



EVENT PROPOSAL FORM

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| 1 | Event type and Name | FDP on ADVANCES IN NATURAL LANGUAGE PROCESSING USING AI |
| 2 | Date and time | 14 March 2022 - 18 March 2022 |
| 3 | Participants/audience | Faculty, Research Scholars Scholars, Participants from Government and Industry. |
| 4 | Venue | Online Platform: Google Meet and Microsoft Teams. |
| 5 | Objectives | To understand and demonstrate the fundamentals of machine learning and NLP using Python . |
| 6 | Expected outcomes | CO1: Demonstrate Machine Learning concepts in Python. CO2: Understand the fundamental concepts of NLP and Deep Learning. CO3: Illustrate Language modeling applications and Distributional semantics. CO4: Understand the concepts of modern RNNs like LSTM, GRU, Encoder-Decoder model. CO 5: Demonstrate the concepts of Encoder- Decoder, Attention Mechanism and Transformer Network. |
| 7 | Connected POs/PSOs | PO1, PO3, PO5, PO12 ,PSO2 |
| 8 | Justification for POs/PSO's | FDP covers the fundamentals of Machine learning and concepts of deep learning with demonstration,providing training on latest technologies in NLP. |
| 9 | Resource requirements | Online Platform: Google Meet and Microsoft Teams. |
| 10 | Any other Relevant Information | <u>Resource Person</u> <ol style="list-style-type: none">1. Dr. Deepthi P. S: Assistant Professor ,Department of Computer ScienceLBS Institute of Technology for Women ,Poojapura , Thiruvnadapuram.2. Dr. Jeena Kleenkandy : Faculty Associate ,Computer Science Engineering , School of Engineering ,Coimbatore .3. Rahul C: Assistant Professor ,Department of Computer Science LBS College of Engineering , Kasaragod .4. Premjith B : Assistant Professor , Department of Computer Science ,Amritha Vidyapeetham ,Coimbatore .5. Manu Madhavan: Assistant Professor , Department of Computer Science ,Amritha Vidyapeetham ,Coimbatore . |

| | | |
|----|----------------------------|---|
| 11 | Responsible Persons | <u>Staff Coordinator</u> 1. Ms. Namitha P. 2. Ms.Sreedhanya M.V. <u>Convener</u> 1. Dr. Jeethu V. Devasia |
| 12 | Department | Computer Science and Engineering |

Proposal prepared by

Ms. Namitha Parikkal (AP, CSE)

Ms.Sreedhanya M.V.

Recommended by

Dr. Jeethu V. Devasia ,HOD CSE



ABOUT THE INSTITUTION

Vimal Jyothi Engineering College (VJEC) is an educational project of the Archdiocese of Thalassery established in the year 2002 and is managed by Meshar Diocesan Educational Trust. The college is approved by AICTE and affiliated to APJ Abdul Kalam Technological University (KTU). VJEC is a self-financing catholic minority institution aiming at generating a fervor for Engineering and Technology in students. Here we inspire, nurture and foster them to realize their career potential in the field of Engineering and Technology. B.Tech. Programmes in Computer Science and Engineering, Electrical and Electronics Engineering, Mechanical Engineering and Civil Engineering are accredited by the National Board of Accreditation (NBA). The institution is also accredited by NAAC and certified by ISO 9001:2015.

INFORMATION FOR PARTICIPANTS

• ELIGIBILITY

The FDP is open to faculty members of the AICTE approved institutions, research scholars, PG Scholars, participants from Government and Industry.

• REGISTRATION DETAILS

All the participants are requested to register online by filling the following form

<https://forms.gle/Xs4CdnBUcku4vsj18>

on or before 13th March, 2022.

Registration for all the participants is mandatory.

- ONLINE SESSION DETAILS WILL BE COMMUNICATED TO THE REGISTERED PARTICIPANTS THROUGH EMAIL.
- REGISTRATION IS FREE.
- E-CERTIFICATE WILL BE ISSUED TO THE PARTICIPANTS.



CSI Sponsored

One week

Online Faculty Development Programme

on

ADVANCES IN NATURAL LANGUAGE PROCESSING USING AI

14th March 2022 - 18th March 2022

Organized by

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



VIMAL JYOTHI ENGINEERING COLLEGE

Chemperi, Kannur, Kerala - 670 632

www.vjec.ac.in



ABOUT THE DEPARTMENT

The Department of Computer Science & Engineering was established in 2002 and is accredited by NBA up to 30.06.2023. The Department offers M.Tech & B.Tech programmes in Computer Science & Engineering, B.Tech programme in Artificial Intelligence & Data Science, and B.Tech programme in Computer Science & Design. The Department of CSE is deeply committed to provide high - quality undergraduate and postgraduate education. The courses have a comprehensive curriculum aimed to provide knowledge, in both theoretical and practical aspects of Computer Science and related streams, with an emphasis on practical learning.

