SCSV 3223

MULTIMEDIA DATA PROCESSING

SEM 2 20202021

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INTRODUCTION TO THE COURSE

LECTURE -1

OUTLINE

- INTRODUCTION
- MEETING TIME
- SYLLABUS
  - TOPICS
  - ACESSMENT
- NOTES
- ATTITUTE AND ETIQUE

INTRODUCTION

- This course was introduced for Final Year SCV program with the aim for the student to be able to code Multimedia Data ie. Sound, image and video.
- It is a compulsory/core subject for 3 year program (112 Credits). Elective for 4 years program
- Students will be equiped with basic DSP theory and basic Matlab scripting before going into the data processing part
- The class focus on theory of speech/audio and image /video data for student to understand in order to implement processing method on the data.(Using Matlab)

OFFICIAL MEETING TIME :
- WEDNESDAY (10AM → 12:30 PM)
- THURSDAY (8AM → 10:30AM)

CLASS TIME :
2 HOURS AND 30 MINUTES

MEETING PLACE :
WEDNESDAY (CASE) / ONLINE
THURSDAY (VETL) / ONLINE

SYLLABUS : 1ST WEEK

- INTRO TO THE COURSE
  - THE SYLLABUS
- CLASS :
  - GROUP FORMATION
    - 2-3 PERSONS PER GROUP (Depend on number of students)
  - GROUP ASSINGMENT 1:
    - WRITE PAPER ON TOPICS IN MULTIMEDIA PROCESSING
    - CHOOSE TITLE
    - DUE : WEEK 4.
- LAB : NONE

SYLLABUS : 2ND WEEK

- LECTURE :
  - DATA AND SIGNAL (1 H)
- LAB
  - NONE
- ASSINGMENT 1
  - Extended Abstract discussion

SYLLABUS : 3RD WEEK

- LECTURE :
  - Basic DSP (1.5 hr)
- LAB : None
- Assignment 1
  - Draft Paper Submission

SYLLABUS : 4TH WEEK

- LECTURE:
  - Time series data
- QUIZ 1:
  - Basic DSP
- Assignment 1:
  - Due paper.

SYLLABUS : 5TH WEEK

- LECTURE:
  - Time series data
- Lab
  - On Time Series
- Assingment 1:
  - Paper Compilation

SYLLABUS : 6TH WEEK

- SEMINAR PRESENTATION I [~ 3 H]

SYLLABUS : 7TH WEEK

- LECTURE :
  - SPEECH PROCESSING [1.5 H]
- ASSINGMENT II
  - SPEECH PROCESSING ASSIGNMENT
- LAB
  - SPEECH PROCESSING

SYLLABUS : 8TH WEEK

- LECTURE :
  - SPEECH PROCESSING CONTINUE [1H]
- LAB
  - SPEECH PROCESSING [1.5 H]

SYLLABUS : 9TH WEEK

- LECTURE :
  - QUIZ 2 [1 H]
  - QUIZ 2 DISCUSSION
- Assignment 2
  - Presentation per group.

SYLLABUS : 10TH WEEK

- LECTURE :
  - AUDIO PROCESSING
- ASSINGMENT III
  - AUDIO PROCESSING ASSIGNMENT
- LAB
  - AUDIO PROCESSING LAB

SYLLABUS : 11TH WEEK

- LECTURE :
  - SPATIAL DATA
  - QUIZ 3
  - QUIZ 3 DISCUSSION
- ASSIGNMENT III SUBMISSION
- LAB
  - IMAGE/VIDEO PROCESSING

SYLLABUS : 12TH WEEK

- LECTURE :
  - IMAGE/VIDEO PROCESSING [1 H]
- ASSIGNMENT IV
  - FUSION SPATIAL AND TEMPORAL SIGNAL
- LAB
  - IMAGE / VIDEO PROCESSING

SYLLABUS : 13TH WEEK

- LECTURE :
  - QUIZ 4
  - QUIZ 4 DISCUSSION
- LAB
  - IMAGE PROCESSING

SYLLABUS : 14TH WEEK

- DEMO
  - Assignment 4 demo.

