

# MVJ College of Engineering, Whitefield, Bangalore

*An Autonomous Institution, Affiliated to VTU, Belagavi*

Scheme of Teaching and Examination 2019-20

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

Effective from the academic year 2019-20

## Department of Information Science & Engineering

### III SEMESTER B.E. (6 Theory, 2 Labs, 1 Kannada/CPH, 1 MATDIP, 1 AICTE Activity)

| S No         | Course |   | Course Title                           | Teaching Department | Teaching hours/week |          |                    | Examination       |           |           |             | Credits   |
|--------------|--------|---|--|---------------------|---------------------|----------|--------------------|-------------------|-----------|-----------|-------------|-----------|
|              |        |   |  |                     | Theory Lecture      | Tutorial | Practical/ Drawing | Duration in Hours | CIE Marks | SEE Marks | Total marks |           |
|              | L      | T   |  |                     | P                   |          |                    |                   |           |           |             |           |
| 1            | BSC    | MVJ19MIS31                                  | Discrete Math & Probability Theory     | Mathematics         | 2                   | 2        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 2            | PCC    | MVJ19IS32                                   | Data Structure                         | ISE Dept            | 3                   | 2        | 0                  | 3                 | 50        | 50        | 100         | 4         |
| 3            | PCC    | MVJ19IS33                                   | Analog & Digital Electronics           | ISE/ECE Dept        | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 4            | PCC    | MVJ19IS34                                   | Data Communication                     | ISE Dept            | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 5            | PCC    | MVJ19IS35                                   | Computer Organization & Architecture   | ISE Dept            | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 6            | PCC    | MVJ19IS36                                   | Software Engineering                   | ISE Dept            | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 7            | PCC    | MVJ19ISL37                                  | Data Structure Lab                     | ISE Dept            | 0                   | 1        | 2                  | 3                 | 50        | 50        | 100         | 2         |
| 8            | PCC    | MVJ19ISL38                                  | Analog & Digital Electronics Lab       | ISE/ECE Dept        | 0                   | 1        | 2                  | 3                 | 50        | 50        | 100         | 2         |
| 9            | HSMC   | MVJ19SK/BK39                                | Samskruthika<br>Kannada/Balake Kannada | Humanities          | 1                   | 0        | 0                  | 3                 | 50        | 50        | 100         | 1         |
|              |        | MVJ19CPH39                                  | CPH                                    |                     |                     |          |                    | 3                 | 50        | 50        |             |           |
| 10           | HSMC   | MVJ20UHV310                                 | UHV-I                                  | ISE Dept            | 1                   | 0        | 0                  | 3                 | 50        | 50        | 100         | 1         |
| 11           | NCMC   | MVJ19MISDIP301                              | Additional Mathematics-1               | Mathematics         |                     |          |                    | 3                 | 50        | 50        | 100         | -         |
| 12           | NCMC   | AICTE Activity for 80-90 hours ( 20 points) |  | -                   | -                   | -        | -                  | -                 | -         | -         | -           | -         |
| <b>Total</b> |        |   |  |                     | 19                  | 10       | 4                  | 30                | 500       | 500       | 1000        | <b>25</b> |

Note: BSC: Basic Science, PCC: Professional Core Course , HSMC: Humanity and Social Science  
MVJ19MXXDIP301- Mandatory non-credit course, NCMC: Non-credit mandatory course

