ATRIA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ISE

DEPT. OF INFORMATION SCIENCE & ENGINEERING

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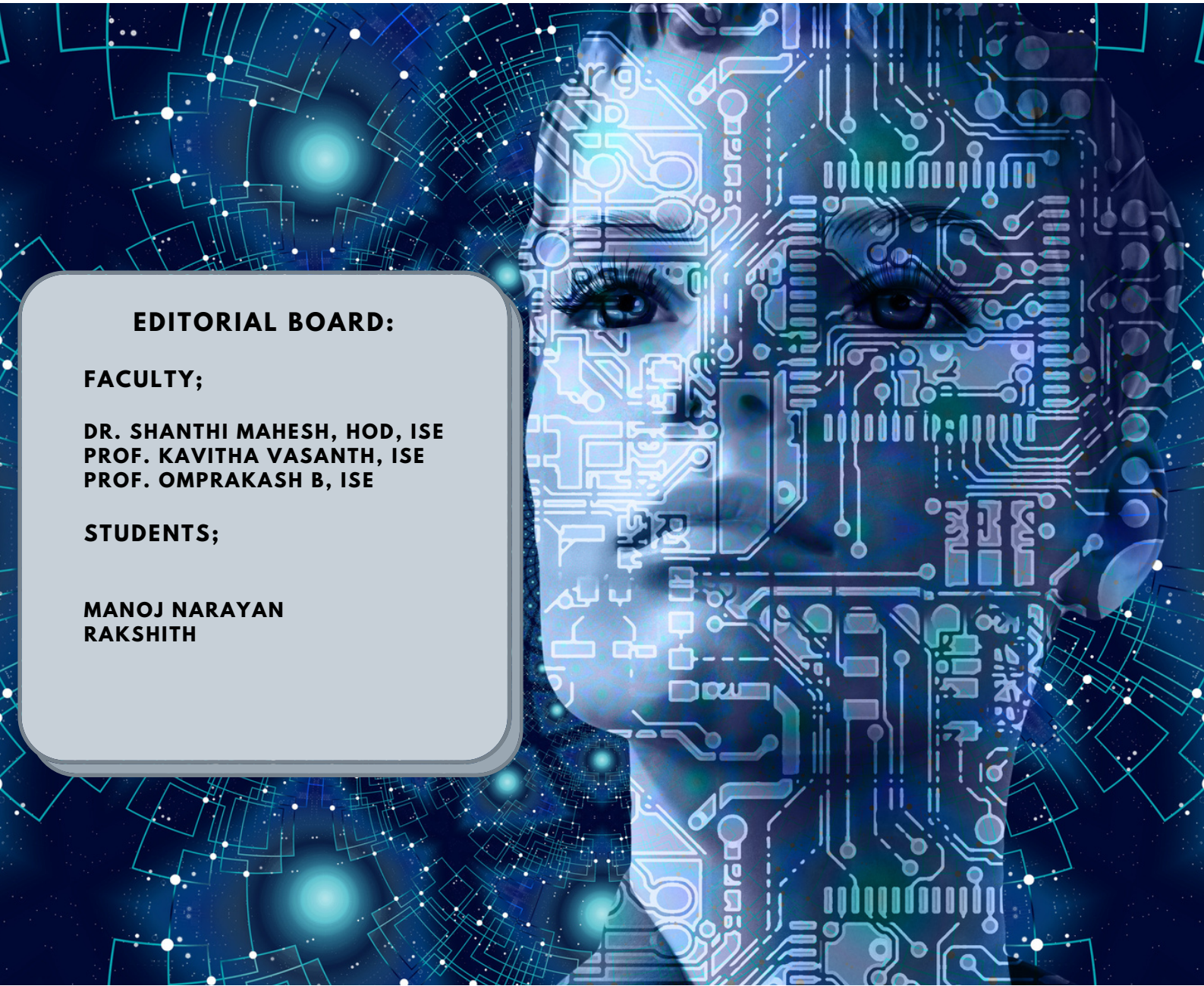
EVENTS | ARTICLES | ACTIVITIES



WEBINARS/ WORKSHOPS/EVENTS/ACTIVITIES

Dept of ISE organized a software tsting workshop by Moolya Ed on 6th July 2023.
This workshop was coordinated by Prof. Kavitha Vasanth.

