VEMU INSTITUTE OF TECHNOLOGY

P.KOTHAKOTA, NEAR PAKALA, CHITTOOR-517112

(Approved by AICTE, New Delhi & Permanently Affiliated to JNTUA, Accredited by NAAC & NBA
Recognised under 2(F) &12(B)of UGC Act 1956,An ISO 9001:2015 certified Institute)

Department of Electronics and Communication Engineering

Organizing a Certificate Course

on

ADVANCED SIGNAL PROCESSING

TechFLUENT
Embedding Values

For III B.Tech ECE Students

18th to 23th

September 2017

In Association with TechFluent Solutions Pvt. Ltd.,

Hyderabad

Co-Ordinator
Mrs.P.Sirisha

HOD-ECE
Dr.L.Ram Murthy

Principal
Dr.P.Kumar Babu

PRINCIPAL
Vemu Institute of Technology
P. KOTHAKOTA - 517 112

A Certificate course

on

"Advanced Signal Processing"

From 18th_

23thSept2017

Organized by

Dept. of E. C. E

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P.Kothakota, Tirupati – Chittoor Highway, Chittoor District, Andhra Pradesh – 517112. www.vemu.org

CHIEF PATRON:
Prof. K. Chandra Sekhar Naidu,
Chairman, VEMU IT.
PATRON:
Dr. P.Kumar Babu, Principal, VEMU IT.
CONVENER:
Dr. L.Ram Murthy, HOD-ECE, VEMU IT.
COORDINATOR:
Mrs. P.Sirisha, Asst.Prof. in ECE, VEMU IT.

ORGANIZING COMMITTEE:

- Dr. G. Elaiyaraja, Professor
- Dr. S. Muralimohan, Professor
- Dr. N. Sudhakar Reddy, Professor
- Mr. G. Sankarappa, Associate Professor
- Mr. N. Prakash Babu, Associate Professor
- Mrs. K. Jaya Sree, Associate Professor
- Mrs. R. Rani, Associate Professor
- Mr. Y. Mahesh, Associate Professor
- Mr. N. Kiran Kumar, Associate Professor
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- Mr. K. Guraiah, Assistant Professor
- Mr. B. Praveen Kumar, Assistant Professor
- Mr. D. Mohan Reddy, Assistant Professor
- Mr. N.Gangadharam, Assistant Professor
- Mr. V.Umamaheswararao, Assistant Professor
- Mr. M.Tulasiram, Assistant Professor
- Mr. M. Arun Kumar, Assistant Professor
- Mr. G. Sivakoteswara Rao, AssistantProfessor
- Mrs. R. Sindhu, Assistant Professor
- Mrs. B. Mounika, Assistant Professor

ABOUT VEMU IT:

VEMU Institute of Technology (VEMU IT) is one of the best and finest engineering college in Chittoor District, Andhra Pradesh. Beginning its quality inputs in 2008, it has attained ISO 2015:9001 certification for quality management within a short span of time. The institute's progress and contribution to the field of technical education for over one decade and accredited by NAAC in the year 2017, Recognized under 2(F) and 12(B) UGC Act, Permanent Affiliation with JNTUA (Anantapuramu), It is located in P. Kothakota, near Pakala & Tirupati - Chittoor Highway in a beautiful 16-acre campus. A diverse, talented community united by a passion for learning and quest for more, VEMUIT challenges its students to make a difference on its campus, in the region, and in the companies where ever they join. With unmatched results in every sphere of education, its commitment to be the best has grown to transform its departments into Center of Excellence.

INDUSTRY SUPPORTED LABS:

With the support of the industry, Vemu Institute of Technologyestablished the following laboratories in the college for the benefit of students to get trained in the emerging technologies.

