



## Degree and Study Plan

|                 |                          |
|-----------------|--------------------------|
| College:        | Engineering              |
| Program:        | Mechatronics Engineering |
| Cohort:         | 2019                     |
| Degree:         | Bachelor of Engineering  |
| Major:          | mechatronics Engineering |
| Specialization: |                          |

| Summary of Credits   |                                                           |            |
|----------------------|-----------------------------------------------------------|------------|
| 1                    | University Requirements (UR)                              | 6          |
|                      | <i>General Foundation Program</i>                         | (0)        |
|                      | <i>Arabic language</i>                                    | (2)        |
|                      | <i>Contemporary Omani State and People</i>                | (2)        |
|                      | <i>Oman &amp; Islamic Civilization or Islamic Culture</i> | (2)        |
| 2                    | University Elective (UE)                                  | 6          |
| 3                    | College Requirements (CR)<br>(see List B)                 | 32         |
| 4                    | College Elective (CE)<br>(see List C)                     | 3          |
| 5                    | Departmental Requirements (DR)<br>(see List D)            | 0          |
| 6                    | Departmental Elective (DE)<br>(see List E)                | 0          |
| 7                    | Major Requirements (AR)<br>(see List F)                   | 80         |
| 8                    | Major Elective (AE)<br>(see List G)                       | 9          |
| 9                    | Specialization Requirements (SR)<br>(see List H)          | 0          |
| 10                   | Specialization Elective (SE)<br>(see List I)              | 0          |
| 11                   | Minor Requirement (IR)<br>(see List J)                    | 0          |
| 12                   | Minor Elective (IE)<br>(see List K)                       | 0          |
| <b>Total credits</b> |                                                           | <b>136</b> |

For reference contact: Dr. Mohamed  
Al-Badi

Ext. 1363

Date 20/10/2020

Dean's Office Dr. Hassan Al-Lawadi

Date 20/10/2020

Admission and Registration

Date

**Mechatronics Engineering Program**  
**Study Plan for 2019 Cohort (SCHEME I – With One Semester General Foundation Program)**

|                         | Course Code          | Course Title                                                  | Cr.       | Pre-req.                                                                    | Cat. |
|-------------------------|----------------------|---------------------------------------------------------------|-----------|-----------------------------------------------------------------------------|------|
| Fall-19                 | -                    | General Foundation Program                                    | -         | -                                                                           | UR   |
| Semester 2<br>Spring-20 | HIST1010 or ISLM1010 | Oman & Islamic Civilization or Islamic Culture                | 2         |                                                                             | UR   |
|                         | CHEM1071             | General Chemistry for Engineering                             | 3         | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105)                          | CR   |
|                         | ENGR1501             | Introduction to Engineering                                   | 1         | FPEL (0560 or 0600 or 0601 or 0604)                                         | CR   |
|                         | ENGR1600             | Workshop I                                                    | 1         | FPEL (0560 or 0600 or 0601 or 0604)                                         | CR   |
|                         | LANC2160             | English for Engineering I                                     | 3         | FPEL (0560 or 0600 or 0601 or 0604)                                         | CR   |
|                         | MATH2107             | Calculus I                                                    | 4         | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105)                          | CR   |
|                         | <b>Total</b>         |                                                               | <b>14</b> |                                                                             |      |
| Semester 3<br>Fall -20  | ARAB1002             | Arabic Language                                               | 2         |                                                                             | UR   |
|                         |                      | University Elective                                           | 2         |                                                                             | UE   |
|                         | SOCY1005             | Omani Contemporary State and                                  | 2         |                                                                             | UR   |
|                         | LANC2161             | English for Engineering II                                    | 3         | LANC2160                                                                    | CR   |
|                         | MATH2108             | Calculus II                                                   | 3         | MATH2107                                                                    | CR   |
|                         | PHYS2107             | Physics for Engineering I                                     | 4         | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105), MATH2107*               | CR   |
|                         | <b>Total</b>         |                                                               | <b>16</b> |                                                                             |      |
| Semester 4<br>Spring-21 | MATH4174             | Differential Equations for Engrs.                             | 3         | MATH2108                                                                    | CR   |
|                         | PHYS 2108            | Physics for Eng. II                                           | 4         | PHYS2107                                                                    | CR   |
|                         | COMP2002 or ENGR2217 | Intr. to Comp. Program. for Eng. or Programming for Engineers | 3         | FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPCS (0101 or 0102) | CE   |
|                         | ECCE2016             | Circuit Analysis I                                            | 3         | PHYS2107 or PHYS2101                                                        | AR   |
|                         | MEIE3107             | Eng. Drawing & Comp. Graphics                                 | 3         |                                                                             | AR   |
|                         | <b>Total</b>         |                                                               | <b>16</b> |                                                                             |      |
| Semester 5<br>Fall -21  | ECCE3016             | Circuit Analysis II                                           | 3         | ECCE2016                                                                    | AR   |
|                         | MATH3171             | Lin. Alg. & Mult. Calc. for Eng.                              | 3         | MATH2108                                                                    | CR   |
|                         | MEIE2129             | Basic Mechanics                                               | 3         | PHYS 2107                                                                   | AR   |
|                         | MEIE3281             | Probability & Statistics for Engineers                        | 3         | MATH2107                                                                    | AR   |
|                         | ECCE3206             | Digital Logic Design                                          | 3         |                                                                             | AR   |
|                         | <b>Total</b>         |                                                               | <b>15</b> |                                                                             |      |
| Semester 6<br>Spring-22 | MCTE3230             | Properties and Strength of Materials                          | 3         | MEIE 2129                                                                   | AR   |
|                         | MCTE4185             | Signals & Systems for Mechatronics                            | 3         | ECCE3016                                                                    | AR   |
|                         | MCTE3110             | Electronics                                                   | 4         | ECCE2016                                                                    | AR   |
|                         | MCTE4230             | Thermal Sciences                                              | 3         | PHYS2108, MATH2108                                                          | AR   |
|                         | MEIE3122             | Machine Dynamics                                              | 3         | MEIE2129                                                                    | AR   |
|                         | <b>Total</b>         |                                                               | <b>16</b> |                                                                             |      |

