



# Central University of Jammu

## DEPARTMENT OF COMPUTER SCIENCE & IT

No.: CUJ/CSIT/2019/343

Dated: 17<sup>th</sup> May 2019

The following faculty of the Department were involved in **Design and Development of new curriculum and Courses** for the Integrated M.Sc. (Computer Science)-MCA, MCA and M.Tech programmes during the years 2013 to 2017 as per the details given below:

| S.No. | Course No | Course Name                              | Credits | Name of Faculty    |
|-------|-----------|--|---------|--------------------|
| 1.    | MCSA 375  | E-Commerce                               | 4       | DR.BHAVNA ARORA    |
| 2.    | MCSA 175  | Fundamentals of Computers(IDC)           | 4       | DR.BHAVNA ARORA    |
| 3.    | MCSA 275  | Advanced Computer Concepts(IDC)          | 4       | DR.BHAVNA ARORA    |
| 4.    | MCSA 475  | Information Security and Cyber law (IDC) | 4       | DR.BHAVNA ARORA    |
| 5.    | MCSA 101  | Programming Methodology and C- Language  | 4       | MR.NEERENDRA KUMAR |
| 6.    | MCSA 102  | Computer Organization and Architecture   | 4       | DR.DEEPTI MALHOTRA |
| 7.    | MCSA 103  | Operating System                         | 4       | DR.ARVIND SELWAL   |
| 8.    | MCSA 104  | Database Management System               | 4       | DR.BHAVNA ARORA    |
| 9.    | MCSA201   | Data Structure using C                   | 4       | DR.DEEPTI MALHOTRA |
| 10.   | MCSA202   | Object Oriented programming using C++    | 4       | MR.NEERENDRA KUMAR |
| 11.   | MCSA203   | Computer Networks and data communication | 4       | DR.BHAVNA ARORA    |
| 12.   | MCSA204   | Discrete Mathematics                     | 4       | DR.ARVIND SELWAL   |
| 13.   | MCSA 301  | Analysis and design of Algorithms        | 4       | DR.ARVIND SELWAL   |
| 14.   | MCSA 302  | Internet and Java Programming            | 4       | MR.NEERENDRA KUMAR |
| 15.   | MCSA 303  | Theory of Computation                    | 4       | DR.DEEPTI MALHOTRA |
| 16.   | MCSA402   | Computer Graphics                        | 4       | DR.ARVIND SELWAL   |
| 17.   | MCSA403   | Artificial Intelligence                  | 4       | DR.ARVIND SELWAL   |
| 18.   | MCSA411   | Probability and Statistics               | 4       | PROF.DEVANAND      |



|     |          |   |   |                    |
|-----|----------|---|---|--------------------|
| 19. | MCSA412  | Numerical Computing                         | 4 | MR.NEERENDRA KUMAR |
| 20. | MCSA413  | Microprocessors                             | 4 | DR.DEEPTI MALHOTRA |
| 21. | MCSA 414 | Computer Based Optimization Techniques      | 4 | PROF.DEVANAND      |
| 22. | MCSA415  | Compiler design                             | 4 | DR.ARVIND SELWAL   |
| 23. | MCSA416  | Information System                          | 4 | DR.BHAVNA ARORA    |
| 24. | MCSA511  | Image Processing                            | 4 | DR.ARVIND SELWAL   |
| 25. | MCSA512  | Mobile Computing                            | 4 | DR.BHAVNA ARORA    |
| 26. | MCSA513  | Grid and Cloud Computing                    | 4 | DR.DEEPTI MALHOTRA |
| 27. | MCSA514  | Advanced Database Systems                   | 4 | DR.BHAVNA ARORA    |
| 28. | MCSA515  | Parallel Processing and Distributed Systems | 4 | MR NEERENDRA KUMAR |
| 29. | MCSA516  | Simulation and Modelling                    | 4 | PROF.DEVANAND      |
| 30. | MCSA501  | Neural Networks and Genetic Algorithms      | 4 | DR.ARVIND SELWAL   |
| 31. | MCSA502  | Data Warehousing and data mining            | 4 | DR.BHAVNA ARORA    |
| 32. | MCSA503  | Network Security and Cryptography           | 4 | DR.BHAVNA ARORA    |
| 33. | MCSC301  | Theory of Computation                       | 4 | DR.ARVIND SELWAL   |
| 34. | MCSC303  | Computer Graphics                           | 4 | DR.BHAVNA ARORA    |
| 35. | MCSC311  | Knowledge Based systems                     | 4 | DR.BHAVNA ARORA    |
| 36. | MCSC314  | Computer Based Optimization Techniques      | 4 | PROF.DEVANAND      |
| 37. | MCSC315  | Information System                          | 4 | DR.BHAVNA ARORA    |
| 38. | MCSC411  | Image Processing                            | 4 | DR.ARVIND SELWAL   |
| 39. | MCSC412  | Business Intelligent Systems                | 4 | DR.BHAVNA ARORA    |
| 40. | MCSC413  | Network Security                            | 4 | DR.BHAVNA ARORA    |
| 41. | MCSC414  | Cloud Computing                             | 4 | DR.DEEPTI MALHOTRA |
| 42. | MCSC415  | Open Source Technology                      | 4 | DR.ARVIND SELWAL   |
| 43. | MCSC416  | Simulation & Modelling                      | 4 | PROF.DEVANAND      |
| 44. | MCSC418  | Natural Language Processing                 | 4 | DR.BHAVNA ARORA    |
| 45. | MCSC419  | Cryptography                                | 4 | DR.BHAVNA ARORA    |



