

**RELATIONSHIP BETWEEN LEARNING OUTCOMES OF COURSE AND MASTER'S PROGRAM OUTCOMES**

| AUTUMN SEMESTER COURSES |   |   |   |      | MASTER'S PROGRAM OUTCOMES (MPO) |      |      |      |      |      |      |      |      |      |       |       |       |
|-------------------------|---|---|---|------|---------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| COURSE CODE             | COURSE NAME   | T | P | ECTS | LOC                             | MPO1 | MPO2 | MPO3 | MPO4 | MPO5 | MPO6 | MPO7 | MPO8 | MPO9 | MPO10 | MPO11 | MPO12 |
| FBE8001                 | SCIENTIFIC RESEARCH TECHNIQUES AND PUBLICATION ETHICS | 3 | 0 | 8    | LOC1                            | 5    | 3    | 4    | 5    | 4    | 3    | 3    | 3    | 3    | 0     | 2     | 2     |
|                         |   |   |   |      | LOC2                            | 4    | 3    | 5    | 3    | 5    | 4    | 4    | 4    | 3    | 3     | 3     |       |
|                         |   |   |   |      | LOC3                            | 2    | 0    | 5    | 0    | 0    | 3    | 0    | 5    | 2    | 2     | 3     | 3     |
|                         |   |   |   |      | LOC4                            | 3    | 2    | 0    | 0    | 3    | 2    | 2    | 2    | 3    | 4     | 2     | 3     |
|                         |   |   |   |      | LOC5                            | 2    | 0    | 0    | 2    | 2    | 2    | 3    | 2    | 3    | 5     | 3     | 3     |
|                         |   |   |   |      | LOC6                            | 3    | 2    | 2    | 2    | 2    | 2    | 2    | 3    | 2    | 4     | 3     | 5     |
|                         |   |   |   |      | LOC7                            | 3    | 0    | 2    | 3    | 0    | 2    | 3    | 3    | 3    | 4     | 3     | 3     |
| INS6101                 | THEORY OF VIBRATION                                   | 3 | 0 | 8    | LOC1                            | 0    | 3    | 0    | 0    | 3    | 0    | 0    | 0    | 0    | 0     | 0     | 0     |
|                         |   |   |   |      | LOC2                            | 0    | 0    | 0    | 0    | 0    | 0    | 3    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC3                            | 0    | 3    | 0    | 0    | 0    | 0    | 3    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC4                            | 0    | 0    | 0    | 0    | 0    | 0    | 3    | 0    | 0    | 0     | 3     |       |
|                         |   |   |   |      | LOC5                            | 4    | 5    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC6                            | 0    | 0    | 0    | 0    | 5    | 3    | 0    | 0    | 0    | 0     | 0     |       |
| INS6103                 | GEOTECHNICAL DESIGN BY MEANS OF IN-SITU TESTS         | 3 | 0 | 8    | LOC1                            | 4    | 2    | 0    | 3    | 0    | 0    | 0    | 2    | 0    | 0     | 3     | 3     |
|                         |   |   |   |      | LOC2                            | 4    | 2    | 0    | 3    | 0    | 0    | 0    | 2    | 0    | 0     | 3     |       |
|                         |   |   |   |      | LOC3                            | 4    | 2    | 0    | 3    | 0    | 0    | 0    | 2    | 0    | 0     | 3     |       |
|                         |   |   |   |      | LOC4                            | 4    | 2    | 0    | 3    | 0    | 0    | 0    | 2    | 0    | 0     | 3     |       |
|                         |   |   |   |      | LOC5                            | 4    | 2    | 0    | 3    | 0    | 0    | 0    | 2    | 0    | 0     | 3     |       |
|                         |   |   |   |      | LOC6                            | 4    | 2    | 0    | 3    | 0    | 0    | 0    | 2    | 0    | 0     | 3     |       |
