Department of ECE

Innovations by the Faculty in Teaching and Learning

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I. The general Innovative Methodologies adopted by the department faculty period are listed in Table 1

Table 1: Innovation Methodologies

SNO	MODE USED	FACULTY	INNOVATIVE METHOD
1.	Learning Management System	All Faculty(mandatory)	1. Computer aided learning 2. Assist students in learning at their own pace. 3. Online assessment of students for regular monitoring. 4. External assisted learning by providing links of good material.
2.	Power point presentations(PPT)	All Faculty(mandatory)	LCDs are provided in class room and faculty are required to deliver at least 10% of the lectures through PPTs.
3.	NPTEL videos	Some faculty	Students are encouraged to take up the corresponding course if available in NPTEL-SWAYAM.
4.	Student Projects-Term, minor and major.	Major Projects-All faculty Term and Mini projects-Some faculty	The idea, depth and motivational skills of the faculty is evident in the projects.

5.	Virtual Labs	Some faculty	Helps in carrying out additional experiments.

II. The details of Innovative Methodologies used course wise during the period (2019-20, 2018-19,2017-18 and 2016-17) are presented in the Table 2.

Table 2: Details of Innovative Methodologies

SNO	FACULTY	YEAR & SEM	COURSE NAME	INNOVATIVE METHOD	METHODOLOGY ADOPTED	OUTCOME
2019-2020						
1.	B.V.SRenuka Devi	IV YEAR I SEM	DSP LAB	1)Plotting PSD in MATLAB.	Extra experiment	Students understood the important DSP concepts of sampling and PSD in a better way(Theory free)
2.	N.V.Maheswara Rao	II YEAR I SEM	EDC	Experiments were performed using basic electronic components like diodes and transistors. Example: Automatic street lightning using sensors.	Hardware implementation.	Application of transistors helped students to understand the theory in better way.
3.	B.Vijaya Lakshmi	III YEAR I SEM	LICA LAB	Some hardware experiments like 1)Automatic washroom light switch 2)Wailing Siren. Were done as term projects.	Term project	Students felt more comfortable with the usage of ICs.
2018-19						
1.	P.V.K. Chaitanya	II YEAR I SEM	Switching Theory and Logic Design	Guided the students in NPTEL course on switching circuits and logic design.	Hints were given to solve the NPTEL Assignment problems.	Students were able to understand the subject in a better way by doing the course under his guidance.
2.	K.S.A. Naidu	II YEAR I SEM	Electronic Devices and	Simulated Silicon diode characteristics.	VLABS (Software	Students understood the

			Circuits LAB		implement ation)	theoretical concepts in a better way by performing simulations.
3.	B.Vijaya lakshmi/ N.Roopavathi	III YEAR 1 SEM	Linear IC Applications	Hardware experiments were implemented using linear ICs <u>555 Timer circuits:</u> 1) Infrared object counter using 555 timer IC. 2) Clap on/Clap off switch using 555 timer. 3) Touch sensor using 555 timer. 4) Panic alarm using 555 timer IC. 5) Water level indicator using 555 timer IC. <u>Op-Amp circuits:</u> 1.Touchless door bell (Op-amp LM358) 2. Electronic thermometer	Hardware implement ation	Students understood the application of the linear ICs in a better way by practical implementation.
4.	K.S.A.Naidu	II YEAR I SEM	Electronic Devices and Circuits Lab	Hardware implementation of Applications of diodes like clippers and clampers	Hardware implement ation	Hardware implementation helped the students to understand the theory concepts in a better way.

5.	N. Roopavathi/ R.Jalaja/ B.Vijaya Lakshmi	III YEAR I SEM	LIC Applications Lab	Hardware implementation of 1) Zero crossing detector using 741 IC 2) Voltage follower using 741 IC.	Hardware	Hardware implementation helped the students to understand the theory concepts of opamps in a better way.
6.	N.Roopavathi/ R.Jalaja/	III YEAR I SEM	LIC Applications Lab	Sine wave generator using 741 IC.	Software (VLAB)	Students understood the theoretical concepts in a better way by performing simulations.
7.	B. Vijayalakshmi	III YEAR I SEM	LIC Applications Lab	1)Window detector using 555 timer 2)Triangular wave generator. 3)VCO using 555.	Software (VLAB)	Students understood the theoretical concepts in a better way by performing simulations.
8..	N.Roopavathi	III YEAR I SEM	Pulse & Digital Circuits Lab	Analysis of basic flip flops in software	Software (VLABS)	Students understood the theoretical concepts in a better way by performing simulations.
9.	L.Sarika	IV YEAR II SEM	Cellular Mobile Communication	Visit to Doppler RADAR Station, Khailasagiri, Visakhapatnam (23-2-19)	Industry visit	Understood the fundamentals of a basic communication system by observing the real time

