Fourth Board of Studies (BoS)

Minutes of Meeting

Venue : Daffodil, Imperial Hall (Hybrid)

Meeting ID : Zoom Meeting

https://us06web.zoom.us/j/85108322350?pwd=9xaWI8x5aa8IWa3bNOZF

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Meeting ID: 851 0832 2350 & Passcode: 857457

Date : 23.11.2023 (Thursday)

Time : 09.00 AM – 10.30 AM

Agenda:

To discuss and pass

1. Approval for Vision, Mission, and PEO Statements of the Department

2. Curriculum Restructuring for UG programme B.E. Computer Science and Engineering (Artificial Intelligence and Machine Learning) under Regulation 2021 Revised

3. Inclusion of Course in 4th Semester

4. Approval for 4th to 8th Semester Syllabus

5. Approval for Value Added Course (VAC)

6. Approval for Industry One Credit Course (I-OCC)

7. Any other matter brought by the Chairperson

Members Present:

S. No.	Name of the member with Designation	Category	Signature
1.	**Dr. S.Karthikeyan,** Associate Professor and Head, Department of CSE (AIML), KPRIET	Chairman	23.11.
2.	**Dr. M.Vijayalakshmi,** Professor, Department of CSE, Thiyagarajar College of Engineering, Madurai.	University Nominee	**Online**
3.	**Dr. M.Narasimha Murty,** Honorary Professor, Dept. of CSA, Indian Institute of Science (IISc), Bangalore - 560 012	Academic Expert	**Online**

S. No.	Name of the member with Designation	Category	Signature
4.	**Dr. Partha Pratim Roy,** Associate Professor, Dept. of Computer Science and Engineering, Indian Institute of Technology (IIT), Roorkee, Uttarakhand - 247667	Academic Expert	**Online**
5.	**Dr. Hari Seetha,** Professor & Director, COE in AI and Robotics, School of Computer Science and Engineering VIT - AP University, Andhra Pradesh - 522237	Subject Expert	**Online**
6.	**Dr. Mohanraj Vengadachalam** Machine Learning Lead, Standard Chartered GBS, Chennai	Subject Expert	**Online**
7.	**Dr. Ranga Rajagopal** Vice Chair, ACM Coimbatore Professional Chapter, Director & CEO - Acenet Technologies Pvt. Ltd, Coimbatore.	Professional Chapter (Special Invitee)	**Online**
8.	**Mr. Aswathaman Ramachandran** Data Analyst (Member of technical staff 2), Biofourmis, Bengaluru	Alumni	**Online**
9.	**Mr. G.Pandiya Rajan,** Assistant Professor (Sl. G), Dept. of CSE (AIML), KPRIET	Member	
10.	**Mr. S.Rajeshkumar,** Assistant Professor (Sr. G), Dept. of CSE (AIML), KPRIET	Member	
11.	**Mr. S.Nandhagopal,** Assistant Professor (Sr. G), Department of CSE (AIML), KPRIET	Member	

Minutes of the 4th BoS Meeting:

The meeting was convened by the Board Chairman. He welcomes all the members of the Board of Studies of CSE (AIML) department.

The meeting started with the presentation on Agenda of the meeting, Vision, Mission, PEOs, PSOs, POs, Curriculum of Regulations 2021 Revised, and highlighting the various features of the curriculum.

Previous (3rd) BoS Meeting Major Points and its changes:

- The board suggested introducing Machine Learning I, Machine Learning II, Deep Learning I, and Deep Learning II (since it is a specialization course) – Introduced in the 4th, 5th, 6th, and 7th Semesters accordingly.
- The board suggested adding the "Optimization Techniques" course as a part of ML I/II – Included in the 6th Semester.
- The board suggested adding a "Pattern Recognition" course – Included in Vertical I (Data Science).

The following points have been discussed during the 3rd Board of Studies meeting:

Approval for Vision, Mission, and PEO Statements of the Department

The following Vision, Mission, and PSO Statements for the department was approved by the members.

Vision of the Department:

To establish as a technology hub of education, research and solution in artificial intelligence and machine learning.

Mission of the Department:

1. Provide an enriched educational experience in artificial intelligence and machine learning, that students are technically competent.
2. Interact and collaborate with every industry segment and solving to mobilize the possibilities of   artificial intelligence and machine learning.
3. Create new computing technologies and solution for industry and society with high ethical and novel values.

Programme Educational Outcomes:

The Program Educational Objectives (PEOs) of the CSE (Artificial Intelligence and Machine Learning) represent major accomplishments that the graduates are expected to achieve after four years of graduation.

PEO1: Devise cutting edge solutions to the emerging technological problem.

PEO2: Practice lifelong learning by upskilling in advanced research in artificial intelligence and machine learning technologies.

PEO3: Function in their profession as socially responsible individuals adhering to the rich cultural and moral ethics.

Programme Specific Outcomes:

PSO1: Design and develop an intelligent automated system applying fundamental knowledge from mathematical, analytical programming and operational skills to solve the arising problems in the field of technology.