- Dassault's 3D Experience Center
- AP CM's Skill Excellence Center
- YMTS Innovation Centen
- Pavan Empower Solutions Lab
- Industrial IoT Lab
- Transformer Testing and manufacturing Lab
- Cloud Computing and Cyber Security Labs
- e-Yantra Robotics Lab

Features:

- MOUs with industries for internship, Training and projects viz. UI Path, RAVANDS, SNAM Alloys, CODE TANTRA, Young Minds Technology solutions, SR Unique solutions, Sigma Controls etc.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

A Certificate Course on *"ADVANCED SIGNAL PROCESSING"*

On

18th to 23th September 2017

Duration of program: 30 Hours

S.No	Date	Time	Topics to be Covered	Resource Person
1	18/09/2017	9.00AM to 11AM	**Inauguration**	
		11.00AM to 1 PM	Discrete-time Signals and LTI Systems	**Mr.V. Hruday Kumar**
		1.50PM to 4 PM	Convolution and correlation; random signals; linear time-invariant systems; transforms.	**Mr.V. Hruday Kumar**
2	19/09/2017	9.00AM to 1PM	Sampling and Finite-precision Effects	**Mr.V. Hruday Kumar**
		1.50PM to 4 PM	AD/DA; aliasing; quantization; oversampling.	**Mr.P. Rohith**
3	20/09/2017	9.00AM to 1PM	Filter Design and Filter Structures	**Mr.P. Rohith**
		1.50PM to 4 PM	FIR and IIR filter design; implementation	**Mr.P. Rohith**
4	21/09/2017	9.00AM to 1PM	Multirate DSP Interpolation and decimation; filter bank design; polyphase structures.	**Mr.P. Rohith**
		1.50PM to 4 PM	Optimal Filtering of Random Signals	**Mr.S.Tharun**
5	22/09/2017	9.00AM to 1PM	Prediction; Wiener filters; LMS and RLS adaptive filters	**Mr.S.Tharun**
		1.50PM to 4 PM	Power Spectrum Estimation	**Mr.S.Tharun**
6	23/09/2017	9.00AM to 4PM	Non-parametric and parametric methods; periodogram; eigen analysis algorithms.	**Mr.S.Tharun**

Co-Ordinator

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ATTENDENCE SHEET – A Certificate Course on

"ADVANCED SIGNAL PROCESSING"

On

18th to 23rdSeptember 2017

S.No	ROLL NUMBER	NAME OF THE STUDENT	18/09/17	19/09/17	20/09/17	21/09/17	22/09/17	23/09/17
1	154M1A0401	A VASUNDARA	Vasu	Vasu	Vasu	Vasu	Vasu	Vasu
2	154M1A0402	AARUMBAKAM VASANTHI	Vasanthi	Vasanthi	Vasanthi	Vasanthi	Vasanthi	Vasanthi
3	154M1A0403	ADALAM HARSHA	Harsha	Harsha	Harsha	Harsha	Harsha	Harsha
4	154M1A0404	B ANUSHA	Anu	Anu	Anu	Anu	Anu	Anu
5	154M1A0405	B LUSNICA	Lu	Lu	Lu	Lu	Lu	Lu
6	154M1A0406	BANDLA ANUSHA	Anu	Anu	Anu	Anu	A	Anu
7	154M1A0407	BANGALORE TIRUMALESH	Tirumal	Tirumal	Tirumal	Tirumal	Tirumal	Tirumal
8	154M1A0408	BELLAM ROHITH	Rohith	Rohith	Rohith	Rohith	Rohith	Rohith
9	154M1A0409	BOLLINENI DEEPIKA	Deepika	Deepika	Deepika	Deepika	Deepika	Deepika
10	154M1A0410	BVK JEEVAN	Jeev	A	Jeev	Jeev	Jeev	Jeev
11	154M1A0411	C HARI KRISHNA	Hari	Hari	Hari	Hari	Hari	Hari
12	154M1A0412	C ISWARYA	Iswarya	Iswarya	Iswarya	Iswarya	Iswarya	Iswarya
13	154M1A0413	C KALYAN BABU	Kalyanbabu	Kalyanbabu	Kalyanbabu	Kalyanbabu	Kalyanbabu	Kalyanbabu
14	154M1A0414	C MAMATHA	Mamatha	Mamatha	Mamatha	Mamatha	Mamatha	Mamatha
15	154M1A0415	C RENUKA	Renuka	Renuka	Renuka	A	Renuka	Renuka
16	154M1A0416	C S THUKARAM	CsThukaram	CsThukaram	Cs Thukaram	CS Thukaram	CS Thukaram	CS Thukaram
17	154M1A0417	C UDAY KUMAR	C Uday kumar	C Uday kumar	C Udaykumar	C Udaykumar	C Udaykumar	C Udaykumar
18	154M1A0418	C YESHWANTH	C yeshwanth	C yeshwanth	C yeshwanth	C yeshwanth	C yeshwanth	C yeshwanth
19	154M1A0419	CHALAMANENI JEEVAN PRASAD	Jeevan	Jeevan	Jeevan	Jeevan	Jeevan	Jeevan
20	154M1A0420	CHANNUR MUKESH VAISHNAVI	Mukesh	Mukesh	Mukesh	Mukesh	Mukesh	Mukesh
21	154M1A0421	CHILLAGUTTU USHARANI	UshaRani	UshaRani	UshaRani	UshaRani	UshaRani	UshaRani
22	154M1A0422	CHITHULURI RAMYA	Ramya	Ramya	Ramya	Ramya	Ramya	Ramya