						systems.
10.	N.V. Maheswara Rao	III YEAR II SEM	Microwave Engineering	Visit to Doordarshan Kendram, Visakhapatnam (05-01-19)	Industry visit	Understood the fundamentals of Microwave based communication systems.
11.	P.V.K. Chaitanya	III YEAR II SEM	Microprocessors and Microcontrollers	A Hand-On Workshop on IOT (23-2-2019)	Hands on experience on microcontrollers ,Node MCUs and Wi-fi	Better understanding of theoretical concepts by doing experiments using microcontrollers and Wi-fi.
12.	P.V.K.Chaitanya / G.P.S.Prasanti / B.P.V.Dileep	III YEAR II SEM	Microprocessors and Microcontrollers	1)Interfacing DAC with 8086 microprocessor 2)Interfacing DAC with 8051 microcontroller	Extra Experiment	Helps understanding the theory in a better way
13.	N.V.Maheswara Rao/ R.Sunil Kumar	IV YEAR 1 SEM	Microwave Engineering and Optical Lab	Design of microstrip circular patch antenna using HFSS software	Extra Experiment	Helps understanding the theory in a better way
14.	B.Lakshmi	IV YEAR 1 SEM	VLSI Design	JK flip-flop, synchronous counter	Extra Experiment	Helps understanding the theory in a better way
15.	B.V.S.Renuka Devi / M.Mani Kumari / R.Jalaja / B.P.V.Dileep /K.Srinivasa Rao	III YEAR 1 SEM	Digital IC Applications	Seven Segment Decoder, ALU Design, Dual Priority Encoder,	Extra Experiment	Helps understanding the theory in a better way

2017-2018						
1.	B.V.S. Renuka Devi/ Dr.K. Srinivasa Rao	IV YEAR I SEM	Digital Signal Processing	Sampling theorem verification in MATLAB .	Simulation	Students understood the important DSP concepts of sampling in a better way(Theory free)
2.	Dr.L.Ganesh/CH .Sirisha/P.V.K.C haitanya	III YEAR I SEM	Microprocessor s and Microcontroller s	Hardware implementatio n of some microprocesso r based circuits.	Hardware	A batch of 3 candidates(P.Kri shnalatha and others) won a cash prize of Rs 10000 for their project "Solutions to traffic congestion in smart cities" presented at AP ELECTROTHO N-2018 conducted by AP information technology academy and international institute of digital technologies during 12-14 march 2018 at KLU,AP
3.	B.Lakshmi	III YEAR I SEM	Linear IC Applications	Measurement of Op-amp parameters, emitter	Extra Experiment	Understood the Op-amp concepts in a better way

				follower		
4.	R.Jalaja	III YEAR I SEM	Digital System Design & Digital IC Applications	Prime Number detector,4-bit synchronous counter	Extra Experiment	Better understanding of theory
2016-2017						
1.	CH.Sirisha /G.P.S. Prasanthi	III YEAR II SEM	Microprocessors and Microcontrollers	Hardware implementation of some microprocessor based circuits. 1) Blind stick using Arduino. 2) Car speed detector using Arduino. 3) Infrared obstacle detector using Arduino. 4) Infrared remote controlled PC. (16-03-17,17-03-17)	Hardware implementation and presentation in Hardware expo TECKNOTSAV-2K17	Students understood the working of MPMC in a better way by viewing it from application perspective.
2.	M.Mani Kumari/ R.Jalaja	III YEAR I SEM	Digital System Design & Digital IC Applications	Hardware experiments were conducted using Digital ICs 1) Numeric keypad using 74LS147 2) Seven segment display 3) Led chaser circuit using counter4017 & IC	Hardware implementation and Simulations were done.	Students understood the application of the Digital ICs in a better way by practical implementation.