Dept of ISE organized an SDP on Artificial Intelligence & Machine learning by Edunet Foundation on 13 July 2023. This was coordinated by Dr. Jyoti Metan.

Dept of ISE organized a Tech Talk on web 3.0 summit by Larvol, San Fransisco on 17 July 2023. This was coordinated by Prof. Kavitha Vasanth.

WEBINARS/ WORKSHOPS/EVENTS/ACTIVITIES

Dept of ISE organized a webinar on 'Empowering AI skills hrough Chat GPT' by Akshay Rajshekharan, Founde, Real Knowledge club' on 19th July 2023. This webinar was coordinated by Prof. Kavitha Vasanth.

ARTICLES

THE BIONIC EYE

Prof. Kavitha Vasanth

BIONIC EYE IS THE ELECTRICAL PROSTHESIS SURGICALLY IMPLANTED INTO A HUMAN EYE IN ORDER TO ALLOW FOR THE TRANSDUCTION OF LIGHT (THE CHANGE OF LIGHT FROM THE ENVIRONMENT INTO IMPULSES THE BRAIN CAN PROCESS) IN PEOPLE WHO HAVE SUSTAINED SEVERE DAMAGE TO THE RETINA.

THE RETINA IS A LIGHT-SENSITIVE TISSUE LAYER FOUND WITHIN THE INNER EYE THAT TRANSFORMS IMAGES OBTAINED FROM THE OUTSIDE WORLD INTO NEURAL IMPULSES, WHICH ARE THEN PASSED ALONG THE OPTIC NERVE TO THE THALAMUS AND ULTIMATELY TO THE PRIMARY VISUAL CORTEX (THE VISUAL PROCESSING CENTRE), LOCATED IN THE OCCIPITAL LOBE OF THE BRAIN. PEOPLE WHO ARE MOST LIKELY TO BENEFIT FROM A BIONIC EYE ARE MIDDLE-AGED OR ELDERLY WITH VERY POOR VISION ASSOCIATED WITH AGE-RELATED MACULAR DEGENERATION (A CONDITION THAT CAUSES DEGENERATION IN THE CELLS FOUND IN THE CENTRE OF THE RETINA) OR RETINITIS PIGMENTOSA (A GROUP OF HEREDITARY DISEASES THAT DESTROY PHOTOSENSITIVE ROD AND CONE CELLS IN THE RETINA). WHILE THE RETINA IS DAMAGED BY THOSE DISEASES, THERE MUST BE SOME RETINAL GANGLION CELLS THAT REMAIN INTACT IN ORDER FOR THE BIONIC EYE TO FUNCTION AS INTENDED. AFFECTED INDIVIDUALS MUST HAVE BEEN ABLE TO SEE AT SOME POINT IN THEIR LIVES IN ORDER TO CREATE THE NERVE CONNECTIONS IN THE BRAIN FOR THE DEVICE TO FUNCTION. EXTENSIVE DAMAGE TO THE OPTIC NERVE OR VISUAL CORTEX ALSO RENDERS BIONIC EYE IMPLANTATION USELESS.

