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MILITARY HANDBOOK

INTERACTIVE COURSEWARE (ICW)
FOR MILITARY TRAINING,
GLOSSARY FOR

(PART 3 OF 3 PARTS)



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- 3. Guidance provided in this document is not intended to supplement or duplicate policies and procedures in existing Federal, DoD, and Military Service regulations. Should conflict arise between this handbook and any of the previously mentioned regulations, the regulations take precedence.**
- 4. This handbook is intended to provide a single comprehensive glossary that contains definitions of terms, abbreviations, and acronyms related to military training and interactive courseware (ICW).**

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
1.	SCOPE	1
1.1	Scope	1
1.2.	How to use this handbook	1
1.2.1	Definitions	1
1.2.1.1	Generic definitions	1
1.2.1.2	Interrelated terms	1
1.2.1.3	Subset terms	1
1.2.2	Abbreviations and acronyms	1
1.3	Parts	1
2.	APPLICABLE DOCUMENTS	2
2.1	Government documents	2
2.1.1	Specifications, standards, and handbooks	2
2.1.2	Other Government documents, drawings, and publications	2
3.	DEFINITIONS	4
3.1	Ability grouping	4
3.2	Ablation	4
3.3	A-B rolls	4
3.4	Academic Review Board	4
3.5	Accelerated Training	4
3.6	Access time	4
3.7	Achievement Grouping	4
3.8	Acquisition	4
3.9	Acquisition Management Systems and Data Requirements Control List (AMSDL)	4
3.10	Acquisition Management Systems Control (AMSC) Number	5
3.11	Acquisition Plan (AP)	5
3.12	Acquisition Streamlining	5
3.13	Active graphics	5
3.14	Active Program	5
3.15	Active video	5
3.17	Actual equipment trainer	5
3.18	Ada (not an acronym)	5
3.19	Adaptive technique	5
3.20	Additional Training	5
3.21	Address	5
3.22	Address Code	6
3.23	Addressing	6
3.24	Adjunct scheduling	6
3.25	Adjunctive materials	6
3.26	Adjustive devices	6

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.27	Affective domain	6
3.28	Affective learning	6
3.29	Air Force specialty (AFS)	6
3.30	Aliasing	7
3.31	Alphageometric	7
3.32	Alphamosaic graphics	7
3.33	Alphaphotographic	7
3.34	Alternate character set	7
3.35	Alternate input	7
3.36	American Standard Code for Information Interchange (ASCII)	7
3.37	American Standard Code for Information Interchange (ASCII) interface	7
3.38	Analog	7
3.39	Analysis	7
3.40	Ancillary materials	8
3.41	Ancillary training	8
3.42	Animation	8
3.43	Anti-aliasing	8
3.44	Anticipated responses	8
3.45	Anticipated right answer	8
3.46	Anticipated wrong answer	8
3.47	Application	8
3.48	Application layer	8
3.49	Application software	8
3.50	Architecture	9
3.51	Archive	9
3.52	Array	9
3.53	Artificial intelligence (AI)	9
3.54	Artwork	9
3.55	Aspect ratio	9
3.56	Assembly	9
3.57	Assembly language	9
3.58	Asynchronous	10
3.59	Asynchronous transmission	10
3.60	Attention step	10
3.61	Attenuation	10
3.62	Attitude measure	10
3.63	Attitudinal traits	10
3.64	Attribute	10
3.65	Attrition rate	10
3.66	Audio Compression	10
3.67	Audio track	10
3.68	Audiovisual aid	10

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.69	Audiovisual equipment	10
3.70	Audiovisual medium	10
3.71	Audiovisual products	11
3.72	Audiovisual services	11
3.73	Audit trail	11
3.74	Authoring	11
3.75	Authoring language	11
3.76	Authoring system	11
3.77	Automated task analysis	11
3.78	Auto-stop	11
3.79	Average awaiting instruction	11
3.80	Background training	12
3.81	Back up	12
3.82	Backup	12
3.83	Bandwidth	12
3.84	Bar code	12
3.85	Bar code reader	12
3.86	Baseband MODEM	12
3.87	Base memory	12
3.88	Baseline data	12
3.89	Basic Input/Output System (BIOS)	12
3.90	Batch file	12
3.91	Behavior	13
3.92	Behavior analysis	13
3.93	Behavior attributes	13
3.94	Behavior indicators	13
3.95	Behavior modification	13
3.96	Behavioral objective	13
3.97	Bezel	13
3.98	Bias	13
3.99	Billet	13
3.100	Binaries	13
3.101	Binary code	13
3.102	Binary digit	13
3.103	Binary interface	13
3.104	Binary notation	14
3.105	Bit density	14
3.106	Bit error rate (BER)	14
3.107	Bit location	14
3.108	Bit map	14
3.109	Bit mapping	14
3.110	Bit pad	14

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.111	Bit planning	14
3.112	Bit stream transmission	14
3.113	Black box	14
3.114	Blanking	14
3.115	Blanking pulse	15
3.116	Block of instruction	15
3.117	Boot	15
3.118	Bootstrap	15
3.119	Border	15
3.120	Branch	15
3.121	Branching	15
3.122	Branching strategies	15
3.123	Broadcast quality	15
3.124	Bubble Memory	16
3.125	Buffer	16
3.126	Bug	16
3.127	Bulletin board	16
3.128	Burst	16
3.129	Burst transmission	16
3.130	Bust shot	16
3.131	Busy picture	16
3.132	Bypassing	16
3.133	C Programming language	16
3.134	C-Format videotape	16
3.135	Cable	16
3.136	Cache	16
3.137	Cadre training	17
3.138	Camera-ready copy (CRC)	17
3.139	Capacitance electronic disc (CED)	17
3.140	Caption	17
3.141	Career management fields	17
3.142	Carrel	17
3.143	Case Study	17
3.144	Categories of interactive courseware presentation	17
3.145	Cathode-ray tube (CRT)	18
3.146	Central memory	18
3.147	Central processing unit (CPU)	19
3.148	Certification	19
3.149	Chaining	19
3.150	Chapter	19
3.151	Chapter code/stop	19
3.152	Chapter number	19

