Faculty Conclave 2018 – Call for papers

Dear Colleagues,

We are closing yet another eventful academic year i.e. 2017-2018. Our collective efforts lead by visionary leadership have made us pioneers in Indian engineering education. The outcome of these efforts are bringing in recognition to KLE Tech at national and international levels. You are the agent of the transformations and it is your innovations in that are enriching the engineering education ecosystem of KLE Tech. And, now it is time for us to share our ideas and experiences accumulated during this academic year and learn from our peers.

Faculty Conclave – the annual event provides a forum for the faculty members to showcase their innovative experiments and learn from each others' experiences. The previous faculty conclaves are a success in terms of the enthusiastic participation of many and were able to inspire several others.

The eighth in the series – **"Faculty Conclave 2018"** – is scheduled during **July 26-27, 2018**. This conclave is expected to provide a platform for you to exchange your thoughts and share their experiences in academic space. The broad areas of focus are:

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

You are invited to share experiences of the academic year 2017-2018 in the form of papers to be presented during the conclave. The papers can be submitted by an individual or a group. Extended Abstracts of the papers (pdf only) not exceeding 500 words may be mailed to facultyconclave@kletech.ac.in clearly writing focus area in subject line of email, choosing from the table above. **The abstract of the paper is expected to indicate the focus of the paper in terms of clearly stated objectives, methodology and measures used along with the inferences drawn.** We request you to note the deadlines given below for various stages of submission process and adhere to them.

Important Dates	
1.Submission of Abstracts 19-05-2018	**4.Communication of Paper Review 14-07-2018**
2. Abstract Review Communication 18-06-2018	**5.Submission of final paper 23-07-2018**
3.Submission of full Papers 07-07-2018	**6.Faculty Conclave 26-07-2018 and 27-07-2018**

We look forward for your active participation in this unique event.

Regards,

Director, CEER **April 16,2018**

Schedule for Faculty Conclave-2018

July 26-27, 2018

Venue: BioTech Auditorium

SESSION 1		Time: 9.30 to 11 am	Date: 26.7.2018
Sl.No	**Paper-ID**	**Title**	**Authors**
1.	EC_08	An innovative approach to foster product development in a multidisciplinary environment at Sophomore level in engineering	Sanjay E, Sachin A, Gururaj F, Arun Patil, Praveenraj P., K.Rajashekhariah, Nagaraj E, Shilpa T
2.	EC_02	Enhancing Optimization Skills in Embedded Stream: Integrated Learning	Rohini S. Hongal , S.N.Asundi , Preeti P., Bhagyashree K., Supriya K., Shrishail Pattanashetti , Nalini Iyer
3.	EC_01	Enhanced learning experience by comparative investigation of pedagogical approach: Flipped Classroom	Shraddha B H, Nalini C.Iyer, Sujata Kotabagi, R.V Hangal, Sujata N, Nikita Patil, Soumya B., Dr. Subbanna Bhat
4.	EE_01	Mixed Learning Styles: A strategy for team formation	Javeed Kittur, Minal Salunke
5.	ME_04	Binding industrial needs by winding curriculum deeds A course on CAD Modelling, Analysis and PLM	G. M Hiremath, B. B Kottursheettar, Sridhar.M, U. P Hosamani, S. G Billur, G. R Chalageri, A. Y Patil, S. M Mukhandmath, S. R Patil, B. S Halemani, V. S Tigadi
Tea Break from 11 to 11.15 am			

SESSION 2		Time: 11.15 am to 12.45pm	Date: 26.7.2018
Sl.No	**Paper-ID**	**Title**	**Authors**
1.	AR_01	HACKATHON–An Activity to Empower Programming skills	Ashwini G K, Arunkumar Giriyapur
2.	AR_02	Problem solving in Integrated Laboratory using Hackathon Approach	Jyoti Bali, Ashwini G K, Shilpa T, Arunkumar Giriyapur
3.	BT_02	Course Projects-An Experiential Learning and Developing Research Culture for Biotechnology Graduates	Zabin K. Bagewadi, Uday. M. Muddapur
4.	CV_01	Enhancing students learnings in Mechanics of Material course through contextual learning	A.M. Hunashyal, Roopa A.K.
5.	CV_02	Development of Experiential Learning through Course Projects in Concrete Technology Course	M.V.Chitawadagi, Shivaraj S.Halyal
Lunch Break 12.45 to 1.45pm			

SESSION 3		Time: 1.45 to 3.15 pm	Date: 26.7.2018
Sl.No	**Paper-ID**	**Title**	**Authors**
1.	CS_07	The Experiences of using Software Engineering Process for Engineering Design and Product Prototyping in a Multidisciplinary Environment	K.M.M Rajashekharaiah, Somashekar Patil, PraveenRaj Pattar, Mallikarjun Akki, Meena Maralappanavar,Sanjay Eligar,B.B Kottureshettar, Arun Giriyapur
2.	MB_01	"Role of Academic projects in experiential learning "-A study in Business management education	Mahantesh Halagatti
3.	CS_02	Teaching Methodologies for Generation Z kids	Prakash Hegade
4.	CS_05	Blue Print Pedagogy in Software Engineering	Meena S M, Prakash Hegade, Padmashri Desai
5.	TALK	"By-Products from Research Experience"	Prakash Hegade
Tea Break 3.15pm to 3.30pm			

POSTER SESSION	3.30 to 5pm	Date 26.7.2018

SESSION 4		Time: 9.30 to 11am	Date: 27.7.2018
Sl.No	**Paper-ID**	**Title**	**Authors**
1.	EC_06	Prakalp- An approach towards Analog and Mixed Signal design	Sujata S. Kotabagi, Nalini Iyer, Sumit Bhat
2.	CS_03	Research Experience with Minor Projects	Prakash Hegade
3.	CS_04	Algorithmic Problem Solving – A Course Towards Competitive Programming	Ashok Shettar, Meena S M, Satyadhyan Chickerur, Prakash B Hegade
4.	MB_02	Student's perspective on efficacy of game-based learning with reference to Management program	Shashidhar Mahantshetti
5.	ME_07	Instilling research attitude in students at mechanical engineering school through REU approach	N.R.Banapurmath, R.S.Hosmath, M.B.Gorwar, Rakesh Tapaskar, P.P.Revankar
Tea Break 11 to 11.15am			

SESSION 5		Time: 11.15 to 12.45pm	Date: 27.7.2018
Sl.No	**Paper-ID**	**Title**	**Authors**
1.	MB_06	Student, Institution and Industry Track Experience: A Blend in Course Learning	Jayanti Belur, G.S.Hiremath, S.V.Patil
2.	ME_01	Smart Way of Teaching and Learning Mechanics of Materials course	Nagaraj Ekabote, G. U. Raju, Krishnaraja G. Kodancha, S. V. Khandal
3.	EC_04	A Step Towards Introducing Data Analytics and Visualization for Students of Electrical Science: An Initiative Through Machine Learning Course	Uma Mudenagudi, Ujwala Patil, Suneeta Budihal, Ramesh Ashok Tabib, Shruti M, Satish C, Nalini Iyer, Ashok Shettar
4.	ME_03	Integrating Theme based curriculum design to the existing curriculum structure for strengthening Post graduate studies in higher engineering education.	Vinayak N Kulkarni, V.N. Gaitonde and B.B.Kottursheettar
5.	EC_11	Hardware-in-the-loop (HIL) simulation technique for an automotive electronics course	Prabha C. Nissimagoudar, Venkatesh Mane, Gireesha H.M, Nalini C. Iyer
Lunch Break 12.45 to 1.45pm			

SESSION 6		Time: 1.45 to 3.15pm	Date: 27.7.2018
Sl.No	**Paper-ID**	**Title**	**Authors**
1.	FY_05	Transformation from Jugaad Mind-set to Engineering Mind-set: A PBL approach	Sanjeev Kavale , Preethi Baligar and Gopalkrishna Joshi
2.	FY_01	An Experience of Implementing Agile Project Management Practice in Freshman Course	Jyoti Gadad, Kaushik M, Gopalkrishna Joshi
3.	FY_02	Exploring the capabilities of Freshman Students in Problem Formulation and Ideation Phases of Design Thinking	Kaushik M, Gopalkrishna Joshi
4.	MB_03	Use of social media in flipped class room delivery: opportunities and challenges	Chetan V. Hiremath
5.	MB_04	Programme outcomes attained in the journey of “rural immersion track”	Sagar Patil, S. V. Patil
Tea Break 3.15 to 3.30 pm			

SESSION 7		Time: 3.30 to 5pm	Date: 27.7.2018
Sl.No	**Paper-ID**	**Title**	**Authors**
1.	ME_05	Employability Driven Innovative Curriculum Interventions in Mechanical Engineering Program	B. B. Kottursheettar, Ashok S. Shettar
2.	ME_06	CAD Modelling and Analysis linked Minor Project-A new design initiative in Mechanical Engineering UG Programme	U.P.Hosmani,G M Hiremath,Shivaprasad Mukhandmath,Shreedhar, Balachandra Halemani, Gireesha Chalageri,Santosh Billur,Vinay Tigadi Arun Patil, Shivangouda Patil
3.	ME_08	Conducting Engineering Design and Product Realization course across Multidisciplinary domains.	Gururaj Fattepur, Nagaraj Ekbote, Shrishail Pattanshetti, Shivashankar Huddar, Koushik M, Leah Joshi,Somashekar Patil, Mallikarjun Akki, Veeresh Balikai,B.B.Kottursheettar
4.	EC_07	Technology Enabled Active Learning for Electromagnetic Waves and Theory	Ramakrishna.S, H.M.Kelagadi, Soumya Patil, Priyatamkumar
5.	BT_03	An Integrated Pedagogical Approach for Effective Teaching of Research Methodology Course at Undergraduate Level	S.V. Desai, Zabin K. Bagewadi and Uday M. Muddapur

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Faculty Conclave 2017-2018

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 H
3.	SMT. GEETANJALI RAO		
4.	SRI. SOMASHEKHAR V DHOTRAD	Dhotrad.S	Dhotrad S
5.	SRI. M.M. DANDIN	MMDandin	MMDandin
6.	SRI. H.S. PATIL	Hpatil	Hpatil
7.	SRI. SHARANABASANAGOUDA S GOUDAR	S. Goudar	S. Goudar
8.	SRI. KALPESHKUMAR PATEL	K. Patel	K. Patel.
9.	SMT. ROHINI MALAGI	Rohini	Rohini
10.	SMT. DEEPA A MANE	Mane	Mane
11.	SRI. SHASHIDHAR N KUBSAD	Skubsad	Skubsad
12.	SRI. ABHISHEK. S. PATIL	Apatil	Apatil
13.	SRI. SANDEEP A HARAPANAHALLI	SandeepH	SandeepH
14.	SRI. PRADEEP E PATIL	P.Patil	P.Patil
15.	SRI. HARISHKUMAR B.P.	BpH	BpH
16.	SMT. DIVYA SHARMA	Divya	Divya
17.	SMT. JAYASHREE B SHETTAR	J.Shettar	Jshettar
18.	DR. RAVI C GUTTAL	R. Guttal	R. Guttal
19.	SMT. JYOTI.S. BALI	JyotiB	JyothiB
20.	SRI. VINODKUMAR.V. METI	V.Meti	V.Meti
21.	SRI. NAGARAJ M BENAKANAHALLI	NagarajB	NagarajB
22.	SRI. AMIT L. TALLI	AT	AT
23	SRI. SRIDHAR DODDAMANI	SD	SD

24.	SMT. ASHWINI G K		
25.	SMT. SHILPA V TANVASHI		
26.	SRI. PRAJANKYA SONAR		
27.	SMT. CHENNAMA B KOLANUR		
28.	SRI. DODDABASABBA A MAREBAL		
29.	DR. UDAY M MUDDAPUR		
30.	SRI. LAXMIKANT.R. PATIL	LR Patil	—
31.	DR. (SMT). ZABIN.K. BAGEWADI		
32.	DR.SHIVALINGSURJ V DESAI	SVDesai	SVDesai
33.	SRI. ANIL RAMDAS SHET		
34.	SRI. GURURAJ TENNALLI		
35.	SRI. DEEPAK.A.YARAGUPPI	Deepak Y	Deepak Y
36.	SRI. SHARNAPPA A		
37.	DR. S.S.QUADRI	SS Quadri	SS Quadri
38.	DR. S.S.BHAVIKATTI	S.S.B	S.S.B
39.	DR. S.A. ANNIGERI	SAnnigeri	SAnnigeri
40.	DR. M.V.CHITAWADAGI	MVC	MVC
41.	DR. S.S.DYAVANAL	SSDyavanal	SSDyavanal
42.	DR. S S.HONNANAGOUDAR	SSH	SSH
43.	SMT. GEETA.C.BELLAD	Geeta B	Geeta B
44.	SRI. L.R.BASAVARAJ	Basavaraj L	Basavaraj L
45.	DR. M.R.PATIL	Patil M R	Patil M R

	DR. A.M.HUNSHYAL	: —	—
47.	SRI. VIJAYKUMAR S. K		
48.	SRI. V.P.PATIL	VPPatil	VPatil
49.	SRI. S.A. HULLUR	SAHullur	SAHullur
50.	SMT. PREMA MALALI	Pmalali	Pmalali
51.	SRI. GURUNATH KAMPLI		
52.	SMT. KHALIDA H M	Khalidha	Khalida
53.	MS. NIKITA KESHAV	Nikitak	Nikitak
54.	SRI. CHAITANYA S AKKANNAVAR	ChaitanyaSA	ChaitanyaSA
55.	SRI. FATHEALI A SHILAR	Fathkali	Fathkali
56.	SRI. SHASHWATH M N	SN.	SN.
57.	SRI. SHIVARAJ HALIYAL	Shivaraj H	Shivaraj H
58.	SRI. BASANAGOUDA I PATIL	Bpatil	Bpatil
59.	MS. ROOPA A KURI	Rkuri	Rkuri
60.	DR.V.C. HAVANUR	VCH	VCH
61.	DR. A.M.SAJJAN	Amsajjan	Amsajjan
62.	DR. P RAMADEVI	Ramadevi	Ramadevi
63.	DR.(SMT). S. DHANALAKSHMI	Dhanalaksho	Dhanalakshi.
64.	SRI. S.R. KURUNDAWADE	SRK	SRK
65.	DR.(SMT) MEENA S MARALAPPANAVAR	Meena	Meena
66.	DR. V P BALIGAR	VPBaligar	VPBaligar
67.	DR. SATYADHYAN CHICKERUR	Schickerur	Schickerur
68.	DR. SHASHIKUMAR G. TOTAD	S. G. Totad	S. G. Totad

69.	DR. KARIBASAPPA K.G.	KG	KG
70.	DR. NARAYAN D.G.	NG	NG
71.	SMT. JAYALAXMI G N	JGN	JGN
72.	SMT. SUJATHA C	Sc	Sc
73.	DR. GURURAJ .S.HANCHINAMANI	GSH	GSH
74.	SMT. LALITHA MADANBHAVI	Lalitha M	Lalitha M
75.	SMT. VIDYA HANDUR	Vidya H	Vidya H
76.	SRI. CHANDRASHEKHAR .D. KERURE	CDKerure	CDKerure
77.	SMT.ARUNA S. NAYAK	AN	AN
78.	SMT. VIJAYALAKSHMI M.	VM.	VM.
79.	SMT. NAGARATNA KULENAVAR	NK.	NK.
80.	SMT. MEENAXI JANNU	Meenakshi	Meenakshi
81.	SRI. K.M.M. RAJASHEKHARAIAH	KMMR	KMMR
82.	SMT. P.G. SUNITA HIREMATH	Sunita Hiremath	Sunita Hiremath
83.	SRI. SHANKAR GANGISETTY	Shankar G	Shankar G.
84.	SMT. SHANTALA GIRADDI	S. Giraddi	S. Giraddi
85.	SMT. PREETI. T		
86.	SMT. NAMRATA D HIREMATH	NDH	NDH
87.	SMT. P D KALAWAD	Pdkalawad	Pdkalawad.
88.	SRI. VIJAY.S. BIRADAR	V Biradar	V. Biradar
89.	SMT. KAVITHA H. S	Kavithas	Kavithas
90.	SMT.UMADEVI.F.M	Umare	Umare
91.	SMT. NAGARATNA V YALIGAR	N. yaligar	N. yaligar.

