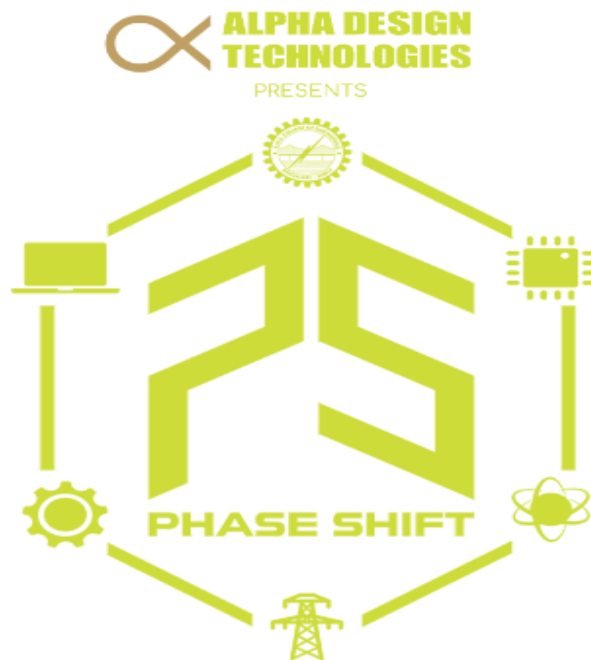


BMS COLLEGE OF ENGINEERING

REPORT BY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION



15TH AND 16TH SEPTEMBER 2018

THEME:SPACE SYSTEMS

BMS COLLEGE OF ENGINEERING



Department of Electronics & Communication
Engineering

*Workshop on Artificial Intelligence and Deep Neural
Networks - Phase shift 2018*

In Collaboration with
[Ejnana]

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S	Details		
1	Event / Workshop Title	Workshop on Artificial Intelligence and Deep Neural Networks	
2	Date & Time	15 th September 2018 10.00 am - 5.00 pm	16 th September 2018 9.00 am – 1.00 pm
3	Registration Fee	Rs 100/- per individual	
4	Faculty coordinator	Lalitha S (Assistant Professor)	
5	Name of Student coordinator 1. Mail-id 2. Contact no.	1) A. Vipula 1bm16ec007@bmsce.ac.in 8197143796	2) Ruchi Agrawal ruchiagrawal1311@gmail.com 7225853282
6	No. Of Students/Team Registered	60	
7	No. Of Students/Team attended	43	
8	Industry Collaboration & Address	Ejnana	
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	Nil	
10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	1) Vikram R Lakkavalli Project Manager at Ejnana vikram.ckm@gmail.com 8073441631	2) Shreekantha A Nadig Research Scholar at IIIT Bangalore shreekantha.nadig@iiitb.org 9738410350
11	Detail Description about Event/Workshop (attach presentations and details)	Get insights into practical aspects right from foundation to build models or applications for computer vision using various tools. Hands on sessions on various mathematical details and deep learning frameworks used in artificial intelligence and deep neural networks. Link to all workshop materials- https://github.com/sknadig/BMSCE_workshop	
12	Program outcome		

SCHEDULE

Day 1, Session 1(Timings 10:00 am – 1.00pm)

Introduction to Python

Features and advantages of Python for Machine Learning applications
How to install and get started with a Python environment
How to install and get started with a Python environment
Python Variables, Operators, Input, Output
Python Data Structures, Lists, Strings, Dictionaries
Control Flow Statements, if, if-else, if-elif-else
Loops, for, while, continue and break statements
List comprehension
Functions, return statements and implicit arguments
Classes, objects, init function

Introduction to NumPy

Why NumPy? A quick comparison between NumPy and python lists
NumPy arrays, 2D, 3D etc.
Functions for creating arrays
Common NumPy arrays
matplotlib and basic visualization
indexing and slicing
fancy indexing

(Lunch Break 1.00pm-2.00pm)

Day 1, Session 2: (Timings 2.00pm-5.00pm) (Tea Break 3.45pm-4.00pm)

