KLE TECH

KLE Technological University

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FACULTY CONCLAVE

August 02-03, 2019

A PLATFORM FOR YOU TO SHOWCASE INNOVATIONS, SHARE EXPERIENCES IN ENGINEERING EDUCATION AND LEARN FROM FELLOW COLLEAGUES.

You are invited to submit papers as an individual or as a group. As a first step, abstracts of the papers (word document only) clearly stating the context, purpose, approach, results, conclusion and keywords may be submitted. The template for the abstract is attached with this flier. Please email the abstracts to facultyconclave@kletech.ac.in.

BROAD AREAS OF FOCUS

1. *Curriculum Innovation*
2. *Outcomes Assessment*
3. *Experiential Learning – Open ended experiments, projects, field visits*
4. *Pedagogies in Engineering Education*
5. *Research Experiences*
6. *Entrepreneurship and Industry–Institute Collaboration*
7. *Post Graduate Program Experiences*
8. *Technology Enhanced Learning & MOOC Experiences*
9. *PBL experiences*

IMPORTANT DATES

Call for papers-April 04, 2019
Submission of Abstracts -May 18,2019
Abstract Review Communication-June 08,2019
Submission of full Papers -July 20,2019
Faculty Conclave August 02-03,2019

Centre for Engineering Education Research,
KLE Technological University
B. V. Bhoomaraddi Campus, Vidyanagar,
Hubballi (India)

Centre for Engineering Education Research
KLE Technological University, Vidyanagar, Hubballi-31

Schedule for Faculty Conclave-2019, August 2nd, 2019

DAY 1: 02-Aug-2019	SESSION 1	Time: 9.30 am to 11.00 am
Venue: BioTech Auditorium		

Sl. No	Paper-ID	Title	Authors	Theme
1.	MB01	Data Driven Education- A Road Ahead?	Hiremath Chetan V., Patil S.V.	Curriculum Innovation
2.	HS01	To Improve presentation skills of the Engineering students through a Vis-à-vis Evaluation Approach-A pedagogical experiment	Sanjay Kotabagi, Sujata N. M., Jayanti D. Shinge	Curriculum Innovation
3.	CS01	OSPP: An Integrated Hands-On Course and its Learning Experience	Shrinivas D. Desai, Gururaj Hanchinmani, Shantala Giraddi, Mallikarjun Akki, Padmashree Desai, Bhagya Sunag, Meena S. M.	Curriculum Innovation
4.	CS02	An Experiential KDD process through Project Based Learning	P.G Sunitha Hiremath, Shankar G. , Neha Tarannum Pendari	Experiential Learning – Open ended experiments, projects, field visits
Tea Break from 11.00 to 11.15 am				

Schedule for Faculty Conclave-2019, August 2nd, 2019

DAY 1: 02-Aug-2019	SESSION 2	Time: 11.15 am to 12.45pm
Venue: BioTech Auditorium		

Sl. No	Paper-ID	Title	Authors	Theme
1.	CS08	Introducing Design Patterns in Object Oriented Programming with C++ course: An initiative	K.M.M Rajashekharaiah, Mahesh S. Patil, Somashekar Patil, Manjula Pawar, Meena S. M.	Experiential Learning – Open ended experiments, projects, field visits
2.	ME02	Industry-Academia collaboration –A New Initiative in Mechanical Engineering UG Program	U.P.Hosmani, G. M. Hiremath, Mantesh Choukimath	Experiential Learning – Open ended experiments, projects, field visits
3.	ME04	Learning Experiences of UAV Technology at aero KLE Club	G. M. Hiremath, B. B. Kottursheṭtar	Experiential Learning – Open ended experiments, projects, field visits
4.	AR01	Automation of water management system using project based learning approach	Arunkumar Giriyapur, Ashwini G. K., Shilpa Tanvashi	PBL Experiences
5.	CS05	Problem Solving and Computational Thinking	Prakash Hegade	PBL Experiences
Lunch Break:12:45 to 1:45 pm				

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Schedule for Faculty Conclave-2019, August 2nd, 2019

DAY 1: 02-Aug-2019	SESSION 3	Time: 1:45pm to 3:15 pm
Venue: BioTech Auditorium		

Sl. No	Paper-ID	Title	Authors	Theme
1.	CEER01	Framework for articulating "Complex" Need Statements for Multi-disciplinary Design Projects in First-year Engineering	Preethi Baligar, Sanjeev Kavale, Kaushik M., Gopalkrishna Joshi	PBL Experiences
2.	CEER03	Framework for articulating Need Statements that promote Diverse Solutions for Multi-disciplinary Design Projects in First-year Engineering	Kaushik M., Sanjeev Kavale , Preethi Baligar, Gopalkrishna Joshi	PBL Experiences
3.	CS07	Problem Based Learning and Publishing Refereed Papers Through Course Projects	Vishwanath P. Baligar	Graduate Program Experiences (MTech)
4.	AR02	A Review on Hackthon Using Problem Solving Approach	Poornima Bhayatti, Ashwini G. K.	PBL Experiences
5.	CS04	One-Day Many-Problems: A Problem Based Learning Approach	Prakash Hegade	PBL Experiences
Tea Break from 3.15 to 3:30 pm				

Schedule for Faculty Conclave-2019, August 2nd, 2019

DAY 1: 02-Aug-2019	SESSION 4	Time: 3.30 to 5.00 pm
Venue: BioTech Auditorium		

Sl. No	Paper-ID	Title	Authors	Theme
1.	ME03	Activity intervention to enhance awareness about career opportunities for a course	Rajashekhar Subhas Savadi, Anandraj Desai	Pedagogies in Engineering Education
2.	ME05	Enhancing Product Life-cycle Management (PLM) skills through the introduction of configuration and customisation of the PLM platform: An Initiative	Vinay S. Tigadi, Mallikarjun Akki, K.M.M Rajashekharaiah, B. B. Kottursheettar	Research Experiences, Entrepreneurship and Industry – Institute Collaboration
3.	CEER05	3D Modelling: Rubrics for Promoting Practical Designs for Mechatronic Prototypes in First-Year Engineering	Preethi Baligar, Sanjeev Kavale, Gopalkrishna Joshi	Outcomes Assessment
4.	CEER07	Micro-learning in Engineering Exploration course for learning Arduino	Sanjeev M. Kavale, Raghuraja Adi, Kaushik M.	Pedagogies in Engineering Education
5.	CS06	Generation Z: Decoding the Common Tongue	Prakash Hegade	Pedagogies in Engineering Education

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Schedule for Faculty Conclave-2019, August 3rd, 2019

DAY 2: 03-Aug-2019		SESSION 1		Time: 9.30 am to 11.00 am
Venue: BioTech Auditorium				
Sl. No	**Paper-ID**	**Title**	**Authors**	**Theme**
Talk on "Systems Methodology for Engineering Students" by Prof. Ravi Guttal				
1.	AR03	A Problem-Based Learning Approach to teach a course on Computer Vision and Digital image processing at the Undergraduate Level	Arunkumar Giriyapur, Ashwini G. K.	Pedagogies in Engineering Education
2.	BT02	Problem Based Learning (PBL) Approach in Bioanalytical Techniques Course	Zabin K. Bagewadi	Pedagogies in Engineering Education
3.	ME01	Practicing Design by Analysing Component Failure	Nagaraj Ekabote	Pedagogies in Engineering Education
Tea Break from 11.00 to 11.15 am				

Schedule for Faculty Conclave-2019, August 3rd, 2019

DAY 2: 03-Aug-2019	SESSION 2	Time: 11.15 am to 12.45 pm

Venue: BioTech Auditorium

Sl. No	Paper-ID	Title	Authors	Theme
1.	BT01	Industry Internships-A Mandatory Requirement for Biotechnology Engineering Graduates	Zabin K. Bagewadi, Uday M. Muddapur	Research Experiences, Entrepreneurship and Industry – Institute Collaboration
2.	CIV02	Promoting The Research Activity Among UG, PG Students and Faculty	Roopa A.K., Anand M. Hunashyal	Research Experiences, Entrepreneurship and Industry – Institute Collaboration
3.	CS03	Design for Requirements Engineering	Prakash Hegade	Research Experiences, Entrepreneurship and Industry – Institute Collaboration

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Faculty Conclave 2018-2019

Attendance Sheet

Sl No	Faculty Name	Attendance	
		Day 1	Day 2
1.	SMT. VINAYA HIREMATH	V. Hiremath	V. Hiremath.
2.	SRI. GURURAJ. JOSHI	Gururaj. J	Gururaj J
3.	SMT. GEETANJALI RAO	Geetanjali	Geetanjali
4.	SRI. M.M. DANDIN	MMD	MMD
5.	SRI. SOMASHEKHAR V DHOTRAD	S.V. Dhotrad	S.V. Dhotrad.
6.	SRI. SHARANBASANAGOUDA S GOUDAR	Goudar	Goudar
7.	SMT. DEEPA A MANE	Mane	Mane
8.	SRI. KALPESHKUMAR PATEL	KP	KP
9.	SMT. ROHINI MALAGI	RMalagi	RMadagi
10.	DR. SHASHIDHAR N KUBSAD	Skubsad	Skubsad
11.	SRI. ABHISHEK. S. PATIL	ASPatil	ASpatil
12.	SRI. SANDEEP A HARAPANAHALLI		
13.	SRI. PRADEEP E PATIL	P.E. Patil	P.E. Patil
14.	SRI. HARISHKUMAR B.P.	HB Patil	HB Patil
15.	SMT. DIVYA SHARMA	Diya	Diya
16.	MR. SOURABH NARENDRA	SN	SN
17.	SMT. JAYASHREE B SHETTAR	jayashettar	jayashettar.
18.	MS. SHRUTHI KSHIRASAGAR	P.S. Honnur	P.S. Honnur
19.	SRI. A.C. GIRIYAPUR	ACGiriyapur	ACGiriyapur
20.	DR. RAVI C GUTTAL	Ravi Guttal	Ravi Guttal
21.	DR. SACHIN KARADGI	ABSENT	ABSENT
22.	SMT. JYOTI.S. BALI	J.S. Bali	J.S. Bali

	SRI. VINODKUMAR.V. METI	Vinod	Vinod
24.	SRI. NAGARAJ M BENAKANAHALLI	Banaket	Banaket
25.	SRI. AMIT L. TALLI	Amit	Amit
26.	SRI. SRIDHAR DODDAMANI	Doddamani	Doddamani
27.	SMT. ASHWINI G K	ASK	ASK
28.	SMT. SHILPA V TANVASHI	ABSENT	ABSENT
29.	SRI. DODDABASAPPA A MAREBAL	Dmarebal	Dmarebal
30.	SRI. RAKESH P. TAPASKAR	Rakesh Tapaskar	Rakesh Tapaskar
31.	SMT. CHANNAMMA B KOLANUR	Kolanur	Kolanur
32.	MS. POORNIMA BYAHATTI	P Byahatti	P. Byahatti
33.	SRI. KANISHK NAVALE	KN	KN
34.	DR. BASAVARAJ.S. HUNAGUND	B S Hunagund	B S Hunagund
35.	DR. UDAY M MUDDAPUR	U. Muddapur	U. Muddapur
36.	SRI. LAXMIKANT.R. PATIL	L.R. Patil	L.R. Patil
37.	SRI. V S HOMBALIMATH	V S Hombalimath	V S Hombalimath
38.	DR. (SMT). ZABIN.K. BAGEWADI	Z Bagewadi	Z Bagewadi
39.	DR.SHIVALINGSURJ V DESAI	S V Desai	S V Desai
40.	SRI. ANIL RAMDAS SHET	AS	AS
41.	SRI. GURURAJ TENNALLI	ABSENT	ABSENT
42.	SRI. DEEPAK.A.YARAGUPPI	Deepak	Deepak
43.	SRI. SHARNAPPA A	SA	SA
44.	DR. V.B.PATIL	V.B. Patil	V.B. Patil
45.	DR. S.S.QUADRI	S.S. Quadri	S.S. Quadri