92.	SRI. PARIKSHIT P HEGADE	PHegde	PHegde
93.	SRI. MANJUNATH K GONAL	GonalM.	GonalM
94.	SRI. P.M. DHULAVVAGOL	PMD	PMD
95.	SRI. ANAND.S. METI	A.Meti	Ameti
96.	SRI.MAHESH.S.PATIL	Mahesh.P	Mahesh P
97.	SRI. V.H. BHAJANTRI	Bhajantri	Bhajantri
98.	SMT. MANJULA K. PAWAR	MPawar	MPawar
99.	SRI. SHIVALINGAPPA BATTUR	SBattur	SBattur
100.	SRI PRAVEENRAJ	PraveenRaj	PraveenRaj
101.	MS. NITYA N KULKARNI	Nityak	Nityak
102.	SRI. PRAKASH B. HEGDE	PHegde	PHegde
103.	SMT. MAHALAXMI BHILLE	MBille	MBille
104.	SMT. NIRMALA.S. PATIL	NPatil	NPatil
105.	SMT.INDIRA BIDARI	IndiraB	IndiraB
106.	SRI. UDAY KULKARNI	UK	UK
107.	SRI. VISHWANATH.G. GARAGAD	V.Gargad	V.Gargad
108.	SRI. DEEPAK KUMAR MEHTA	DMehta	DMehta
109.	SRI. HAREESH HEBBALLI	HareeshH	HareeshH
110.	SRI. SACHIN SHETTY	SS	SS
111.	MS. MADHURA SHETTAR	MS	MS
112.	SRI. MOHAMMED MOIN MULLA	moinmulla	moinmulla
113.	DR. P. SUBBANNA. BHAT	SPBhat	SPBhat
114.	DR. (SMT) R.M. BANAKAR	RMB	RMB

115.	DR. A.V. NANDI	A.V.Nandi	A.V.Nandi
116.	DR. (SMT) UMA. K. MUDENAGUDI	Uma	Uma
117.	DR. G PRIYATAM KUMAR		
118.	DR(SMT). NALINI IYER	NIyer	NIyer
119.	DR. (SMT) SAROJA V SIDDAMAL	Saroja	Saroja
120.	SMT SUJATA .S. KOTABAGI	SKotbagi	SKotbagi
121.	SMT. UJWALA PATIL	Upatil	Upatil.
122.	SMT. R.V.HANAGAL		
123.	SMT. TANUJA R PATIL	TPatil	TPatil
124.	SMT. SUNITA V BUDIHAL	Sunita B	SunitaB
125.	SMT. P. C. NISSIMGOUDAR	P.C.Nissimgoud	P.C.Nissimagud
126.	SRI. ARUN L KAKHANDKI	Arun	Arun
127.	SMT. ROHINI.S. HONGAL	RHongal	RHongal
128.	SRI. SUHAS B SHIROL	Shirol	Shirol
129.	SRI. SATISH S CHIKKAMATH	SCh	SCh
130.	SRI. GIREESHA H.M	GHM	GHM
131.	SMT. JYOTI RAVIKUMAR	JRavikumar	JRavikumar
132.	SMT. HEERA G WALI	HWali	HWali
133.	SRI. RAGHAVENDRA.M. SHET	RShet	RShet.
134.	SRI. KIRAN M. R.	Kiran	Kiran
135.	SMT. SOUMYA S PATIL	SPatil	SPatil
136.	SMT. VIJAYA S ELIGAR	Vijay	Vijay.
137.	SRI. SHAMSHUDDIN K.	Shamsuddin K	Shamsuddin K

138.	SRI. S.M. PATTANASHETTI		
139.	SRI. SANJAY S ELIGAR		
140.	SRI. SHIVASHANKAR A HUDDAR		
141.	SRI. RAMAKRISHNA S		
142.	SRI. PRASHANT V ACHARI		
143.	SRI. ANIL M KABBUR		
144.	SRI. RAMESH A TABIB		
145.	SMT. RAJESHWARI S MATTIMANI		
146.	MS. SHRUTI P MARALAPPANAVAR		
147.	SRI. VENKATESH R MANE	—AB—	
148.	SRI. SHASHIDHAR S NEELAKANTHMATH		
149.	SMT. NAGARATNA SHANBHAG		
150.	SRI. AMARJEETSINGH R THAKUR		
151.	SMT. SHRADDHA B. HIREMATH		
152.	SMT. PREETI S PILLAI		
153.	MS. SOUMYA BAKALE		
154.	SRI. RAVI V HADLI		
155.	MS. DEEPA S BETAGERI		
156.	DR. R.S.KARNIK		
157.	SRI. S.B. ARTAL		
158.	SMT. J.C.PATTANSHETTI		
159.	SMT. MINAL S SALUNKE		—AB—

	SRI. ANOOPKUMAR. PATIL		
161.	MS. ANUPAMA R ITAGI		
162.	SRI. KIRAN R PATIL		
163.	SRI. SACHIN ANGADI		
164.	SMT. LEAH S JOSHI		
165.	MS. SUSHMA V		
166.	SRI. JAVEED KITTUR		
167.	SMT. KAVITA CHACHADI		
168.	SRI. HANUMANTHAGOUDA R PATIL		
169.	SMT. SHILPA KAMATH		
170.	MS. SHWETA KORADDI		
171.	MS. ANJANA RAICHUR		
172.	SMT. SUJATA N M		
173.	SMT. JAYANTI D SHINGE		
174.	SMT. ANUSHA KODOLLI		
175.	SMT. GEETA S MARALAPPANAVAR		
176.	SMT. ARCHANA GADAG		
177.	DR. G.B. MARALI		
178.	DR.(SMT). UMA NEELI		
179.	SRI. Y.M. UMATHAR		
180.	DR. BHARATI M SHETTAR		
181.	DR (SMT). DAKSHYANI. R MAMMIGATTI		
182.	DR. M.B. PAGE		

183.	DR(SMT). SHAILA.V. CHOUGALA		
184.	SMT. SUMEDHA.S. SHINDE		
185.	SMT. ROOPA. S. ALGUR		
186.	DR. NARAYANA SWAMY		
187.	DR. GURURAJ N. BHADRI		
188.	SMT. P VINOTHINI ACHARYA		
189.	SMT. NIVEDITA S KABBUR		
190.	SRI. ROSHAN KUMAR ARYA		
191.	SMT. JYOTI SIDNAL		
192.	DR. B.B.KOTTURSHETTAR		
193.	SRI. T. VEERAMAHANTESH SWAMY		
194.	DR. K.G.KODANCHA		
195.	DR. ANIL S. BADIGER		
196.	DR. SANJAY V KOTABAGI		
197.	SRI. C.M. KOTI		
198.	DR. P.P. REVANKAR		
199.	DR I.G.SIDDHALINGESHWAR		
200.	DR. G. U. RAJU		
201.	DR. GIREESH N M		
202.	SRI. V.A.GOUDAR		
203.	SRI. RAMACHANDRA L		
204.	SRI. UMESH P HOSAMANI		
205.	SRI. B.S.KAKOL		

206.	SRI. VEERESH G BALIKAI	Veresh	Veresh
207.	SRI. M.B. GORWAR	M.B	M.B
208.	DR. SACHIN KARADGI	Karadgi	Karadgi
209.	SRI. G. M. HIREMATH	GMHiremath	GMHiremath.
210.	SRI. VINAYAK.P. KHATAWATE		
211.	SRI. NAGARAJ L EKABOTE	Nagaraj	Nagaraj
212.	SRI. ADARSH PATIL	APatil	APatil
213.	SRI. M C. CHOUKIMATH	MCM.	MCM.
214.	SRI SHREESHAIL M L	SML	SML
215.	SRI S M MUKHANDMATH		
216.	SRI SRIDHAR M		
217.	SRI. ADITYA DESHPANDE		
218.	SRI. RAJASHEKHAR S SAVADI	-ABSENT-	-ABSENT-
219.	SRI. SHIVANANDAGOUDA R PATIL	S.Patil	S.Patil
220.	SRI.ARUN Y PATIL	Arun	Arun
221.	SRI. SANTOSH G BILLUR	Billur.	Billur.
222.	SRI. ASHWIN R KUBASADGOUDAR		
223.	SRI. KISHORE UPADHYAYA	Kishor	Kishor
224.	SRI. ANANDRAJ		
225.	SRI. JANGLI SATISH	JSatish	JSatish
226.	SRI.MADHUSUDHANA H.K.	MHK	MHK
227.	SRI. PRAVEEN KUMAR PETKAR	Petkar	Petkar
228.	SRI. BALACHANDRA S. HALEMANI	Balu	Balu

229.	DR. SHANKAR A HALLAD	Shallad	Shallad
230.	DR. S V. GANACHARI	S. V. Gan	S. V. Gan
231.	DR. JAYACHANDRA S YARADODDI	-ABSENT-	-ABSENT-
232.	SRI. RAKESH P. TAPASKAR	R Tapaskar	R Tapaskar
233.	SMT. LEEMA ROSE VIANNIE		
234.	SRI. VINAYAK KULKARNI		
235.	SRI. R.S.HOSAMATH	Hosmath	Hosmath.
236.	SRI. GIRISH CHALAGERI		
237.	DR. MOHAMMAED YUNUSKHAN TATAGAR		
238.	DR. PRASANNA RARAVI	Pravi	Pravi
239.	SRI. S.V. KHANDAL		
240.	SRI. SANJAY.V. KULKARNI	-ABSENT-	
241.	SRI. SANJEEV KAVALE		
242.	SRI. VINAY S TIGADI	V Tigadi	V Tigadi
243.	SRI. RAKESH PATIL	R Patil	R patil
244.	DR.S.V.PATIL	S V. Patil	S. V. Patil
245.	DR. N.G. CHACHADI	N G chachdi	N G chachdi
246.	SRI. GURUBASAVARAYA HIREMATH		
247.	DR. MAHANTESH HALAGATTI		
248.	SRI. NAGARAJ.R. NAVALGUND	N. Navalgund	N. Navalgund
249.	SRI. SAGAR.B. PATIL	Patil	-ABSENT-
250.	MS. JAYANTI M. BELUR	Jayanti	Jayanti
251.	SRI. CHETAN V HIREMATH	Chetan. H	Chetan. H

252.	SRI. SHASHIDHAR S MAHANTSHETTY		
253.	DR. PRAKASHGOUD PATIL		
254.	DR. P.S. HIREMATH	P.S. Hiremath	P.S. Hiremath
255.	SRI. S V SEERI		
256.	SMT. SUNITA K. SALIMATH		
257.	SRI. ASHOK.K. CHIKARADDI		
258.	SMT. SUJATA R. KULKARNI		
259.	SMT. DEEPA C. MULIMANI	D. Mulimani	D. Mulimani
260.	SRI. AMIT.V. KACHAVIMATH		
261.	SMT. S.V.BUDNI	SVBudni	SVBudni
262.	SRI. PRAVEENKUMAR S M		
263.	DR. S.B. KAPATKAR		
264.	DR. N.R. PATIL		
265.	DR. A. S. BENNAL	A.S. Bennal	A.S. Bennal
266.	SMT. VEENA.H. CHOUDAPUR		
267.	SMT. VARSHA.V. KOPPAL		
268.	SRI.GANGADHAR V MUDDAPUR		
269.	SMT. SANGEETA. KOLAVEKAR		
270.	SRI. SHIVARAJ B RADDER	S.B. Radder	S.B. Radder
271.	MS. NEHA G PATIL	N.G.P	N.G.P
272.	DR. NITIN G KULKARNI		
273.	SRI PREETHAM R UMARANI		
274.	SMT. PREETI BALIGAR		

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275.	SRI. VINAY M TALAGERI	VT	VT
276.	MS. JYOTI GADAD	Gadad	Gadad
277.	MS. MADHU V ASUNDI	MA	MA
278.	SRI. MANIKANTA S PUJAR	M Pujar.	M Pujar.
279.	SRI. ADARSH BELAVATAGI	Adarsh	Adarsh

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FACULTY CONCLAVE

EIGHTH EDITION

2018

26th & 27th July, 2018

Centre for Engineering Education Research

Centre for Engineering Education Research
KLE Technological University, BVB Campus, Vidyanagar, Hubballi - 580031.

globalmediahubli.com

Message from Vice Chancellor

Dear Colleague,

Promoting innovations, learning from these innovations and evolving best practices are important activities of our transformational journey in engineering education. Faculty Conclave is the platform for all of us to accomplish these and this annual event is therefore a milestone in our continual journey. Institutionalisation of best practices helps all of us in terms of offering quality learning experiences to our students.

I have observed that one of the key success factor for success of many of our initiatives is collaborative team work of our faculty. At KLE Tech we believe in this culture of collaboration and team work. We look forward to many more creative groups working collectively to achieve the desired goals.

I thank all of you for the commitment you have been showing and at the same time remind you of its importance in creating the ecosystem that offers quality engineering education to our students.

Regards,

Ashok Shettar
Vice Chancellor

Message from Director, CEER

My dear colleague,

CEER takes pride in hosting the eighth edition of Faculty Conclave during July 26-27,2018. This year's conclave has increased participation from all of you. The number of abstracts received is 49 and is two times more than our last year number. There is also increase in the variety of experimentation happening in engineering education space.

We have introduced poster presentation session this year in addition to regular oral presentation of papers. We hope these two formats help all of us learn from the innovations done by our fellow colleagues.

A lot of efforts have gone in organising this conclave. We thank Dr.AshokShettar, Vice Chancellor of KLE Tech for his encouragement. We also acknowledge the contributions of all those who have volunteered their services as reviewers and event organisors.

Come, let us learn from each other and perform better.