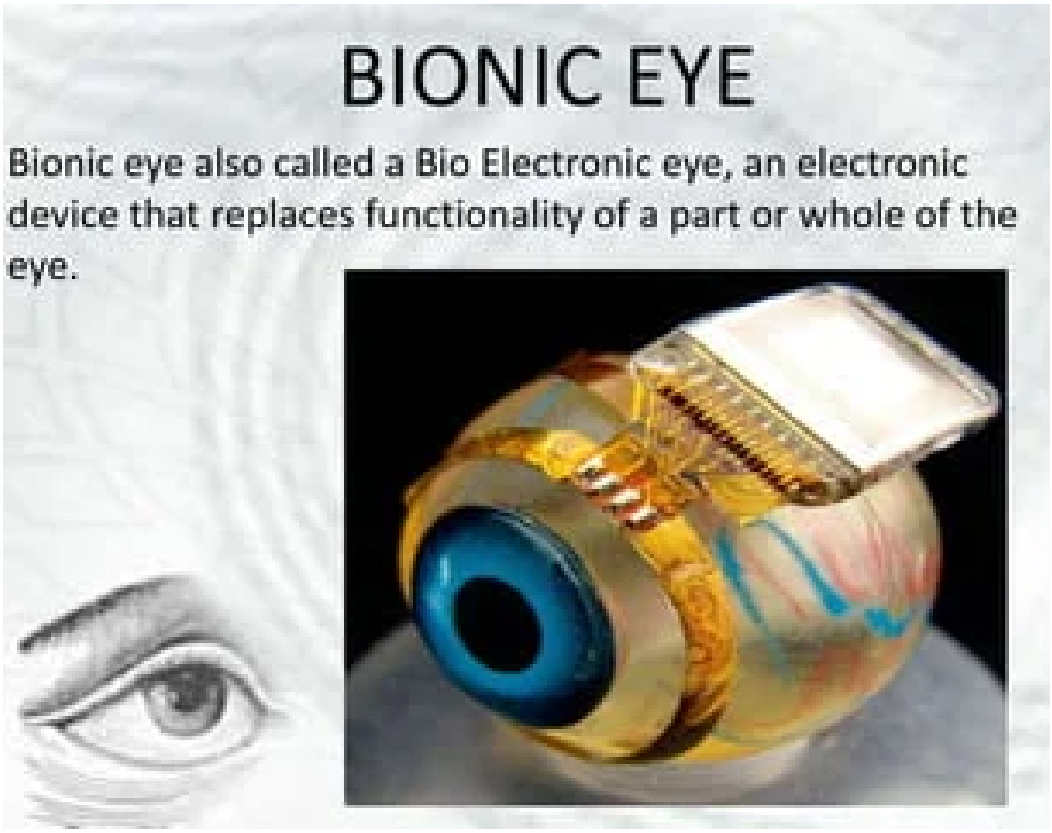
THE BIONIC EYE COMPRISES AN EXTERNAL CAMERA AND TRANSMITTER AND AN INTERNAL MICROCHIP. THE CAMERA IS MOUNTED ON A PAIR OF EYEGLASSES, WHERE IT SERVES TO ORGANIZE THE VISUAL STIMULI OF THE ENVIRONMENT BEFORE EMITTING HIGH-FREQUENCY RADIO WAVES. THE STIMULATOR MICROCHIP CONSISTS OF AN ELECTRODE ARRAY THAT IS SURGICALLY IMPLANTED INTO THE RETINA. THAT FUNCTIONS AS AN ELECTRICAL RELAY IN PLACE OF DEGENERATED RETINAL CELLS. THE RADIO WAVES THAT ARE EMITTED BY THE EXTERNAL CAMERA AND TRANSMITTER ARE RECEIVED BY THE STIMULATOR, WHICH THEN FIRES ELECTRICAL IMPULSES. THE IMPULSES ARE RELAYED BY THE FEW REMAINING RETINAL CELLS AND ARE TRANSDUCED AS NORMAL TO THE OPTIC NERVE PATHWAY, RESULTING IN VISION.

ARTICLES

THE BIONIC EYE (CONTD..)

