solutions to address them.
- b. Encourage and support the students to take up projects that have distinctive feature of community engagement and benefit the local and regional communities.

Institute-Society

Actively engage in advancement of the region through leadership role in the community and emerge as a model for university-society partnership.

- a. Be a leader in a strong network of local and regional organizations, government entities, educational institutions and private foundations that link the University to external communities to create a positive impact.
- b. Address needs, challenges, and perspectives of our Region with services, applied research and collaboration with appropriate organizations.
- c. Support educational institutions and students in the Region through outreach programs and services to enhance quality of education.

Entrepreneurship

Create entrepreneurial ecosystem driven by innovation and collaboration for the growth of industries and employment opportunities in the region.

- a. Enhance formal and informal opportunities to students to participate in entrepreneurial activities leading to start-up company creation.
- b. Engage entrepreneurial community to create vibrant entrepreneurial ecosystem in the campus and in the region.
- c. Promote and support innovation and research by students and faculty leading to solutions that address wide range of societal needs and also create value for the new enterprises.

Enablers

People

KLE Tech. aspires to be an employer of choice, where faculty and staff achieve their full potential, professionally and personally with deep sense of institutional pride.

- Attract, develop and retain the best academic and professional staff and support them to achieve excellence.
- Develop innovative induction and professional development programs to assist faculty and staff to build their knowledge, capabilities and skills to deliver world-class research and educational experiences.
- Determine professional development needs of those progressing to leadership roles and invest in appropriate leadership development opportunities.
- Foster a culture of high aspiration and performance, drawing on excellent leadership, effective management and employee engagement.
- Ensure that all staff have clear performance expectations aligned to their roles and to their prospects of career development in the context of the University's strategy.
- Ensure that all staff have effective and regular performance feedback that links to reward, recognition and future development planning.
- Recruit faculty with industry experience in regular positions or as adjunct faculty to enhance the relevance of the programs being offered.
- Ensure all staff appointed to research enabled positions have a PhD or a Research Development Plan as a condition of employment.

Infrastructure

To provide modern, effective and efficient infrastructure and services that supports stimulating working and learning environment of the University.

- Continue to invest investment in buildings, plant and equipment at an appropriate level to meet the changing needs of the University.
- Ensure that all existing infrastructure is maintained and used as efficiently as possible.
- Demonstrate agility in our approach to planning and delivery of estates projects.
- Enhance capacity for on-campus residential students by creating high-quality accommodations.
- Develop and maintain an information and communications infrastructure and platforms that supports access needs for teaching, learning and research, and that enables the University to gain strategic value from information to achieve international best practice in administration and decision support.

Governance

Evolve and implement Governance and Management mechanisms that are responsive, reliable and efficient to meet the future challenges of the University.

- Develop and regularly review University-wide strategic and operational plans to provide coordination and focus for key strategic goals.
- Ensure that all policies and procedures of the University align with the rules and regulations of regulatory bodies
- Identify relevant good governance practices of comparable institutions and benchmark University governance against them.
- Maintain a high level of transparency to keep all the stakeholders informed about the University activities
- Implement continuous improvement processes across all academic, support services and administrative activities
- Develop Key Performance Indicators to measure and review the performance of the University and leadership team.

- Prioritize and align resources to our strategic priorities by actively monitoring the funding position and objectively appraising the short and long-term financial implications of all major decisions
- Maintain a comprehensive and effective risk management, internal audit and assurance framework and carefully managing major financial risks to the University

Partnerships

KLE Tech will proactively seek mutually beneficial partnerships that lead to achievement of shared aims and aspirations.

- Identify Develop strong partnerships with alumni, educational institutions, business, industry, government and community organizations to work on shared aims and aspirations.
- Develop a comprehensive University wide alumni engagement program to seek their support for the University to benefit future generation of students.
- Actively engage with industry and business in curriculum design, joint research programs, student internships, faculty training and funding for laboratory development.
- Develop effective collaborations with bodies and NGO's to Contribute to the social and economic development of the region.
- Tie up with national and international professional bodies to constantly learn and adapt world-wide best practices in educational practice.