46.	DR. S.S.BHAVIKATTI	S S Bhavikatti	S S Bhavikatti
47.	DR. S.A. ANNIGERI	S. A. A.	S A A
48.	DR. M.V.CHITAWADAGI	M. V. Chitawadagi	M. V. Chitawadagi
49.	DR. S.S.DYAVANAL	S. S. Dyavanal	S. S. Dyavanal
50.	DR. S S.HONNANAGOUDAR	SSH	SSH.
51.	DR. L.J.POL	L Pol.	L Pol.
52.	DR. M.R.PATIL	M. R. Patil	M. R. Patil
53.	DR. A.M.HUNSHYAL	AMH	AMH.
54.	SMT. GEETA.C.BELLAD	GBellad	GBellad.
55.	SRI. VIJAYKUMAR S. K	Vijay	Vijay.
56.	SRI. V.P.PATIL	V. P. P	V. P. P.
57.	SRI. VITHAL R JADHAV		
58.	SRI. L.R.BASAVARAJ	L. R. B	L. R. B
59.	SRI. GURUNATH KAMPLI	Gurunath	Gurunath
60.	SMT. PREMA MALALI	Malali	Malali
61.	MS. KHALIDA H MUNTASHER	KHM	KHM
62.	MS. NIKITA KESHAV	Nikita K	Nikita K
63.	SRI. CHAITANYA AKKANNAVAR	C. A.	C. A.
64.	SRI. SHASHWATH M NANJANNAVAR	Shashwath	Shashwath
65.	SRI. SHIVARAJ HALIYAL	Shivaraj	Shivaraj
66.	SRI. BASANAGOUDA I PATIL	B Patil	B Patil.
67.	MS. ROOPA A KURI	Roopa.	Roopa.
68.	SRI. FATHEALI A SHILAR	Fathealli	Fathealli

69.	SRI. VINAYAK NAIKAR	VNaikar	VNaikar
70.	DR.V.C. HAVANUR	V.C. Havanur	V.C. Havanur.
71.	DR. ASHOK.M. SAJJAN	A.M.S	A.M.S.
72.	DR.(SMT). S. DHANALAKSHMI	Dhanalakshmi	Dhanalakshmi
73.	DR.(SMT). P RAMADEVI	P. Pramadevi	P. Pramadevi
74.	SRI. S.R. KURUNDAWADE	SRK	SRK
75.	DR.(SMT) MEENA S MARALAPPANAVAR	Meena.	Meena.
76.	PROF. S.B. KURUBAR	SBKurubar	SBKurubar
77.	DR. GOPALKRISHNA JOSHI	GKJoshi	GKJoshi
78.	DR. V P BALIGAR		
79.	DR. SATYADHYAN CHICKERUR	Satya.	Satya.
80.	DR. SHASHIKUMAR G. TOTAD	SGTotad	SGTotad.
81.	DR. KARIBASAPPA K.G.	KKG	KKG
82.	SMT. JAYALAXMI G N	JGN	JGN.
83.	SMT. SUJATHA C	Sujata	Sujata
84.	DR. NARAYAN D.G.	NDG	NDG
85.	SRI. SHANKAR GANGISETTY	SGangisetty	SGangisetty
86.	DR. GURURAJ .S.HANCHINAMANI	G.H	G.H.
87.	SMT. LALITHA MADANBHAVI	L.Madanbhavi	L.Madanbhavi
88.	SMT. VIDYA HANDUR	Vidya. H	Vidya. H.
89.	DR. SHRINIVAS.D. DESAI	Shrinivas.	Shrinivas.
90.	SMT. NAGARATNA KULENAVAR	Kulenavar	Kulenavar
91.	SRI. CHANDRASHEKHAR .D. KERURE		

92.	DR.(SMT). SUVARNA G. KANAKARADDI	SGK	SGK
93.	SMT.ARUNA S. NAYAK	Aruna Nayak	Aruna Nayak
94.	SMT. PADMASHREE DESAI	PDesai	PDesai
95.	SMT. VIJAYALAKSHMI M.	VijaM	VijaM
96.	SMT. MEENAXI JANNU	Jannu	Jannu
97.	SMT. P.G. SUNITA HIREMATH	SHiremath	SHiremath
98.	SRI. K.M.M. RAJASHEKHARAIAH	KMM	KMM
99.	SMT. PREETI. T	Preeth	Preeth
100.	SRI. PARIKSHIT P HEGADE	PH	PH
101.	SMT. P D KALAWAD	P.D.Kalwad	P.D.Kalwad
102.	SRI. VIJAY.S. BIRADAR	V.S.Biradar	V.S.Biradar
103.	SRI. MANJUNATH K GONAL	M.K.Gonal	M.K.Gonal
104.	SMT. NAGARATHNA. V. YALIGAR	NVYaligar	NVYaligar
105.	SMT. NAMRATA D HIREMATH	Hiremath	Hiremath
106.	SRI. V.H. BHAJANTRI	V.H.B	V.H.B.
107.	SMT. SHANTALA GIRADDI	Shiraddi	Shiraddi
108.	SMT. KAVITHA H. S	Kavitha	Kavitha
109.	SRI. PRAKASH B. HEGDE	Prakash	Prakash
110.	SMT.UMADEVI.F.M	Umadevi	Umadevi
111.	SRI. P.M. DHULAVVAGOL	RMB	RMB
112.	SRI. ANAND.S. METI	Ameti	Ameti
113.	SMT. NIRMALA.S. PATIL		
114.	SRI.MAHESH.S.PATIL	Patil	Patil

115.	SMT.INDIRA BIDARI	Ibidari	Ibidari
116.	SRI. VISHWANATH.G. GARAGAD	ABSENT	ABSENT
117.	SRI. UDAY KULKARNI	Ukalan	Ukalan
118.	SMT. MANJULA K. PAWAR	MPawar	MPawar
119.	SRI. SHIVALINGAPPA BATTUR	S. Battur	S. Battur
120.	SRI. SUNIL V GURLHOSUR		
121.	SRI PRAVEENRAJ	Paraj	Praj
122.	SRI. SOMASHEKAR PATIL	S. Patil	S. Patil.
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128.	SMT. NEHA TARANNUM	Neha	Neha.
129.	DR. OMPRAKASH PATEL	Omprakash	Omprakash
130.	MS. MADHURA S SHETTAR	MShettar	MShettar
131.	SRI. MOHAMMED MOIN MULLA	Moin	Moin
132.	MS. NEHA R PUDAKALAKATTI	NP	NP
133.	SMT. ROOPA V BADAMI	Badami	Badami
134.	MS. PRATIKSHA BENAGI	PSB	PSB
135.	SRI. SHASHIDHARA B VYAKARNAL	Shashi	Shashi
136.	SRI. SHIVARAJ KENAGOND		
137.	DR. (SMT) R.M. BANAKAR	RM Banakar	RM Banakar

138.	DR. A.V. NANDI		
139.	DR(SMT). NALINI IYER		
140.	DR. (SMT) UMA. K. MUDENAGUDI		
141.	DR. G PRIYATAM KUMAR		
142.	Dr. R.B. SHETTAR		
143.	DR. P. SUBBANNA. BHAT		
144.	DR. (SMT) SAROJA V SIDDAMAL		
145.	DR.(SMT) SUJATA .S. KOTABAGI		
146.	SMT. SUNITA V BUDIHAL		
147.	SMT. UJWALA PATIL		
148.	SMT. R.V.HANAGAL		
149.	SMT. TANUJA R PATIL		
150.	SMT. P. C. NISSIMGOUDAR	ABSENT	ABSENT
151.	DR. (SMT). S.R.NIRMALA		
152.	SMT. ROHINI.S. HONGAL		
153.	SRI. H. M. KELAGADI		
154.	SRI. SHIVARAJ.B. HUBLIKAR		
155.	SRI. RAGHAVENDRA.M. SHET		
156.	SRI. KIRAN M. R.		
157.	SMT. SOUMYA S PATIL	Soumya. Patil	Soumya. Patil.
158.	SMT. VIJAYA S ELIGAR		
159.	SRI. SANJAY S ELIGAR	Sanjay.	Sanjay.

	SRI. PRASHANT V ACHARI		
161.	SRI. SHAMSHUDDIN K.		
162.	SRI. S.M. PATTANASHETTI		
163.	SRI. KAUSHIK M		
164.	SRI. SUHAS B SHIROL		
165.	SRI. SHIVASHANKAR A HUDDAR		
166.	SRI. VENKATESH R MANE		
167.	SRI VISHAL B PATTANSHETTI		
168.	SRI. SATISH S CHIKKAMATH		
169.	SRI. GIREESHA H.M		
170.	SMT. JYOTI RAVIKUMAR	Jyoti	Jyoti
171.	SMT. SUJATA NADUVINAMANI	ABSENT	ABSENT
172.	SMT. HEERA G WALI		
173.	MS. SHRUTI P MARALAPPANAVAR		
174.	SRI. ANIL M. KABBUR		
175.	SMT. RAJESHWARI MATTIMANI		
176.	SRI. SHASHIDHAR S NEELAKANTHMATH		
177.	SRI. RAMESH A TABIB		
178.	MS. NAGARATNA SHANBHAG		
179.	SRI. ROHIT KALYANI	Rohit .K	Rohit K
180.	SMT. PREETI S PILLAI		
181.	SMT. SHRADDHA B. HIREMATH		
182.	MS. BHAGYASHREE KINNAL		

183.	MS. NIKITA K PATIL		
184.	SMT. DOLA PALADHI	Dola Paladhi	Dola Paladhi
185.	SRI. SANDEEP N KULKARNI		
186.	MS. ANUPAMA H.C.		
187.	MS. SOUMYA BAKALE	Soumya Shet	Soumya Shet
188.	SRI. DHEERAJKUMAR SHET		
189.	MS. SHEELA A BADAGI		
190.	MS. ANJANA RAICHUR	Anjana. R	Anjana. R.
191.	DR. A.B.RAJU	Raju	Raju
192.	DR. R.S.KARNIK	R. S. Karnik	R. S. Karnik
193.	SMT. R.B. JYOTI		
194.	SMT. J.C.PATTANSHETTI	JCP	JCP.
195.	SRI. SIDDARAMESHWAR H N		
196.	SMT. MINAL S SALUNKE		
197.	MS. ANUPAMA R ITAGI	Anupama.	Anupama.
198.	SRI. ANOOPKUMAR. PATIL		
199.	SRI. KIRAN R PATIL	Kiran. Patil	Kiran Patil.
200.	SRI. SACHIN ANGADI	— ABSENT —	— ABSENT —
201.	MS. SUSHMA V	Sushma V	Sushma V
202.	SMT. LEAH S JOSHI	Joshi	Joshi
203.	MS. SHILPA KAMATH	Kamath	Kamath
204.	MS. KAVITA CHACHADI	Kavita. C	Kavita C
205.	SRI. HANUMANTHAGOUDA R PATIL		

206.	MS. SHWETA KORADDI		
207.	MR. GURUBASU M HOMBAL		
208.	MS. ADITI KADAM		
209.	MS. SHACHI P		
210.	SRI. ALTAF HUSAIN		
211.	MS. MOUNA M NARVANI		
212.	MS. PADMAJA B KALLIMANI		
213.	MS. JAYASHREE MALLIDU		
214.	MS. DEEKSHA NANDUR		
215.	SMT. VIDYASHREEMATH		
216.	MS. LAXMI V BANAGAR		
217.	SMT. SUJATA N M		
218.	SMT. JAYANTI D SHINGE		
219.	SMT. ANUSHA KODOLLI		
220.	SMT. GEETA S MARALAPPANAVAR		
221.	SMT. VANI YALAMALI		
222.	DR. G.B. MARALI		
223.	DR.(SMT). UMA NEELI		
224.	SRI. Y.M. UMATHAR		
225.	DR. BHARATI M SHETTAR		
226.	DR (SMT). DAKSHYANI. R MAMMIGATTI		
227.	DR. M.B. PAGE		
228.	DR(SMT). SHAILA.V. CHOUGALA		

229.	DR.(SMT). SUMEDHA.S. SHINDE		
230.	SMT. ROOPA. S. ALGUR		
231.	DR. NARAYANA SWAMY		
232.	DR. GURURAJ N. BHADRI		
233.	SMT. P VINOTHINI ACHARYA		
234.	DR.(SMT). NIVEDITA S KABBUR		
235.	SRI. ROSHAN KUMAR ARYA		
236.	SMT. JYOTI SIDNAL	Jyoti. S.	Jyoti S.
237.	SRI. PRAVEEN I CHANDARAGI	Praveen	Praveen
238.	MS. ANUSHA SHENOY	Anusha	Anusha
239.	DR. P.G.TEWARI	PGT	PGT
240.	DR. B.B.KOTTURSHETTAR	BBK	BBK
241.	DR. N.R. BHANAPURAMATH	N.R.B.	N.R.B.
242.	DR. V.N. GAITONDE		
243.	SRI. T. VEERAMAHANTESH SWAMY		
244.	DR. K.G.KODANCHA	Kodancha	Kodancha
245.	DR. ANIL S. BADIGER	Anil	Anil
246.	DR. SANJAY V KOTABAGI	Sanjay	Sanjay
247.	SRI. C.M. KOTI	Koti	Koti
248.	DR. P.P. REVANKAR	P.B	P.B
249.	DR I.G.SIDDHALINGESHWAR	I.G	I.G
250.	DR. G. U. RAJU		
251.	DR. T.V. SREENATH	T.V. Sreenath	T.V. Sreenath

