



GALGOTIAS UNIVERSITY

B.Tech. in Electrical Vehicle with Specialization in Electric Vehicle Programme Structure

| School/Dept. | | Department of Electrical, Electronics and Communication Engineering | Program Name: B.Tech. in Electrical Engineering with specialization in Electric Vehicle | | | | | |
|--------------|-------------|---|---|---|---|---|--------------------|-------|
| Semester | | 1 | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | C1UC122B | Engineering Mathematics-I | 3 | 0 | 1 | 0 | 4 | 5 |
| 2 | E2UC102C | Programming for Problem Solving – C | 2 | 0 | 1 | 1 | 4 | 5 |
| 3 | G2UA120B | Basic Electrical & Electronics Engineering | 3 | 0 | 1 | 0 | 4 | 5 |
| 4 | C1UD124B | Semi-conductor and Opto Electronic Devices | 3 | 0 | 1 | 0 | 4 | 5 |
| 5 | G3UB101B | Engineering Design and Prototyping | 3 | 0 | 1 | 0 | 4 | 5 |
| 6 | C1UB120T | Environmental Impact Analysis | 2 | 0 | 0 | 0 | 0 | 2 |
| | | Total Semester Credit | | | | | 20 | |
| Semester | | 2 | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | C1UB129T | Chemical and Biological Materials | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | C1UC222B | Engineering Mathematics-II | 3 | 0 | 1 | 0 | 4 | 5 |
| 3 | G2UC101B | Introduction to Digital Systems | 2 | 0 | 1 | 0 | 3 | 4 |
| 4 | E2UC201C | OOPS | 2 | 0 | 1 | 1 | 4 | 4 |
| 5 | C1UC224T | Discrete Mathematics | 3 | 0 | 0 | 0 | 3 | 3 |
| 6 | O1UA104B | Communication Skills for Engineers | 2 | 0 | 1 | 0 | 3 | 4 |
| 7 | L1UB120T | Yoga | 2 | 0 | 0 | 0 | 0 | 2 |
| | | Total Semester Credit | | | | | 20 | |
| Semester | | 3 | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | C1UC321T | Functions of Complex Variables and Transforms | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | G2UC301C | Electronic Devices and Circuits | 3 | 0 | 1 | 1 | 5 | 5 |
| 3 | G2UB301B | Network Analysis and Synthesis | 3 | 0 | 1 | 0 | 4 | 5 |
| 4 | G2UC302T | Signals and Systems | 3 | 0 | 0 | 0 | 3 | 4 |
| 5 | G2UC303T | Electromagnetic Field Theory | 3 | 0 | 0 | 0 | 3 | 3 |
| 6 | K1UC320B | Communication Competency & Aptitude Building-1 | 1 | 0 | 1 | 0 | 2 | 2 |
| | | Total Semester Credit | | | | | 20 | |
| Semester | | 4 | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | C1UC420T | Probability and Stochastic Processes | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | G2UB407T | Control Systems | 3 | 0 | 0 | 0 | 3 | 4 |
| 3 | G2UB402B | Electrical Machine-I | 3 | 0 | 1 | 0 | 4 | 5 |
| 4 | G2UB406T | Fundamentals of Power Systems | 3 | 0 | 0 | 0 | 3 | 3 |
| 5 | G2UB405C | Electrical Measurement and Instrumentation | 3 | 0 | 1 | 1 | 5 | 5 |
| 6 | O1UA421B | Communication Competency & Aptitude Building-2 | 1 | 0 | 1 | 0 | 2 | 3 |
| 7 | G2UB408T | Introduction to Electrical Vehicles (Specialized course) | 3 | 0 | 0 | 0 | 3 | 3 |
| | | Total Semester Credit | | | | | 23 | |