ANNEXURE 13

[Annual Report for the Academic Year 2015-16]

KLE TECHNOLOGICAL UNIVERSITY ANNUAL REPORT

2015-16



KLE TECHNOLOGICAL UNIVERSITY

KLE in its efforts to continue to serve the cause of education, has established 'KLE Technological University, Hubballi' by upgrading one of it's prestigious institutions 'B. V. Bhoomaraddi College of Engineering and Technology, Hubballi' to the status of University, through the Act enacted by the Karnataka State Legislature, 'KLE Technological University, Act 2012'.

Accordingly, the established KLE Technological University started functioning from the academic year 2015-16. The University status provides a greater opportunity to create a learning experience that is flexible and responsive to the demands of emerging competitive industrial and economic environment.

We strongly believe that KLE Technological University will play an important role in the socio-economic development of the region through entrepreneurship and research activities.

Dr.PrabhakarKore, a visionary leader, spearheading a phenomenal transformation brought about by KLE society in the field of education and healthcare, has taken over as Chancellor of the 'KLE Technological University, Hubballi'. The University has the privilege of having eminent personalities like Prof. R. Natarajan, former Chairman AICTE and former Director of IIT Madras and Mrs.SudhaMurty, Chairman Infosys foundation, on the Board of Governors. With their able guidance, the University aspires to grow as a world-class institute. Dr. Ashok Shettar, has taken over as the first Vice- Chancellor of the University.

During the first academic year 2015-16 following are the major academic initiatives undertaken to improvise the teaching and learning process.

Introducing 'Engineering Exploration'

A new course by name "Engineering Exploration" is introduced in the new curriculum of KLE Tech from the year 2015-2016. This course is co-designed with Virginia Tech, USA keeping in line with global best practices of Engineering Education and the changing needs of Engineering Profession. The course follows active and collaborative learning pedagogical practices. Through this course students of first year engineering explore engineering and get exposed to Engineering Design Process, Multi-disciplinary nature of engineering, problem solving, data analysis, Team Building, Professional Ethics, Sustainability and Project Management. Another unique feature of this course is the involvement of faculty members drawn from different engineering disciplines in design and delivery of the course.

Introducing 'Calculus Reform Movement' in Engineering

The pedagogy of mathematics teaching in the University follows rule of four i.e. every topic is dealt not only symbolically and numerically but also visually and contextually. Digital tablets with appropriate software help every student in visualizing and contextualizing mathematical concepts. This initiative in mathematics teaching is on the lines of 'Calculus reform movement' of Harvard University consortium.

Social Innovations

A course on 'Social Innovation' has been conceptualized and offered to the students of first year undergraduate engineering. The objectives of the course are as follows:

- To build students' capacity to use problem solving skills to address social issues through innovative solutions.
- To transform students' perspective on the world around them by enabling them to identify areas ripe for innovation.

Last year, over 250 projects in social space are done by First year undergraduate engineering students, which help them to connect with societal issues.

Principles and Practices of Engineering Education:

Most of the M.Tech students join teaching profession after their degree without any training in teaching. It was felt necessary to expose them to Basics of Engineering Education through a new course "Principles and Practices of Engineering Education". It is introduced as a core course for all MTech courses of KLE Tech from 2015-2016 in 2nd semester. The course is designed based on the rich experience of KLE Tech in practicing Outcome Based Education since several years.

PhD in Engineering Education

KLE Tech is one of the first few Institutions in India offering PhD in Engineering Education. This program is started from 2015-2016. This program is designed with a vision of contributing to leadership development in Engineering Education. Experiences of a few of the leading universities in the world are used in designing the program.

KLE Tech - IUCEE Webinar course on Outcome Based Education

The understanding and experience of practicing outcome based education in our Institution is being shared with the community of engineering educators in the form of workshops and courses. KLE Tech has started offering an online certificate course on Outcome Based Education in collaboration with Indo Universal Collaboration for Engineering Education. Dr.AshokShettar, Dr.PrakashTewari and Dr.Gopalkrishna Joshi are the resource persons for this course. This faculty group is recognized by 'International Institute for Developing Engineering Academics (IIDEA)', USA as OBE trainers (only group recognized in India).

