

Faculty of Engineering, School of Computer Science & Engineering  
Department of Artificial Intelligence & Machine Learning

Degree: B. Tech. CSE (AIML)

Total Credit: 180 (160 + 20\*)

|                      | Third Semester                                                                   |    |   |   |    |                  | Fourth Semester                                                       |    |   |   |    |
|----------------------|----------------------------------------------------------------------------------|----|---|---|----|------------------|-----------------------------------------------------------------------|----|---|---|----|
| Code                 | Subject Name                                                                     | L  | T | P | C  | Code             | Subject Name                                                          | L  | T | P | C  |
| MAS21XX <sup>i</sup> | Statistics & Probability                                                         | 3  | 0 | 0 | 3  | MEE22XX          | Engineering Economics                                                 | 3  | 0 | 0 | 3  |
| MBB21XX              | Management of Technology                                                         | 3  | 0 | 0 | 3  | AIM2201          | Design and Analysis of Algorithms                                     | 3  | 1 | 0 | 4  |
| AIM2101              | Data Structures and Algorithms                                                   | 3  | 1 | 0 | 4  | AIM2202          | Operating Systems                                                     | 3  | 1 | 0 | 4  |
| AIM2102              | Relational Database Management System                                            | 3  | 1 | 0 | 4  | AIM2220/AI M2221 | Software Engineering & Project Management /Agile Software Development | 3  | 1 | 0 | 4  |
| AIM2103              | Principles of Artificial Intelligence                                            | 3  | 1 | 0 | 4  | AIM22XX          | Program Elective 1                                                    | 3  | 0 | 0 | 3  |
| AIM2120/ AIM2121     | Object Oriented Programming using Python/ Object Oriented Programming using Java | 3  | 1 | 0 | 4  | AIM0001          | Open Elective 1                                                       | 3  | 0 | 0 | 3  |
| AIM2130              | Data Structures and Algorithms Lab                                               | 0  | 0 | 2 | 1  | AIM2230          | Design and Analysis of Algorithms Lab                                 | 0  | 0 | 2 | 1  |
| AIM2131              | Relational Database Management System Lab                                        | 0  | 0 | 2 | 1  | AIM2231          | Operating Systems Lab                                                 | 0  | 0 | 2 | 1  |
| AIM2170              | Project-based Learning 1                                                         | 0  | 0 | 2 | 1  | AIM2270          | Project-based Learning 2                                              | 0  | 0 | 2 | 1  |
|                      |                                                                                  | 18 | 4 | 6 | 25 |                  |                                                                       | 18 | 3 | 6 | 24 |
|                      | Total Contact Hours (L+T+P)                                                      | 28 |   |   |    |                  | Total Contact Hours (L+T+P)                                           | 27 |   |   |    |
|                      | Fifth Semester                                                                   |    |   |   |    |                  | Sixth Semester                                                        |    |   |   |    |
| Code                 | Subject Name                                                                     | L  | T | P | C  | Code             | Subject Name                                                          | L  | T | P | C  |
| AIM3101              | Machine Learning                                                                 | 3  | 1 | 0 | 4  | AIM3201          | Deep Learning                                                         | 3  | 1 | 0 | 4  |
| AIM3102              | Automata Theory & Compiler Design                                                | 3  | 1 | 0 | 4  | AIM32XX          | Program Elective 4                                                    | 3  | 0 | 0 | 3  |
| AIM3120/ AIM3121     | Computer Networks/ Data Communication and Networking                             | 3  | 1 | 0 | 4  | AIM32XX          | Program Elective 5                                                    | 3  | 0 | 0 | 3  |
| AIM31XX              | Program Elective 2                                                               | 3  | 0 | 0 | 3  | AIM32XX          | Program Elective 6                                                    | 3  | 0 | 0 | 3  |
| AIM31XX              | Program Elective 3                                                               | 3  | 0 | 0 | 3  | AIM0003          | Open Elective 3                                                       | 3  | 0 | 0 | 3  |