Regards,

Gopalkrishna Joshi,
Director, Centre for Engineering Education Research,

FACULTY CONCLAVE 2018

26th-27th JULY, 2018

Organising Committee

Sl.No.	Responsibility	Team
01	***Co-Ordinator***	**G. H. Joshi** Professor of Computer Science & Engineering, Director, Centre for Engineering Education Research
02	**Technical Committee**	**Aruna S. Nayak** Associate Prof., School of Computer Science and Engineering **Preeti Baligar** Assistant Prof. Center for Engineering Education Research **G. H. Joshi** Professor of Computer Science & Engineering, Director, Centre for Engineering Education Research
03	**Program Committee**	**Aruna S. Nayak** Associate Prof., School of Computer Science and Engineering **Preeti Baligar** Assistant Prof. Center for Engineering Education Research
04	**Print and Publicity Committee**	**Kaushik M.** Assistant Prof. School of Electronics & Communication Engineering **Vinay T.** Assistant Prof. Center for Engineering Education Research
05	**Logistics**	**G. H. Joshi** Professor of Computer Science & Engineering, Director, Centre for Engineering Education Research
06	**Finance**	**Preeti Baligar** Assistant Prof. Center for Engineering Education Research

Schedule

Timing	Day 1	Day 2
9.30am	Paper Presentation Session	Paper Presentation Session 4
11.00am	Tea Break	Tea Break
11.15am	Paper Presentation Session	Paper Presentation Session 5
12.45pm	Lunch	Lunch
01.45pm	Paper Presentation Session	Paper Presentation Session 6
3.15pm	Tea	Tea
3.30pm	Poster Session	Paper Presentation Session 7

Themes of Faculty Conclave 2018

Invited papers on following themes /categories

Curriculum innovation

Experential Learning

Research Experience

Pedagogies in Engineering Education

PBL

Outcome Assessment

Tech Enhanced learning

Date : 26-July-2018
Venue : BioTech Auditorium
INAUGURATION : 9.30 to 9.45 am

SESSION 1

Time: 9.30am to 11.00am

Sl.No	Paper-ID	Title	Authors
01	EC_08	An innovative approach to foster product development in a multidisciplinary environment at Sophomore level in engineering	Sanjay E. Sachin A. Gururaj F. Arun Patil Praveenraj KMMR Nagaraj E. Shilpa T.
02	EC_02	Enhancing Optimization Skills in Embedded Stream: Integrated Learning	Rohini S. Hongal S.N.Asundi Preeti P. Bhagyashree K. Supriya K. Shrishail Pattanashetti Nalini C. Iyer
03	EC_01	Enhanced learning experience by comparative investigation of pedagogical approach: Flipped Classroom	Shraddha B H Nalini C.Iyer Sujata Kotabagi R.V Hangal Sujata N Nikita Patil Soumya B. Dr. Subbanna Bhat
04	EE_01	Mixed Learning Styles: A strategy for group formation	Javeed Kittur Minal Salunke
05	ME_04	Binding industrial needs by winding curriculum deeds A course on CAD Modelling, Analysis and PLM.	G. M Hiremath B. B Kottureshettar Sridhar. M U. P Hosamani S. G Billur G. R Chalageri A. Y Patil S. M Mukhandmath S. R Patil B. S Halemani V. S Tigadi

Tea Break from 11.00am to 11.15 am

SESSION 2

Time: 11.15 am to 12.45pm

Sl.No	Paper-ID	Title	Authors
01	AR_01	HACKATHON–An Activity to Empower Programming skills	Ashwini G K Arunkumar Giriyapur
02	AR_02	Problem solving in Integrated Laboratory using Hackathon Approach	Jyoti Bali Ashwini G K Shilpa T Sushma T
03	BT_02	Course Projects-An Experiential Learning and Developing Research Culture for Biotechnology Graduates	Zabin K. Bagewadi Uday. M. Muddapur
04	CV_01	Enhancing students learnings in Mechanics of Material course through contextual learning	A.M. Hunashyal Roopa A.K.
05	CV_02	Development of Experiential Learning through Course Projects in Concrete Technology Course	M.V.Chitawadagi Shivaraj S.Halyal

Lunch Break from 12.45pm to 1.45pm

SESSION 3

Time: 1.45 pm to 3.15 pm

Sl.No	Paper-ID	Title	Authors
01	CS_07	The Experiences of using Software Engineering Process for Engineering Design and Product Prototyping in a Multidisciplinary Environment	K.M.M Rajashekharaiah Somashekar Patil PraveeRaj Pattar Mallikarjun Akki Meena Maralappanavar Sanjay Eligar B.B Kottursheттar Arun Giriyapur
02	MB_01	"Role of Academic projects in experiential learning "-A study in Business management education.	Mahantesh Halagatti
03	CS_02	Teaching Methodologies for Generation Z kids	Prakash Hegade
04	CS_05	BluePrint Pedagogy in Software Engineering	Meena S. M. Prakash Hegade Padmashri Desai Mahesh Patil
05	TALK	"By-Products from Research Experience"	Prakash Hegade

Tea Break from 3.15pm to 3.30pm

Poster Session 3.30 to 5pm

SESSION 4

Time: 9.30am to 11.00am

Sl.No	Paper-ID	Title	Authors
01	EC_06	Prakalp- An approach towards Analog and Mixed Signal design	Sujata S. Kotabagi Nalini Iyer Sumit Bhat
02	CS_03	Research Experience with Minor Projects	Prakash Hegade
03	CS_04	Algorithmic Problem Solving – A Course Towards Competitive Programming	Ashok Shettar Meena S. M. Satyadhyan Chickerur Prakash B. Hegade
04	MB_02	Student's perspective on efficacy of game-based learning with reference to Management program	Shashidhar Mahantshetti
05	ME_07	Instilling research attitude in students at mechanical engineering school through reu approach	N. R. Banapurmath R. S. Hosmath M.B.Gorwar Rakesh Tapaskar P. P. Revankar

Tea Break from 11.00am to 11.15 am

SESSION 5

Time: 11.15 am to 12.45pm

Sl.No	Paper-ID	Title	Authors
01	MB_06	SIIT Experience: A Blend in Course Learning	Jayanti Belur G.S.Hiremath S.V.Patil
02	ME_01	Smart Way of Teaching and Learning Mechanics of Materials course	Nagaraj Ekabote G. U. Raju Krishnaraja G. Kodancha S. V. Khandal
03	EC_04	A Step Towards Introducing Data Analytics and Visualization for Students of Electrical Science: An Initiative Through Machine Learning Course	Uma Mudenagudi Ujwala Patil Suneeta Budihal Ramesh Ashok Tabib Shruti M Satish C Nalini Iyer Ashok Shettar
04	ME_03	Enhancing Manufacturing Automation Skills for Production Management Postgraduate Students Through Proper Integration of Theory, Laboratory and Mini-Project Courses	Vinayak N Kulkarni V.N. Gaitonde B.B.Kottursheta r
05	EC_11	Hardware-in-the-loop (HIL) simulation technique for an automotive electronics course	Prabha C. Nissimagoudar Venkatesh Mane Gireesha H.M Nalini C. Iyer

Lunch Break from 12.45pm to 1.45pm

SESSION 6

Time: 01.45 Pm to 03.15pm

Sl.No	Paper-ID	Title	Authors
01	FY_05	Transformation from Jugaad Mind-set to Engineering Mind-set: A PBL approach	Sanjeev Kavale Preethi Baligar Gopalkrishna Joshi
02	FY_01	An Experience of Implementing Agile Project Management Practice in Freshman Course	Jyothi Gadad Kaushik M. Gopalkrishna Joshi
03	FY_02	Exploring the capabilities of Freshman Students in Problem Formulation and Ideation Phases of Design Thinking	Kaushik M Gopalkrishna Joshi
04	MB_03	Use of social media in flipped class room delivery: opportunities and challenges	Chetan V. Hiremath
05	MB_04	Programme outcomes attained in the journey of “rural immersion track”	Sagar Patil S. V. Patil

Tea Break 3.15 to 3.30 pm

SESSION 7

Time: 3.30pm to 5.00pm

Sl.No	Paper-ID	Title	Authors
01	ME_05	Employability Driven Innovative Curriculum Interventions in Mechanical Engineering Programme	B. B. Kottürshettar Ashok S. Shettar
02	ME_06	A New Initiative in Mechanical Engineering UG Programme to introduce Design Philosophy through Minor Project linked to CAD Modelling and Analysis	U. P. Hosmani G M Hiremath Shivaprasad Mukhandmath Shreedhar Balachandra Halemani Gireesha Chalageri Santosh Billur Vinay Tigadi
03	ME_08	Conducting Engineering Design and Product Realization course across Multidisciplinary domains.	Gururaj Fattepur Nagaraj Ekbote Shrishail Pattanshetti Shivashankar Huddar Kaushik M Leah Joshi Somashekar Patil Mallikarjun Akki Veeresh Balikai
04	EC_07	Technology Enabled Active Learning for Electromagnetic Waves and Theory	Ramakrishna.S H.M.Kelagadi Soumya Patil Priyatamkumar
05	BT_03	An Integrated Pedagogical Approach for Effective Teaching of Research Methodology Course at Undergraduate Level	S.V. Desai Zabin K. Bagewadi Uday M. Muddapur

POSTER

Time : 3.30 to 5pm
Date : 26.7.2018

Sl.No	Paper-ID	Title	Authors
01	BT_01	Implementation of Project-Based-Learning (PBL) approach for Bioinformatics Laboratory Course	Sharanappa A., L.R.Patil V.S.Homabalimath Uday Muddapur
02	CS_01	System Software Activity on Boot Loader Integrated with Operating System	Nagarathna D Kulenavar Indira Bidari Vidya Handur Nirmala Patil Pooja Shettar Neha P
03	CS_08	Design and enhancement of students learning through Project based approach: An experience in IoT course	Preeti T Sunil V. Gurlahosur Dr. Meena S. M.
04	EC_05	A Collabrative approach for skill development and employability	Saroja V Siddamal Shamshuddin K. Heera Wali Vijaya Eligar Nalini C. Iyer
05	EC_03	Experimenting Curriculum Delivery through Industry Institute Collaborative Domain specific Theme Based Projects	Ujwala Patil Nalini C. Iyer
06	EC_09	Data structures made easy through the innovative teaching methods	Venkatesh Mane Heera Wali Ramesh H Nalini C. Iyer
07	EC_10	Automotive Electronics course project to placements: A Success story	Venkatesh Mane Prabha N Gireesh H M Nalini C. Iyer
08	EC_12	Revision of Post graduate Curriculum: Bridging the gap	Rajashekar B. Shettar Priyatam Kumar Nalini Iyer, Rohini Hongal
09	MB_05	Structural Change of MBA Program at SMSR	S.V.Patil ChetanHiremath Nagaraj R Navalgund

POSTER

Time : 3.30 to 5pm
Date : 26.7.2018

Sl.No	Paper-ID	Title	Authors
10	ME_02	Experimenting With Laboratory Experiments	R. S. Savadi C. N. Shet Anandraj Desai Vinayak Khatawate Madhusudhana
11	ME_09	Effective utilization of MakerSpace for facilitating Product Realization course	Praveen P Satish C Shivaprasad M Raghavendra Shet Santosh Shreeshail S B Burli
12	ME_10	An Approach of Project Based Learning in Post Graduate Energy Systems Engineering Programme	Rakesh Tapaskar M.B.Gorwar R.S.Hosmath P. P. Revankar
13	ME_11	Pedagogical Interventions in Teaching Thermal Engineering Courses at UG Programme Level	Yunus T Khandal S.V. M.B.Gorwar N.R.Banapurmath P. P. Revankar
14	ME_12	Minor Project Approach to imbibe Entrepreneurship in PG Energy System Engineering – Solving Real World Problem	Rakesh Tapaskar M.B.Gorwar R.S.Hosmath P. P. Revankar

ABSTRACTS

AN INNOVATIVE APPROACH TO FOSTER PRODUCT DEVELOPMENT IN A MULTIDISCIPLINARY ENVIRONMENT AT SOPHOMORE LEVEL IN ENGINEERING

Sanjay E, Sachin A, Gururaj F, Arun P, Praveenraj P, K Rajashekhariah, Nagaraj E, Shilpa T

Abstract

Engineering education as a process has evolved over the years based on the rapidly changing requirements in the design and development of a product. The design integration involves more disciplines of engineering than ever before. Engineering Design as a course is being offered globally at various levels of undergraduate engineering education to strengthen the quality of academic projects, albeit in isolation. This paper addresses the integrated learning of a student using multidisciplinary approach in a new course - Engineering Design and Product Realization, for Sophomore students across two semesters. Design Studios and Makers Space that motivate students from across disciplines to work together in an ecosystem suitable for product development are provided. In this era of connected devices, an attempt has been made to involve the students from electrical sciences, mechanical sciences and computing to design and develop an IoT enabled device / product that meets the stated needs. Curriculum design and various pedagogical practices are demonstrated here. The outcome of the course is evaluated in two phases; Design Process and Product Realization. The results provide insights into the incremental changes needed to optimize the student experience.

Key words: integrated learning, multidisciplinary approach, experiential learning, engineering, education, product design.

"ROLE OF MULTIMEDIA TOOLS IN EXPERIENTIAL LEARNING" A STUDY IN BUSINESS MANAGEMENT EDUCATION.

Dr. Mahantesh Halagatti
Associate Professor
School of Management Studies & Research

Abstract

Business world is dynamic environment where companies are influenced by various internal and external factors. To make students understand the changing scenarios the faculty have to use innovative pedagogy. The text books learning is too monotonous and the students may not get a holistic understanding of the concepts. Apart from existing text books it is advantageous to use other teaching aids for making understand the concepts. In this paper the contemporary topics and live business scenarios appearing in News papers, audio and visual case studies in class room teaching is mentioned. A thorough literature review of the role played by teaching aids and live experiences is presented. The paper helps in understanding how well these tools aid the instructor in making students understand, remember and apply the concepts.

Research questions:

Based on literature review and observations during class room interaction the research questions are formulated as:

1. Role of multimedia tools in experiential learning for business management education.

Results and discussion: the study tries to identify which experiential learning style model is more effective in conveying concepts to the business management studies.

Conclusion: It becomes necessary to understand the concepts by the students. In some cases it is not easy to make understand the concepts. The multimedia tools help in conveying the concepts in more lucid manner to the students of business management.

Key words: Experiential Learning, Contemporary, Multimedia, Business management

EC_05

A COLLABORATIVE APPROACH FOR SKILL DEVELOPMENT AND EMPLOYABILITY

Saroja V. Siddamal, Shamshuddin K, Heera Wali, Vijaya Eligar, Nalini C. Iyer

School of Electronics and Communication

Abstract

In India VLSI talent is in short supply, it is not a problem of quantity, but it is a problem of quality – the quality of VLSI education and quality of students getting through engineering institutions is poor. The biggest challenge faced is that fresh VLSI graduates are not readily employable. There is dearth of verification engineers in VLSI industry, opportunities are available but they lack in skill set. They need to be trained for a year before becoming industry ready. The real solution to solving this issue is to offer good quality VLSI education. To address these issues KLE Tech, IESA and SEER have collaborated as a tri-partner agreement in introducing two new courses Advanced Digital Logic Design and Advanced Digital Logic Verification. The course contents are designed, delivered and assessed by in-house and industry expert to build competence. The key to the success of these courses is the extensive industrial experience that develops the students' skill and employability attributes.

Key words: Verification, IESA, SEER, Employability.

EC_11

HARDWARE-IN-THE-LOOP (HIL) SIMULATION TECHNIQUE FOR AN AUTOMOTIVE ELECTRONICS COURSE

Prabha C. Nissimagoudar, Venkatesh Mane, Gireesha H.M, Nalini C. Iyer

Abstract

Hardware-in-the-loop (HIL) simulation is rapidly evolving technology which is commonly used in automotive industry. Its application is found ranging from control prototyping tool to a system modeling, simulation, and synthesis paradigms. This paper provides an insight into how this industry specific technology is incorporated in to a multi-disciplinary engineering course automotive electronics. HIL simulation is part of V design model which is used for developing functionalities of automotive ECUs. The theory and laboratory components of the course are designed in such a way that the functionalities of an automotive application are built using model based design approach, in which HIL simulation plays a major role. The course includes a platform for state-of-the art engine-in-the-loop (EIL) simulation facility that highlights the use of HIL simulation for the system-level experimental evaluation of powertrain interactions and development of strategies for clean and efficient propulsion. The outcomes of the activity are measured by industry specific rapid prototyping skills demonstrated by the students. HIL technique incorporated in automotive electronics course has contributed in making students industry ready.