IUCEE Gurukuls Summit

The 1st IUCEE Gurukuls Summit-2016 was organised at KLE Technological University, Hubballi on 28-29th July, 2016. KLE Tech is emerging as a leader and a role model in Engineering Education. And many Institutions in the country are showing interest in learning from our practices. IUCEE is spreading this through formation of cluster of Gurukuls, which is a group of Engineering Institutions with demonstrated capabilities and aspirations to raise their level of performance. The IUCEE Gurukuls for Learning and Outcomes Based Education (iGLOBE) program addresses this vital need for institutions to develop self-reliance towards achieving excellence in engineering education. IUCEE will facilitate these Gurukuls (i.e. Centers for Excellence) which will be modeled as a blend of the Centers for Engineering Education and Centers for Teaching and Learning around the world.

This summit witnessed about 65 participants from 20 Gurukuls belonging to different Engineering institutions across the country. The discussions of the two day workshop culminated by identifying the following prioritized themes for collaboration:-

- A. Building Engineering Education Research Culture
- B. Developing Institutional Strategic Plan
- C. Building collaborations with Industry/external experts/institutions
- D. Adopting Outcomes Based Education (OBE)
- E. Innovating Curriculum (Content, Delivery, Assessment)
- F. Preparing faculty leaders for future
- G. Encouraging Entrepreneurship and Social Engagement
- H. Attaining autonomous status
- I. Updating Infrastructure

Student enrolment, admission process

Admission process:

The University does not conduct a separate test for the admissions. The admission to the programs of University is based on the Government of Karnataka rules for professional education institutions. The following is the mode of selection of students for admissions (as per rules of Government of Karnataka).

- Common Entrance Test (CET) by Karnataka examination Authority (KEA): Admission to 40 % of seats are done by government of Karnataka based on CET ranking and reservation policies of the state. The seats are distributed through central counseling done by KEA. For the aided intake the 95% of the seats are allotted by the KEA. Equal weightage is given to score in CET entrance test and qualifying examination score, while allotting the ranks.
- 2. All India Examination conducted by the Consortium of Medical, Engineering & Dental Colleges of Karnataka (COMED-K): Admissions to 30 % of seats in unaided courses are done on the basis of COMED-K-rankings. The seats are allotted by COMED-K through central counseling. Equal weightage is given to score in COMED-K entrance test and qualifying examination score, while allotting the ranks
- 3. The remaining 5% seats in aided courses and 25% seats in unaided courses are filled as management seats on the basis of academic records of qualifying examinations.

For post graduate programs, Post Graduate Common Entrance Test (PGCET) conducted by Karnataka examination authority, is used for the selection of students.

Undergraduate Programs

SI.No.	Programme	Sanctioned Intake
1	Civil Engineering	120
2	Mechanical Engineering	240
3	Electrical & Electronics	60
4	Electronics & Communication	240
5	Computer Science & Engineering	240
6	Automation & Robotics	60
7	Bio Technology	60
8	Architecture	60
		1080

Postgraduate Programs

SI.No.	Programme	Sanctioned Intake
1	Structural Engg.	18
2	Production management	18
3	Energy Systems Engg.	18
4	Computer Science & Engg.	24
5	Digital Electronics	24
6	VLSI Design & Testing	24
7	Machine Design	24
8	Master of ComputerApplication	60
9	Master of BusinessAdministration	60
		270

Research Programs

SI.No.	Programme	
1	School of Biotechnology	
2	School of Civil and Environmental Engineering	
3	School of Computer Science & Engineering	
4	School of Electrical & Electronics Engineering	
5	School of Management and Social Sciences	
6	School of Mechanical Engineering	
7	Centre for Engineering Education Research	
8	Social Sciences	
9	Applied Sciences	