Perceptron convergence algorithm using NumPy
Single Layer Perceptron using NumPy
Introduction to Keras
Keras Sequential model
Single Layer Perceptron for toy dataset using Keras

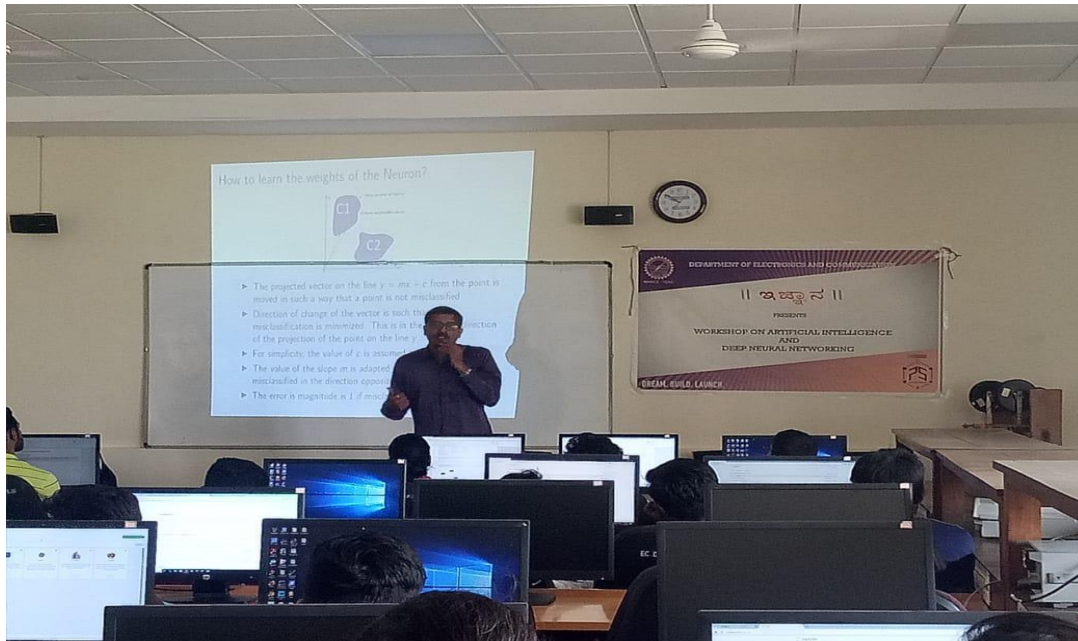
Day 2, Session 1: (Timings 9.00am – 1.00pm) (Tea Break 11.00am-11.15am)

Recap of Keras introduction on the request of students
MNIST classification using Keras Sequential API
Walkthrough of Keras API
Experiments with hidden layers using Keras API
Cats vs Dogs classification using Keras API - Explanation of Data Loader in Python
Exoplanet discovery using Kepler labelled time series data (Given as take-home code)