252.	SRI. V.N.SANNAGOUDAR		
253.	SRI. S.V.DHOTRAD	S. V. Dhotrad.	S. V. Dhotrad
254.	SRI. V KOMALAPUR	Komalapur	Komalapur
255.	DR. GIREESH N M		
256.	SRI. V.A.GOUDAR		
257.	SRI. B.S.KAKOL	B. S. Kakol.	B. S. Kakol.
258.	DR. SHIVAKUMAR.B. BURLI	Burli	Burli
259.	DR. VEERESH G BALIKAI	VB	VB
260.	DR. M.B. GORWAR	MBG	MBG
261.	SRI. VEERESH B ANGADI	Angadi	Angadi
262.	SRI. A.V. TUMBAL	Tumbal	Tumbal
263.	SRI. N. VIJAYKUMAR	Vijaykumar	Vijaykumar
264.	SRI. RAMACHANDRA L	Ramachandra.	Ramachandra
265.	SRI. UMESH P HOSAMANI	Umesh.	Umesh.
266.	DR. PRABHAKAR M BHOVI		
267.	SRI. SURESH H KAREBARMANNAVAR	S. H. K.	— ABSENT —
268.	SRI. G. M. HIREMATH	G. M. H	G. M. H.
269.	SRI. VINAYAK KULKARNI	Kulkarni	Kulkarni
270.	SRI. R.S.HOSAMATH	Hosmath	Hosmath
271.	SRI. GIRISH CHALAGERI	Chalageri	Chalageri
272.	SRI. VINAYAK.P. KHATAWATE	Vinayak.	Vinayak.
273.	SRI. NAGARAJ L EKABOTE	— Absent —	— Absent —
274.	SRI. GURURAJ P. FATTEPUR	Fattepur	Fattepur

275.	SRI. ANAND R. LAKKUNDI		
276.	SRI. ADARSH PATIL		
277.	SRI. M C. CHOUKIMATH		
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280.	SRI. MADHUSUDHANA H.K.		
281.	SRI. KISHORE UPADHYAYA		
282.	SRI SHREESHAIL M L		
283.	SRI S M MUKHANDMATH	— ABSENT —	— ABSENT —
284.	SRI SRIDHAR M		
285.	SRI. RAJASHEKHAR S SAVADI		
286.	SRI. SHIVANANDAGOUDA R PATIL		
287.	SRI.ARUN Y PATIL	— ABSENT —	— ABSENT —
288.	SRI. ADITYA DESHPANDE		
289.	SRI. PRAVEEN KUMAR PETKAR		
290.	DR. PRASANNA RARAVI		
291.	SRI. S.V. KHANDAL		
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294.	SRI. ASHWIN R KUBASADGOUDAR		
295.	SRI. ANANDRAJ		
296.	SRI. S.P. PRABHUSWAMIMATH	— ABSENT —	— ABSENT —
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298.	SRI. SANJAY.V. KULKARNI		
299.	SRI. VINAY S TIGADI	V Tigadi	V Tigadi
300.	SRI. RAKESH PATIL		
301.	SRI. RAMESH S SARANGAMATH	Rameshs.	Rameshs.
302.	DR.S.V.PATIL	V.S.Patil	V.S.Patil.
303.	DR. N.G.CHACHADI	NGC	NGC
304.	DR. GURUBASAVARAYA HIREMATH	GH	GH
305.	DR. MAHANTESH HALAGATTI	Mahantesh	Mahant
306.	SRI. NAGARAJ.R. NAVALGUND	Nagaraj.	Nagaraj
307.	SRI. SAGAR.B. PATIL	Sagarpatil	Sagarpatil.
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310.	SRI. SHASHIDHAR S MAHANTSHETTI		
311.	SRI. VINAYAK BANAKAR	ABSENT	ABSENT
312.	DR. PRAKASHGOUD PATIL	Patil	Patil
313.	DR. P.S. HIREMATH	P.S.H	P.S.H.
314.	SMT. SUNITA K. SALIMATH	Sunita.	Sunita.
315.	DR. S V SEERI	S.V.S	S.V.S
316.	SRI. ASHOK.K. CHIKARADDI	AKC	AKC
317.	SMT. SUJATA R. KULKARNI	Sujatark	Sujatark.
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340.	SRI. RAGHURAJA ADI		
341.	SRI. MANIKANT PUJAR		
342.	SMT. DEEPA S BETAGERI		

KLE Technological University
Creating Value
Leveraging Knowledge

KLE Technological University, Hubballi

343.	DR. SHANKAR A HALLAD	Shkar	Shkar
344.	DR. S V. GANACHARI		
345.	DR. JAYACHANDRA S YARADODDI	ABSENT	ABSENT
346.	SRI. VENKATESH RAMASWAMY		

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KLE Technological University
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FACULTY CONCLAVE - 2019

NINTH EDITION

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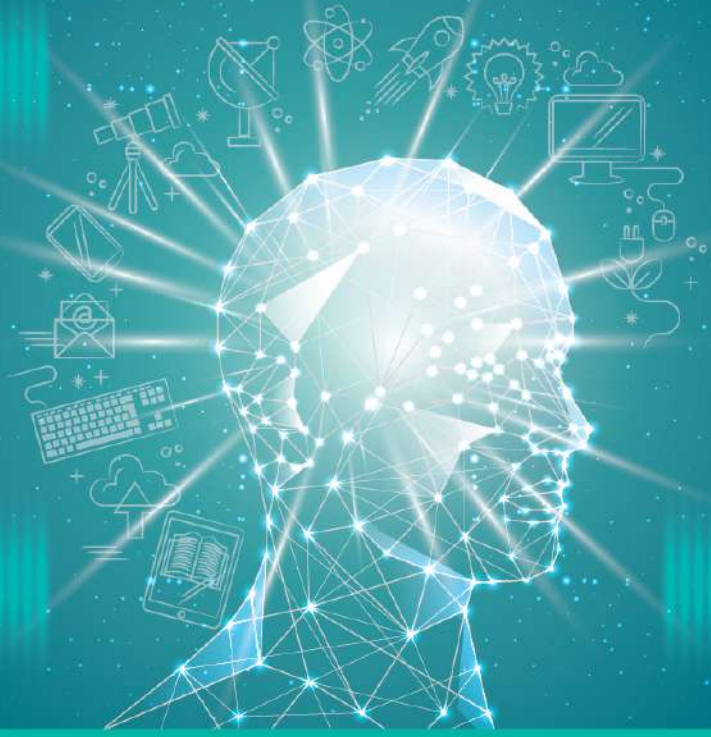

August 02 - 03, 2019

Centre for Engineering Education Research

LIST OF ENGINEERING EDUCATION JOURNALS

1	Advances in Engineering Education
2	Australasian Journal of Engineering Education
3	Computer Applications in Engineering Education
4	European Journal of Engineering Education
5	Global Journal of Engineering Education
6	International Journal of Continuing Engineering Education and Life-Long Learning
7	International Journal of Electrical Engineering Education
8	International Journal of Engineering Education
9	International Journal of Mechanical Engineering Education
10	International Journal of Emerging Technologies in Learning
11	Journal of Architectural Education
12	Journal of Engineering Education
13	Journal of Information Systems Education
14	Journal of Pre-College Engineering Education Research
15	Journal of Science Education and Technology
16	Journal of Technology Education
17	World Transactions on Engineering and Technology Education
18	Design Studies
19	IEEE Transactions on Education
20	IEEE Transactions on Learning Technologies
21	International Journal of Construction Education and Research
22	International Journal of Emerging Technologies in Learning
23	International Journal of Science, Mathematics and Technology Learning
24	International Journal of Technology and Design Education
25	Journal of Science Education and Technology
26	Journal of Technology Education

Upcoming Engineering Education Conferences in India

Sr.No	Name of the conference	Location	Dates
1	IX World Engineering Education Forum (WEEF)	ITC Grand Chola, Chennai	November 13-16, 2019
2	Regional Research Symposium on PBL-2019	KLE Technological University. Hubballi	November 22-23, 2019
3	Tenth International Conference on Technology for Education (T4E 2019)	Goa University, Goa	December 09 – 11, 2019
4	Seventh International Conference on Transformations in Engineering Education (ICTIEE' 2020)	Anurag Group of Institutions, Hyderabad	January 05-08-2020

Message from Vice Chancellor

Dear Colleagues,

It is with great pleasure and pride I am writing this message for Faculty Conclave 2019 scheduled during August 02-03,2019. The number of papers and the total number of authors show the involvement of faculty members in creating the rich academic environment and campus culture that promotes learning. Your sustained innovative practices in engineering education over a decade since our Institution was granted autonomy have created distinct identity for our Institution in the region and country. I thank you all for your efforts in this direction.

Building the brand "KLE Tech" needs huge commitment in terms of our efforts in the area of research. However, "KLE Tech" shall continue to play its leadership role in engineering education thus becoming preferred destination for students wanting to pursue engineering as their career.

We are able to see a good number of successful innovations in engineering education through team work and collaborations among faculty members. Multi-disciplinary efforts are also giving good results. We need to recognise this and increase such efforts and innovations. Now, we shall start focusing on discipline-based education research (DBER) in each school and department so that the innovations paths continue resulting in quality learning experiences.

Let us continue our journey, learn from each other and enrich our ecosystem

Regards,

Ashok Shettar
Vice Chancellor

Message from Director, CEER

Dear Colleagues,

Faculty Conclave summarises the efforts put in by faculty members in providing quality engineering education to students of KLE Tech. Faculty Conclave is a celebration which showcases and shares innovations in engineering education done by you all in the previous academic year. The platform offers an opportunity to learn from each other. Increased faculty participation and improvement in quality of discussions are observed in the conclave which has contributed to a culture of discussion. This event is a milestone in our journey.

This year's conclave has a total of 25 papers contributed by 70 faculty members. Number of unique authors is 44. The faculty profiles cut across ages and also departmental boundaries. There are new contributors as well along with regular contributors. The focus of the academic year was PBL and we see contributions through PBL experimentation as well.

Even from organising perspective we are able to see a mix of regular and new faces with increased energy and efficiency.

I take this opportunity to thank all the authors for their submissions, faculty for their participation, organising team for their untiring efforts to plan and execute and finally Dr.Ashok S Shettar, VC, to lead from the front.