**IV SEMESTER B.E. (6 Theory, 2 Labs, 1 Kannada/CPH, 1 MATDIP, 1 AICTE Activity)**

| S No         | Course |   | Course Title  | Teaching Department | Teaching hours/week |                        |                   | Examination |           |             |      | Credits   |
|--------------|--------|---|---|---------------------|---------------------|------------------------|-------------------|-------------|-----------|-------------|------|-----------|
|              |        |   |   |                     | Theory Lect         | Tutorial/Practical/Dra | Duration in Hours | CIE Marks   | SEE Marks | Total marks |      |           |
|              | L      | T   |   |                     |                     |                        |                   |             |           |             | P    |           |
| 1            | BSC    | MVJ19MIS41                                  | Numerical Methods, Operations Research & Statistics | Mathematics         | 3                   | 1                      | 0                 | 3           | 50        | 50          | 100  | 3         |
| 2            | PCC    | MVJ19IS42                                   | Design & Analysis of Algorithm                      | ISE Dept            | 3                   | 2                      | 0                 | 3           | 50        | 50          | 100  | 4         |
| 3            | PCC    | MVJ19IS43                                   | Microcontroller & Embedded Systems                  | ISE Dept            | 3                   | 1                      | 0                 | 3           | 50        | 50          | 100  | 3         |
| 4            | PCC    | MVJ19IS44                                   | Object Oriented Programming Concepts                | ISE Dept            | 3                   | 1                      | 0                 | 3           | 50        | 50          | 100  | 3         |
| 5            | PCC    | MVJ19IS45                                   | Operating System                                    | ISE Dept            | 3                   | 1                      | 0                 | 3           | 50        | 50          | 100  | 3         |
| 6            | PCC    | MVJ19IS46                                   | Theory of Computation                               | ISE Dept            | 4                   | 0                      | 0                 | 3           | 50        | 50          | 100  | 3         |
| 7            | PCC    | MVJ19ISL47                                  | Design & Analysis of Algorithm Lab                  | ISE Dept            | 0                   | 1                      | 2                 | 3           | 50        | 50          | 100  | 2         |
| 8            | PCC    | MVJ19ISL48                                  | Microcontroller & Embedded Systems Lab              | ISE/ECE Dept        | 0                   | 1                      | 2                 | 3           | 50        | 50          | 100  | 2         |
| 9            | HSMC   | MVJ19SK/BK49                                | Samskruthika Kannada/Balake Kannada                 | Humanities          | 1                   | 0                      | 0                 | 3           | 50        | 50          | 100  | 1         |
|              |        | MVJ19CPH49                                  | CPH   |                     |                     |                        |                   | 3           | 50        | 50          |      |           |
| 10           | NCMC   | MVJ19MISDIP401                              | Additional Mathematics-2                            | Mathematics         |                     |                        |                   | 3           | 50        | 50          | 100  | -         |
| 11           | NCMC   | AICTE Activity for 80-90 hours ( 20 points) |   | -                   | -                   | -                      | -                 | -           | -         | -           | -    | -         |
| <b>Total</b> |        |   |   |                     | 20                  | 8                      | 4                 | 30          | 500       | 500         | 1000 | <b>24</b> |

Note: BSC: Basic Science, PCC: Professional Core Course , HSMC: Humanity and Social Science  
 MVJ19MXXDIP401- Mandatory non-credit course, NCMC: Non-credit mandatory course

**V SEMESTER B.E. (5 Theory, 3 Labs, 1 Environmental study, 1 AICTE Activity)**

| S No         | Course |   | Course Title                             | Teaching Department | Teaching hours/week |          |                    | Examination       |           |           |             | Credits   |
|--------------|--------|---|--|---------------------|---------------------|----------|--------------------|-------------------|-----------|-----------|-------------|-----------|
|              |        |   |  |                     | Theory Lecture      | Tutorial | Practical/ Drawing | Duration in Hours | CIE Marks | SEE Marks | Total marks |           |
|              | L      | T   |  |                     | P                   |          |                    |                   |           |           |             |           |
| 1            | HSMC   | MVJ19TIM51                                  | Technical Management & Entrepreneurship  | ISE Dept            | 4                   | 0        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 2            | PCC    | MVJ19IS52                                   | Computer Network                         | ISE Dept            | 3                   | 2        | 0                  | 3                 | 50        | 50        | 100         | 4         |
| 3            | PCC    | MVJ19IS53                                   | Python Programming                       | ISE Dept            | 3                   | 1        | 1                  | 3                 | 50        | 50        | 100         | 4         |
| 4            | PCC    | MVJ19IS54                                   | Database Management System               | ISE Dept            | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 5            | PE     | MVJ19IS55X                                  | Professional Elective-I                  | ISE Dept            | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 6            | PCC    | MVJ19ISL56                                  | Computer Network Lab                     | ISE Dept            | 0                   | 1        | 2                  | 3                 | 50        | 50        | 100         | 2         |
| 7            | PCC    | MVJ19ISL57                                  | Operating System & Shell Programming Lab | ISE Dept            | 0                   | 1        | 2                  | 3                 | 50        | 50        | 100         | 2         |
| 8            | PCC    | MVJ19ISL58                                  | Database Management System Lab           | ISE Dept            | 0                   | 1        | 2                  | 3                 | 50        | 50        | 100         | 2         |
| 9            | HSMC   | MVJ19ENV59                                  | Environmental Studies                    | Humanities          | 1                   | 0        | 0                  | 3                 | 50        | 50        | 100         | 1         |
| 10           | HSMC   | MVJ20UHV510                                 | UHV-II                                   | Humanities          | 2                   | 0        | 0                  | 3                 | 50        | 50        | 100         | 2         |
| 11           | NCMC   | AICTE Activity for 80-90 hours ( 20 points) |  | -                   | -                   | -        | -                  | -                 | -         | -         | -           | -         |
| <b>Total</b> |        |   |  |                     | 19                  | 8        | 7                  | 30                | 450       | 450       | 1000        | <b>26</b> |