Keywords: HIL simulation; engine-in-the-loop simulation; Automotive Electronics course

EE_01

MIXED LEARNING SYTLES: A STRATEGY FOR TEAM FORMATION

Javeed Kittur, Minal Salunke

Department of Electrical & Electronics Engineering

Abstract

The emphasis of this work is to analyze and assess cohort of students' perspectives on team learning practices in activity based learning approach. This activity was implemented in Linear Control Systems (LCS) a core course in 2nd year of electrical engineering. The motivation for this work is the authors experience in teaching the course in previous iteration. It was observed that few teams performed exceedingly well and few others were struggling to complete the activity. The reason for this was that the team formation was random. Strategic team formation is considered as a beneficial way for enhancing students' learning in collaborative environment. Team learning implicates interaction between students' through peer-to-peer learning, which strengthens the ability of a student to solve problems better. The authors felt there is an opportunity to explore the following research question: Does working in teams formed with mixed learning styles enhance student learning? In order to form teams, students' underwent Index of Learning Styles Questionnaire by Richard M. Felder and Barbara A. Soloman. The results from this questionnaire were judiciously used to form teams using mixed learning styles to facilitate students' learning. A common problem statement on modified Load-Frequency control model of an isolated power system area, to be operated with a controller was given to both section-A (66 students) and section-B (55 students). A batch of four students' worked as a team in order to accomplish the given task. Section-A comprised of 16 teams and Section-B had 13 teams, each team involving members with different learning styles. The problem statement focused on different controller designs using different tuning approaches and system performance analysis. The problem statement given to all the teams comprised different controllers and varied model parameters. The activity was designed as an assignment to be implemented in three weeks and comprised of III phases. In phase-I students solved the problem manually and were introduced to Matlab Programming and Simulink Modeling tool. Phase-II was focused on programming and modelling of given problem statement. Phase-III was concentrated on verification of the simulation results with manual calculations and system performance analysis. Two reviews were conducted and the students were assessed as per the rubrics. The competencies addressed for activity are problem analysis, ability to design the controller model and proficiency in using simulation tool. A pre-test and post-test was conducted to know the change in conceptual understanding. The pre-test was conducted before the team formation and the post-test after the students undergoing team learning experience. The questionnaire for test was designed referring to the GATEtutor. GATEtutor is a pioneer in providing Global E-Learning Platform. It is a platform for the Students preparing for technical competitive examination. The impact of learning was realized by conducting inferential statistical analysis using Anova. The post-test results indicate improvement in conceptual understanding in comparison with pre-test. This is also validated by Anova test with 5% level of significance. From this study the authors make an observation that, strategic team formation is considered as a favourable approach for augmenting students' learning.

Key words : Learning styles, team formation, simulation, student learning, control systems

ME_04

BINDING INDUSTRIAL NEEDS BY WINDING CURRICULUM DEEDS A COURSE ON CAD MODELLING, ANALYSIS AND PLM

G. M Hiremath, B. B Kottursheettar, Sridhar.M, U. P Hosamani, G. R Chalageri, S. G Billur, A. Y Patil, S. M Mukhandmath, S. R Patil, B. S Halemani, V. S Tigadi

School of Mechanical Engineering

Abstract

The advanced technologies in the field of Computer Aided Manufacturing (CAM), Computer Aided Engineering (CAE), Computer Aided Inspection (CAI) and Industrial needs can be fulfilled primarily through progressive inclusion of methodologies intended to reflect change in the design process due to solid modelling and, consequently, the role of graphics in design process. The tools used in engineering design continue to become more sophisticated and powerful. One of those tools, Computer Aided Design (CAD), puts the 3D database at the centre of the concurrent engineering design process. Within this environment, the 3D model is the driving force behind all engineering information. With the types of tools and software available today, industries are looking for individuals who can move data throughout the design process, collaborate online with customers, suppliers and co-workers, identify and fix problems with 3D geometry, use powerful systems to design complex assemblies, and be flexible enough to do design and development work using PLM philosophy. In order for undergraduate students to design they must possess certain prerequisite skills in today's technologically advanced world. One key skill is the ability to create parametric 3D models that can be utilized throughout the design process from conceptualization to the detailed drawing stage. In addition, as the CAD software developers collaborating CAD, CAM, CAE, CAI and so on, a single solid model geometry file is the 'master component' that drives product design. However introducing CAD software in the 'curriculum design' of undergraduate students calls some interesting challenges for faculty: What topics are no longer necessary or important in a constraint-based CAD environment? Which CAD software is to be introduced? How much credits and time to be allotted? What types of activities will allow students to realize the full potential of the software? And how these activities should be evaluated? The paper first discusses about the present and future scope for CAD modelling, components of PLM and then describes the strategic planning of introducing a seven credit course titled "CAD Modelling, Analysis and PLM" indicating the Course Outcomes (COs), mapping of COs with Program Outcomes (POs) and evaluation schemes. The paper also elaborates on workbench wise contact hours and content so as to realize the full potential of the CAD software. The effectiveness of course structure is measured by 'student feedback' through set of questionnaires. Finally, based on 'student feedback' the paper concludes that there is enough scope to improve upon providing learning materials and the concept of working in a collaborative environment. However, more than 80 percent of the students agree that the 'course structure' gave them a sense of building a model in an industry-like scenario and significantly improved modelling and analysis skills, which were the main objectives of this work.

Key Words: Curriculum Design, CAD Modelling, PLM, Course Outcomes, Program Outcomes

AR_01

HACKATHON–AN ACTIVITY TO EMPOWER PROGRAMMING SKILLS

Ashwini G K* Arunkumar Giriyapur**

Department of Automation & Robotics

Abstract

One of the main objectives of Automation and Robotics undergraduate program is to make students industry ready by developing good programming skills and an ability to work in teams along with other skills like creative problem solving and critical thinking. The routine programming laboratory course was not meeting the objective and hence rethinking has to be done. The concept of Hackathon was integrated with the laboratory course to bring in creative problem solving and to develop best programming skills and endurance in the students. This paper describes a recent revision to the programming laboratory course. The Hackathon acitivity was conducted for III semester students in the programming laboratory course .The activity was conducted for 2 days on a continuous basis for 18 hours. The solutions implemented by students were unique and impressive in terms of the methodology followed, level of complexity accomplished, programming skills and number of lines of code in the designed algorithm. Evaluation of the students was done on individual basis using therubrics to check their skills in algorithm design, execution methods, analysis and verification of results.

Key words: Hackathon, Algorithm design & Analysis, UML

PROBLEM SOLVING IN INTEGRATED LABORATORY USING HACKATHON APPROACH

Jyoti Bali1, Ashwini G K2, Shilpa T3, Arunkumar C Giriyapur4

Department of Automation & Robotics

Abstract

There is a need to introduce new pedagogy practices to improve the problem solving skills & critical thinking capabilities of students helping them execute multidisciplinary projects, thus striving to meet one of the important objective of th Automation & Robotics program. This proposed paper describes such an activity initiated by an instructional team of 3 faculty members that made students to practice the engineering design process using an integrated approach for the selected real time case study problems during their 6th semester. This integrated approach methodology resulted in the application of the knowledge gained in three different laboratory courses namely Real Time Embedded Systems, Object Oriented Programming languages & Database Management System practice. The activity was initiated at the commencement of the semester along with the regular laboratory courses. With a preplanned schedule. Students were made to solve problems like Machine Health Monitoring, Electric power monitoring system and Sleep Health Monitoring, shortlisted by faculty team based on the survey done for the latest research topics in automation area. Time allotted for the activity was 2 days on an individual basis and was evaluated as a part of their final lab End Semester Assessment scheme. Evaluation of students was done based on well-defined rubrics to test their individual & team wise skills related to each of the three labs integrated. The feedback received and the results attained by students was quite encouraging. The evaluation conducted by the faculty team in a collaborated manner helped the analysis of students performance in critical way as well to give them the feedback for improvement, which is very essential while solving real time case studies. He we present the summarized results of the Integrated activity using Hackathon Approach in the form of the grades achieved and the feedback analysis for the entire class of fifty five students.

COURSE PROJECTS-AN EXPERIENTIAL LEARNING AND DEVELOPING RESEARCH CULTURE FOR BIOTECHNOLOGY GRADUATES

Dr. Zabin K. Bagewadi, Dr. Uday M. Muddapur

Department of Biotechnology

Abstract

As we have transformed to a university status, research has become an integral part of our system. To inculcate research culture at early stage during the Biotechnology graduate program, the course projects were designed for Biochemistry (3rd sem) and Enzyme Technology (4th sem) courses. Course projects deliver experiential learning and demonstrate student's higher level of learning. Course projects give a real time research exposure to students. The design of course projects was shared to the industries for their feedback and there was a good response and suggestions to make it more effective. In biochemistry course, the theme of the course projects was “Medicinal Plants” and objectives and outcomes were well defined. Preliminary research work carried out during the course projects by the students was further taken up for the advanced faculty research. This calls for a win-win situation for both the students and faculty. Students gained diverse learning through integration of experiments addressing multiple courses like biochemistry, microbiology and unit operation. These are courses simultaneously learned during 3rd semester. In case of enzyme technology (4th sem) course projects, the theme was “Microbial enzymes”. Here there was an opportunity for the entire enzyme technology lab to be redesigned and delivered it as a project with sequentially arranged regular experiments and aligned to experiments designed in course project to give a complete sense of project execution. Here, the hierarchy started with open ended experiments that gave an opportunity to push the experiments to higher category of experiments. As the prerequisite for enzyme technology was biochemistry, the knowledge of biochemistry lab is directly applied to enzyme technology lab;

as a result experiments could be realigned from open ended to exercise. Course project in this case was initial research work carried out by the faculty and the real time product was given to the students during the execution. The course project in enzyme technology strengthened the enzyme handling skills and gave a sense of responsibility as they had to maintain the integrity of enzyme throughout the semester. In comparison to the previous way of lab execution where a commercially available enzyme was given to the students that limited the scope of open ended and real time behavior studies of enzymes. Further research work can be continued by the faculty. For both the course projects each group (total 12 groups) had different medicinal plants and different product which also gave them a cross learning experience. The assessment was according to the defined rubric and attainment of PO's such as 2, 4 and 10 were achieved. The students had to spend 6 hours per week (regular lab 3 hours) to make course projects functional. The outcomes of this initiative were development of research culture, experiential learning and analysis skills. Course projects also gave the students a flavor of literature review and report writing. It also boosts their confidence levels. Interestingly, the course projects created a platform for the students to present their work in conferences at national and international levels.

Key words: Biochemistry, enzyme technology, course project, research.

ENHANCING STUDENTS LEARNINGS IN MECHANICS OF MATERIAL COURSE THROUGH CONTEXTUAL LEARNING

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Abstract

Mechanics of materials is a basic fundamental and interdisciplinary course for the engineering students with a main focus in the mechanical, civil, industrial, and aerospace engineering disciplines. It provides a fundamental understanding of the mechanical properties of various materials and their behavior subjected to different kind of loading. In Civil engineering, basic concepts learnt through this course are the prerequisite for various higher level courses involving the structural analysis and design of various structural elements. Since teaching of mechanics of material proven challenging as it involves mathematical formulation and calculation oriented which needs a student to have very critical thinking skills and different orientation to understand this subject. Therefore this paper describes contextual learning of the mechanics of material by associating the classroom teaching to the real world experiences. A practical assignment is given to students at the end of the course, so that students can visually inspect the structural members and visualize its behavior subjected to various forces, stresses deformation developed in real time structure to enhance learning efficiency skills. The object of this work is to promote experiential learning, critical thinking and to upgrade knowledge regarding innovations new structural material through contextual learning. The main outcome of this work is to ensure the students for clear understanding of the subject correlating to the actual real structures. The course delivery and assessment strategies were meticulously executed in the form of assignments to foster experiential learning that lead to attainment of higher levels in Graduate attributes and bloom level taxonomy. This pedagogical transition effect was measured in the form student feedback survey, course outcome learning and student performance grades. It was observed that it helped to students for better understanding of the subject.

Key Words: Contextual learning, Mechanics of Material, Practical / Theoretical Assignment, Real time structures.

CV_02

DEVELOPMENT OF EXPERIENTIAL LEARNING THROUGH COURSE PROJECTS IN CONCRETE TECHNOLOGY COURSE

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School of Civil and Environmental Engineering

Abstract

Concrete is the one of the most versatile, important and globally used construction material. Structural designers design the building to carry particular designed load, but that's on paper, it is a concrete along with additional material that carry the load on the field. So knowing in depth of concrete by students at the learning stage is prerequisite in Civil Engineering field. Concrete technology is a three credit course offered for fourth semester civil engineering students where they learn theoretical aspects of concrete ingredient material properties, fresh and harden concrete, special concrete, destructive and nondestructive testing of concrete. Earlier the course was handled in traditional way where students were given with a assignments at the end of the course and most of the students used to copy each other due to the similar questions, content, without knowing how to arrive with the right quality of concrete and without understanding the technology behind why a particular material is used or why a particular process is used or what is the variation in the required minimum strength when key factors are varied while preparing fresh concrete for a particular usage. Therefore, it was an essential to go through experiential learning by the students with deep learning of lecture material, and the development of problem solving and collaboration skills which will greatly enhance their educational experience. Course project is introduced here instead of traditional assignments, for the purpose of undergoing experiential learning in their course. Experiential Learning involves self study by the students to think and work beyond curriculum on field based problems. Group of students undergo thorough study on the chosen topic and define the scope of their work and plan a suitable methodology for the same. It is an attempt for students to think and gather the information, interpret and make certain judgment on chosen topic, other than working in the laboratory, Methodology also involves field visit/interaction with industry people/referring research articles or standard codes and paper publications. Assessment is made in three phases with presentations and reports. So finally it aims to impart end to end learning for the students, in the topic beyond their curriculum and also helps them to answer, all those "why" questions related to concrete technology. The paper focuses on the development of this process over traditional way of learning.

Key words: Experiential Learning, traditional, active learning, passive learning, concrete, Practicing Engineers

CS_07

THE EXPERIENCES OF USING SOFTWARE ENGINEERING PROCESS FOR ENGINEERING DESIGN AND PRODUCT PROTOTYPING IN A MULTIDISCIPLINARY ENVIRONMENT

K.M.M Rajashekharaiah, Somashekar Pati2, PraveeRaj Pattar, Mallikarjun Akki, Dr. Meena Maralappanavar, Sanjay Eligar, Prof. B.B Kottursheттar, Prof. Arun Giriyapur

Abstract

The first of its kind and a unique course is offered titled 'Engineering Design and Product Realization' for second year undergraduate students. The course is spread across 2 semesters, i.e., Engineering Design in third semester and Product Realization in fourth semester. Due to first cycle of course offered and first time computer science department is participating, there are certain challenges and experiences, and this paper lists experiences and explains the issues related to computer science. The Engineering Design process consists of 4 phases namely, Planning phase, Concept Design, System Design and Detailed Design. The CS faculty developed content of software engineering process for engineering design with understanding the vocabulary of the latter. The requirement modelling is implemented partially for planning phase with use case approach. The design method used is function oriented design and data flow diagrams (DFD) used in concept design and detailed design. The most suitable concept of software engineering is applied in concept design resulted in system diagram to show interaction of components of all the three disciplines and detailed design ended up with function prototyping and user interface design for mobile app. The system design is (system architecture) very nearer to software architecture and the same is used, there is a scope for improving by exploring suitable architecture for software implementation. The objective of fourth semester is product prototyping, the addition of IOT is introduced more challenges in implementing this course. The student has to learn technologies like, Android studio (UI design and application logic), java, xml, php (Server side scripting), client-server architecture implementation and data-store interactions. The learning approach is top-down, hence limited prerequisite, however it is managed through workshop and extra classes. The integration of the three domain, Mechanical, Electronic / Electrical and Computer science was a challenge and there is scope for improvement. Due to sustained effort of faculties of all the disciplines, most of the student teams are able to develop functional prototype. This paper discusses, the software engineering approaches for planning phase in section 1, Concept design in section 2, System design in section 3, Detail design in section 4, Prototye development in section 5 , Testing and validation in section 6 and conclusion in section 7.

