



**KIET GROUP OF INSTITUTIONS, GHAZIABAD**

**Department of Information Technology (NBA Accredited)**

**(An ISO – 9001: 2008 Certified & 'A' Grade accredited Institution by NAAC)**



# Course Outcome



**Session 2019-20**

**Department of Information  
Technology**

**13 KM STONE, GHAZIABAD-MEERUT ROAD, GHAZIABAD – 201206**

**Website: [www.kiet.edu](http://www.kiet.edu)**



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## Index

| 4 <sup>th</sup> Semester |              |                                       |
|--------------------------|--------------|---------------------------------------|
| S No.                    | Subject Code | Subject Name                          |
| 1                        | KVE-401      | Universal Human Values                |
| 2                        | KNC402       | Python Programming                    |
| 3                        | KCS-401      | Operating System                      |
| 4                        | KIT-401      | Web Designing                         |
| 5                        | KCS-402      | Theory of Automata & Formal Languages |
| 6                        | KOE-048      | Electronics Engineering               |
| 7                        | KCS-451      | Operating System Lab                  |
| 8                        | KCS453       | Python programming Lab                |
| 9                        | KIT-451      | Web Designing Lab                     |

| 6 <sup>th</sup> Semester |              |                                |
|--------------------------|--------------|--------------------------------|
| S No.                    | Subject Code | Subject Name                   |
| 1                        | RCS-601      | Computer Networks              |
| 2                        | RIT-E22      | Data Warehousing & Data Mining |
| 3                        | RCS-603      | Web Technology                 |
| 4                        | RCS-602      | Compiler Design                |
| 5                        | RUC-601      | Cyber Security                 |
| 6                        | RAS-601      | Industrial Management          |
| 7                        | RCS-651      | Computer Network Lab           |
| 8                        | RCS-653      | Web Technologies Lab           |
| 9                        | RCS-652      | Compiler Design Lab            |
| 10                       | RCS-654      | Data Warehousing & Data Mining |

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| 8 <sup>th</sup> Semester |              |                  |
|--------------------------|--------------|------------------|
| S No.                    | Subject Code | Subject Name     |
| 1                        | RCS082       | Image Processing |
| 2                        | RCS087       | Data Compression |
| 3                        | ROE-083      | Machine learning |
| 4                        | RIT-852      | Project          |
| 5                        | Seminar      | Seminar          |



|                                   |                                                                                                                               |            |            |            |            |            |            |            |            |             |             |             |             |             |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Operating System (KCS-401)</b> | CO1: Illustrate the need, evolution, various categories, and design issues of operating systems.                              |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                   | CO2: Analyze the problems related to concurrency and the different synchronization mechanism available.                       |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                   | CO3: Apply the techniques used to implement processes and threads as well as the different algorithms for process scheduling. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                   | CO4: Analyze the various memory management techniques for memory allocation.                                                  |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                   | CO5: Understand the Security issues, I/O management, Disk management and file system structure in operating systems.          |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>            | <b>PO 1</b>                                                                                                                   | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                               | 3                                                                                                                             | 3          | 3          | 3          | 3          | 2          | 1          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO2                               | 3                                                                                                                             | 3          | 2          | 3          | 2          | 2          | 2          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO3                               | 3                                                                                                                             | 3          | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO4                               | 3                                                                                                                             | 3          | 2          | 3          | 2          | 3          | 3          | 2          | 1          | 1           | 2           | 3           | 3           | 3           |
| CO5                               | 3                                                                                                                             | 2          | 2          | 2          | 2          | 3          | 3          | 2          | 1          | 1           | 2           | 3           | 3           | 3           |