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.153	Chapter window	19
3.154	Character generator	19
3.155	Check disc	19
3.156	Chrominance	19
3.157	Clarification support	20
3.158	Class capacity	20
3.159	Class frequency	20
3.160	Clone	20
3.161	Close-up	20
3.162	Cognitive domain	20
3.163	Collective analysis	20
3.164	Collective task	20
3.165	Collective training	21
3.166	Collocated school or course	21
3.167	Color bars	21
3.168	Color black	21
3.169	Color graphics adapter (CGA)	21
3.170	Color look-up table (CLUT)	21
3.171	Color standard	21
3.172	Combat developer	21
3.173	Combat readiness	21
3.174	Commercial Off-the-shelf (COTS) manuals	21
3.175	Common core	22
3.176	Common element objective (CEO)	22
3.177	Common task	22
3.178	Communications program	22
3.179	Communications protocol	22
3.180	Communicative education training system (CETS)	22
3.181	Compact disc (CD)	22
3.182	Compact disc, digital audio (CD-DA)	22
3.183	Compact disc, digital video interactive (CD-DVI)	22
3.184	Compact disc, interactive (CD-I)	22
3.185	Compact disc, read only memory (CD-ROM)	23
3.186	Compact disc, read only memory, extended architecture (CD-ROM XA)	23
3.187	Compact Disc, Read Only Memory (CD-ROM) player	23
3.188	Compact disc, video (CD-V)	23
3.189	Compatible	23
3.190	Competency-based instruction	23
3.191	Compiler	23
3.192	Completion item	24
3.193	Component video	24

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.194	Composed SMPTE	24
3.195	Composite video	24
3.196	Comprehension-level summary	24
3.197	Comprehension verification	24
3.198	Comprehensive plan for training devices	24
3.199	Comprehensiveness	24
3.200	Compressed audio	24
3.201	Computer-aided Drafting (CAD)	24
3.202	Computer-aided Design and Computer Aided Manufacturing (CAD/CAM)	24
3.203	Computer-aided Learning (CAL)	24
3.204	Computer-aided Manufacturing (CAM)	25
3.205	Computer assisted instruction (CAI)	25
3.206	Computer-assisted video instruction (CAVI)	25
3.207	Computer-based education (CBE)	25
3.208	Computer-based instruction (CBI)	25
3.209	Computer-based interactive video (CBIV)	25
3.210	Computer-based learning (CBL)	25
3.211	Computer-based support (CBS)	25
3.212	Computer-based training (CBT)	25
3.213	Computer-based training system (CBTS)	25
3.214	Computer editing system	25
3.215	Computer generated	25
3.216	Computer graphics	25
3.217	Computer image generation	26
3.218	Computer language	26
3.219	Computer managed instruction (CMI)	26
3.220	Computer modeling technique	26
3.221	Computer storage medium	26
3.222	Computer supported learning aid	26
3.223	Condition	26
3.224	Condition statement	26
3.225	Conditional branching	26
3.226	Configuration control/management	26
3.227	Confirmation	26
3.228	Consensus group	26
3.229	Console	27
3.230	Constant angular velocity (CAV)	27
3.231	Constant linear velocity (CLV)	27
3.232	Constructed response test item	27
3.233	Content	27
3.234	Content screens	27

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.235	Contiguity	27
3.236	Contingency management	28
3.237	Continuing education	28
3.238	Continuous branching	28
3.239	Continuous motion video	28
3.240	Contract	28
3.241	Contract Data Requirements List (CDRL), DD Form 1423	28
3.242	Contract deliverables	28
3.243	Contracting activity	28
3.244	Contractor	28
3.245	Contractor-acquired property (CAP)	28
3.246	Contractor-furnished equipment (CFE)	28
3.247	Contractor plant service (CPS)	29
3.248	Contractor specialized training	29
3.249	Contractual data requirement	29
3.250	Control program for microcomputer (CP/M)	29
3.251	Control track	29
3.252	Controlled testing	29
3.253	Controller	29
3.254	Convention	29
3.255	Conventional memory	29
3.256	Conversion	29
3.257	Copy protect	29
3.258	Core command	29
3.259	Core curriculum	30
3.260	Core parameter	30
3.261	Core storage	30
3.262	Corrective maintenance	30
3.263	Correspondence course	30
3.264	Cost/benefit tradeoff analysis	30
3.265	Cost-effectiveness analysis (CEA)	30
3.266	Counseling	30
3.267	Course	30
3.268	Course chart	31
3.269	Course documentation	31
3.270	Course evaluation	31
3.271	Course identification	31
3.272	Course identification number (CIN)	31
3.273	Course map	31
3.274	Course mission	31
3.275	Course training standard (CTS)	31
3.276	Courseware	31