Key words: Planning, concept, system, use case, DFD, UI, IOT, Android Studio, Multidisciplinary

CS_02

TEACHING METHODOLOGIES FOR GENERATION Z STUDENTS

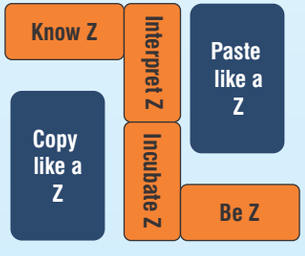
Prakash Hegade

Abstract

We have Generation Z kids who are stepping into college with the dreams to graduate. Most of Generation Z have used the Internet since a young age and they are generally comfortable with technology and with interacting on social media. These are the kids who have grown up with social media application like Snapchat and Instagram. According to a Northeastern University Survey, 81% of Generation Z believes obtaining a college degree is necessary in achieving career goals. They come with dreams and aspirations. They are quick, swift and as well have a short attention span. A 2014 study of 'Generation Z Goes to College' found that Generation Z students self-identify as being loyal, compassionate, thoughtful, open-minded, responsible, and determined. They view their peers as competitive, spontaneous, adventuresome, and curious; all characteristics that they do not see readily in themselves.

These kids certainly lose interest if the information present in web is presented during lecture sessions as is. They need interpretations. They need analysis that is not usually found on web. They need perspectives that matter and analysis that have direction. This certainly calls for improved teaching methods that hits the nail right on the head.

To tackle this issue, this paper proposes a teaching framework called 'Edify Gen-Z'. Figure below present the framework.



The framework has four major components namely: Know Z, Interpret Z, Incubate Z and Be Z which gives it a shape of Z. The framework comes with mission, objectives, tasks and measurable. It's an iterative process that starts at the semester start and yields results in every phase. This paper explains this framework in detail.

The approach was followed for the course 'Data Structures and Algorithms' and methodically each of the phase was achieved with the activities. This paper further explains how the tasks were carried out in the course and presents the results and analysis. The process was integrated in the course as well as the laboratory work. It has been beneficial to students as well to the faulty to connect well with generation Z kids. The methods have found to be an overall of 80 to 90% effective as per the feedback and analysis.

Key words: Data Structure and Algorithms, Edify, Framework, Generation Z

CS_05

BLUEPRINT PEDAGOGY IN SOFTWARE ENGINEERING

Prakash Hegade,Dr.Meena S M,Padmashri Desai

Abstract

The primary objective of software engineering is to demonstrate competence in communication, planning, analysis, design, construction and deployment of a product life cycle. Theories, models and techniques are the foundational basis in a software lifecycle. When a product goes into design and implementation, it comes with challenges namely: how well are the requirements understood, are the designs and conceptualizations in-line with requirements and how easily a future requirement can be embedded into the system. Over time, these challenges have been tackled through various methodologies. In this paper we propose a method – 'BluePrint' which adapts the design thinking methodology to achieve the said challenges.

Through BluePrint Method, the initial brainstorming of design, functionality, flow, process and user interface of the selected problem happens on A4 paper sheets - all hand drawn (using pencil, eraser, ruler). The hand drawn designs are re-iterated until a satisfactory model is reached. The final model is then transferred into documentation using Software Engineering principles and tools. The first hand made draft and the subsequent process of reading through and interacting with the design by annotating, correcting, editing, and reshaping it as a whole is a major advantage as against typing where instead we edit as we go which potentially interferes with the organic flow of ideas. Hand drawing can help us slow down and fully engage with our thoughts. Thoughts need to breathe (as do drawers), and drawing by hand conveniently holds such a space for thoughts to fully form before being set down into a holistic form.

BluePrint method is carried out in two phases where in phase 1, problem and requirement analysis is carried out. This phase involves the detailed decomposition of the problem and the concept flow. The checklist in this phase involves understanding the problem space, major modules, external and internal factors, the first look at interfaces and requirements analysis. Phase 2 works on design decisions and deliberations. High and low level designs are carried out in this phase.

In order to over come the major challenege of conceptulaization of function points and adding future modifictions to the project, BluePrint method was adopted to Mini Project Curriculum jointly with Software Engineering Course in the fifth semester of computer science program. As per the feedback collected, phase one was found to be 79% effective, phase two 73% effective with overall process of 70% effectiveness. This paper presents the BluePrint method in detail along with detailed result and analysis. BluePrint method can easily go as BlurPrint if not adopted properly.

Key words: BluePrint, Mini Project, Software Engineering, Function Points

EC_06

PRAKALP - AN APPROACH TOWARDS ANALOG AND MIXED SIGNAL DESIGN

Dr. Sujata S. Kotabagi, Dr. Nalini Iyer, Sumit Bhat

Abstract

This paper presents a case study at School of Electronics and Communication, KLE-Tech which helped in bridging the gap between industry and institute and preparing students ready for VLSI industry. Collaboration between School of Electronics and Communication and Sankalp Semiconductors Pvt. Ltd., ventured as Prakalp program. In "Prakalp" program, students interested in the field of VLSI are selected through screening test and trained intensively by experts from Academia and Industry on fundamentals and advance courses of Analog and Mixed Signal VLSI to carry out the industry defined projects and experience research at the graduate level.

Fundamental courses required for carrying out analog VLSI projects and research are covered as a part of professional core courses in the curriculum and to enhance this activity elective courses such as Analog Circuit Design followed by Physical Design-Analog are being conducted. Design, delivery and project based evaluation is by experts from Academia and Industry.

Students are encouraged to submit their work to national conferences and contests. Best performing students get recruited by Sankalp and other VLSI companies.

Keywords: Academia, Industry, Design, Analog, Mixed-Mode.

CS_03

RESEARCH EXPERIENCE WITH MINOR PROJECTS

Prakash Hegade

Abstract

With 6 credits at stake, we have been connecting our minor teams with industry projects. It is a win-win situation that industry gets its work carried out and students get an industry exposure. However, in the process, the faculty guide seems to have been misplaced with minimal connection at both the ends. As a faculty, one can always have a bird eye view and stand isolated or derive the abstracts and give a research orientation. The later benefits for all. The paper puts forward how to maximize benefits from the industry projects. First the generic overview is presented and then it is detailed out with the specific case study.

One of the project teams was working in collaboration with Transil Technologies, building a product for proximity marketing. The product demands latest tools and technology. The core technology was to use progressive web app (PWA). The latest URL from government of India which is making rounds on social media: https://48months.mygov.in/ is built with same PWA technology which has incredibly better performance. This technology is new and barley has sufficient information on web to build something concrete and productive.

This paper details out this process and puts forward how any of the industry work can be converted into a research experience. The paper porposes a step model which comprises of four steps: Understand the problem, Generalize the problem, Abstract the problem and Propose a model.

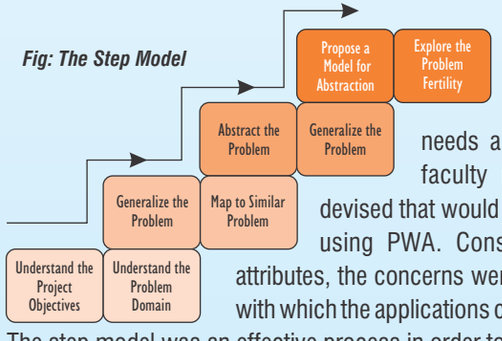


Fig: The Step Model

With application of step model, it was noted that the project demanded a software architecture that supports the new technology. Looking at the needs and product requirements, along with faculty mentoring a new architecture was devised that would be helpful to build similar applications using PWA. Considering the architecture goals and attributes, the concerns were put together to form a stable model with which the applications can be built.

The step model was an effective process in order to derive the research experiences from the industry based minor project. A new software architecture called 'Progressive Union' was designed as the result of the work. The process seems to be effective in order to bring the newness into the system and as well make an academic contribution to industry projects.

There are a lot of companies that keep the data confidential and do not allow the work to be discussed. This process cannot be applied to such projects. However, an initiation with team explaining the benefits, which could potentially lead to patents in future would sure bring along a 'yes', most of the cases, if not at all times.

Key words: Minor Projects, Progressive Union, Step Model, Software Architectures

ALGORITHMIC PROBLEM SOLVING – A COURSE TOWARDS COMPETITIVE PROGRAMMING

Dr. Ashok Shettar, Dr.Meena S M, Dr.Satyadhyan Chickerur, Prakash B Hegade

Abstract

One might know how to devise algorithms, analyse solutions, implement and solve problems; with a wealth of tools(data structures) at disposal. But the competitive programming world has a lot of other challenges which need more than the routine thinking. A great way to improve coding skills is by solving coding challenges. Solving different types of challenges and puzzles can help one become a better problem solver, learn the intricacies of a programming language, prepare for job interviews, learn new algorithms, and more. While most companies have now started hiring through online coding platforms (HackerRank, CodeChef) many most others are moving towards it. Keeping these objectives in mind a new course was introduced called 'Algorithmic Problem Solving' (APS) which was elective in sixth semester open for all branches.

The course had an entrance exam where 38 students from electronics and computers qualified to opt for the course. The course objectives majorly included: use of algorithm design techniques such as greedy algorithms, dynamic programming, divide and conquer and combinatorial search to construct algorithms and solve given problems, comparing different problems in terms of their complexity, analysing the efficiency of different approaches in solving a problem to determine which approach will be reasonably efficient, communicating and cooperating with other students during problem solving in groups and demonstrate proficiency in solving coding challenges on online platforms.

The course was conducted on HackerRank platform including the minors and semester end exam. The course had lecture sessions, discussion and coding in each of the three hours classes which was scheduled twice a week. Excelling in competitive programming, making programming as a daily habit, approaching the expertise by solving challenging problems, and working in constrained environment were the major objectives with which the course was introduced.

The objectives were successfully achieved through various planned course activities like code competitions, 15 days streak, crack a hack, topic presentations and week of code. The paper presents all the activities in detail along with student performances in worldwide competitions. As a result of all the activities, all the students who opted for the course where in the bronze medal range in worldwide HackerRank programming contest (semester end exam).

The paper presents the course, activity, student performance and discussion in detail. Overall, the course has been effective and also been a bridge to connect industries that demand students with competitive programming skills. It was also an enlightening experience to bring some of the methodologies into programming courses like C, Data Structures, Algorithms,and Object Oriented Programming etc. which can enhance the programming capabilities in students.

Key words: Algorithms, Competitive Programming,HackerRank, Problem Solving

STUDENT'S PERSPECTIVE ON EFFICACY OF GAME-BASED LEARNING WITH REFERENCE TO MANAGEMENT PROGRAM

Shashidhar Mahantshetti

Abstract

The challenge of holding a student's attention in the classroom is becoming tough with every passing day. The attention span of students is dropping down to record low. The job of teacher becomes more challenging with new emerging gadgets in telecommunication and entertainment industry. We all as human beings exhibit a great amount of motivation and excitement when we are involved in games. It is very rare to see an individual, not motivated or excited when he finds himself in a game situation. Games can be used among management students to improve comprehension of new ideas and concepts. The present study is undertaken to find out whether the game based teaching learning methodology helps in grasping the essentials of the concepts and ideas taught in the classroom. It tries exploring the efficacy of the game-based teaching-learning method of interacting with the students. The results revealed that the students considered the game-based teaching learning is a very effective tool. Further it revealed that boys and girl had a significant difference in terms of perception with respect to game-based teaching tools. A survey would be undertaken to find the students perception towards game-based learning.

Keywords: Game-based learning, teaching-learning, perception.

ME_07

INSTILLING RESEARCH ATTITUDE IN STUDENTS AT MECHANICAL ENGINEERING SCHOOL THROUGH REU APPROACH

N.R.Banapurmath, R.S.Hosmath, M.B.Gorwar, Rakesh Tapaskar, P.P.Revankar

School of Mechanical Engineering

Abstract

The quest to improve the standard of living of human society has kept the wheel of innovation spinning through research at Academia and Industry. The motivating factor to promote research and development at all levels of human endeavor has been the Millennium Global challenges. The Research initiatives in education are the important mandates that lead to application of knowledge gained towards meaningful solutions confronting the human society. The initiatives to imbibe research culture in engineering graduate students has been widely strived at due to inherent need to reach higher learning levels. However the large size of the class room in typical Indian engineering schools makes the task arduous due to time and basic research tool availability constraints. In this context a clear path laying initiative has to be strategized to trigger the interests of budding engineers and guide them to meaningful result oriented research. The referred work relates to initiatives taken on the University campus to promote an ambience of targeted research amongst aspiring UG students to work under the supervision of research groups.

The quality of the research outcomes attained has also shown an upward trend over the several cycles of this course implementation. These initiatives have created a good research ambience on account of a meticulous rubric based evaluation, good peer support to research and overwhelming student involvement. The reported work gives a vivid picture of the experience gained in successfully implementation of this research oriented course that has also propelled the Institution-level research objectives. The major advantage of this initiative has been the promotion of inter-disciplinary research that has been defined as the crux of any research activity. The discussions made in this publication highlight the work done in the School of Mechanical Engineering as part of this institutional initiative. The overall results indicated a satisfaction to the students in terms of better grades and developing interest to further their research instincts in the later part of their career.

Keywords: REU, Publications, Products, Patents, Research culture

MB_06

STUDENT, INSTITUTION AND INDUSTRY TRACK EXPERIENCE: A BLEND IN COURSE LEARNING

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School of Management Studies & Research

Abstract

Merritt (2008) highlighted that internships are part of a model that has a unique vision of educational success in which standardized test, subject-based courses and textbook learning are eschew and replaced with authentic, competency and performance based elements and measures of their education. This is a best fit for Student, Institution and Industry Track (SIIT) of SMSR introduced in 2013. SIIT is a track spread across four semesters of MBA programme and each phase has specific learning objectives. The research attempted to bring out the SIITtrackas a means to test the attainment of Competencies (C) in various MBA core and electivecourses and signify the relevance to program. Initially expected outcomes of SIIT were measured periodically through workbook review, presentation, and viva-voce exam in isolation. Eventually, the instructors started using “practice to theory” in their course delivery and assessments. To corroborate the relevance of SIIT in the programme, the assessment rubrics of 30% coursesof batch 2016-18 has been compiled. The questions to the tunes 287 marks (Core 127marks, Elective 160marks) were asked across the programme.

This analysis will be an important input to curriculum design, delivery and assessment to further enhance the students learning through experience.