| INS6105                 | QUALITY CONTROL OF CONCRETE                           | 3 | 0 | 8    | LOC1                            | 2    | 3    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     |
|                         |   |   |   |      | LOC2                            | 2    | 2    | 4    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC3                            | 1    | 3    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC4                            | 2    | 3    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     |       |
| INS6107                 | CONCRETE TECHNOLOGY                                   | 3 | 0 | 8    | LOC1                            | 3    | 3    | 3    | 3    | 2    | 2    | 2    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC2                            | 3    | 5    | 3    | 3    | 2    | 3    | 3    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC3                            | 2    | 4    | 2    | 2    | 3    | 3    | 3    | 0    | 0    | 0     | 0     |       |
| INS6109                 | EARTHQUAKE ENGINEERING                                | 3 | 0 | 8    | LOC1                            | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     |       |
|                         |   |   |   |      | LOC2                            | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC3                            | 0    | 4    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC4                            | 0    | 0    | 0    | 0    | 0    | 0    | 5    | 0    | 0    | 0     |       |       |
| INS6111                 | STONE DETERIORATION IN HISTORIC BUILDINGS             | 3 | 0 | 8    | LOC1                            | 5    | 5    | 3    | 0    | 2    | 1    | 0    | 1    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC2                            | 5    | 5    | 3    | 0    | 4    | 2    | 1    | 3    | 1    | 0     |       |       |
|                         |   |   |   |      | LOC3                            | 4    | 4    | 3    | 0    | 4    | 1    | 0    | 2    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC4                            | 5    | 4    | 3    | 0    | 5    | 4    | 1    | 3    | 0    | 0     |       |       |
| INS6113                 | AIRPORT ENGINEERING                                   | 3 | 0 | 8    | LOC1                            | 0    | 4    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC2                            | 0    | 0    | 0    | 4    | 0    | 0    | 0    | 0    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC3                            | 0    | 4    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC4                            | 0    | 0    | 0    | 0    | 4    | 0    | 0    | 0    | 0    | 0     |       |       |
|                         |   |   |   |      | LOC5                            | 0    | 4    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     |       |       |
| INS6115                 | ADVANCED FOUNDATION ENGINEERING                       | 3 | 0 | 8    | LOC1                            | 4    | 3    | 3    | 2    | 4    | 0    | 4    | 0    | 0    |       |       |       |
|                         |   |   |   |      | LOC2                            | 4    | 0    | 0    | 0    | 4    | 0    | 0    | 0    | 0    |       |       |       |
|                         |   |   |   |      | LOC3                            | 0    | 0    | 0    | 0    | 0    | 5    | 0    | 0    | 0    |       |       |       |
|                         |   |   |   |      | LOC4                            | 0    | 0    | 0    | 5    | 0    | 0    | 0    | 3    | 0    |       |       |       |
|                         |   |   |   |      | LOC5                            | 0    | 4    | 0    | 4    | 0    | 0    | 0    | 0    | 0    |       |       |       |