PSO2: Efficiently apply machine learning techniques to fit various business situations .

Curriculum Restructuring for UG programme B.E. Computer Science and Engineering (Artificial Intelligence and Machine Learning) under Regulation 2021 Revised

"U21AM402 - Algorithmics" course is included in the 4th Semester in the curriculum.

Reason: The course syllabus coverage focuses on different types of new algorithms. It's useful for the students to get placed in Dream/Super Dream IT companies with Higher Package.

"U21AM702 – Cloud and Bigdata Analytics" course is moved to 7th semester from 4th semester.

Reason: Because of the inclusion of "U21AM402 - Algorithmics" course in 4th Semester its moved to 7th Semester instead of "Social and Ethical Issues in AI"

Approval of Syllabus from 3rd to 8th Semesters

The following recommendation may be passed to the standing committee of the Academic Council that the choice-based credit system-based curriculum and syllabi from 4th to 8th semesters of B.E Computer Science and Engineering (Artificial Intelligence and Machine Learning) program under Regulations 2021 be passed with the suggestions.

S. No.	Semester	Name of the Courses
1.	Semester IV	U21AM401- Machine Learning I U21AM402- Algorithmics U21AM403- Machine Learning I Laboratory U21AM404- Algorithmics Lab U21AM405- Design Studio II
2.	Semester V	U21AM501 - Machine Learning II U21AM502- Internet and Web Programming U21AM503 - Machine Learning II Laboratory U21AM504- Internet and Web Programming Laboratory U21AM505 - Proto Studio I
3.	Semester VI	U21AM601 - Optimization Techniques U21AM602 - Deep Learning I U21AM603 - High-Performance Computing U21AM604 - Deep Learning I Laboratory U21AM605 - Proto Studio II
4.	Semester VII	U21AM701 - Deep Learning II U21AM702 - Cloud and Big Data Analytics U21AM703 - Deep Learning II Laboratory U21AM704 - Project Work Phase I
5.	Semester VIII	U21AM801 - Project Work Phase II
6.	Semester III-VI	U21AMI01- Industrial Training / Internship (4 weeks)

Dr. Hari Seetha suggested

- To conduct lab for the U21AM402 – Algorithmics subject to practice the problems with the time and space complexity of all the data structures algorithms.
- Include RNN in Deep Learning I
- Include Boltzmann machine in Deep Learning II
- Attention mechanisms and transformers will be given as two different units in Deep Learning II.
- Remove Boosting algorithms in Deep learning and ask to add in Machine Learning at last

Dr. Partha Pratim Roy Suggested

- In Machine Learning II, to include data pre-processing techniques and data visualization (Unit IV). And, to include the EMM algorithm (Unit IV)
- Basics of Reinforcement Learning to be included in Deep Learning I/II.
- Suggested Programming subjects' assessment through coding platforms.

Dr. Mohanraj Vengadachalam Suggested

- Suggested to include feature normalization in Machine Learning II (Unit 4) and to include Pre-processing techniques in Unit 3.
- Since Scikit Learn is used in Machine Learning I, its suggester to include the TensorFlow and PyTorch in Machine Learning II.
- To use Streamlit to show demonstration for Machine Learning Models and Deep Learning.
- To include how the back propagation works in Neural Network and CNN initially. Also to include weight initialization methods in back propagation (queue initialization) in this course.
- In Deep Learning I, Remove the Gradient Descent, Data augmentation techniques will be given in detail. Include the basics of NLP in Unit 5.
- In Deep Learning II, rephrase unit 1 & 2 and include NLP, one shot learning and instant segmentation for Mask R-CNN. To include hyper parameter tuning and transfer learning.

Mr. Aswathaman Ramachandran Suggested

- To include the need for optimizations like bias, variance, loss, and error calculation in Optimization Techniques (Unit I)
- Large language models (LLM) must include in any of the courses since its using in many industries.

Dr. Ranga Rajagopal Suggested

- To include emerging technologies such as Generative AI, Large Language Models, Multi LLMs in the Deep Learning II.
- Suggested to purchase few GPU Machines for ML/DL Laboratory practices.

Approval for Value Added Course (VAC)

The following courses has been approved as Value Added Courses for the students of B.E

Computer Science and Engineering (Artificial Intelligence and Machine Learning) program

under Regulations 2021.

