**B. S. PHYSICS – APPLIED PHYSICS CHECK SHEET**

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|  | **Date Taken** | **Grade Rec’d** |  | **Date Grade**  **Taken Rec’d** |

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| ***Learning Skills (9 cr)*** | | | |  | | | | |  | | | |
| ENGL 101 Composition I (3) | | | |  | | | | |  | | | |
| ENGL 202 Composition II, Soph. level (3 ) | | | |  | | | | |  | | | |
| MATH 125 Calculus I –Physics, … (3) | | | |  | | | | |  | | | |
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| ***Humanities (9 cr)*** | | | |  | | | | |  | | | |
| HIST 195/196/197 US/Europe/Global (3) | | | |  | | | | |  | | | |
| ENGL 121/FNLG 121 Humanities Lit (3) | | | |  | | | | |  | | | |
| PHIL 122/ REST 110 (3) | | | | |  | | | |  |
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| ***Fine Arts (3 cr)*** | | | |  | | | | |  | | | |
| ARHI 101 Intro to Art (3) **or** | | | |  | | | | |  | | | |
| MUHI 101 Intro to Music (3) **or** | | | |  | | | | |  | | | |
| THTR 101 Intro to Theater (3) **or** | | | |  | | | | |  | | | |
| DANC 102 Intro to Dance (3) | | | |  | | | | |  | | | |
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| ***Natural Science (8 cr)*** | | | |  | | | | |  | | | |
| PHYS 131 Physics I-Calc Lect (3) | | | |  | | | | |  | | | |
| PHYS 141 Physics I-Calc Lab (1) | | | |  | | | | |  | | | |
| PHYS 132 Physics II-Calc Lect (3) | | | |  | | | | |  | | | |
| PHYS 142 Physics II-Calc Lab (1) | | | |  | | | | |  | | | |
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| ***\*Social Science (9 cr)*** | | | |  | | | | |  | | | |
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| ***Health and Wellness (3-4 cr)*** | | | |  | | | | |  | | | |
| HPED 143 Health & Wellness (3) | | | |  | | | | |  | | | |
| FDNT 143 Nutrition & Wellness (3) **or** | | | |  | | | | |  | | | |
| MLSC 101 World Military Hist (2) **and** | | | |  | | | | |  | | | |
| MLSC 102 American Military Hist (2) | | | |  | | | | |  | | | |
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| ***Liberal Studies Electives (3 cr)*** | | | |  | | | | |  | | | |
| MATH 126 Calculus II – Physics (3) | | | |  | | | | |  | | | |
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| ***Liberal studies total ( 44 cr)*** | | | |  | | | | |  | | | |
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| **Chemistry (19 cr)** | | | |  | | | | |  |
| CHEM 231 Organic Chemistry I (4) | | | |  | | | | |  |
| CHEM 323 Analytical Methods (4) | | | |  | | | | |  |
| CHEM 341 Physical Chemistry I (4) | | | |  | | | | |  |
| CHEM 342 Physical Chemistry II (4) | | | |  | | | | |  |
| CHEM 343 Phys. Chem Lab I (1) | | | |  | | | | |  |
| MATH 225 Calculus III (3) | | | |  | | | | |  |
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| ***Required Courses (28 cr)*** | | | | | | |  |  | | |
| PHYS 231 Electronics (4) | | | | | | |  |  | | |
| PHYS 331 Modern Physics (3) | | | | | | |  |  | | |
| PHYS 342 Thermal & Stat Phys (3) | | | | | | |  |  | | |
| PHYS 345 Optics (3) | | | | | | |  |  | | |
| PHYS 350 Intermediate Exp Phys (3) | | | | | | |  |  | | |
| PHYS 355 Computer Int’facing (3) | | | | | | |  |  | | |
| PHYS 441 Classical Mechanics (3) | | | | | | |  |  | | |
| PHYS 451 Electricity & Magnetism (3) | | | | | | |  |  | | |
| PHYS 474 Phys of Semicon Dev (3) | | | | | | |  |  | | |
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| ***Other Requirements (17 – 23 cr)*** | | | | | | |  |  | | |
| CHEM 111 General Chemistry I (4) | | | | | | |  |  | | |
| CHEM 112 General Chemistry II (4) | | | | | | |  |  | | |
| COSC 110 Structured Prog (3) | | | | | | |  |  | | |
| MATH 241 Diff Equations (3) | | | | | | |  |  | | |
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| ***Foreign Language§ (0-6 cr)*** | | | | | | |  |  | | |