				555 timer 4) Traffic light controller(VHDL)		

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In addition the previous year's student projects that have been guided by the faculty is available in LAN at dspace (172.16.5.78:8080/dspace)

IV. The following materials have been made available in LMS by all the faculty of the department.

1. Unit wise lecture notes: The intended outcome is to enable the students enhance their performance in exams and attain the desired COs.
2. Important video links, power point presentations, animations.
3. Assignments that help understand the concepts clearly.
4. Quizzes that help in recapitulation of concepts.
5. University questions corresponding to a course that helps students self asses their examination preparatory skills.

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Department of IT

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Table 1*: *Innovative Methodologies

S. No.	Mode Used	Involved Faculty	Innovative Method
1	**Learning Management System (LMS)**	All faculty (mandatory)	1. Computer aided learning 2. Assist students in learning at their own pace. 3. Online assessment of students for regular monitoring. 4. External assisted learning by providing links to good material.
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3	**NPTEL videos**	Some faculty	Students are encouraged to take up a corresponding course if available in NPTEL-SWAYAM.
4	**Student Projects-** **Term, Major and Mini**	Major Projects - **All faculty** Term and Mini projects - **Some faculty**	The idea, depth and motivational skills of the faculty is evident in the projects

5	**Online Programming Platforms**	Some faculty	Helps in carrying out additional lab experiments.

II. The details of Innovative Methodologies used course wise during the period (2018-19,2017-18) are presented in the Table 2.

Table 2: Details of Innovative Methodologies

S. No.	Faculty Name	Year/ Sem	Course Name	Innovation Used	Methodology Adopted	Outcome
1	Dr. Dwiti Krishna Bebarta	2018-19 III-I	Artificial Intelligence	Role-Play	To demonstrate true /false and use of truth table concept, a story is told and students are asked to find the solution.	Students actively engaged in learning Artificial Intelligence concepts and performed.
2	Mr.B.L.V. Vinay Kumar	2018-19 IV-II	Human Computer Interaction	Asked every student to go through the website as a user and submit a report with the following: • Identify usability goals and measures. • Identify the type of menu selection used in the web page • Explain how the content is organized in the web application	Report writing and case study	Improved the Report writing skills and summarize best features in a website. Able to develop improved HCI applications.
3	Mr.VVD Prasad Challuri	2018-19 III-I	operating system	Filling in a puzzle that relates to Operating system concepts	A cross word puzzle has been prepared and given to students to solve	Understanding the basic concepts of operating system.
4	Ms. M. Deepthi	2018-19 II-I	Python Programming	Programming Puzzles through Project Euler.	Puzzles are given and they are solved using Python	Students engaged both inside and outside of the classroom and

				(Web link: https://www.projecteulers.net)	programming language.	actively learn the programming concepts.
5	Dr. Dwiti Krishna Bebarta	2017-18 II-I	Software Engineering	Play a Puzzle on Modularization in software engineering to identify the type and strength of the independent modules where each module may work independently.	Crossword Puzzles created; Groups formed to carry out this Puzzle activity	Understood the Software Engineering Concepts through solving puzzles and understand the importance of team work.
6	Dr. Dwiti Krishna Bebarta	2017-18 II-I	Software Engineering	SRS document preparation for any real world problem like HMS, LMS, etc.	Groups are formed among Learners and asked to prepare SRS document on assigned Case Study.	The Functional and Non-Functional requirements are identified for the given case studies.
7	Ms. R. Sridevi	2017-18 II-II	Computer Graphics	Implementation of Basic Primitive Drawing Algorithms Using OpenGL.	Groups are identified and the algorithms are distributed among the students and asked for solution with in a given time.	Able to understand basic Concepts using Programming language.

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Department of CSE

Innovations by the Faculty in Teaching and Learning

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3	NPTEL videos	Some faculty	Students are encouraged to take up a corresponding course if available in NPTEL-SWAYAM.
4	Student Projects- Term, Major and Mini	Major Projects - All faculty Term and Mini projects - Some faculty	The idea, depth and motivational skills of the faculty is evident in the projects
5	Online Programming	Some faculty	Helps in carrying out additional lab experiments.