|                                |                                                                                          |            |            |            |            |            |            |            |            |             |             |             |             |             |
|--------------------------------|------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Web Designing (KIT-401)</b> | CO1: Understand principle of Web page design and about types of websites.                |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                | CO2: Visualize and Recognize the basic concept of HTML and application in web designing. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                | CO3: Recognize and apply the elements of Creating Style Sheet (CSS).                     |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                | CO4: Understanding the basic concept of Java Script and its application.                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                | CO5: Introduce basics concept of Web Hosting and apply the concept of SEO.               |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>         | <b>PO1</b>                                                                               | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                            | 2                                                                                        | 3          | 2          | 1          | 1          | 1          | 1          | 2          | 1          | 2           | 1           | 2           | 2           | 2           |
| CO2                            | 3                                                                                        | 1          | 3          | 1          | 2          | 1          | 1          | 1          | 1          | 3           | 1           | 2           | 2           | 2           |
| CO3                            | 3                                                                                        | 1          | 3          | 1          | 2          | 1          | 1          | 1          | 1          | 3           | 1           | 2           | 2           | 2           |
| CO4                            | 2                                                                                        | 1          | 3          | 3          | 3          | 1          | 2          | 2          | 1          | 1           | 1           | 3           | 2           | 2           |
| CO5                            | 1                                                                                        | 3          | 1          | 2          | 2          | 2          | 3          | 3          | 2          | 1           | 2           | 2           | 2           | 2           |

|                                                            |                                                                                                                                         |            |            |            |            |            |            |            |            |             |             |             |              |              |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|--------------|--------------|
| <b>Theory of Automata &amp; Formal Languages (KCS-402)</b> | CO1: Acquire a full understanding and applicability of Automata Theory as the basis of all computer science languages design.           |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                                            | CO2: Identify different formal languages and design the recognizer for regular languages to establish their applicability in real life. |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                                            | CO3: Ability to analyse& design grammars for different formal languages.                                                                |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                                            | CO4: Understand the designing of Pushdown Automata and Turing machines.                                                                 |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                                            | CO5: Determine the decidability and intractability of computational problems.                                                           |            |            |            |            |            |            |            |            |             |             |             |              |              |
| <b>CO \ PO Mapping</b>                                     | <b>PO1</b>                                                                                                                              | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO 1</b> | <b>PSO 2</b> |
| CO1                                                        | 3                                                                                                                                       | 2          | 2          | 2          | 1          |            |            |            |            | 1           | 1           | 1           | 2            | 2            |
| CO2                                                        | 2                                                                                                                                       | 3          | 3          | 2          | 1          |            |            |            |            | 1           | 1           | 1           | 2            | 2            |
| CO3                                                        | 2                                                                                                                                       | 2          | 3          | 3          | 1          |            |            |            |            | 1           | 1           | 1           | 2            | 2            |
| CO4                                                        | 2                                                                                                                                       | 3          | 3          | 2          | 1          |            |            |            |            | 1           | 1           | 1           | 1            | 1            |
| CO5                                                        | 1                                                                                                                                       | 3          | 2          | 3          | 1          |            |            |            |            | 1           | 1           | 1           | 1            | 1            |



|                        |                                                                                            |            |            |            |            |            |            |            |            |             |             |             |              |              |
|------------------------|--------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|--------------|--------------|
| <b>Web Designing</b>   | CO1: Understanding the principle of Web design concepts.                                   |            |            |            |            |            |            |            |            |             |             |             |              |              |
| <b>Lab (KIT-451)</b>   | CO2: Implementation of HTML in the workings of the web applications.                       |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                        | CO3: Applying CSS for creating and designing the Web pages.                                |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                        | CO4: Applying and build dynamic web pages using client-side programming JavaScript.        |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                        | CO5: Analysing and developing different types of web pages using HTML, CSS and JavaScript. |            |            |            |            |            |            |            |            |             |             |             |              |              |
| <b>CO \ PO Mapping</b> | <b>PO1</b>                                                                                 | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO-1</b> | <b>PSO-2</b> |
| CO1                    | 2                                                                                          | 3          | 2          | 1          | 1          | 1          | 1          | 2          | 1          | 2           | 1           | 2           | 2            | 2            |
| CO2                    | 3                                                                                          | 1          | 3          | 1          | 2          | 1          | 1          | 1          | 1          | 3           | 1           | 2           | 2            | 2            |
| CO3                    | 3                                                                                          | 1          | 3          | 1          | 2          | 1          | 1          | 1          | 1          | 3           | 1           | 2           | 2            | 2            |
| CO4                    | 2                                                                                          | 1          | 3          | 3          | 3          | 1          | 2          | 2          | 1          | 1           | 1           | 3           | 2            | 2            |
| CO5                    | 1                                                                                          | 3          | 1          | 2          | 2          | 2          | 3          | 3          | 2          | 1           | 2           | 2           | 2            | 2            |