|     |             |   |   |                    |
|-----|-------------|---|---|--------------------|
| 46. | PGCSA1C001T | Principles of Programming Languages         | 4 | MR.NEERENDRA KUMAR |
| 47. | PGCSA1C002T | Operating System                            | 4 | DR.ARVIND SELWAL   |
| 48. | PGCSA1C003T | Computer Architecture and Organization      | 4 | DR.ARVIND SELWAL   |
| 49. | PGCSA1E001T | Operation Research                          | 4 | PROF.DEVANAND      |
| 50. | PGCSA1E002T | Current trends & technologies               | 4 | DR.BHAVNA ARORA    |
| 51. | PGCSA1E003T | Web Scripting & Mark-up Languages           | 4 | MR.NEERENDRA KUMAR |
| 52. | PGCSA1F001T | Mathematical Foundation of Computer Science | 4 | DR.ARVIND SELWAL   |
| 53. | PGCSA2C001T | Data Structures                             | 4 | DR.DEEPTI MALHOTRA |
| 54. | PGCSA2C003T | OOP using Java                              | 4 | MR.NEERENDRA KUMAR |
| 55. | PGCSA2E001T | Image Processing                            | 4 | DR.ARVIND SELWAL   |
| 56. | PGCSA2E002T | Parallel Computing                          | 4 | DR.DEEPTI MALHOTRA |
| 57. | PGCSA2E003T | Simulation & Modelling                      | 4 | PROF.DEVANAND      |
| 58. | PGCSA2F001T | Computer Hardware & Troubleshooting         | 4 | DR.ARVIND SELWAL   |
| 59. | PGCSA2F002T | Imaging & Editing Tools                     | 4 | DR.BHAVNA ARORA    |
| 60. | PGCSA3C002T | Database Management System                  | 4 | DR.BHAVNA ARORA    |
| 61. | PGCSA3C003T | Design and analysis of algorithms           | 4 | DR.DEEPTI MALHOTRA |
| 62. | PGCSA3C001T | Ecommerce                                   | 4 | DR.BHAVNA ARORA    |
| 63. | PGCSA3E002T | Cyber Security                              | 4 | DR.BHAVNA ARORA    |
| 64. | PGCSA3E003T | Multimedia                                  | 4 | DR.BHAVNA ARORA    |
| 65. | PGCSA4C001T | Theory of Computation                       | 4 | DR.DEEPTI MALHOTRA |
| 66. | PGCSA4C002T | Microprocessor                              | 4 | DR.DEEPTI MALHOTRA |
| 67. | PGCSA4F001T | Open Source Technology                      | 4 | DR.ARVIND SELWAL   |
| 68. | PGMTH1C003T | Advanced Operating Systems                  | 4 | DR.DEEPTI MALHOTRA |
| 69. | PGMTH1E001T | Parallel and Distributed Computing          | 4 | DR.DEEPTI MALHOTRA |
| 70. | PGMTH1E002T | Network security and cryptography           | 4 | DR.BHAVNA ARORA    |
| 71. | PGMTH1E003T | Advanced data Mining and warehousing        | 4 | DR.BHAVNA ARORA    |
| 72. | PGMTH1E004T | Wireless and Mobile networks                | 4 | DR.BHAVNA ARORA    |