15th September 2018

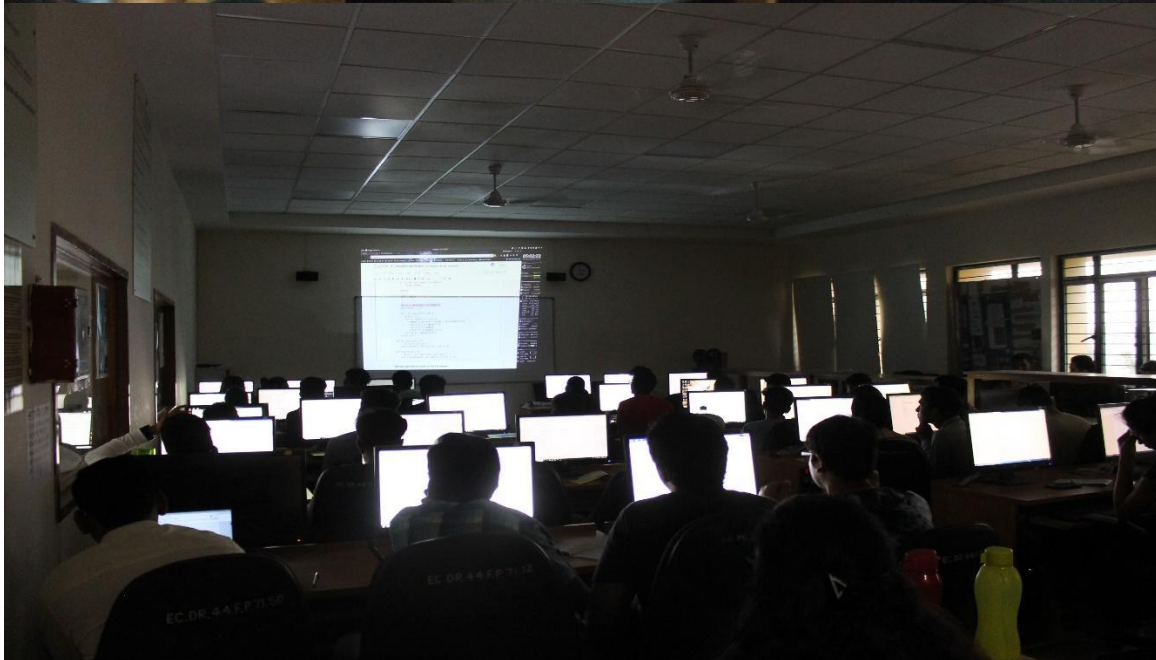
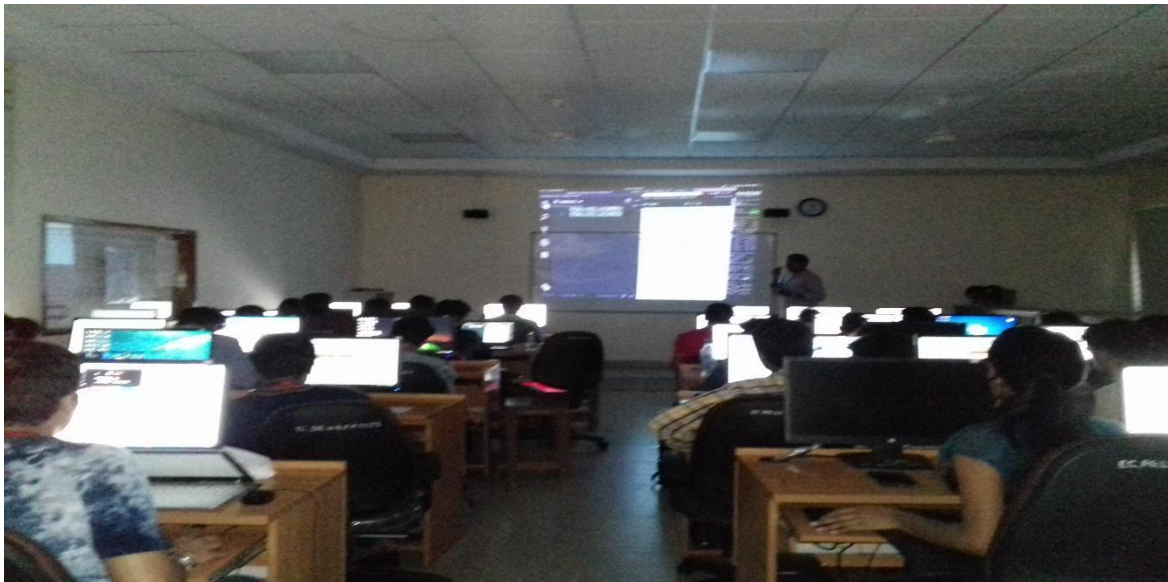
Day 1, Session 1:

An introduction to the fundamentals of Artificial Intelligence was provided briefly along with the mathematical concepts used were dealt with. Basics of signals used in modelling of parameters of the systems were also taught. The introduction to software (Python in Anaconda Environment along with the requisite libraries); its installation and usage were handled. The program codes with several functions were explained and simultaneously executed on the systems. The numerical computations (plots, arrays, indexing, slicing etc) which can be performed using NumPy library were also executed.