# CO PO and Mapping of CO PO 3rd Year

(2017-2021 BATCH)

Session:- 2019-20 Semester:- 6th

## Theory

|                                     |                                                                                                                                                                           |            |            |            |            |            |            |            |            |             |             |             |             |             |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Computer Networks (RCS- 601)</b> | CO1: Build an understanding of the fundamental concepts and Layered Architecture of computer networking.                                                                  |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                     | CO2: Understand the basic concepts of link layer properties to detect error and develop the solution for error control and flow control.                                  |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                     | CO3: Design, calculate, and apply subnet masks and addresses to fulfil networking requirements and calculate distance among routers in subnet.                            |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                     | CO4: Understanding the duties of transport layer, session layer and presentation layer and also focus on network security issues to secure communication towards society. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                     | CO5: Understand the features and operations of various application layer protocols such as DNS, HTTP, FTP, e-mail protocols and other applications.                       |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>              | <b>PO1</b>                                                                                                                                                                | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                                 | 3                                                                                                                                                                         | 2          | 2          | 2          | 3          | 3          | 3          | 3          | 3          | 3           | 3           | 3           | 3           | 3           |
| CO2                                 | 3                                                                                                                                                                         | 3          | 3          | 3          | 3          | 3          | 3          | 3          | 3          | 3           | 3           | 2           | 3           | 3           |
| CO3                                 | 3                                                                                                                                                                         | 3          | 3          | 2          | 3          | 3          | 3          | 3          | 3          | 3           | 3           | 2           | 3           | 3           |
| CO4                                 | 3                                                                                                                                                                         | 2          | 2          | 2          | 3          | 2          | 3          | 3          | 3          | 3           | 3           | 2           | 3           | 3           |
| CO5                                 | 3                                                                                                                                                                         | 2          | 2          | 3          | 3          | 2          | 2          | 2          | 3          | 2           | 3           | 2           | 3           | 3           |

|                                                     |                                                                                                                    |            |            |            |            |            |            |            |            |             |             |             |             |             |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Data Warehousing &amp; Data Mining (RIT-E22)</b> | CO1: Understand the basic principles, concept and applications of data warehousing                                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO2: Design conceptual, Logical, and Physical design of data warehouse to present information needed by management |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO3: Use the task of data mining as an important phase of knowledge recovery process                               |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO4: Have a good knowledge of the fundamental concepts that provide the foundation of data mining.                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO5: Know about Security , Backup and Recovery of data warehouse.                                                  |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>                              | <b>PO1</b>                                                                                                         | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                                                 | 3                                                                                                                  | 2          | 3          | 2          | 2          | 3          | 2          | 2          | 3          | 2           | 2           | 2           | 3           | 3           |
| CO2                                                 | 3                                                                                                                  | 3          | 3          | 2          | 2          | 3          | 3          | 2          | 3          | 3           | 2           | 3           | 3           | 3           |
| CO3                                                 | 2                                                                                                                  | 2          | 3          | 2          | 2          | 2          | 2          | 2          | 3          | 3           | 3           | 3           | 2           | 3           |
| CO4                                                 | 2                                                                                                                  | 3          | 2          | 2          | 3          | 3          | 2          | 2          | 2          | 3           | 2           | 2           | 3           | 2           |
| CO5                                                 | 3                                                                                                                  | 2          | 3          | 2          | 3          | 2          | 3          | 2          | 2          | 3           | 2           | 2           | 2           | 3           |

|                                 |                                                                                                                                          |            |            |            |            |            |            |            |            |             |             |             |             |             |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Web Technology (RCS-603)</b> | CO1: Apply the knowledge of the internet and OOP concept in computing and create desktop-based programs using Java programming language. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO2: Understand, analyze, apply and create HTML, DHTML, and XML documents for web development                                            |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO3: Understand, apply and create programs for web development using JavaScript and create network-based programs using Java.            |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO4: Understand, analyze, and build JDBC concepts and also develop the Java Beans for business logic.                                    |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO5: Understand the concept of JSP and Servlets in server-side scripting and create web based small applications using JSP and servlets. |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>          | <b>PO1</b>                                                                                                                               | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                             | 3                                                                                                                                        | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1          | 1           | 2           | 3           | 3           | 3           |
| CO2                             | 3                                                                                                                                        | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO3                             | 3                                                                                                                                        | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO4                             | 3                                                                                                                                        | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 2          | 1           | 1           | 3           | 3           | 3           |
| CO5                             | 3                                                                                                                                        | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 2          | 1           | 2           | 3           | 3           | 3           |

