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| <b>HIGH SCHOOL: Capital High School</b>   |   | <br><b>BIG SKY PATHWAY PROPOSAL</b>  |
| <b>COLLEGE: Helena College University of Montana</b>  |   |   |
| <b>COLLEGE DEGREE PROGRAM: Computer Technology AAS Programming Option</b>   |   |   |
| <b>Cluster Overview:</b><br>Information Technology careers encompass entry level, technical, and professional careers related to the design, development, support and management of hardware, software, multimedia, and systems integration services. | <b>Pathway Options:</b> <ul style="list-style-type: none"> <li>• Network Systems</li> <li>• Information Support and Services</li> <li>• Web and Digital Communications</li> <li>• Programming and Software Development</li> </ul> | <b>Occupation Examples:</b><br>Animator, Database Administrator, Data Systems Designer, E-Business Specialist, Game Developer, Information Technology Engineer Media Specialist, Network Administrator, Network Security Analyst, PC Support Specialist, Programmer, Software Applications Specialist, Systems Administrator, Telecommunications Network Technician, User Support Specialist, Virtual Reality Specialist, Web Architect/Designer<br><br>For a complete listing, go to:<br><a href="http://online.onetcenter.org/find/career?c=11&amp;q=Go">http://online.onetcenter.org/find/career?c=11&amp;q=Go</a> |

## SUGGESTED HIGH SCHOOL COURSES

| SUGGESTED HIGH SCHOOL COURSES |   |   |   |
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| <b>9th</b>                    | Graduation Requirements Workforce/2-Year College Prep | English I, Math, Earth Science, Social Studies, Physical Ed   | <b>Recommended CTE Cluster Foundation Course(s):</b><br>Computer Tech Skills<br><b>Computer Science</b>                             |
|                               | 4-Year MT College/Univ Prep (Rigorous Core)           | English I, Algebra I, Math I or II Honors, Earth Science, World Cultures, Phys Ed, Foreign Language                     |   |
|                               | <b>CTE and/or Electives</b>                           | Computer Tech Skills  |   |
| <b>10th</b>                   | Graduation Requirements Workforce/2-Year College Prep | English II; Math II; Biology; Health; Fine Art  | <b>Recommended CTE Pathway Courses:</b> <b>Intro to Programming; Coding</b>   |
|                               | 4-Year MT College/Univ Prep (Rigorous Core)           | Geometry, Math II Honors or Pre-Calc, Biology, Foreign Language   |   |
|                               | <b>CTE and/or Electives</b>                           | <b>Computer Science; CAPP 154 MS Word</b>   |   |
| <b>11th</b>                   | Graduation Requirements Workforce/2-Year College Prep | English III; Math III; US History;  | <b>Other Recommended CTE Courses:</b><br>Business; <b>Microsoft Word</b> and <b>Microsoft Excel</b> , <b>CNC Milling Operations</b> |
|                               | 4-Year MT College/Univ Prep (Rigorous Core)           | English III, American History, Algebra II, <b>College Algebra (M121)</b> , Chemistry I, Biology 2, Foreign Language     |   |
|                               | <b>CTE and/or Electives</b>                           | <b>Intro to Programming; Coding, CAPP 156 MS Excel</b>  |   |
| <b>12th</b>                   | Graduation Requirements Workforce/2-Year College Prep | English IV or <b>WRIT121T Technical Writing</b> , US Government   | <b>Career &amp; Technical Student Organization(s):</b><br>Helena Robotics, Business Professionals of America                        |
|                               | 4-Year MT College/Univ Prep (Rigorous Core)           | English IV, <b>College Writing (WRIT101)</b> , American Government, Calculus, Chemistry II or Physics, Foreign Language |   |
|                               | <b>CTE and/or Electives</b>                           | <b>MCH234 CNC Milling Operations;</b> Business, Psychology, Sociology   |   |

## ADVANCED LEARNING OPPORTUNITIES

### High School to College/Career Linkages

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| <b>Advanced Placement:</b> AP U.S. History; AP Am. Government; AP English Literature, AP English Language, AP European History, AP Spanish   |
| <b>Dual Enrollment courses:</b> M111T Technical Mathematics; WRIT121T Technical Writing; WRIT 101 College Writing; LIT110 Intro to Lit; COMX111 Intro To Public Speaking; M121 College Algebra; M151 Pre-Calculus; M171 Calculus, STAT216 Intro to Statistics; MCH234 CNC Milling Operations 1; ACCT 101 Accounting, CAPP154 Microsoft Word, CAPP156 Microsoft Excel |
| <b>Online courses:</b> MTDA: 121 College Algebra; WRIT101 College Writing; Coding (Code MT); CSCI107 Joy & Beauty of Computing   |
| <b>Other:</b> Robotics Competition; Science Olympiad   |