Day 1, Session 2:

Once the students were familiarised with the basic concepts of programming using Python various algorithms used in Artificial Intelligence along with its advantages and disadvantages were discussed upon. An introduction to Deep Neural Networks was started by providing deeper insight on neural systems where correlation between biological and the software modelling were inferred. Upon that various layering's and interconnects among them were dealt with. A hands-on session on simpler programs in keras tool were programmed to get a fair idea of the Deep Neural Networks.



16th September 2018

Day 2, Session 1:

A short duration of recap on the keras tool was done. A complete hand-on session was up taken where various experiments in hidden layers using Keras API was performed. A classification model between cats/dogs was taught further which take home codes were provided for enhanced learning further.





Workshop on Power of Altair Technology for design of complex machines

Sl. No.	Details	
1	Event / Workshop Title	Workshop on Power of Altair Technology for design of complex machines
2	Date & Time	15 th September 2018 10:00am-1:00pm
3	Registration Fee	Rs. 100/-
4	Faculty coordinator	Dr. Kiran Bailey
5	Name of Student coordinator 1. Mail-id 2. Contact no.	1) Aditya K P Patil adityapatil.lvs17@bmsce.ac.in 9481032044
6	No. Of Students/Team Registered	23
7	No. Of Students/Team attended	13
8	Industry Collaboration & Address	Altair Engineering India Pvt. Ltd. Prestige Tech Park, Mercury, Outer Ring Rd, Marathahalli, Bengaluru, Karnataka 560087
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	-
10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	1)Mr. Srikanth R Senoir Director srikanth.r@altair.com 9845072955
11	Detail Description about Event/Workshop(attach presentations and details)	The Workshop was about challenges and difficulties in building complex machines for space systems such as satellites and launch systems.

FEKO Workshop: Antenna Design and Simulation Tool

Sl. No	Details			
1	Event / Workshop Title	FEKO Workshop: Antenna Design and Simulation Tool		
2	Date & Time	15/09/2018 2:30pm to 4:30pm		
3	Registration Fee	100		
4	Faculty coordinator	Dr Siddappaji		
5	Name of Student coordinator 1. Mail-id 2. Contact no.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> 1)Karthik Raj S S karthikrjss@gmail.com 9108569131 </td> <td style="width: 50%; padding: 5px;"> 2)Gagan L Naik gaganlnaik222@gmail.com 8867550242 </td> </tr> </table>	1)Karthik Raj S S karthikrjss@gmail.com 9108569131	2)Gagan L Naik gaganlnaik222@gmail.com 8867550242
1)Karthik Raj S S karthikrjss@gmail.com 9108569131	2)Gagan L Naik gaganlnaik222@gmail.com 8867550242			
6	No. Of Students/Team Registered	37		
7	No. Of Students/Team attended	27		
8	Industry Collaboration & Address	<p>Silicon Microsystems No 28,2nd Floor,2nd cross, Canara Bank Colony, Uttarahalli Main Road, Bengaluru-560061 Ph: +91-80-26390364/0365</p> <p>Altair Engineering India Private Limited Prestige Tech Park, Mercury, Outer Ring Rd, Marathahalli, Bengaluru, Karnataka-560087 Ph: 080-66294500</p>		
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	Nil		
10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> 1)Mr Shreehari Bhat Senior Application Engineer hari.paartha@gmail.com 9742350015 </td> <td style="width: 50%; padding: 5px;"> 2) Vinay Kumar V Angadi Business Development Engineer vinaykumar@simsindia.net 9742288728 </td> </tr> </table>	1)Mr Shreehari Bhat Senior Application Engineer hari.paartha@gmail.com 9742350015	2) Vinay Kumar V Angadi Business Development Engineer vinaykumar@simsindia.net 9742288728
1)Mr Shreehari Bhat Senior Application Engineer hari.paartha@gmail.com 9742350015	2) Vinay Kumar V Angadi Business Development Engineer vinaykumar@simsindia.net 9742288728			
11	Detail Description about Event/Workshop(attach presentations and details)	A brief corporate introduction about Altair was first provided prior to the actual session. A quick overview about FEKO software was conducted. Key applications of the tool in various domains were discussed during this session. UI components of the tool was discussed. Applications of FEKO in antenna design labs was introduced. Antenna designs for IOT with FEKO was discussed. Few industrial applications were demonstrated during the session.		