SYLLABUS : 15TH WEEK

- LECTURE :
  - REVIEW / TIPS FOR FINAL

NOTES : SLIDES AND HANDS OUT

- Slides and hands out will be posted in e-learning

NOTES : REFERENCES

- General book reference
  - Multimedia Signal Processing Theory and Application in Speech, Music and Communication by Saeed V. Vaseghi, John Wiley & Sons, inc
- ON DSP
  - A Simple Approach to Digital Signal Processing by Craig Marven and Gillian Ewers, John Wiley & Sons, inc
  - Any DSP books (a lot out there)
- On Video
  - Practical Image and Video Processing Using MATLAB by Oge Marques, John Wiley & Sons, inc

CLASS CONDUCT, ATTITUDE AND ETIQUETTE

- Attendance
  - Compulsory for each class and lab
  - No less than 80% for exam admission..
  - Names will be called for attendance – no need to sign.
- Dressing
  - Follow the dressing code.
- General
  - No talking, FB, chatting, emailing, etc while your lecture is lecturing .. Penalty will be given ..

ACESSMENT

Item	Point	Mark
Quiz 1 Quiz II Quiz III Quiz IV	7 7 7 7	28%
Group Assignment 1 (review paper) Seminar Presentation	8 5	13%
Group Assignment 2 (Experiment Report on Speech Signal) Seminar Presentation	8 5	13%
Group Assignment 3 (Audio/Image Processing)	8	8%
Group Assignment 4	8	8%
Final (ALL)	30	30%
Total		100%

ASSINGMENTS

ASSIGNMENT 1 : ACADEMIC PAPER REPORT

- WRITE A TECHNICAL PAPER ON REVIEW OF MULTIMEDIA DATA PROCESSING TOPICS
- THEME:
  - FUSION MULTIMEDIA DATA or
  - REVIEW OF TOPIC FROM YOUR PSM1 TITLE.
- THE REVIEW CAN BE IN TERM OF
  - METHODS USED
  - APPLICATIONS
  - TOOLS FOR METHODS
  - EXISTING SOFTWARE
  - ETC
- YOU NEED TO READ AND CRITICALLY DISCUSSED THE PRO / CONS , WEAKNESS, ADVANTAGES ETC OF THE TOPIC THAT YOU REVIEWED.

ASSIGNMENT 1 : SEMINAR

- You need to conduct a seminar for the assingment presentation
- Create steering community consist of
  - Chaiman and D… Chaiman
  - Secretary and …tary
  - Publication ch…
  - Treasurer
  - Revievers (check pap…
  - AJKs (Food – publi… …ertisement - etc)
- You need to hav… …resentation
- Proceeding afte… …ar.
- Steering commun… …d AJKs will g… …l mark for presentation mark.

ASSINGMENT 1 : SEMINAR

- We shall have one session seminar for your paper presentation
- Video presentation per group.
- Everyone need to listen to the presentation.
- Quiz based on the presentation will be asked.
- Selected papers (if up to the level) will be improved for publication in non-referred journal.

ASSINGMENT II : SPEECH LAB

- YOU NEED TO DO EXPERIMENTATION IN FINDING CERTAIN PARAMETERS IN A GIVEN SPEECH SIGNAL.
- WRITE A REPORT OF THE EFFECT OF CERTAIN PARAMETERS TOWARDS THE CHARACTERISTIC OF THE SIGNAL(SPEECH)
- PRESENT THE RESULT

ASSINGMENT III & IV : AUDIO LAB / IMAGE PROCESSING LAB

- YOU WILL BE ASKED TO DEVELOP A FUSION OF TEMPORAL AND SPACIAL DATA INTO A NEW REPRESENTATION OF DATA.
- PRESENT THE RESULT
- OR
- YOU WILL BE GIVEN A CODE IN CREATING SOUND USING MATLAB.
- MODIFY THE CODE INTO A PIECE OF MUSIC THAT PLAYS FOR 3-5 MINUTES
- OR
- YOU WILL BE GIVEN CODE ON SOME METHODS IN IMAGE PROCESSING USING MATLAB
- YOUR TASK IS TO FIND WHETHER TWO IMAGES ARE IDENTICAL OR NOT USING IMAGE PROCESSING METHODS.
- PRESENT THE RESULT.

SAMPLE ASSIGNMENT OUTPUTs

- PAPERS PROCEEDING
- PROGRAM BOOKLETS
- LAB WORK PRESENTATION (ASIGN 2)
- PROGRAM MUSIC (SYNTHESIZED)