Note: PCC: Professional Core Course , PE: Professional Elective, HSMC: Humanity and Social Science, NCMC: Non-credit mandatory course

| Course Code | Professional Elective-I       |
|-------------|-------------------------------|
| MVJ19IS551  | Advanced Java & J2EE          |
| MVJ19IS552  | System Software               |
| MVJ19IS553  | Unix Shell Programming        |
| MVJ19IS554  | Information Coding Techniques |

**VI SEMESTER B.E. (5 Theory, 2 Labs, 1 Mini Project, 1 AICTE Activity)**

| S No   | Course |   | Course Title                     | Teaching Department | Teaching hours/week |          |                    | Examination       |           |           |             | Credits   |
|--|--------|---|----------------------------------|---------------------|---------------------|----------|--------------------|-------------------|-----------|-----------|-------------|-----------|
|  |        |   |                                  |                     | Theory Lecture      | Tutorial | Practical/ Drawing | Duration in Hours | CIE Marks | SEE Marks | Total marks |           |
|  | L      | T   |                                  |                     | P                   |          |                    |                   |           |           |             |           |
| 1  | PCC    | MVJ19IS61                                   | Artificial Intelligence          | ISE Dept            | 3                   | 2        | 0                  | 3                 | 50        | 50        | 100         | 4         |
| 2  | PCC    | MVJ19IS62                                   | IoT                              | ISE Dept            | 3                   | 2        | 0                  | 3                 | 50        | 50        | 100         | 4         |
| 3  | PE     | MVJ19IS63X                                  | Professional Elective-II         | ISE Dept            | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 4  | PE     | MVJ19IS64X                                  | Professional Elective-III        | ISE Dept            | 4                   | 0        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 5  | OE     | MVJ19IS65X                                  | Open Elective-I                  | ISE Dept            | 3                   | 1        | 0                  | 3                 | 50        | 50        | 100         | 3         |
| 6  | PCC    | MVJ19ISL66                                  | Artificial Intelligence Lab      | ISE Dept            | 0                   | 1        | 2                  | 3                 | 50        | 50        | 100         | 2         |
| 7  | PCC    | MVJ19ISL67                                  | IoT Lab                          | ISE Dept            | 0                   | 1        | 2                  | 3                 | 50        | 50        | 100         | 2         |
| 8  | Proj   | MVJ19ISP68                                  | Mini-Project/product development | ISE Dept            | -                   | -        | -                  | 3                 | 50        | 50        | 100         | 3         |
| 9  | NCCMC  | AICTE Activity for 80-90 hours ( 20 points) |                                  | -                   | -                   | -        | -                  | -                 | -         | -         | -           | -         |
| <b>Total</b>   |        |   |                                  |                     | 16                  | 8        | 4                  | 24                | 400       | 400       | 800         | <b>24</b> |
| Note: PCC: Professional Core Course , PE: Professional Elective, OE: Open Elective, Proj: Project Work, NCCMC: Non-credit mandatory course |        |   |                                  |                     |                     |          |                    |                   |           |           |             |           |

| Course Code | Professional Elective-II       | Course Code | Professional Elective-III             | Course Code | Open Elective-I                 |
|-------------|--------------------------------|-------------|---------------------------------------|-------------|---------------------------------|
| MVJ19IS631  | Data Mining & Data Warehouse   | MVJ19IS641  | Unix System Programming               | MVJ19IS651  | Wireless Sensor & Adhoc Network |
| MVJ19IS632  | Web Technology                 | MVJ19IS642  | Virtual Reality                       | MVJ19IS652  | TCP/IP Protocol Suit            |
| MVJ19IS633  | Information Storage Management | MVJ19IS643  | Cryptography and Information Security | MVJ19IS653  | Programming Language Principles |
| MVJ19IS634  | Compiler Design                | MVJ19IS644  | Blockchain Technology                 | MVJ19IS654  | Free & Open Source Software     |