|     |             |  |   |                    |
|-----|-------------|--|---|--------------------|
| 73. | PGMTH1E005T | Operation Research                       | 4 | PROF.DEVANAND      |
| 74. | PGMTH1E006T | Open Source Technology                   | 4 | DR.ARVIND SELWAL   |
| 75. | PGMTH1F001T | Statistical Methods for Computer Science | 4 | DR.ARVIND SELWAL   |
| 76. | PGMTH2C001T | Cyber Security                           | 4 | DR.BHAVNA ARORA    |
| 77. | PGMTH2C002T | Big Data Analytics                       | 4 | DR.ARVIND SELWAL   |
| 78. | PGMTH2C003T | Cloud and Grid Computing                 | 4 | DR.DEEPTI MALHOTRA |
| 79. | PGMTH2E002T | Advanced Computer Architecture           | 4 | DR.DEEPTI MALHOTRA |
| 80. | PGMTH2E003T | Simulation and Modelling                 | 4 | PROF.DEVANAND      |
| 81. | PGMTH2E004T | Digital Image Processing                 | 4 | DR.ARVIND SELWAL   |
| 82. | PGMTH2E006T | SMAC and IoT                             | 4 | DR.BHAVNA ARORA    |
| 83. | PGMTH2F002T | Oracle Database Development              | 4 | DR.ARVIND SELWAL   |
| 84. | PGMTH3C001T | Soft Computing techniques                | 4 | DR.ARVIND SELWAL   |
| 85. | PGMTH3C003T | Biometric and Pattern Recognition        | 4 | DR.ARVIND SELWAL   |
| 86. | PGMTH3E002T | Scientific Computing                     | 4 | DR.ARVIND SELWAL   |
| 87. | PGMTH3E003T | Computer Animation                       | 4 | DR.BHAVNA ARORA    |



**Dr. Yashwant Singh** विभागाध्यक्ष / Head  
 Head कम्प्यूटर विज्ञान एवं सूचना प्रौद्योगिकी विभाग  
 Department of Computer Science and IT  
 जम्मू केंद्रीय विश्वविद्यालय / Central University of Jammu



**Prof. Devanand**  
 Dean,  
 School of Basic & Applied Sciences  
 आधिष्ठाता / Dean  
 आधारिक एवं अनुप्रयुक्त विज्ञान विद्यालय  
 School of Applied Sciences  
 जम्मू केंद्रीय विश्वविद्यालय / Central University of Jammu





## Department of Computer Science and IT Central University of Jammu

No.: CUJ/CSIT/2017/1409

Dated: 06<sup>th</sup> April, 2017

The following is the details of the design and development of **new curriculum and courses** by the faculty members of the department:

### MCA 5<sup>th</sup> SEMESTER UNDER CBCS SCHEME

| S. No. | Course Title                        | Course Credits | Name of the Faculty  |
|--------|-------------------------------------|----------------|----------------------|
| 1.     | Compiler Design                     | 4              | Dr. Deepti Malhotra  |
| 2.     | Artificial Intelligence             | 4              | Er. Abhishek Sambyal |
| 3.     | Computer Graphics                   | 4              | Er. Arvind Selwal    |
| 4.     | Advanced Database Management System | 4              | Dr Bhavna Arora      |
| 5.     | Network Security                    | 4              | Dr Bhavna Arora      |
| 6.     | Soft Computing                      | 4              | Er. Arvind Selwal    |

### MTECH 3<sup>rd</sup> SEMESTER

| S. No. | Course Title                        | Course Credits | Name of the Faculty  |
|--------|-------------------------------------|----------------|----------------------|
| 1.     | Soft Computing Techniques           | 4              | Er. Arvind Selwal    |
| 2.     | Advanced Software Engineering       | 4              | Dr. Deepti Malhotra  |
| 3.     | Biometric & Pattern Recognition     | 4              | Er. Arvind Selwal    |
| 4.     | Smartphone Computing & Applications | 4              | Er. Nikita Gandotra  |
| 5.     | Scientific Computing                | 4              | Er. Abhishek Sambyal |
| 6.     | Computer Animation                  | 4              | Dr Bhavna Arora      |

**Prof. Devanand**

Head of the Department

कंप्यूटर विज्ञान एवं सूचना प्रौद्योगिकी विभाग  
Department of Computer Science and IT  
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**DEPARTMENT OF COMPUTER SCIENCE & IT**

