PROGRAMMA di INFORMATICA A.S. 2021/2022 - INDIRIZZO LICEO SCIENTIFICO
Opzione SCIENZE APPLICATE CAMBRIDGE 1 E

| **Unità didattica di apprendimento** | **CONOSCENZE** |
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| ACS-CD-UDA 2<br><br>**La codifica digitale dei dati / Data Representation** | Denary system<br>Binary and Hexadecimal systems<br>Converting Binary/Hexadecimal to Denary<br>Converting Denary to Binary<br>Converting Denary to Hexadecimal<br>Converting Binary to Hexadecimal<br>Why is Hexadecimal used in computer science?<br>Binary addition<br>Logical Binary Shifts<br>Negative Binary Numbers<br>Converting Text to Binary<br>Converting Images to Binary (resolution, RGB/colour depth, size of the image file)<br>Converting Sound to Binary (sampling, sample rate, sample resolution)<br>Measuring data storage<br>Calculating the size of an image file<br>Calculating the size of a sound file<br>Data Compression |

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| RC-SP-UDA 1<br><br>**La trasmissione dei dati in rete, la sicurezza nella trasmissione / Data Transmission** | The structure of a data packet, packet switching, methods of data transmission (Serial data transmission, Parallel data transmission).<br><br>Parallel Data transmission adv vs. disadv, USB, Transmission errors<br><br>Error detection methods, Parity check (Even and Odd Parity check)<br><br>Checksum, Echo check, Check Digit<br><br>ARQ, Encrytption |

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| ACS-CD-UDA 1<br><br>**Architettura di un computer / Hardware part 1**<br><br>RC-SP-UDA 3<br><br>**Dispositivi di I/O / Hardware part 2** | L'architettura di Von Neumann, CPU vs Microprocessor, Fetch-Decode-Execute cycle<br><br>Fetch-Decode-Execute cycle, Fattori che influenzano le performance di una CPU.<br><br>Input devices and Output devices.<br><br>Data Storage (Primary and Secondary Storage)<br>Optical secondary storage type |

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| RC-SP-UDA 2<br><br>**Rete / Hardware part 4**<br><br>RC-SP-UDA 4<br><br>**Dispositivi di memorizzazione (Data Storage) / Hardware part 3** | Magnetic secondary storage type<br>Solid-State secondary storage type<br><br>Virtual memory<br>Cloud Storage<br>Network Hardware (Network, NIC, Router, IP address vs. MAC address)<br>IPv4 vs. IPv6, Static IP vs. Dynamic IP |

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| ACS-CD-UDA 4<br><br>**Logica booleana / Boolean Logic** | Logic Gates (NOT, AND, OR, NAND, NOR, XOR ed XNOR, Truth table), logic circuits<br><br>Representing problem statements |

LUOGO e DATA

Palermo, 09/06/2021

FIRMA DOCENTE