

Bachelor of Sciences in Biomedical Technology Program General Structure

| | | Code | Course Name | Credit Hours [*] | Contact Hours | | | | Pre-requisites Courses |
|-----------------------------|---|----------|----------------------------|---------------------------|---------------|----------|----------|-----------|------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| CFY (1 st Level) | 1 | CT 101 | Computer Skills | 3 | 2 | 2 | 0 | 4 | - |
| | 2 | CUR 101 | University Skills | 3 | 3 | 0 | 0 | 3 | - |
| | 3 | EPH 101 | Health and Fitness Culture | 1 | 0 | 2 | 0 | 2 | - |
| | 4 | ENGL 107 | English | 3 | 2 | 2 | 0 | 4 | - |
| | 5 | STAT 109 | Biostatistics | 6 | 6 | 0 | 9 | 15 | - |
| Total | | | | 16 | 13 | 6 | 9 | 28 | |

*Credit Hours = (Lecture Contact Hours) x 1.0 + (Laboratory Contact Hours) x 0.5 + (Tutorial Contact Hours) x 0.0

| | | Code | Course Name | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|-----------------------------|---|----------|-----------------------------------|--------------|---------------|----------|----------|-----------|------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| CFY (2 nd Level) | 1 | ZOOL 109 | Biology | 3 | 2 | 2 | 0 | 4 | - |
| | 2 | PHYS 109 | General Physics | 4 | 3 | 2 | 0 | 5 | - |
| | 3 | CHEM 109 | Introduction to Organic Chemistry | 3 | 2 | 2 | 0 | 4 | - |
| | 4 | ENGL 114 | Specialized English Language | 6 | 6 | 0 | 9 | 15 | ENGL 107 |
| Total | | | | 16 | 13 | 6 | 9 | 28 | |

| | | Code | Course Name | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|--------------------------------|---|----------|----------------------------|--------------|---------------|----------|----------|-----------|------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| Year 2 (3 rd Level) | 1 | CLS 224 | Basic Anatomy & Physiology | 3 | 2 | 2 | 0 | 4 | - |
| | 2 | ARAB 103 | Expository Writing | 2 | 2 | 0 | 0 | 2 | - |
| | 3 | MATH 218 | Differential Calculus | 4 | 4 | 0 | 2 | 6 | - |
| | 4 | BMT 201 | Applied Physics | 3 | 2 | 2 | 0 | 4 | - |
| | 5 | BMT 213 | Electrical Circuits | 3 | 2 | 2 | 0 | 4 | - |
| | 6 | BMT 241 | Computer Programming | 2 | 1 | 2 | 0 | 3 | - |
| Total | | | | 17 | 13 | 8 | 2 | 23 | |

| | | Code | Course Name | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|--------------------------------|---|----------|------------------------------------|--------------|---------------|-----------|----------|-----------|------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| Year 2 (4 th Level) | 1 | IC 106 | Medical Jurisprudence | 2 | 2 | 0 | 0 | 2 | - |
| | 2 | MATH 228 | Integral Calculus | 4 | 4 | 0 | 2 | 6 | MATH 218 |
| | 3 | BMT 214 | Introduction to Electronic Devices | 3 | 2 | 2 | 0 | 4 | BMT 213 |
| | 4 | BMT 230 | Introduction to Biomechanics | 3 | 2 | 2 | 0 | 4 | CLS 224 BMT 201 |
| | 5 | BMT 251 | Biomedical Sensors & Measurements | 3 | 2 | 2 | 0 | 4 | BMT 213 |
| | 6 | ME 200 | Intro. to Eng. Design & Graphics | 3 | 1 | 4 | 0 | 5 | - |
| Total | | | | 18 | 13 | 10 | 2 | 25 | |