& OR ENGR 2217-Programming for Engineers

**Study Plan for 2019 Cohort: (Scheme I)**

|                                         | Course Code  | Course Title                          | Cr.       | Pre-req.                                                | Cat. |
|-----------------------------------------|--------------|---------------------------------------|-----------|---------------------------------------------------------|------|
| <b>Semester 7</b><br><b>Fall-22</b>     | MEIE4102     | Machine Design 1                      | 3         | MEIE3107, MCTE3230                                      | AR   |
|                                         | MCTE4145     | Instrumentation & Measurement         | 3         | MCTE3110                                                | AR   |
|                                         | MCTE3210     | Electromechanical Sys. & Actuators    | 3         | ECCE3016                                                | AR   |
|                                         | ECCE4227     | Embedded Systems                      | 3         | (COMP2002 or ENGR2217) , ECCE3206, MCTE3110             | AR   |
|                                         | MCTE4150     | Modeling and Simulation               | 3         | MATH4174                                                | AR   |
|                                         | MCTE3240     | Engineering System Design             | 2         | MEIE3107                                                | AR   |
|                                         | <b>Total</b> |                                       | <b>17</b> |                                                         |      |
| <b>January</b><br><b>-23</b>            | ENGR3006     | Industrial Training I                 | 0         | MCTE3110                                                | CR   |
|                                         | <b>Total</b> |                                       | <b>0</b>  |                                                         |      |
| <b>Semester 8</b><br><b>Spring-23</b>   | MCTE4210     | Power Electronics & Drives            | 3         | MCTE3110, MCTE3210                                      | AR   |
|                                         | MEIE4141     | Fluids Mechanics                      | 3         | PHYS2108                                                | AR   |
|                                         | MCTE4255     | Mechatronics System Design            | 3         | ECCE4227, (MCTE4145 or MCTE4155), MCTE3240<br>MCTE4450* |      |
|                                         | MCTE4450     | Control Systems Engineering           | 3         | (MCTE4150 or MCTE5133), MCTE4185                        | AR   |
|                                         | MEIE4183     | Numerical Methods for Engineers       | 3         | (COMP2002 or ENGR2217) , MATH3171                       | AR   |
|                                         | <b>Total</b> |                                       | <b>15</b> |                                                         |      |
| <b>Summer-23</b>                        | ENGR4006     | Industrial Training II                | 0         | ENGR3006                                                | CR   |
|                                         | <b>Total</b> |                                       | <b>0</b>  |                                                         |      |
| <b>Semester 9</b><br><b>Fall-23</b>     | MCTE5191     | Project I                             | 2         | (MCTE4255 or MCTE5255),<br>PR 1                         | AR   |
|                                         |              | University Elective                   | 2         |                                                         | UE   |
|                                         | MCTE5210     | Real-time control and interfacing     | 3         | (MCTE4450 or MCTE4250), ECCE4227                        | AR   |
|                                         | MCTE5142     | Robotics                              | 3         | MEIE3122                                                | AR   |
|                                         | MCTE51xx     | Program Elective 1                    | 3         |                                                         | AE   |
|                                         | <b>Total</b> |                                       | <b>13</b> |                                                         |      |
| <b>Semester 10</b><br><b>Spring- 24</b> | MCTE5291     | Project II                            | 3         | MCTE5191, MEIE4102                                      | AR   |
|                                         | MCTE51xx     | Program Elective 2                    | 3         |                                                         | AE   |
|                                         | ECCE 5004    | Engineering Managements & Economics I | 3         | STAT2103 or MEIE3281                                    | AR   |
|                                         | MCTE51xx     | Program Elective 3                    | 3         |                                                         | AE   |
|                                         |              | University Elective                   | 2         |                                                         | UE   |
|                                         | <b>Total</b> |                                       | <b>14</b> |                                                         |      |

PR1: Internal regulation [enforced by the MCE Program Note:  
MCTE5191 will be available only in each fall semester.