Regards,

Gopalkrishna Joshi,
Director, Centre for Engineering Education Research,

FACULTY CONCLAVE

August 02- 03, 2019

Organising Committee

Sl.No.	Responsibility	Team
01	**Co-Ordinator**	**Dr. Gopalkrishna Joshi** Professor of Computer Science and Engineering Director, Centre for Engineering Education Research
02	**Technical Committee**	**Ms.Vijayalakshmi M.** Associate Professor School of Computer Science and Engineering **Ms.Preethi Baligar** Assistant Professor Centre for Engineering Education Research
03	**Program Committee**	**Ms.Aruna S. Nayak** Associate Prof., School of Computer Science and Engineering **Ms.Madhu A.** Assistant Professor Centre for Engineering Education Research
04	**Print and Publicity Committee**	**Ms.Padmashree Desai** Associate Professor School of Computer Science and Engineering **Mr. Kaushik M.** Assistant Prof. School of Electronics & Communication Engineering
05	**Guest management Committee**	**Mr. Sanjeev M. Kavale** Assistant Professor School of Mechanical Engineering
06	**Finance**	**Ms.Preethi Baligar** Assistant Prof. Center for Engineering Education Research

Schedule

Timing	Day 1 (August 02, 2019)	Day 2 (August 03, 2019)
9.30am	Paper Presentation Session 1	Paper Presentation Session 5
11.00am	Tea Break	Tea Break
11.15am	Paper Presentation Session 2	Paper Presentation Session 6
12.45pm	Lunch	
01.45pm	Paper Presentation Session 3	
3.15pm	Tea	
3.30pm	Paper Presentation Session 4	

Themes of Faculty Conclave 2019

Invited papers on following themes /categories

1. Curriculum innovation
2. Outcomes Assessment
3. Experiential learning - Open ended experiments, projects, field visits
4. Pedagogies in Engineering Education
5. Research Experiences
6. Enterpreneurship and Industry - Institute Collaboration
7. Post Graduate Program Experiences
8. Technology Enhanced Learning & MOOC Experiences
9. PBL experiences

Schedule for Faculty Conclave-2019

DAY 1: 02-Aug-2019		SESSION 1		Time: 9.30 AM to 11.00AM
Venue: Bio-Tech Auditorium				
Sl. No	**Paper-ID**	**Title**	**Authors**	**Theme**
1	MB01	Data Driven Education- A Road Ahead?	Hiremath Chetan V. A, Patil S.V	Curriculum Innovation
2	HS01	To Improve presentation skills of the Engineering students through a Vis-à-vis Evaluation Approach	Sanjay Kotabagi, Sujata N. M., Jayanti D. Shinge	Curriculum Innovation
3	CS01	OSPP: An Integrated Hands-On Course and its Learning Experience	Shrinivas D. Desai, Gururaj Hanchinmani, Shantala Giraddi, Mallikarjun Akki, Padmashree Desai, Bhagya Sunag, Meena S. M.	Curriculum Innovation
4	CS02	An Experiential KDD process through Project Based Learning	P.G Sunitha Hiremath, Shankar G. , Neha Tarannum Pendari	Experiential Learning – Open ended experiments, projects, field visits
Tea Break : 11.00 AM to 11.15AM				

Schedule for Faculty Conclave-2019

DAY 1: 02-Aug-2019		SESSION 2		Time: 11.15 am to 12.45pm
Venue: Bio-Tech Auditorium				
Sl. No	**Paper-ID**	**Title**	**Authors**	**Theme**
1	CS08	Introducing Design Patterns in Object Oriented Programming with C++ course: An initiative	K.M.M Rajashekharaiah, Mahesh S.Patil, Somashekar Patil, ManjulaPawar, Meena S. M.	Experiential Learning – Open ended experiments, projects, field visits
2	ME02	Industry-Academia collaboration - A New Initiative in Mechanical Engineering UG Program	U.P. Hosmani, G M Hiremath, Mantesh Choukimath	
3	ME04	Learning Experiences of UAV Technology at aeroKLE Club	G. M Hiremath, B. B Kottursheta	
4	AR01	Automation of water management system using project based learning approach	Arunkumar Giriyapur, Ashwini G K, Shilpa Tanvashi	PBL Experiences
5	CS05	Problem Solving and Computational Thinking	Prakash Hegade	
Lunch Break : 12:45 PM to 1:45 PM				

Schedule for Faculty Conclave-2019

DAY 1: 02-Aug-2019		SESSION 3		Time: 1:45 pm to 3:15 pm
Venue: Bio-Tech Auditorium				
Sl. No	**Paper-ID**	**Title**	**Authors**	**Theme**
1	CEER01	Framework for articulating "Complex" Need Statements for Multi-disciplinary Design Projects in First-year Engineering	Preethi Baligar, Sanjeev Kavale, Kaushik M., Gopalkrishna Joshi	PBL Experiences
2	CEER03	Framework for articulating Need Statements that promote Diverse Solutions for Multi-disciplinary Design Projects in First-year Engineering	Kaushik M., Sanjeev Kavale , Preethi Baligar, Gopalkrishna Joshi	
3	CS07	Problem Based Learning and Publishing Refereed Papers Through Course Projects	Vishwanath P. Baligar	Graduate Program Experiences (Mtech)
4	AR02	A Review on Hackthon Using Problem Solving Approach	Ashwini G K, Poornima Bhayatti	PBL Experiences
5	CS04	One-Day Many-Problems: A Problem Based Learning Approach	Prakash Hegade	
Tea Break: 3.15 PM to 3:30PM				

Schedule for Faculty Conclave-2019

DAY 1: 02-Aug-2019		SESSION 4		Time: 3.30 to 5.00 pm
Venue: Bio-Tech Auditorium				
Sl. No	**Paper-ID**	**Title**	**Authors**	**Theme**
1	ME03	Activity intervention to enhance awareness about career opportunities for a course	Rajashekhar Subhas Savadi, Anandraj	Pedagogies in Engineering Education
2	ME05	Enhancing Product Life-cycle Management (PLM) skills through the introduction of configuration and customisation of the PLM platform: An Initiative	Vinay S. Tigadi, Mallikarjun Akki, K.M.M Rajashekharaiah, B. B. Kottursheṭtar	Research Experiences, Entrepreneurship and Industry – Institute Collaboration
3	CEER05	3D Modelling: Rubrics for Promoting Practical Designs for Mechatronic Prototypes in First-Year Engineering	Preethi Baligar, Sanjeev Kavale, Gopalkrishna Joshi	Outcomes Assessment
4	CEER07	Micro-learning in Engineering Exploration course for learning Arduino	Sanjeev M. Kavale, Raghuraja Adi, Kaushik M.	Pedagogies in Engineering Education
5	CS06	Generation Z: Decoding the Common Tongue		

Schedule for Faculty Conclave-2019

DAY 2: 03-Aug-2019		SESSION 5		Time: 9.30 AM to 11.00AM
Venue: Bio-Tech Auditorium				
Sl. No	**Paper-ID**	**Title**	**Authors**	**Theme**
Talk on "Systems Methodology for Engineering Students" by Prof. Ravi Guttal				
1	AR03	A Problem-Based Learning Approach to teach a course on Computer Vision and Digital image processing at the Undergraduate Level	Arunkumar Giriyapur, Ashwini G K	Pedagogies in Engineering Education
2	BT02	Problem Based Learning (PBL) Approach in Bioanalytical Techniques Course	Zabin K. Bagewadi	
3	ME01	Practicing Design by Analysing Component Failure	Nagaraj Ekabote	
Tea Break : 11.00 AM to 11.15AM				

Schedule for Faculty Conclave-2019

DAY 2: 02-Aug-2019		SESSION 6		Time: 11.15 AM to 12.45 PM
Venue: Bio-Tech Auditorium				
Sl. No	**Paper-ID**	**Title**	**Authors**	**Theme**
1	BT01	Industry Internships-A Mandatory Requirement for Biotechnology Engineering Graduates	Zabin K. Bagewadi, Uday M. Muddapur	Research Experiences, Entrepreneurship and Industry – Institute Collaboration
2	CIV02	Promoting The Research Activity Among UG, PG Students and Faculty	Roopa A.K, Anand M. Hunashyal	
3	CS03	Design for Requirements Engineering	Prakash Hegade	

AR01

AUTOMATION OF WATER MANAGEMENT SYSTEM USING A PROJECT BASED LEARNING APPROACH

Arunkumar Giriyapur , Ashwini G K , Shilpa Tanvashi
Department of Automation & Robotics

Project-Based Learning (PBL) is a pedagogical practice. It is a project-centered teaching method with exhilarating potential in engineering education for motivating and enhancing the student learning experience. Project-Based Learning in engineering education has the latent to bridge the gap between theory and practice. However, it has not gained popularity in engineering curriculum due to the large time-scale needed to solve complex engineering projects and the difficulties associated with the assessment of its impact on students. The automation of water management system project was done by 6th-semester students at KLE Technological university ,examines a new method for incorporating PBL into undergraduate Automation and robotics engineering curriculum by integrating the courses such as object-oriented programming practice, database management practice, Mechatronics System Design and Programmable Logic Controller . The survey indicates that the application and integration of the courses, as mentioned earlier into practical engineering applications has increased student engagement in the learning process. Development of strategies for successful implementation of PBL in engineering curricula is significant to engineering education because of the potential positive impact on student learning. Automation and Robotics faculty at KLE Technological University understood this need for implementation of PBL, which has provided the framework for engineering courses.

At the KLE Technological university campus, plenty of water resources are available, but a balance does not exist between the demand and supply of water throughout the university. The campus has several bore wells and overhead tanks. The water pumped from bore well gets distributed to 13 buildings & 4 hostel buildings through a network of pipes. There are approximately 6600 users present in the campus every day. As per the survey, the daily water requirement of a person is about 30 liters; so on an average, the provision of water per day in the campus is about 1, 90,000 liters. Presently the traditional water distribution system is employed to supply water throughout the campus. In the existing order, the water is pumped and distributed through pumps and network of pipes against the gravitational force.

To have a proper distribution of water throughout the campus, a water management system is done by a team of Automation and Robotics staff and students. The group consisted of 5 students and two faculty members. The entire team has developed the prototype for efficient automation of water management system.

The system acquires data from sensors and real-time hardware, which is then stored in the database and sent to the central monitoring system. The collected data is then processed to make an intelligent decision. Object-Oriented Programming is used to create GUI. The central monitoring system has a Graphical User interface for viewing the information about

the water level. The developed real-time automated water management system ensures that the right quantity of water is present in the overhead tanks to ensure even distribution of water throughout the campus at a minimum cost of operation. The project developed by the students was appreciable.

The evaluation of students was done based on well-defined rubrics to test their individual & team-wise skills related to each of the course integrated. The feedback received and the results attained by students were quite encouraging. The evaluation conducted by the faculty team in a collaborated manner helped the analysis of student's performance as well to give them the feedback for improvement, which is considered as an essential step while solving real-time case studies. Here we present the summarized results of the PBL approach in the form of the grades achieved and the feedback analysis for the entire team of five students.

The use of PBL has successfully addresses the time constraints of implementing project based learning in engineering courses. However, a committee of faculty coordinated the implementation of project activities. Student evaluations are supportive of this approach, but more data based on students' perceptions, direct measurement of student learning, and tracking of success in other courses of PBL participants and non-participants are needed before determination of the long-term impact of participation in PBL can be made. Faculty must also be committed to continued implementation and refinement of evaluation methods and to use of evaluation results to improve the impact of PBL projects. The project-based learning approach encouraged our students to develop a balanced, diverse plan to solve real-world problems given to them in a team. It has prepared our students for success in the real world, as no other teaching method can.

Key words: Project based learning, object oriented programming, Database, Mechatronics system design, Programmable logic controller

AR02

A REVIEW ON HACKTHON USING PROBLEM SOLVING APPROACH

Poornima Bhayatti, Ashwini G.K.
Department of Automation & Robotics

Abstract

The word hackathon comes from the juxtaposition of the words hack and marathon. The terms indicate the intense and focused effort, like in a marathon of finding a technological solution that involves software or hardware development. Hackathons are events in which teams compete with each other to develop the best solution to the problem. The term hackathon as it points to different formats depending on the speaker and the listener. The important thing about running a successful hackathon is being welcomed to newcomers and helping them get involved in an activity.

In a quick survey, it was observed that the new methods used in the Hackathon activity inspired students' thinking ability, thoughtfulness, and offered interest study approaches. A hackathon is a time-based event where the teams are put together to collaborate determinedly on a specific real-world problem or challenge, aiming to have a functional prototype by the end of the competition. The purpose is to provide hackathon participants with insights on how to encourage, facilitate, and creation of solutions within the framework of a hackathon.

Regular laboratory exercises do not meet the demands of real-time problem-solving approaches hence there was a requirement of some skill boosting pedagogy such as Hackathon. Hackathon, a new paradigm was introduced during the third semester of the undergraduate program of Automation and Robotics. It is an exciting activity of coding, where students collaboratively work on specifically defined problems. Before the hackathon, students were made to work on online coding practices such as Code chef, Hacker rank to enhance their programming skills in solving real-world problems.

A team of 5 individuals was formed before the event. Working in a group has helped students in terms of better data visualization, document preparation, or collaboratively investigating a problem. A separate class room is made available to the Participants where in they can take out their laptops, connect to power and wifi, and get working.

It was incorporated along with regular laboratory. Well defined problem statements were given to the students at the beginning of the semester. Students were made to solve the problem using a systematic approach, starting from requirement analysis to design thinking using a UML (Unified Modeling Language). UML approach helped in solving problems through graphical representation of system design. Totally ten teams were formed to work on pre-defined real-world problems

Evaluation of the students was done on an individual basis using the rubrics to check their skills in algorithm design, execution methods, analysis, and verification of results. The examination of student's performance based on grading indicated that 72% of them were able to complete the execution about 10 hours and 15% of them took around 15 hours and the remaining students could not give the solution within the assigned time duration of 18 hours. The feedback of students collected after the conduction of Hackathon event through an elaborate questionnaire indicates that they have acquired benefits from the activity by improving their skills in terms of programming logic, debugging, and time management.

