

JAIN INSTITUTE OF TECHNOLOGY

DAVANGERE

(A Unit of Jain Group of Institutions, Bangalore)



Department of Electronics & Communication Engineering





2021-2022 Technical Magazine



"The greatest glory in living lies not in never falling, but in rising every time we fall."

-Nelson Mandela



About The Department



Dr. Santosh Herur

HOD, Dept. of ECE

JIT, Davanagere

Department of Electronics and Communication was started in the year 2011-12. The department emphasizes on imparting advanced technical knowledge in various fields like signal processing, VLSI Technology, Embedded system, wireless technology, microwave engineering, optical communication, micro electronics and control systems. Highly qualified, experienced and dedicated staff members are the backbone of the department. Well equipped, sophisticated, precision and state of the art laboratories are center of attraction in the campus. Another major strength of the department is its extensive collection of technical books, periodical and journals, ENCORE association of the department of E.C.C. aims at targeting innovations in the field of advanced communication and networking.

The Department has MOV with Karunadu Technologies Pvt. Ltd, Bengaluru, Abiyantrix, Soft Solutions, Davangere, Sai Tech, Mysore. The MOV organizations provide Internship training and conduct workshops on recent trends and organize seminars for the students to enhance their industrial exposure.

Editor's Desk



Mr. Ravikumar K I

Assistant Professor

Dept. of ECE,

JIT, Davangere



Mrs. Savita Mamadapur

Assistant Professor

Dept. of ECE,

JIT, Davangere

Warm greetings to the readers of **ENCORE!!**

We are pleased to share with you the Technical Magazine for the Academic year 2021-22. We express our considerable gratitude and appreciation to everyone who have contributed to this Newsletter magazine. These contributions have required a generous amount of time and effort. It is this willingness to share knowledge, concerns and special insights with fellow beings that has made this magazine possible.

Finally, we would like to conclude with these words "Learn from yesterday, live for today, hope for tomorrow. the important thing is not to stop questioning."- Albert Einstein

Embrace each challenge in your life as an opportunity for self-transformation.

Happy reading

Thank you

Mr. Ravikumar K I

Mrs. Savita Mamadapur

Vision of the Department

Endeavours to achieve academic excellence by providing value based education to the students of Electronics and communication engineering and enable them to meet the ever changing needs of the society.

Mission of the Department

- * To emphasize on student focus learning environment.
- ❖ To provide a supportive atmosphere which promotes the educational, career, social ethics and professional development of the students.
- To provide a platform to inculcate team spirit and leadership qualities to succeed in professional career.

Program Specific Outcomes (PSOs)

- **PSO1**: Analyze, simulate and design electronic and communication circuits for given specifications.
- * PSO2: Design and test processor based systems

Program Educational Objectives (PEOs)

- * **PEO1:** To create graduates with a strong base in Electronics & Communication Engineering.
- **PEO2:** To produce technically competent graduates with the ability to understand, analyze & develop electronic systems.
- **PEO3:** Ability to work with professional ethics and as a team member to realize the goals of the projects.
- **PEO4:** Excellence in professional career by attaining higher education.

Institute Academic Calender of Events

ODD SEMESTER



ACADEMIC CALENDER

III, V & VII SEMESTER BE 2021-22 (SEPT 2021 - FEB 2022)

Commencement of Classes III Sem: 18/10/2021 Last working day: 09/02/2022 Commencement of Classes V & VII Sem: 01/10/2021 Last working day: 31/01/2022

MONTH	MON	TUE	WED	THU	FRI	SAT	SUN	EVENTS III Sem	EVENTS V & VII Sem	HOLIDAYS	
					1	2	3			2** -Gandhi jayandi	
	4	5	6	7	8	9	10	18"	1" Commencement	6" - Mahalaya Amayaya	
OCTOBER	11	12	13	14	15	16	17	Commencement of classes	of classes	14° - Ayudha pooja 15° - Vijaya dashaqai 19° Ed-milad 20° - Valmiki Jayanthi	
2021	18	19	20	21	22	23	24	CIRILEI	CIRTIES		
	25	26	27	28	29	30	31				
	1	2	3	4	5	6	7				
	1138111	11801	118811	11	12	13	14	l" Internal	1" Internal	1" - Kannada Bajayayaya	
NOVEMBER	15	16	17	18	19	20	21	Assessment 25th,26th & 27th	Assessment 8".9" & 10"	3" - Naraka chaspedashi 5" -Bali padyanu, 22" - <u>Kanaladasa - Jayanshi</u>	
2021	22	23	24	(IIII)	THE S	DH1	28	25 ,20 & 21	0,5 4.10		
			24	1440	144	114111	20				
	29	30		_	_	,,,,,,	_				
		_	1	2	3	10/1/2	5	4th -Parents meet	4th -Parents meet	25°	
DECEMBER	6	7	8	9	10	11	12	2" Internal	2"d Internal		
2021	13	14	15	1156	186.	1,466/	19	Assessment	Assessment 16th.17th & 18th		
	20	21	22	23	24	25	26	27th 28th & 29th	16",17" & 18"		
	11881	1881	1341	30	31						
						1	2				
JANUARY 2022	3	4	5	6	7	8	9		3rd Internal		
	10	11	12	13	14	15	16		Assessment 27 th , 28 th & 29 th	14°-Makara sankranthi 26°-Republic Day	
	17	18	19	20	21	22	23		Lab IA: 20th to 22ml	20 - Republic Day	
	24	25	26	1441	159	1381	30				
	31										
FERRI LAMIT		1	2	1141	180	[]#[]	6	3rd Internal			
FEBRUARY 2022			_					Assessment 3 rd , 4 th & 5 th			
	7	8	9					Lab IA: 7" to 9"			

Total No. of Working days for <u>III_Sem</u> : 90 Total No. of Working days for V & VII Sem: 92 VTU ODD Semester Exams												
Practical Exams for III Sem	21-02-2022 To 04-03-2022	Theory Exams	07-03-2022 To 25-03-2022									
Practical Exams for V & VII Sem	01-02-2022 To 25-03-2022	Theory Exams	11-02-2022 To 25-03-2022									
Holidays		Par										
Internal Asse	essment Tests	<i>\////</i>	rents Meeting									

Co-<u>ordinator</u> (Prof. Nataraja G) Dean Academics (Dr. Madhukeshwara N) Principal (Dt. Ganesh D B)

EVEN SEMESTER

ARKA Educational & Cultural Trust (Regd.) JGI Jain Institute of Technology, Dayanagere, ACADEMIC CALENDER

VI AND VIII SEMESTER B.E 2021-22 (APRIL 2022 - JULY 2022)