  

|                                  |                                                                                                                                                                                                                                                   |            |            |            |            |            |            |            |            |             |             |             |             |             |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Compiler Design (RCS-602)</b> | CO1: Acquire knowledge of different phases and passes of compiler and to give the essence of various compiler tools. Students will also be able to design multiple modules of a general compiling tool having realistic constraints of compilers. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                  | CO2: Understand the parser and its types and the construction of various types of parsing tables.                                                                                                                                                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                  | CO3: Implement the compiler using syntax directed translation method and to get a better understanding of synthesized and inherited attributes.                                                                                                   |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                  | CO4: Acquire knowledge about run time data structure like symbol table organization and different techniques used in that.                                                                                                                        |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                  | CO5: Understand the target machine's run time environment, its instruction set for code generation and techniques used for code optimization.                                                                                                     |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>           | <b>PO1</b>                                                                                                                                                                                                                                        | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                              | 3                                                                                                                                                                                                                                                 | 3          | 3          | 1          | 2          | 2          | 2          | 3          | 3          | 2           | 2           | 2           | 3           | 3           |
| CO2                              | 3                                                                                                                                                                                                                                                 | 3          | 2          | 2          | 2          | 3          | 3          | 2          | 3          | 3           | 2           | 3           | 3           | 3           |
| CO3                              | 3                                                                                                                                                                                                                                                 | 2          | 3          | 2          | 2          | 2          | 2          | 2          | 3          | 3           | 3           | 3           | 3           | 3           |
| CO4                              | 2                                                                                                                                                                                                                                                 | 3          | 2          | 2          | 3          | 3          | 1          | 1          | 2          | 3           | 2           | 2           | 3           | 3           |
| CO5                              | 2                                                                                                                                                                                                                                                 | 2          | 2          | 2          | 3          | 2          | 1          | 1          | 2          | 3           | 2           | 2           | 3           | 3           |

|                                 |                                                                                                                                                                                               |            |            |            |            |            |            |            |            |             |             |             |             |             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Cyber Security (RUC-601)</b> | CO1: Learn about information systems, its types, threats, security issues related to it and also about cyber security and risk associated to it .                                             |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO2: Learn about Application security, Data security and types of security Threats in network.                                                                                                |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO3: Understand the importance of secure information system and risk management issues indifferent applications.                                                                              |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO4: Design security procedures, policies and also implement cryptography in their live projects and also learn about modern copyright, patent law, skills of ethics, cyber crime and IT ACT. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                 | CO5: Understand modern copyright, patent law, skills of ethics, cyber crime and IT ACT so that they can protect their inventions by making use of these Laws.                                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>          | <b>PO1</b>                                                                                                                                                                                    | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                             | 3                                                                                                                                                                                             | 3          | 3          | 3          | 3          | 3          | 3          | 3          | 1          | 1           | 1           | 3           | 1           | 1           |
| CO2                             | 3                                                                                                                                                                                             | 3          | 2          | 2          | 2          | 3          | 1          | 3          | 1          | 1           | 1           | 3           | 1           | 1           |
| CO3                             | 3                                                                                                                                                                                             | 2          | 3          | 2          | 2          | 3          | 1          | 3          | 1          | 1           | 1           | 3           | 1           | 1           |
| CO4                             | 3                                                                                                                                                                                             | 3          | 2          | 3          | 2          | 3          | 1          | 3          | 1          | 1           | 1           | 3           | 1           | 1           |
| CO5                             | 2                                                                                                                                                                                             | 2          | 2          | 2          | 2          | 2          | 3          | 3          | 2          | 1           | 1           | 3           | 1           | 1           |