The Hackathons based activity offered a wide range of benefits to both students &faculty. It was apparent from the performance of students as well as their response collected through feedback. The activity could address engineering graduate attributes 1, 2,3,4,5,8,9,10,12, and it is a better learning experience for both the faculty and students. There is a need to identify problem statements about real-time case studies related to Automation &Robotics applications for Hackathon activity in the coming semester.

Key words: Hackathon, Problem Solving, C programming, data structure, UML.

AR03

PROBLEM BASED LEARNING APPROACH TO TEACH A COURSE ON COMPUTER VISION AND DIGITAL IMAGE PROCESSING AT THE UNDERGRADUATE LEVEL

Arunkumar Giriyapur, Ashwini G K
Department of Automation & Robotics

Abstract

Image processing and computer vision are gaining anemer gentattr activeness in various fields of engineering like robotics, instrumentation, security systems, and industry. In today's rapidly moving realm, staying up-to-date is a key to success. This is particularly true in the field of Automation & robotics engineering. The practised technique attempted to use the problem-based learning approach to develop and teach a computer vision and digital image processing course at the undergraduate program.

The fundamental concepts present in the course remain unchanged; some of the tools that were used earlier have become totally obsolete today. To ensure that our graduates are well prepared to excel in both the industrial and the research worlds,we intensely believe that, topics in image processing, computer vision, and computer programming languages can be put together to create a very demanding course.

At the department level, this course is offered as a 3 credit elective. Due to the tremendously applied nature of the class topics in projects, and also by considering the several studies which have shown the effectiveness of learning by doing it practically, the class was developed and taught using the problem-based learning methodology. As a pre-requisite for the course students were expected to have some prior acquaintance in computer programming languages. While all of the course related work execution was carried out in Matlab, Open CV and programming background in any high-level language was also accepted.

The class was scheduled to meet, for 60 minutes, 3 times per week. The class gatherings were organized into three comprehensive forms: lectures, problem discussions, and labs. In the lecture class meetings, the instructor presents new concepts and fundamental material in a traditional lecture format. The problem discussion class meetings are where the course instructor introduces the problem and explains the submission requirements. Students also use these meetings to ask high-level questions about the problem given to them. During the lab sessions, students work on their problem statement to arrive at the solution. In these sessions, the course instructor's job was limited to check on the student's progress and answering technical questions that may arise.

Evaluation of student's problem-solving ability and their performance was carried out with the well-defined rubrics. During the last week of class, students were asked to fill out a feedback form for assessing their learning experience in the course delivery. A total of 36 out of 40 students enrolled in the course participated in the survey of feedback.

Difference between problem based learning and traditional learning is significant. Better learning effects are achieved by those students who have experienced PBL. Specifically, students who have experienced PBL have shown higher learning enthusiasm and analysing ability. What's more, their writing skills and presentation skills are also well cultivated.

The pupils' opposition to the new learning approach was not always polite and courteous, particularly at the beginning of the semester. Time was invested in multiple occasions during class meetings to explain that the problem-based learning approach is used because research shows that it creates a better learning experience in the long run and that it does not require less preparation on the course instructor's side.

Key words: Hackathon, Problem Solving, C programming, data structure, UML.

BT01

INDUSTRY INTERNSHIPS - A MANDATORY REQUIREMENT FOR BIOTECHNOLOGY ENGINEERING GRADUATES

Zabin K. Bagewadi, Uday M. Muddapur
Department of Biotechnology

CONTEXT

Biotechnology engineering is a field of applied biology and chemical engineering principles that involves the use of living things in engineering, technology, medicine, and other useful applications. Biotechnology is one of the top fields of studies and employment, both from Indian and global perspectives. Aspiration for a core biotech employment calls for a hands on expertise and practical work experience. An internship opportunity is the first hand real time work experience for the graduates for acquiring the practical know-how that creates better career prospects. In fact, for biotechnology domain, training and internships are almost mandatory.

PURPOSE

Internships in biotechnology provide opportunities in research and development, manufacturing and production, quality control and assurance, technical support, and regulations and documentation. The significant outcome of biotech internship is a full spectrum of lab experience to develop analytical skills.

APPROACH

Introduction of internship course for biotech graduates in 8th sem of BE- Biotechnology program has tremendously made a way out for better employability opportunities, and creation of skills. The process of internship is meticulous monitored and coordinated by the department. The complete internship process involves the identification of industries for internships, availability of facilities for quality projects, dialogues between industry mentors and coordinator to understand the need, disseminate university mandates, collect valuable industry feedbacks, interns evaluation, industry visits by faculty etc. The feedback from interns is collected specifically to understand the industry culture and technologies, improve the teaching learning process, adopt the industrial practices in labs and to bridge the gap between industry and academia. The feedback from the industry provides an understanding on the graduate's knowledge base, skills, attitude and graduate attributes.

RESULTS

The successful internship accords for the systematic training provided during the course projects, mini project and minor project targeting to specific skill set development and designed to meet the basic industry requirements. The industry internship course is a boon for graduates to experience the real world situation and learning. This course is a win-win situation for both the industry and academic partners. The 4 consecutive cycles of this course has strengthened the program in terms of MOU's, building networks, improving employability and higher education status. Each academic year has an improvement in internship %, placement opportunity % and conversion rates. Complete data analysis depicts strong graduate attribute achievements in terms of technical and professional skills as the interns contribute towards building solutions for real-world problems and applications.

CONCLUSIONS

Biotechnologists work extensively in the quality control, quality assurance, upstream, downstream, analytical and production departments of these industries. The industry internship exposure has tremendously improved the graduates aptitude and managerial behaviour. With these significant outcomes, biotechnology department focuses on achieving 100% internships in future

Key Words: Biotechnology, internship, training, employment.

BT02

PROBLEM BASED LEARNING (PBL) APPROACH IN BIOANALYTICAL TECHNIQUES COURSE

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Department of Biotechnology

CONTEXT

Problem based learning (PBL) is an instructional method that highlights cooperative work in small teams to address real world problems. PBL engages the students effectively in the learning process; promotes deeper student learning and critical thinking. PBL mode of course delivery have been globally implemented in several courses such as, instrumental analysis, Qualitative analysis lab, Quantitative analytical chemistry, medical and nursing courses etc.

PURPOSE

The rapid development of bioanalytical tools and techniques in biotechnology has lead to a wider horizon of their applications in various fields such as, pharmaceuticals, life sciences, environmental science, agricultural science, food science etc. A traditional lecturing approach may not cover a wide range of advanced instrumental analysis for various applications in industries. This limitation can be overcome through a PBL approach of learning advanced bioanalytical techniques and their applications in real time which makes it more sensible and student centric.

APPROACH

The PBL approach was initiated in Bioanalytical Techniques course offered to 6th sem students of Biotechnology engineering graduates. For a PBL, students were grouped into a team of 5 members and 9 such teams were formed. Team formation does have an effect on the students learning as they are interacting among the team. Initially, all the required basic understanding of analytical tools and techniques with principle, instrumentation and operations were delivered through lecture mode. After covering the basic techniques in the class, real time problems were defined and given to the students to solve it with some level of scaffolding. All the team were given a different problem. The students were given 2 weeks to understand the problem and solve it with the most appropriate solution using the most relevant and advanced analytical techniques. The students after developing the solution should present it in the class through a PPT presentation which was planned and scheduled on a particular date. During the presentation, the students need to focus and explain the underlying principle involved in the bioanalytical technique adopted to solve the real problem, analyse and interpret the results obtained and make a precise conclusion.

RESULTS

The PBL approach helped the students to reflect on the applications of the bioinstrumentation techniques used in the industries for specific purpose. Discussions with the facilitator and other audience followed the presentation. Clarifications on the concept and applications were further discussed by the facilitator. An oral feedback was given to the students based on their performance. The post presentation also followed by asking questions related to the problem in order to evaluate the depth of the learning.

CONCLUSIONS

This PBL approach will help the students to connect to the real time industrial problem analysis approaches in the class. Specific skills like metacognition, self-regulation, social interactions etc are build in the students during PBL. The students imbibe in depth knowledge through this approach. The biotech graduates have to face telephonic interviews during industry internships and also undergo a face to face interview during placements where questions are asked based on bioanalytical techniques and their applications. The PBL approach will also strengthen their analytical capabilities to solve L3 level questions in GATE exams which are based on problem analysis/solving.

Key Words: PBL, bioanalytical techniques, presentations

CEER01

FRAMEWORK FOR ARTICULATING "COMPLEX" NEED STATEMENTS FOR MULTI-DISCIPLINARY DESIGN PROJECTS IN FIRST-YEAR ENGINEERING

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[2]School of Mechanical Engg
[3]School of Electronics & Communication Engg

CONTEXT

'Engineering exploration' is a project-based learning course offered for first-year engineering students. The course focuses on developing enduring outcomes, namely, design thinking, multidisciplinary nature of engineering problem solving, and teamwork. In this course, students, as a part of their cornerstone project, solve design problems that are framed as need statements, and design mechatronics prototype by following the engineering design process. On examination of project artifacts from the previous deliveries of this course, the authors observed that certain need statements reflected a balanced set of multi-disciplinary knowledge and skills, diversity in solutions, an absence of design fixation, cost and technical feasibility, excitement, attainment of course outcomes and medium complexity level.

Among the various characteristics of the need statements, this article focuses on "complexity." The authors attempt to operationalize what "complexity" means at first-year engineering by examining the multidisciplinary project artefacts from the previous six deliveries of this course. This article will guide engineering educators who engage in multi-disciplinary first-year engineering courses to articulate need statements with a "known" and "attainable" quantum of complexity so that the first-year students undergo successful design experience.

PURPOSE

Through this work, the authors explore the following research question:

How can "complexity" be characterized in need statements that are framed for multi-disciplinary Design Projects in First-year Engineering?

APPROACH

For the process of analysis, the course project artifacts namely, photographs, videos and project reports for the previous six deliveries (for the years 2015-2016, 2016-2017 and 2017-2018) were examined to understand which need statements resulted in good quality projects, a pattern that as grounded in data emerged. The authors represent the resulting pattern as a framework for framing and evaluating need statements. The framework has also been used to formulate and evaluate need statements for the ongoing semester.

RESULTS

Table 1 chronicles the pattern stemming from examining projects artifacts.

Year/ Semester	Emerging pattern from projects' artifacts that can be traced back to need statements	Effect of projects
2015-2016 (Odd)		This semester has not been included as the students identified the need statement for study.
2015-2016 (even)		• Lack of multi disciplinary engineering problem solving • Many Projects were uni-disciplinary- only electronics or only mechanical; very few reflected a balanced set of multi-disciplinary skills • Need statements like automatic oil-dispenser, shoe polisher, pencil sorter reflected the enduring outcomes • Some projects were technically and financially infeasible • Lack of divergent solutions
2016-2017 (Odd)		• Projects were of varying degree of complexity, which hampered project success. • Design-fixation existed in the need statements. This led to similar designs. • The need statements resembled problem definitions prescribing solutions.
2016-2017 (even)	• Multi-disciplinary and a balanced set of knowledge and skills • Time and technical feasibility	• A distribution of multi-disciplinary knowledge and skills was evidenced • Projects were of varying degree of complexity, which hampered project success. • Design fixation was observed • Non-divergent solutions were observed • Students and faculty perceived some projects as exciting
2017-2018 (Odd)	• Multi-disciplinary and a balanced set of knowledge and skills • Time and technical feasibility • Existence of at least four different concepts • Excitement as against typical academic projects	• A distribution of multi-disciplinary knowledge and skills was evidenced • Most projects were of mid-complexity • Design fixation was reduced • Various solutions were seen for the same need statement

CONCLUSIONS

Through this article, the authors propose a theoretical framework to formulate and evaluate "complex" need statements. The framework has been used for evaluating need statements for 2017-2018 (even) and the current semester, 2018-2019. Though there is sufficient literary background for ill-structured problems, how to frame them as need statements for design projects in the engineering curriculum is a grey area. Thus, this abstract shows the preliminary direction in this regard and complete analysis, results, and implication will be discussed in the full paper.

KEYWORDS : Need Statements, Engineering Design, first-year design experience, Cornerstone projects.

