



Innovative Teaching – Learning Activities

Use of AI for context building in first lecture

Class: SY, TY, BE

Objective:

1. To share various prompts for using ChatGPT/AI tool for Context Building in first lecture
2. To make the first lecture more interesting and interactive for students.
3. To use AI to help students understand the background and importance of the subject.
4. To generate thoughtful discussion by creating opportunities for students to think critically and discuss key concepts.

Activity details:

- Activity is conducted in all departments of the institute.
- Each course teacher used AI tools, specifically ChatGPT, to generate and utilize diverse prompts aimed at enhancing context building within their respective first lectures.
- The activity focused on creating a more engaging and interactive introductory experience for students by leveraging AI to develop relevant and thought-provoking content.
- Sample AI prompts for first lecture is given below

T. Y. B. Tech. Pattern 2022 Semester: VI

ETC223014D: Neural Network and Fuzzy Control (Elective -2)

Real-Life Problems That Neural Networks Solve

- **Autonomous Driving:** Ask, *"How does a Tesla recognize pedestrians, traffic signals, or lanes?"*
 - Highlight how neural networks process real-time images for decision-making.
- **Voice Assistants:** *"How does Alexa understand your voice and respond appropriately?"*
 - Explain how neural networks enable speech-to-text and contextual understanding.
- **Medical Diagnosis:** *"How can an AI detect diseases like cancer from medical images?"*
 - Discuss neural networks in image recognition for healthcare.

2. Real-Life Problems That Fuzzy Logic Solves

- **Washing Machines:** *"How does your washing machine adjust the water and time based on the load size and dirt level?"*
 - Explain fuzzy control in optimizing processes.
 - **Anti-Lock Braking System (ABS):** *"How does your car prevent skidding on slippery roads?"*
 - Describe how fuzzy logic ensures safe braking under uncertain conditions.
 - **Air Conditioning Systems:** *"How does an AC maintain a comfortable room temperature without constantly turning on and off?"*
 - Show how fuzzy controllers maintain smooth operations.
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3. Interactive Questions

- *"Have you ever wondered why Google Maps gives you the fastest route even when traffic changes?"*
 - *"Why do self-driving cars make fewer mistakes than human drivers?"*
 - *"Can machines mimic human decision-making in complex scenarios?"*
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4. Fun Demos or Visualizations

- **AI in Action:** Show a simple image classification demo using a pre-trained neural network. For example, classify cats and dogs.
 - **Fuzzy Control Simulation:** Use MATLAB/Simulink or Python to demonstrate how fuzzy logic controls a pendulum or balances a robot.
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5. Creative Analogies

- **Neural Networks:** Compare neurons in the brain to a network of "electronic decision-makers" that collectively solve problems.
 - **Fuzzy Logic:** Relate fuzzy logic to how humans make subjective decisions, like estimating "how warm" or "how fast."
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6. Inspire with Career Prospects

- Highlight fields like AI, robotics, and IoT where neural networks and fuzzy control are widely applied.

Impact of the activity:

1. Students were more engaged and asked more questions during the first lecture
2. The use of AI helped to create a more interactive and interesting start to the course.
3. Teachers found new ways to explain complex topics using AI-generated examples