| | | Code | Course Name | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|--------------------------------|---|----------|--------------------------------|--------------|---------------|----------|----------|-----------|------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| Year 3 (5 th Level) | 1 | MATH 318 | Differential Equations | 4 | 4 | 0 | 2 | 6 | MATH 218 |
| | 2 | BMT 316 | Biomedical Integrated Circuits | 3 | 2 | 2 | 0 | 4 | BMT 214 |
| | 3 | BMT 332 | Mechanics of Materials | 2 | 2 | 0 | 0 | 2 | MATH 218 BMT 230 |
| | 4 | BMT 332 | Biomaterials | 2 | 2 | 0 | 0 | 2 | BMT 230 |
| | 5 | BMT 352 | Diagnostic Medical Equipment | 3 | 2 | 2 | 0 | 4 | BMT 251 |
| | 6 | BMT 371 | Biomedical Signal Processing | 3 | 2 | 2 | 0 | 4 | BMT 251 |
| Total | | | | 17 | 14 | 6 | 2 | 22 | |

| | | Code | Course Name | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|--------------------------------|---|---------|--|--------------|---------------|-----------|----------|-----------|------------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| Year 3 (6 th Level) | 1 | BMT 317 | Microcontroller Applications in Healthcare | 3 | 2 | 2 | 0 | 4 | BMT 316 |
| | 2 | BMT 318 | Biomedical Control Systems | 3 | 2 | 2 | 0 | 4 | MATH 228 |
| | 3 | BMT 339 | Fluid Mechanics | 2 | 1 | 2 | 0 | 3 | MATH 218 BMT 201 |
| | 4 | BMT 342 | Internet of Medical Things | 2 | 1 | 2 | 0 | 3 | BMT 241 |
| | 5 | BMT 353 | Therapeutic Medical Equipment | 3 | 2 | 2 | 0 | 4 | BMT 251 |
| | 6 | BMT 362 | Design in Biomedical Engineering | 2 | 2 | 0 | 0 | 2 | ME 200 BMT 332 BMT 332 |
| | 7 | BMT 372 | Medical Image processing | 3 | 2 | 2 | 0 | 4 | MATH 318 BMT 371 |
| Total | | | | 18 | 12 | 12 | 0 | 24 | |

| | | Code | Course Name | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|--------------------------------|---|---------|--------------------------------------|--------------|---------------|-----------|----------|-----------|------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| Year 4 (7 th Level) | 1 | BMT 443 | Biomedical Data Sciences | 2 | 1 | 2 | 0 | 3 | BMT 317 |
| | 2 | BMT 444 | Health Informatics -1- | 3 | 2 | 2 | 0 | 4 | BMT 342 |
| | 3 | BMT 463 | Simulation in Biomedical Engineering | 3 | 2 | 2 | 0 | 4 | BMT 339 BMT 362 |
| | 4 | BMT 481 | Clinical Practice/Project -1- | 3 | 0 | 6 | 0 | 6 | All Level 6 Courses |
| | 5 | BMT 4xx | Approved Technical Elective -1- | 2 | 2 | 0 | 0 | 2 | Course dependent |
| | 6 | BMT 4xx | Approved Technical Elective -2- | 2 | 2 | 0 | 0 | 2 | Course dependent |
| Total | | | | 15 | 9 | 12 | 0 | 21 | |

| | | Code | Course Name | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|--------------------------------|---|---------|---|--------------|---------------|-----------|----------|-----------|------------------------|
| | | | | | Lec | Lab | Tut | Total | |
| Year 4 (8 th Level) | 1 | BMT 464 | Biomedical Design and Manufacturing | 3 | 2 | 2 | 0 | 4 | BMT 362 |
| | 2 | BMT 482 | Biomedical Innovations and Entrepreneurship | 2 | 2 | 0 | 0 | 2 | BMT 362 |
| | 3 | BMT 483 | Health Technology Management | 3 | 2 | 2 | 0 | 4 | - |
| | 4 | BMT 486 | Clinical Practice/Project -2- | 3 | 0 | 6 | 0 | 6 | BMT 481 |
| | 5 | BMT 4xx | Approved Technical Elective -3- | 2 | 2 | 0 | 0 | 2 | Course dependent |
| | 6 | BMT 4xx | Approved Technical Elective -4- | 2 | 2 | 0 | 0 | 2 | Course dependent |
| Total | | | | 15 | 10 | 10 | 0 | 20 | |

| | | Internship Year | Credit Hours | Contact Hours | | | | Pre-requisites Courses |
|--------------|---|-----------------|---------------------------------------|---------------|-----|-----|-------|------------------------|
| | | | | Lec | Lab | Tut | Total | |
| Year 5 | 1 | Internship | 0 | 0 | 0 | * | * | All program courses |
| Total | | | * Depends on the training institution | | | | | |