|                         |   |   |   |      | LOC6                            | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |       |       |       |
| INS6117                 | APPLICATIONS OF ARTIFICIAL INTELLIGENCE               | 3 | 0 | 8    | LOC1                            | 0    | 3    | 2    | 2    | 2    | 0    | 0    | 1    | 0    |       |       |       |
|                         |   |   |   |      | LOC2                            | 0    | 5    | 4    | 3    | 3    | 3    | 0    | 3    | 0    |       |       |       |
|                         |   |   |   |      | LOC3                            | 0    | 4    | 4    | 3    | 3    | 3    | 0    | 3    | 0    |       |       |       |
| INS6119                 | VISCOELASTICITY                                       | 3 | 0 | 8    | LOC1                            | 2    | 2    | 2    | 2    | 4    | 2    | 3    | 3    | 0    |       |       |       |
|                         |   |   |   |      | LOC2                            | 2    | 1    | 3    | 1    | 2    | 2    | 3    | 1    | 0    |       |       |       |
|                         |   |   |   |      | LOC3                            | 5    | 3    | 4    | 3    | 5    | 2    | 4    | 0    | 0    |       |       |       |
|                         |   |   |   |      | LOC4                            | 2    | 0    | 4    | 2    | 5    | 3    | 2    | 4    | 0    |       |       |       |
|                         |   |   |   |      | LOC5                            | 4    | 4    | 2    | 2    | 2    | 1    | 3    | 2    | 0    |       |       |       |
| INS6121                 | MATHEMATICAL MODELS AND PROGRAMMING TECHNIQUES        | 3 | 0 | 8    | LOC1                            | 1    | 5    | 1    | 5    | 1    | 4    | 1    | 1    |      |       |       |       |
|                         |   |   |   |      | LOC2                            | 1    | 4    | 1    | 1    | 4    | 4    | 5    | 1    |      |       |       |       |



|         |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |
|---------|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|---|
|         |   |   |   |   | LOC2 | 1 | 5 | 1 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|         |   |   |   |   | LOC3 | 1 | 1 | 1 | 4 | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|         |   |   |   |   | LOC4 | 1 | 1 | 1 | 5 | 1 | 1 | 4 | 1 | 1 | 1 | 1 | 3 |
|         |   |   |   |   | LOC5 | 1 | 1 | 1 | 5 | 4 | 5 | 1 | 1 | 1 | 1 | 1 | 1 |
| INS6151 | SPECIAL CONCRETES                             | 3 | 0 | 8 | LOC1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 4 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 3 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 4 | 0 | 0 | 0 |
|         |   |   |   |   | LOC5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 0 | 0 |
| INS6153 | LABORATORY EXPERIMENTS IN CONCRETE TECHNOLOGY | 3 | 0 | 8 | LOC1 | 3 | 2 | 0 | 0 | 2 | 0 | 3 | 2 | 0 | 0 | 0 | 3 |
|         |   |   |   |   | LOC2 | 2 | 3 | 0 | 0 | 3 | 0 | 3 | 2 | 0 | 0 | 0 | 2 |
|         |   |   |   |   | LOC3 | 3 | 1 | 0 | 0 | 3 | 0 | 4 | 2 | 0 | 0 | 0 | 3 |
|         |   |   |   |   | LOC4 | 3 | 3 | 0 | 0 | 1 | 0 | 5 | 3 | 0 | 0 | 0 | 3 |
| INS6155 | MATERIAL SELECTION IN ARCHITECTURAL DESIGN    | 3 | 0 | 8 | LOC1 | 5 | 4 | 4 | 2 | 3 | 1 | 3 | 0 | 1 | 0 | 2 | 0 |
|         |   |   |   |   | LOC2 | 5 | 4 | 3 | 3 | 3 | 1 | 3 | 0 | 1 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 5 | 4 | 3 | 3 | 3 | 1 | 3 | 0 | 1 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 4 | 3 | 3 | 2 | 1 | 0 | 5 | 0 | 0 | 2 | 0 |   |
| INS6157 | FIELD AND SOIL INVESTIGATION                  | 3 | 0 | 8 | LOC1 | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
|         |   |   |   |   | LOC3 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 3 | 3 | 0 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 |   |