Student admissions	s for the yea	r 2015-16 – UG
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SI.No.	Programme	Admitted Nos.
1	Civil Engineering	125
2	Mechanical Engineering	243
3	Electrical & Electronics	62
4	Electronics & Communication	235
5	Computer Science & Engineering	236
6	Automation & Robotics	57
7	Bio Technology	52
8	Architecture	61
		1071

Student admissions for the year 2015-16 - PG

SI.No.	Programme	Admitted Nos.
1	Structural Engg.	15
2	Production Management	16
3	Energy Systems Engg.	16
4	Computer Science & Engg.	23
5	Digital Electronics	24
6	VLSI Design & Testing	24
7	Machine Design	23
8	Master of ComputerApplication	57
9	Master of BusinessAdministration	54
		252

Student admissions for Ph.D programme for the year 2015-16 -: 32

Student Strength

A total of 2840 students are studying at the University of which 2326 are UG students, 482 are PG students and 32 are Research Scholars.

UG 2016 Examinations

Course & Class	I Semester % of Passing	II Semester% of Passing
Automation & Robotics	84.21	76.79
Bio Technology	86.54	80.77
Civil Engineering	92.80	89.60
Computer Science	95.76	95.74
Electrical & Electronics	100	96.77
Electronics & Communication	96.17	97.02
Mechanical Engineering	95.47	92.59
Architecture	83.05	74.58

	I Semester	II Semester
Overall % of Passing	91.39	89.19
Mechanical Sciences % of Passing	94.00	85.50
Electrical Sciences % of Passing	88.47	92.48
Overall Average CGPA	7.57	7.58
Mechanical Sciences Average CGPA	7.83	7.23
Electrical Sciences Average CGPA	7.29	7.89
Architecture Overall Average CGPA	6.89	6.84

PG 2016 Examinations

Course & Class	I Semester% of Passing	II Semester % of Passing
МВА	88.68	83.02
MCA	92.86	87.04
Structural Engg	93.33	100.00
Energy Sys. Engg	100	100.00
Production Management	93.75	93.33
Digital Electronics	95.83	95.83
Computer Science	95.65	91.30
VLSI Design &EmbSys.	95.83	95.83
Machine Design	95.65	100.00

	I Semester	II Semester
MBA Overall Average CGPA	6.96	6.85
MCA Overall Average CGPA	6.92	6.90
MTech. Overall Average CGPA	7.33	7.56

Research and Innovation

Research centers

KLE TECH has 9 research centers with 27 doctoral faculty guiding 32 registered doctoral students. The Table 1 presents details about the research-centers. For the selected candidates 'Course work Exams' were conducted in the month of September 2016. Second semester 'Course work Exams' are due in February 2017.

SI.	Department	No. of PhD	No. of
No.		Guide	PhD registered
1	Biotechnology	3	3
2	Civil and Environmental Engineering	3	3
3	Computer Science & Engineering	5	7
4	Centre for Engineering Education Research	1	1
5	Electrical & Electronics Engineering	3	4
6	Mechanical Engineering	5	6
7	Management and Social Sciences	1	1
8	Social Sciences	1	2
9	Applied Sciences	5	5
	Total	27	32

Table-1: Details of registered PhD candidates at KLETECH

Entrepreneurship

Centre for Technology Innovation and Entrepreneurship (CTIE):

Entrepreneurship is the key driver for development and job creation in any nation. Higher the entrepreneurship orientation of people, more can be innovative solutions, improved quality of life and better economic development of its citizens. Centre for Technology Innovation and Entrepreneurship -CTIE at KLE Tech aims to build this culture of startups at the University. Using a seven step framework to build technology ventures, KLE Tech-CTIE boasts having 38 companies at its University campus and is growing.