Commencement of Classes VI Sem: 04/04/2022 Last working day: 16/07/2022 Commencement of Classes VIII Sem: 04/04/2022 Last working day: 30/06/2022

MONTH	MON	TUE	WED	THU	FRI	SAT	SUN	EVENTS	HOLIDAYS
					1	2	3	4" -Commencement of Classes	
	4	5	6	7	8	9	10	8" -Q3 HC Driven Activity(E&E) 19" -Q3 HC Driven Activity(CV)	14"-Ambedkar
APRIL	11	12	13	14	15	16	17	19th -O3 HC Driven Activity (EC)	Jayanthi 15 ⁿ – Good Friday
2022	18	19	20	21	22	23	24	22** - World Earth day & Q3 IIC Driven	15 - Good Friday
	25	26	27	28	29	30		Activity(EC) 26° -World Intellectual Property day	
							1	C1 C1 C C C C C C C C C C C C C C C C C	
	2	3	4	MKI).	W	MM	8	5",6" & 7": 1 Internal Assessment 11" -National Technology Day	
MAY	9	10	11	12	13	7347	15	9th 10th - Project phase-2 presentation	3rd - Bayaya
2022	16	17	18	19	20	21	22	25 th -Q4 IIC Driven Activity (CV) 26 th - Forum activity	Jayamthi
	23	24	25	26	27	28	29	31" Staff Meet	
	30	31							
			1	2	3	4	5	2" -Q4 HC Driven Activity (CSE)	
JUNE	11811	11811	11811	9	10	11	12	3" International Conference 5" - World Environment Day	
2022	13	14	15	16	17	18	19	6h. 7h & 8h : II Internal Assessment	
	20	21	22	23	24	25	26	9" -Q4 IIC Driven Activity(E&CE)	
	27	28	29	30				10 th - Sports Day & Ethnic day 11 th - Shrungs, 17 th - Q4 HC Driven Activity (ME) 27 th - 28 th - Project phase- 3 presentation	
лпх					1	2	3	9" - Farewell 11"-, 12" & 13" : III Internal Ameriment	
2022	4	5	6	7	8	9	10	14° to 16° : Lab IA	
				14	15	16		_	

<u> </u>	3339										
	Total Number of Working days for <u>VI_Sam</u> : 87										
Total Number of Working days for VIII Sem: 73											
VTU EVEN SEMESTER EXAMS											
Practical Exams for VI Sem 18-07-2022 To 29-07-2022 Theory Exams 01-08-2022 To 20-08-2022											
		Theory Exame(VIII Sem)	04-07-2022 To 20-07-2022								
	Holidays	Y///\	Parents								
	Internal Assessment Tests	(///).	Meeting								

Co-ordinator (Prof. Savita M)

Dean Academics -(Dr. Madhukeshwara N) (Dr. Santosh Henu)

IQAC Director

Principal (Dr., Ganesh D B)

ARKA Educational & Cultural Trust (Regd.) Jain Institute of Technology, Davanagere.

ACADEMIC CALENDER

IV SEMESTER B.E 2021-22 (MAY 2022 - SEPT. 2022)

Commencement of Classes: 23/05/2022

Last working day: 03/09/2022

MONTH	MON	THE	WED	THU	FILI	SAT	SUN	EVENTS	HOLIDAYS
					-		-	23rd -Commencement of Classes	
MAY	23	24	25	26	27	28	29	26" -World Intellectual Property day	0.00
2022	2022 30 31								
	-	-	1	-2	3	4	5	2 nd -Q4 HC Driven Activity(CSE)	
	6	7	8	9	10	11	12	3 rd -International Conference 5 th -Wurld Environment Day	
JUNE 2022	13	.14	15	16	17	18	19.	9th Of HC Driven Activity(E&CE)	
	20	21	22	23	24	25	26	10" - Sports Day & Ethnic day	1000
	27 28	29	30				17th -Q4 HC Driven Activity(ME) 23rd , 24th & 25th : I Internal Assessment		
					18	2	3	and Jil Parents meet	
2000	4	3	6	7	8	9	10	25th , 26th & 27th : Il Internal Assessment	
JULY 2022	11	12	13	14	15	16	17		
2400	18	19	20	21	22	23	24		
	25	26	27	28	29	30	31		
	1	2.0	3	4	5	6	7	13th -Har Parents meet	9th -Moharam
AUGUST	8	9	10	11	12	13	14	25°,26° & 27° : Lab IA	15th -Independenc
1022	15	16	17	18	19	20	21		day 31 st -Ganesha
	22	23	24	25	26	27	28		Chaturthi
	29	30	31						20000000
EPTEMBER 2022		10		1	2	3	4	1" , 2" & 3" ; III Internal Assessment	

17-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Total Number of W	orking days: 87			
	VTU EVEN SEMES	STER EXAMS			
Practical Exams for IV Sem	05-09-2022 To 13-09-2022	Theory Exams	16-09-2022 To 08-10-2022		
9/18	Holidays		Parents		
	Internal Assessment Tests	Meeting			

(Prof. Nataraja G)

Jakeur Dean Academics (Dr. Madhukeshwara N)

IQAC Director (Dr. Santosh Herur) Principal

(Dr. Ganesh D B)

Department Academic Calendar of Events

ODD SEMESTER

ARKA Educational & Cultural Trust (Regd.) Jain Institute of Technology, Dayangere,

Department of Electronics & Communication Engineering

DEPARTMENT ACADEMIC CALENDER

III, V& VII SEMESTER BE 2021-22(SEPT 2021-FEB 2022)

Commencement of Classes I Sem: 18/10/2021 Last working day: 09/02/2022
Commencement of Classes III & V Sem: 01/10/2021 Last working day: 31/01/2022
Commencement of Classes VII Sem: 01/10/2021 Last working day: 31/01/2022