**Study Plan for 2019 Cohort: (Scheme I)**  
**Co-Operative Scheme**

|                                         | Course Code  | Course Title                          | Cr.       | Pre-req.                                                | Cat. |
|-----------------------------------------|--------------|---------------------------------------|-----------|---------------------------------------------------------|------|
| <b>Semester 7</b><br><b>Fall-22</b>     | MEIE4102     | Machine Design 1                      | 3         | MEIE3107, MCTE3230                                      | AR   |
|                                         | MCTE4145     | Instrumentation & Measurement         | 3         | MCTE3110                                                | AR   |
|                                         | MCTE3210     | Electromechanical Sys. & Actuators    | 3         | ECCE3016                                                | AR   |
|                                         | ECCE4227     | Embedded Systems                      | 3         | (COMP2002 or ENGR2217) , ECCE3206, MCTE3110             | AR   |
|                                         | MCTE4150     | Modeling and Simulation               | 3         | MATH4174                                                | AR   |
|                                         | MCTE3240     | Engineering System Design             | 2         | MEIE3107                                                | AR   |
|                                         | <b>Total</b> |                                       | <b>17</b> |                                                         |      |
| <b>January</b><br><b>-23</b>            | ENGR3006     | Industrial Training I                 | 0         | MCTE3110                                                | CR   |
|                                         | <b>Total</b> |                                       | <b>0</b>  |                                                         |      |
| <b>Semester 8</b><br><b>Spring-23</b>   | MCTE4210     | Power Electronics & Drives            | 3         | MCTE3110, MCTE3210                                      | AR   |
|                                         |              | University Elective                   | 2         |                                                         | UE   |
|                                         | MCTE4255     | Mechatronics System Design            | 3         | ECCE4227, (MCTE4145 or MCTE4155), MCTE3240<br>MCTE4450* |      |
|                                         | MCTE4450     | Control Systems Engineering           | 3         | (MCTE4150 or MCTE5133), MCTE4185                        | AR   |
|                                         |              | University Elective                   | 2         |                                                         | UE   |
|                                         | <b>Total</b> |                                       | <b>13</b> |                                                         |      |
| <b>Fall 23</b><br><b>Coop-Sem.1</b>     | ENGR4006     | Industrial Training II                | 0         | ENGR3006                                                | CR   |
|                                         | MCTE5001     | Co-op Training I                      | 0         | ENGR4006*                                               | AE   |
| <b>Spring 24</b><br><b>Coop-Sem.2</b>   | MCTE5002     | Co-op Training II                     | 6         | MCTE5001                                                | AE   |
|                                         | <b>Total</b> |                                       | <b>6</b>  |                                                         |      |
| <b>Semester 9</b><br><b>Fall-24</b>     | MCTE5191     | Project I                             | 2         | (MCTE4255 or MCTE5255), PR                              | AR   |
|                                         |              |                                       |           |                                                         |      |
|                                         | MCTE5210     | Real-time control and interfacing     | 3         | (MCTE4450 or MCTE4250), ECCE4227                        | AR   |
|                                         | MCTE5142     | Robotics                              | 3         | MEIE3122                                                | AR   |
|                                         | MEIE4141     | Fluids Mechanics                      | 3         | PHYS2108                                                | AR   |
|                                         | <b>Total</b> |                                       | <b>11</b> |                                                         |      |
| <b>Semester 10</b><br><b>Spring- 25</b> | MCTE5291     | Project II                            | 3         | MCTE5191, MEIE4102                                      | AR   |
|                                         |              |                                       |           |                                                         |      |
|                                         | ECCE 5004    | Engineering Managements & Economics I | 3         | STAT2103 or MEIE3281                                    | AR   |
|                                         | MCTE51xx     | Program Elective                      | 3         |                                                         | AE   |
|                                         | MEIE4183     | Numerical Methods for Engineers       | 3         | (COMP2002 or ENGR2217) , MATH3171                       | AR   |
|                                         | <b>Total</b> |                                       | <b>12</b> |                                                         |      |