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.277	Courseware integration	31
3.278	Courseware maintenance	31
3.279	Courseware portability	32
3.280	Cover shot	32
3.281	Covert behavior	32
3.282	Crash	32
3.283	Crawl	32
3.284	Creativity	32
3.285	Crew Training	32
3.286	Criterion	32
3.287	Criterion behavior	32
3.288	Criterion-reference instruction	32
3.289	Criterion-referenced measurement	33
3.290	Criterion-referenced objective (CRO)	33
3.291	Critical incident analysis	33
3.292	Critical sequence	33
3.293	Critical task	33
3.294	Criticality standard	33
3.295	Cross talk	33
3.296	Cross training	33
3.297	Cue	33
3.298	Cue inserter	34
3.299	Cue track	34
3.300	Cues (chapter)	34
3.301	Cues (picture)	34
3.302	Cues (still)	34
3.303	Curriculum	34
3.304	Curriculum materials	34
3.305	Curriculum outline	34
3.306	Cut	34
3.307	Cut-off score	34
3.308	Daisy chain	35
3.309	Data	35
3.310	Database	35
3.311	Data capture	35
3.312	Data channel	35
3.313	Data collection plan	35
3.314	Data communications equipment (DCE)	35
3.315	Data file	35
3.316	Data frame	35
3.317	Data functional area	35
3.318	Data Item Description (DID), DD Form. 1664	36

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.319	Data packets	36
3.320	Data product	36
3.321	Data rate	36
3.322	Debug	36
3.323	Decibel (Db)	36
3.324	Decision point	36
3.325	Decision screen	36
3.326	Decision Support System (DSS)	36
3.327	Decision tree	36
3.328	Decoder	36
3.329	Dedicated	36
3.330	Dedicated lines	37
3.331	Dedicated system	37
3.332	Dedicated telephone lines	37
3.333	Deductive design	37
3.334	Deductive reasoning	37
3.335	Default	37
3.336	Defense audiovisual support activity	37
3.337	Defense Automated Visual Information System (DAVIS)	37
3.338	Defense Instructional Technology Information System (DITIS)	37
3.339	Defense school or course	37
3.340	Defense Technical Information Center (DTIC)	38
3.341	Definition	38
3.342	Deliverables	38
3.343	Deliverable data	38
3.344	Delivery format	38
3.345	Delivery system	38
3.346	Demodulation	38
3.347	Demonstration aid	38
3.348	Demonstration-performance method	38
3.349	Demonstration phase	38
3.350	Density	38
3.351	Dependent relationship	38
3.352	Dependent testing	39
3.353	Design	39
3.354	Design strategy	39
3.355	Developmental testing	39
3.356	Device	39
3.357	Device driver	39
3.358	Diagram sheet	39
3.359	Didactic design	39
3.360	Differential feedback	39

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.361	Digital	39
3.362	Digital audio	39
3.363	Digital data	40
3.364	Digital dump	40
3.365	Digital video interactive (DVI)	40
3.366	Digitize	40
3.367	Digitizer	40
3.368	Direct connect MODEM	40
3.369	Directory	40
3.370	Direct question	40
3.371	Direct-Read-After-Write (DRAW)	40
3.372	Direct-Read-After-Write (DRAW) Videodisc	40
3.373	Disc mastering facility	40
3.374	Discing	40
3.375	Discovery design	41
3.376	Discrete skill	41
3.377	Discrimination	41
3.378	Disk drive	41
3.379	Disk Operating System (DOS)	41
3.380	Dissolve	41
3.381	Distributed system configuration	41
3.382	DoD AMSDL Control Officer	41
3.383	DoD Index of Specifications and Standards (DODISS)	41
3.384	Domain of learning	41
3.385	Dot matrix	41
3.386	Dot matrix printer	42
3.387	Download	42
3.388	Downtime	42
3.389	Downtime, scheduled	42
3.390	Downtime, unscheduled	42
3.391	Drill	42
3.392	Drill and practice	42
3.393	Drive	42
3.394	Driver	42
3.395	Dropout	42
3.396	Dual channel audio	43
3.397	Dual track audio	43
3.398	Dub	43
3.399	Dumb terminal	43
3.400	Dummy record	43
3.401	Dump	43
3.402	Duty	43

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.403	Duty assignment	43
3.404	Duty position	43
3.405	Duty position task	43
3.406	Dynamic demonstrator	43
3.407	Edit	43
3.408	Editor	44
3.409	Edit suite	44
3.410	Effectiveness	44
3.411	Efficiency	44
3.412	Electronically Erasable Programmable Read-only Memory (EEPROM)	44
3.413	Electronic Information Delivery System (EIDS)	44
3.414	Electronic Information Delivery System Authoring Software System for Interactive Simulation and Training (EIDS ASSIST)	44
3.415	Electronic mail	44
3.416	Electronic media	44
3.417	Electronic still store	44
3.418	Element	45
3.419	Embedded training	45
3.420	Emulation	45
3.421	Enabling objective	45
3.422	Encode	45
3.423	Encoded program	45
3.424	Encoder	45
3.425	Encrypton	46
3.426	Enhanced graphics adapter (EGA)	46
3.427	Enrichment instruction	46
3.428	Entry behavior	46
3.429	Entry level training	46
3.430	Entry skills	46
3.431	Environment	46
3.432	Equipment	46
3.433	Erasable Programmable Read-only Memory (EPROM)	46
3.434	Error code	46
3.435	Evaluation	46
3.436	Evaluation phase	46
3.437	Evaluation plan	47
3.438	Evaluation program	47
3.439	Evaluation information	47
3.440	Execution	47
3.441	Exercise	47
3.442	Expanded memory	47
3.443	Expansion slot	47