Ent working day, or other										
MONTH	M O N	TU E	WE D	TH	F RI	SA T	SU N	EVENTS III Sem	EVENTS V & VII Sem	HOLIDAYS
OCTOBER 2021	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	9 16 23 30	3 10 17 24 31	18 th Commencemen t of classes	1" Commencement of layer S" HC Events (Infrastructure) 1" Staff Meeting 30" ForumInaugur ation-	2" - Gandhi isyanthi 6" - Mahalaya Amayana 14" - Ayudha pooja 15" - Vijaya Dashami 19" Ed-milad 20" - Valmiki Jayanthi
NOVEMBER 2021	1 15 22 29	2 16 23 30	3 17 24	4 11 18	5 12 19	6 13 20	7 14 21 28	1°IA-25°,26°& 27°	1"IA- 8",9" & 10" 11" Forum Activity 19" Internship Review 24" Students Meet 30" Staff Meet	1" – Kannada Bajancana 3" – Naraka chaturdathi 5" –Bali padyami 22"-Kanakadasa Jayanthi
DECEMBER 2021	6 13 20	7 14 21	1 8 15 22	2 9 23 30	3 10 24 31	11 25	5 12 19 26	4 th -Parenti meet 2 nd IA-27 th , 28 th &29 th	4th -Parents meet 2**IA 16**,17**&18** 9th Project Review 7th Internship Review 23** Forum Activity 31** Staff Meet	25°Christmas day
JANUARY 2022	3 10 17 24 31	4 11 18 25	5 12 19 26			1 8 15 22	9 16 23 30		3" IA 27" 28" & 29" Lab IA: 20" to 22" 7" Project Review 11" Internship Review 21" Forum Activity 31" Staff Meet	14°—Makara Şapkraushi 26°—Republic Day
FEBRUARY 2022	7	8	9				6	3"IA- 3"", 4" & 5" Lab IA: 7" to 9"		

Total No. of Working days for III Sem: 90 Total No. of Working days for V& VII Sem:92									
VTU ODD Semester Exams									
Practical Exams for III Sem	21-02-2022 To 04-03-2022	Theory Exams	07-03-2022 To 25-03-2022						
Practical Exams for V& VII Sem	01-02-2022 To 25-03-2022	Theory Exams	11-02-2022 To 25-03-2022						
Holidays		<i>///////</i>							

Holidays Parents Meeting

Internal Assessment Tests

 Co-ordinator
 HOD, ECE
 Principal

 Mr. Shrikant M.B.
 Mrs. Kavitha K. J.
 Dr. Ganesh D. B.

EVEN SEMESTER

ARKA Educational & Cultural Trust (Regd.) Jain Institute of Technology, Dayanagere, DEPARTMENT ACADEMIC CALENDER

VI AND VIII SEMESTER B.E 2021-22 (APRIL 2022 - JULY 2022)

Commencement of Classes VI Sem: 04/04/2022 Last working day: 16/07/2022 Commencement of Classes VIII Sem: 04/04/2022 Last working day: 30/06/2022

MONTH	MON	TUE	WED	THU	FRI	SAT	SUN	EVENTS	HOLIDAYS
				•	1	2	3	4th -Commencement of Classes	
	4	5	- 6	7	8	9	10	8" -Q3 HC Driven Activity(E&E) 19" -Q3 HC Driven Activity(CV)	14° -Ambedkar
APRIL.	11	12	13	14	15	16	17	19" -Q3 IIC Driven Activity (EC)	Jayanthi
2022	18	19	20	21	22	23	24	22** - World Easth day & Q3 HC Driven	15" - Good Friday
	25	26	27	28	29	30		Activity(EC) 26" -World Intellectual Property day	
							1		
	2	3	4	UKU I	NWI.	NWN.	8	5°,6° & 7°: 1 Internal Assessment 11° -National Technology Day	
	9	10	11	12	13	7147	15	14 th -Parents meet	3rd - Baraya
MAY 2022	16	17	18	19	20	21	22	9 th 10 th - Project phase- 2 presentation 25 th -Q4 IIC Driven Activity (CV)	Jayanthi
	23	24	25	26	27	28	70	26" - Forum schrity	
	30	31						31" Staff Meet	
	30	31		-	_		_	A-2 O 1 110 To 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
			1	2	3	4	5	2" -Q4 HC Driven Activity(CSE) 3" International Conference	
JUNE	77.807.		[[K]]	9	10	11	12	5" -World Environment Day	
2022	13	14	15	16	17	18	19	64. 74 & 84 : II Internal Assessment	
	20	21	22	23	24	25	26	9" -Q4 IIC Driven Activity(E&CE) 10" - Sports Day & Ethnic day	
	27	28	29	30				11th Shrungs, 17th Q4 IIC Driven Activity (ME) 27th, 28th - Project phase- 3 presentation 23th - Forum activity 31th Staff Meet	
лпл					1	2	3	9" - Farewell	
2022	4	5	6	7	8	9	10	11 th , 12 th & 13 th : III Internal Assessment 14 th to 16 th ; Lab IA	
	VMV		(100)	14	15	16			

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Total Number of Working days for <u>VI_Sem</u> : 87										
Total Number of Working days for VIII_Sem: 73										
VTU EVEN SEMESTER EXAMS										
Practical Exams for VI Sem 18-07-2022 To 29-07-2022 Theory Exams 01-08-2022 To 20-08-2022										
		Theory Exame(VIII Sem)	04-07-2022	To 20-07-2022						
	Holidays	(///	Parents							
	Internal Assessment Tests		Meeting							

Co-<u>ordinator</u> (Prof. Savita M) Dean Academics

(Dr. Madhukeshwara N)

IQAC Director
(Dr., Santosh Herur)

Principal (Dr., Ganesh D B)



Super Wi-Fi

Super Wi-Fi is a term coined by the United States Federal Communications Commission (FCC) to describe a wireless networking proposal which the FCC plans to use for the creation of longer-distance wireless Internet access. The use of the trademark "Wi-Fi" in the name has been criticized because it is not based on Wi-Fi technology or endorsed by the Wi-Fi Alliance. A trade show has also been called the "Super Wi-Fi Summit" (without hyphen). Various standards such as IEEE 802.22 and IEEE 802.11af have been proposed for this concept. "Wi-Fi is a trademark, there is no such thing as 'Super Wi-Fi,' and white spaces is not Wi-Fi," Wi-Fi Alliance marketing director Kelly Davis-Felner said. "This could cause confusion among consumers who may actually expect the technology to be Wi-Fi, and it isn't. "The Wireless Innovation Alliance, the trade group for TV white spaces technology providers, doesn't seem to care much for the Wi-Fi Alliance's complaints. "The term 'wifi' has always been a general term for the family of 802.11 protocols and products using these protocols. The term 'Super Wi-Fi' is a verbal tool for conveying a thought or concept in an easy-to-understand way.

Instead of using the 2.4 GHz radio frequency of Wi-Fi, the "Super Wi-Fi" proposal uses the lower-frequency white spaces between television channel frequencies. These lower frequencies allow the signal to travel further and penetrate walls better than the higher frequencies previously used. The FCC's plan was to allow those white space frequencies to be used for free, as happens with shorter-range Wi-Fi and Bluetooth. However, due to concerns of interference to broadcast, Super Wi-Fi devices cannot access the TV spectrum at will. The FCC has made mandatory the utilization of a TV white space database (also referred to as geolocation database), which must be accessed by the Super Wi-Fi devices before the latter gain access to the VHF-UHF spectrum. The white space database evaluates the potential for interference to broadcast and either grant or deny access of Super Wi-Fi devices to the VHF-UHF spectrum.