**VII SEMESTER B.E. (5 Theory, 2 Labs, Project Phase-I, 1 AICTE Activity)**

| S No         | Course |   | Course Title             | Teaching Department | Teaching hours/week |          |                       | Examination       |           |           |             | Credits   |
|--------------|--------|---|--------------------------|---------------------|---------------------|----------|-----------------------|-------------------|-----------|-----------|-------------|-----------|
|              |        |   |                          |                     | Theory Lecture      | Tutorial | Practical/<br>Drawing | Duration in Hours | CIE Marks | SEE Marks | Total marks |           |
|              | L      | T   |                          |                     | P                   |          |                       |                   |           |           |             |           |
| 1            | PCC    | MVJ19IS71                                   | Machine Learning         | ISE Dept            | 4                   | 1        | 0                     | 3                 | 50        | 50        | 100         | 4         |
| 2            | PCC    | MVJ19IS72                                   | Bigdata & Hadoop         | ISE Dept            | 4                   | 1        | 0                     | 3                 | 50        | 50        | 100         | 4         |
| 3            | PE     | MVJ19IS73X                                  | Professional Elective-IV | ISE Dept            | 3                   | 1        | 0                     | 3                 | 50        | 50        | 100         | 3         |
| 4            | PE     | MVJ19IS74X                                  | Professional Elective-V  | ISE Dept            | 3                   | 1        | 0                     | 3                 | 50        | 50        | 100         | 3         |
| 5            | OE     | MVJ19IS75X                                  | Open Elective-II         | ISE Dept            | 4                   | 0        | 0                     | 3                 | 50        | 50        | 100         | 3         |
| 6            | PCC    | MVJ19ISL76                                  | Machine Learning Lab     | ISE Dept            | 0                   | 1        | 2                     | 3                 | 50        | 50        | 100         | 2         |
| 7            | PCC    | MVJ19ISL77                                  | Bigdata & Hadoop Lab     | ISE Dept            | 0                   | 1        | 2                     | 3                 | 50        | 50        | 100         | 2         |
| 8            | Proj   | MVJ19ISP78                                  | Project Phase-1          | ISE Dept            | -                   | -        | -                     | -                 | 50        | -         | 50          | 2         |
| 9            | NCMC   | AICTE Activity for 80-90 hours ( 20 points) |                          |                     | -                   | -        | -                     | -                 | -         | -         | -           | -         |
| <b>Total</b> |        |   |                          |                     | 18                  | 6        | 4                     | 21                | 400       | 350       | 750         | <b>23</b> |

Note: PCC: Professional Core Course , PE: Professional Elective, OE: Open Elective, Proj: Project Work , NCMC: Non-credit mandatory course

| Course Code | Professional Elective-IV     | Course Code | Professional Elective-V                   | Course Code | Open Elective-II    |
|-------------|------------------------------|-------------|---|-------------|---------------------|
| MVJ19IS731  | Data Science using R         | MVJ19IS741  | Unified Object Oriented Modeling & Design | MVJ19IS751  | Cloud Computing     |
| MVJ19IS732  | Deep Learning                | MVJ19IS742  | Information Retrieval & Visualization     | MVJ19IS752  | Mobile Computing    |
| MVJ19IS733  | Storage Area Network         | MVJ19IS743  | Software Testing                          | MVJ19IS753  | Pattern Recognition |
| MVJ19IS734  | System Modeling & Simulation | MVJ19IS744  | Cyber Security, Law & Ethics              | MVJ19IS754  | Ethical Hacking     |

**VIII SEMESTER B.E. (Project Phase-II, Internship, 1 Technical Seminar, 1 Certification course, 1 AICTE Activity)**

| S No  | Course |   | Course Title         | Teaching Department | Teaching hours/week |          |                       | Examination       |           |           |             | Credits   |
|---|--------|---|----------------------|---------------------|---------------------|----------|-----------------------|-------------------|-----------|-----------|-------------|-----------|
|   |        |   |                      |                     | Theory Lecture      | Tutorial | Practical/<br>Drawing | Duration in Hours | CIE Marks | SEE Marks | Total marks |           |
|   | L      | T   |                      |                     | P                   |          |                       |                   |           |           |             |           |
| 1   | Proj   | MVJ19ISP81                                  | Project Phase-2      | ISE Dept            | -                   | -        | -                     | 3                 | 50        | 50        | 100         | 10        |
| 2   | Int    | MVJ19ISI82                                  | Internship           | ISE Dept            | -                   | -        | -                     | 3                 | 50        | 50        | 100         | 3         |
| 3   | Sem    | MVJ19ISS83                                  | Seminar              | ISE Dept            | -                   | -        | -                     | 3                 | 50        | 50        | 100         | 1         |
| 4   | CRT    | MVJ19ISC84                                  | Certification course | Industry/Institute  | -                   | -        | -                     | -                 | -         | -         | -           | 2         |
| 5   | NMC    | AICTE Activity for 80-90 hours ( 20 points) |                      |                     | -                   | -        | -                     | -                 | -         | -         | -           | -         |
| <b>Total</b>  |        |   |                      |                     |                     |          |                       | 9                 | 250       | 250       | 500         | <b>16</b> |
| Note: Proj: Project Work, Int.: Internship, Sem : Seminar, CRT: Certification Course (Can be carried out during the program period but same will reflect in the final semester grade card) NMC: Non-credit mandatory course |        |   |                      |                     |                     |          |                       |                   |           |           |             |           |