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23	154M1A0423	DAGGUPATI RASI						
24	154M1A0424	DALAVAI OOHA						
25	154M1A0425	DOMA HARI PRIYA						
26	154M1A0426	E THANUJA						
27	154M1A0428	G LAVANYA						
28	154M1A0430	G R DEEPNA						
29	154M1A0431	G S DEEPAK KUMAR						
30	154M1A0432	G YAMUNA						
31	154M1A0433	GALLA RAMYAKRISHNA						
32	154M1A0434	GOGULA ANITHA						
33	154M1A0435	GOVINDAREDDYGARI CHANDINI						
34	154M1A0436	GUDIYATHAM YUSUF						
35	154M1A0437	GURRAMKONDA APSA						
36	154M1A0438	GUTHA CHARISHMA						
37	154M1A0439	HARISH G						
38	154M1A0440	JEEPALEM MOUNIKA						
39	154M1A0441	JOGI RAJESH						
40	154M1A0442	K ANIL REDDY						
41	154M1A0443	K LAKSHMI DEEPTHI						
42	154M1A0444	K MOUNIKA						
43	154M1A0445	K PAVAN						
44	154M1A0446	K RAVI TEJA						
45	154M1A0447	K REKHA						
46	154M1A0449	K VIJAYA KUMAR						
47	154M1A0450	K VINODHKUMAR						
48	154M1A0451	KAMAKSHI VIJAY KUMAR						
49	154M1A0452	KANDEPEDU CHAITANYA						
50	154M1A0453	KANDRA DEVENDRA						
51	154M1A0454	KANNEMADUGU JAYAPRAKASH						
52	154M1A0455	KARNAM NIKHILA						
53	154M1A0456	KONGARA JASWANTH						

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54	154M1A0457	KONGARA VINOD						
55	154M1A0458	KRISHNAIAH DEVARAJULU						
56	154M1A0460	M CHARAN SAI KUMAR						
57	154M1A0461	M RAGHAV						
58	154M1A0462	MANUPATI JHANSI						
59	154M1A0463	N CHETHAN						
60	154M1A0464	N MADHU SUDHAN						
61	154M1A0465	N MAMATHA						
62	154M1A0466	NANDARAM SONY						
63	154M1A0467	NANGA AKHILA						
64	154M1A0468	OLETI ASIFA						
65	154M1A0469	P MOUNIKA						
66	154M1A0470	P PAVANI						
67	154M1A0471	P VAMSI KRISHNA						
68	154M1A0472	PAKALAMURAGAIAH VISWASAI						
69	154M1A0473	P SARITHA						
70	154M1A0474	PEDAKANTI ROJA						
71	154M1A0475	PENUMURU PADMAJA						
72	154M1A0476	PERA VISHNU MURTHY						
73	154M1A0477	POLURU CHAITANYA						
74	154M1A0478	PRATHUSHA M						
75	154M1A0479	PUJARI LAVANYA						
76	154M1A0480	PUTHALAPATTU GIRISH						
77	154M1A0481	R GOVARDHAN						
78	154M1A0482	R SUMATHI						
79	154M1A0483	S K IMTHIYAZ						
80	154M1A0484	S LAVA KUMAR						
81	154M1A0485	S LAVANYA						
82	154M1A0486	T HEMAVATHI						
83	154M1A0487	T JAYASREE						
84	154M1A0488	T BHARATH						

