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| <b>Programme: B.Sc.(Cyber Security &amp; Digital Forensics)</b> |                  |                  | <b>Semester : I</b>      |                                                         |                                                |
| <b>Course : Green IT</b>                                        |                  |                  | <b>Code:</b>             |                                                         |                                                |
| <b>Academic Year: 2024-2025</b>                                 |                  |                  | <b>Batch: 2024-2027</b>  |                                                         |                                                |
| <b>Teaching Scheme</b>                                          |                  |                  | <b>Evaluation Scheme</b> |                                                         |                                                |
| <b>Lectures</b>                                                 | <b>Practical</b> | <b>Tutorials</b> | <b>Credits</b>           | <b>Internal Continuous Assessment (ICA) (weightage)</b> | <b>Term End Examinations (TEE) (weightage)</b> |
| <b>30</b>                                                       | <b>Nil</b>       | <b>Nil</b>       | <b>2</b>                 | <b>20</b>                                               | <b>30</b>                                      |

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| <b>Learning Objectives :</b> | <ol style="list-style-type: none"> <li>1. To understand the concept of Green Technology.</li> <li>2. To learn Green IT regulating Green IT and different standards.</li> <li>3. To understand the concept of minimizing power utilization in technology.</li> <li>4. To know about Green PCs, Green notebooks and servers and Green data centers.</li> <li>5. To know how the way of work is changing and understand implementation of Paperless work.</li> </ol> |
| <b>Learning Outcomes :</b>   | <ol style="list-style-type: none"> <li>1. Understand the concept of Green IT and problems related to it.</li> <li>2. Know different standards for Green IT.</li> <li>3. Understand the how power usage can be minimized in Technology.</li> <li>4. Understand the concept of recycling.</li> <li>5. Know how information system can stay Green Information system.</li> </ol>                                                                                     |
| <b>Pedagogy:</b>             | Experiential learning, environmental problem-based learning, peer learning                                                                                                                                                                                                                                                                                                                                                                                        |

**Detailed Syllabus: (per session plan)**

**Session Outline For: Green IT**

**Each lecture session would be of one hour duration (30 sessions).**

| <b>Module</b> | <b>Module Content</b>                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Module Wise Pedagogy Used</b>                                           | <b>Module Wise Duration</b> |
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| <b>I</b>      | <p><b>Overview to Green IT:</b><br/>Problems: Toxins, Power Consumption, Equipment Disposal, Company's Carbon Footprint: Measuring, Details, reasons to bother, Plan for the Future, Cost Savings: Hardware, Power.</p> <p><b>Regulating Green IT:</b> Laws, Standards and Protocols Introduction, The Regulatory Environment and IT Manufacturers RoHS, REACH, WEEE, Legislating for GHG Emissions and Energy Use of IT Equipment.</p> | Experiential learning, environmental problem-based learning, peer learning | 15                          |

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|           | <p>Nonregulatory Government Initiatives, Industry Associations and Standards Bodies, Green Building Standards, Green Data Centers, Social Movements and Greenpeace.</p> <p><b>Minimizing Power Usage:</b><br/>Power Problems, Monitoring Power Usage, Servers, Low-Cost Options, Reducing Power Use, Data De-Duplication, Virtualization, Management, Bigger Drives, Involving the Utility Company, Low Power Computers, PCs, Linux, Components, Servers, Computer Settings, Storage, Monitors, Power Supplies, Wireless Devices, Software.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                           |    |
| <b>II</b> | <p><b>Greening IT:</b><br/>Green PCs, Notebooks and Servers, Green Data Centers, Green Cloud Computing, Green Data Storage, Green Software, Green Networking and Communications.</p> <p><b>Going Paperless:</b><br/>Paper Problems, The Environment, Costs: Paper and Office, Practicality, Storage, Destruction, Going Paperless, Organizational Realities, Changing Over, Paperless Billing, Handheld Computers vs. the Clipboard, Unified Communications, Intranets, What to Include, Building an Intranet, Microsoft Office SharePoint Server 2007, Electronic Data Interchange (EDI), Nuts and Bolts, Value Added Networks, Advantages, Obstacles.</p> <p><b>Recycling:</b><br/>Means of Disposal, Recycling, Refurbishing, Make the Decision, Life Cycle, from beginning to end, Life, Cost, Green Design, Recycling Companies, Finding the Best One, Checklist, Certifications, Hard Drive Recycling, Consequences, cleaning a Hard Drive, Pros and cons of each method, CDs and DVDs, good and bad about CD and DVDs disposal, Change the mind-set, David vs. America Online.</p> <p><b>Case study:</b><br/><b>Recycling:</b><br/>1. Recycling of IT waste in Colleges<br/>2. Recycling initiatives taken up by XXX Housing Society: A Case Study<br/>3. Damage caused by improper recycling of e-waste in developing countries like India or China</p> <p><b>Paperless:</b><br/>1. A Case study of a traditional company going paperless with the use of Electronic media<br/>2. Going paperless in Government Departments<br/>3. Economic benefits of going Paperless</p> <p><b>Datacenters:</b><br/>1. Survey of best energy-efficient practices in data centers around the world</p> | <p>Experiential learning,<br/>environmental problem-based learning,<br/>peer learning</p> | 15 |

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|  | 2. Designing a datacenter with use of green technology.<br>3. Impact of Datacenters on the environment |  |  |
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#### REFERENCE BOOKS

1. Toby Velte, Anthony Velte, Robert Elsenpeter, Green IT, McGraw Hill
2. San Murugesan, G. R. Ganadharan, Harnessing Green IT: Principles and Practices, Wiley & IEEE.
3. Bud E. Smith, Green Computing Tools and Techniques for Saving Energy, Money and Resources, CRC Press
4. Jason Harris, Green Computing and Green IT Best Practice, Emereo