Benefits of Super Wi-Fi

Super Wi-Fi, or using TV broadcast spectrum for Wi-Fi like connectivity, has several distinct advantages.

Greater Distances

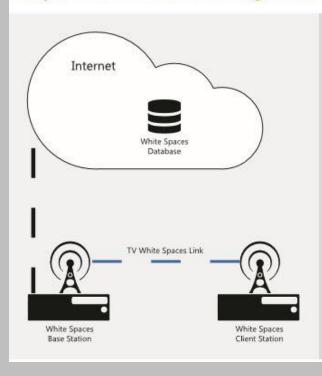
Penetrates Common Obstructions Conventional

Greater Efficiencies

How Super Wi-Fi Works?

The most common implementation of Super Wi-Fi networks will be accessed using smart, radio-enabled devices that report their location to an Internet database. The database will tell the device which TV white spaces channels, and at what power level, it is permitted to operate on in its current location. The database has a list of all protected TV stations and frequencies across the country, so the devices can avoid causing interference to TV broadcasts and wireless microphone signals. This technology is truly dynamic – as different TV channels become available, Super Wi-Fi devices that can opportunistically switch from one group of channels to another. This win-win translates to greater network capacity, allowing a greater number of users in a given area while, at the same time, protecting television reception from interference. All of this engineering will be invisible to the consumer, who will simply experience more ubiquitous broadband connectivity.

Super Wi-Fi Access Safeguards Incumbents from Interference



- Devices only use the TV white spaces channels specified by the database.
- Devices are required to re-check the database for the list of available channels.
- Databases are prohibited from providing devices access to the channels occupied by incumbent operators (e.g. broadcasters).
- Databases are required to maintain up-to-date lists of protected operators.
- Databases can block newly occupied channels to prevent further white spaces access.

Difference between WiFi and Super WiFi

Specifications	Wi-Fi	Super Wi-Fi
Distance coverage	100 meters	400 meters, can extend up to 8 Kms and above
Wall penetration	Lower	Higher (i.e. deeper), TV white space frequencies penetrate more deeper compare to Wi-Fi signal through more walls and obstacles
Standard	IEEE 802.11a/b/g/n/ac/ad	IEEE WLAN 802.11af , 802.22 WRAN
Data Rate	100 Mbps (11n) to Gbps (11ad)	25 Mbps (11af) to 40 Mbps(11ah)
Frequency of Operation	2.4 GHz and 5 GHz	Operates in TV bands 470MHz to 790MHz (in Europe) and 54MHz to 698MHz (in USA)
NLOS performance	Good	better than Wi-Fi as it uses lower TV white space frequencies
Network Cost	Higher	Lower
Power Consumption	Higher	Lower
Bandwidth	Lower	Higher
Applications	Internet or data communication	same as Wi-Fi but at higher speed and deeper in the rooms where Wi-Fi signal is not available

Mr. Ravirayappa

Assistant Professor

Dept. of ECE, JIT, Davangere

Raspberry Pi

Raspberry Pi is a credit-card sized computer manufactured and designed in the United Kingdom by the Raspberry Pi foundation with the intention of teaching basic computer science to school students and every other person interested in computer hardware, programming and DIY-Do-it Yourself projects. The Raspberry Pi is manufactured in three board configurations through licensed manufacturing deals with Newark element14 (Premier Farnell), RS Components and Egoman. These companies sell the Raspberry Pi online. Egoman produces a version for distribution solely in China and Taiwan, which can be distinguished from other Pis by their red coloring and lack of FCC/CE marks. The hardware is the same across all manufacturers.

The Raspberry Pi has a Broadcom BCM2835 system on a chip (SoC), which includes an ARM1176JZF-S 700 MHz processor, VideoCore IV GPU and was originally shipped with 256 megabytes of RAM, later upgraded (Model B & Model B+) to 512 MB. It does not include a built-in hard disk or solid-state drive, but it uses an SD card for booting and persistent storage, with the Model B+ using a MicroSD. The Foundation provides Debian and Arch Linux ARM distributions for download. Tools are available for Python as the main programming language, with support for BBC BASIC (via the RISC OS image or the Brandy Basic clone for Linux), C, Java and Perl.

Raspberry Pi Model A B STATUS LEDS AUDIO JACK 88 USB 2.0 ETHERNET DSI CONNECTOR DISPLAY GPIO HEADERS CONTROLLER CSI CONNECTOR HDMI JTAG HEADERS SD CARD MICRO USB 256MB RAM BROADCOM BCM2835

Block Diagram of Raspberry Pi

Applications of the Raspberry Pi can be given as follows:

- ☐ Teaching programming concepts. Teaching hardware interfacing.
- □ Raspberry Pi being very cost effective can be deployed in large numbers in underdeveloped and developing countries like Africa, India, China, Brazil etc. to schools and colleges and to everyone who is interested in computers and electronics. It can be used in robotics for controlling motors, sensors, etc.
- \Box It can be used as a downloading machine replacing desktop computers. It consumes very low power and also can be accessed remotely. It can be used as a media centre at home. Any television can be converted to a smart TV with internet capabilities with the Pi. It can be used for designing prototypes of DIY projects and certain embedded devices. It becomes very cheap option for testing and evaluation purpose. Can be used in creating and handling small servers. It can be used for making digital photo frames, tablets etc at home.

The chief competitors of the Raspberry Pi are the Arduino and the Beagleboard. Both are single board computers and have applications similar to the Raspberry Pi. A brief comparison of the three of them is shown below:

Name	Arduino Uno	Raspberry Pi	BeagleBone
Model Tested	R3	Model B	Rev A5
Price	\$29.95	\$35	\$89
Size	2.95"x2.10"	3.37"x2.125"	3.4"x2.1"
Processor	ATMega 328	ARM11	ARM Cortex-A8
Clock Speed	16MHz	700MHz	700MHz
RAM	2KB	256MB	256MB
Flash	32KB	(SD Card)	4GB(microSD)
EEPROM	1KB		
Input Voltage	7-12v	5v	5v
Min Power	42mA (.3W)	700mA (3.5W)	170mA (.85W)
Digital GPIO	14	8	66
Analog Input	6 10-bit	N/A	7 12-bit
PWM	6		8
TWI/I2C	2	1	2
SPI	1	1	1
UART	1	1	5
Dev IDE	Arduino Tool	IDLE, Scratch, Squeak/Linux	Python, Scratch, Squeak, Cloud9/Linux
Ethernet	N/A	10/100	10/100
USB Master	N/A	2 USB 2.0	1 USB 2.0
Video Out	N/A	HDMI, Composite	N/A
Audio Output	N/A	HDMI, Analog	Analog

Raspberry Pi is an innovative product. The sheer number of users and fan base support the fact that the device can see a great future ahead. The device can surely help anyone who really wants to lean electronics and computers.