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85	154M1A0489	T NEELIMA						
86	154M1A0490	T PREETHI PRIYA						
87	154M1A0491	T NAFEESA						
88	154M1A0492	T NANDINI						
89	154M1A0493	T BHARGAVI						
90	154M1A0494	V BALKIES ALIYA						
91	154M1A0495	V BINDHU						
92	154M1A0496	V MADHAN KUMAR						
93	154M1A0497	V RAMYA						
94	154M1A0498	V SNEHALATHA						
95	154M1A0499	V SAMEER						
96	154M1A04A0	VAMSI KRISHNA AINENI						
97	154M1A04A1	V RAMYA SREE						
98	154M1A04A3	M PRAVESH						
99	164M5A0401	V BHANU PRIYA						
100	164M5A0402	A MOUNIKA						
101	164M5A0404	K NIKHIL KRISHNA						
102	164M5A0405	K UZMA						
103	164M5A0406	MADHAN MOHAN REDDY						
104	164M5A0407	P MONICA						
105	164M5A0409	R DURGA DEVI						
106	164M5A0410	S PAVAN KALYAN						

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SAMPLE QUESTION PAPER

"ADVANCED SIGNAL PROCESSING"

1) The product of two odd signals is: [B]

a. Odd b.Even c.Both (a) and (b) d.Zero

2) The system given by y(n) = x(n) + 1/x(n - 1) is: [B]

a. Linear b.Causal c.Both (a) and (b) d.None of the above

3) Which of the following is not a type of discrete system? [D]

a. Recursive systems b.Dynamic systems

c. Non-causal systems d.Non-dynamic systems

4) The advantages of discrete signal processing is/are: [D]

a. Cost effective b.Time sharing c.High flexibility d.All of the above

5) Which of the following is the characteristic of the power signal? [A]

a. Power signal is infinite. b. Power signals are time-limited.

c. Aperiodic signals are power signals. d. None of the above

6) The Digital Signal Processing system: [A,C]

a. Consumers more power. b. Consumes less power.

c. Applicable for low-frequency signals. d. Both (a) and (c).

7) The length of the output sequence (n) of the two sequences (n1 and n2) can be calculated using the formula: [B]

a. n = n1 - n2 + 1 b. n = n1 + n2 - 1

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c. n = n1 - n2 – 1 d. n = n1 + n2 + 1

8) An analog signal has a bandwidth of 5KHz. If we are using an N-point DFT to compute the signal spectrum with a resolution less than or equal to 25Hz. Find the minimum length of the signal. [B]

a. 0.2s b. 0.04s c. 0.02s d. 0s

9) One-sided Z-transform is also known as: [A]

a. Unilateral Z-transform b. Bilateral Z-transform

c. Trilateral Z-transform d. None of the above

10) The Z-transform of the function y(n) = x(n) + y(n - 1) is: [C]

a. z/ z + 1

b. z/ 2z

c. z/ z - 1

d. z - 1/z

11) The z-transform of the signal a^nx(n) is: [B]

a. X(za)

b. X(z/a)

c. X(z + a/a)

d. None of the above

12) The z-transform of the impulse response y(n) = x(n) + 2x(n - 1) is: [A]

a. 1 + 2z^-1 b. 1 + 2z^2 c. 1 - 2z d. 1/2z

13) The addition of zeroes at the end of the sequence when it is represented as the power of integer is refer as: [C]

a. Region of Convergence b. Bilateral transform

c.Zero padding d.None of the above

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14) The z-transform of the system h(n) = 3^n u(n) is: [D]

a. 3z/z – 3 b. z / z + 3 c. z / z + 3 d. z / z - 3

15) The system that accepts the input in the discrete form and produces the discrete time output is known as: [B]

a. Linear system b. Discrete time system

c. LTI system d. All of the above

16) Find the number of smallest DFTs required to compute the linear convolution of length 40 sequences with a length of 900 another sequences using 64 DFT. [A]

a. 36 b.64 c.54 d.28

17) Determine the number of complex additions required for 32 direct computations of DFT.

a. 240 b.56 c.992 d.854 [C]

18) Find the complex multiplications required for 16 direct computations of DFT. [A]

a. 256 b.64 c.216 d.1024

19) Which of the following statement is incorrect about DIT- FFT? [D]

a. It requires complex additions of 'N log2N.'

b. The number of input samples is given by 2^i.

c. The input sequence is represented in bit-reversal order.

d. The output sequence is represented in bit-reversal order.