S. No.	Name of the Value-Added Course
1.	Holistic Coding: Full Stack Unveiled
2.	The Art of C++: Crafting Code with Elegance

Approval for Industry One Credit Course (I-OCC)

The following courses has been approved as One Credit Courses by Industry for the students

of B.E Computer Science and Engineering (Artificial Intelligence and Machine Learning)
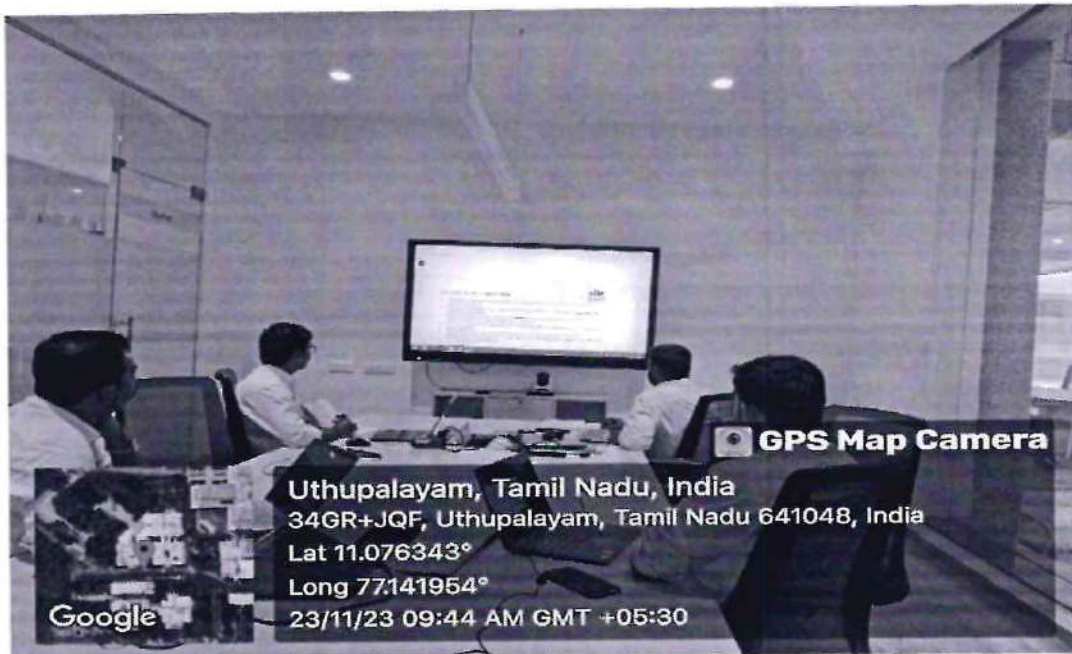
program under Regulations 2021.

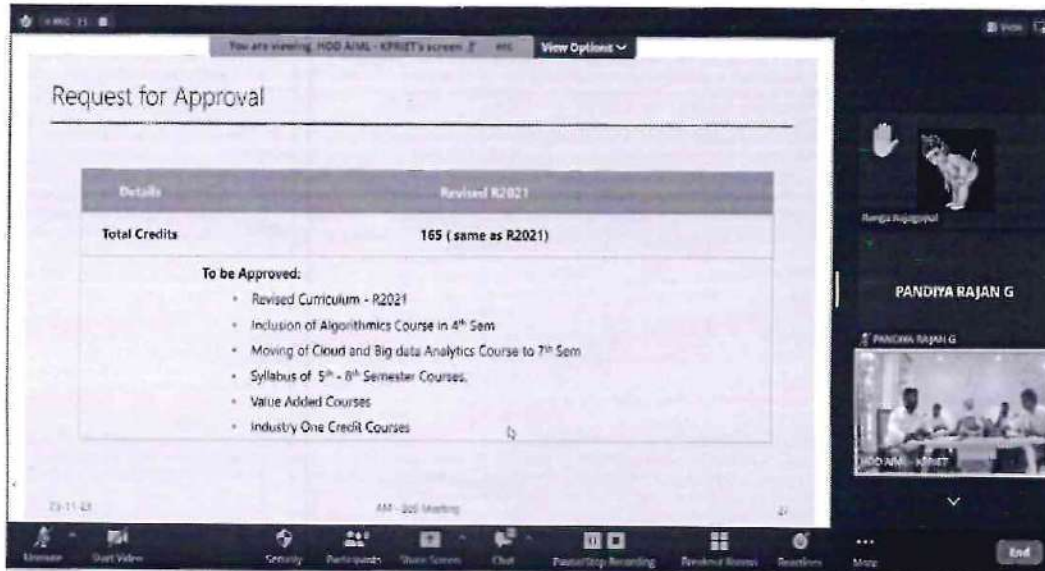| S. No.	Name of the Industry One Credit Course
1.	Data Visualization using PowerBI
2.	IoS Development
3.	Flutter Framework
4.	AWS Cloud

Any other matter: Nil

General Discussions

- Suggested to refer GATE Syllabus and include maximum content if possible recommended to Set GATE as a benchmark.

- To train students on deploying machine learning models with Streamlit, FastAPI and Docker. These are the most used tools for AI solutions in the industries.

- The industry needs highly skilled candidates in NLP such as Sentiment analysis, Chatbot developments, Machine Translation, etc. Hence board suggested us to give more projects related to NLP.

- Emerging Technologies such as Gen AI, Large language models (LLM), Multi LLMs shall be given as an Industry one credit course.

- Board Suggested to have Minimum number of GPU Machines for ML/DL Labs.

Department of CSE (Artificial Intelligence and Machine Learning)
KPR Institute of Engineering and Technology

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