12	Program outcome	<p>PO-1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.</p> <p>PO-2: Problem Analysis: Identify, formulate, review research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences</p> <p>PO-3: Design/Development of Solutions: Design solutions for complex engineering problems with design system components or processes that meet the specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.</p> <p>PO-5: Modern Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.</p>
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FURY ROAD V4

Sl. No.	Details		
1	Event / Workshop Title	FURY ROAD V4	
2	Date & Time	15 th and 16 th September 11 am to 5pm	
3	Registration Fee	300	
4	Faculty coordinator	K Sujatha	
5	Name of Student coordinator 1. Mail-id 2. Contact no.	1) Nidesh D Shetty nideshshetty98@gmail.com 8296551633	2) Varun K V Ithal varunithal@gmail.com 8277551696
6	No. Of Students/Team Registered	52	
7	No. Of Students/Team attended	36	
8	Industry Collaboration & Address	Silverline Electronics No.139/5, V.T.Complex, S.P.Road,, Dodpete, Nagarathpete, Bengaluru, Karnataka 560002	
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	Rs. 15,000 Rs. 5000 + Rs. 2500 1 Raspberry Pi zero worth Rs. 1800 + 20 MAGPI Magzines Rs. worth 11,000 - Rs. 27,800	

10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	1)M A Sunil Associate Professor 9480773444	2) Manish Proprietor 7090939819
11	Detail Description about Event/Workshop(attach presentations and details)	The details of the event is attached as rulebook with this copy.	
12	Program outcome	Students learnt the basics of embedded system and interfacing microcontrollers with various components.	

Gazing with Machine Learning

Sl. No	Details		
1	Event / Workshop Title	Gazing with Machine Learning	
2	Date & Time	September 15th, 2018 11 AM to 5 PM	
3	Registration Fee	200/-	
4	Faculty coordinator	Sanjana T	
5	Name of Student coordinator 1. Mail-id 2. Contact no.	1) Akshit Bhalla akshitbhalla13@gmail.com 9739012754	2) Goutham S gouthamswami1598@gmail.com 8660986734
6	No. Of Students/Team Registered	28 teams	
7	No. Of Students/Team attended	23 teams	
8	Industry Collaboration & Address	Viga Studios #26D, 1st Floor, Veerasandra Industrial Area, Electronic City PO, Bengaluru, Karnataka 560100	
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	10,000 1st Price-3,000/-, 2nd Price-1,500/-, 3rd Price-1,000/- Nil Nil Total=10,000/-	
10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	1) Sujay 1. Cofounder and COO 2. sujay@vigastudios.com 3.9902807406	
11	Detail Description about Event/Workshop(attach presentations and details)	Presentation and other details are available in the following link: https://docs.google.com/presentation/d/1HFYKGLyKjujkrDFSsmsPqO4i7JVSS6jDHw56RVPKt4/edit?usp=drivesdk	

	ch presentations and details)	
12	Program outcome	Participants were able to learn Python programming, supervised learning and classification problem. They had hands-on on handwritten digit recognition.

THE MISSING SPACECRAFT

Sl. No.	Details	
1	Event / Workshop Title	THE MISSING SPACECRAFT
2	Date & Time	15 SEPTEMBER 2018, 11 AM TO 5 PM
3	Registration Fee	150 INR
4	Faculty coordinator	RADHA RC
5	Name of Student coordinator 1. Mail-id 2. Contact no.	Ashish S Bharma ashishbharna.ec17@bmsce.ac.in 8892698600 Ankit Kumar ankitkumar.ec17@bmsce.ac.in 7892221826
6	No. Of Students/Team Registered	18
7	No. Of Students/Team attended	17
8	Industry Collaboration & Address	Pushkala Technologies, No. 38, Shreekanta, W Anjaneya Temple St, Basavanagudi, Bengaluru, 560004
9	Amount Sponsored	10000 INR
10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	Raghuram Shivram Director raghuram@pushkala.in 9845694420
11	Detail Description about Event/Workshop(attach presentations and details)	The department of Electronics and Communication presented a fun based learning event named The Missing Spacecraft. The event took place on the 15 th of September 2018. A total of 51 participants (17 teams) took part in this event which was conducted in collaboration with Pushkala Technologies. The event comprised of two rounds. The first round was a screening round where the participants were tested of their aptitude and basic aspects of digital electronics involving the number