20) Which of the following statement is/are correct about linear convolution? [C]

1. The Input and output sequence is Aperiodic.

2. It requires zero padding.

3. The length of the input and output sequence is the same.

4. The length of output sequence is greater than the input sequence.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Report-on

Certificate course

on

"ADVANCED SIGNAL PROCESSING"

On obtaining the permission from the honorable chairman Dr. K. Chandrasekhar Naidu who always is a source of inspiration and stands on top ranks for taking steps to promote academic and practical knowledge standards of students, the Department of Electronics and Communication Engineering Vemu institute of Technology has organized 6 days Certificate course from 18/07/2017 to 23/07/2017, under the able leadership of Dr.P.Kumar Babu, Principal, Vemu Institute of Technology and with a good planning chalked out by Dr. L.Ram Murthy, Head of The Department, Dept. of Electronics and Communication Engineering.

Lighting the lamp and a Prayer song rendered by the students marked the start of the Certificate course. In Welcome address, Dr.L.Ram Murthy said that the main objective of the Certificate course is to guide the students to decide the career opportunities of the Advanced signal Processing . He advised the students to take advantage of this opportunity and assured them of arranging such Certificate courses in future. He further appealed the faculty members also to take advantage.

After that Resource person **Mr.V. Hruday Kumar** in association with **TechFluent Solutions Pvt.Ltd.**, **Hyderabad** started his session by introduction to Discrete-time Signals and LTI Systems

- In the afternoon section **Mr.V. Hruday** about Convolution and correlation; random signals; linear time-invariant systems; transforms

Day-2: Session was started by the resource person **Mr.V. Hruday Kumar** deliver the speech on Sampling and Finite-precision Effects and also tell about how it used in our students future.

- In the afternoon section **Mr.P. Rohith** continued his speech by AD/DA; aliasing; quantization; oversampling.

Day-3:Mr.P. Rohith discussed about Filter Design and Filter Structures

- In the afternoon section **Mr.P. Rohith** recalls the previous session and FIR and IIR filter design; implementation

Day-4:Mr.P. Rohithrecalls the previous session and Multirate DSP, Interpolation and decimation; filter bank design; polyphase structures.

- In the afternoon section **Mr.S.Tharun** discussed about the Optimal Filtering of Random Signals

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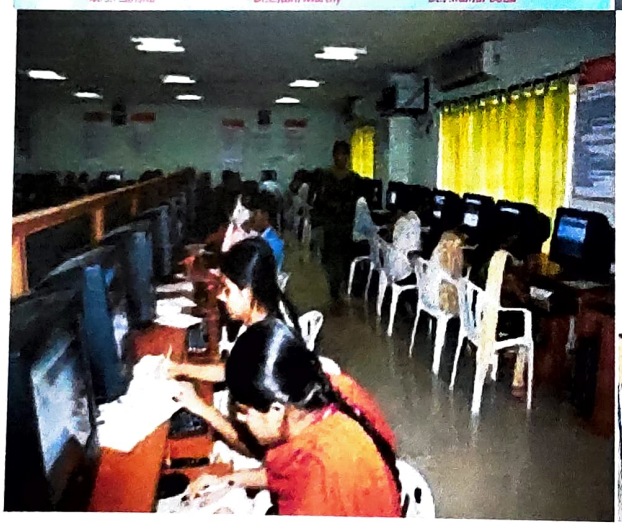
Day-5:Mr.S.Tharun recalls the previous session and explained about Prediction; Wiener filters; LMS and RLS adaptive filters

- In the afternoon section **Mr.S.Tharun** discussed about the Power Spectrum Estimation.

Day-6:Mr.S.Tharun discussed about Non-parametric and parametric methods; periodogram; eigenanalysis algorithms.

In this Certificate course the students participated actively by asking doubts and the resource person also clarified their doubts patiently.

Finally the Certificate course was ended by Valedictory. The resource person concluded the program by enhancing the knowledge on Advanced Signal Processing. The total program successfully completed with the cooperation of Principal, HOD, and all the faculty members of the department.



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Department of Electronics and Communication Engineering

Certificate of Participation

This is to certify that B. Anusha of 154M1A0404 has actively participated in Certificate course on "Advanced Signal Processing " Organized by Dept. of ECE, Vemu Institute Of Technology ,P.Kothakota, In association with TechFluent Solutions Pvt.Ltd.,Hyderabad, from 18.09.2017 to 23.09.2017.

P. Sirisha
Co-Ordinator
Mrs.P.Sirisha

HOD-ECE
Dr.L.Ram Murthy

P. Kumar Babu
Principal
Dr.P.Kumar Babu

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