**CENTRAL UNIVERSITY OF JAMMU**

No.: CUJ/CSIT/2017/1510

Dated: 31<sup>st</sup> May, 2017

The following is the details of the design and development of **new curriculum and courses** by the faculty members of the department:

**Applicable For:** M.Tech programme

**1<sup>st</sup> SEMESTER**

| Course Code | Course Title                              | Credits | Allocated To         |
|-------------|---|---------|----------------------|
|             | CORE COURSES                              |         |                      |
| PGMTH1C001T | Design and Analysis of Advanced Algorithm | 4       | Dr. Deepti Malhotra  |
| PGMTH1C002T | Network Security & Cryptography           | 4       | Dr. Bhavna Arora     |
| PGMTH1C003T | Big Data Analytics                        | 4       | Er. Abhishek Sambyal |
| PGMTH1E001T | Advanced Web Technologies                 | 4       | Er. Nikita Gandotra  |
| PGMTH1E002T | Wireless and mobile networks              | 4       | Dr. Bhavna Arora     |
| PGMTH1E003T | Operation Research                        | 4       | Dr. Devanand Padha   |
| PGMTH1E004T | Open Source Technologies                  | 4       | Er. Abhishek Sambyal |
| PGMTH1E005T | Advanced Operating System                 | 4       | Er. Arvind Selwal    |
| PGMTH1F001T | Statistical Method for Computer Science   | 2       | Dr. Devanand Padha   |

**2<sup>nd</sup> SEMESTER**

| Course Code | Course Title                                   | Credits | Allocated To         |
|-------------|--|---------|----------------------|
|             | CORE COURSES                                   |         |                      |
| PGMTH2C001T | Cyber Security                                 | 4       | Dr. Bhavna Arora     |
| PGMTH2C002T | Digital Image Processing                       | 4       | Er. Arvind Selwal    |
| PGMTH2C003T | Cloud & Grid Computing                         | 4       | Dr. Deepti Malhotra  |
| PGMTH2E001T | Advanced Computer Architecture                 | 4       | Dr. Deepti Malhotra  |
| PGMTH2E002T | Simulation & Modelling                         | 4       | Dr. Devanand Padha   |
| PGMTH2E003T | Soft Computing                                 | 4       | Er. Arvind Selwal    |
| PGMTH2E004T | Machine Learning                               | 4       | Er. Abhishek Sambyal |
| PGMTH2E005T | SMAC & Internet of Things                      | 4       | Dr. Bhavna Arora     |
| PGMTH2F001T | Design and Implementation of Computer Networks | 2       | Er. Nikita Gandotra  |
| PGMTH2F002T | Database Design Development                    | 2       | Er. Arvind Selwal    |
| PGMTH2F003T | Research Methodology                           | 2       | Er. Nikita Gandotra  |

(Prof. Devanand)

Head of Department

विभागाध्यक्ष / Head

कंप्यूटर विज्ञान एवं सूचना प्रौद्योगिकी विभाग

Department of Computer Science and IT

जम्मू केंद्रीय विश्वविद्यालय / Central University of Jammu





Department of Computer Science and IT  
Central University of Jammu

No.: CUJ/CSIT/2018/504(i)

Dated: 08<sup>th</sup> Nov., 2018

The following is the details of the design and development of **new curriculum and courses** by the faculty members of the department:

**Applicable for:** M. Tech. Computer Science and Technology (w.e.f. 2018 for batch 2018-19)

**Semester-II**

| S. No. | Faculty Name        | Course(s)  |
|--------|---------------------|--|
| 1.     | Prof. Devanand      | 1. Modelling Simulation and Optimization (4 credits)   |
| 2.     | Dr. Yashwant Singh  | 1. Advanced Database Management Systems (4 credits)<br>2. Advanced Software Design Development & Testing (4 credits)                   |
| 3.     | Dr. Bhavna Arora    | 1. Network & Cyber Security (4 credits)<br>2. Data Warehousing and Data Mining (4 credits)   |
| 4.     | Dr. Arvind Selwal   | 1. Big Data Analytics (4 credits)<br>2. Soft Computing (4 credits)   |
| 5.     | Dr. Deepti Malhotra | 1. Cloud Computing (4 credits)<br>2. Advanced Java Programming (4 credits)<br>3. Computer Vision (4 credits)                           |
| 6.     | Mr. Neerendra Kumar | 1. Computing Systems for Robotics (4 credits)<br>2. Advanced Web Technologies (4 credits)<br>3. Agile Software Development (4 credits) |