Key words: SIIT, Performance Indicators, Competencies, and Programme Outcomes

SMART WAY OF TEACHING AND LEARNING MECHANICS OF MATERIALS COURSE

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School of Mechanical Engineering

Abstract

Students in the present days have freedom to learn and study whenever and wherever they want. As the cost of technology drops continuously, students can afford their own tablet or smart phone. If the learners know various soft tools available early in their academic career can inspire passion for learning engineering. The present paper focuses on new approach of teaching and learning mechanics of materials and how it bridges the gap between theoretical and practical applications moving beyond conventional method of blackboard teaching and learning. Where ever possible the concepts are made clear with the help of 3D drawings / models and animations. This can be achieved effectively by blending the method of instruction with blackboard teaching and PPT. The main focus of present work is to know whether use of modern tools and program writing have an impact on student learning as compared to conventional teaching and learning process. This method of teaching takes less time i.e., more material could pass to the students and also makes the student active in the class. In order to understand the effect of variables on the given application, an effort is made to learn the course using Apps and software such as ForceEffect, MD Solids, Beam Design, and C-4droid. As part of an assignment the quizzes are conducted using MOODLE, the questions are from GATE and IES question papers which build strong basics of the course. Quantitative analysis was carried out through student feedback to measure the outcome of the activities. 84% of students expressed that use of APP (Tablet/Smart phone) has improved involvement in learning the course and 88% stated automation of calculations helped in physical understanding of the course by parametric analyses. Students' ability to identify and connect modern engineering tools, techniques and resources for enhanced learning of a typical course is realized. The activities carried out in the course addresses program outcomes 3 and 5.

Key words: Soft tools, Active learning, MOODLE, Mechanics of materials

A STEP TOWARDS INTRODUCING DATA ANALYTICS AND VISUALIZATION FOR STUDENTS OF ELECTRICAL SCIENCE: AN INITIATIVE THROUGH MACHINE LEARNING COURSE

Uma Mudenagudi, Ujwala Patil, SuneetaBudihal, Ramesh Ashok Tabib, Shruti M, Satish C, Nalini Iyer, Ashok Shettar

Abstract

In this paper, we share our experience of introducing data analytics and visualization for students of electrical sciences through Machine Learning course. Typically, electrical science students face challenges in handling and visualizing huge data and its analysis as there is a limited scope in the curriculum. During the discussion with research and development centres of different industries and institutes we found the gap in curriculum, and towards this, we designed the Machine Learning course to introduce data analytics and visualization, and state of art machine learning tool for students of electrical sciences. The course is designed with different levels of exercises and activities to support their learning. Exercises were designed to support conceptual learning and were extended as activities towards solving a given problem. The course project was designed as an extended activity considering problems from online challenges and contests / hackathon towards enhancing their learning beyond the curriculum. The outcome of the course was motivating as industry people appreciated the learning through evaluation.

Key words: Machine Learning, Visualization, Hackathon, Activities, Online Challenges.

ME_03

INTEGRATING THEME BASED CURRICULUM DESIGN TO THE EXISTING CURRICULUM STRUCTURE FOR STRENGTHENING POSTGRADUATE STUDIES IN HIGHER ENGINEERING EDUCATION

Vinayak N Kulkarni, V.N. Gaitonde, B.B.Kottursheттar

School of Mechanical Engineering

Abstract

In today's higher education system concept of specialization, especially at postgraduate (PG) level plays a vital role in the career development of engineering students across the world. Meanwhile, the requirement for automation engineers in manufacturing sector is increasing continuously due to up gradation of the technology in today's industrial scenario. At KLE Technological University India, School of Mechanical Engineering had tried to design and implement the theme based curriculum design structure at 1st semester level of PG program. The methodology of theme based curriculum design and its integration to the existing curriculum along with the assessment pattern have been explained throughout the paper. Manufacturing systems automation, automation laboratory, Automation based Mini project and technical talk by industry personnel on latest trends in industrial automation are the core and supporting courses designed under manufacturing automation theme process. The graduate attributes, program outcomes, competencies and related performance indicators have been mentioned. Rubrics based assessment was carried out throughout the evaluation process and as a sample the assessment criteria; the automation laboratory assessment procedure has been showed and explained. The results and attainment of performance indicators (PIs) have been analyzed and it is found that the percentage attainment of PIs 5.1.1, 5.1.2 and 5.1.3 have improved from initial conduct of laboratory experiments to final open ended experiment of laboratory course. Finally, the advantages and benefits of theme based curriculum design has been mentioned and concluded that the theme based curriculum design and its implementation is found to be successful and can be extended to other engineering undergraduate and postgraduate higher engineering education programs across the world.

Keywords: Postgraduate Program; Curriculum Design; Theme Based Curriculum; Program Outcome; Performance Indicators; Higher Engineering Education.

EC_01

ENHANCED LEARNING EXPERIENCE BY COMPARATIVE INVESTIGATION OF PEDAGOGICAL APPROACH: FLIPPED CLASSROOM

Shraddha B H, Nalini C.Iyer, Sujata Kotabagi, R.V Hangal, Sujata N, Nikita Patil, Soumya B, Dr. Subbanna Bhat

Abstract

As a facilitator the only objective while entering a large classroom is enabling learning environment at the highest level and imparting knowledge to each and every individual by having an extensive two way communicating classroom with more discussions and interactive sessions. Time management plays a significant role for balancing long term goals of every classroom and bringing into action the immediate educational needs of students.

With this objective in mind a classroom performing reverse activity has been introduced called the “FLIPPED CLASS-ROOM” for the most fundamental courses of the electronics and communication i.e., circuit analysis (CA), linear integrated circuits (LIC) and CMOS VLSI to enhance the learning capability in provided span of time. In education sector, creativity in facilitating knowledge to individual student is a high level process to develop disciplined reading and writing. It is obligatory for each individual student to have a strong foundation of all the basic courses as per the feedback received from placement cell, higher semester pupil and alumni. In the era of large scale integration,LIC course plays a very important role for electronics and communication engineer as it includes analysis of solid state analog and digital devices.

The introduction of this new pedagogical method called flipped classroom which employs video lectures and practice problems as home work assignments and group based problem solving activities in class-room was given in the previous year. This paper discusses the improvement in the learning process of a course LIC which is been carried out with second iteration of flipped class room method as a pedagogical style. The authors have attempted to address the following experience of the students in “What is the efficacy of introducing better pedagogical strategies and investigating the approach to efficiently impart quality knowledge in large classroom?”

Comparative analysis of session conduction, level of questions to be posted and clarity of the concepts learnt has been performed to improvise the level of teaching, interrogatory sessions and student involvement in class-room. Study reflected that analysis of comparison enhanced the learning level in individual student by increasing their interaction and engagement in the class-room which resulted in thorough understanding of the course. The activity presented, motivated the lecturers to increase the level of questions to be asked as mentioned in the bloom’s taxonomy. This paper discusses the details of the activity, impact of the activity on student’s and the author’s experience. As an outcome of the activity there was a significant positive difference in student’s academic achievement in ESA and attitude towards learning a course with complete understanding of the basics.

Keywords: Flipped classroom, Bloom’s Taxonomy, ESA, LIC

FY_05

TRANSFORMATION FROM JUGAAD MIND-SET TO ENGINEERING MIND-SET: A PBL APPROACH

Sanjeev Kavale[1], Preethi Baligar[2] and Gopalkrishna Joshi[3]

Abstract

Problem solving is one of the focus areas of engineering education. A generally observed approach to problem solving is working in informal environments and somehow accomplishing the goals. This approach is termed as 'Jugaad' and it refers to 'easy hack' for a problem rather than having a solution based on rational engineering process. Solutions from such efforts suffer due to lack of quality and reliability. The authors have observed that the freshmen tend to have this 'Jugaad' mind-set towards solving a problem, as they are rarely exposed to engineering practices and methods in their schooling. Building engineering mind-set in the freshmen year is desirable as it lays foundation to subsequent training and preparing them for engineering workplace problem solving.

To develop engineering mind-set in freshmen, an attempt has been made in course titled “Engineering Exploration” which focuses on engineering design process, multidisciplinary skills and team work. This course follows the pedagogy of PBL in which the students solve real-world problems and submit a mechatronic prototype as a deliverable. In the first delivery of this course it was observed that the prototypes suffered due to improper selection of materials and joints between them, inappropriate mechanisms and poor rigidity which in turn affected the quality and reliability of the prototypes. This is mainly because of the fact that students lacked 'making skills' or prototyping skills and hence followed 'Jugaad' approach, even though they were aware of the engineering design process. To overcome this deficiency module on Mechanisms was introduced in this course to improve 'making skills'.

The authors observe significant improvement in the quality and reliability of the mechatronic prototypes built by freshmen due to these efforts. This paper describes the need for the effort, the process followed and outcomes of the experiment. Continuous improvement in the design and delivery of the module on Mechanisms over the last five deliveries and its impact on students learning are also discussed.

Keywords: Prototype, Jugaad, PBL, Freshman, Design

FY_01

AN EXPERIENCE OF IMPLEMENTING AGILE PROJECT MANAGEMENT PRACTICE IN FRESHMAN COURSE

Jyoti Gadad, Kaushik M, Gopalkrishna Joshi

Abstract

Project courses form important approach to experiential learning in engineering curriculum. It is observed that the student learning is huge in these project courses. Even though all the student teams start the projects around the same time, the status of these projects will be different at the end of the term. There are a number of reasons for this including students' motivation. However, one major reason is the water fall model followed in the project design and development. While this model is good in education that too for beginners in terms of understanding the project life cycle activities, it suffers from its inherent drawbacks. Students get less time for prototyping and testing phases thereby affecting quality of final delivery of the projects.

On the other hand when it is with respect to freshman student projects, students lack the necessary skills and knowledge to carry out projects. In order to equip students a course “Engineering Exploration” that follows Project Based Learning (PBL) approach was introduced where students are expected to do a course project designed around the outcomes of the course.

The experience of implementing agile approach in the course “Engineering Exploration” is discussed in this paper. This course is offered for freshman B.E. and it focuses on Engineering design process, multi-disciplinary skills required in problem solving and team work. The paper discusses about the benefits of using agile practice in the projects over water fall method by comparing the methodology followed across three semesters. The study is carried with the research question “How can agile practice enhance the quality of the projects?”

The benefits of using agile practice were analyzed from different perspectives which includes success rate of the projects, faculty student interactions, infrastructure and facilities management. Adopting agile practice provided students to perform rigorous testing at unit level as well as integrated unit level which enhanced the quality of the projects.

MB_03

USE OF SOCIAL MEDIA IN FLIPPED CLASS ROOM DELIVERY OPPORTUNITIES AND CHALLENGES

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Abstract

The information communication technology (ICT) has changed the way people communicate. This has not only impacted the way organisations communicate, but also how individuals interact. The social media is a new reality where people not only chat and networks also live another life. The impact of social media among youth is tremendous. The platforms like Facebook, Twitter, Snap chat and Whatsapp are but few networks popular with young. This is where they live, share and learn. [3] [4]

There is a scope to study which factors motivate and influence the use of social media and their effectiveness in communication. The better understanding of this phenomenon helps build strong theories. This could help create value. The same can be argued with respect to higher education. Rueda, &Braojos (2017) theorise "that traditional education technologies enable instructors to engage students to increase learning performance, which in turn leads to greater student satisfaction, and that social media applications can amplify these relationships".[9]

The role of Social media in the education field is fast increasing experiments suggest that the use of any one social media platform to engage students gives improved student reach, success rates and better subject outcomes[8]. Also, the integration of Social media supports deep learning and long term content retention [10]. However, these benefits come at a cost as these networks have their own dangers and problems. Even though, students have good intention to use social media for learning, actually they do not. But, education institutes can encourage and utilise the student zeal and make flipped class room a part of pedagogy. [1]It is advised that a creative educator needs to use these tools skilfully. [3]

To achieve better course outcomes, many educators are adopting a new pedagogy with caution. Where pre-recorded video lectures, study material and assignments are given prior to commencement of the lecture in the digital form, social media being one of the more preferred mode. During the actual session group based activities, more focused conceptual and application based aspects are discussed. This new approach is popular as "Flipped Class Room"or"Inverted Class Room".[6]

A similar experiment is being conducted in delivering "Operations Management" course at SMSR, KLE Technological University, Hubballi. The students are given pre-class tasks online, in the form of videos, quizzes and assignments and the class delivery is planned accordingly. Later, their understanding of the subject is tested using social media apps and open source platforms. This paper discusses the challenges and opportunities of using social media in education. Online survey was conducted post examinations to review the perception of the students towards this new approach. More than 89% of the students were happy with the approach. But, with few challenges such as not every student has a smartphone and networks are not strong. Few think that use of social media as a tool affects their focus, which cannot be brushed aside.

Key words: Information communication Technology, Social media, Pedagogy, Flipped class room

MB_04

PROGRAMME OUTCOMES ATTAINED IN THE JOURNEY OF "RURAL IMMERSION TRACK"

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Abstract

AICTE committee (2018) during curriculum reviewing process said that MBA curriculum should include exposure to social responsiveness, rural innovation projects and field learning to meet the changing requirements of industry. Further the committee also highlighted that many students are under the confirmed belief that present management education is addressing the problems of corporate sector only. This statement well knitted in Rural Immersion (RI) Track introduced 5years ago by SMSR. RI is a track spread across four semesters of MBA programme and each phase has objectives to be met. The stakeholders are student, institution, industry and society. The study attempted to examine the programme outcomes attained in the journey of RI. RI outcomes were periodically measured through fieldwork, presentations, role play, reports, viva-voce examination. The researcher followed content analysis research methods to collect the data. RI track attained theprogramme outcomes which are required by the MBA graduates along with outcomes mentioned by AICTE committee such as social responsiveness, leadership and teamwork. Additionally, programme outcomes like 1and 7 were able to attained through RI which were not mapped.

Key words: Rural Immersion, Social Responsiveness, Team work

ME_06

CAD MODELLING AND ANALYSIS LINKED MINOR PROJECT –A NEW DESIGN INITIATIVE IN MECHANICAL ENGINEERING UG PROGRAMME

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Abstract

The changing scenario in Engineering Education has made it necessary to adopt newer course design and delivery to reach the students 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. The Outcome based education strategies have been strongly recommended by many engineering practitioners as a solution to the emergent employability crisis infresh graduates rolling out from the portals of Academic Institutions.

The Computer Aided Design (CAD) has become an integral element of Industrial manufacturing, with Reverse Engineering emerging as a viable method to create a 3D virtual models applicable to 3D CAD, CAM, CAE or other software. The conventional curriculum design in UG Mechanical Engineering Programme does not strongly lays emphasis on imbibing design skill through extensive practice on Industry relevant methodology and tools. This approach leads to students acquiring meager expertise in Industry related concepts that add value to their fundamental engineering concepts. The pedagogical intervention initiated as part of this reported work includes meticulously designed curriculum that includes: Engineering Design and Product Realization at 2nd year level followed by practice oriented Minor Project course at 3rdyear level. The presented work gives an insight into Minor Project course delivered with a strong intent to inculcate Modeling and Analysis gives a single collaborative Industry-like platform.

The proposed curriculum tries to bring the latest Industry practices to the class-room to there by build good proficiency and mastery on software usage and result interpretation. The 3 credit Minor project course is a team activity that has resulted in a total of 50 projects evolved for target applications in various domains like Medical, Automotive and Consumer products. This course establishes continuity to the design thread with emphasis laid on providing Reverse engineering concepts through hands-on exposure.The Course delivery was strongly inclined to bring a positive change in the Teaching-Learning process targeting higher student attainments in Programme Outcomes (PO) that included PO3 and PO5 of the Programme apart from other outcomes. The overall student response to this course has been encouraging as reflected in their grade points and improved proficiency to handle real time engineering problems.

Keywords: Design approach, Programme Outcomes, Reverse Engineering

ME_08

CONDUCTING ENGINEERING DESIGN AND PRODUCT REALIZATION COURSE ACROSS MULTIDISCIPLINARY DOMAINS.