THE FIRST IMPLANTATION OF A RUDIMENTARY VERSION OF THE BIONIC EYE WAS REPORTED IN 2012. THE PATIENT, WHO SUFFERED FROM PROFOUND VISION LOSS AS A RESULT OF RETINITIS PIGMENTOSA, REPORTED BEING ABLE TO SEE LIGHT BUT NOT BEING ABLE TO MAKE DISTINCTIONS WITHIN THE ENVIRONMENT. THE FIRST MODEL WAS CREATED BY THE AUSTRALIAN COMPANY BIONIC VISION AUSTRALIA. MORE-ADVANCED TECHNOLOGIES DEVELOPED SINCE THEN HAVE BEEN USED IN NEWER MODELS IMPLANTED INTO PATIENTS WHOSE VISION WAS AFFECTED BY RETINITIS PIGMENTOSA. THE IMPROVED MODELS HAVE ALLOWED PATIENTS GLIMPSES OF THEIR ENVIRONMENTS, ENABLING THEM TO MAKE OUT ABSTRACT IMAGES, THOUGH THEIR VISION HAS NOT BEEN FULLY REGAINED.

FURTHER RESEARCH COULD RAISE THE LEVEL OF ACUITY THAT THE BIONIC EYE PROVIDES, AND DIFFERENT MATERIALS, SUCH AS DIAMOND, ARE BEING TESTED FOR THEIR EFFECTIVENESS IN THE IMPLANT. LONG-TERM EFFECTS OF THE IMPLANTATION OF A BIONIC EYE REMAIN UNKNOWN.



VISION

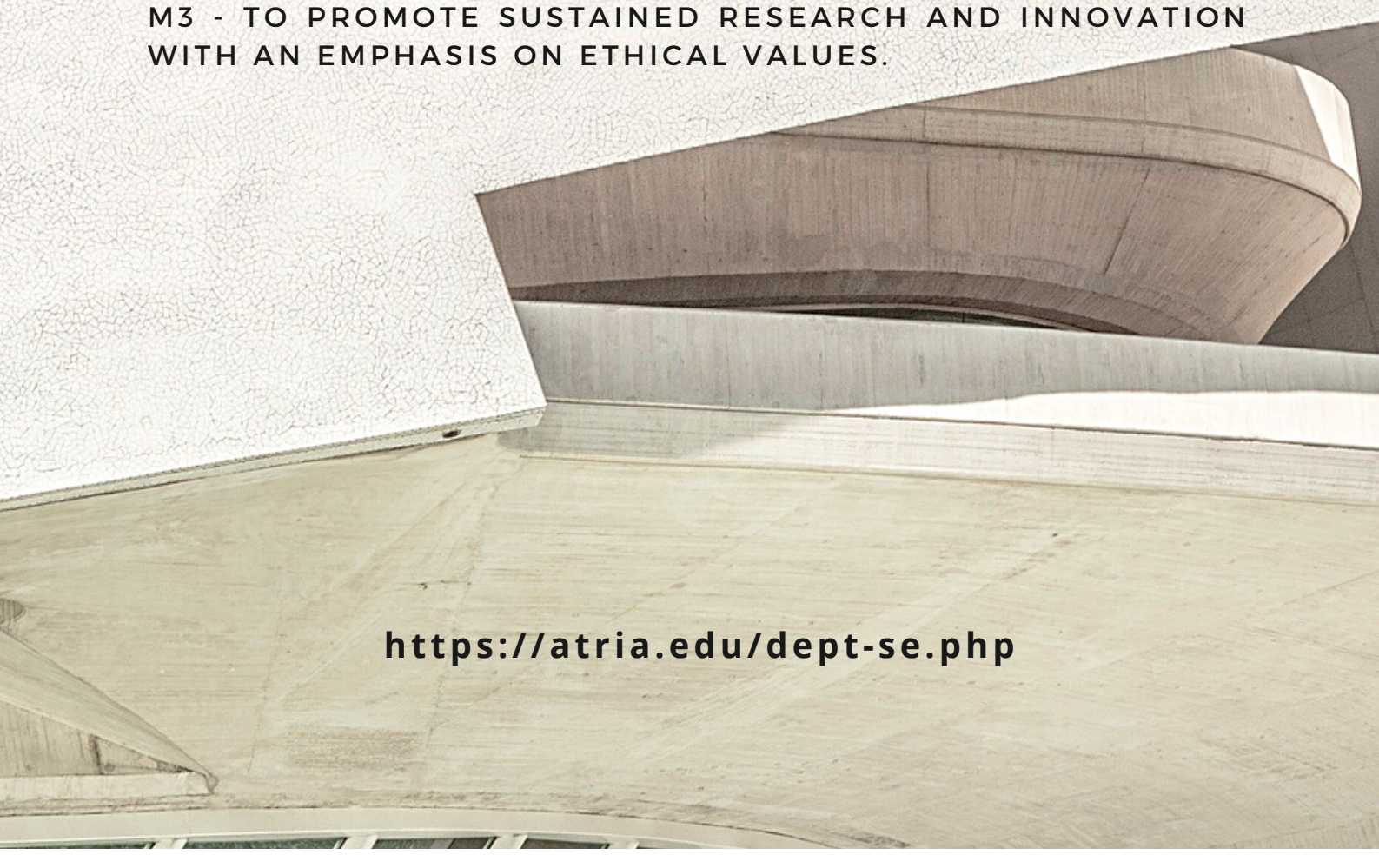
TO DEVELOP COMPETENT PROFESSIONALS WITH STRONG FUNDAMENTALS IN INFORMATION SCIENCE AND ENGINEERING, INTERDISCIPLINARY RESEARCH AND ETHICAL VALUES FOR THE BETTERMENT OF THE SOCIETY.