Increasing the processing power can surely help the product in the future. Also supplying a case and a proper instruction manual will improve the product. Also currently Windows operating systems are not compatible because of the ARM processor. If the processor is improved or any workground is found to run Windows directly on the Raspberry Pi, then it can be a great step for the Pi.

The Raspberry Pi is an amazing piece of hardware because of the combination of the features of a traditional computer and an embedded device. Supporting computer operating systems like Linux and providing simple input/output lines i.e. the GPIO makes it perfect for controlling almost anything. Programming the GPIO is much easy and intuitive then an traditional FPGA or microprocessor.

Finally it can be said that Raspberry Pi can be effectively used if its processing power is kept in mind. It can work as a personal computer but cannot replace it.

Dr. Santosh Herur

HOD, Dept of ELCE,

JIT, Davangere

ENCORE Inauguration

Mr. Nagaraj M S, 7th Semester, Welcomed the gathering and followed by the inauguration of the event by lightening the lamp by the dignitaries presided over the function. Prof. Hanumanthraju R K, Forum co-ordinator highlighted the activities to be conducted under the platform ENCORE. The chief guests were introduced by Mr.Manohar M and Ms.Meghana DC to the gathering. The Alumni's of ECE Department, Mr.Kiran Kumar H D, Presales Lead-AV conference & Systems and Voice technology and Ms. Meghana B N, Silicon Design Engineer AMD India Pvt Ltd, Bangalore, were honoured as the chief guest of the program and they addressed their juniors about the key-points for campus placements, its preparation and highlighted about various training streams in the Core field and its opportunities. Dr. Santosh Herur, HOD, ECE Department, addressed the gathering about the role of accreditation and its benefits for the development Institution. Dr. Ganesh D B, Principal & Director, JIT, Davangere, presided over the event and enlightened all the students with his valuable suggestions regarding the importance of student involvement in accreditation and academics. He also appreciated all students for celebrating Kannada Rajyotsava and briefed about its importance.

Mr. Sai Sucheth Gandhi M of 7th Semester, proposed vote of thanks and as a part of the program students conducted









& Ideation Workshop

Miss Chandana M G & Ayesha Siddiqua of 5th Semester, IIC student Co-ordinator of Department of ECE, JIT welcomed the gathering. Miss Varsha K Reddy, of 5th Semester introduced the resource person and alumni of ECE Dept., JIT, Mr. Faraz Abdulla, Lead Engineer, Robert Bosch, Bangalore. Dr. Ganesh D B, Principal & Director, JIT delivered presidential address and followed by technical talk on "Problem Solving & Ideation" by the resource person. The session covered the concepts of Innovation, problem Identification, and problem solving. The Students & faculties of JIT, Davangere, participated in the workshop and benefited. Miss Arpitha K R, IIC Student Co-Ordinator of the Dept. proposed vote of thanks.





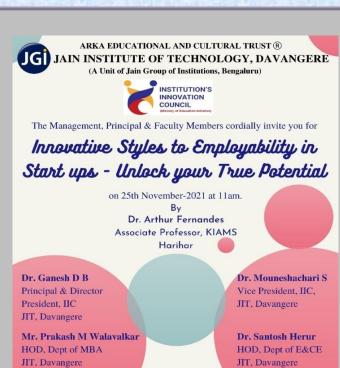
Innovative Styles to Employability in Start-ups-Unlock your True Potential

The Institution Innovation Council (IIC),
Department of Electronics L. Communication
Engineering and Department of Master of
Business Administration Jain Institute of
Technology (JIT), Davangere jointly organized
"Innovative Styles to Employability in Start-upsUnlock your True Potential" on 25.11.2021 at JIT
Seminar Hall.

Miss Sahana C, 2nd Year, IIC student Coordinator of MBA Dept., JIT welcomed the gathering. Miss Mangala Meti, 2nd Year, IIC student Co-ordinator of MBA Dept., JIT introduced the resource person. Dr. Ganesh DB, Principal & Director, JIT delivered presidential address. The resource person, Dr Arthur Fernandes, Associate Professor, Kirloskar Institute of Advanced Management Studies, Harihar delivered talk on "Innovative Styles to Employability in Start-ups-Unlock your True Potential".

Students & faculties from Jain Institute of Technology Davanagere, participated in the one and half-hour session. The session covered about the concepts on using power verbs and power adjectives in Resume, Self-management, creativity, and innovation in getting employed in start ups.

Miss Roja, 2nd Year, IIC student Co-ordinator of MBA Dept., JIT proposed vote of thanks.



Mr. Sriharsha V J Mr. Hanumanth Raju R K Mr. Shrikant M B

Dept of MBA

JIT, Davangere

IIC Convener
JIT, Davangere

Mr. Shrikant M B
IIC Co-ordinator
Dept of E&CE
JIT, Davangere

B Mrs. Deepthi G B
IIC Co-ordinator
Dept of E&CE
JIT, Davangere

Student Co-ordinators: Mr. Naveen L, Miss Arpitha U G, Mr. Bakkesh, Miss Varsha





Personality Development Activity- ENCORE

The personality development activity for 3rd Semester ECE students was conducted on 25th November 2021 as a part of forum activities. The students presented themselves by introducing about their close friends and their hobbies and also exhibited their own talents like drawing, paper craft etc.





A session on Job opportunities in VLSI by ekLakshya Innovation Labs, Hubli





The Placement and Training cell of ECE Dept., has organised a session on "VLSI Internship training and its opportunities in core industries" by Ms. Poornima Mohanachandran, CEO, ekLakshya Innovation Labs, Hubli on 26th November 2021 in MBA seminar hall. She addressed the students about VLSI Road Map and encouraged them to get placed in core field. Dr. Santosh Herur and Placement officer Mr. Prakash CH also highlighted the importance of working in core domain.

A Webinar on "Wireless Communication & its application"

A webinar on "Wireless Communication L its application" was organized online via Gmeet by the ECE department in association with Karunadu Technologies Pvt. Ltd., Bengaluru on 9th December 2021 under the forum ENCORE. The resource person, Mr. Harish N, CTO, Karunadu Technologies, Pvt. Ltd, enlightened ECE students about various concepts of wireless communication including its real time applications such as satellite etc. Totally 120 plus students and all faculty members actively participated in the session.









