VELS UNIVERSITY
VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)
NAAC ACCREDITED
PALLAVARAM - CHENNAI - INDIA

VELS UNIVERSITY : SCHOOL OF ENGINEERING
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

MINUTES OF MEETING OF THE BOARD OF STUDIES

Date : 18th May 2017 **Time : 03.00 P.M** **Venue :Nautical block conference hall**

The Board of Studies meeting of Department of Electronics & Communication Engineering, School of Engineering, Vels University was held at 03.00 P.M on 18.05.2017 (Thursday) in the Nautical block Conference hall to discuss Syllabus modification for semester IV to semester VI of B.E., Electronics & Communication Engineering. The Course Curriculum and Syllabus was approved by all the members of the Board of Studies.

Members Present:

Dr.V.Rajendran	Professor & Head / ECE	Convener
Dr.Manigandan	Associate Professor, Department Of Electronics, M.I.T campus	Academic Expert
Mr.R.Pagalavan	Sub divisional Engineer BSNL, Anna Nagar	Industrial Expert
Mr.R.Shyam Sundar	Executive in IGO solutions	Alumni
Mrs.G.R.Jothilakshmi	Assistant Professor Department of ECE	Internal Member
Mrs.R.Kumudham	Assistant Professor Department of ECE	Internal Member
Mrs.M.Meena	Assistant Professor Department of ECE	Internal Member
Mrs. Sharanya	Assistant Professor Department of ECE	Internal Member

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DEPARTMENT OF ELECTRONICS &COMMUNICATION ENGINEERING

1.The subject "Basic Life Skills" (Subject Code:15BESY41) has been considered to opt in IV Semester Electronics &Communication Engineering Syllabus . The syllabus and reference books attached in annexure - I.

2. In-Plant Training II can be opted as on campus industrial development course on Advanced Embedded Systems. The syllabus for the same is included in annexure – II.

3."Inplant Training-III" in VI Semester of Electronics &Communication Engineering is considered to change as "In plant Training".

4.The syllabus for subject "Optical Communication" (Subject code : 15ECN072) in VII semester of Electronics &Communication Engineering Syllabus has been modified according to syllabus of NPTEL since same course has been considered for online course (MOOC) as per UGC norms. The revised Optical Communication syllabus has been attached in annexure -III.

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15BESY41 **BASIC LIFE SKILLS** **1 0 1 2**

COURSE OBJECTIVES:

Providing value education to improve the students' character - understanding of principled life and physical health - maintaining youthfulness - measures and methods in five aspects of life

UNIT I **PHYSICAL HEALTH** **6**

1. Manavalakalai (SKY) Yoga: Introduction - Education as a means for youth empowerment - Greatness of Education - Yoga for youth Empowerment.
2. Simplified Physical Exercises: Hand, Leg, Breathing, Eye exercises - Kapalabathi, Makarasana Part I, Makarasana Part II, Body Massage, Acu pressure, Relaxation exercises - Benefits.
3. Yogasanas: Pranamasana - Hastha Uttanasana - Pada Hasthasana – AswaSanjalana Asana - Thuvipatha asva Sanjalana asana - Astanga Namaskara - Bhujangasana - Atha Muktha Savasana - Aswa Sanjalana Asana - Pada Hasthasana - Hastha Uttanasana - Pranamasana.
4. Pranayama : Naddi suddi - Clearance Practice - Benefits.

UNIT II **LIFE FORCE** **6**

1. Reasons for Diseases - Natural reasons (Genetic / imprints, Planetary Position, Natural calamities and climatic changes) - Unnatural reasons (Food habits, Thoughts, Deeds)
2. Philosophy of Kaya kalpa - Physical body - Sexual vital fluid - Life force - Bio-Magnetism - Mind.
3. Maintaining youthfulness : Postponing old age - Transformation of food into seven components - Importance of sexual vital fluid –
4. Measure and method in five aspects of life - Controlling undue Passion.
5. Kayakalpa practice - Aswini Mudra - Ojas breath - Benefits of Kaya Kalpa.

UNIT III **MENTAL HEALTH** **6**

1. Mental Frequencies - Beta, Apha, Theta and Delta wave - Agna Meditation explanation - benefits.
2. Shanthi Meditation explanation - Benefits
3. Thuriya Meditation explanation - Benefits
4. Benefits of Blessing - Self blessing (Auto suggestion) - Family blessing - Blessing the others - World blessing - Divine protection

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15ECN0--- **ADVANCED SYSTEMS DESIGN** **2 0 0 2**

COURSES OBJECTIVES:

- Objective of this course is to impart training to students to understand programming in Embedded System for IT industry from basic to advance & to provide education & training in design, implementation & testing of Embedded System
- Developing competencies, at system level design for the development of Embedded Systems, based on strong basics of complementary subjects, such as electronics, computer science, energy conversion and management, automatic control, telecommunications and networks.
- Developing the system approach through integrated projects to master specific methods and tools applied to the following domains: aeronautics, space, automobile or multimedia.