|         |   |   |   |   | LOC5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
|         |   |   |   |   | LOC6 | 3 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| INS6159 | PROBABILITY AND STATISTICS IN ENGINEERING     | 3 | 0 | 8 | LOC1 | 5 | 3 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 4 | 5 | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 4 | 5 | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 5 | 5 | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC5 | 5 | 5 | 5 | 5 | 5 | 4 | 0 | 5 | 0 | 0 | 0 | 0 |
| INS6161 | TRANSPORTATION SYSTEMS                        | 3 | 0 | 8 | LOC1 | 5 | 5 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
|         |   |   |   |   | LOC2 | 5 | 5 | 5 | 4 | 5 | 4 | 0 | 0 | 0 | 4 | 0 |   |
|         |   |   |   |   | LOC3 | 4 | 5 | 4 | 5 | 5 | 5 | 0 | 0 | 0 | 5 | 0 |   |
|         |   |   |   |   | LOC4 | 5 | 4 | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 5 | 0 |   |
|         |   |   |   |   | LOC5 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 4 | 0 | 5 | 5 | 4 |
| INS6163 | TRAFFIC FLOW THEORIES AND ANALYSIS            | 3 | 0 | 8 | LOC1 | 5 | 4 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
|         |   |   |   |   | LOC2 | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 0 | 0 | 4 | 0 |   |
|         |   |   |   |   | LOC3 | 4 | 5 | 5 | 4 | 5 | 5 | 0 | 0 | 0 | 4 | 0 |   |
|         |   |   |   |   | LOC4 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 0 | 0 | 4 | 0 |   |
|         |   |   |   |   | LOC5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 0 | 5 | 5 | 4 |
| INS6165 | STABILITY OF SLOPE                            | 3 | 0 | 8 | LOC1 | 4 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 3 |
|         |   |   |   |   | LOC2 | 4 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 3 |   |
|         |   |   |   |   | LOC3 | 4 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 3 |   |
|         |   |   |   |   | LOC4 | 4 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 3 |   |
|         |   |   |   |   | LOC5 | 4 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 3 |   |
| INS6167 | HIGH SPEED RAILWAYS                           | 3 | 0 | 8 | LOC1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 4 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|         |   |   |   |   | LOC3 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|         |   |   |   |   | LOC4 | 0 | 3 | 3 | 0 | 3 | 2 | 3 | 0 | 0 | 3 | 3 |   |
|         |   |   |   |   | LOC5 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |   |
|         |   |   |   |   | LOC6 | 0 | 3 | 5 | 0 | 3 | 2 | 2 | 0 | 0 | 3 | 3 |   |
| INS6169 | FIBER REINFORCED CEMENTITIOUS COMPOSITES      | 3 | 0 | 8 | LOC1 | 3 | 2 | 0 | 3 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 3 | 3 | 0 | 4 | 2 | 3 | 3 | 0 | 0 | 0 | 0 |   |
|         |   |   |   |   | LOC3 | 4 | 3 | 0 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 |   |
|         |   |   |   |   | LOC4 | 5 | 3 | 0 | 4 | 3 | 3 | 3 | 0 | 0 | 0 | 0 |   |
| INS6171 | INTELLIGENT TRANSPORT SYSTEMS                 | 3 | 0 | 8 | LOC1 | 3 | 2 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 |
|         |   |   |   |   | LOC2 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 0 | 0 | 3 | 2 | 2 |
|         |   |   |   |   | LOC3 | 3 | 3 | 3 | 3 | 5 | 4 | 2 | 0 | 0 | 3 | 3 | 3 |
|         |   |   |   |   | LOC4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 | 3 |
| INS6173 | SUSTAINABLE TRANSPORTATION                    | 3 | 0 | 8 | LOC1 | 4 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
|         |   |   |   |   | LOC2 | 2 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 |
|         |   |   |   |   | LOC3 | 2 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 |