	Platforms		

II. The details of Innovative Methodologies used course wise during the period (2019-20,2018-19,2017-18,2016-17) are presented in the Table 2.

Table 2: Details of Innovative Methodologies

S. No.	Faculty Name	Year / Sem	Course Name	Innovation Used	Methodology Adopted	Outcome
1	Dr. P.V.S.L. Jagadamba	2019-20 II-I	Python Programming	ProgrammingPuzzles through Project Euler. (Web link: https://www. projecteulers.net)	Puzzles are given and they are solved using Python programming language.	Students engaged both inside and outside of the classroom and actively learn the programming concepts.
2	Dr. M. Bhanu Sridhar	2019-20 IV-I	Cloud Computing	Personal Blog https://mantermbs.blogspot.com have been developed for the active learning of Cloud Computing. (https://mantermbs.blogspot.com/2019/07/how-edge-computing-is-driving-new-era.html; https://mantermbs.blogspot.com/2019/07/data-centers-may-soon-recycle-heat-into.html)	Continuously updating the personal blog related to Cloud Computing.	Active learning by the students and achieved better performance.
3	Dr.TusarKanti Mishra	2019-20 II-I	Computer Graphics	Seminar presentation on LCD & LED Display, Importance and applications of OPENGL	Preparation times were allotted to selected groups of students. Asked to present using BB and PPT.	Fundamental knowledge about display devices and graphics tools. Also, enhanced the presentation skills.
4	Mr. K. Purushotam Naidu	2019-20 IV-I	Big Data Analytics	YouTube channel	YouTube channel has been developed and uploaded with Video lectures on Big Data Analytics. (Web Links: https://youtu.be/KgDGJ79v7TM https://youtu.be/qpEDY4bYE_I)	Active learning by the students and achieved better performance.

5	Mr. K. Purushotam Naidu	2019-20 II-I	DS through C++	Students are asked to Solve programs in vlab.co.in	Programs are given and they are solved usingthe programming language C++.	Able to understand basic Concepts in Data Structures using Programming language.
6	Dr. P.V.S.L. Jagadamba	2018-19 IV-II	Human Computer Interaction	Asked every student to go through the website as a user and submit a report with the following • Identify usability goals and measures. • Identify the type of menu selection used on the web page. • Explain how the content is organized in the web application.	Report writing and case study.	Improved the report writing skills and summarized the best features in a website. Able to develop improved HCI applications.
7	Dr. P.V.S.L. Jagadamba	2018-19 II-I	Python Programming	Helped the students to get certified in the NPTEL course Programming, Data Structures and Algorithms Using Python.	Mentor	Students improved their programming skills by getting the certificate.
8	Dr. N. B. Venkateswarlu	2018-19 III-II	Programming	Programming Puzzles through Hacker rank. (Web link: https://www.hackerrank.com/vizag-wizkid201)	Puzzles were given. Students solved using programming language. Uploaded the puzzles through the website - Hacker rank.	Students engaged both inside and outside of the classroom and actively learnt the programming concepts.
9	Dr. M. Bhanu Sridhar	2018-19 III-II	Software Testing	Personal blog https://mantermbs.blogspot.com has been developed for the active learning of Software Testing. (Blog-web links https://mantermbs.blogspot.com/2019/02/career-shift-from-tester-to-business.html https://mantermbs.blogspot.com/2018/08/cloud-native-devops-wont-work-without.html)	Continuously updating the personal blog related to Software Testing.	Active learning by the students and achieved better performance.
10	Mr. K. Purushotam	2018-19	Data Warehousing	Mini Projects	Compare WEKA tool capabilities	Improved practical implementation of