**Study Plan for 2019 Cohort (SCHEME II – With Two Semester General Foundation Program)**

|                                 | Course Code          | Course Title                                                  | Cr.       | Pre-req.                                                                    | Cat. |
|---------------------------------|----------------------|---------------------------------------------------------------|-----------|-----------------------------------------------------------------------------|------|
| <b>Fall-19</b>                  | -                    | General Foundation Program                                    | -         | -                                                                           | UR   |
| <b>Spring-20</b>                | -                    | General Foundation Program                                    | -         | -                                                                           | UR   |
| <b>Semester 3<br/>Fall-20</b>   | HIST1010 or ISLM1010 | Oman& Islamic Civilization or Islamic Culture                 | <b>2</b>  | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105)                          | UR   |
|                                 | CHEM1071             | General Chemistry for Engineering                             | <b>3</b>  |                                                                             | CR   |
|                                 | ENGR1501             | Introduction to Engineering                                   | <b>1</b>  | FPEL (0560 or 0600 or 0601 or 0604)                                         | CR   |
|                                 | LANC2160             | English for Engineering I                                     | <b>3</b>  | FPEL (0560 or 0600 or 0601 or 0604)                                         | CR   |
|                                 | ENGR1600             | Workshop I                                                    | <b>1</b>  | FPEL (0560 or 0600 or 0601 or 0604)                                         | CR   |
|                                 | MATH2107             | Calculus I                                                    | <b>4</b>  | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105)                          | CR   |
|                                 | <b>Total</b>         |                                                               | <b>14</b> |                                                                             |      |
| <b>Semester 4<br/>Spring-21</b> | ARAB1002             | Arabic Language                                               | <b>2</b>  |                                                                             | UR   |
|                                 | SOCY1005             | Contemporary Omani State and                                  | <b>2</b>  |                                                                             | UR   |
|                                 | LANC2161             | English for Engineering II                                    | <b>3</b>  | LANC2160                                                                    | CR   |
|                                 | MATH2108             | Calculus II                                                   | <b>3</b>  | MATH2107                                                                    | CR   |
|                                 | PHYS2107             | Physics for Engineering I                                     | <b>4</b>  | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105),                         | CR   |
|                                 |                      | University Elective                                           | <b>2</b>  |                                                                             | UE   |
|                                 | <b>Total</b>         |                                                               | <b>16</b> |                                                                             |      |
| <b>Semester 5<br/>Fall-21</b>   | ECCE2016             | Circuit Analysis I                                            | <b>3</b>  | PHYS2107 or PHYS2101                                                        | AR   |
|                                 | MATH4174             | Differential Equations for Eng.                               | <b>3</b>  | MATH2108                                                                    | CR   |
|                                 | COMP2002 or ENGR2217 | Intr. to Comp. Program. for Eng. or Programming for Engineers | <b>3</b>  | FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPCS (0101 or 0102) | CE   |
|                                 | MEIE3107             | Eng. Drawing & Comp. Graphics                                 | <b>3</b>  |                                                                             | AR   |
|                                 | MEIE2129             | Basic Mechanics                                               | <b>3</b>  | PHYS 2107                                                                   | AR   |
|                                 | ECCE3206             | Digital Logic Design                                          | <b>3</b>  |                                                                             | AR   |
|                                 | <b>Total</b>         |                                                               | <b>18</b> |                                                                             |      |
| <b>Semester 6<br/>Spring-22</b> | MCTE3110             | Electronics                                                   | <b>4</b>  | ECCE2016                                                                    | AR   |
|                                 | ECCE3016             | Circuit Analysis II                                           | <b>3</b>  | ECCE2016                                                                    | AR   |
|                                 | MCTE3230             | Properties and Strength of Materials                          | <b>3</b>  | MEIE 2129                                                                   | AR   |
|                                 | PHYS 2108            | Physics for Eng. II                                           | <b>4</b>  | PHYS2107                                                                    | CR   |
|                                 | MATH3171             | Lin. Alg. & Mult. Calc. for Eng.                              | <b>3</b>  | MATH2108                                                                    | CR   |
|                                 | <b>Total</b>         |                                                               | <b>17</b> |                                                                             |      |
| <b>Summer<br/>22</b>            | MEIE3281             | Probability & Statistics for                                  | <b>3</b>  | MATH2107                                                                    |      |
|                                 | MCTE4185             | Signals & Systems for Mechatronics                            | <b>3</b>  | ECCE3016                                                                    | AR   |
|                                 | <b>Total</b>         |                                                               | <b>6</b>  |                                                                             |      |

**Study Plan for 2018 Cohort: (Scheme II)**

|                            | Course Code  | Course Title                          | Cr.       | Pre-req.                                                    | Cat. |
|----------------------------|--------------|---------------------------------------|-----------|-------------------------------------------------------------|------|
| Semester 7<br>Fall-22      | ECCE4227     | Embedded Systems                      | 3         | (COMP2002 or ENGR2217) ,ECCE3206 and (ECCE3152 or MCTE3110) | AR   |
|                            | MCTE4145     | Instrumentation & Measurement         | 3         | MCTE3110                                                    | AR   |
|                            | MEIE3122     | Machine Dynamics                      | 3         | MEIE2129, MCTE3230                                          | AR   |
|                            | MCTE3210     | Electromechanical Sys. & Actuators    | 3         | ECCE3016                                                    | AR   |
|                            | MCTE4150     | Modeling and Simulation               | 3         | MATH4174                                                    | AR   |
|                            | MCTE3240     | Engineering System Design             | 2         | MEIE3107                                                    | AR   |
|                            | <b>Total</b> |                                       | <b>17</b> |                                                             |      |
| January<br>-23             | ENGR3006     | Industrial Training I                 | 0         | MCTE3110                                                    | CR   |
|                            | <b>Total</b> |                                       | <b>0</b>  |                                                             |      |
| Semester 8<br>Spring-23    | MCTE4210     | Power Electronics & Drives            | 3         | MCTE3110, MCTE3210                                          | AR   |
|                            | MEIE4183     | Numerical Methods for Engineers       | 3         | COMP2002, MATH3171                                          | AR   |
|                            | MCTE4255     | Mechatronics System Design            | 3         | ECCE4227, (MCTE4145 or MCTE4155), MCTE3240                  |      |
|                            | MEIE4102     | Machine Design 1                      | 3         | MEIE3107                                                    | AR   |
|                            | MCTE4450     | Control Systems Engineering           | 3         | (MCTE4150 or MCTE5133), MCTE4185                            | AR   |
|                            |              | University Elective                   | 2         |                                                             | UE   |
|                            | <b>Total</b> |                                       | <b>17</b> |                                                             |      |
| Summer-23                  | ENGR4006     | Industrial Training II                | 0         | ENGR3006                                                    | CR   |
|                            | <b>Total</b> |                                       | <b>0</b>  |                                                             |      |
| Semester 9<br>Fall-23      | MCTE5191     | Project I                             | 2         | (MCTE4255 or MCTE5255) PR1                                  | AR   |
|                            |              | University Elective                   | 2         |                                                             | UE   |
|                            | MCTE5142     | Robotics                              | 3         | MEIE3122                                                    | AR   |
|                            | MEIE4141     | Fluids Mechanics                      | 3         | PHYS2108                                                    | AR   |
|                            | MCTE51xx     | Program Elective 1                    | 3         |                                                             | AE   |
|                            | MCTE5210     | Real-time control and interfacing     | 3         | (MCTE4450 or MCTE4250), ECCE4227                            | AR   |
|                            | <b>Total</b> |                                       | <b>16</b> |                                                             |      |
| Semester 10<br>Spring - 24 | MCTE5291     | Project II                            | 3         | MCTE5191, MEIE4102                                          | AR   |
|                            | ECCE 5004    | Engineering Managements & Economics I | 3         | STAT2103 or MEIE3281                                        | AR   |
|                            | MCTE4230     | Thermal Sciences                      | 3         | PHYS2108, MATH2108                                          | AR   |
|                            | MCTE51xx     | Program Elective 2                    | 3         |                                                             | AE   |
|                            | MCTE51xx     | Program Elective 3                    | 3         |                                                             | AE   |
|                            | <b>Total</b> |                                       | <b>16</b> |                                                             |      |