Two days workshop on "Python & ML"

The department of ECE has jointly organised two-day's workshop on "Python & Machine Learning" in association with Karunadu Technologies Pvt.Ltd, Bengaluru under the forum ENCORE on 22nd and 23nd December 2021. The managing director, Mr. Sunil.









Faculty Participation

The faculties of ECE have participated in one week FDP on "Recent trends in ML & Pattern Recognition" held at GM Institute of Technology, Davanagere from 6^{th} to 11^{th} December 2021.

Mrs. Kavitha K J, Assistant Professor, ECE Dept has presented a paper entitled "Fusion based morphological watershed segmentation algorithm for medical images" in the International Conference on Advanced Network Technologies and Intelligent Computing (ANTIC-2021) held online during December 17-18, 2021.

Mr.RaviKumar K I, Assistant Professor, ECE Dept has presented a paper entitled "Memristor Based Deep Learning Classification Model for Object Detection" in international conference on technologies for Smart green connected societies held online during November 29-30, 2021.





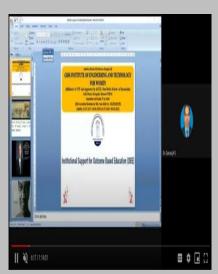
Three Days FDP on Outcome based education and its roadmap (05/01/2022 to 06/01/2022)

A 3-Days Workshop was organised by ISTE faculty chapter in association with JIT, Davangere on "Outcome Based Education and Its Roadmap" from 5th to 7th January 2022. Nearly 140 participants from various colleges attended FDP and benefited from the lectures provided by the eminent resource persons, Dr. Gururaj K,S, Professor, Dept. of CSE, GSSS Institute of Engineering & Technology for Women, Mysore, Dr. Santosh Herur, Associate Prof. and Head, Dept of ECE, J.I.T., Davangere, Dr. Mouneshachari S, Professor and Head, Dept of CSE, J.I.T., Davangere, Mr. Ravi Rayappa and Mrs. Kavitha K,J, Assistant Professor, Dept. of ECE, J.I.T., Davangere.









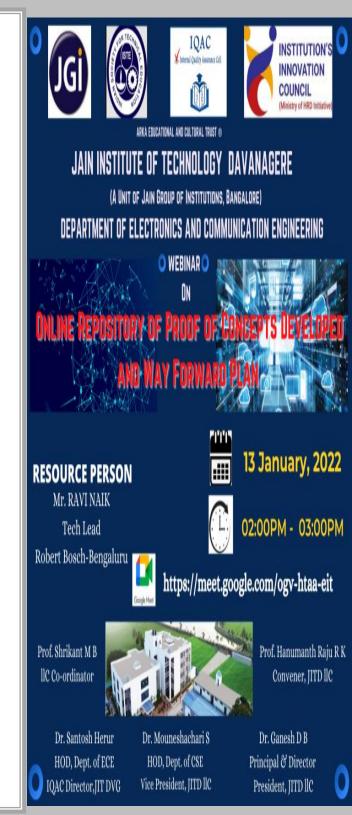


The Institution Innovation Council (IIC), Department of Electronics & Communication Engineering and Jain Institute of Technology (JIT), Davangere jointly organized a Webinar On "Online Repository of Proof of Concepts Developed and Way Forward Plan" on 13th January 2022 at 2:00PM-3:00PM.

Miss Anusha D J, 5th sem student LIIC student Coordinator of Department of ELCE, JIT welcomed the gathering. Miss. Chandana G P 5th semester student L IIC student Co-Ordinator, JIT, introduced the resource person. Dr. Mouneshachari S, HOD Dept of CSE L vice President JITD IIC, delivered presidential address. The resource person, Mr. Ravi Naik, Tech Lead Robert Bosch Bengaluru, delivered talk on "Online Repository of Proof of Concepts Developed and Way Forward Plan".

Students & faculties from Jain Institute of Technology, Davangere, participated in the one-hour session. The session covered about the concepts on online repository and Miss. Chandana G P5th semester student & IIC student Co-Ordinator, JIT proposed vote of thanks. A total of 125+ persons from UG courses, and staff members of the Institute participated in this programme. From this webinar, participants gained more knowledge about importance of online repository & it makes it easy to contribute to your open-source projects.

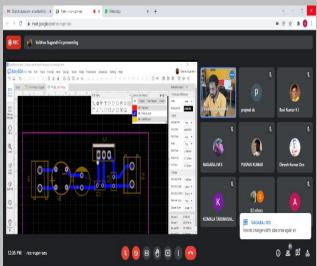
GitHub can integrate with common platforms such as Amazon and Google Cloud, services such as Code Climate to track your feedback, and can highlight syntax in over 200 different programming languages.



Two Days Online Workshop on PCB Design 15/01/2022 to 16/01/2022

A two days free online workshop on PCB Design was organized by the Department of ECE in association with E-ARTKEY Innovation Pvt. Ltd, Hubli from 15th to 16th January 2022. The resource person Mr. Vaibhav Sugandhi, Founder & CEO, E-ARTKEY Innovation Pvt. Ltd, Hubli enlightened all students with his knowledge. In the workshop, the basics of PCB design and designing of PCB schematic & layout were covered. The Students actively interacted with the resource person and benefited. Dr. Santosh Herur, HOD, Dept. of ECE addressed all the participants and inspired all students by his motivational words. A total of 180 participants from In house and other colleges like BIET, GMIT and Jain Polytechnic also attended the workshop.





Faculty Achievement (18/02/2022)



Mr. Hanumanthraju RK, Assistant
Professor from the department has
successfully completed Ph.D. course
work in Electronics Engineering
with aggregate of 80.75% from Jain
Deemed to be University, Bangalore.

Research Proposal Submission

VGST Research Proposals

- 1. Dr. Santosh Herur, HOD, Dept. of ELCE as Co-Principal Investigator have successfully sent the proposal for VGST Karnataka Fund for Infrastructure Strengthening in Science and Technology(K-FIST)-L1 on the title "High voltage engineering and smart grid laboratory setup".
- 2. Prof. Kavitha K J as Principal Investigator and Prof. Ravikumar K I as Co-Principal Investigator of the department have successfully sent the proposal for VGST Research Grants for Scientist/Faculty (RGS/F) on the title "Health monitoring system using wrist wearable sensors for elderly people".
- 3. Prof. Ravikumar K I as Principal Investigator and Prof. Kavitha K J as Co-Principal Investigator of the department have successfully sent the proposal for VGST Research Grants for Scientist/Faculty (RGS/F) on the title "Design and implementation of ReRAM for ANN Based applications".