ABOUT THE COURSE:

With the advent of new technologies, Natural Language Processing has become a trending area to be learned, and it compiles intricate and advanced analytical methods of Artificial Intelligence. This FDP covers the fundamentals of Machine learning and NLP using Deep learning with Python, Language modeling and text applications, Distributional semantics, concepts of modern RNNs and concepts of Encoder-Decoder, Attention mechanism and Transformer network.

COURSE OUTCOMES:

After the completion of this FDP participants will be able to

- CO1 : Demonstrate Machine Learning concepts in Python .
- CO2 : Understand the fundamental concepts of NLP and Deep learning.
- CO3 : Illustrate Language modeling, Text Applications and Distributional semantics.
- CO 4 : Understand the concepts of modern RNNs like LSTM, GRU, Encoder - Decoder model.
- CO 5 : Demonstrate the concepts of Encoder-Decoder, Attention Mechanism and Transformer Network.

SYLLABUS:

Fundamentals of Machine learning, Concepts of NLP using Deep Learning, Deep learning-based machine translation, Basics of text processing, Language modeling, Distributional semantics and word embedding, Morphology, POS Tagger, syntax analysis , Context-free grammar, word sense disambiguation, Modern RNNs like LSTM, GRU, Encoder-Decoder model, Transformer network, Attention mechanism, Multimodal NLP.

ORGANIZING COMMITTEE

CHIEF PATRON

Rev. Fr James Chellamkottu
(Manager)

PATRON

Dr. Benny Joseph
(Principal)

CONVENER

Dr. Jeethu V. Devasia
(Professor, HoD - CSE)

COORDINATORS

Ms. Namitha Parikkal
(Assistant Professor, CSE)

Mobile Number : **7907614160**

Ms. Sreedhanya M.V.
(Assistant Professor, CSE)

Mobile Number : **7560864688**

Email : fdpcese@vjec.ac.in

VIMAL JYOTHI ENGINEERING COLLEGE CHEMPERI
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CSI SPONSORED FDP
ON
ADVANCES IN NATURAL LANGUAGE PROCESSING USING AI
14th March 2022-18th March 2022

The one-week online Faculty Development Program (FDP) on **ADVANCES IN NATURAL LANGUAGE PROCESSING USING AI** in collaboration with the Computer Society of India(CSI) was organized successfully with the participation of different stakeholders. The FDP addresses the fundamental concepts of Natural Language Processing and AI. The details of the course are given below. The FDP was coordinated by Dr. Jeethu V. Devasia- Professor- HoD-CSE, Ms. Namitha Parikkal- Assistant professor-CSE, Ms. Sreedhanya M.V.- Assistant Professor-CSE.

This course was aimed at the faculty members of the AICTE approved institutions, research scholars, PG Scholars, and participants from Government and Industry. There were 153 participants registered for the FDP from the various institutes/ colleges/ universities in India. Rev. Fr James Chellamkottu, Chairman of Vimal Jyothi Engineering college inaugurated the FDP.

Dr. Benny Joseph, Principal of Vimal Jyothi Engineering College, Dr. Jeethu V. Devasia, Head of the computer science and engineering department, and Mr.Rajesh P, representative of CSI Trivandrum chapter addressed the gathering in the inaugural session and discussed the importance of this FDP.

Resource Persons from reputed academic institutions are included in this FDP details are given below.

1. **Dr. Deepthi P. S.** : Assistant Professor, Department of Computer Science, LBS Institute of Technology for Women Poojapura, Thiruvananthapuram .
2. **Dr. Jeena Kleenenkandy** : Assistant Professor, Department of Computer Science & Engineering ,Amrita School of Engineering, Coimbatore.Amrita VishwaVidyapeetham .
3. **Dr.Manu Madhavan** : Assistant Professor,Department of Computer Science & Engineering ,Amrita School of Engineering, Coimbatore.Amrita VishwaVidyapeetham.
4. **Dr. Premjith B.** : Assistant Professor,Center for Computational Engineering & Networking ,Amrita School of Engineering, Coimbatore.

5. **Mr. Rahul C.:** Assistant Professor, Department of Computer Science
LBS College of Engineering, Kasaragod .

About the course:

With the advent of new technologies, Natural Language Processing has become a trending area to be learned, it compiles intricate and advanced analytical methods of Artificial Intelligence. This FDP covers the fundamentals of Machine learning and NLP using Deep learning with Python, Language modeling and text applications, Distributional semantics, concepts of Encoder -Decoder, Attention mechanism, and Transformer network.

Course Outcomes: After the completion of this FDP participants will be able to

CO1: Demonstrate Machine Learning concepts in Python.