FRAMEWORK FOR ARTICULATING NEED STATEMENTS THAT PROMOTE DIVERSE SOLUTIONS FOR MULTI-DISCIPLINARY DESIGN PROJECTS IN FIRST-YEAR ENGINEERING

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CONTEXT

'Engineering exploration' is a project-based learning course offered for first-year engineering students and addresses enduring outcomes that include design thinking, multi disciplinary nature of engineering problem solving and teamwork. In this course, students, as a part of their cornerstone project, solve ill-structured problems, which are framed as need statements and design mechatronics prototype by following the engineering design process. On examination of project artefacts from the previous deliveries of this course, the authors observed that certain need statements reflected diverse solutions while few did not. Therefore, in the context of first-year multi disciplinary design experience, it is necessary to understand the quality parameters of need statements that can enforce diverse solutions. The need statements evaluation was done from three perspectives that include diversity, complexity and feasibility. However in this article, discussion is limited to diversity perspective. The motive behind this research is to help engineering educators to know how ill-structured problems can be framed as need statements to ensure that there is a possibility of diverse solutions emerging out of the need statement.

PURPOSE

Through this work, the authors explore the following research question:

1. Identify the parameters in the need statement that can enforce diversity in the solutions for multi disciplinary projects at first-year engineering.

APPROACH

For the process of analysis, the course project artefacts namely, photographs, videos and project reports for the previous six deliveries (for the years 2015-2016, 2016-2017 and 2017-2018) were examined to understand which need statements resulted in good quality projects, a pattern that as grounded in data emerged. The authors represent the resulting pattern as a framework for framing and evaluating need statements. The framework has also been used to formulate and evaluate need statements for the ongoing semester.

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2017-2018 (Odd)	• Multi-disciplinary and a balanced set of knowledge and skills • Time and technical feasibility • Existence of atleast four different concepts • Excitement as against typical academic projects	• A distribution of multi-disciplinary knowledge and skills was evidenced • Most projects were of mid-complexity • Design fixation was reduced • Different solutions were seen for the same need statement

CONCLUSIONS

Through this article, the authors propose a theoretical framework to formulate and evaluate need statements from the perspective that it can generate diverse set of solutions. The framework has been used for evaluating need statements for 2017-2018(even) and the current semester, 2018-2019. Though there is sufficient literary background for ill-structured problems, how to frame them as need statements for first-year engineering design projects is a grey area. Thus, this abstract shows preliminary direction in this regard and complete analysis, results and implication will be discussed in the full paper

KEYWORDS : Need Statements, Engineering Design, First-year design experience, Cornerstone projects

CEER05

3D MODELLING: RUBRICS FOR PROMOTING PRACTICAL DESIGNS FOR MECHATRONIC PROTOTYPES IN FIRST-YEAR ENGINEERING

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CONTEXT

Introduction of Multidisciplinary design experiences has been one the most popular curricular innovations at first-year engineering. At the author's institute the course, "Engineering Exploration" is one such innovation. The course ascribes to project-based learning pedagogy and the students learning culminates in a mechatronic prototype by following the engineering design process. During the implementation (virtual) phase of the design process, the student teams model the selected concept on Auto desk Inventor. At first-year engineering, the students have limited skills in modelling and this leads to impractical and infeasible models. The models exactly match the concepts, are fantastical and lack practical detailing. Due to these issues, the students end up investing more time during the physical implementation phase. Through this article, the author attempts to formulate rubrics for evaluating 3D models so as to promote practicality of designs, keeping in mind the fabrication tools and equipments available for use.

PURPOSE

The research question is to identify what must be assessed in the 3D models that are produced by first-year engineering students in the context of mechatronic prototypes so as to promote practicality and feasibility during the physical implementation phase.

APPROACH

The study follows a qualitative approach by conducting a focus group discussion with six faculty members who have been teaching and monitoring this course for atleast four semesters. The faculty members described in writing what they reviewed in the 3D models which the students produced. The lead author examined thirty six 3D models drawn in Autodesk Inventor by comparing them with their paper-based concepts. By analysing the data produced from these three exercises the authors have arrived at a set of rubrics for reviewing the 3D models.

RESULTS

Due to space constraints, the authors only present the criteria with which the 3D models must be assessed. The complete rubrics will be presented in the full paper. The criteria for assessment are: resemblance to conceptual design, conformance to dimensions stated in the problem definition, systemic segregation of subsystems, individual part modelling, modeling of joints, placing and fixing of different types of actuators at joints, material selection, and interfacing off-the shelf subsystems.

CONCLUSIONS

In Engineering Exploration, every year 15 faculty members mentor approximately 250 projects (mechatronic prototypes). For this scale, the authors are attempting to establish a set of rubrics to review the 3D models so that the students can be given actionable feedback. The application of these rubrics has led to more practical detailing which is evidenced in the Bill of Materials that the students produce at the end of the virtual implementation phase. It should be borne in mind that the rubrics are influenced by the fabrication facilities that are available at the authors' institute.

KEYWORDS

First-year engineering, 3D modelling, virtual implementation, rubrics

CEER07

MICRO-LEARNING IN ENGINEERING EXPLORATION COURSE FOR LEARNING ARDUINO

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CONTEXT

Micro-learning deals with relatively small learning units and short-term-focused activities. It is based on the idea of developing small chunks of learning content and flexible technologies that can enable learners to access them more easily. Such micro contents were developed for acquiring skills related to Arduino in Engineering Exploration course. Considering the attention span of the 21st century learners and their digital nativity, micro-learning is a feasible pedagogy, especially for inculcating skills. This article focuses on the effect of micro-learning pedagogy on first year engineering students on developing skills.

PURPOSE

Following research question is being addressed in this study:

1.How effective was Micro-learning pedagogy for first year engineering students for developing skills.

APPROACH

Micro contents were developed for the relevant content of Engineering Exploration course and were uploaded on YouTube. Initially, for a semester the implementation of micro content was done during the regular class hours for closed monitoring purposes. Later, in the next semester, the videos links were shared well in advance to the students. The effect of this strategy was later studied by conducting quiz.

RESULTS (for work-in-progress papers please describe work to date and future plan)

The quiz conducted has shown normal distribution of marks. Students watching the YouTube videos even after the classes are completed have proved created micro content to be relevant. Many other results and discussions are highlighted in the full article.

CONCLUSIONS

For current generation, micro learning is the apt pedagogy, because it offers capabilities of whenever and wherever learning. The content being small, the cognitive overload is significantly reduced. Micro learning is highly suitable for making students acquire cognitive skills. However, creating micro content for other than cognitive skills is noticed to be difficult.

KEYWORDS

Micro-learning, first year engineering.

CIV02

PROMOTING THE RESEARCH ACTIVITY AMONG UG, PG STUDENTS AND FACULTY

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CONTEXT

It is the goal of every institution to improve its research potency, and an enabling environment where research is uniformly expected, produced, valued. Research culture refers to a system that prioritizes continuous engagement and communicating of quality scholarly research, and pursuit of vibrant research endeavours. The final year (capstone) projects are the largest - and in many cases the only - projects that engineering students execute. The main objective of the this work topersuadestudents for collaborative working as research team and promoting multi-disciplinary activity in order to enhance research experience among UG and PG students through the capstone project. This research culture will also help the faculty to strengthen the knowledge, improve competence and increase their professional credibility.

PURPOSE

The aims to develop research skills in UG and PG students, allow them to carry out in-depth study on common research problem through collaborative working, leading to research publications and conferences. Further patents and products can be realised with this research group and multi-disciplinaryapproach.

APPROACH

Earlier capstone projects were carried independently on different research topic. The main drawback was intermittent of topic over the period which lead to superficial study of topic. To overcome this research group were formed among different batches of UG and PG students in order to carry out in depth study on common research topic i,e development of concrete sensor for structural health monitoring.

RESULTS

The main outcome of this activity is to increase the number of publications/conference which forms an important component of Research, Professional Practice and collaboration performance parameter. Furthermore it reflect constructively on student research experience, where identifying what they learned about the discipline, opportunities for growth, and their research goals in particular field.

CONCLUSIONS

By this practice of forming research team helps to gain the in depth knowledge on particular research problem and its possible to carry out research work in short time with more efficiently. This enable the higher quality of research activity at department level which will lead to the increasing level of publications/conference.

KEYWORDS

Research Group, Multi-disciplinary projects, sensor development, Publication

CS01

OSPP: AN INTEGRATED HANDS-ON COURSE AND ITS LEARNING EXPERIENCE.

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CONTEXT

Operating system (OS) and Unix System Programming (USP) were two fundamental core courses, which were usually taught during 4th and 5th semester of Computer Science & Engineering discipline. Students were unable to connect principles of operating systems with real world implementations of OS like UNIX and Linux due to isolated teaching and learning process. Hence integrating OS and USP is the need of the hour.

PURPOSE

Purpose of integrating OS and USP, is to enable the students to design and simulate process scheduling, process controlling and file management using system calls.

APPROACH

Earlier OS was of 3 credits (3-0-0) for 4th semester, and USP was 4 credits (4-0-0) for 5th semester. In current curriculum OS course is redesigned by integrating OS and USP as Operating System Principles & Programming (OSPP) of 5 credits (4-1-0). Tutorials and activities; providing hands on programming experience is the key initiative in this approach. Flipped classroom approach is carried out for session on identified topics to strengthen higher level thinking and motivate for life-long learning in collaboration with EkLakshya Transformations. Co-teaching on a particular topic by Samsung team, with special focus on industry practice is found to complement learning process.

RESULTS

This integrated approach helped to attain PO3 and PO 12 in addition to PO1, PO2, and PO14. Learning major components of OS, such as process, file and memory management concepts were better due to tutorial and activities practiced during system programming. This is evident by analysing PO attainment at ISA and ESA exams. Results of pre test and post test conducted during flipped classroom clearly indicates improvement in higher order thinking as well as self learning ability.

CONCLUSIONS

From results, it is evident that the approach of integrating OS and USP has improved the overall understanding of OS concepts due to practical implementation in the tutorials. In future, we are working on developing customized tiny OS on Android platform to meet user requirement.

KEYWORDS

Integration, OS, USP, Lifelong learning, Flipped classroom, PO attainment.

CS02

AN EXPERIENTIAL KDD PROCESS THROUGH PROJECT BASED LEARNING

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CONTEXT

In an era where everything is “data” and sneaking through the gold rush happening in 21st century towards data and data mining applications, delivering the course Data Mining and Analysis to make student’s prepare for global challenges ahead was a challenging job. Although Project Based Learning is not a new pedagogy but the usage of project based learning in Data Mining and Analysis (DMA) course has possibly made huge changes in tackling real world problems.

PURPOSE

Introducing Project Based learning in the course DMA was to enhance the student learning approach and expose them to real world problems.

APPROACH

The DMA course is offered in third year of Computer Science & Engineering Curriculum. To gain the momentum in course and train student’s to be capable of providing solutions to real world problems many key things were planned and executed. The first key was to redesign the course content. Second was, to change the assessment structure and third to align the lab with theory wherein theoretical concepts were taught and same was applied in laboratory through hand on sessions.

Course project was a key to success in this experiential learning. The problem statements chosen were live open challenges from various domains such as health, water resources, financial transactions to security were given to students.

RESULTS (for work-in-progress papers please describe work to date and future plan)

The effect of the study made was phenomenal. Our students were globally acclaimed and won glories in many challenges. Among 42,585 competitors across the globe participating for 16 unique projects our 120 students secured less than 100th ranking.

CONCLUSIONS

The process of project based leaning in Data Mining Course was credible as the goal of enhancing students learning and setting them to face global challenges was considerably achieved.

KEYWORDS

Data Mining Analysis, Project based Learning,

CS03

DESIGN FOR REQUIREMENTS ENGINEERING

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CONTEXT

Requirements engineering is a critical and foremost part in software development process as every further step is influenced by it. Requirements engineering refers to the process of defining, documenting and maintaining requirements. Interviews, brainstorming, task analysis, Delphi technique, prototyping etc are some of techniques involved where the stakeholders can be customers, business manuals, standards, existing similar projects, experts, etc. The modern digitized society and rapidly growing start-up culture presents several gaps in the current process that needs immediate addressing. The major gaps in the process are: modes of collection, infrastructure development, inherent properties, digitized culture etc. This paper work is experiences drawn from working at Transil Technologies under Faculty Student Start-up Grant.

PURPOSE

Do we have sufficient tools and techniques at disposal for requirements engineering towards digital society and emerging start-ups culture? Is the research question.

APPROACH

This paper breaks down the research question into various facets and presents the bridges to cover the existing gaps. Inducing a design aspect with wire frames playing the key role, requirements are elicited by containing infrastructure, services, impact of existing automations, competitors landscape etc. We name this approach as – design the requirements (DTR). Paper present the DTR, the methodology, in details by breaking down its components. The data used (partial), is the data collected from a real time project acquired by Transil Technologies.