	Naidu	III-II	and Mining		with Python to enhance programming capability.	the theory learnt by developing applications using tools and programming.
11	Mr. K. Purushotam Naidu	2018-19 II-I	Data Structures through C++	Personal blog has been developed for the active learning of Data Structures through C++. (Blog-web links www.purushotamcse.blogspot.com)	Blog has been developed and updated with GATE questions, Interview questions.	Understood the expected questions and concepts for competitive examination related to Data structures through C++.
12	Mr. K. Purushotam Naidu	2018-19 II-I	DS through C++	Mentoring the students to get certified in the NPTEL course Programming through C++.	Mentor	Students improved their programming skills by attaining certification.
13	Mr. K. Purushotam Naidu	2018-19 II-I	DS through C++	Mentoring the students to get certified the NPTEL course Programming, Data Structures and Algorithms Using Python.	Mentor	Students improved their programming skills by attaining certification.
14	Ms. V. Gowtami Annapurna	2018-19 III-I	Database Management System	Helped the students to get certified the NPTEL course Database Management System.	Mentor	Students improved their Database Concepts by attaining certification.
15	Dr. M. Bhanu Sridhar	2017-18 IV-II	Cloud Computing	Personal bloghttps://mantermbs.blogspot.com has been developed for the active learning of Cloud Computing. (Blog-web links https://mantermbs.blogspot.com/2018/02/cubelogic-launches-new-saas-risk.html; https://mantermbs.blogspot.com/2018/02/cloud-migration-pros-and-cons-of-common.html https://mantermbs.blogspot.com/2018/02/docker-tutorial-get-started-with-docker.html; https://mantermbs.blogspot.com/2018/03/what-is-edge-computing-and-	Continuously updating the personal blog related to Cloud Computing.	Active learning by the students and achieved better performance.

				how-its.html)		
16	Mr. K. Purushotam Naidu	2016-17 IV-I	Hadoop and Big data	YouTube channel- https://youtu.be/GyG-07OQiqg	YouTube channel has been developed and uploaded with Hadoop Map Reduce program for WordCount, PIG Installation.	Active learning by the students and achieved better performance.

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1.	Dr.P.Devendra Y.Ramu	2019-20 III-II	Power electronics LAB	Design of DC-DC power converter	Hardware implementation of DC-DC power converters for renewable power applications	Students able to understand the design methods for DC-DC power converters for different configurations.
2.	Dr.RVS LakshmiKumari D.Srinivas Reddy	2019-20 II-I	Electrical Circuits Lab	Verification of Network theorems	Simulation approach for verification of Network theorems	Analysis of Electrical networks.
3.	M.Krishna	2018-19 II –I	Basic electrical circuits	Mentored the students in NPTEL course On Basic Electrical Circuits.	Guided the students while solving the Assignment problems.	Students able to understand the subject in a better way by doing the course under his guidance.
4.	Dr.P.Devendra M.Krishna V.Sreevidhya	2018-19 III-II	Power electronics LAB	Simulation experiments are carried out along with hardware experiments.	Simulation Of power electronic converters.	Analytical capability of students improved using simulation tools.

5.	Dr.RVS Lakshmi Kumari	2018-19 III-I	Power Systems-II	Demonstration of Power transmission equipment during instruction	Teaching Power systems-II with real time power system components.	Better understanding of power system equipment.
6.	Dr.P.Devendra M.Krishna	2018-19 III-I	Power Electronics	Design of driver circuit for power semiconductor devices	Demonstrated design of driver circuits for switching on power IGBT.	Better understanding of driver circuit and switching on power IGBT.
7.	Dr.P.Devendra M.Krishna	2018-19 III-I	Power Electronics	Hands on experience with microcontroller	Generation of pulse waveform through Aurdino board and to control power semiconductor devices.	Understood usage and coding of Aurdino microcontrollers.
8.	V.Sreevidhya	2018-19 III-II	Energy Audit and Conservation & Management	Campus Energy Audit	Case study of energy audit in the institution	Students able to understand Energy conservation methods and energy calaculation.
9.	Dr.P.Devendra N.Veekshitha	2018-19 II -I	Electrical Circuits Lab	Verification of Network theorems	Simulation approach for verification of Network theorems	Analysis of Electrical networks.
10.	M.Krishna	2017-18 IV –I	Renewable Energy	Study of Solar PV characteristics.	Demonstration of Solar PV caharcteristics for renewable power applications.	Students were able to understand the working of Solar PV Panel.
11.	M.Krishna	2017-18 III –II	Hybrid Power Plant	Case study of hybrid renewable power generation with Wind and Solar power generation.	Demonstration of Hybrid Wind and Solar power generation for off-grid application.	Students were able to understand the operation of solar and wind power generation and importance of hybrid renewable power generation.

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