|         |   |   |   |   | LOC4 | 3 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |



|         |   |   |   |   |      |   |   |   |   |   |   |   |   |   |   |   |   |
|---------|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|---|
| INS6118 | STABILISATION AND IMPROVEMENT OF SOILS            | 3 | 0 | 8 | LOC1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 0 | 4 | 0 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC5 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 3 |
|         |   |   |   |   | LOC6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| INS6120 | POLYMERS IN CONCRETE TECHNOLOGY                   | 3 | 0 | 8 | LOC1 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
|         |   |   |   |   | LOC2 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
|         |   |   |   |   | LOC3 | 3 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| INS6122 | VARIABLE FLOW HYDRAULICS                          | 3 | 0 | 8 | LOC1 | 5 | 3 | 3 | 4 | 4 | 3 | 2 | 3 | 1 | 3 | 3 | 3 |
|         |   |   |   |   | LOC2 | 4 | 4 | 3 | 3 | 4 | 3 | 2 | 3 | 1 | 3 | 4 | 3 |
|         |   |   |   |   | LOC3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 5 | 3 |
|         |   |   |   |   | LOC4 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 |
|         |   |   |   |   | LOC5 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 0 | 3 | 3 | 3 |
|         |   |   |   |   | LOC6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | 3 |
| INS6124 | EXPERIMENTAL SOIL MECHANICS                       | 3 | 0 | 8 | LOC1 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 0 | 3 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 3 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC5 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| INS6126 | FERROCEMENTS                                      | 3 | 0 | 8 | LOC1 | 3 | 2 | 0 | 3 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 0 |
|         |   |   |   |   | LOC2 | 3 | 4 | 0 | 3 | 3 | 0 | 3 | 3 | 0 | 0 | 3 | 0 |
|         |   |   |   |   | LOC3 | 4 | 3 | 0 | 2 | 3 | 0 | 2 | 2 | 0 | 0 | 2 | 0 |
|         |   |   |   |   | LOC4 | 5 | 3 | 0 | 3 | 2 | 0 | 3 | 3 | 0 | 0 | 3 | 0 |
| INS6128 | BITUMINOUS MATERIALS                              | 3 | 0 | 8 | LOC1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 2 | 0 | 3 | 0 | 3 | 2 | 4 | 3 | 0 | 0 | 3 | 3 |
|         |   |   |   |   | LOC4 | 2 | 0 | 3 | 0 | 3 | 2 | 3 | 1 | 0 | 0 | 3 | 3 |
|         |   |   |   |   | LOC5 | 5 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| INS6130 | PRESTRESSED CONCRETE STRUCTURES                   | 3 | 0 | 8 | LOC1 | 3 | 2 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 2 | 3 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 3 | 3 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 3 | 2 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC5 | 2 | 3 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| INS6132 | FRACTURE THEORY OF CONCRETE                       | 3 | 0 | 8 | LOC1 | 4 | 3 | 4 | 3 | 3 | 4 | 3 | 3 | 0 | 2 | 0 | 0 |
|         |   |   |   |   | LOC2 | 5 | 2 | 3 | 2 | 1 | 3 | 4 | 2 | 0 | 1 | 0 | 0 |
|         |   |   |   |   | LOC3 | 3 | 4 | 2 | 4 | 5 | 2 | 4 | 1 | 0 | 2 | 0 | 0 |
|         |   |   |   |   | LOC4 | 4 | 3 | 3 | 3 | 3 | 3 | 5 | 2 | 0 | 3 | 0 | 0 |
| INS6134 | OPERATIONS RESEARCH IN TRANSPORTATION             | 3 | 0 | 8 | LOC1 | 5 | 5 | 5 | 0 | 5 | 3 | 4 | 0 | 0 | 0 | 4 | 3 |
|         |   |   |   |   | LOC2 | 5 | 5 | 5 | 4 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 4 | 0 | 0 | 5 | 4 |
|         |   |   |   |   | LOC4 | 5 | 5 | 4 | 0 | 5 | 5 | 0 | 4 | 0 | 5 | 5 | 4 |
|         |   |   |   |   | LOC5 | 5 | 5 | 5 | 0 | 5 | 5 | 4 | 4 | 0 | 5 | 5 | 4 |