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.444	Experimental learning	47
3.445	Expert opinion	47
3.446	Expert system	47
3.447	Explanation phase	48
3.448	Exportable	48
3.449	Extended command	48
3.450	Extended memory	48
3.451	Extended parameter	48
3.452	Extension training	48
3.453	Extension training material	48
3.454	External cues	48
3.455	External memory	48
3.456	External storage	48
3.457	Extrapolation	48
3.458	Factory training	49
3.459	Fade	49
3.460	Familiarization training	49
3.461	Fault	49
3.462	Fault insertion devices	49
3.463	Feedback	49
3.464	Fidelity	49
3.465	Field (video)	49
3.466	Field dominance	49
3.467	Field exercise	50
3.468	Field/frame synchronization	50
3.469	Field frequency	50
3.470	Field standard	50
3.471	Field Training	50
3.472	Field validation	50
3.473	File	50
3.474	File management capability	50
3.475	Filename	50
3.476	Filename extension	50
3.477	Film chain	50
3.478	Final flow chart	50
3.479	Firmware	50
3.480	Fixed disk or drive	50
3.481	Fixed repetition	51
3.482	Fixed sample	51
3.483	Fixed sequence	51
3.484	Fixed sequence task	51
3.485	Flat panel	51

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.486	Flicker	51
3.487	Flight simulator	51
3.488	Flight training	51
3.489	Flowchart	51
3.490	Flow diagram	52
3.491	Flying spot scanner	52
3.492	Follow-on training	52
3.493	Follow up question	52
3.494	Formal lecture	52
3.495	Formal on-the-job training (FOJT)	52
3.496	Formal training	52
3.497	Formal validation	52
3.498	Format	52
3.499	Formative evaluation	53
3.500	Forth	53
3.501	Frame	53
3.502	Frame address	53
3.503	Frame address code	53
3.504	Frame buffer	53
3.505	Frame (film)	54
3.506	Frame grabber	54
3.507	Frame number	54
3.508	Frame oriented	54
3.509	Frame rate	54
3.510	Frame storer	54
3.511	Frame (video)	54
3.512	Freeware	54
3.513	Freeze frame	54
3.514	Front-end analysis (FEA)	54
3.515	Full duplex	54
3.516	Full-frame identification	54
3.517	Full-frame time code	54
3.518	Full-motion video	54
3.519	Full scale simulator	54
3.520	Function	55
3.521	Functional	55
3.522	Functional area	55
3.523	Functional grouping	55
3.524	Function key	55
3.525	Gain	55
3.526	Game	55
3.527	Gaming	55

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.528	Gantt chart	55
3.529	Gender changer	55
3.530	General purpose trainer	55
3.531	General skill	55
3.532	Generation	55
3.533	Generator	56
3.534	Generic courseware	56
3.535	Generic software	56
3.536	Generic trainer	56
3.537	Generic videodisc	56
3.538	Genlocking	56
3.539	Gigabyte (GB)	56
3.540	Global key	56
3.541	Goal analysis	56
3.542	Go and no-go--pass or fail	56
3.543	Go to	56
3.544	Government-furnished equipment (GFE)	56
3.545	Government-furnished information (GFI)	57
3.546	Government-furnished material (GFM)	57
3.547	Government-furnished property (GFP)	57
3.548	Government/Industry Data Exchange Program (GIDEP)	57
3.549	Government Open Systems Interconnection Profile (GOSIP)	57
3.550	Government property (GP)	57
3.551	Graphic	57
3.552	Graphic overlay	58
3.553	Graphics card	58
3.554	Graphics input device	58
3.555	Graphics library	58
3.556	Graphics output device	58
3.557	Graphics tablet	58
3.558	Group-paced instruction	58
3.559	Group trial	58
3.560	Guard tracks or guard bands	58
3.561	Guided discussion method	58
3.562	Half duplex	59
3.563	Handbook	59
3.564	Hands-on	59
3.565	Hang-up	59
3.566	Hard copy	59
3.567	Hard data	59
3.568	Hard disk	59
3.569	Hard skills	59

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.570	Hardware	59
3.571	Hardware transportability	59
3.572	Helical	60
3.573	Help	60
3.574	Helping relationship	60
3.575	Hercules graphics	60
3.576	Hertz (Hz)	60
3.577	Heuristic routine	60
3.578	Hexadecimal	60
3.579	High definition television (HDTV)	60
3.580	Higher levels of learning	60
3.581	Higher order language (HOL)	60
3.582	High-level language	60
3.583	Highlighting	61
3.584	High risk tasks	61
3.585	Hologram	61
3.586	Horizontal blanking	61
3.587	Horizontal blanking interval	61
3.588	Horizontal sync	61
3.589	Host computer	61
3.590	Hue	61
3.591	Hung-up program	61
3.592	Icon	61
3.593	Ignorable words	61
3.594	Illustration	61
3.595	Image enhancement	61
3.596	Image processing	61
3.597	Implementation	62
3.598	Independent learning	62
3.599	Independent relationship	62
3.600	Independent study	62
3.601	Index	62
3.602	Indicator behavior	62
3.603	Individual-paced instruction	62
3.604	Individual Task Training Package (ITTP)	62
3.605	Individual Training Plan (ITP)	62
3.606	Individual Training Standards (ITSS)	62
3.607	Individualized instruction	62
3.608	Inductive design	63
3.609	Inductive reasoning	63
3.610	Industrial quality	63
3.611	Infinite loop	63