| FRNC 201 & 202 (College French I&II) **or** | | | | | | |  |  | | |
| GRMN 251 & 252 (German III&IV) **or** | | | | | | |  |  | | |
| SPAN 102 & 201 (Elm Sp & Int Sp (6 cr)† | | | | | | |  |  | | |
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| ***Controlled Electives: According to Track******(18 – 21 cr)*** | | | | | | | | | | |
| **Nanomanufacturing Technology (18 cr)** | | | | | | | | | | | |
| *Students in NMT will spend one summer semester, at* | | | | | | | | | | | |
| *Penn State for controlled electives. GPA ≥ 3.0* | | | | | | | | | | | |
| NMTT 311 Mat, Safe & Equip (3) | | | |  | | | |  | | | |
| NMTT 312 Basic nanofabrication (3) | | | |  | | | |  | | | |
| NMTT 313 Thin Films (3) | | | |  | | | |  | | | |
| NMTT 314 Lithography & Pat Tech (3) | | | |  | | | |  | | | |
| NMTT 315 Mat Modification (3) | | | |  | | | |  | | | |
| NMTT 316 Charc, Pack & Testing (3) | | | |  | | | |  | | | |
| PHYS 475 Physics Semiconductor I (3) | | | |  | | | |  | | | |
| PHYS 476 Physics Semiconductor II (3) | | | |  | | | |  | | | |
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| **Solid State Electronics (21 cr)** | | | | | |  | | |  | | | |
| PHYS 342 Thermal & Stat Physics (3) | | | | |  | | |  | | | | |
| PHYS 353 Solid State Elect. Lab (3) | | | | |  | | |  | | | | |
| PHYS 432 Advanced Electronics (3) | | | | |  | | |  | | | | |
| PHYS 475Physics Semiconductor I (3) | | | | |  | | |  | | | | |
| COSC 300 Comp Org & Asbly Lang(3) | | | | |  | | |  | | | | |
| MATH 342 Adv Math for Apps (3) | | | | |  | | |  | | | | |
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| **Computer Science (21 cr)** | | | | | | |  | |  | | |
| COSC 300 Comp Org & Assembly Lang (3) | | | | | | |  | |  | | |
| COSC 410 Computer Architecture (3) | | | | | | |  | |  | | |
| COSC 450 Applied Numerical Methods (3) | | | | | | |  | |  | | |
| PHYS 355 Computer Interfacing (3) | | | | | | |  | |  | | |
| PHYS 342 Thermal and stat Physics (3) | | | | | | |  | |  | | |
| PHYS 432 Advanced Electronics (3) | | | | | | |  | |  | | |
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| **Geology (21 cr)** | | |  | | | | | | | | |
| GEOS 201 Foundations of Geology (4) | | |  | | | | |  | | | |
| GEOS 202 Quant. Methods of Geos (2) | | |  | | | | |  | | | |
| GEOS 203 Surficial Processes (4) | | |  | | | | |  | | | |
| GEOS 341 Planetary Geology (4) | | |  | | | | |  | | | |
| GEOS 342 Stellar Astronomy (4) | | |  | | | | |  | | | |
| GEOS 371 Meteorology (3) | | |  | | | | |  | | | |
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| B**iology (19 cr)** | | |  | | | | | |  | | | |
| BIOL 111 Principles of Bio I (4) | | |  | | | | | |  | | | |
| BIOL 112 General Zoology (3) | | |  | | | | | |  | | | |
| CHEM 231 Organic Chemistry I (4) | | |  | | | | | |  | | | |
| CHEM 351 Biochemistry (4) | | |  | | | | | |  | | | |
| *Choose (1) of the following:* | | |  | | | | | |  | | | |
| BIOL 250 Microbiology (3) | | |  | | | | | |  | | | |
| BIOL 263 Genetics (3) | | |  | | | | | |  | | | |
| BIOL 401Lab Meth Bio/BioTech(3) | | |  | | | | | |  | | | |
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| **Free Electives** **(4-13 cr)** | | | | | |  | | | | | |  | |
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| **Total Degree Requirements:** | | | |  | | | **120** | | | | | | | |

\* If one of these courses does not meet the Non-western cultures requirement, then an elective must be used.

† Total credits from SPAN 102 (4) and SPAN 201 (4) is 8 cr. 2 cr must be included in electives.

§ Six credits of computer programming language will substitute for foreign language requirement:

COSC 110, 210 or higher-level computer science courses (COSC 250 recommended), with department permission.