## POSTSECONDARY PROGRAM OF STUDY

|                              | Math   | English  | Major   | Other  |
|------------------------------|--|--|---|--|
| <b>Semester 1</b><br>(15 CR) | M121 College Algebra /or M115 Linear Mathematics 3CR | WRIT101 College Writing /or WRIT121T Technical Writing 3CR | CSCI100 Intro to Programming 3CR OR CSCI 107 Joy & Beauty 3CR<br>BMIS285 Fundamentals of Management Information Systems 3CR | ITS164 Networking Fundamentals 3CR OR NTS104 Intro to Networks 3CR   |
| <b>Semester 2</b><br>(18 CR) |  |  | CSCI111 Program with Java I 4CR<br>CSCI240 Databases & SQL 3CR<br>ITS280 Comp. Repair & Maint 4CR<br>MART145 Web Design 3CR | SOCI101 Intro to Sociology /or PSYX100 Intro to Psychology /or HR110T Career Development and Human Relations 3CR |

|                              |  |  |  |   |
|------------------------------|--|--|--|---|
| <b>Semester 3</b><br>(14 CR) |  |  | CSCI DB Triggers, ORM, NoSQL<br>3CR<br>CSCI211 Client Side Web Dev 3CR<br>CSCI221 Syst. Analysis & Des. 4CR<br>CSCI236 XML Data Processing 2CR<br>CSCI276 Application Security 2CR |   |
| <b>Semester 4</b><br>(15 CR) |  |  | CSCI121 Program w/Java II 4CR<br><b>CSCI238 Mobile Apps</b> 3CR<br>CSCI206 .NET Applications 3CR<br>CSCI Web Services 3CR  | CSCI298 Internship <b>OR</b><br>CSCI299 Thesis/Capstone 2CR |

## MONTANA POSTSECONDARY OPPORTUNITIES

*Montana University System Degree and Program Inventory: <http://www.homepage.montana.edu/~mus/drginv/>  
Your Guide to Montana's Certificate and Associate Degree Programs: <http://mus.edu/twoyear/YourGuide.html>*

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|---|---|--|---|
| <b>MSU Two Year Colleges and Programs:</b><br>City College MSUB—Billings (CC); Great Falls College MSU—Great Falls (GFC); Helena College UM—Helena (HC) Highlands College MT Tech—Butte(HC-Tech); Missoula College UM—Missoula (MC); Gallatin College MSU—Bozeman(GC) | <b>Community Colleges:</b><br>Dawson Community College (DCC)<br>Flathead Valley Community College (FVCC)<br>Miles Community College (MCC)   | <b>Tribal Colleges:</b> Aaniiih Nakoda College (ANC);Blackfeet Community College(BCC); Chief Dull Knife College (CDKC);Fort Peck Community College (FPCC);Little Big Horn College (LBHC);Stone Child College (SCC);Salish Kootenai College (SKC)   | <b>Four Year Colleges/Universities:</b><br>MSU—Bozeman; MSUB—Billings; MSUN—Havre; MT Tech—Butte; UM—Missoula; UMW—Dillon |
| <b>MILITARY</b>   | <ul style="list-style-type: none"> <li>Requires diploma or GED</li> <li>17 with parental consent; 18 without</li> </ul>   | Air Force, Air Guard, Army, Coast Guard, Marines, and Navy<br>For more information: <a href="http://todaysmilitary.com">http://todaysmilitary.com</a>  |   |
| <b>PROFESSIONAL CERTIFICATE</b>   | <ul style="list-style-type: none"> <li>Requires diploma or GED</li> <li>Less than 30 credits; little/no general ed credits</li> <li>Complete in one year or less</li> </ul>                                       |  |   |
| <b>APPRENTICESHIP</b>   | <ul style="list-style-type: none"> <li>Requires diploma or GED</li> <li>Must be at least 18</li> <li>Minimum 2,000 hours of supervised experience</li> </ul>  | See the MT Dept of Labor website for more information:<br><a href="http://wsd.dli.mt.gov/apprenticeship/default.asp">http://wsd.dli.mt.gov/apprenticeship/default.asp</a>  |   |
| <b>CERTIFICATE OF APPLIED SCIENCE</b>   | <ul style="list-style-type: none"> <li>Requires diploma or GED</li> <li>30-45 credits; limited general education credits</li> <li>Complete in one year or less</li> </ul>   | Computer Assistant — HC, HC Tech, GFC<br>Computer Desktop/Network Support — FPCC<br>Computer Networking — CC, HC Tech, GFC, UMW<br>Computer Science/Technology — BCC<br>Computer Skills Specialist — HC<br>Computer Support — MC<br>Programming Technology — FPCC<br>Web Technology/Development/Design — DCC   |   |
| <b>ASSOCIATE'S OF APPLIED SCIENCE DEGREE</b>  | <ul style="list-style-type: none"> <li>Requires diploma or GED</li> <li>60-72 credits; includes 15-25 general ed credits</li> <li>Complete in two years (if prepared academically in math and English)</li> </ul> | Computer Desktop/Network Support — CC, SKC<br>Computer Graphics — MCC<br>Computer Information Systems — MC, MSUN,<br>Computer Networking — HC, MC, HC Tech, GFC, MCC, FPCC<br>Computer Science/Technology — FPCC, BCC<br>Computer Systems Tech — CC<br>Computer Technical Support Specialist — DCC<br>Information Technology/Systems — FVCC<br>Microcomputer Specialist/Technology — GFC<br>Programming Technology — HC, CC<br>Web Technology/Dev/Design —HC Tech, GFC, FVCC |   |
| <b>BACCALAUREATE DEGREE</b>   | <ul style="list-style-type: none"> <li>Requires 4-year college prep for admission</li> <li>128 credits (approximately)</li> <li>Complete in four years</li> </ul>   | Computer Engineering — MSU, SKC<br>Network Technology — TECH<br>Computer Science — MSU, UM<br>Computer Info Systems — MSUN<br>Information Systems — UM<br>Information Technology — SKC   |   |

*Degree and Program Inventory above may not be all inclusive*