**LESSON PLAN**

**Branch**: III ECE ‘A’ **Semester**: II **Subject**: BMSP

**Academic year: 2017-18 faculty : JAYALAXMI.ANEM**

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| Period | Date (Tentative) | Topic | Unit No. | Teaching Methodology | Remarks | Corrective Action upon Review |
|  |  | **Data compression techniques:** | **I** |  |  |  |
|  | 20.11.2017 | Lossy and lossless data reduction algorithms. | I | Black Board |  |  |
|  | 22.11.2017 | ECG data compression using turning point, | I | B.B |  |  |
|  | 23.11.2017 | ECG data compression using turning point, | I | B.B |  |  |
|  | 25.11.2017 | AZTEC, | I | B.B |  |  |
|  | 27.11.2017 | AZTEC, | I | B.B |  |  |
|  | 29.11.2017 | CORTES, | I | B.B |  |  |
|  | 30.11.2017 | CORTES, | I | B.B |  |  |
|  | 04.12.2017 | Hoffman coding, | I | B.B |  |  |
|  | 06.12.2017 | vector quantization, | I | B.B |  |  |
|  | 07.12.2017 | DCT | I | B.B |  |  |
|  | 11.12.2017 | KL transform | I | B.B |  |  |
|  |  | **Cardiological signal processing:** |  |  |  |  |
|  | 13.12.2017 | Pre-processing | II | B.B |  |  |
|  | 14.12.2017 | QRS detection methods | II | B.B |  |  |
|  | 16.12.2017 | QRS detection methods |  |  |  |  |
|  | 18.12.2017 | Rhythm analysis. | II | B.B |  |  |
|  | 20.12.2017 | Rhythm analysis. |  |  |  |  |
|  | 03.01.2018 | Arrhythmia detection algorithms | II | B.B |  |  |
|  | 04.01.2018 | Arrhythmia detection algorithms | II | B.B |  |  |
|  | 06.01.2018 | automated ECG analysis |  |  |  |  |
|  | 08.01.2018 | ECG pattern recognition | II | B.B |  |  |
|  | 10.01.2018 | ECG pattern recognition | II | B.B |  |  |
|  | 11.01.2018 | Heart rate variability analysis. |  |  |  |  |
|  | 17.01.2018 | Heart rate variability analysis. | II | B.B |  |  |
|  |  | **Neurological signal processing:** | **III** |  |  |  |
|  | 18.01.2018 | Modeling of EEG signals – detection of spikes and spindles | III | B.B |  |  |
|  | 20.01.2018 | Modeling of EEG signals – detection of spikes and spindles | III | B.B |  |  |
|  | 22.01.2018 | Detection of alpha, beta and gamma waves. | III | B.B |  |  |
|  | 24.01.2018 | Detection of alpha, beta and gamma waves. | III | B.B |  |  |
|  | 25.01.2018 | Auto regressive modeling of seizure EEG | III | B.B |  |  |
|  | 27.01.2018 | Auto regressive modeling of seizure EEG | III | B.B |  |  |
|  | 29.01.2018 | Sleep stage analysis. | III | B.B |  |  |
|  | 31.01.2018 | Sleep stage analysis. | III | B.B |  |  |
|  | 01.02.2018 | Inverse filtering | III | B.B |  |  |
|  | 03.02.2018 | Inverse filtering | III | B.B |  |  |
|  | 05.02.2018 | Least squares and polynomial modeling. | III | B.B |  |  |
|  | 07.02.2018 | Least squares and polynomial modeling. | III | B.B |  |  |
|  |  | **Adaptive noise canceling:** | **IV** |  |  |  |
|  | 12.02.2018 | Principles of adaptive noise canceling |  |  |  |  |
|  | 14.02.2018 | Principles of adaptive noise canceling | IV | B.B |  |  |
|  | 15.02.2018 | Adaptive noise canceling with the LMS adaptation algorithm. | IV | B.B |  |  |
|  | 17.02.2018 | Adaptive noise canceling with the LMS adaptation algorithm. | IV | B.B |  |  |
|  | 19.02.2018 | Noise canceling method to enhance ECG monitoring | IV | B.B |  |  |
|  | 21.02.2018 | Noise canceling method to enhance ECG monitoring | IV | B.B |  |  |
|  | 22.02.2018 | Fetal ECG monitoring | IV | B.B |  |  |
|  | 24.02.2018 | Fetal ECG monitoring | IV | B.B |  |  |
|  | 26.02.2018 | Signal averaging | V | B.B |  |  |
|  | 28.02.2018 | Signal averaging | V | B.B |  |  |
|  | 01.03.2018 | polishing | V | B.B |  |  |
|  | 03.03.2018 | polishing | V | B.B |  |  |
|  | 05.03.2018 | Mean and trend removal–– Prony’s method | V | B.B |  |  |
|  | 07.03.2018 | Mean and trend removal–– Prony’s method | V | B.B |  |  |
|  | 08.03.2018 | Linear prediction – Yule–walker(Y–W) equations. | V | B.B |  |  |
|  | 12.03.2018 | Linear prediction – Yule–walker(Y–W) equations. | V | B.B |  |  |
|  | 14.03.2018 | Original Prony’s method – Prony’s method based on the least squares estimate | V | B.B |  |  |
|  | 15.03.2018 | Original Prony’s method – Prony’s method based on the least squares estimate | V | B.B |  |  |
|  | 20.03.2018 | Analysis of evoked potentials. | V | B.B |  |  |
|  | 21.03.2018 | Analysis of evoked potentials. | V | B.B |  |  |

**Text books:**

1. Biomedical Signal Processing: Principles and techniques – D.C.Reddy, Tata McGraw-Hill, 2005.

2. Biomedical Digital Signal Processing – Willis J.Tompkins, PHI.

3. Biomedical Signal Analysis – Rangaraj M. Rangayyan, IEEE Press, 2001.

**Reference books:**

1. Digital Bio signal Processing – Weitkunat R, Elsevier, 1991.

2. Biomedical Signal Processing – Akay M, Academic Press, 1994.

3. Biomedical Signal Processing Time and Frequency Analysis (Vol. I) – Cohen.A, CRC Press,1986.