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.612	Informal lecture	63
3.613	Informal training	63
3.614	Information processing	63
3.615	Information resources management	63
3.616	Information retrieval	64
3.617	In-house	64
3.618	Initial design	64
3.619	Initial qualification training	64
3.620	Initialize	64
3.621	In-process review (IPR)	64
3.622	Input	64
3.623	Input and output (I/O)	64
3.624	Input device	64
3.625	Inquiry	64
3.626	Insert edit	65
3.627	Inspection	65
3.628	Instant jump	65
3.629	Institutional training	65
3.630	Instruction	65
3.631	Instruction sheet	65
3.632	Instructional aid equipment	65
3.633	Instructional conditions	65
3.634	Instructional delivery system	65
3.635	Instructional design	65
3.636	Instructional hour	65
3.637	Instructional literature	66
3.638	Instructional material	66
3.639	Instructional media	66
3.640	Instructional media materials (IMM)	66
3.641	Instructional module	66
3.642	Instructional program	66
3.643	Instructional requirements	66
3.644	Instructional setting	66
3.645	Instructional software	66
3.646	Instructional strategy	66
3.647	Instructional support	66
3.648	Instructional Support Systems (ISS)	66
3.649	Instructional system development (ISD)	66
3.650	Instructional technique	67
3.651	Instructional technology	67
3.652	Instructional unit	67
3.653	Instructor	67

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.654	Instructor control console	67
3.655	Instructor managed instruction	67
3.656	Instrument	67
3.657	Integrated circuit	67
3.658	Integrated logistics support (ILS)	67
3.659	Integrated system	67
3.660	Intelligent computer-assisted instruction (ICAI)	67
3.661	Intelligent terminal	68
3.662	Intelligent videodisc player	68
3.663	Interactive	68
3.664	Interactive courseware (ICW)	68
3.665	Interactive courseware (ICW) support software	68
3.666	Interactive learning	68
3.667	Interactive media	68
3.668	Interactive Multimedia Association (IMA)	68
3.669	Interactive training system	69
3.670	Interactive video	69
3.671	Interactive Video Industry Association (IVIA)	69
3.672	Interactivity	69
3.673	Interchangeability	69
3.674	Interface	69
3.675	Interfield frames	69
3.676	Interim summary	69
3.677	Interlace	69
3.678	Interleaving	69
3.679	Intermediate material	70
3.680	Internal evaluation	70
3.681	Internal storage	70
3.682	International Business Machines (IBM) Compatible	70
3.683	International Business Machines Personal Computer (IBM PC)	70
3.684	International Business Machines Personal Computer Advanced Technology (IBM PC-AT)	70
3.685	International Business Machines Personal Computer Extended (IBM PC-XT)	70
3.686	International Business Machines (IBM) PS/2	70
3.687	Interoperability	71
3.688	Interpretation	71
3.689	Interpreter	71
3.690	Interrupt	71
3.691	Interservice school or course	71
3.692	Interservice support	71
3.693	Interservice training review organization (ITRO)	71

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.694	Intrinsic programming	71
3.695	Introduction	72
3.696	Inverse mode	72
3.697	Investment items	72
3.698	Item analysis	72
3.699	Jaggies	72
3.700	Jitter	72
3.701	Job	72
3.702	Job aid (JA)	72
3.703	Job analysis	72
3.704	Job book (JB)	72
3.705	Job expert	72
3.706	Job performance measure	72
3.707	Job performance requirements (JPRs)	73
3.708	Job sheet	73
3.709	Job task analysis	73
3.710	Job task inventory (JTI)	73
3.711	Joint school or course	73
3.712	Joystick	73
3.713	Judder	73
3.714	Jump	73
3.715	Jump cut	73
3.716	Jury of experts	73
3.717	Key	73
3.718	Keyboard	73
3.719	Key elements	74
3.720	Keyer	74
3.721	Keying	74
3.722	Keypad	74
3.723	Key words	74
3.724	Kilobytes (KB)	74
3.725	Kilohertz (KHz)	74
3.726	Knob turn	74
3.727	Knowledge	74
3.728	Knowledge-level summary	74
3.729	Knowledge of results	74
3.730	Landing pad	75
3.731	Laser (Light Amplification by Stimulated Emission of Radiation) ...	75
3.732	Laser card	75
3.733	Laser disc	75
3.734	Laser printer	75
3.735	Layer	75

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.736	Layered architecture	75
3.737	Leadoff question	75
3.738	Learner	75
3.739	Learner-centered instruction (LCI)	75
3.740	Learner characteristics	75
3.741	Learner control	76
3.742	Learner-controlled instruction	76
3.743	Learning	76
3.744	Learning activities	76
3.745	Learning analysis	76
3.746	Learning center	76
3.747	Learning decay	76
3.748	Learning hierarchy	76
3.749	Learning objective	76
3.750	Learning resource center	76
3.751	Learning station	76
3.752	Learning step	77
3.753	Lecture	77
3.754	Lecture guide (LG)	77
3.755	Legibility	77
3.756	Lesson	77
3.757	Lesson guide	77
3.758	Lesson plan	77
3.759	Level of interactivity	77
3.760	Levels of interactive videodisc systems (hardware)	77
3.761	Level of learning	78
3.762	Life cycle management	78
3.763	Light emitting diode (LED)	78
3.764	Light pen	78
3.765	Limited distance MODEM	78
3.766	Linear	78
3.767	Linear design	79
3.768	Linear program	79
3.769	Linear programming	79
3.770	Linear video	79
3.771	Line driver	79
3.772	Line monitor	79
3.773	Line oriented	79
3.774	Line standard	79
3.775	Liquid crystal display (LCD)	79
3.776	Lisp	79
3.777	Live action	79