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Class	Subject	Drive link of document
SY	Control systems	https://docs.google.com/document/d/1VHXwUeggduUtyVRTUPjtER58ix7be47Wk-RnM1SKpPU/edit?usp=sharing
	Microcontrollers	https://docs.google.com/document/d/1O5W0TifsO2MlSt7uERbd7uOKMepM5thIsKl4Jk9US8U/edit?tab=t.0#heading=h.vxyv3qe5jfwc
	Analog and Digital Communication	https://drive.google.com/file/d/1ZJ6Xj6H7jyTX5woi26zixkT3D-tnmjif/view?usp=sharing
	MDM2: Machine Learning for Engineering and science applications	https://docs.google.com/document/d/14tOaxg4Y4EkPrZxQMxNYNItRXqi3FQOqyZLuBy6UsUJk/edit?usp=sharing , https://docs.google.com/document/d/1o_KalqlCwT-2qBnOKchwqzKJca2abKC-z0SDrhCMGo4/edit?tab=t.0
	Foundations of Cyber Physical Systems	https://docs.google.com/document/d/18elDpd5xM4Ls3Cag9jOrv2eqGsYsMENLKNNo5yy7_Q/edit?usp=sharing
	Project management	https://docs.google.com/presentation/d/1L6T2Z2LChflf514ReSUMPe-mO6F8vxy7/edit?usp=drive_link&ouid=107363309225820794091&rtpof=true&sd=true
TY	Embedded Processor	https://docs.google.com/document/d/1G5038FJ1Z5ZkzC3dhXKWh7TA9t8pbravlxmE4Uy_xXA/edit?tab=t.0
	Power Electronics	https://docs.google.com/document/d/1Knhth-xbmNawvKeIlo8bUmPEOwbTg8zI/edit?usp=sharing&ouid=111370640747127028091&rtpof=true&sd=true
	Elective -2 Advanced Processor	https://docs.google.com/document/d/1LY8vYmBGxi07pcw7vKiPIC_dAw_k_zdjYd_m_5KFVOY/edit?usp=sharing
	Elective -2 Neral network and fuzzy control	https://drive.google.com/file/d/1gTJRWbUalzqpUFncsQGNi8yj3P5z5Hjt/view?usp=sharing
	Elective-3 FPGA based system design	https://docs.google.com/document/d/1yND0ggoYrJAV8KdmbKTGukRQIRzgiE5118Nvjwb0Ebw/edit?usp=sharing

	Elective 3 Automotive electronics	https://drive.google.com/file/d/1ClChkz_o5gV9uWvXV9n79NLBUTjtuDk1/view?usp=drivesdk
	Industry 4.0 and IIoT	https://docs.google.com/document/d/13-irD7Y0ZbzZB9XUd8R3F9bimM3FxOFtfkU4Z1Gvj_w/edit?tab=t.0
	Digital Marketting	https://docs.google.com/document/d/1XusNCQ7iZ-s8MqLmM4Qw7701OKO_b-d070dhD2pE51g/edit?usp=sharing
	Web Design	https://docs.google.com/document/d/1gOrS6bt0a2zILGH1PTuKMeZZ6gVnxt1eS1Zr1NA4O8I/edit?tab=t.0
	Digital CMOS Design	https://docs.google.com/document/d/1pS47NqHIXMz04Nh5EfQv9rRtvhrH_KVBu5dZmYgDP40/edit?tab=t.0
BE	Mobile Computing (Elective - 5)	https://docs.google.com/presentation/d/1J9Jps255HZ_BDpfGBxCcwJfyu99aoG6f/edit?usp=sharing&ouid=114798150159757475683&rtpof=true&sd=true , https://docs.google.com/presentation/d/1eVL1ojNPRiGW9gCgmfbu2LpkobWNDZbU/edit?usp=sharing&ouid=113430477613405199701&rtpof=true&sd=true
	Fiber Optic Communication	https://docs.google.com/document/d/1Q0XxzjngaEbAjF1JVVhJOxjEGCXDPMNV/edit?usp=drive_link&ouid=114864205181907464001&rtpof=true&sd=true
	Elective - 6-Digital Marketing	https://docs.google.com/document/d/18IvO7SYe4xeMBYQ-y4idqSI5BEmAIKzf11bn-JTr_1s/edit?usp=sharing
	Innovation & Entrepreneurship	https://docs.google.com/document/d/1vzIYgyFtAFnzGiwSzCClK_OQMbfIijMFi0URh1rEr18/edit?tab=t.0
	Digital Business Management	https://docs.google.com/presentation/d/1HfU0c-S4goYQXn3I9vNNR6tTCIjWIRng/edit?usp=drive_link&ouid=107363309225820794091&rtpof=true&sd=true