PR<sup>1</sup>: Internal regulation [enforced by the MCE program]

Note: ECCE5191 will be available only in each fall semester.

**Study Plan for 2019 Cohort: (Scheme II)**  
Co-Operative Scheme

|                          | Course Code  | Course Title                          | Cr.       | Pre-req.                                                    | Cat. |
|--------------------------|--------------|---------------------------------------|-----------|-------------------------------------------------------------|------|
| Semester 7<br>Fall-22    | ECCE4227     | Embedded Systems                      | 3         | (COMP2002 or ENGR2217) ,ECCE3206 and (ECCE3152 or MCTE3110) | AR   |
|                          | MCTE4145     | Instrumentation & Measurement         | 3         | MCTE3110                                                    | AR   |
|                          | MEIE3122     | Machine Dynamics                      | 3         | MEIE2129, MCTE3230                                          | AR   |
|                          | MCTE3210     | Electromechanical Sys. & Actuators    | 3         | ECCE3016                                                    | AR   |
|                          | MCTE4150     | Modeling and Simulation               | 3         | MATH4174                                                    | AR   |
|                          | MCTE3240     | Engineering System Design             | 2         | MEIE3107                                                    | AR   |
|                          | <b>Total</b> |                                       | <b>17</b> |                                                             |      |
| January<br>-22           | ENGR3006     | Industrial Training I                 | 0         | MCTE3110                                                    | CR   |
|                          | <b>Total</b> |                                       | <b>0</b>  |                                                             |      |
| Semester 8<br>Spring-23  | MCTE4210     | Power Electronics & Drives            | 3         | MCTE3110, MCTE3210                                          | AR   |
|                          | MEIE4183     | Numerical Methods for Engineers       | 3         | COMP2002, MATH3171                                          | AR   |
|                          | MCTE4255     | Mechatronics System Design            | 3         | ECCE4227, (MCTE4145 or MCTE4155), MCTE3240                  |      |
|                          | MEIE4102     | Machine Design 1                      | 3         | MEIE3107                                                    | AR   |
|                          | MCTE4450     | Control Systems Engineering           | 3         | (MCTE4150 or MCTE5133), MCTE4185                            | AR   |
|                          |              | University Elective                   | 2         |                                                             | UE   |
|                          | <b>Total</b> |                                       | <b>17</b> |                                                             |      |
| Fall 23<br>Coop-Sem.1    | ENGR4006     | Industrial Training II                | 0         | ENGR3006                                                    | CR   |
|                          | MCTE5001     | Co-op Training I                      | 0         | ENGR4006*                                                   | AE   |
| Spring 24<br>Coop-Sem.2  | MCTE5002     | Co-op Training II                     | 6         | MCTE5001                                                    | AE   |
|                          |              | <b>Total</b>                          | <b>6</b>  |                                                             |      |
| Semester 9<br>Fall-24    | MCTE5191     | Project I                             | 2         | (MCTE4255 or MCTE5255) PR1                                  | AR   |
|                          |              | University Elective                   | 2         |                                                             | UE   |
|                          | MCTE5142     | Robotics                              | 3         | MEIE3122                                                    | AR   |
|                          | MEIE4141     | Fluids Mechanics                      | 3         | PHYS2108                                                    | AR   |
|                          | MCTE5210     | Real-time control and interfacing     | 3         | (MCTE4450 or MCTE4250), ECCE4227                            | AR   |
|                          |              |                                       |           |                                                             |      |
|                          | <b>Total</b> |                                       | <b>16</b> |                                                             |      |
| Semester 10<br>Spring 25 | MCTE5291     | Project II                            | 3         | MCTE5191, MEIE4102                                          | AR   |
|                          | ECCE 5004    | Engineering Managements & Economics I | 3         | STAT2103 or MEIE3281                                        | AR   |
|                          | MCTE4230     | Thermal Sciences                      | 3         | PHYS2108, MATH2108                                          | AR   |
|                          | MCTE51xx     | Program Elective 2                    | 3         |                                                             | AE   |
|                          |              |                                       |           |                                                             |      |
|                          | <b>Total</b> |                                       | <b>13</b> |                                                             |      |

PR1: Internal regulation [enforced by the MCE program]

Note: ECCE5191 will be available only in each fall semester.