**Dr. Yashwant Singh** विभागाध्यक्ष / Head  
**Head of the Department** कम्प्यूटर विज्ञान एवं सूचना प्रौद्योगिकी विभाग  
Department of Computer Science and IT  
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**Prof. Devanand**  
**Dean**  
**School of Basic & Applied Sciences**  
अधिष्ठाता / Dean  
आधारिक एवं अनुप्रयुक्त विज्ञान विद्यालय  
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Department of Computer Science and Information Technology  
Central University of Jammu

No.: CUJ/CSIT/2019/338

Dated: 16<sup>th</sup> May, 2019

The following is the details of the design and development of **new curriculum and courses** by the faculty members of the department:

**Applicable for:** Ph.D course work for the session w.e.f. 2019.

| Sr. No.        | Subject                            | Credits | Marks | Name of the faculty |
|----------------|------------------------------------|---------|-------|---------------------|
| 1.             | Research Methodology               | 4       | 100   | Dr. Yashwant Singh  |
| 2.             | Scientific Programming and Tools   | 4       | 100   | Dr. Arvind Selwal   |
| 3. Elective-I  | i. Simulation and Modelling        | 4       | 100   | Prof. Devanand      |
|                | ii. Internet of Things ( IoT)      | 4       | 100   | Dr. Yashwant Singh  |
|                | iii. Machine Learning              | 4       | 100   | Dr. Arvind Selwal   |
|                | iv. Information Security           | 4       | 100   | Dr. Bhavna Arora    |
|                | v. Data Analytics and Data Science | 4       | 100   | Dr. Deepti Malhotra |
|                | vi. Computing Systems for Robotics | 4       | 100   | Neerendra Kumar     |
| 4. Elective-II | i. Wireless Sensor Networks        | 4       | 100   | Dr. Yashwant Singh  |
|                | ii. Natural Language Processing    | 4       | 100   | Dr. Bhavna Arora    |
|                | iii. Data Mining Techniques        | 4       | 100   | Dr. Deepti Malhotra |
|                | iv. Pattern Recognition            | 4       | 100   | Dr. Arvind Selwal   |
|                | v. Digital Image Processing        | 4       | 100   | Dr. Arvind Selwal   |
|                | vi. Optimisation Techniques        | 4       | 100   | Prof. Devanand      |
|                | vii. SCADA system and Applications | 4       | 100   | Dr. Yashwant Singh  |

**Dr. Yashwant Singh**  
Head of the Department

कंप्यूटर विज्ञान एवं सूचना प्रौद्योगिकी विभाग  
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**Prof. Devanand**  
Dean

**School of Basic & Applied Sciences**

अधिष्ठाता / Dean  
आधारिक एवं अनुप्रयुक्त विज्ञान विद्यालय  
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## Department of Computer Science and IT Central University of Jammu

No.: CUJ/CSIT/2021/1286

Dated: 04<sup>th</sup> Oct., 2021

The following is the details of the design and development of **new curriculum and courses** by the faculty members of the department:

**Applicable for:** M. Tech. (Computer Science and Technology), 2021-22.

| S. No. | Faculty Name        | Course(s) Name                     | Course Credits |
|--------|---------------------|------------------------------------|----------------|
| 1.     | Dr. Bhavna Arora    | 1. Cryptography                    | 4              |
| 2.     | Dr. Arvind Selwal   | 1. AI and Machine Learning         | 4              |
|        |                     | 2. Digital Image Processing        | 4              |
|        |                     | 3. Scientific Languages            | 4              |
| 3.     | Dr. Neerendra Kumar | 1. Cyber Physical System           | 4              |
| 4.     | Dr. Deepti Malhotra | 1. ICS/SCADA Security Fundamentals | 4              |

**Dr. Yashwant Singh**  
विभागाध्यक्ष / Head  
Head of the Department  
कंप्यूटर विज्ञान एवं सूचना प्रौद्योगिकी विभाग  
Department of Computer Science and IT  
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**Prof. Devanand**  
Dean  
School of Basic & Applied Sciences  
अधिष्ठाता / Dean  
आधारिक एवं अनुप्रयुक्त विज्ञान विद्यालय  
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