MISSION

M1 - TO ESTABLISH A TRANSFORMATIONAL LEARNING AMBIENCE WITH GOOD INFRASTRUCTURE FACILITIES TO IMPART KNOWLEDGE AND THE NECESSARY SKILL SET TO PRODUCE COMPETENT PROFESSIONALS.

M2 - TO CREATE A NEW GENERATION OF ENGINEERS WHO EXCEL IN THEIR CAREER WITH LEADERSHIP/ENTREPRENEUR QUALITIES.

M3 - TO PROMOTE SUSTAINED RESEARCH AND INNOVATION WITH AN EMPHASIS ON ETHICAL VALUES.



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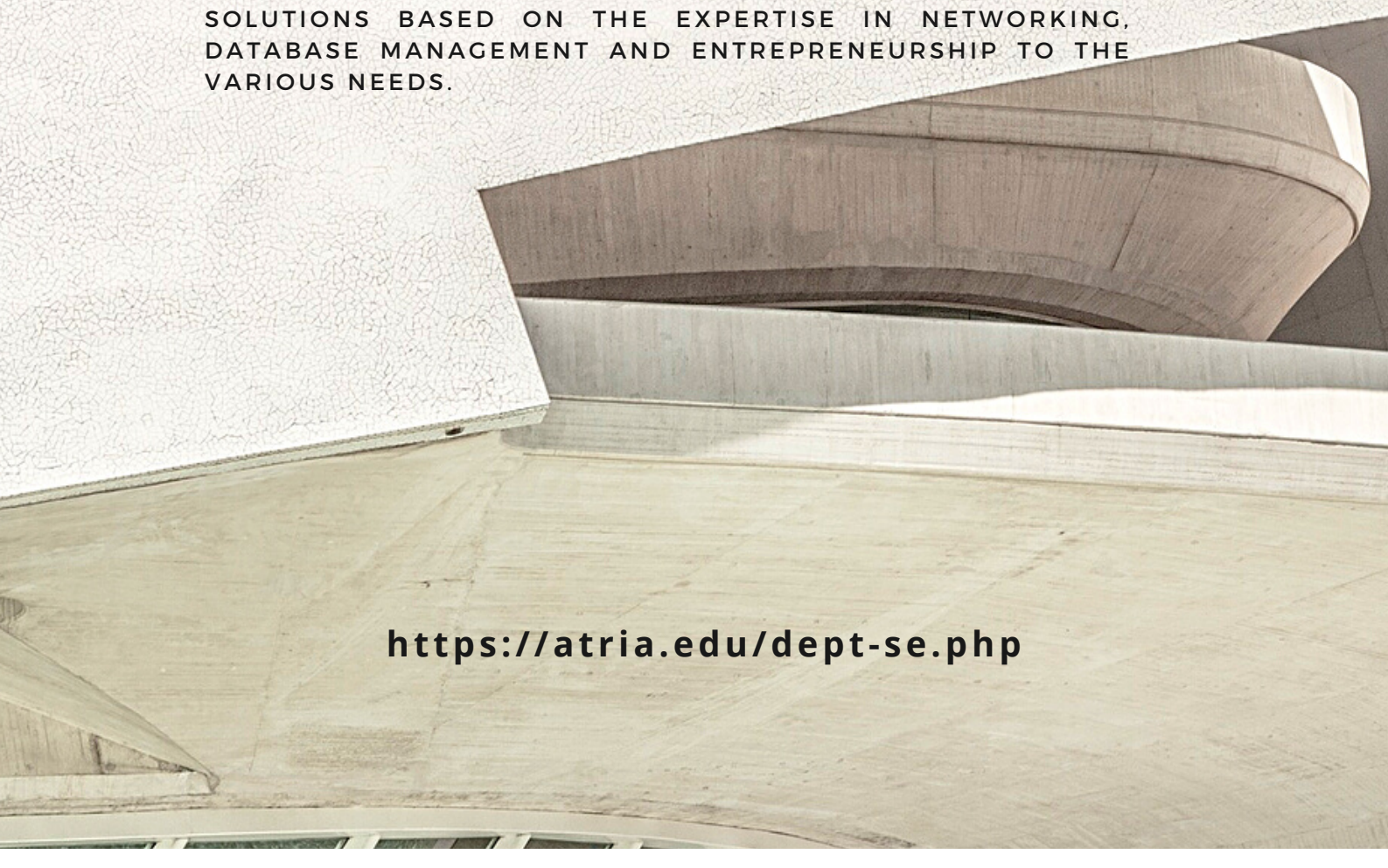
EDUCATIONAL OBJECTIVES OF THE PROGRAM(PEO)

PEO1: TO EXPERTISE IN PROBLEM ANALYSIS, SOLVING, DESIGN, DEVELOPMENT AND NECESSARY INFORMATION TO MEET TECHNICAL AND MANAGERIAL CHALLENGES.
PEO2: TO PURSUE INTERDISCIPLINARY RESEARCH AND HIGHER STUDIES WITH PROFOUND KNOWLEDGE ENRICHED WITH ACADEMICS AND INFORMATION TECHNOLOGY SKILLS.