CO2: Understand the fundamental concepts of NLP and Deep Learning.

CO3: Illustrate Language modeling, Text Applications, and Distributional semantics.

CO 4: Understand the concepts of modern RNNs like LSTM, GRU, and Encoder-Decoder model.

CO 5: Demonstrate the concepts of Encoder-Decoder, Attention Mechanism, and Transformer Network.

Syllabus:

Fundamentals of Machine learning, Concepts of NLP using Deep Learning, Deep learning-based machine translation, Basics of text processing, Language modeling, Distributional semantics and word embedding, Morphology, POS Tagger, syntax analysis, Context-free grammar, word sense disambiguation, Modern RNNs like LSTM, GRU, Encoder-Decoder model, Transformer network, Attention mechanism, Multimodal NLP.

Schedule of the event

Schedule

| Day 1 (14/03/2022) | | | |
|--------------------|----------------------------------|---|--|
| Time | Session 1 09:15 AM - 10:00 AM | Session 2 10:00 AM - 12:30 PM | Session 3 1:30 PM - 3:30 PM |
| Topic | Inaugural session | Introduction to Machine Learning | Hands-on session in Python |
| Resource Person | | Dr. Deepthi P. S. Assistant Professor, Department of Computer Science, LBS Institute of Technology for Women Poojapura, Thiruvananthapuram | Dr. Deepthi P. S. Assistant Professor, Department of Computer Science LBS Institute of Technology for Women Poojapura, Thiruvananthapuram |

| Day 2 (15/03/2022) | | | |
|------------------------|--|--|--|
| Time | Session 1 09:00 AM - 10:30 AM | Session 2 11:00 AM - 12:30 PM | Session 3 02:00 PM - 03:15 PM 03:30 PM-04:30 PM |
| Topic | Introduction to NLP | Introduction to Deep Learning | Basics of Text Processing |
| Resource Person | Dr. Jeena Kleenenkandy Assistant Professor, Department of Computer Science & Engineering Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham | Dr. Jeena Kleenenkandy Assistant Professor, Department of Computer Science & Engineering Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham | Dr. Manu Madhavan Assistant Professor, Department of Computer Science & Engineering Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham |
| Day 3 (16/03/2022) | | | |
| Time | Session 1 09:00 AM - 10:15 AM | Session 2 11:00 AM - 12:30 PM | Session 3 02.00 PM – 3.15 PM 03.30 PM-4.30 PM |
| Topic | RNN and LSTM | Text Classification using LSTM | Distributional semantics and Word Embedding Hands-on session |
| Resource Person | Dr. Jeena Kleenenkandy Assistant Professor, Department of Computer Science and Engineering Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham | Dr. Manu Madhavan Assistant Professor, Department of Computer Science and Engineering Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham | Dr. Manu Madhavan Assistant Professor, Center for Computational Engineering and Networking Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham |

| Day 4 (17/03/2022) | | | |
|------------------------|--|---|---|
| Time | Session 1 10:00 AM - 11:15 AM | Session 2 11:30 AM - 01:00 PM | Session 3 2:30 PM - 04.30 PM |
| Topic | NLP, Morphology, Word sense Disambiguation, | RNN, LSTM and GRU | Encoder-Decoder Network with Attention Mechanism Hands-on session |
| Resource Person | Rahul C. Assistant Professor, Department of Computer Science LBS College of Engineering, Kasaragod | Rahul C. Assistant Professor, Department of Computer Science LBS College of Engineering, Kasaragod | Dr. Premjith B. Assistant Professor, Center for Computational Engineering and Networking Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham |
| Day 5 (18/03/2022) | | | |
| Time | Session 1 9:30 AM - 12:00 PM | Session 2 02:00 PM-04:00 PM | Session 3 04:00 PM - 05:00 PM |
| Topic | Encoder Decoder Model Neural machine translation | Transformer Network BERT Embedding Hands-on session | Test and Feedback Valedictory Session |
| Resource Person | Rahul C. Assistant Professor, Department of Computer Science LBS College of Engineering, Kasaragod | Dr. Premjith B. Assistant Professor, Center for Computational Engineering and Networking Amrita School of Engineering, Coimbatore. Amrita Vishwa Vidyapeetham | |

List of Participants from VJEC

| SI No | Participants |
|--------------|---------------------|
| 1 | Nayana Suresh |
| 2 | Jithin James |
| 3 | Reema Mathew A |
| 4 | Asha Baby |
| 5 | Tintu Devasia |
| 6 | Jayesh George M |
| 7 | Jeethu V. Devasia |
| 8 | Derroll David |
| 9 | Anusha Chacko |
| 10 | Divya B |
| 11 | Anit Thomas M |