**Mechatronics Engineering - Degree Plan for 2019 LIST A<sup>T</sup> - UNIVERSITY ELECTIVES (6 Credits)**

| #  | Code     | Title                                                                          | Credits | College/Department | Pre-requisite |
|----|----------|--------------------------------------------------------------------------------|---------|--------------------|---------------|
| 1  | ARAB1040 | Literature and Sociology                                                       | 2       | Arts               |               |
| 2  | ARAB1050 | Language and Sociology                                                         | 2       | Arts               |               |
| 3  | ARCH1170 | Development Civilization in Oman                                               | 2       | Arts               |               |
| 4  | ARCH1180 | Archaeology and Environment in Oman                                            | 2       | Arts               |               |
| 5  | ARCH1520 | Arch in Ancient Oman                                                           | 2       | Arts               |               |
| 6  | ARCH1525 | Arch Style Arab Gulf                                                           | 2       | Arts               |               |
| 7  | ARCH1526 | Islamic Arch                                                                   | 2       | Arts               |               |
| 8  | ARCH1530 | Oman Arch Through Ages                                                         | 2       | Arts               |               |
| 9  | ARCH1531 | History of Animals in Oman                                                     | 2       | Arts               |               |
| 10 | ARCH1535 | Oman Towns and their Cultural Remains                                          | 2       | Arts               |               |
| 11 | ARCH1536 | The Archaeology and Knowledge of the Arabian Peninsula                         | 2       | Arts               |               |
| 12 | ARCH1537 | Cult. Development Arab Gulf                                                    | 2       | Arts               |               |
| 13 | ARCH1538 | Oral History Cult. Heritage                                                    | 2       | Arts               |               |
| 14 | ARCH1539 | The history and ethnography of jewelry and items of personal adornment in Oman | 2       | Arts               |               |
| 15 | ARCH1540 | Natural Culture Heritage Oman                                                  | 2       | Arts               |               |
| 16 | ARCH1541 | Oasis Settlements and Vernacular Architecture in Oman                          | 2       | Arts               |               |
| 17 | ARCH1550 | Development of Arts and Architecture in Oman                                   | 2       | Arts               |               |
| 18 | ARCH1551 | Admin. Arch. Heritage                                                          | 2       | Arts               |               |
| 19 | ARCH5500 | Sea Port and Mart. Arch                                                        | 2       | Arts               |               |
| 20 | ARED1001 | Contemporary Visual Arts                                                       | 2       | Education          |               |
| 21 | ARED1002 | Appreciation of Islamic Arts and Arabic                                        | 2       | Education          |               |
| 22 | BCOM1950 | Varieties of Public and Professional Communication                             | 3       | Commerce           |               |
| 23 | BCOM1960 | Cross-Cultural Communication                                                   | 2       | Commerce           |               |
| 24 | BIOL1003 | Genetics in our Life                                                           | 2       | Science            |               |
| 25 | BIOL1004 | Environment Issues                                                             | 2       | Science            |               |
| 26 | CUTM1002 | Environmental Education                                                        | 2       | Education          |               |
| 27 | CUTM1003 | Principles of Teaching                                                         | 2       | Education          |               |
| 28 | GEOG2021 | Man and Natural Environments in Oman                                           | 2       | Arts               |               |
| 29 | GEOG2031 | Urbanization in the Arabian Gulf                                               | 2       | Arts               |               |
| 30 | GEOG2122 | Man and Environment                                                            | 2       | Arts               |               |
| 31 | GEOG2341 | Dev. Countries                                                                 | 2       | Arts               |               |
| 32 | HIST1030 | History of the GCC Countries                                                   | 2       | Arts               |               |
| 33 | HIST1040 | Some Aspects of the History of Oman                                            | 2       | Arts               |               |
| 34 | INFO4100 | Children's Literature                                                          | 2       | Arts               |               |
| 35 | ISLM1020 | Human Right in Islam                                                           | 2       | Education          |               |
| 36 | ISLM2010 | Prophet Biog.                                                                  | 2       | Education          |               |
| 37 | ISLM2030 | The Miracle of the Holy Quran                                                  | 2       | Education          |               |
| 38 | ISLM2040 | Islamic Economy                                                                | 2       | Education          |               |
| 39 | ISLM2060 | Family Systems in Islam                                                        | 2       | Education          |               |
| 40 | ISLM2070 | Quranic Stories                                                                | 2       | Education          |               |
| 41 | ISLM2080 | General Aims                                                                   | 2       | Education          |               |