PEO 3: TO EXCEL IN COMPETITIVE ENVIRONMENT TOWARDS LEADERSHIP AND LIFE-LONG LEARNING FOR A SUCCESSFUL PROFESSIONAL CAREER.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO1: ABLE TO FIND THE SOLUTIONS TO PROBLEMS USING PROGRAMMING LANGUAGES BY APPLYING THE SUITABLE DATA AND FILE STRUCTURES CONCEPT AND OBTAIN OPTIMAL PERFORMANCE THROUGH DESIGN AND ANALYSIS OF ALGORITHMS.
PSO2: ABLE TO WORK ON THE RECENT TECHNOLOGIES BY MANAGING AND ORGANIZING THE PROCESSED DATA FOR NEW GROWTH OF OPPORTUNITIES IN THE INDUSTRIES EXPLORING WEB DESIGNING AND SIMULATING THE REAL WORLD PROBLEMS.
PSO3: ABLE TO APPLY THE PRINCIPLES OF SOFTWARE ENGINEERING TO DEVELOP COMPUTATIONAL MODELS UNDER REALISTIC CONSTRAINTS AND ABILITY TO PROVIDE SOLUTIONS BASED ON THE EXPERTISE IN NETWORKING, DATABASE MANAGEMENT AND ENTREPRENEURSHIP TO THE VARIOUS NEEDS.



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