

PENDING MNSCU APPROVAL

|                           |              |
|---------------------------|--------------|
| Program Core Requirements | 28           |
| Electives                 | 2-4          |
| General Education/MnTC    | 30           |
| Wellness                  | <u>2</u>     |
| <b>Total Credits</b>      | <b>62-64</b> |

## Medical Device Engineering Technology

### Associate in Science Degree

### 2008-2009

**Program Information:** This degree program prepares individuals for entry in the career fields of medical device engineering technology and also provides the first two years of a bachelor's degree related to engineering technology or industrial management. Coursework will transfer in its entirety to Bemidji State University and may transfer in part or entirely to Minnesota State University-Moorhead and the University of Minnesota, and other postsecondary institutions. Students should meet with a representative of the transfer institution when planning class schedules. For additional information about the medical device engineering technology degree, visit the college Web site at <http://www.AnokaRamsey.edu>.

**Program Goals:** By completing this program, students will achieve the following learning goals: 1) demonstrate an understanding of the diversity of manufacturing technologies as they relate to medical device manufacturing; 2) write effectively for documentation requirements of the medical device industry, 3) demonstrate understanding of quality principles and regulatory requirements as they relate to medical device manufacturing, and 4) develop capacity to operate, maintain and troubleshoot manufacturing equipment and machines using software interface and diagnostic tools; 5) develop understanding of manufacturing properties and biocompatibility of metals, plastics, composites, adhesives and other materials; 6) demonstrate competency in manufacturing, quality, and inspection tools including microscopes, measurement and testing equipment; 7) develop capacity to create and customize parts design, understand product specifications and model part performance.

**Program Admission:** To apply for admission to the medical device engineering technology degree program, identify medical device engineering technology as your major on your application form.

**General Information:** College-level competence in English, writing, and mathematics should be acquired before entering the MDET program.

**Developmental Courses:** Some students may need preparatory courses in the areas of English or mathematics. Courses numbered below 1000 will not apply toward the AS degree.

| Program Core Requirements                                    | 28 credits         | General Education/MnTC Requirements  | 30 credits       |
|--|--------------------|--|------------------|
| BMED 1100 Intro to Biomedical Devices and Industry           | 2                  | Complete at least 30 credits in courses from the Minnesota Transfer Curriculum, <u>including all courses listed</u> . You must complete at least one course in six of the ten emphasis areas. You may select courses that meet more than one emphasis area.  |                  |
| BMED 2100 Design/Mfg in the Medical Device Industry          | 3                  | 1. Communication   |                  |
| BMED 2200 Introduction to Medical Device Regulations//Ethics | 3                  | ENGL 1121* College Writing and Critical Reading  | 4                |
| BMED xxxx Writing/Documentation for Medical Device Ind.      | 3                  | SPCH 1110 Introduction to Speech Communication <b>OR</b>   | 3                |
| MDET xxxx Mechatronics I+ Overview of Automation Tech.       | 3                  | SPCH 2215 Public Speaking <b>OR</b>  |                  |
| MDET xxxx Mechatronics II                                    | 4                  | SPCH 2220 Interpersonal Communication  |                  |
| MDET xxxx Manufacturing Materials/Process                    | 3                  | 2. Critical Thinking   |                  |
| BMED 2300 Intro to Quality Assurance                         | 3                  | 3. Natural Science   |                  |
| MDET xxxx CAD/Computer-aided Design                          | 2                  | CHEM 1020* Interpretive Chemistry  | 4                |
| MDET xxxx Measurement and Verification Technologies          | 2                  | PHYS 1317* General Physics I   | 5                |
|  |                    | 4. Mathematical/Logical Reasoning  |                  |
| Choose one of the electives below:                           |                    | MATH 1200* College Algebra I   | 3                |
| <b>Electives</b>   | <b>2-4 credits</b> | MATH 1201 College Algebra II   | 4                |
| BMED 2297* Field Exp. and Seminar                            | 4                  | <b>OR</b> MATH 1110 Introductory Statistics  | 3                |
| BIOL 1102 Medical Terminology                                | 2                  | 5. History/Social/Behavioral Sciences  |                  |
| BIOL 1104 Human Body   | 4                  | 6. Humanities/Fine Arts  |                  |
| *Course has a prerequisite. Prerequisites listed on back.    |                    | 7. Human Diversity   |                  |
|  |                    | 8. Global Perspective  |                  |
| *Permission of Program Director required.                    |                    | 9. Ethical/Civic Responsibility  |                  |
|  |                    | 10. People and the Environment   |                  |
|  |                    | <b>Wellness</b>  | <b>2 credits</b> |
|  |                    | Select any HPER course(s) totaling at least 2 credits.   |                  |
|  |                    | <b>Notes:</b> (1) A cumulative GPA of 2.0 or above is required to complete this degree. Some transfer agreements require a GPA of 2.5. (2) A minimum grade of C must be earned in all Program Core requirements. (3) A minimum of 62 semester credits numbered 1000 or above with a minimum of 20 semester credits taken at ARCC (reduced to 12 if 8 credits are transferred from another MnSCU institution or the U of M) is required for graduation. |                  |

**Program Sequence:** The sequence that follows is suggested for full-time students. Part-time students will need more time to complete this program; many courses are offered in the evening.

|                         |              | <u>First Year</u>             |            | <u>Second Year</u>      |                                      |
|-------------------------|--------------|-------------------------------|------------|-------------------------|--------------------------------------|
| Fall Semester           |              | Spring Semester               |            | Fall Semester           | Spring Semester                      |
| BMED 1100               | 2            | MDET xxxx (Mech I)            | 3          | MDET xxxx (Mech II)     | 4                                    |
| BMED 2100               | 3            | BMED 2200                     | 3          | MDET xxxx (Mfg Mat/Pro) | 3                                    |
| General Ed or Electives | <u>10-13</u> | MDET xxxx(CAD)                | 2          | BMED 2300 (Quality)     | 3                                    |
| Total                   | 15-18        | MDET xxxx (Meas.+ Ver. Tech.) | 2          | General Ed or Electives | <u>5-7</u>                           |
|                         |              | General Ed or Electives       | <u>5-7</u> | Total                   | 15-17                                |
|                         |              | Total                         | 15-17      |                         |                                      |
|                         |              |                               |            |                         | BMED xxxx (Writing) 3                |
|                         |              |                               |            |                         | General Ed or Electives <u>12-14</u> |
|                         |              |                               |            |                         | Total 15-17                          |

You are encouraged to contact a counselor or an advisor or *Ask Us* on the Web site ([www.anokaramsey.edu](http://www.anokaramsey.edu)), for course planning assistance and information about transfer credit evaluation.

**NOTE:** The requirements of this program are subject to change without notice. Students should refer to the current catalog to determine the limits to earn a degree.

06/2008