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1 School of Mechanical Engineering,2 School of Electronics and Communications, 3 School of Electrical, 4 School of Computer Science

Abstract

The KLE Technological University's curriculum was recently modified by restructuring Engineering Design course (for third semester) in Electrical, Electronics, Mechanical and Automation and Robotics discipline with a multidisciplinary hands on laboratory course Engineering Design at third semester and Product Realization for fourth semester. This course(introduced to Computer Science as well) aims students to master the engineering design process and prepare for their professional careers by integrating discipline-specific components into system level design and build circuits, mechanical casings/structures and mobile applications to realize their prototypes. The main intention of introducing this course at third semester level was to test if students can involve themselves in multidisciplinary teams and solve a given complex design problem exhibiting their team dynamics. The sessions moved beyond basic theory verification/demonstration by requiring students to practice higher level thinking. In addition, the systems level projects encouraged students to reorganize knowledge and discover the connections among concepts in several courses. The multidisciplinary faculty team of 24 mentors had to teach and mentor 1080 undergraduate students from five different disciplines spread across 15 divisions and working on 15 different project themes. All the session were pre planned and included short lectures on case study followed by activities involving students to work hands-on on their respective projects statements using standard templates. Project themes identified demanded involvement of all discipline students; to name a few: chocolate vending machine, coin sorting machine, blind assisting device, education learning kit, physiotherapy device and so on. Students could successfully achieve and realize the prototype to product level. This paper emphasis on design of lectures, case studies and templates used in delivering the course across all the phases of the design, prototyping and testing. The case studies facilitated faculty team for uniform delivery of sessions across all divisions and templates facilitated students to connect their thought process with the design concepts. The outcome of the course is evaluated in two phases; Design Process and Product Realization, students feedback reflects that about 44% and 40% students were satisfied with the conduct of the course respectively. Paper concludes with the challenges confronted in implementing this course.

Keywords: Multidisciplinary, project based learning, case study

EC_07

TECHNOLOGY ENABLED ACTIVE LEARNING FOR ELECTROMAGNETIC WAVES AND THEORY

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Abstract

The paper aims to present an active learning method enabled by technology for the course of Electromagnetic (EM) Waves and Theory. This method focuses on teaching and learning the concepts of electromagnetism with visualizations which is termed in short as TEAL (Technology Enabled Active Learning). MATLAB is the tool used for representing the visualizations which helps in improving the learning outcomes. This method also focuses on making the students to be engaged in the learning process by being online through blended learning. Examples of electrostatics, magneto-statics, dynamic fields, and transmission lines where presented to the students for visualizing 2D and 3D patterns. The feedback provided by the students is used to assess the effectiveness of the visualization tool and the method followed. It has been recognized has a useful approach by the students and about 85% of the students have appreciated the process. By the analysis made by comparing with the normal teaching process, this method has proven to be the good way for discussing the complex topics.

Key words: *Electromagnetic Waves and Theory, MATLAB.*

BT_03

AN INTEGRATED PEDAGOGICAL APPROACH FOR EFFECTIVE TEACHING OF RESEARCH METHODOLOGY COURSE AT UNDERGRADUATE LEVEL

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Abstract

Research Methodology is a systematic, theoretical analysis of the methods applied to a field of study, which comprises body of various techniques. The course assumes significance from Biotechnology perspective, since the domain is research centric. The objective of the course is to give an insight into the nuances of research methods to facilitate the students in handling of Mini, Minor, Capstone and REU projects at higher level semesters. The course poses a challenge from teaching-learning perspective owing to its heterogeneous content with chapters ranging from introductory concepts till drafting of technical article and spanning across statistical methods and IPR issues. In-order to address this question of overcoming the challenge of learning the course with heterogeneity and provide a meaningful learning, the present study with an integrated approach was practiced for undergraduate students of Biotechnology for enhancing the effectiveness of learning . Various in-classroom activities and exercises were undertaken which included identifying different types of research and research-related literature, formulation of problem statement, elucidating the types of IPR's, composing review article, computing of bibliometric parameters and interpreting the results from research article. Various online tools were used for statistical analysis of research data, plagiarism testing and quick referencing of citations. The active learning techniques employed were instrumental in keeping the students engaged while enhancing the effectiveness of learning in a course with diverse contents, which otherwise would have been difficult by conventional rote teaching methods. The exercise resulted in addressing of different graduate attributes related to demonstration of competence in mathematical modeling, basic science, comprehend technical literature, use modern engineering tools and understand the philosophy of research methodology, with a decent scale of attainment. It is concluded that, an integrated approach with multipronged activities can lead to effective learning. Further scope for the study exists in the form of fine-tuning of activities in terms of better assessment and widening the horizons of the concepts dealt with.

Keywords: Research Methodology, Active learning, Teaching-learning.

CS_01

SYSTEM SOFTWARE ACTIVITY ON BOOT LOADER INTEGRATED WITH OPERATING SYSTEM

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Abstract

Teaching individual courses in our curriculum is done with inadequate focus on integrating the learning with other courses. This results in students not appreciating the courses showing less interest in learning process. This paper presents the new teaching approach developed by us to teach the system software for the computer science students. In this approach we are integrating the System Software course with the learning in the course on operating system. This paper is written for the one interested in design of different things, particularly, one who is working with high-level languages like Java, C, C++, etc., who sometimes need to do low-level programming in Windows. Our example of low-level programming is based around system loading, i.e. we will show how to develop a boot loader. Boot loader function is to load operating system into memory. In this article, we consider how BIOS operates and system components work with each other during booting. We have also introduced the simple working boot loader and mixed code technique. This activity motivates students to interact with the system at the hardware level and resulted in improving their performance and understanding the course.

Keywords: *System Software, Teaching approach, Boot loader, System Loading.*

BT_01

IMPLEMENTATION OF PROJECT-BASED-LEARNING (PBL) APPROACH FOR BIOINFORMATICS LABORATORY COURSE.

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Abstract

Bioinformatics is an interdisciplinary field involving biology, computer science, mathematics & statistics concerned with the development & application of computer hardware& software to acquire, storage, analysis & visualization of biological information to draw a meaningful conclusion. This interdisciplinary nature makes bioinformatics an ideal framework to experience students the interplay between different scientific areas, while touching on societal aspects mainly on health and environment. Implementing Project-based learning (PBL) in Bioinformatics laboratory promoted students involving in experiential learning and critical thinking through group activities, improves problem analyzing and solving skills, bridge the gap between teachings and understanding the course, concentrate on the fundamentals and its application etc. This paper presents the experience with PBL implementation for V semester students in Bioinformatics laboratory course. An open ended problem on different diseases was floated to the group (group comprising up to 4 students, maximum 4 groups in a batch). Cascade of laboratory experiments were performed to understand the molecular aspect of protein involved in pathogenesis. The activity was instrumental in addressing graduate attributes namely: problem identification & solving, identification of proper tools, data analysis and interpretation, communication skill and ability to work in teams were the major outcomes of this course. Rubrics-based assessment was performed to measure the attainment. Overall results show that the students were engaged in active learning and their understanding of the subject was enhanced.

Keywords: PBL, Bioinformatics, Pathogenesis.

EXPLORING THE CAPABILITIES OF FRESHMAN STUDENTS IN PROBLEM FORMULATION AND IDEATION PHASES OF DESIGN THINKING

Kaushik M, Gopalkrishna Joshi

Abstract

An ability to solve the problem is considered to be one of the important attribute for 21st century engineers. One of the best ways to enhance the problem solving skills among students is to introduce “Design Thinking”. The concept of design thinking was introduced to freshman students in the course titled Engineering Exploration. This course adopts Project Based Learning (PBL) approach where students are expected to do course project following the Engineering Design process that includes formulating problem statement, sketching conceptual designs (ideation), developing product architecture, doing detailed design, followed with prototyping and testing. It is observed that problem formulation phase and ideation phase influences heavily on the remaining phases of design process. Hence both the phases are considered and the study focuses to investigate the capabilities of freshman students in first two phases of engineering design process. Data from three semesters were analyzed to understand the capabilities of freshman students and the results show that more structured way of mentoring the students help them to perform better in both the stages.

Keywords: Design Thinking, Problem definition, Ideation, Engineering Design Process, Project based learning.

STRUCTURAL CHANGE OF MBA PROGRAM AT SMSR

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Abstract

The change has no consistency yet persists. To sustain and grow, it is necessary to embrace change. It is applicable to higher education system as well and so is with B-schools MBA program. Higher Education reforms normally talk about Curricula and pedagogy, faculty, partnership and infrastructure but not Program Structure. An MBA program to succeed and attain Program Outcomes is a subject of four components viz. Structure, Curricula, Delivery and Assessment. Structure is relatively permanent and critical leads to radical change and others components are flexible on a periodic basis lead incremental change in the program.

Top 50 B-schools (Tier I) in India such as IIMs, XLRI, MDI, SP Jain, TAPMIare into trimester system for the obvious advantages. Tier II and Tier III B-schools follow semester system baring few. During this academic year (2017-18) SMSR transitioned to Trimester system with the support of BoS and AC of KLE Technological University. The robustness of academic rigor of semester system of SMSR has set the path for smooth transition to trimester system. The curricula has been re-organizedfrom the existing 4 semesters into 6 trimesters. Each of terms have only 4 theory courses instead of 6-7 courses. Students will get more time for focused and self learning. One year has been successfully completed and indicators are good in-terms of results. Faculty members are getting quality time for researchand administration. No doubt there will be a slightly more administrative load, can be managed. The responses from students and faculty members have shown positive indications of implementing trimester system. Other stakeholders response can be captured after completion of one cycle.

ME_02

EXPERIMENTING WITH LABORATORY EXPERIMENTS

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Abstract

The famous quote of Chinese Philosopher Confucius says "I hear and I forget, I see and I remember, I do and I understand" and the goal of engineering education is to prepare students to practice engineering [1]. Thus instructional laboratories have been an essential part of engineering education from 1802. Improvement in digital computation, development of software packages, high integration of software with hardware, and high speed networking has led to different methods to realize the concepts better. The different methods are using Simulation, Standalone kit (like black box) from vendor, Discrete components (like white box), Virtual simulation, and Remote access of real equipment.

In this context the question before us was to improve the understanding of concepts of a course by appropriately selecting method(s) of conducting a laboratory experiment.

This paper describes the history of some of these methods of conducting experiments. The paper suggests choice of a method based on few factors and outcome of the course. In particular, the paper considers a case to appropriately select method(s).

Students have expressed their positive opinion in the semi-structured interview. The same was observed in the end semester results. This shows that, students have had the better understanding of the concepts.

Key Words: Experiments, laboratory, Methods, Course outcome

ME_09

EFFECTIVE UTILIZATION OF MAKERSPACE FOR FACILITATING PRODUCT REALIZATION COURSE

Praveen P, Satish C, Shivaprasad M, Raghavendra Shet,Santosh, Shreeshail,S B Burli

Abstract

The Makers Space is a state of art facility created to promote product development and realization eco-system on KLE Technological university campus and is administered by the college as a resource for all engineering departments.The goal is to provide a new engineering educational experience that highlights the interdependency of design and manufacturing in a present dynamicmarket. It intends to provide students with unique learning experiences on real industry problems and products in a work emulating environment. The Makers space provides modern design, prototyping and manufacturing facilities like 3D printer, Laser cutting machine, PCB etching machine which helps to realize any electro mechanical product. The students were made to avail the maker space facility by undergoing a safety training session, the safety session emphasizes on the personal safety in the workshop, safe handling of the equipment. The aim of engineering design and product realization course is to align students to be conversant with the modern manufacturing facility like Makers space and indeed support the students and entrepreneurs to convert their product ideas into reality. The facilities encourage student teams, faculty members and entrepreneurs working towards creating products to realize our national dream “Make in India”.

More and more educational organizations across the world promote experiential learning models to prepare their students for professional life. This paper discusses approaches for effective utilization of Makers Space for competency development, by addressing problems related to manufacturing and assembly. As a result, students could design and develop the products to address the real world problems.

Key Words: Prototyping, Personal safety, make in India, Makers space

ME_10

AN APPROACH OF PROJECT BASED LEARNING IN POST GRADUATE ENERGY SYSTEMS ENGINEERING PROGRAMME

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Abstract

Engineering is the immediate application of the scientific learning to the real-world problems. Engineering education is one of the most vital aspects in shaping the future engineers of the world. The methodology of content delivery and its understanding has been reformed number of times throughout the past to solve the present generation of complex technical problems enhancing the standards and comforts of human being. One of the practices employed in the engineering education is outcome-basededucation. Outcome based education based on the goals, the theory revolves around achieving the goals. The very goal of such a OBE based education is to make student achieve the goal of the course or the programme he/she is undergoing. The present work reports the adoption of OBE in the interdisciplinary post graduate environment comprising of Electrical and Mechanical graduates. The PBL approach of learning has brought a drastic change in the understanding and problem-solving capabilities of the student in turn improving their adaptability to accommodate themselves in the real life interdisciplinary problems. The activity addressed the Programme Outcomes PO4, PO5 and PO6 that fostered to the attainments of higher levels of learning in the connected courses. The observations also indicated an improvement in the performance in students as reflected in the results gathered from the current batch and preceding batch of students taking the similar course.

Key Words: Project based learning, Engineering Pedagogy, Engineering Education

ME_11

PEDAGOGICAL INTERVENTIONS IN TEACHING THERMAL ENGINEERING COURSES AT UG PROGRAMME LEVEL

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Abstract

The Mechanical Engineering discipline forms one of the earliest among the emergent fields support the Industrial world in several dimensions. This stream of Engineering encompasses several domains that include Thermal, Materials and Design, Manufacturing and Management to list a few. The role of a Mechanical Engineer is pivotal in driving the Industrial sectors like Automotive Engineering, Power generation, Oil Exploration, Process Industry and Aviation Industry. The Mechanical Engineering curriculum designed for today's Industry needs should be an optimum blend of all these ingredient knowledge to prepare students for a promising career. The changing pattern of student learnability has been reported by several pioneers in engineering education, who have strongly suggested newer pedagogical interventions to address the new genera of learners. The switch-over to Interactive teaching learning has been the need of the hour more so ever for the courses that need strong conceptual understanding and application. The present work deals with a collective effort made by a group of faculty teaching 'thermal engineering' courses that include Fluid Mechanics, Thermodynamics, Heat and Mass transfer for the UG course in Mechanical Engineering. The reported work addresses the challenges in delivery of analytical problem solving techniques in these courses and also the remedial measures taken to overcome the bottle-necks in learning. The approaches adopted basically aim to imbibe analyticity in the delivered course through Interactive Learning tools (ILT) that were well accepted by the student fraternity. The activities initiated aimed at Programme outcomes towards improvement of application skills, use of computational tools and motivate research initiatives in students. The overall results indicated a satisfaction to the students in terms of better grades and developing interest in the thermal courses.