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.778	Load	79
3.779	Local Area Network (LAN)	79
3.780	Local production and fabrication	80
3.781	Local workstation/terminal	80
3.782	Location	80
3.783	Logic	80
3.784	Logical colors	80
3.785	Logical device	80
3.786	Logistic support	80
3.787	Logistic support analysis (LSA)	80
3.788	Long shot	80
3.789	Longitudinal time code	80
3.790	Loop	80
3.791	Low-level language	81
3.792	Lumen	81
3.793	Luminance	81
3.794	Lux	81
3.795	Machine code	81
3.796	Machine language	81
3.797	Machine readable	81
3.798	Macro	81
3.799	Magnetic storage	81
3.800	Magnetic tape	81
3.801	Magnetic videodisc	81
3.802	Magneto-optics	81
3.803	Mainframe	82
3.804	Main memory	82
3.805	Main points	82
3.806	Maintenance	82
3.807	Maintenance concept	82
3.808	Maintenance trainer	82
3.809	Maintenance training simulator	82
3.810	Main trunk	82
3.811	Major Army Command (MACOM) peculiar requirements	82
3.812	Management information systems (MIS)	82
3.813	Management materials	83
3.814	Management plan	83
3.815	Manning	83
3.816	Manpower	83
3.817	Manpower, personnel, and training (MPT) analysis	83
3.818	Manual playback	83
3.819	Mark-up	83

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.820	Master	83
3.821	Master courseware program	83
3.822	Master edit tape	83
3.823	Mastering	84
3.824	Mastering facility	84
3.825	Master monitor	84
3.826	Master schedule	84
3.827	Master tape	84
3.828	Master videodisc	84
3.829	Master videotape	84
3.830	Mastery	84
3.831	Mastery learning	84
3.832	Materiel developer	84
3.833	Materials preparing activity (MPA)	84
3.834	Matt	85
3.835	Mean deviation	85
3.836	Mean time between failure (MTBF)	85
3.837	Mean time to repair (MTTR)	85
3.838	Measurement, criterion-referenced	85
3.839	Measurement errors	85
3.840	Measurement, norm-referenced	85
3.841	Measurement process	85
3.842	Media	85
3.843	Media alternative	85
3.844	Media mix	85
3.845	Media selection	85
3.846	Medium shot	85
3.847	Megabyte (MB)	85
3.848	Megahertz (MHz)	85
3.849	Memorandum of Understanding (MOU)	86
3.850	Memory	86
3.851	Memory chip	86
3.852	Mental skills	86
3.853	Menu	86
3.854	Menu-driven	86
3.855	Merger training	86
3.856	Method of instruction	86
3.857	Microcomputer	87
3.858	Microprocessor	87
3.859	Microsecond	87
3.860	Microsoft Disc Operating System (MS-DOS)	87
3.861	Milestone	87

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.862	Millisecond	87
3.863	Military education	87
3.864	Military occupational specialty (MOS)	87
3.865	Military qualification standards (MQS)	87
3.866	Military service school or course	87
3.867	Military training	88
3.868	Minicomputer	88
3.869	Mission analysis	88
3.870	Mission Performance Standards (MPS)	88
3.871	Mnemonics	88
3.872	Mobile Training Team (MTT)	88
3.873	Mock-up	88
3.874	Mode erase	88
3.875	Model, physical	88
3.876	Modeling	88
3.877	Mode of instruction	88
3.878	Modular	88
3.879	Modular construction	89
3.880	Modularization	89
3.881	Modulation	89
3.882	Module	89
3.883	Monitor	89
3.884	Monochrome graphics adapter (MGA)	89
3.885	Montage	89
3.886	Motherboard	89
3.887	Motivational device	89
3.888	Motivational Device Multiplexer (MODEM)	89
3.889	Motivational (prompting) level	89
3.890	Motivation step	90
3.891	Mouse	90
3.892	Multilevel instruction	90
3.893	Multimedia	90
3.894	Multimedia package	90
3.895	Multiple-choice test	90
3.896	Multiple screen	90
3.897	Multiplexer	90
3.898	Multiprocessing	90
3.899	Multitasking	90
3.900	Multitasking (computer) operating system	90
3.901	Multitrack audio tape recorder	91
3.902	Multitrack course	91
3.903	Multi-user	91

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.904	Mutable	91
3.905	Nanosecond	91
3.906	Narration	91
3.907	Narrative script	91
3.908	National Television Standards Committee (NTSC)	91
3.909	Navy enlisted classification (NEC)	91
3.910	Needs analysis	91
3.911	Needs assessment	92
3.912	Negative reinforcement	92
3.913	Nest	92
3.914	Network	92
3.915	Neutral language	92
3.916	New equipment training (NET)	92
3.917	Node	92
3.918	Noise	92
3.919	Nonacademic drop or attrite	92
3.920	Nondevelopmental training device	92
3.921	Nondrop frame time code	93
3.922	Non-Government standard	93
3.923	Non-Government standards body	93
3.924	Noninterfering basis	93
3.925	Nonlinear	93
3.926	Nonperformer	93
3.927	Nonprocedural task	93
3.928	Nonresident training	93
3.929	Non-system training device	93
3.930	Nontype classified training device	93
3.931	Norm referenced	93
3.932	Norm-referenced measurement	93
3.933	Null MODEM	94
3.934	Objective	94
3.935	Objectivity	94
3.936	Occupational analysis	94
3.937	Occupational specialty	94
3.938	Occupational survey	94
3.939	Off camera	94
3.940	Office of primary responsibility (OPR)	94
3.941	Off-line	95
3.942	Off-line editing	95
3.943	Off-the-shelf	95
3.944	On-board training (OBT)	95
3.945	On-board maintenance training	95