- Develop entrepreneurial thinking and liking in the mind of students
- Excite students to take on socially relevant challenges and help build solutions
- Develop ability to build business around tech. solutions
- Engage entrepreneurially aligned people to come together to be a part of thebusiness ecosystem

CTIE Strategy:

To help build a technology entrepreneurship ecosystem, CTIE followed a two pronged approach. The first is to encourage external entrepreneurs with a good business plan and

cultural fit to start their business on University campus. This enabled quick ramping up of companies with commercial interest that served as a beacon to engage students in a variety of collaborative activities. Alumni of BVB responded to this call effectively and many businesses made CTIE as their home. Simple and no strings- attached policies of CTIE helped to attract serial entrepreneurs and young engineers to build their ventures.

Keep the Design as it is

The second path focused on building the pipeline of eligible students who are open enough to experience career of an entrepreneur. A good mix of credit based and non-credit activities were undertaken as a part of this approach.

The entrepreneurship interventions designed at BVB focused mainly on, Building entrepreneurship culture on campus Opportunity identification and technology solutions Commercialization strategies As a result of such blended approach to entrepreneurship, CTIE has following to claim.

- 38 technology companies on campus
- 25% of these are student/fresh graduate start-ups
- Over 18,000 sq. ft of incubation space given away
- Over 9000 SqftTechpark / Accelerated
- Over 230 plus jobs created

CTIE Student Interventions:

MIB

A student body under CTIE, dedicated to student development and entrepreneurial initiatives incampus. MIB has been instrumental in holding events like, PUPA, Ideation Camp, E-Summit and many more value added programs.

PUPA

It is an accelerated product development and marketing experience for students from all branches and years. PUPA in its current version has over 800 students participate from all across the region. Student teams are given seed capital to make a product which they mandatorily have to sell to realize profit. This is a time bound and focused event which has led to many product innovations.

Industry Partnership

It is essential that the institute continues to strengthen its association with the industries to enhance its student learning experience and relevance of its research activities.

Curriculum intervention:

Board of studies of every program is having at least two senior members from Industries like Microsoft, GE, Tata motors, TCS, Samsung, Sankalp etc.

MoU's Signed:

KLE Technological University has signed MOUs with following Industries and Institutions for collaborative academic &research works:

- **1.** Reliance JioInfocomm Limited
- 2. MMRFIC Technologies
- 3. UAS, Dharwad
- 4. DKTE's Textile and Engineering Institute, Ichalkaranji

IT Platforms and Services

The University network is on OFC. 39 managed switches, 150 access points, UTM, AAA server are part of new network. Back bone capacity is 10 Gbps Internet speed is 225 Mbps

Current network can cater up to 25000 plus student and 5000 faculty with very effective bandwidth management, currently more than 30 servers are running, with modern audio and visual facilities, servers like NPTL video learning and moodle open source learning platform are part of new network.

The present status of KLE Tech Campus network

- Campus back bone is of OFC link with capacity of only 10 Gbps.
- L3 based core switch with 250 Gbps capacity
- CPE Based technology for telephone.
- Number of nodes in Campus is 2300 plus(desk tops)
- With 08 sub nets and internal LAN with different topologies
- Internet speed is 225 Mbps (service provider is BSNL and TATA)
- 150 wireless access points across campus, 76 access points covering entire hostels.
- Modern equipment like Cyber roam 750ing,AAA server, controller unit, NMS etc

Details of existing smart class facilities

- All classrooms are covered with visual equipments.(lcd, push pull screen)
- All laboratories are covered with visual equipment
- 5 conference halls and 2 auditoriums with audiovisual facilities
- 15 classrooms are equipped with lecture capturing systems.
- Video conference facilities at 2 conference halls.

Events Organized

University organized its first international conference on 'Enabling Make in India: Challenges and Opportunities for Engineering Education'. It was organized during January 6-8, 2016. Honourable Minister for Defence Sri ManoharParrikar inaugurated the conference. More than 70 top colleges of the country and more than 15 expert speakers from four countries (USA, France, South Korea and Singapore) participated in the conference. Total numbers of delegates participated in the conference is 425.

The aim of the Conference was to bring about greater understanding of the issue involved in Make in India, sharing of world-wide best practices and experiences in this area and evolve a broad framework for the transformative process that enables the initiative.