**Module Name: Deep Learning**

**Module Code: CT100-3-M-DL**

**Individual Assignment1 and Assignment 2 together carry 100% of the total assessment grade.**

**Learning Outcomes**

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| CLO1 | Analyse main variants of deep learning and their typical applications (C4,PLO2) | Assignment 1 |
| CLO2 | Justify deep learning algorithms which are more appropriate for various types of learning tasks in various domains (A5, PLO9) | Assignment 2 |
| CLO3 | Adapt deep learning algorithms to solve real-world problems (P6, PLO3) |

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| **Marking Criteria** | **Marks** | **Total Marks Allocation** |
| **Assignment 1:** | | **Weightage 40 %** |
| Introduction and background. | 10 |  |
| Description of the domain knowledge and problem chosen. | 30 |  |
| Justification of selected deep learning algorithm | 20 |  |
| Discussion on methods and references | 40 |  |
| **Assignment 1 Total** | **100** |  |
|  | |  |
| **Assignment 2** | | **Weightage 60%** |
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| Model Implementation | 40 |  |
| Tuning, Validation | 30 |  |
| Visualization and Critical Analysis | 30 |  |
| **Assignment 2 Total** | **100** |  |
|  | | |
| **TOTAL** | | **100** |

**Detailed Marking Schemes**

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| **Assignment 1 (40%)** |  |  |  |  |
|  | **Distinction** | **Merit** | **Pass** | **Fail** |
|  | **75 - 100** | **65 - 74** | **50 - 64** | **0 - 49** |
| Introduction and Background  (10%) | Excellent and comprehensive presentation of title, abstract, introduction and background. Originality in idea and writing | Title is present. Key terms in the title are introduced. Abstract is comprehensive. Introduction and background are clearly and logically presented. Problem is well contexted in its background. Originality in writing. | Missing title or key terms not introduced. Abstract doesn’t cover the contents of the full document. Introduction and background are brief | Either title or abstract or both are missing. Insufficient introduction of the domain. Key terms in the title are not introduced. Missing or insufficient background to the problem addressed. |
| Description of the domain knowledge and problem chosen (20%) | Excellent coverage of all required components. Significance and contributions are clearly highlighted and are of high standard. | All the required information: problem description, aim, objectives and significance are present. Comprehensive and logical explanation. Significance and contribution of the proposed work is of good standard. | One of the required information: problem description, aim, objectives and significance. Explanation is satisfactory. | Two or more of the required information: problem description, aim, objectives and significance. Explanation is incomplete and/or lacks clarity. |
| Justification of selected deep learning algorithm (40%) | Excellent and comprehensive review of related work. Comprehensive presentation of summary both in text and table. Excellent critical analysis with originality in presentation. | Good coverage of related work. Presents the summary in text as well as a table. Includes critical analysis leading to the proposed work | Satisfactory coverage of related work. A table of comparison is presented. Brief summary of individual references is present but lacks in overall summary. Doesn't find gaps and lead to the proposed work. | Missing or inadequate review and citations of sources, outdated and unreliable references, poor format with many mistakes. Doesn’t summarise related work and doesn’t lead to the proposed work |
| Discussion on Methods and References  (30%) | Excellent and comprehensive explanation of the model concept including the discussion on data structures at various stages of the model. Evaluation metrics are with justification. Good description of the dataset with valuable insights together with reference. All references are recent. Referencing is error free. | Very good explanation of the model with graphical illustration and evaluation metrics. Good description of the dataset with valuable insights into the dataset together with reference. References are recent. Error free referencing. | Satisfactory explanation of the model and evaluation metrics. Satisfactory description of the dataset with reference provided. Most references are recent and some errors exist in referencing. | Doesn’t explain the model. Evaluation metrics are included but not explained. choice not justified. Dataset is mentioned but not detailed. Doesn't include reference to the dataset. References to the model are not given. References in the document are old (before 2015) and insufficient. Referencing format has errors. |