		<p>systems. The participants were to decode a word hidden behind all the questions.</p> <p>Each team was given a question set which consisted of 12 aptitude questions, each of which yielded a positive integer as the answer. The teams were supposed to convert each of it to binary, write them together and convert it to the ASCII representation which finally gave out a word, which was the name of a constellation. The fastest and the most accurate 8 teams progressed to the second round which was the main insight of the event. The second round of the event was the treasure hunt round wherein the 8 teams competed fairly and tried their best to escape the traps of the web of networks which were surrounding them.</p> <p>There were four wifis set up at four different locations across the college. Each team was initially given a QR code which contained the hints to decode the first location. On reaching the first location, the teams were given a QR code to decode the password of the wifi network which they had to find by using GPS Navigation. Each password resembled something related to space systems. After connecting to the network, the teams were given a QR code which they would have to use at the final stage of the event.</p> <p>This way, the participants had to cross four such locations after which they were remaining with four final stage codes, which on proper and logical decoding gave out the name of a SPACECRAFT.</p> <p>The top two teams to complete all the stages and finding the missing spacecraft among all the networks walked away with the rewards.</p> <p>The event was hugely appreciated by the participating teams with lots of positive feedback and learning.</p>
12	Program outcome	<p>LOGICAL REASONING – To be able to think logically and smart and apply it in solving the problems.</p> <p>CODING AND DECODING – To be able to analyse, compute and convert various coded systems and apply them practically.</p>

Here are few glimpses from the event:



Space Pellicule

S I. N o. .	Details	
1	Event / Workshop Title	Space Pellicule
2	Date & Time	15-16th September, 11 am
3	Registration Fee	200/- per team
:	Faculty coordinator	Pushpa K
5	Name of Student coordinator 1. Mail-id	1) Sudarshan MJ sudarshanmj40033@gmail.com . 8105 204903 2) Nataraj J natraj85@gmail.com 9663590898

	2. Contact no.		
6	No. Of Students/Team Registered	7 teams	
7	No. Of Students/Team attended	5 teams	
8	Industry Collaboration & Address	On Semiconductor	
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	5000/- 3000/- - - 5000/-	
10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	1)Pramod Maravanthe Lyricist pramodm271@gmail.com Ph.no.87469 89234	2) Seshachala Subbaramaiah Product Manager Sesha.Subbaramaiah@onsemi.com Ph .no. 9845204859
11	Detail Description about Event/Workshop(attach presentations and details)	Reference video was given to the contestants 3 days before the event for the first round of day 1. After screening all the videos of the contestants , a quiz was conducted with a break of 15 minutes. At end of the second round ,a topic(space colonization) was given to the contestants and have make video of it of 5min max. Based on the video content ,the winner was announced .	

1 2	Program outcome	<p>PO-7: <u>Environment an sustainability</u>: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of sustainable development.</p> <p>PO-9: <u>Individual and team work</u>: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>
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Space Junk