|    |          |                                              |   |           |  |
|----|----------|----------------------------------------------|---|-----------|--|
| 42 | ISLM2090 | Islamic Ethics                               | 2 | Education |  |
| 43 | ISLM2150 | Islam and the Modern World                   | 2 | Education |  |
| 44 | MASS1020 | Arts of Media Edit                           | 2 | Arts      |  |
| 45 | MASS1030 | Public Opinion (UE)                          | 2 | Arts      |  |
| 46 | MASS1060 | Mass Media and Society                       | 2 | Arts      |  |
| 47 | MASS1070 | International Comm.                          | 2 | Arts      |  |
| 48 | MASS1080 | Principles of Public Relations (UE)          | 2 | Arts      |  |
| 49 | NURS1004 | First Aid                                    | 2 | Nursing   |  |
| 50 | NURS1005 | Physical & Psychological Child Health        | 2 | Nursing   |  |
| 51 | PHED1000 | Physical Fitness                             | 2 | Education |  |
| 52 | PHIL2050 | International Meth                           | 2 | Arts      |  |
| 53 | PHIL2060 | Ethics                                       | 2 | Arts      |  |
| 54 | PHIL2070 | Trends of Contemporary Philosophical Thought | 2 | Arts      |  |
| 55 | PHIL2213 | Science in Arab Through                      | 2 | Arts      |  |
| 56 | PSYC1001 | Human Behavior                               | 2 | Education |  |
| 57 | PSYC1002 | Psych/Human Problems                         | 2 | Education |  |
| 58 | SOCI2151 | Medical Sociology                            | 2 | Arts      |  |
| 59 | SOCI2361 | Introduction to Social Work                  | 2 | Arts      |  |
| 60 | THAR1001 | Theater Appreciation                         | 2 | Arts      |  |
| 61 | THAR1003 | Music Appreciation                           | 2 | Arts      |  |
| 62 | THAR1012 | Play Writing                                 | 2 | Arts      |  |
| 63 | THAR1013 | Oratory/Presentation                         | 2 | Arts      |  |
| 64 | THAR1014 | Scholastic Theater                           | 2 | Arts      |  |
| 65 | THAR1016 | Child's Theater                              | 2 | Arts      |  |
| 66 | THAR1017 | Theater Scenography                          | 2 | Arts      |  |
| 67 | TOUR1050 | Tourism in Oman                              | 2 | Arts      |  |

T: Engineering students must select a humanity or social course (non-scientific & non-linguistic course) from any college as a University Elective. Please also refer to the College of Engineering Regulations.

**Mechatronics Engineering - Study Plan for Cohort 2019**

**LIST B: COLLEGE REQUIREMENTS (32 Credits)**

| <b>Course Code</b> | <b>Course Title</b>                                  | <b>Credit</b> | <b>Pre-Requisite</b>                               |
|--------------------|------------------------------------------------------|---------------|----------------------------------------------------|
| CHEM1071           | General Chemistry for Engineering                    | 3             | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105) |
| ENGR1501           | Introduction to Engineering                          | 1             | FPEL (0560 or 0600 or 0601 or 0604)                |
| ENGR1600           | Workshop I                                           | 1             | FPEL (0560 or 0600 or 0601 or 0604)                |
| ENGR3006           | Industrial Training I                                | 0             | ECCE3152                                           |
| ENGR4006           | Industrial Training II                               | 0             | ENGR3006                                           |
| LANC2160           | English for Engineering I                            | 3             | FPEL (0560 or 0600 or 0601 or 0604)                |
| LANC2161           | English for Engineering II                           | 3             | LANC2160                                           |
| MATH2107           | Calculus I                                           | 4             | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105) |
| MATH2108           | Calculus II                                          | 3             | MATH2107                                           |
| MATH3171           | Linear Algebra & Multivariate Calculus for Engineers | 3             | MATH2108+LANC2161                                  |
| MATH4174           | Differential Equations for Engineers                 | 3             | MATH2108+LANC2161                                  |
| PHYS2107           | Physics for Engineering I                            | 4             | FPEL (0560 or 0600 or 0601 or 0604) and FPMT(0105) |
| PHYS2108           | Physics for Engineering II                           | 4             | PHYS2107 OR PHYS2101                               |
| <b>Total</b>       |                                                      | <b>32</b>     |                                                    |

**Mechatronics Engineering - Degree Plan for Cohort 2019**

**LIST C: COLLEGE ELECTIVE (3 Credits) @**

| <b>Course Code</b> | <b>Course Title</b>                                | <b>Credit</b> | <b>Pre-Requisite</b>                                |
|--------------------|----------------------------------------------------|---------------|-----------------------------------------------------|
| COMP2002           | Introduction to Computer Programming for Engineers | <b>3</b>      | FPEL (0560 or 0600 or 0601 or 0604) and FPCS (0101) |
| ENGR2217           | Programming for Engineers                          | <b>3</b>      |                                                     |
| <b>Total</b>       |                                                    | <b>3</b>      |                                                     |

@ For the MCE program the course is, COMP2002 OR ENGR 2217.