| Semester | | 5 | Program Chair Name | | | | Dr. Sheetla Prasad | |
|----------|-------------|---|--------------------|---|---|----|--------------------|-------|
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | G2UB501B | Electrical Machine-II | 3 | 0 | 1 | 0 | 4 | 5 |
| 2 | G2UB502T | Power System Analysis | 3 | 0 | 0 | 0 | 3 | 4 |
| 3 | G2UB503C | Power Electronics | 3 | 0 | 1 | 1 | 5 | 5 |
| 4 | G2UB504B | Microcontroller and Embedded System | 3 | 0 | 1 | 0 | 4 | 5 |
| 5 | E2UC521B | Python and Data Structures | 3 | 0 | 1 | 0 | 4 | 5 |
| 6 | G2UB504C | Electric Vehicles Architecture (Specialized course) | 3 | 0 | 1 | 1 | 5 | 5 |
| | | Total Semester Credit | | | | | 25 | |
| Semester | | 6 | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | O1UA602B | Campus 2 Corporate Training | 1 | 0 | 1 | 0 | 2 | 3 |
| 2 | G2UB603B | Power System Protection | 3 | 0 | 1 | 0 | 4 | 5 |
| 3 | ***** | Program Elective-I | 3 | 0 | 0 | 0 | 3 | 4 |
| 4 | ***** | Program Elective-II | 3 | 0 | 0 | 0 | 3 | 3 |
| 5 | ***** | Open Elective-I | 3 | 0 | 0 | 0 | 3 | 3 |
| 6 | G2UB604C | Electric Drives | 3 | 0 | 1 | 1 | 5 | 5 |
| 7 | G2UB604T | Energy Storage Systems (Specialized course) | 3 | 0 | 0 | 0 | 3 | 3 |
| 8 | G2UB604P | Project (EV) (Specialized course) | 0 | 0 | 0 | 3 | 3 | 0 |
| | | Total Semester Credit | | | | | 26 | |
| Semester | | 7 | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | ***** | Program Elective-III | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | ***** | Program Elective-IV | 3 | 0 | 0 | 0 | 3 | 3 |
| 3 | ***** | Open Elective-II | 3 | 0 | 0 | 0 | 3 | 3 |
| 4 | ***** | Open Elective-III | 3 | 0 | 0 | 0 | 3 | 3 |
| 5 | G2UB712R | Industrial Internship (Min. 4 weeks) | 0 | 0 | 0 | 1 | 1 | 0 |
| 6 | G2UB714R | Capstone Design Phase-I | 0 | 0 | 0 | 7 | 7 | 0 |
| 7 | G2UB703B | Electrical Vehicles controls and Drives (Specialized course) | 3 | 0 | 1 | 0 | 4 | 5 |
| | | Total Semester Credit | | | | | 24 | |
| Semester | | 8 | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| | G2UB713R | Capstone Design phase - II | 0 | 0 | 0 | 18 | 18 | 0 |
| 1 | G2UB715R | Industrial Internship-II (To be completed during 8 Semester only with min 3 to max. 6 months) | 0 | 0 | 0 | 2 | 2 | 0 |
| | | Total Semester Credit | | | | | 20 | |

Total Program Credit 178

Programme Elective

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|---------------------|--|--|---------------------------|
| School/Dept. | Department of Electrical, Electronics and Communication Engineering | Program Name: B.Tech. in Electrical Engineering with specialization in Electric Vehicle | |
| Basket Name | Instrumentation and Control Engineering | Program Chair Name | Dr. Sheetla Prasad |

| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
|-------------|-------------|--|--------------------|---|---|---|--------------------|-------|
| 1 | G2UB611T | Advanced Control System | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | G2UB612T | Industrial Automation and Control | 3 | 0 | 0 | 0 | 3 | 3 |
| 3 | G2UB613T | Industrial Instrumentation and Automation | 3 | 0 | 0 | 0 | 3 | 3 |
| 4 | G2UB614T | Power System Operation and Control | 3 | 0 | 0 | 0 | 3 | 3 |
| 5 | G2UB615T | Digital Control | 3 | 0 | 0 | 0 | 3 | 3 |
| 6 | G2UB616T | Automation and Robotics | 3 | 0 | 0 | 0 | 3 | 3 |
| 7 | G2UB617T | Introduction to PLC and SCADA | 3 | 0 | 0 | 0 | 3 | 3 |
| Basket Name | | Power Engineering | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | G2UB621T | Power System Equipments | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | G2UB601T | Power Quality | 3 | 0 | 0 | 0 | 3 | 3 |
| 3 | G2UB622T | FACTS and HVDC | 3 | 0 | 0 | 0 | 3 | 3 |
| 4 | G2UB623T | Energy Storage Systems | 3 | 0 | 0 | 0 | 3 | 3 |
| 5 | G2UB623T | Electrical and Hybrid Vehicle | 3 | 0 | 0 | 0 | 3 | 3 |
| 6 | G2UB624T | Modeling and Analysis of Electrical Machines | 3 | 0 | 0 | 0 | 3 | 3 |
| 7 | G2UB625T | Hydrogen Energy | 3 | 0 | 0 | 0 | 3 | 3 |
| 8 | G2UB626T | Smart grid cyber-security | 3 | 0 | 0 | 0 | 3 | 3 |
| 9 | G2UB627T | Energy efficient system. | 3 | 0 | 0 | 0 | 3 | 3 |
| 10 | G2UB628T | Introduction to Microgrid | 3 | 0 | 0 | 0 | 3 | 3 |
| 11 | G2UB629T | Power Plant Engineering | 3 | 0 | 0 | 0 | 3 | 3 |
| 12 | G2UB620T | Power System Deregulation | 3 | 0 | 0 | 0 | 3 | 3 |
| Basket Name | | Renewable Energy Engineering | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | G2UB601T | Renewable Energy | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | G2UB630T | Energy Assessment and Audit | 3 | 0 | 0 | 0 | 3 | 3 |
| 3 | G2UB631T | Utilization of Electrical Energy and Traction System | 3 | 0 | 0 | 0 | 3 | 3 |
| 4 | G2UB632T | Power Electronics applications in Renewable Energy | 3 | 0 | 0 | 0 | 3 | 3 |
| 5 | G2UB633T | Special Electrical Machine | 3 | 0 | 0 | 0 | 3 | 3 |
| 6 | G2UB634T | Energy Modelling Simulation Using MATLAB | 3 | 0 | 0 | 0 | 3 | 3 |
| 7 | G2UB635T | Solar PV Techniques & Installation | 3 | 0 | 0 | 0 | 3 | 3 |
| 8 | G2UB636T | Energy Storage Systems for EV | 3 | 0 | 0 | 0 | 3 | 3 |
| 9 | G2UB637T | Waste to Energy | 3 | 0 | 0 | 0 | 3 | 3 |
| 10 | G2UB638T | Impact of Energy Systems on Environments | 3 | 0 | 0 | 0 | 3 | 3 |
| 11 | G2UB639T | Energy Scenario and its Policy | 3 | 0 | 0 | 0 | 3 | 3 |
| 12 | G2UB602T | Battery Management System | 3 | 0 | 0 | 0 | 3 | 3 |
| Basket Name | | Processing and Computing Techniques | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | G2UB640T | Machine learning | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | G2UB641T | Image Processing using MATLAB | 3 | 0 | 0 | 0 | 3 | 3 |
| 3 | G2UB642T | Introduction to Scilab and its applications | 3 | 0 | 0 | 0 | 3 | 3 |
| 4 | G2UB643T | Human Computer Interface | 3 | 0 | 0 | 0 | 3 | 3 |
| 5 | G2UB644T | Digital Signal Processing | 3 | 0 | 0 | 0 | 3 | 3 |
| 6 | G2UB645T | Soft Computing | 3 | 0 | 0 | 0 | 3 | 3 |

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|--------------------|--------------------|--|---------------------------|----------|----------|----------|---------------------------|--------------|
| 7 | G2UB646T | Neural Networks and Fuzzy Control | 3 | 0 | 0 | 0 | 3 | 3 |
| 8 | G2UB647T | Neural Networks and Deep Learning Algorithms | 3 | 0 | 0 | 0 | 3 | 3 |
| Basket Name | | IoT Technology | Program Chair Name | | | | Dr. Sheetla Prasad | |
| S. No. | Course Code | Course Title | L | T | P | S | Credits | Hours |
| 1 | G2UB651T | Introduction to IoT and its Applications | 3 | 0 | 0 | 0 | 3 | 3 |
| 2 | G2UB652T | Virtual Reality | 3 | 0 | 0 | 0 | 3 | 3 |
| 3 | G2UB653T | Raspberry Pi and its applications | 3 | 0 | 0 | 0 | 3 | 3 |
| 4 | G2UB654T | Introduction to Arduino programming and its applications | 3 | 0 | 0 | 0 | 3 | 3 |