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.946	On camera	95
3.947	On-line	95
3.948	On-line editing	95
3.949	On-the-job training (OJT)	95
3.950	Open-ended test item or open-ended response	95
3.951	Open entry and exit	95
3.952	Open software	95
3.953	Open system architecture	95
3.954	Operating system (OS)	96
3.955	Operational equipment	96
3.956	Operational training	96
3.957	Operator trainer	96
3.958	Operator training	96
3.959	Optical digital data disc	96
3.960	Optical disc	96
3.961	Optical disc player	96
3.962	Optical memory	96
3.963	Optical read-only memory	96
3.964	Optical reflective videodisc	96
3.965	Optical videodisc	96
3.966	Orientation	97
3.967	Original equipment manufacturer (OEM)	97
3.968	Outline sheet	97
3.969	Output	97
3.970	Output device	97
3.971	Overlay	97
3.972	Overt behavior	97
3.973	Overview	97
3.974	Package	97
3.975	Package switching	97
3.976	Packet	97
3.977	Page	97
3.978	Pan	98
3.979	Paper validation	98
3.980	Parallel	98
3.981	Parity	98
3.982	Parity bit	98
3.983	Parity check	98
3.984	Partial screen display	98
3.985	Part-task training	98
3.986	Part-task training device	98
3.987	Part-time training	99

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.988	PASCAL	99
3.989	Passive learning	99
3.990	Paste up	99
3.991	Path	99
3.992	Peer instruction	99
3.993	Performance	99
3.994	Performance checklist	99
3.995	Performance criteria/standard	99
3.996	Performance evaluation	99
3.997	Performance evaluation tools	99
3.998	Performance exercise	99
3.999	Performance gap	99
3.1000	Performance measure	100
3.1001	Performance objective	100
3.1002	Performance-oriented training	100
3.1003	Performance requirements	100
3.1004	Performance-supervision phase	100
3.1005	Peripheral	100
3.1006	Personal computer (PC)	100
3.1007	Personal Computer-Disk Operating System (PC-DOS)	100
3.1008	Personal computer (PC) compatible	101
3.1009	Personal observations	101
3.1010	Personal performance standards	101
3.1011	Personalization	101
3.1012	Personnel	101
3.1013	Personnel Performance Profile (PPP) Tables	101
3.1014	Personnel qualification standard (PQS)	102
3.1015	Phase Alternation by Line (PAL)	102
3.1016	Phases of interactive courseware (ICW) development	102
3.1017	Phosphors	102
3.1018	Photodiode	102
3.1019	Physical colors	102
3.1020	Physical device	102
3.1021	Physical fidelity	102
3.1022	Physical Picture Element (PIXEL)	103
3.1023	Physical skills	103
3.1024	Picture stop	103
3.1025	Pilot course	103
3.1026	Pipeline	103
3.1027	Pit	103
3.1028	Plan of instruction (POI)	103
3.1029	Plotter	103

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1030	Plot time	104
3.1031	Polymethyl methacrylate (PMMA)	104
3.1032	Population	104
3.1033	Port	104
3.1034	Portability	104
3.1035	Portable Courseware (PORTCO)	104
3.1036	Portable Operating System Interface for Computer Environ- ments (POSIX)	104
3.1037	Positive consequence	104
3.1038	Positive reinforcement	104
3.1039	Postproduction	104
3.1040	Practical exercise	105
3.1041	Practice	105
3.1042	Practice effect	105
3.1043	Predictive validity	105
3.1044	Preliminary validation	105
3.1045	Premaster	105
3.1046	Premastering	105
3.1047	Premaster materials	105
3.1048	Premaster SMPTE	105
3.1049	Preparing activity	105
3.1050	Preproduction	106
3.1051	Prerequisite	106
3.1052	Prerequisite training	106
3.1053	Presentation media	106
3.1054	Preventative maintenance	106
3.1055	Preview monitor	106
3.1056	Primary menu	106
3.1057	Primary skill	106
3.1058	Prime time for training	106
3.1059	Primitive	106
3.1060	Procedural analysis	106
3.1061	Procedural task	106
3.1062	Procedures trainer	107
3.1063	Process evaluation	107
3.1064	Processing	107
3.1065	Processing time	107
3.1066	Processor	107
3.1067	Production	107
3.1068	Production Identification Number (PIN)	107
3.1069	Production list	107
3.1070	Production schedule	107

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1071	Production SMPTE	107
3.1072	Production task	107
3.1073	Professional military education (PME) training	108
3.1074	Proficiency	108
3.1075	Proficiency codes	108
3.1076	Proficiency training	108
3.1077	Profile item-to-topic learning objectives assignment chart	108
3.1078	Program	108
3.1079	Program element	108
3.1080	Program Evaluation Review Technique (PERT)	108
3.1081	Program-linked functions	108
3.1082	Program management document	108
3.1083	Program validation	109
3.1084	Programmable Read-Only Memory (PROM)	109
3.1085	Programmed instruction (PI)	109
3.1086	Programmed instructional package (PIP)	109
3.1087	Programmed Logic for Automated Teaching Operations (PLATO) ..	109
3.1088	Programmed text	109
3.1089	Programming script	109
3.1090	Programming System in Logic Language (PROLOG)	109
3.1091	Program of instruction	109
3.1092	Projected operational environment (POE)	109
3.1093	Prompt	109
3.1094	Prompted authoring aids	109
3.1095	Prompted simulation	110
3.1096	Proof disc	110
3.1097	Proof support	110
3.1098	Props	110
3.1099	Protocol	110
3.1100	Prototype section	110
3.1101	Psychomotor domain	110
3.1102	Psychomotor skills	110
3.1103	Public domain	110
3.1104	Pull-down/pull-down menu	110
3.1105	Pulse code or pulse	110
3.1106	Quadruplex	110
3.1107	Quality assurance (QA)	111
3.1108	Quality control (QC)	111
3.1109	Quantize	111
3.1110	Quiz	111
3.1111	Quota	111
3.1112	Random access	111