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| **Assignment 2 (60%)** |  |  |  |  |
|  | Distinction | Merit | Pass | Fail |
|  | 75 - 100 | 65 - 74 | 50 - 64 | 0 - 49 |
| Model Implementation (40%) | Includes modified design or learning methods with novel ideas, includes justification. Involves good effort in implementation, very good code comments with comprehensive explanation. | Includes tweaking on the model, learning method. Or model modified to suit a new dataset, includes justifications. A reasonably challenging model implementation. Well commented code. | Minor modifications in the model or a modified training method or model applied on a new dataset. A simplistic idea with minor challenges in implementation. Some parts of the code are commented. | Selects an existing model and training methods without justification. Doesn’t include challenges in applying the model. Code is not commented. |
| Tuning, Validation  (30%) | Comprehensive tuning process, detailed code comments and explanation, final model is trained and validated. Model works perfectly. Results are well documented and compared with peer models. | Most of the hyper parameters are tuned. Code is commented well. Final model is built and validated. Model works satisfactorily. Results are well documented and compared with peer models. | Some parameter tuning is included. Code is commented partially. Includes Final model training. Model works satisfactorily. Results are presented and compared with the basic model. | Doesn’t include tuning of hyper parameters. Basic result presentation. |
| Visualization and Critical Analysis  (30%) | Excellent visualization of the complete model, various metrics and intermediate output during training. | Visualization of the model architecture and performance measures during training. | Basic visualization of the model. Includes some critical analysis. | Very minimal or no visualization. Doesn’t include critical analysis of the results. |

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| **Assignment 1 - Week 7 (40%)** | |  |  |  |  |  |  |  |  |
| **Question No.** |  | **Question Vs Taxonomy** | | | | | | |  |
|  | **Cognitive Level** | | | | | | |  |
| **Topic** | **1** | **2** | **3** | **4** | **5** | **6** |  | **PLO** |
|  | **SQ** | **SQ** | **SQ** | **SQ** | **SQ** | **SQ** |  |  |
|  | Introduction and background. |  |  |  | 10% |  |  |  | 2 |
|  | Description of the domain knowledge and problem chosen. |  |  |  | 20% |  |  |  | 2 |
|  | Justification of selected deep learning algorithm |  |  |  | 40% |  |  |  | 2 |
|  | Discussion on methods and references |  |  |  | 30% |  |  |  | 2 |
|  | **Total** |  |  |  | **100%** |  |  |  |  |

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| **Assignment 2 - Final (60%)** | | |  |  |  |  |  |  |  |
| **Question No.** |  | **Question Vs Taxonomy** | | | | | | |  |
|  | **Psychomotor Level** | | | | | | |  |
| **Topic** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **PLO** |
|  | **SQ** | **SQ** | **SQ** | **SQ** | **SQ** | **SQ** | **SQ** |  |
|  | Model Implementation |  |  |  |  |  | 40% |  | 3 |
|  | Tuning, Validation |  |  |  |  |  | 30% |  | 3 |
|  | **Total** |  |  |  |  |  | **70%** |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Question No.** |  | **Question Vs Taxonomy** | | | | | | |  |
|  | **Affective Level** | | | | | | |  |
| **Topic** | **1** | **2** | **3** | **4** | **5** |  |  | **PLO** |
|  | **SQ** | **SQ** | **SQ** | **SQ** | **SQ** |  |  |  |
|  | Visualization and Critical Analysis |  |  |  |  | 30% |  |  | 9 |
|  | **Total** |  |  |  |  | **30%** |  |  |  |

**Overall Marking Criteria**

The following guidelines indicate the standard that will be expected for each grade.

**Distinction (75% and above)**

Demonstrates an excellent understanding of case study, proposed Big Data Analytics solution for the domain. The report features detailed analysis on the case study. Documentation will be high standard of content delivery. The student will be able to discuss his/her problem statement, analyse the best method, strategies and key components within the proposed solution. Excellent presentation of work with details of effort and research undertaken and ability to explain the way in which he/she has attempted the case study.

**Merit (65 – 74%)**

Demonstrates a good understanding of the problem. Average discussion on the selected tools, methodologies and content. The report feature, almost all learning outcome with relevant discussion will be satisfactorily implemented. Documentation will be satisfactory with minor / lack in detailed discussion. The student will be able to discuss his/her idea at the presentation and will be able to explain the way in which he/she has attempted the project.

**Pass (50 – 64%)**

Demonstrates some understanding of the problem. The proposed solution will be implementable although with some errors and/or omissions. The assumptions for the proposed solution with relevant strategies will be logical but with some errors and/or omissions. The proposed data processing will be satisfactorily implemented though with some errors and/or omissions. Documentation will be adequate. The student will be able to discuss his/her implementation at the presentation and will be able to explain the way in which he/she has attempted the project.

**Fail** (**0 - 49%)**

Demonstrates poor understanding of the problem / does not understand the problem. The report/ case study solution partially / not implemented. The assumptions for the case study do not reflect the scenario. The idea / proposed solution has limited discussion and major errors and/or omissions. Documentation incomplete. Poor explanation during demo.