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|             |                                                              |           |          |          |          |             |                                     |           |          |          |          |
|-------------|--------------------------------------------------------------|-----------|----------|----------|----------|-------------|-------------------------------------|-----------|----------|----------|----------|
| AIM0002     | Open Elective 2                                              | 3         | 0        | 0        | 3        | AIM3202     | Professional Practice               | 0         | 0        | 2        | 1        |
| AIM3130     | Machine Learning Lab                                         | 0         | 0        | 2        | 1        | AIM3230     | Deep Learning Lab                   | 0         | 0        | 2        | 1        |
| AIM3131     | Computer Networks Lab/ Data Communication and Networking Lab | 0         | 0        | 2        | 1        | AIM3231     | Emerging Tools and Technologies Lab | 0         | 0        | 2        | 1        |
| AIM3170     | Project-based Learning 3                                     | 0         | 0        | 2        | 1        | AIM3270     | Project-based Learning 4            | 0         | 0        | 6        | 3        |
| AIM3180     | Research Methodology                                         | 3         | 0        | 0        | 3        | AIM328X*    | Honors Elective1                    | 3         | 0        | 0        | 3        |
|             |                                                              | 21        | 3        | 6        | 27       |             |                                     | 18        | 1        | 12       | 25       |
|             | <b>Total Contact Hours (L+T+P)</b>                           | <b>30</b> |          |          |          |             | <b>Total Contact Hours (L+T+P)</b>  | <b>31</b> |          |          |          |
|             | <b>Seventh Semester</b>                                      |           |          |          |          |             | <b>Eighth Semester</b>              |           |          |          |          |
| <b>Code</b> | <b>Subject Name</b>                                          | <b>L</b>  | <b>T</b> | <b>P</b> | <b>C</b> | <b>Code</b> | <b>Subject Name</b>                 | <b>L</b>  | <b>T</b> | <b>P</b> | <b>C</b> |
| AIM41XX     | Program Elective 7                                           | 3         | 0        | 0        | 3        | AIM4270     | Major Project                       | –         | –        | –        | 12       |
| AIM41XX     | Program Elective 8                                           | 3         | 0        | 0        | 3        | AIM428X*    | Honors Project                      | –         | –        | –        | 8        |
| AIM00XX     | Open Elective 4                                              | 3         | 0        | 0        | 3        |             |                                     |           |          |          |          |
| AIM00XX     | Open Elective 5                                              | 3         | 0        | 0        | 3        |             |                                     |           |          |          |          |
| AIM4170     | Internship (Industry or Research)                            | 0         | 0        | 2        | 1        |             |                                     |           |          |          |          |
| AIM418X*    | Honors Elective 2                                            | 3         | 0        | 0        | 3        |             |                                     |           |          |          |          |
| AIM418X*    | Honors Elective 3                                            | 3         | 0        | 0        | 3        |             |                                     |           |          |          |          |
|             |                                                              | 18        | 0        | 2        | 19       |             |                                     |           |          |          | 20       |
|             | <b>Total Contact Hours (L+T+P)</b>                           | <b>20</b> |          |          |          |             | <b>Total Contact Hours (L+T+P)</b>  | <b>20</b> |          |          |          |

| Flexi Core                                                                                                             |                                                                                                             |                                                                                             |
|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Flexi Core 1 (III Sem)                                                                                                 | Flexi Core 2 (IV Sem)                                                                                       | Flexi Core 3 (V Sem)                                                                        |
| <b>AIM2120:</b> Object Oriented Programming using Python<br><br><b>AIM2121:</b> Object Oriented Programming using Java | <b>AIM2220:</b> Software Engineering & Project Management<br><br><b>AIM2221:</b> Agile Software Development | <b>AIM3120:</b> Computer Networks<br><br><b>AIM3121:</b> Data Communication and Networking. |

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| Program Electives                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IV                                                                                                                                                                         | V                                                                                                                                                                                                                                                                                                                                                                                                  | VI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | VII                                                                                                                                                                                                                                                                                                                 |
| <b>Example - PE1</b> <ul style="list-style-type: none"> <li>• <b>AIM2240:</b> Computer Organization and Architecture</li> <li>• <b>AIM2241:</b> Cloud Computing</li> </ul> | <b>Example - PE2</b> <ul style="list-style-type: none"> <li>• <b>AIM3140:</b> Web Technologies</li> <li>• <b>AIM3141:</b> NoSQL Databases</li> <li>• <b>AIM3142:</b> Linux System Administration and Shell Scripting</li> </ul> <b>Example - PE3</b> <ul style="list-style-type: none"> <li>• <b>AIM3143:</b> Recommender Systems</li> <li>• <b>AIM3144:</b> High Performance Computing</li> </ul> | <b>Example - PE 4</b> <ul style="list-style-type: none"> <li>• <b>AIM3240:</b> Computer Vision</li> <li>• <b>AIM3241:</b> Natural Language Processing</li> </ul> <b>Example - PE5</b> <ul style="list-style-type: none"> <li>• <b>AIM3242:</b> Sentiment Analysis and Opinion Mining</li> <li>• <b>AIM3243:</b> Artificial Intelligence in Cyber Security</li> </ul> <b>Example - PE6</b> <ul style="list-style-type: none"> <li>• <b>AIM3244:</b> Explainable AI</li> <li>• <b>AIM3245:</b> Generative AI</li> </ul> | <b>Example - PE 7</b> <ul style="list-style-type: none"> <li>• <b>AIM4140:</b> Big Data Analytics</li> <li>• <b>AIM4141:</b> Human Computer Interaction</li> </ul> <b>Example - PE8</b> <ul style="list-style-type: none"> <li>• <b>AIM4142:</b> MLOps</li> <li>• <b>AIM4143:</b> Reinforcement Learning</li> </ul> |

| Open Electives                                                                                                                                                                                                                                  |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Graded OE                                                                                                                                                                                                                                       | Non-Graded OE |
| <b>OE1 AIM0001:</b> Python Programming<br><b>OE2 AIM0002:</b> Data Structures<br><b>OE3 AIM0003:</b> Introduction to Machine Learning<br><b>OE4 AIM0004:</b> Data Visualization Techniques<br><b>OE5 AIM0005:</b> Introduction to Deep Learning |               |

| Program Electives for Honors                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VI / VII                                                                                                                                                                                                                                                                          |
| <b>AIM3280:</b> AI for Medical Image Analysis<br><b>AIM3281:</b> Soft Computing Paradigm<br><b>AIM4180:</b> Robotics & Intelligent Systems<br><b>AIM4181:</b> Remote Sensing and GIS<br><b>AIM4182:</b> Social Networks Analysis<br><b>AIM4183:</b> Augmented and Virtual Reality |

<sup>i</sup> Statistics & Probability: CSE, AIML, SEEC students will take in 3<sup>rd</sup> semester. Engineering Economics: SIT, SCCE, All Core (-) SEEC will take in 3<sup>rd</sup> semester. In 4<sup>th</sup> semester, these courses are switched.