| INS6136 | CONSTRUCTION PROJECT MANAGEMENT                   | 3 | 0 | 8 | LOC1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 4 | 3 | 0 |
|         |   |   |   |   | LOC2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 3 | 4 | 4 | 0 |
|         |   |   |   |   | LOC3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 3 | 3 | 0 |
| INS6138 | DAMAGE DETECTION AND SAFETY CONTROL IN STRUCTURES | 3 | 0 | 8 | LOC1 | 2 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
|         |   |   |   |   | LOC2 | 3 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
|         |   |   |   |   | LOC3 | 3 | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| INS6140 | CONCRETE ADMIXTURES                               | 3 | 0 | 8 | LOC1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 2 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 3 | 0 | 0 | 0 |
| INS6142 | ADVANCED HYDRAULICS                               | 3 | 0 | 8 | LOC1 | 5 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|         |   |   |   |   | LOC2 | 1 | 4 | 1 | 5 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 1 |
|         |   |   |   |   | LOC3 | 1 | 4 | 1 | 4 | 5 | 4 | 1 | 1 | 1 | 1 | 1 | 1 |
|         |   |   |   |   | LOC4 | 1 | 1 | 1 | 4 | 1 | 1 | 5 | 1 | 1 | 1 | 4 | 1 |
| INS6144 | CONCRETE IN CORROSIVE ENVIRONMENTS                | 3 | 0 | 8 | LOC1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 4 | 0 | 0 | 0 |
|         |   |   |   |   | LOC2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 4 | 0 | 0 | 0 |
|         |   |   |   |   | LOC3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 0 |
|         |   |   |   |   | LOC4 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 |

|         |   |   |   |    |      |   |   |   |   |   |   |   |   |   |   |   |   |
|---------|---|---|---|----|------|---|---|---|---|---|---|---|---|---|---|---|---|
|         |   |   |   |    | LOC5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 3 | 0 | 0 | 0 |
| INS6146 | OPTIMIZATION METHODS IN STRUCTURAL DESIGN | 3 | 0 | 8  | LOC1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC2 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC3 | 0 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC4 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 0 |
| INS6148 | PAVEMENT MANAGEMENT SYSTEMS               | 3 | 0 | 8  | LOC1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| INS6150 | THERMAL AND WATER INSULATION IN BUILDINGS | 3 | 0 | 8  | LOC1 | 5 | 4 | 2 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC2 | 4 | 4 | 2 | 3 | 3 | 1 | 3 | 0 | 1 | 0 | 0 | 0 |
|         |   |   |   |    | LOC3 | 3 | 5 | 2 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC4 | 3 | 3 | 3 | 5 | 5 | 1 | 3 | 0 | 1 | 1 | 0 | 0 |
| INS6152 | DEEP EXCAVATIONS AND RETAINING STRUCTURES | 3 | 0 | 8  | LOC1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC2 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC4 | 0 | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 3 |
| INS6154 | RAILWAY SUPERSTRUCTURE                    | 3 | 0 | 8  | LOC1 | 3 | 3 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC2 | 1 | 3 | 3 | 2 | 3 | 3 | 3 | 0 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC3 | 1 | 3 | 4 | 2 | 3 | 3 | 3 | 0 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC4 | 1 | 3 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC5 | 2 | 3 | 3 | 2 | 5 | 3 | 3 | 0 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC6 | 3 | 2 | 1 | 3 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 |
| INS6156 | GEOPOLYMERS                               | 3 | 0 | 8  | LOC1 | 3 | 2 | 1 | 4 | 3 | 5 | 4 | 3 | 0 | 1 | 0 | 0 |
|         |   |   |   |    | LOC2 | 4 | 4 | 3 | 3 | 2 | 1 | 3 | 3 | 0 | 3 | 0 | 0 |
|         |   |   |   |    | LOC3 | 3 | 4 | 4 | 3 | 5 | 3 | 5 | 3 | 0 | 3 | 0 | 0 |
|         |   |   |   |    | LOC4 | 2 | 5 | 3 | 2 | 4 | 2 | 3 | 3 | 0 | 2 | 0 | 0 |