Sl. No	Details			
1	Event / Workshop Title	Space Junk		
2	Date & Time	16 th September 2018, 9:00 am		
3	Registration Fee	200		
4	Faculty coordinator	Archana H. R.		
5	Name of Student coordinator 1. Mail-id 2. Contact no.	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> 1) K V Sai Akhil saiakhilkv999@gmail.com 9620943665 </td> <td style="width: 50%; border: none; vertical-align: top;"> 2) Ajay V ajay93167@gmail.com 8073115109 </td> </tr> </table>	1) K V Sai Akhil saiakhilkv999@gmail.com 9620943665	2) Ajay V ajay93167@gmail.com 8073115109
1) K V Sai Akhil saiakhilkv999@gmail.com 9620943665	2) Ajay V ajay93167@gmail.com 8073115109			
6	No. Of Students/Team Registered	15		
7	No. Of Students/Team attended	10		
8	Industry Collaboration & Address	<p>Sienna Ecad Technologies Pvt LTD #775/a 1st & 3rd Floor, 100 Feet Ring Road, Banashankari 3rd Stage, Bengaluru - 560085, Karnataka, India. Tel : +91 - 80 - 30410700 Fax : +91 - 80 - 26696462 Email : sales@siennaecad.com</p>		
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	1. 5000 by Sienna Ecad Technologies 2. 3000 3. Components worth 40,000 for the event Conduction by B-Automate 4. 5.5000		

10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	1) Savita Ganjigatti savita.rg@siennaecad.com 9845997851	2) Mohammed Arfan mdarfaneeee@gmail.com 7259227246
11	Detail Description about Event/Workshop(attach presentations and details)	<p>It's a Hardware Hackathon!</p> <p>The event will be divided into two sessions.</p> <p>Session I – Building (4 ½ hours):</p> <p>Each team will initially be given a fixed amount of <i>VM (Virtual Money)</i>. Teams are allowed to use the Internet (Internet access will be provided). Each team will be provided with a list of available components and their respective costs. All the components will be made available at the venue (“Space Junk”). Teams can buy the required components using VM. Each time gets a total of 4 ½ hours to discuss, buy components and come up with a working model. Teams can also use their VM to seek ‘<i>Mentors Advice</i>’ (Mentors will be present at the venue).</p> <p>Session II – Presentation:</p> <p>Each team has to present and demonstrate their model (5 minutes/team).</p>	
12	Program outcome	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-12	

ESPACIO:Battle of Bidding

Sl. No.	Details	
1	Event / Workshop Title	
2	Date & Time	16.09.18 10:00 – 4:00

3	Registration Fee	150 per team	
4	Faculty coordinator	Surendra H H	
5	Name of Student coordinator 1. Mail-id 2. Contact no.	1) Kalavara Nishanth Rao nishanthkalavara98@gmail.com 9491290093	2) Naralasetti Geeth Mathur geeththegreat@gmail.com 7330930068
6	No. Of Students/Team Registered	11 teams	
7	No. Of Students/Team attended	6 teams	
8	Industry Collaboration & Address	Prayogeek Nandi Gardens Phase2,Block12,JP Nagar 9 th phase,Bangalore-560062	
9	Amount Sponsored 1. Cash 2. Prize Money 3. Components 4. Kits 5. Total	Rs 5000/- Rs 3000/- Rs 1200/- 2 kits worth Rs 10000/- each for the winners Rs 20000/- 5 worth Rs 10000/- each for the event Conduction Rs 50000/- Rs 76,200/-	
10	Name of Resource Person 1. Designation 2. Mail-id 3. Contact no.	1) Chetan Prasad Start up chetan@prayogeek.in 9482597453	2) Venkatesh Iyengar ----- 11venky@gmail.com m 9731399796
11	Detail Description about Event/Workshop(attach presentations and details)	<p>Round 1: This round had some interesting challenges. Series of some puzzles were given to the participants. Using the point earned in this round the participants got to bid the components in the next round.</p> <p>Round 2: One space system was decided prior to the event. Auction was on the electronic components required to build the different sub modules of that space system. Sub modules were assigned to each team through a small game. Participants bought the components required to complete model assigned to them. This round tested the basic knowledge of electronics in space systems.</p>	

		<p>Round 3: In this round participants designed their respective module using PRAYOGeek kit and tested their module with various test cases.</p> <p>Volunteers helped the teams in using the PRAYOGeek kit.</p>
12	Program outcome	<p>PO-9: Individual and Team work: Function effectively as an individual, and as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings</p> <p>PO-12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change</p>