Faculty Achievement (**08/04/2022**)



Mrs. Kavitha K J, Assistant Professor, Dept. of ELCE has successfully completed her Viva-voce on the research topic entitled "Robust watermarking Techniques for Ensuring Confidentiality L Integrity of Electronic Health Records" under the supervision of Dr. Priestly B Shan, Dean Academics, Chandigarh university. The viva-voce was conducted on 08/04/2022 at 10:00 AM by Satyabhama University, Chennai, via online official zoom platform. A Total of 146 participants were present for the defending presentation.

Students Achievement - 45th KSCST Students Projects (**25/04/2022**)

In the 45th series of Student Project Programme (SPP): 2021-22, Two proposals from the department of EUCE has been selected and sponsored.

Project Team-1

The project proposal titled "DESIGN AND IMPLEMENTATION OF UNMANNED VEHICLE USED IN SMART AGRICULTURE" was submitted by the following students under the guidance of Dr.Santosh Herur, HOD, Department of ELCE. An amount of Rs. 8,000.00/- is sanctioned.



Team Members







Mr. Nitish Kumar C

Ms.Preethi N

Ms.Bhumika BH

Project Team-2

The project proposal titled "SMART AUTOMATION" USING IOT" was submitted by the following students under the guidance of Prof. Ravirayappa, Assistant Professor, Department of ELCE. An amount of Rs. 7,000.00/- is sanctioned.



Team Members



A Photo Session of Project teams approved for KSCST sponsorship



In the 45th series of Student Project Programme (SPP): 2021-22, Two proposals from the department of ELCE has been selected for sponsorship. The project proposal titled "DESIGN AND IMPLEMENTATION OF UNMANNED VEHICLE USED IN SMART AGRICULTURE" was submitted by the students under the guidance of Dr.Santosh Herur, HOD, Department of ELCE for which an amount of Rs. 8,000/- has been sanctioned. And the project proposal titled "SMART AUTOMATION USING IOT" was submitted by the students under the guidance of Mr.Ravirayappa, Assistant Professor, Department of ELCE for which an amount of Rs. 7,000/- has been sanctioned. Heartly Congratulations to the students and guides of both the teams on behalf of College Management, Principal, Dean Career Development and Placement, HOD, Teaching and non-teaching staff.

Webinar 26/05/2022







Department of Computer Science & Engineering in association with RLD, organized a webinar on "Technical paper writing for beginners and plagiarism check using Turnitin" on 26th May 2022. The Resource person Dr. Anupkumar M. Bongale, IEEE Senior member, Associate professor, Dept. of AILML, Symbiosis Institute of Technology, Pune, delivered talk on Technical paper writing skills. The Resource person Dr. Rajendra Prasad K, C Assistant Professor and Mr. Marulasiddappa H B, Assistant Professor, JITD, Explained about the usage of "Turnitin" tool for plagiarism check. The student of ECE department attended the session and get benefitted.

Faculty Achievement



Dr.Kavitha K.J., Assistant Professor, department of ECE has successfully completed her Ph.D viva-voce on 08th April 2022 and received PDC for the completion of Research work entitled "Robust watermarking Techniques for Ensuring Confidentiality & Integrity of Electronic Health Records".

Students Achievement (10/05/2022) ICEI-2022 Best Paper Award

All the final year students of ELCE Department presented their papers in the International Conference on Engineering Innovation(ICEI-2022) organized by Jain Institute of Technology, Davangere in association with Technical Institute for Engineers, Banglore on 3rd June 2022. Three Papers has been awarded as Best paper among the presented papers in the virtual conference.

PAPER 1



The Paper entitled "IOT Based Coal Mine Safety Monitoring and Control Automation" presented by Dr. Santosh Herur, HOD, Dept. of ELCE has been selected as the Best Paper.

PAPER 2



The Paper entitled "Smart Village Innovation" presented by Mr.Sai sucheth Gandhi, Ms.Meghana D C, Mr. Rakesh T M, Mr.Mohith H T Under the guidance of Dr.Kavitha K J, Assistant Professor, Dept. of ELCE has been selected as the Best Paper.

PAPER 3



The Paper entitled "Voice Controlled Agribot" presented by Mr. Sireesh O J, Mr. Srinidhi I N Mr. Vinay G, Mr. Vishwas R Under the guidance of Mr. Ravikumar K I, Assistant Professor, Dept. of ELCE has been selected as the Best Paper.

Student & Faculty Achievement (11/06/2022)

Patent—File & Publish



Team 1

The final year students project work entitled "Design and Implementation of Unmanned Aerial Vehicle used in Smart Agriculture" filed and published as Patent on 10th June 2022 with the application Number: 202241027300.

Applicant Name

- 1. Dr. Ganesh D B
- 2. Dr. Santosh Nejakar
- 3. Dr. Santosh Herur

Inventor Name

- 1. Dr. Santosh Herur
- 2. Mr. Nitish Kumar C
- 3. Ms. Bhumika B H
- 4. Ms. Preethi N

Team 2

The final year students project work entitled "Multicontrolled Smart Wheel Chair using Raspberry Pi" filed and published as Patent on 3rd June 2022 with the application Number: 202241028122.

Applicant Name

- 1. Dr. Ganesh D B
- 2. Dr. Santosh Nejakar
- 3. Dr. Santosh Herur

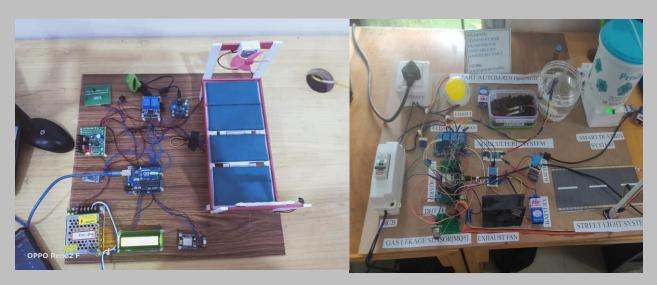
Inventor Name

- 1. Mrs. Deepthi G B
- 2. Mr. Prathap Naik N
- 3. Ms. Trupthi M
- 4. Ms. Abhishek N
- 5. Ms. Swapna CK
- 6. Mr. RaviRayappa
- 7. Mrs. Rajeshwari H M
- 8. Mrs. Savita Mamadapur
- 9. Mrs. Pushpalatha O
- 10. Mrs. Savitra Totada

Project Exhibition - P-EXPO-2022 (22/06/2022)

P-EXPO-2022, A Project and Product Exhibition was organized at JIT. All final year students of ECE Department actively participated and displayed their projects with physical models and exhibited posters. Total 17 teams participated in the event. **Dr.Kiran Kumar**AssistantProfessor, Dept. of ECE, BIET, Davangere has been invited as the chief guest for the evaluation of project exhibition. He appreciated the efforts of the students.