|         |   |   |   |    | LOC5 | 3 | 5 | 4 | 3 | 1 | 4 | 5 | 3 | 0 | 1 | 0 | 0 |
| INS6158 | PUBLIC TRANSPORTATION SYSTEMS             | 3 | 0 | 8  | LOC1 | 4 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 3 |
|         |   |   |   |    | LOC2 | 3 | 3 | 3 | 3 | 5 | 3 | 3 | 3 | 0 | 2 | 3 | 3 |
|         |   |   |   |    | LOC3 | 4 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 3 |
|         |   |   |   |    | LOC4 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 2 | 3 | 3 |
| INS6160 | TRANSPORTATION ENGINEERING ECONOMICS      | 3 | 0 | 8  | LOC1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
|         |   |   |   |    | LOC2 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
|         |   |   |   |    | LOC3 | 0 | 4 | 2 | 0 | 5 | 2 | 1 | 0 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC4 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| INS6162 | FINITE ELEMENT METHOD                     | 3 | 0 | 8  | LOC1 | 4 | 3 | 4 | 3 | 3 | 4 | 4 | 0 | 0 | 0 | 0 | 3 |
|         |   |   |   |    | LOC2 | 4 | 3 | 4 | 3 | 3 | 4 | 4 | 0 | 0 | 0 | 0 | 3 |
|         |   |   |   |    | LOC3 | 4 | 3 | 4 | 3 | 3 | 4 | 4 | 0 | 0 | 0 | 0 | 3 |
|         |   |   |   |    | LOC4 | 4 | 3 | 4 | 4 | 3 | 4 | 4 | 0 | 0 | 0 | 0 | 3 |
|         |   |   |   |    | LOC5 | 3 | 3 | 3 | 4 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 3 |
|         |   |   |   |    | LOC6 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 0 | 0 | 0 | 0 | 5 |
| INS6008 | SEMINAR                                   | 0 | 2 | 6  | LOC1 | 5 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 |
|         |   |   |   |    | LOC2 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 |
| INS6004 | THESIS RESEARCH (THESIS PROPOSAL)         | 0 | 1 | 2  | LOC1 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 2 | 0 | 0 | 2 | 2 |
| INS6006 | THESIS RESEARCH                           | 0 | 1 | 30 | LOC1 | 2 | 0 | 3 | 0 | 3 | 4 | 3 | 0 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC2 | 4 | 0 | 2 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 2 | 0 |
|         |   |   |   |    | LOC3 | 3 | 0 | 2 | 0 | 3 | 0 | 2 | 2 | 0 | 0 | 3 | 3 |
|         |   |   |   |    | LOC4 | 2 | 0 | 3 | 0 | 3 | 5 | 3 | 3 | 0 | 0 | 3 | 0 |
|         |   |   |   |    | LOC5 | 2 | 0 | 2 | 0 | 5 | 5 | 3 | 3 | 0 | 0 | 0 | 0 |
|         |   |   |   |    | LOC6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| INS6000 | SPECIAL TOPICS                            | 5 | 0 | 2  | LOC1 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 4 |
|         |   |   |   |    | LOC2 | 4 | 2 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 5 |
|         |   |   |   |    | LOC3 | 3 | 5 | 2 | 3 | 2 | 3 | 3 | 0 | 2 | 2 | 2 | 2 |
|         |   |   |   |    | LOC4 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
|         |   |   |   |    | LOC5 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 2 |
|         |   |   |   |    | LOC6 | 4 | 3 | 3 | 0 | 3 | 3 | 3 | 2 | 0 | 2 | 2 | 3 |
| INS6002 | SPECIAL TOPICS                            | 5 | 0 | 2  | LOC1 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 4 |
|         |   |   |   |    | LOC2 | 4 | 2 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 5 |
|         |   |   |   |    | LOC3 | 3 | 5 | 2 | 3 | 2 | 3 | 3 | 0 | 2 | 2 | 2 | 2 |
|         |   |   |   |    | LOC4 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |

|  |      |   |   |   |   |   |   |   |   |   |   |   |   |
|--|------|---|---|---|---|---|---|---|---|---|---|---|---|
|  | LOC5 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 2 |
|  | LOC6 | 4 | 3 | 3 | 0 | 3 | 3 | 3 | 2 | 0 | 2 | 2 | 3 |
| Contribution Level: 0-None, 1-Very Low, 2-Low, 3-Medium, 4-High, 5-Very High |      |   |   |   |   |   |   |   |   |   |   |   |   |