|                                        |                                                                                                          |            |            |            |            |            |            |            |            |             |             |             |              |              |
|----------------------------------------|----------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|--------------|--------------|
| <b>Industrial Management (RAS-601)</b> | CO1: Understand the Concept and Scope of Industrial management and apply the concepts to the management. |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                        | CO2: Understand the Concept and Scope of Industrial management and apply the concepts to the management. |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                        | CO3: Understand the objectives of Work study and Inventory control to achieve organizational goals.      |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                        | CO4: Understand the quality control techniques to manage industries.                                     |            |            |            |            |            |            |            |            |             |             |             |              |              |
|                                        | CO5: Understand the need and process of network analysis to manage industrial projects.                  |            |            |            |            |            |            |            |            |             |             |             |              |              |
| <b>CO \ PO Mapping</b>                 | <b>PO1</b>                                                                                               | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO 1</b> | <b>PSO 2</b> |
| CO1                                    | 2                                                                                                        | 2          | 2          | 2          | 2          | 1          | 1          | 2          | 2          | 2           | 2           | 3           | 1            | 1            |
| CO2                                    | 2                                                                                                        | 2          | 2          | 2          | 3          | 1          | 1          | -          | 1          | 1           | 2           | 2           | 1            | 1            |
| CO3                                    | 2                                                                                                        | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1          | 1           | 2           | 2           | 1            | 1            |
| CO4                                    | 2                                                                                                        | 2          | 2          | 2          | 3          | 1          | 1          | 1          | 2          | 2           | 2           | 2           | 1            | 1            |
| CO5                                    | 2                                                                                                        | 2          | 2          | 2          | 3          | 1          | 1          | -          | 2          | 2           | 2           | 2           | 1            | 1            |

## Practical

|                                       |                                                                                                                                                         |            |            |            |            |            |            |            |            |             |             |             |             |             |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Computer Network Lab (RCS-651)</b> | CO1: Understand the fundamental concepts of computer networking and Network topologies.                                                                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO2: Know about different types of network devices and design, implement, and analyse simple computer networks.                                         |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO3: Learn the basic network commands and use techniques, skills, and modern networking tools necessary for engineering practice.                       |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO4: Formulate problems and their solutions, think creatively and communicate effectively.                                                              |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO5: Describe how rapid progress of computer network technology can impact on the society and continue to advance personal knowledge and understanding. |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>                | <b>PO1</b>                                                                                                                                              | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                                   | 3                                                                                                                                                       | 2          | 2          | 2          | 2          | 3          | 3          | 2          | 3          | 3           | 3           | 2           | 3           | 3           |
| CO2                                   | 3                                                                                                                                                       | 2          | 3          | 2          | 2          | 2          | 3          | 2          | 2          | 2           | 3           | 3           | 3           | 3           |
| CO3                                   | 3                                                                                                                                                       | 2          | 3          | 2          | 3          | 2          | 2          | 3          | 2          | 2           | 2           | 3           | 3           | 3           |
| CO4                                   | 2                                                                                                                                                       | 2          | 3          | 2          | 3          | 2          | 2          | 2          | 3          | 3           | 2           | 2           | 3           | 3           |
| CO5                                   | 3                                                                                                                                                       | 2          | 2          | 2          | 2          | 3          | 2          | 2          | 3          | 2           | 2           | 2           | 3           | 3           |

|                                       |                                                                                                                                                                  |            |            |            |            |            |            |            |            |             |             |             |             |             |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Web Technologies Lab (RCS-653)</b> | CO1: Understand and apply fundamentals of web development and can create Java classes, invoke methods, use class libraries, Applet, AWT.                         |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO2: Understand, apply and create web based programs using HTML, DHTML, CSS, XML, DOM, and SAX to solve real world problems s.                                   |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO3: Understand and Create JavaScript based dynamic web pages and develop network based programs using Java                                                      |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO4: Apply and Create database tables using JDBC and produce various results based on SQL query.                                                                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | Apply and Create server-side java application using Servlet & JSP that can receive data sent from client machine and process them to produce response to client. |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>                | <b>PO1</b>                                                                                                                                                       | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                                   | 3                                                                                                                                                                | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 2          | 1           | 2           | 3           | 3           | 3           |
| CO2                                   | 3                                                                                                                                                                | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO3                                   | 3                                                                                                                                                                | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO4                                   | 3                                                                                                                                                                | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 1          | 1           | 1           | 3           | 3           | 3           |
| CO5                                   | 3                                                                                                                                                                | 3          | 3          | 3          | 3          | 1          | 1          | 1          | 2          | 1           | 2           | 3           | 3           | 3           |