Among all the projects exhibited, the following **Two projects** were ranked asfirst and second by the Evaluator. **First Place**

The Project work entitled "Smart Automation Using IoT" presented by Mr. Dinesh, Mr. Karthik D M, Mr. Nagaraj M S, Mr. Naveen kumar E, Under the guidance Mr. Ravirayappa, Assistant Professor, Dept. of ECE has got First place in the exhibition.



Second Place

The Project Work entitled "Smart Village Innovation" presented by Mr. Sai sucheth Gandhi, Ms. Meghana D C, Mr. Rakesh T M, Mr. Mohith H T Under the guidance of **Dr.Kavitha K J**, Assistant Professor, Dept. of ELCE has got Second place in the exhibition.



MANTHAN FKCCI 2022: Selected for 2nd Round

The following stuSdents of ECE Department are selected for 2nd round of MANTHAN FKCCI-2022. They have proposed the business plan titled **"E-Ship"** Under the guidance of Mrs Rajeshwari H M, Assistant Professor, Dept. of ECE. The Principal, HOD, Teaching and non-teaching staff members congratulate and wish the students for further rounds.

Team Members



Sahil Khan S J (4JD19EC035)



Sahil Khan S J (4JD19EC036)



Mentor

Assistant Professor

Dept. of ECE, JIT



Ganesha B S
(4JD19CS019)



Aishwarya H U (4JD19CS002)

Industry Visit (27/06/2022)



To provide Practical exposure to the 8th Semester Students of ELCE Dept.an Industrial Visit was arranged from the Department to "KAYNES TECHNOLOGY INDIA PRIVATE LIMITED", MYSURU on 27th June 2022. Mr. Hanumanth Raju RK and Mrs. Savita Mamadapur, Assistant Professor, Dept. of ELCE accomapained the students. In this Industrial visit, students gained information regarding the PCB Designing and assembly of components over it and fabrication of semiconductors.

VTU Sponsorship Project Exhibition







VTU Sponsorship Project Exhibition was held at EEE Seminar hall. Two Batches of Final year students from the Dept. of ELC E participated in the exhibition. Dr. Mohammed Rafi, Professor, Dept. of CSLE, UBDT, Davangere were the VTU Nominee for the Project Exhibition and he evaluated the projects. Dr. Santosh Herur, HOD, Dept. of ELCE and Dr. Ramesh R.S, SSP Coordinator, JIT, Davangere were also present during the Project Exhibition.

Team 1: Project work entitled "Smart Village Innovation Using IoT Technology" was presented by Ms. Meghana D C, Mr. Rakesh T M, Mr. saisucheth Gandhi M, Mr. Mohith H T under the guidance of Dr. Kavitha K J, Assistant Professor, Dept. of ELCE.

Team 2: Project work entitled "Controlling of Smart Movable Road Divider and Clearance Ambulance Path Using IoT Cloud" was presented by Ms. Prathiba K L, Ms. Sahana K, Ms. Soujanya, Ms. Sushma K S under the guidance of Mr.Ravirayappa, Assistant Professor, Dept. of ELCE.

Faculty Participation (17-08-2022)

Dr. Santosh Herur, HOD, Dept. of ELCE has participated in the Institutions' Innovation Council (IIC) Regional Meet held on 16^{th} August 2022 at Reva University, Banglore



Webinar on "Innovation in Challenging Times"







A webinar on "Innovation in Challenging Times" was organized by the Department of Electronics and Communication Engineering in association with Institutions' Innovation Council (IIC), JIT, Davangere. Dr. Neetha Mahadev, Professor, Dept. of MBA, BNM Institute of Technology, Bangalore were invited as the Resource Person. Mrs. Savita Mamadapur, IIC Co-ordinator, Dept. of ELC E welcomed the dignitaries for the session. Dr. Ganesh DB, Principal & Director, JIT, Davangere gave Presidential words and also best wishes for the event. Dr. Mouneshachari S, HOD, Dept. of CS&E, Vice President, JITD IIC, Dr. Santosh Herur, HOD, Dept. of ELC E, Prof. Hanumanthraju RK, Convener, JITD IIC, were also present during the session. Mrs. Neetha Mahadev explained various ways of innovative thinking during challenging times with real life examples. A total of 120 students and faculty members attended the webinar. It was a very interactive and informative session for all the students. Dr. Kavitha KJ, Assistant Professor, Dept. of ELC E presented vote of thanks.



The Odd Semester results of 2021-22 of ECE branch is as follows

SI. No.	SEMESTER	OVERALL RESULT (%)
1	III	61.53 %
2	V	86.79 %
3	VII	93.54 %

Topper's List

3 rd Semester	USN	NAME	MARKS SCORED	PERCENTAGE
First	4JD20EC020	Mallikarjun M	777/900	86.33%
Second	4JD20EC039	Sahana K P	744/900	82.66%
Third	4JD20EC001	Abdul Mazeed Kaif N	730/900	81.11%.

5 th Semester	USN	NAME	MARKS SCORED	PERCENTAGE
First	4JD19EC048	Trupthi G G	775/900	86.11%
Second	4JD19EC050	Vimarsha S P	770/900	85.55%
Third	4JD19EC010	Bhoomika G R	762/900	84.66%

7 th Semester	USN	NAME	MARKS SCORED	PERCENTAGE
First	4JD18EC030	Pooja P	699/800	87.37%
Second	4JD18EC019	Komala Tarunkumar Yalavatti	696/800	87.00%
Third	4JD18EC024	Nagaraj M S	690/800	86.25%

The Even Semester results of 2021-22 of ECE branch is as follows

SI. No.	SEMESTER	OVERALL RESULT(%)
1	IV	
2	VI	
3	VIII	98.38 %

Topper's List

4 th Semester	USN	NAME	MARKS SCORED	PERCENTAGE
First				
Second				
Third				

6 th Semester	USN	NAME	MARKS SCORED	PERCENTAGE
First				
Second				
Third				

8 th Semester	USN	NAME	MARKS SCORED	PERCENTAGE
First	4JD18EC030	Pooja P	472/500	94.4%
Second	4JD18EC057	Trupthi M	455/500	91%
Third	4JD18EC019	Komala Tarunkumar Yalavatti	448/500	89.6%