UNIT I **INTRODUCTION TO EMBEDDED SYSTEMS** **(6)**

Introduction to Embedded Systems and Fundamentals- Software for Embedded Systems, Intel 8051 / Atmel 89c51 / Arduino.

UNIT II **REAL TIME OPERATING SYSTEMS** **(6)**

PIC Microcontroller, Architecture & Programming of ARM processor, Concepts of Real Time Operating Systems, RT Linux.

UNIT III **PROGRAMMING DEVICES** **(6)**

Embedded C - VHDL / Verilog Programming - CPLD / FPGA Architecture-Combinational – Sequential circuit programming-Test bench.

UNIT IV **EMBEDDED HARDWARE, SOFTWARE AND PERIPHERALS** **(6)**

Basic Architecture – Operation – Programmers view – Development Environment – ASIP – Processor Design – Peripherals – Timers, counters and watch dog timers – UART – Pulse width modulator – LCD controllers – Key pad controllers – Stepper motor controllers – A/D converters – Real time clock.

UNIT V **PROJECT DESIGN & CASE STUDIES** **(6)**

Case studies of embedded application life cycle- Mini Project work.

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REFERENCE BOOKS:

1. David. E.Simon, "An Embedded Software Primer", Pearson Education, 2001.
2. Frank Vahid and Tony Gwargie, "Embedded System Design", John Wiley & sons, 2002
3. Steve Heath, "Embedded System Design", Elsevier, Second Edition, 2004.
4. Samir Palnitkar, "Verilog HDL, A Design guide to Digital and Synthesis" 2nd Ed,Pearson, 2005.
5. Douglas Perr, "VHDL: programming by example Paperback", McGraw Hill Education; 4 edition 2002

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Annexure – III

Proposed NPTEL syllabus

15ECN072 **OPTICAL COMMUNICATION** **3 0 0 3**

COURSE OBJECTIVES:

- To Facilitate the knowledge about optical fiber sources and transmission techniques
- To Enrich the idea of optical fiber networks algorithm such as SONET/SDH and optical CDMA.
- To Explore the trends of optical fiber measurement systems

UNIT I **INTRODUCTION TO OPTICAL FIBERS** 9Overview of optical fiber communications, Electromagnetic theory, Wave equations, Reflection and transmission of waves, optical fiber modes, single and multi-mode fibers, single and multi-core fibers.

UNIT II **TRANSMISSION CHARACTERISTICS OF OPTICAL FIBERS** 9

Optical transmitter components--lasers and optical modulators, attenuation and dispersion, Nonlinear effects (SPM, XPM, FWM), Multiplexing: Polarization, Wavelength, and Time division multiplexed systems, Important WDM components.

UNIT III **FIBER OPTICAL SOURCES AND DETECTORS** 9

Optical receivers I: Photo detectors and its performance characteristics, noise in photo detection, common type of photo detectors, Optical receivers II: Direct detection, self-homodyne (differential) detection, and coherent detection, Sensitivity, Impact of noise, Lasers, rate equations, RIN and phase noise

UNIT IV **FIBER OPTIC RECEIVER AND MEASUREMENTS** 9

Optical amplifiers: EDFA and SOA, ASE, system impact

UNIT V **OPTICAL NETWORKS** 9

General digital communication system, Line coding and Pulse shaping, Signal space representation, Digital modulation formats: ASK, PSK, and QAM, Matlab models, Optical implementation, Matlab models, Higher-order modulation (star and square QAM) and Multicarrier modulation (OFDM), Optimum receiver principles

TEXT BOOKS:

1. John M. Senior," Optical Fiber Communication", Pearson Education , Second Edition. 2007
2. Gerd Keiser ,"Optical Fiber Communication" ,Mc Graw Hill, Third Edition. 2000

REFERENCE BOOKS:

1. J.Gower, "Optical Communication System", Prentice Hall of India, 2001.
2. Rajiv Ramaswami, "Optical Networks " , Second Edition, Elsevier , 2004.
3. Govind P. Agrawal, "Fiber–optic communication systems", third edition, John Wiley & sons, 2004.
4. Khare .R.P, "Fiber Optics and Optoelectronics", Oxford University Press, 2007.

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The above details , discussions & deliberations in Board of Studies meeting conducted at Vels university on 18.5.2017 is accepted and recommended .

Dr.V.Rajendran

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