Basket of BMT Program Elective Courses (Year 4)*

| | Code | Course Name | Credit | Contact Hours | | | | Pre-requisites |
|--|---------|---|--------|---------------|-----|-----|-------|--------------------|
| | | | Hours | Lec | Lab | Tut | Total | Courses |
| Biomechanics & Biomaterials | BMT 433 | Structural Aspects of Biomaterials | 2 | 2 | 0 | 0 | 2 | BMT 332 BMT 362 |
| | BMT 434 | Orthopedic Biomechanics | 2 | 2 | 0 | 0 | 2 | BMT 230 BMT 332 |
| | BMT 435 | Cardiovascular Biomechanics | 2 | 2 | 0 | 0 | 2 | BMT 230 BMT 332 |
| | BMT 436 | Cell and Tissue Engineering | 2 | 2 | 0 | 0 | 2 | BMT 332 |
| Health Informatics | BMT 445 | Health Informatics -2- | 2 | 2 | 0 | 0 | 2 | BMT 443 BMT 444 |
| | BMT 446 | System Analysis and Design | 2 | 2 | 0 | 0 | 2 | BMT 443 |
| | BMT 447 | Healthcare Business Processes Reengineering | 2 | 2 | 0 | 0 | 2 | BMT 446 |
| | BMT 448 | Healthcare Data Analytics | 2 | 2 | 0 | 0 | 2 | BMT 444 |
| Biomedical Instrumentation | BMT 454 | Advanced Biomedical Devices | 2 | 2 | 0 | 0 | 2 | BMT 352 BMT 371 |
| | BMT 455 | Biomedical Automation and Intelligence | 2 | 2 | 0 | 0 | 2 | BMT 443 |
| | BMT 456 | Implantable Medical Devices | 2 | 2 | 0 | 0 | 2 | BMT 332 |
| | BMT 457 | Assistive Technology Devices | 2 | 2 | 0 | 0 | 2 | BMT 362 |
| Biomedical Imaging | BMT 473 | Biomedical Signal Processing Application | 2 | 2 | 0 | 0 | 2 | BMT 371 |
| | BMT 474 | Medical Imaging Systems | 2 | 2 | 0 | 0 | 2 | BMT 372 |
| | BMT 475 | Medical Image Analysis | 2 | 2 | 0 | 0 | 2 | BMT 352 BMT 372 |
| Clinical Engineering | BMT 487 | Healthcare Project Management | 2 | 2 | 0 | 0 | 2 | - |
| | BMT 488 | Maintenance of Biomedical Equipment | 2 | 2 | 0 | 0 | 2 | - |
| | BMT 489 | Human Factors in Biomedical Technology | 2 | 2 | 0 | 0 | 2 | BMT 230 |

* The four approved technical elective courses in levels 7 and 8 are chosen from the elective courses basket. Two elective courses are required for each level.

Basket of University Elective Courses**

| | Code | Course Name | Credit Hours |
|-----------|-------------|----------------------------------|---------------------|
| 1 | QUR 100 | Holy Quran | 2 |
| 2 | IC 100 | Studies in the Prophet Biography | 2 |
| 3 | IC 101 | Principles of Islamic Culture | 2 |
| 4 | IC 102 | Family in Islam | 2 |
| 5 | IC 103 | Economic System in Islam | 2 |
| 6 | IC 104 | Islamic Political System | 2 |
| 7 | IC 105 | Human Rights | 2 |
| 8 | IC 107 | Professional Ethics | 2 |
| 9 | IC 108 | Current Issues | 2 |
| 10 | IC 109 | Development Role of Women | 2 |

** Students are requested to incorporate to their curriculum three 2-credit IC courses from the above basket of University Elective courses for a total of 6 credits. Only one course per semester is allowed.