**T.E. Semester –VI**

**Choice Based Credit Grading Scheme with Holistic and Multidisciplinary Education (CBCGS-HME 2020) TCET Autonomy scheme with effect from 2023-24**

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| **B.E (Information Technology)** | | | | | | | | **T.E.(SEM :** VI) | | |
| **Course Name: Software Process Automation** | | | | | | | | **Course Code : OEC-IT 6012** | | |
| **Teaching Scheme (Program Specific)** | | | | | **Examination Scheme (Formative/ Summative)** | | | | | |
| **Modes of Teaching / Learning / Weightage** | | | | | **Modes of Continuous Assessment / Evaluation** | | | | | |
| **Hours Per Week** | | | | | **Theory (100)** | | | **Practical/O ral (25)** | **Term Work (25)** | **Total** |
| **Theory** | **Tutorial** | **Practical** | **Contact Hours** | **Credits** | **IS E** | **IE** | **ESE** | **PR** /OR | **TW** | **100** |
| 3 | - | - | 3 | 3 | 20 | 20 | 60 | - | - |
| **ISE**: In-Semester Examination - Paper Duration – 1 Hour | | | | | | | | | | |
| **IE:** Innovative Examination | | | | | | | | | | |
| **ESE**: End Semester Examination - Paper Duration - 2 Hours | | | | | | | | | | |
| **Prerequisite:** Object Oriented Programming, Frontend Backend connectivity | | | | | | | | | | |

**Course Objective:**

The objective of the course is to introduce to the students about the integration people involved in the software process with the development and tools required for automation of the project development.

**Course Outcomes: Upon completion of the course students will be able to:**

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| **SN** | **Course Outcomes** | **Cognitive levels of attainment as per Bloom’s**  **Taxonomy** |
| 1 | Understand the importance of process automation and models of software process | L1, L2 |
| 2 | Analyze the security and configuration management | L1, L2, L3,L4 |
| 3 | Understand and apply the build concepts using a build tool | L1, L2, L3,L4 |
| 4 | Understand the testing concepts and apply them to the project | L1, L2, L3,L4 |
| 5 | Identify the activities in agile project management and use a tool for the same | L1, L2, L3,L4 |
| 6 | Understand and identify the various principles of quality assurance | L1, L2, L3,L4 |

**Detailed Syllabus:**

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| --- | --- | --- | --- |
| **Modul e No.** | **Topics** | **Hrs.** | **Cognitive levels of attainment as per Bloom’s Taxonomy** |
| 1 | **Introduction to process Automation** | 6 | L1, L2 |
| Importance of process automation, types of models, prescriptive and  descriptive models, Devops model, process modelling objectives and goals |
| 2 | **Automation of config management** | 8 | L1, L2, L3,L4 |
| overview of configuration management, Github and git tool |
| 3 | **Build automation** |  | L1, L2, L3,L4 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Overview of build management, Jenkins tool for build management | 4 |  |
| 4 | **Test automation** | 8 | L1, L2, L3,L4 |
| Overview of testing concepts, test cases , selenium tool |
| 5 | **Project management** | 8 | L1, L2, L3,L4 |
| Project management concepts, agile team, Atlasian jira project management tool |
| 6 | **Quality management** | 11 | L1, L2, L3,L4 |
| Quality concepts and metrics, CMMI, ISO, spice, six sigma, Total Quality management |
|  | **Total Hours** | **45** |  |

**Books and References:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Title** | **Authors** | **Publisher** | **Edition** | **Year** |
| 1 | The DevOps handbook | Gene Kim, Jez Humble, Ptrik Debois & John Willis | IT revolution Press | first Edition | 2016 |
| 2 | Selenium WebDriver 3 | Satya Avasarala | Packt | Second | 2018 |
|  | Practical Guide: End-to- |  | Publishing Ltd, | Edition |  |
|  | end Automation Testing |  |  |  |  |
|  | for Web and Mobile |  |  |  |  |
|  | Browsers with Selenium |  |  |  |  |
|  | WebDriver |  |  |  |  |

**Online Resources:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.**  **No.** | **Website Name** | **/URL** | **Modules Covered** |
| 1 | [www.researchgate.c](http://www.researchgate.c/) om | https[://www.](http://www.researchgate.net/publication/258865356_So)r[esear](http://www.researchgate.net/publication/258865356_So)ch[gate.net/publication/258865356\_So](http://www.researchgate.net/publication/258865356_So) ftware\_Process\_Definition\_and\_Management | M6 |