Bachelor of Science in Information Technology (Honours) (Artificial Intelligence)

Learning outcomes:

As a graduate, you will be able to identify, leverage, and grasp opportunities to apply AI techniques to solve real-world problems and to engage in the study of AI. You will be expected to cope with key challenges in computing such as how to perceive the environment, represent human knowledge, use computational models to understand, explain and predict complex behaviour of individuals, groups, and systems, and make computational devices as natural to interact with as people.

The compulsory study-units in the programme of study will give you the background in Computer Science and Artificial Intelligence. If you perform well in examinations and assignments, you will be able to grasp advanced concepts in Artificial Intelligence and can demonstrate your knowledge and understanding of these concepts by satisfying the requirements of the advanced study-units. In particular, you will be able to identify opportunities for applying AI techniques to solve real-world problems; recognise when the use of AI techniques to solve problems is beneficial; design and implement solutions; justify your approach; identify how your solution should be evaluated and carry out the evaluation. The Final Year Project gives you the opportunity to show-case your ability to independently carry out research, apply your knowledge and understanding to analyse and solve or partially solve a problem using AI techniques, clearly describe and justify your approach in a scientific and mature manner, and demonstrate the ability to recognise the contribution you have made by drawing appropriate conclusions based on the success of their approach.

Artificial Intelligence is an intellectually challenging area of study. To be successful, you must not only demonstrate an understanding of fundamentals of Computer Science, but must be able to devise heuristics and partial solutions to build systems that are capable of solving problems that traditionally require human "intelligence" to solve. Students must be creative and innovative to identify problems that are worth solving - and these opportunities are increasing as more information is made available via the WWW, and computational devices become increasingly capable of using data and information from the environment around us, and are increasingly used to modify our perspective of, or to enable us to better interact with, the environment around us - and to identify and reason about solutions that can be demonstrated to work or to support human activities.

You will demonstrate their intellectual skills by:

- Investigating prior work in the domain and comparing previous approaches to identify relevant solutions.
- Specifying why and how prior work is relevant and applying it to a chosen or given problem.

- Planning and organising research-based and design and implementation oriented tasks, and writing a critical analysis of the prior work and a justified approach to their solution in a scientific and mature manner.
- Assessing possible approaches to evaluation, justifying the chosen approach, carrying out the chosen evaluation, and describe the evaluation.
- Analysing the results of the evaluation to demonstrate the success of their solution, or if it fails, to explain the failure and how their approach could be improved.
- Judging their work objectively by drawing logical and appropriate conclusions that are consistent with the prior work, chosen approach, evaluation results and analysis of the results obtained.

You will demonstrate their key/transferable and professional and practical skills by:

- Using the correct tools and materials to presents different aspects of their work.
- Using the correct tools and AI techniques to solve different problems in different contexts.
- Applying general and personal skills in relation to report writing and presentations.
- Carrying out research, analysis, design, implementation, and evaluation independently.
- Solving problems in a justifiable and appropriate manner; Working as part of a team. Applying ethical approaches.