|                                      |                                                                                                                                                                                                                   |            |            |            |            |            |            |            |            |             |             |             |             |             |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Compiler Design Lab (RCS-652)</b> | CO1: To learn and use the new tools and technologies used to design a compiler and apply the knowledge of patterns, tokens and regular expressions in programming for solving a problem in the field of compiler. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                      | CO2: To develop program for solving parser problems.                                                                                                                                                              |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                      | CO3: To create program for intermediate code generation.                                                                                                                                                          |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                      | CO4: To develop program for implementing symbol table.                                                                                                                                                            |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                      | CO5: To learn the new code optimization techniques and apply it to improve the performance of a program in terms of time and space.                                                                               |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>               | <b>PO1</b>                                                                                                                                                                                                        | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                                  | 3                                                                                                                                                                                                                 | 3          | 3          | 2          | 2          | 2          | 2          | 3          | 3          | 2           | 2           | 2           | 3           | 3           |
| CO2                                  | 3                                                                                                                                                                                                                 | 3          | 2          | 2          | 2          | 3          | 3          | 2          | 3          | 3           | 2           | 3           | 3           | 3           |
| CO3                                  | 3                                                                                                                                                                                                                 | 2          | 3          | 2          | 2          | 2          | 2          | 2          | 3          | 3           | 3           | 3           | 3           | 3           |
| CO4                                  | 2                                                                                                                                                                                                                 | 3          | 2          | 2          | 3          | 3          | 1          | 1          | 2          | 3           | 2           | 2           | 3           | 3           |
| CO5                                  | 2                                                                                                                                                                                                                 | 2          | 2          | 2          | 3          | 2          | 1          | 1          | 2          | 3           | 2           | 2           | 3           | 3           |

|                                                     |                                               |            |            |            |            |            |            |            |            |             |             |             |             |             |
|-----------------------------------------------------|-----------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Data Warehousing &amp; Data Mining (RCS-654)</b> | CO1: Preprocess and improve data quality      |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO2: Select data and technique for the mining |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO3: Use Algorithms for data mining           |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO4: Analyze data using different techniques  |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                                     | CO5: Compare techniques based on result       |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>                              | <b>PO1</b>                                    | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                                                 | 3                                             | 3          | 3          | 2          | 3          | 1          | 1          | 2          | 2          | 3           | 3           | 2           | 2           | 3           |
| CO2                                                 | 3                                             | 1          | 2          | 3          | 2          | 1          | 1          | 3          | 2          | 1           | 2           | 2           | 2           | 3           |
| CO3                                                 | 3                                             | 3          | 3          | 3          | 2          | 1          | 1          | 1          | 2          | 2           | 3           | 3           | 2           | 3           |
| CO4                                                 | 3                                             | 2          | 2          | 3          | 2          | 3          | 2          | 2          | 3          | 2           | 2           | 3           | 2           | 3           |
| CO5                                                 | 2                                             | 2          | 3          | 3          | 3          | 3          | 2          | 2          | 3          | 2           | 2           | 3           | 2           | 3           |

[illegible]