RESULTS

This paper systematically compares and classifies the traditional and DTR approaches for the project carried out at Transil technologies (customer engagement and service platform). DTR fares relatively better in capturing the requirements and also helping out in future design process.

CONCLUSIONS

DTR certainly certifies to be a promising and better approach for the modern society. The results clearly show that contemporary projects are complex than what we actually think and need a wider horizon of rational thought process.

KEYWORDS

Requirements, Wireframes, DTR

CS04

ONE-DAY MANY-PROBLEMS: A PROBLEM BASED LEARNING APPROACH

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CONTEXT

As cited by (Duch et al, 2001) Problem-Based Learning (PBL) is a teaching method in which complex real-world problems are used as the vehicle to promote student learning of concepts and principles as opposed to direct presentation of facts and concepts. PBL can promote the development of critical thinking skills, problem-solving abilities and communication skills in addition to the course content delivery. Many universities like Republic Polytechnic have complete courses delivered using PBL approach where they also have a dedicated centre that works on building PBL case studies. A PBL class requires a proper planning at various levels from setting an ill-structured problem scenario to evaluation parameters.

PURPOSE

PBL sessions usually require day long learning and interaction while most university class sessions span from 1 to 2 hours. How can we effectively adapt the problem based learning into teaching curriculum of 1-2 hours class sessions? Is the research question.

APPROACH

This paper presents the approach of designing PBL sessions for a class of strength up-to 60 and sessions lasting 60 to 120 minutes. One-Day Many-Problems approach presents a teaching-learning model which helps to design questions, facilitate discussions, trigger motivation, provide reflections and comprehend using scaffolding activities. The sessions are planned to engage the class in intervals where a chain of sessions sum up to comprehensive conclusions. The paper also further presents a case study which was carried out for the Model Thinking course for VIII semester. The minor exam data was collected for analysis.

RESULTS

Several sessions were planned for Model Thinking course offered for VIII semester using One-Day Many-Problems approach. The paper discusses the objectives met and how the course delivery was effective as compared to traditional means quantified over achievement of Course Learning Outcomes (CLO). Two minor exams data is analysed for the approach analysis.

CONCLUSIONS

PBL is already proven to be one of the effective means of a course delivery. This paper puts forth techniques on how it can be adapted to shorter sessions and courses for which designing PBL is a challenge.

KEYWORDS

Course Learning Outcomes, One-Day Many-Problems

CS05

PROBLEM SOLVING AND COMPUTATIONAL THINKING

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CONTEXT

Problem-solving is the process of witnessing the workflow in the considered scenario; identifying the key factors of influence, designing solutions to impact change and monitoring the progress over time. Problem solving skills are highly sought after by employers as many companies rely on their employees to identify and solve problems. Critical thinking, rational thinking, creativity, analytic capabilities are some of the key aspects that problem solving involves and evolves. Computational thinking is a set of problem-solving methods that involve expressing problems and their solutions in ways that a computer could execute. There is a profound and unswerving relationship between Problem Solving and Computational Thinking. This paper work is an effort derived from the joint work with company Knit Arena under Faculty Student Start-up Grant.

PURPOSE

How well can we use the problem solving into teaching methodologies? is the research question that this paper puts forth.

APPROACH

Problem solving can be essentially divided into a model, an argument structure and a conclusion. All these can be majorly influenced by computational thinking. This paper presents the various dimensions where computational thinking can enhance the problem solving methodology which otherwise would be an ignorant. With computational thinking, a problem naturally boils down to various parameters which contributes to solution formulation and evaluation.

RESULTS

The techniques mentioned were applied in delivering the Algorithmic Problem Solving course, an elective course offered at VI semester. The results have been positive with enhanced Course Learning Outcomes and improved problem solving abilities which is measured through Code Chef competitions.

CONCLUSIONS

We all have been aware of computational thinking but there was no attempt made to formulate it and adapt into course delivery. This papers presents the approach and can be applied to all courses that involve problem solving and automation.

KEYWORDS

Problem Solving, Computational Thinking

CS06

GENERATION Z: DECODING THE COMMON TONGUE

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CONTEXT

Generation Z kids are ambitious. They differ in media consumption, experiences, tech-savviness, respond to edgy campaigns, co-create culture and also entrepreneurial. Being presented with a framework Edify-Z in the previous conclave there was still a major challenge on how best to connect with these Kids. Do they differ a lot from what the current educators are? How do they interact and what are better means to connect to them? Etc are major challenging questions.

PURPOSE

How best can we connect with the Generation Z kids? Is the research question considered in this paper.

APPROACH

This paper explains different methods that were used to connect with Generation Z kids. The approaches span to three course – Data Structures and Algorithms, Algorithmic Problem Solving and Model Thinking spread over two semesters. Weekly Honest Dashboard, Quick Quizzes, Meme Challenge, 100 Questions Challenge etc are the used methods to name some from the list. The paper further draws conclusive points from the adapted methodologies and how they can be transferred over other courses and activities.

RESULTS

Through three courses, the methods were employed to II, III and IV year students of School of Computer Science and Engineering. There has been a positive improvement over course learning outcomes and a positive feedback over employed techniques.

CONCLUSIONS

Though we all have a common tongue, there are certain cosmetics that connect better with Generation Z kids. For an educator it is important to understand and use them in the teaching methodologies.

KEYWORDS

Generation Z, Tongue, Teaching Methodologies

CS07

PROBLEM BASED LEARNING AND PUBLISHING REFEREED PAPERS THROUGH COURSE PROJECTS

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CONTEXT

Publishing quality papers in both International conferences and Journals is one of the great challenges faced by Engineering Institutions. To publish quality papers with scopus index based on the experience of Course Projects which are explored through Problem Based Learning. This was considered in third semester MTech. Since the time is too short and is only 16 weeks, we have come up with many ideas and used new innovative process to publish papers in International Conference with Scopus Index.

PURPOSE

The main purpose is to train the MTech students to publish quality papers in International Conferences / Journals with scopus index through course projects. To publish quality papers with scopus index, based on the experience of course projects require lot of in-depth knowledge, choosing tools and making use of the latest technology. Imparting this knowledge is challenging and is achieved through problem based learning.

APPROACH

Choosing the latest area was the first challenge. Internet of Things (IoT) was a course in third semester MTech and was selected as the theme for Course Projects and it was compulsory. The students were given a chance to choose a problem in the area of their interest under IoT. After selecting a problem, optimal and feasible solution has to be selected with innovation. The students as a team have to learn and give a solution to the problem and it should be such that the work carried out should be able to publish the paper in an International Conference / Journals. There were nineteen students in the class and five teams were made out of nineteen students. The target of each team is to publish one scopus indexed paper in International Conference / Journal. All the five teams are able to achieve the goal set and is discussed in the results below.

RESULTS

All the five teams formed are able to submit the papers to IEEE International Conference on Advances in Information Technology 2019 (ICAIT2019) and all the papers have been accepted, three will be published in IEEE Explore and two will be published in UGC Referred INTERNATIONAL JOURNAL OF RESEARCH IN ELECTRONICS AND COMPUTER ENGINEERING (IJRECE) and all are scopus indexed.

CONCLUSIONS

It has been a practice to teach a course with emphasis on theory. In this approach a course project was insisted by selecting a problem and giving an IoT solution to the problem. The five teams formed are able to publish five scopus indexed papers one per team and are able to get in-depth knowledge about the course taught. Without this kind of approach, the students would not have published such papers and would not have got in-depth knowledge.

KEYWORDS

IOT, Problem Based Learning, Course Project.

CS08

INTRODUCING DESIGN PATTERNS IN OBJECT ORIENTED PROGRAMMING WITH C++ COURSE: AN INITIATIVE

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CONTEXT

Design patterns concept has become popular means to encapsulate object oriented design knowledge and help in the creative act of designing, implementing and documenting the software system. Design patterns are considered as reusable micro-architectures that contribute to overall system architecture. They have become an important part of the vocabulary of experienced software developers. However, we had a practice of teaching "Design and then implement" in Object Oriented Programming (OOP) courses with the scope of class diagrams using UML (Unified Modelling Language) concepts. It is an effort to extend the design practice by introducing design patterns.

PURPOSE

The design patterns are the vocabulary of experienced software developers and popular means of encapsulating object oriented design knowledge. There is a practice of design and implement in object oriented programming course earlier and to extend that practice the design patterns concept is introduced.

APPROACH

We had a practice of "Design first and then implement", this process helped to fulfil the requirement for prerequisite and made easy to understand design patterns. This process includes conducting few classes/lab sessions to acquire knowledge of design using UML class diagrams and few assessments exclusively on design activity. Once the students are familiar with design and then implement approach, the topic design patterns is introduced. There are 23 design patterns classified under three categories. To initiate design patterns concept we introduced 6 commonly used design patterns, 2 each in 3 categories.

The application of design patterns as a design solution by student is planned early in the course design through open ended assessment. The assessment is conducted in two phases. In first phase, a team based activity is conducted, each team is prepared a design document for the problem defined and implemented in second phase, and student is allowed to choose any suitable design pattern among 23 patterns and every team has to use/apply more than one design pattern. Most of the teams are able to use one design pattern and few teams apply 2 design patterns.

RESULTS

Overall 80% of the teams are able to apply standard design patterns.

CONCLUSIONS

The practices adopted to introduce design patterns helped the students to understand and apply design patterns. There is a scope to follow structured approach to apply design patterns.

Key words: UML, Design-Patterns, class diagram

HS01

TO IMPROVE PRESENTATION SKILLS OF THE ENGINEERING STUDENTS THROUGH A VIS-À-VIS EVALUATION APPROACH – A PEDAGOGICAL EXPERIMENT.

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Abstract

Today's aspiring Engineer has to be an all rounder. It's not only good technical knowledge but they should also know how to communicate what they know through different platforms like in person conversations, video conference, tele-conference, Skype account, power point presentation and many more which actually requires them to have a command over the language and good presentation skills.

After we had a detailed discussion with the stakeholders (HODs, Placement officers, Deans) on campus before revisiting the Professional Communication course content which is delivered to the freshman students; we learnt that our students required an immediate intervention in improving their presentation skills. This prompted us to research and go in for a pedagogical experiment.

This paper talks about the approach that was picked up in detail.

The vis-à-vis Evaluation Approach is a unique approach which not only gave an opportunity for the faculty to assess the students on the rubrics designed but also gave the students to self-evaluate on the set rubrics. The rubrics had been designed on the different parameters keeping in mind the Presentation skills after a thorough brain storm session. The presentation was scheduled at three levels, Base line Evaluation followed by Mid-term Evaluation and End term Evaluation. The vis-à-vis Evaluation was done twice firstly after base line Evaluation and secondly after Mid-term Evaluation. Soon after the base line evaluation the faculty gave detailed inputs on the required improvements and after mid-term evaluation the faculty further counselled the student with the parameters which still required fine tuning.

The approach helped the students to realize and work on their shortcomings. The one on one session not only motivated the students but also educated them on the importance of proper presentation skills. It also imbibed in them the read skills. This approach not only improved the scores of the students and boosted their confidence level but it also redefined the role of the faculty from the sage on the stage to the guide by side.

Key Words :

Vis – a – Vis Approach, Baseline, Mid-term, Final Evaluation, Presentation Skills, Rubrics, freshman, Reading Skills.

MB01

DATA DRIVEN EDUCATION- A ROAD AHEAD?

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CONTEXT

The formal education has come a long way. We have moved on from chalk and talk ,case based teaching etc. to flipped classrooms and MOOC. At each transition phase ,technology has played a major role. The Education Management Platforms, both open source and proprietary, have made it possible to collect large amount of data for Universities. The data could be used to explore, infer or even predict learning. In this context advances in computing like Machine learning, Big data find their applications.

PURPOSE

The study explores few possible of applications of Machine learning in design, revision and /(or) evaluation of programs.

APPROACH

Now, established models like Bloom's taxonomy and outcome based education are adopted by many reputed institutions all around the world. The marks scored by the students represent their attainment of a specific PO, as per the course design.

The study explores the possible relationships between the courses and POs.The internal marks of batch 2017-19 for all the core subjects (Term I - VI) were collected and explored using unsupervised Machine learning algorithm.

RESULTS (for work-in-progress papers please describe work to date and future plan)

The algorithm revealed many interesting patterns for further study.