Key Words: Thermal Engineering Courses, Interactive Learning Tools, Student research initiative

ME_12

MINOR PROJECT APPROACH TO IMBIBE ENTREPRENEURSHIP IN PG ENERGY SYSTEM ENGINEERING – SOLVING REAL WORLD PROBLEM

Rakesh Tapaskar, M.B.Gorwar, R.S.Hosmath, P.P.Revankar

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Abstract

Engineering education can be regarded as a lone system of educational arena where the student can readily be transformed into real world entrepreneurs. The skillset acquired during the engineering education can be directly applied to solve the real world complex problems. World keeps on changing at a faster pace than the time taken by the one to learn and understand. Every new day a new challenge emerges posing a new opportunity for engineers to practice their skill in solving it. The past decade has proved the potential value of introducing entrepreneurship concepts during ongoing education. The present paper elaborates the adoption of bits and pieces of real world problem in the form of minor and major projects in PG Energy System Engineering programme which motivated students to be technical entrepreneurs. Modern engineers need to be interdisciplinary with adaptive understanding to solve the complex problems of the real world. The glimpse of these real-worldproblems when adopted into the academia in the form projects could train and prepare the students to contribute a remarkable service to the society. The interdisciplinary programme of Energy Systems Engineers has brought in the blend of real world challenges and opportunity for the students developing the skill of working in heterogenous groups of Electrical and Mechanical engineering streams. The case study of the entrepreneurship programme implemented across various colleges and universities throughout the world and its impact on the students is also presented in the paper.

Key Words: Engineering Entrepreneurship, Interdisciplinary Engineering Education.

EC_12

REVISION OF POST GRADUATE CURRICULUM : BRIDGING THE GAP

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Abstract

It has been observed that a number of students who admitted to M.tech programme exhibits large variation in abilities or knowledge and skills as they come from different regions, colleges and disciplines. PG students are more mature as compared to UG students, and it is expected that they should be able to do a significant amount of self inquiry and self study. But now a day quality of incoming students has drastically reduced due to many reasons and they lack in basics. Postgraduate courses should therefore be more intensive as compared to undergraduate courses. Irrespective of orientation of the student, whether towards research or employment, the performance of students in the courses is degrading. Thus, any efforts towards improving the quality of M. Tech. Programme would certainly improve the employability of the students as well. The curriculum has to be so designed as to provide enough opportunity and direction for this to happen. Therefore, need has been felt to introduce basic courses to bridge the gap at entry level of Mtech i.e first semester. As a result curriculum is redesigned to introduce fundamental subjects like analog & digital electronics, basics of microcontroller, signals & systems and data structures with hands on experience to improve the basic knowledge of PG students. This paper is intended to discuss the need and outcome of revising PG curriculum stucture.

EC_10

"AUTOMOTIVE ELECTRONICS COURSE PROJECT TO PLACEMENTS:A SUCCESS STORY"

Venkatesh Mane , Prabha N , Gireesh H M, Nalini C. Iyer

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Abstract

The automotive industry is one of the fastest growing industries across the world. To address the needs of the industry automotive electronics course is being introduced at the third year of the under graduate program. The course being highly interdisciplinary in nature requires the competencies related mechanical systems, control systems, electronics and software engineering. The course mainly deals with development of embedded systems involving hardware and related software to realize various functionalities on the mechanical systems. To make the students of electrical science to get more acquainted with mechanical systems and apply the electronics better, course project was introduced, which eventually ignited the thought process of the students and came with new ideas in the areas of automotive electronics and which later got selected for the prestigious project competitions such as "Bosch inscribe" and "KPIT Spakle" along with offer letters from the industry.

Key Words: Automotive electronics, integration, ECU development, placements, course projects

EC_09

DATA STRUCTURES MADE EASY THROUGH THE INNOVATIVE TEACHING METHODS

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Abstract

Data structures using C course is a core foundation stone in building students career, But there are many complicated concepts in it. In order to help students to master the data structure concepts, this paper describes the use of blended learning through live demonstration of concepts such as storage classes, stacks, queues, linked lists and binary trees and Hackathons on C and data structures. This blended learning model is realized as a combination of teaching methods, project-based teaching and E-learning. Performance of the students after the experimentation was phenomenal. This blended learning model may provide more effective and efficient educational experience in teaching data structures using C.

Key Words: Live demos, project-based teaching, blended learning; E-learning; data structures andalgorithms;

EC_05

A COLLABORATIVE APPROACH FOR SKILL DEVELOPMENT AND EMPLOYABILITY

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Abstract

In India VLSI talent is in short supply, it is not a problem of quantity, but it is a problem of quality – the quality of VLSI education and quality of students getting through engineering institutions is poor. The biggest challenge faced is that fresh VLSI graduates are not readily employable. There is dearth of verification engineers in VLSI industry, opportunities are available but they lack in skill set. They need to be trained for a year before becoming industry ready. The real solution to solving this issue is to offer good quality VLSI education.

To address these issues KLE Tech, IESA and SEER have collaborated as a tri-partner agreement in introducing two new courses Advanced Digital Logic Design and Advanced Digital Logic Verification. The course contents are designed, delivered and assessed by in-house and industry expert to build competence. The key to the success of these courses is the extensive industrial experience that develops the students' skill and employability attributes.

Key Words: Verification, IESA, SEER, Employability.

EC_03

EXPERIMENTING CURRICULUM DELIVERY THROUGH INDUSTRY INSTITUTE COLLABORATIVE DOMAIN SPECIFIC THEME BASED PROJECTS

Ujwala Patil, Nalini C. Iyer

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Abstract

In this paper we share our experience with curriculum delivery through industry institute collaborative domain specific theme based projects. We had floated the theme based projects and industry floated projects during their 5th and 6th semester respectively. The theme based projects facilitate the students to think beyond the curriculum, and the industry projects help them to mould themselves to the industry expectations. The theme decided for 5th semester 2017-18 batch students (first batch of KLE technological university) was to enhance their coding skills with focus on optimization. During their 6th semester they had to choose the projects from the pool of around 13 industry projects. Along with technical skills, the presentations skills are also mandatory to mark their feet in the competitive world, students were guided to use open source English grammar checking and plagiarism checking tools to prepare their project reports towards enhancing their technical writing skills. It was challenging to meet the expectations of the industry and to speak the same language to solve the given problem within a short span of a semester. Towards this, the competent students are allowed to continue with their 6th semester projects as IRP with exemption of two electives in their forth coming semesters. The vision of IRP is to mould the students to industry expectations and foster their technical skills towards the development of the product.

CS_08

DESIGN AND ENHANCEMENT OF STUDENTS LEARNING THROUGH PROJECT BASED APPROACH: AN EXPERIENCE IN IOT COURSE

Preeti T, Sunil V. Gurlahosur, Dr. Meena S. M.

Abstract

Recent growth in Information and Communication Technologies has created a new paradigm called Internet of Things (IoT). This paradigm shift towards IoT provides seamless access to information through novel methods and connects people, processes, data and things together in unprecedented ways. The rapid adoption of IoT is found in every field with a diversity of application for smart homes, buildings, health care, retail, agriculture, construction etc. Hence for every Computer Science Undergraduate knowledge about IoT has become kind of must to stay industry relevant and also up to date with recent technologies and innovations. In order to make students acquaint knowledge on this new paradigm, we introduced lab oriented course (Credits: 2-0-1) on IoT. This will further help students shape career in better way once they join industry and also while pursuing higher studies. The course was delivered with the set of outcomes (CO's) which focuses more towards practical applicability of the concepts. As part of course study, students implemented projects which provide solutions to real time problems found in day-to-day life with the use of various Sensors, BLE tags and Boards (Raspberry, TI CC3220 & NodeMCU), to experience and appreciate the concepts from practical perspective.Different reviews were conducted at various levels which has helped students in continuous improvement of their knowledge, design and conduction ability. The course offered was an elective course, hence students performance well in both In Semester Assessment and End Semester Assessment.

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ENHANCING OPTIMIZATION SKILLS IN EMBEDDED STREAM: INTEGRATED LEARNING

Rohini S. Hongal, S.N.Asundi, Preeti P., Bhagyashree K., Supriya K., Shrishail Pattanashetti , Nalini Iyer

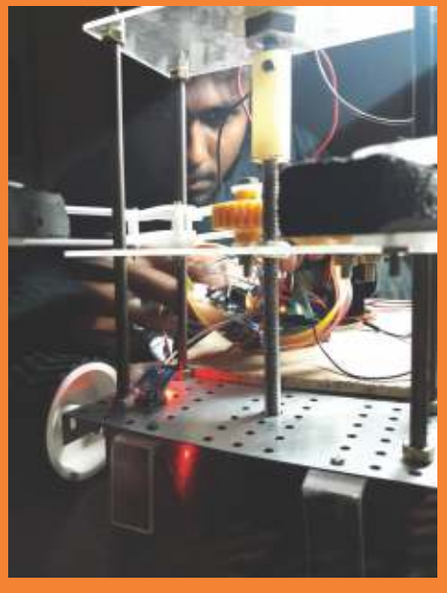
Department of Electronics and Communication Engineering

Abstract

Technological changes are happening at a faster rate every day. In order to build students competency to these changes, different teaching approaches play a vital role. Embedded System is one of the important streams in the Electronics branch. This paper is intended to explain approaches followed in handling the basic courses of embedded system like Microcontroller, Advanced Microprocessor and RTOS. In each of the courses, integrated approach is followed where in each topics is handled in laboratory environment, so that student can have hands on experience for the same. In each of the course, every program is explained in simulation environment using freeware Keil Uvision software and also students were given with one open ended problem definition for implementation on hardware environment. To cater to industry requirements, optimization techniques were used in developing code as a part of lab exercises. Extended problems were given as a part of course project to enhance their optimization skills, which in turn helped in system design.

Keywords: Microcontroller, Advanced Microprocessor, RTOS, Integrated approach, Simulation in laboratory environment, Optimization skills

Students in Action Engineering Exploration Course



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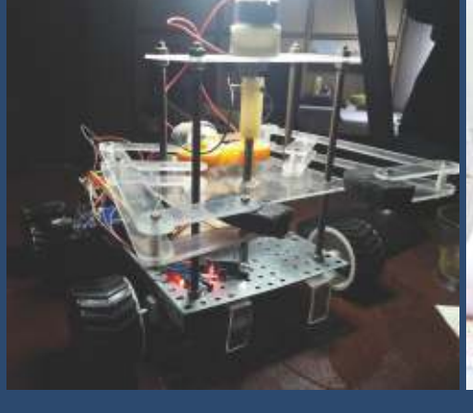
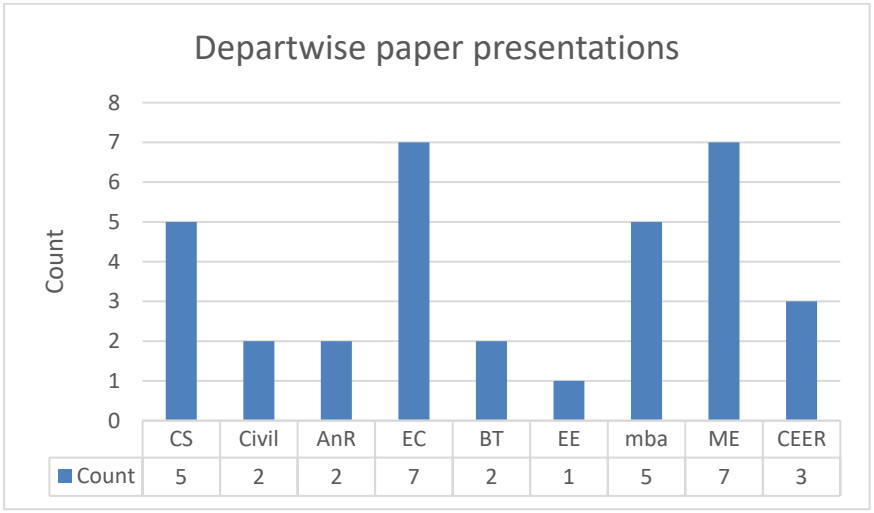



Faculty Conclave 2017-2018

A Two-day Faculty Conclave-2018 was organized by Centre for Engineering Education Research (CEER), KLE Technological University, Hubballi on 26-27th, July, 2018. Being initiated in 2011, this event is one of the annual highlights.

The Faculty Conclave provides a platform to showcase new pedagogical practices and research in the realm of engineering education at KLE Technological University, Hubballi. The event showcased 50 paper and poster presentations by the faculty members belonging to different schools and departments of the university.



Spread over eight sessions, the five distinct themes of the event are:-

1. Curriculum Innovation
2. Outcomes Assessment
3. Experiential Learning
4. Pedagogies in Engineering Education
5. Research Experiences, Entrepreneurship and Industry – Institute Collaboration
6. Graduate Program Experiences
7. Technology Enhanced Learning & MOOC Experiences

The faculty of the institute actively participated in the deliberations during the conclave. The event served as a forum for exchange of ideas and practices followed across the various schools and Departments of the KLE Technological University.

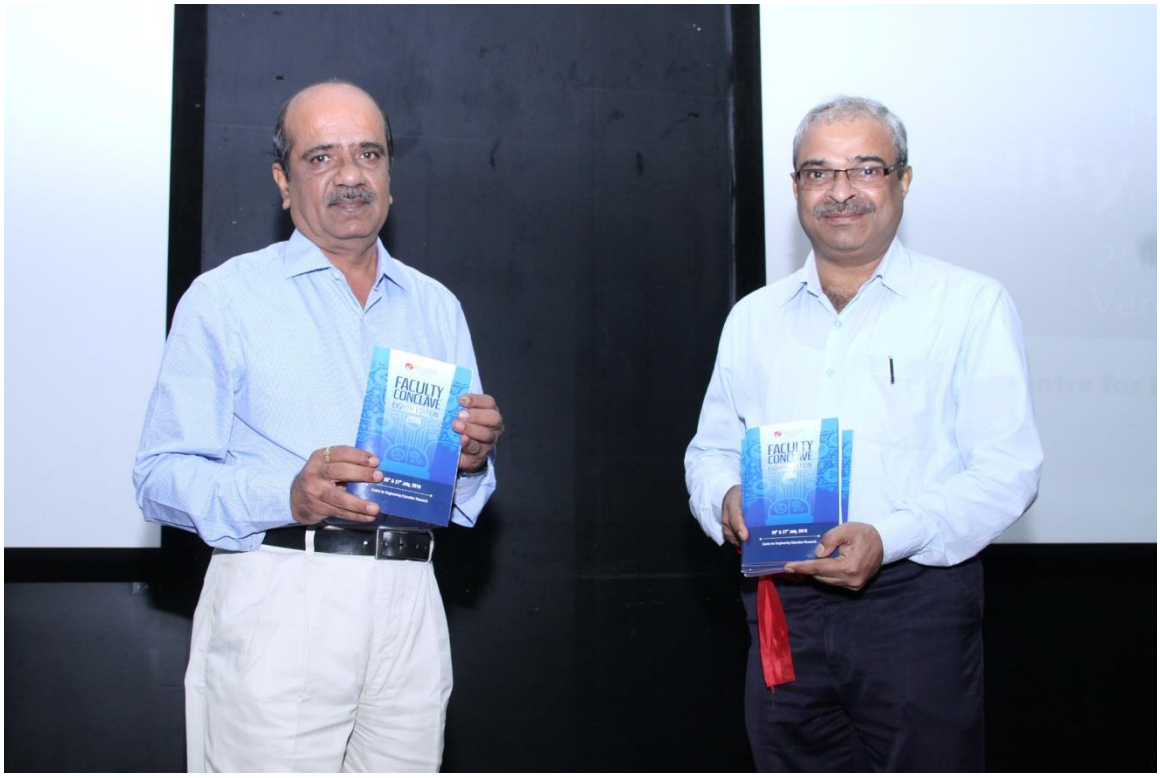


Figure 1 Figure 5 Dr. Ashok Shettar, VC and Dr. Gopalkrishna Joshi, Director, CEER releasing the proceedings of Faculty Conclave 2018

Figure 2 Figure 6 Faculty members interacting during a presentation

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Figure 3 Figure 7 Faculty member presenting a paper