|                                       |                                                                                                                                                                                                                                                            |            |            |            |            |            |            |            |            |             |             |             |             |             |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Machine learning<br/>(ROE-083)</b> | CO1:It encourages critical approach. It enables to develop a specific direction as well as better understanding about the subject and helps in careful and focused analysis of data collected.                                                             |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO2: Effective methods to lay out the problem so that all options can be challenged and to analyze fully the possible consequences of decision taken. It encourages the ability to learn and model non-linear and complex relationships.                   |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO3: To determine the accuracy of test results.                                                                                                                                                                                                            |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO4: This step-by-step cognitive strategy teaches students to think as if they are computers. With this students are taught how to approach new information and new problems and to reduce the complexity of storing instances, this module been proposed. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                                       | CO5: For high-quality solutions for optimization problems and search problems.                                                                                                                                                                             |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>                | <b>PO1</b>                                                                                                                                                                                                                                                 | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                                   | 3                                                                                                                                                                                                                                                          | 3          | 3          | 3          | 3          | 2          | 2          | 3          | 2          | 2           |             | 2           | 1           | 1           |
| CO2                                   | 3                                                                                                                                                                                                                                                          | 3          | 3          | 3          | 3          | 2          | 2          | 2          | 2          | 2           |             | 2           | 2           | 2           |
| CO3                                   | 3                                                                                                                                                                                                                                                          | 3          | 3          | 3          | 3          | 3          | 2          | 2          | 2          | 2           |             | 2           | 2           | 2           |
| CO4                                   | 3                                                                                                                                                                                                                                                          | 3          | 3          | 3          | 3          | 3          | 2          | 2          | 2          | 2           |             | 2           | 3           | 3           |
| CO5                                   | 3                                                                                                                                                                                                                                                          | 3          | 3          | 3          | 3          | 3          | 3          | 3          | 3          | 3           |             | 2           | 3           | 3           |

## Practical

|                              |                                                                                                     |            |            |            |            |            |            |            |            |             |             |             |             |             |
|------------------------------|-----------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Project<br/>(RIT-852)</b> | CO1: Select and summarize all aspects of the real life problem through survey.                      |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO2: Apply acquired knowledge to develop working model and plan different phases for its execution. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO3: Analyze outcome of each phase using various tools, techniques, and coding practices.           |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO4: Justify/defend opinions, validity of ideas or quality of work based on a set of criteria.      |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO5: Test the working model and modify related phase accordingly. Finally integrate all phases      |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>       | <b>PO1</b>                                                                                          | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                          | 3                                                                                                   | 3          | 3          | 3          | 3          | 2          | 1          | 1          | 3          | 3           | 3           | 3           | 3           | 3           |
| CO2                          | 3                                                                                                   | 3          | 3          | 3          | 2          | 2          | 1          | 1          | 3          | 2           | 3           | 3           | 3           | 3           |
| CO3                          | 3                                                                                                   | 3          | 3          | 3          | 2          | 2          | 1          | 1          | 3          | 2           | 3           | 3           | 3           | 3           |
| CO4                          | 3                                                                                                   | 3          | 3          | 3          | 2          | 2          | 1          | 1          | 3          | 2           | 2           | 3           | 3           | 3           |
| CO5                          | 3                                                                                                   | 3          | 3          | 3          | 2          | 2          | 1          | 1          | 3          | 2           | 1           | 2           | 3           | 3           |

|                              |                                                                  |            |            |            |            |            |            |            |            |             |             |             |             |             |
|------------------------------|------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Seminar<br/>(RIT-851)</b> | CO1: Develop presentation skills.                                |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO2: Impart knowledge in different aspects of knowledge domains. |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO3: Build confidence and improve communication skills.          |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO4: Sharpen their personality and intelligence.                 |            |            |            |            |            |            |            |            |             |             |             |             |             |
|                              | CO5: Share ideas among the team members.                         |            |            |            |            |            |            |            |            |             |             |             |             |             |
| <b>CO \ PO Mapping</b>       | <b>PO1</b>                                                       | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> | <b>PO12</b> | <b>PSO1</b> | <b>PSO2</b> |
| CO1                          | 3                                                                | 3          | 3          | 1          | 2          | 1          | 1          | 1          | 2          | 2           | 1           | 3           | 3           | 3           |
| CO2                          | 3                                                                | 3          | 2          | 2          | 1          | 1          | 1          | 1          | 3          | 2           | 1           | 3           | 3           | 3           |
| CO3                          | 3                                                                | 3          | 3          | 3          | 1          | 1          | 1          | 2          | 1          | 3           | 1           | 3           | 3           | 3           |
| CO4                          | 3                                                                | 3          | 3          | 3          | 2          | 2          | 1          | 2          | 2          | 3           | 1           | 3           | 3           | 3           |
| CO5                          | 3                                                                | 3          | 3          | 3          | 2          | 2          | 1          | 1          | 1          | 3           | 1           | 3           | 3           | 3           |