CONCLUSIONS

The study throws many questions for further consideration.

- Can we group subjects based on the student's performance ?
- Is it possible to standardise the pedagogy for the grouped subjects for better learning outcome?
- Whether the performance of the students in particular subject (s) predict their performance in upcoming terms?
- Is it possible for the faculty to design pedagogical interventions for smooth transition? etc.

KEYWORDS

Outcome based education, Machine learning.

PRACTISING DESIGN BY ANALYSING COMPONENT FAILURE

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CONTEXT

Any design concept / methodology is ineffective without practising through a real practical problem analysis. In the available teaching methods, students often understand the importance of the design methodology but fail to apply the same to the real problem scenario (at least fail to address the depth required). Literature suggests some pedagogical tools to address this issue but many fail to witness its success other than regular assessments like written exams and problem analysis.

PURPOSE

The critical feature of all real practical problems is their ill-structured nature and the need of integration of concepts to solve those problems. Since the design of machine components in Minor projects and Capstone projects is a central issue in success rate of the project, students often fail to convert ill structured problem and apply design methodology. Hence a disruption is needed to address the issue in teaching core design subjects.

APPROACH

To bridge this gap, redesigning of a failed machine component as an assignment was introduced in Fundamental of Machine design subject. Students in a group of two, worked on designing of a familiar failed machine component through the design procedure learnt in the regular classroom. Two weeks' time has been assigned to execute the redesigning and addressing the failure cause of the selected failed component. This activity was mainly to tackle the important and crucial phase of design i.e. ill structured problem to well-structured problem conversion. This student centered learning intervention through activity has been made nearly at the end of syllabus coverage, so that skills to execute design methodology have been imbibed already in the students through variety of structured problem solving during regular classes.

RESULTS and CONCLUSIONS

Majority of the students were able to execute the crucial parts of the designing process in an intended way. Ill structured problem conversion was scaffold by the instructor through discussion, component functional analysis during failure and integrating the knowledge gained in earlier subjects and labs through experimentation. Even though students were needed unlearnt theory and concepts to understand and solve some problems, interventions from the instructor as facilitator through scaffolding activity were helped to gather and understand those concepts. The familiarity about the failed component to the students played a major role in analyzing and making some crucial decisions in the design phase. Based on the interactions, the quality of the report submitted and linking the learnt and unlearnt but necessary concepts during the problem analysis reveals that the Program Outcome 2 (Problem Analysis competency) has been addressed quite effectively. Author believes and recommends the measurement of activity effectiveness should be done in future engineering projects execution apart from the attainment claimed in this activity.

KEYWORDS

Problem analysis, Design methodology, Ill structured problem, Active learning, Pedagogical tools.

INDUSTRY-ACADEMIA COLLABORATION – A NEW INITIATIVE IN MECHANICAL ENGINEERING UG PROGRAM

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CONTEXT

The changing scenario in Engineering Education has made it necessary to adopt a newer course design and delivery approach to help students to learn in a better way. The recent technological developments have witnessed a widening gap between Academic quality and Industry expectations in fresh Engineering and Technology Graduate students. The engineering education is moving through a transformation phase to make its primary stake holders more responsive to changing technology world.

PURPOSE

To address the issue of bridging the gap between Industry needs and acadamic quality.

APPROACH

To address this issue, KLE Tech has initiated a collaboration with AEQUS, Belgaum to undergo the following steps to make the students real professionals in the field of Aerospace component manufacturing.

A) Minor program with a credit of 15 with contact hours of 360 during June –July.

B) Project work in VIIth semester for those who have completed the minor program.

C) Internship and project work at AEQUS during the VIIIth semester.

RESULTS

The proposed model has brought in a noticeable change in students. The students are now well versed in all aspects of the manufacturing process, inspection of aerospace components, due to their association with AEQUS. The company has indicated that they will be absorbing at least 60% of the students who have undergone the above process.

The method used for evaluation is regular evaluation by industry guides and KIE guides through presentatation. The fact that only 60% of the students have been promised placement is that at present there is no requirement. However as the vacancy arises the remaining students will be absorbed.

Continued

CONCLUSION :

By bringing in this sort of Industry-Academia collaboration, the students can be made industry ready and increase their employability.

KEYWORDS : Internship, projects, minor Programme.

ME03

ACTIVITY INTERVENTION TO ENHANCE AWARENESS ABOUT CAREER OPPORTUNITIES FOR A COURSE

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CONTEXT

Most of the students registered for Under Graduate Program would like to have a placement offer at the end of four years. Many students start preparing for placement in the companies based on their field of interest at the prefinal year level. Few courses needed for the preparation might be studied by them much Earlier. Hence their preparation time to revise and focus on a particular domain or companies will be much higher.

PURPOSE

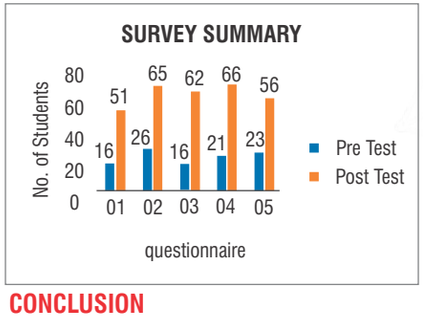
To address the issue, an activity was developed to bring awareness among the students about the kind of companies and the type of knowledge demanded by the companies from the course.

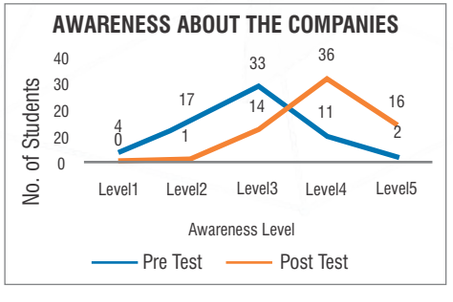
APPROACH

In this activity, students were made to take a pre-test answering the list of questionnaires and collected their responses through google form. Description of the activity was discussed in the class to carry out the activity. Post-testwas conducted after the completion of the activity and collected the responses. Few of the students were made to present a summary of their work. During the verbal feedback, students have shared the opinion that they liked the activity and got benefits out of it and also expressed that they will be using the same exercise as and when needed.

RESULTS

The awareness among the students about the course specific industries has increased significantly and verbal feedback gives clear inclination of students to carrying out such activities for other courses.





CONCLUSION

The results obtained through survey shows considerable improvement after the intervention of activity. The result was in accord with verbal feedback. This activity encouraged students to choose the companies based on the interest driven by the courses.

KEYWORDS: Activity Based Learning, Placement awareness.

ME04

LEARNING EXPERIENCES OF UAV TECHNOLOGY AT AEROKLE CLUB

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CONTEXT

Students on college campuses participate in a wide range of activities that contribute in meaningful ways to their learning and personal development. In addition to academics, activity based involvement has been found to contribute to the intellectual development of students. A guiding theoretical framework for much of the research that has focused on understanding the learning and developmental potential of collegiate co-curricular programs has been Astin's (1984) theory of student involvement. Astin (1985) summarized the theory in a simple statement, "Students learn by becoming involved". Participating in campus clubs is one way for students to become purposefully involved in their educational experiences.

PURPOSE

Establish a student driven club and make students understand and develop Unmanned Aerial Vehicles (UAV's)

APPROACH

At aeroKLE club of KLE Technological University, about 40 student members from various disciplines design and develop verities of RC planes and Quadcopters as per the constraints, rules & regulations set by committees of prestigious competitions. Also the club members have under taken various Projects to meet the academic requirements. In addition, Student members organized various events and workshops in the field of UAV's to demonstrate leadership skills, team work and difficulties of learning UAV technology .

RESULTS

After attending series of workshops and lecture series from domain experts, the members were able to organize various events such as Dyuspita, Dronacharya, Multirotor by guiding and training the participants.

The knowledge of RC plane fabrications, prototypes and testing triggered the student members to participate in prestigious competition "SAE AeroDesign Challenge-2018" for which they designed, fabricated and tested two aircrafts, bagged 2nd place in Technical Presentation and stood top 8th in All India Ranking (AIR).

CONCLUSIONS

Youth who participate in clubs and organizations learn leadership skills, teamwork, decision-making, communication, responsibility, self-esteem, higher order thinking and problem-solving skills. Learning UAV Technology either in classroom or as an individual is difficult as it involves Aerodynamics, Balancing, Structuring, Electronics and Electro-Mechanical Systems. However by establishing student clubs by involving members from different disciplines the process of learning complex technology can be made easier.

KEYWORDS

Extracurricular Activity, Student Club, Unmanned Ariel Vehicles (UAV's)

ME05

ENHANCING PRODUCT LIFE-CYCLE MANAGEMENT (PLM) SKILLS THROUGH THE INTRODUCTION OF CONFIGURATION AND CUSTOMISATION OF THE PLM PLATFORM: (AN INITIATIVE)

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CONTEXT

In this digitalisation era, every industry fleek towards digitalisation of the processes, so more attention is garnered to Product Life-cycle Management (PLM). PLM is a technique for managing Processes, Portfolios, Product planning, Designing and Manufacturing. PLM is tremendously used in Aerospace; Automotive and Medical Industry wherein future opportunities lie for the employability.

PURPOSE

As an advancement of the existing curriculum, PLM Technical course (Configuration and Customization) is introduced to meet the immediate requirement of the industries.

APPROACH

The PLM course was introduced as elective course for 29 registered students, PLM customization and configuration required additional prerequisite knowledge of Programming in Core Java and Java-based Web Technology, in this context of learning and Implementation of PLM customization in-house training of 180 Hours and co-teaching by industry personnel for 90 Hours was conducted for the 29 registered students.

RESULTS

The students were able to understand, analyse the industry case study and write program for the same to customize the PLM platform based on the case study successfully.

CONCLUSIONS

The students were able to configure, customise and implement for the solution for the industrial case studies followed by internship opportunity in the field of PLM Technical.

KEYWORDS

Curriculum Design, PLM Customization and Configuration, JAVA Programming.

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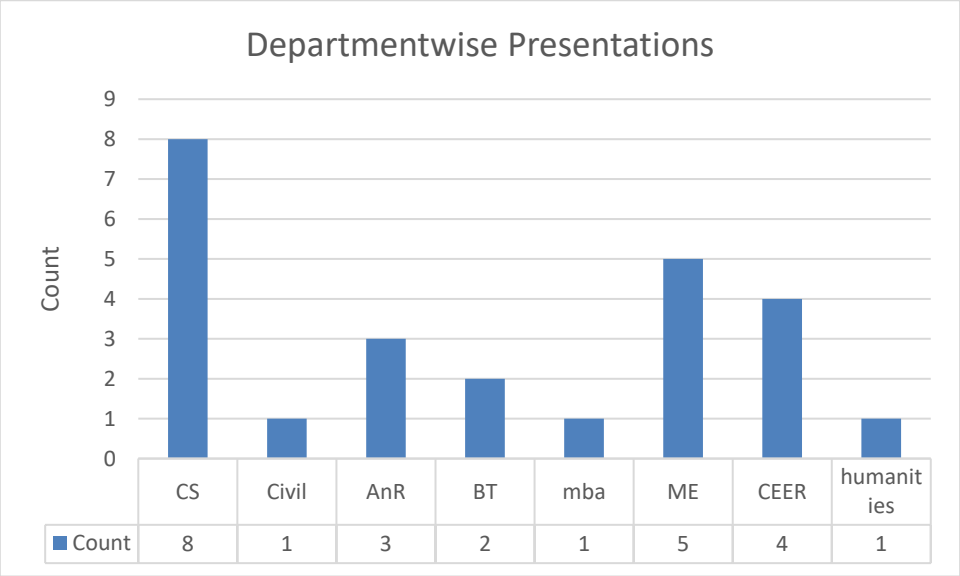
Faculty-Conclave 2018-2019

Faculty Conclave is an annual event that summarises the efforts put in by faculty members in providing quality engineering education to students of KLE Technological University.

Faculty Conclave is a celebration which showcases and shares innovations in engineering education done by faculty in the previous academic year. The platform offers an opportunity to learn from each other. Increased faculty participation and improvement in the quality of discussions are observed in the conclave which has contributed to a culture of discussion. This event is a milestone in our journey.

This year's conclave is organised on August 02-03 and has a total of 25 papers contributed by 70 faculty members. The number of unique authors is 44.



The faculty profiles cut across ages and also departmental boundaries. There are new contributors as well along with regular contributors. The focus of the academic year was PBL and we see contributions through PBL experimentation as

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What can be done to improve
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