**Department of Electrical and Computer Engineering – Degree Plan for 2019**  
**LIST F: Major Requirements (80 Credits)**

| Course Code  | Course Title                           | Credit    | Pre-Requisite / Co-req. *            |
|--------------|----------------------------------------|-----------|--------------------------------------|
| ECCE2016     | Circuit Analysis I                     | 3         | PHYS2107 or PHYS2101                 |
| MCTE3110     | Electronics                            | 4         | ECCE2016                             |
| MEIE2129     | Basic Mechanics                        | 3         | PHYS2107                             |
| ECCE3016     | Circuit Analysis II                    | 3         | ECCE2016                             |
| MCTE4145     | Instrumentation & Measurement          | 3         | MCTE3110, MEIE3281                   |
| MCTE3230     | Properties and Strength of Materials   | 3         | MEIE2129                             |
| MEIE3107     | Eng. Drawing & Comp. Graphics          | 3         |                                      |
| MEIE3281     | Probability & Statistics for Engineers | 3         | MATH2107                             |
| MEIE4102     | Machine Design 1                       | 3         | MEIE3107                             |
| MCTE4185     | Signals & Systems for Mechatronics     | 3         | ECCE3016                             |
| MCTE3210     | Electromechanical Systems & Actuators  | 3         | ECCE3016                             |
| ECCE3206     | Digital Logic Design                   | 3         |                                      |
| MCTE4210     | Power Electronics & Drives             | 3         | MCTE3110, MCTE3210                   |
| MEIE4141     | Fluids Mechanics                       | 3         | PHYS2108                             |
| ECCE4227     | Embedded Systems                       | 3         | (COMP2002 or ENG2217), ECCE3206,     |
| ECCE5004     | Engineering Managements & Economics I  | 3         | STAT2103 or MEIE3281                 |
| MCTE4150     | Modeling & Simulation                  | 3         | MATH4174                             |
| MEIE4183     | Numerical Methods for Engineers        | 3         | (COMP2002 or ENG2217), MATH3171      |
| MEIE3122     | Machine Dynamics                       | 3         | MEIE2129                             |
| MCTE5191     | Project I                              | 2         | (MCTE4255 or MCTE5255), MEIE4102, PR |
| MCTE4230     | Thermal Sciences                       | 3         | PHYS2108, MATH2108                   |
| MCTE3240     | Engineering System Design              | 2         | MEIE3107                             |
| MCTE5210     | Real-time control and interfacing      | 3         | (MCTE4450 or MCTE4250), ECCE4227     |
| MCTE4450     | Control Systems Engineering            | 3         | (MCTE4150 or MCTE5133), MCTE4185     |
| MCTE4255     | Mechatronics System Design             | 3         | ECCE4227, (MCTE4145 or MCTE4155),    |
| MCTE5291     | Project II                             | 3         | MCTE5191                             |
| MCTE5142     | Robotics                               | 3         | MEIE3122                             |
| <b>Total</b> |                                        | <b>80</b> |                                      |

PR<sup>1</sup>: Internal regulation [enforced by the MCE program]

Note: MCTE5191 will be available only in each fall semester.

**Mechatronics Engineering – Degree Plan for 2019**

**List G: MAJOR ELECTIVES (9 CREDITS)**

| Course Code | Course Title                              | Credit | Pre-requisite                    |
|-------------|-------------------------------------------|--------|----------------------------------|
| MCTE5001    | Coop-Training I                           | 0      | ENGR3006, ENGR4006*              |
| MCTE5002    | Coop-Training II                          | 6      | MCTE5001                         |
| MCTE5420    | Pneumatic and Hydraulic Systems           | 3      | MCTE3210 or MEIE3181 or ECCE4455 |
| ECCE5433    | Modern Control Systems                    | 3      | MCTE4450 or MCTE4250             |
| ECCE5453    | Mobile Robot Control                      | 3      | ECCE3206                         |
| ECCE4436    | Industrial Control Systems                | 3      | MCTE4450 or MCTE4250             |
| ECCE5008    | Project Management                        | 3      | ECCE 5004                        |
| ECCE5223    | Advanced Embedded Systems                 | 3      | ECCE4227                         |
| ECCE5445    | Control System Design                     | 3      | MCTE4450 or MCTE4250             |
| ECCE5432    | Programmable Logic Controllers            | 3      | ECCE3206                         |
| ECCE4253    | Object Oriented Programming               | 3      | COMP2002                         |
| ECCE4255    | Applied Programming & Algorithms for Eng. | 3      | COMP2002                         |
| ECCE5443    | Optimization Techniques in Eng.           | 3      | MATH3171                         |
| MEIE 5101   | Engineering Vibration                     | 3      | MEIE3121 or MEIE2129             |
| MEIE5131    | Legged locomotion of robots and animals   |        | MEIE3122                         |
| MEIE 5127   | Process Control                           | 3      | MEIE4122 or MEIE4171 or MCTE4450 |
| MEIE 5122   | Applied Multi-body Dynamics               | 3      | MEIE3121 or MEIE2129             |
| MEIE5146    | Renewable Energy                          | 3      | MEIE3142 or MEIE3159 or MCTE4230 |
| MEIE5180    | Nanotechnology                            | 3      | MEIE4161 or MCTE3230             |
| MEIE5182    | Fundamentals of Biomechanics              | 3      | (MEIE3102, MEIE3121)             |
| MEIE5288    | Innovation and Entrepreneurship           | 3      | MEIE4285 or ECCE 5004            |
| MEIE5106    | Pressure Vessel & Piping System Design    | 3      | MEIE4102                         |
| MEIE5110    | Applied Finite Element Methods            | 3      | MEIE3102 or CIVL3086 or MCTE3230 |
| MEIE5162    | Corrosion Engineering                     | 3      | MCTE3230                         |