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1113	Random Access Memory (RAM)	111
3.1114	Random Access Memory (RAM) disc	112
3.1115	Random sample	112
3.1116	Random selection	112
3.1117	Raster	112
3.1118	Raw score	112
3.1119	Raw video	112
3.1120	Read	112
3.1121	Read Only Memory (ROM)	112
3.1122	Reading grade level (RGL)	112
3.1123	Ready for use (RFU)	113
3.1124	Real estate	113
3.1125	Realism	113
3.1126	Real time	113
3.1127	Rear screen	113
3.1128	Record	113
3.1129	Recycling	113
3.1130	Red, Green, Blue (RGB)	113
3.1131	Red-lining	113
3.1132	Red-lined document	113
3.1133	Re-enactment	113
3.1134	Reflective videodisc	113
3.1135	Regenerative design	114
3.1136	Register	114
3.1137	Reliability	114
3.1138	Remediation	114
3.1139	Remote control	114
3.1140	Remote operations	114
3.1141	Remote terminal	115
3.1142	Remote workstation	115
3.1143	Remotivation step	115
3.1144	Replicated videodiscs	115
3.1145	Replication	115
3.1146	Reproducible copy	115
3.1147	Required operational capabilities (ROC)	115
3.1148	Resident training course	115
3.1149	Resolution	115
3.1150	Resource requirements list	115
3.1151	Responding	115
3.1152	Response bias	115
3.1153	Response-paced	115
3.1154	Response time	115

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1155	Ring network	116
3.1156	Routine	116
3.1157	Routing	116
3.1158	RS-232C	116
3.1159	Rule-based system	116
3.1160	Run	116
3.1161	Run time	116
3.1162	Safe area	116
3.1163	Sample	116
3.1164	Samples of behavior	116
3.1165	Sampling	117
3.1166	Sampling plan	117
3.1167	Sampling rate	117
3.1168	Saturated colors	117
3.1169	Saturation	117
3.1170	Scalability	117
3.1171	Scan	117
3.1172	Scan conversion	117
3.1173	Scan lines	118
3.1174	Scanning	118
3.1175	Scanning spot	118
3.1176	Scenario	118
3.1177	Screen	118
3.1178	Screenprint	118
3.1179	Script	118
3.1180	Script-storyboard (SSB)	118
3.1181	Scrolling	118
3.1182	Search	118
3.1183	Search time	119
3.1184	Segment	119
3.1185	Segmented training	119
3.1186	Selective erase	119
3.1187	Self-diagnostic	119
3.1188	Self-paced instruction	119
3.1189	Self-study	119
3.1190	Self-study workbook/guide	119
3.1191	Semiconductor	119
3.1192	Sequence	119
3.1193	Sequencing	119
3.1194	Sequential Color with Memory (SECAM)	120
3.1195	Serial	120
3.1196	Serial memory	120

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1197	Service group	120
3.1198	Servo control	120
3.1199	Shielding	120
3.1200	Short haul MODEM	120
3.1201	Shot list	120
3.1202	Shot sequence	120
3.1203	Shot sheet	120
3.1204	Signal	120
3.1205	Signal-to-noise-ratio (S/N)	121
3.1206	Simulated performance	121
3.1207	Simulation	121
3.1208	Simulation fidelity	121
3.1209	Simulation sequence	121
3.1210	Simulation/stimulation	121
3.1211	Simulator	121
3.1212	Simulator software	121
3.1213	Skill	122
3.1214	Skill level	122
3.1215	Skills profiles	122
3.1216	Skills transfer	122
3.1217	Slide-tape	122
3.1218	Slow motion	122
3.1219	Small computer systems interface (SCSI)	122
3.1220	Small group trail	122
3.1221	Smart terminal	122
3.1222	Snow	122
3.1223	Society for Motion Picture and Television Engineers (SMPT) time code	122
3.1224	Soft data	123
3.1225	Soft skills	123
3.1226	Software	123
3.1227	Software interface	123
3.1228	Software module	123
3.1229	Soldier's manual (SM)	123
3.1230	Soldier training publication (STP)	123
3.1231	Sound effects	124
3.1232	Sound instructional design	124
3.1233	Sound slide program	124
3.1234	Source code	124
3.1235	Source document	124
3.1236	Source file	124
3.1237	Special effects generator	124

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1238	Special training	124
3.1239	Specialty training standard (STS)	124
3.1240	Specification	124
3.1241	Speech recognition	125
3.1242	Speech synthesis	125
3.1243	Speech synthesizer	125
3.1244	Spiral design	125
3.1245	Split-screen	125
3.1246	Spooler	125
3.1247	Stair-stepping	125
3.1248	Stamper	125
3.1249	Stand-alone	125
3.1250	Stand-alone computer	125
3.1251	Standard	125
3.1252	Standard deviation	125
3.1253	Standard of performance	125
3.1254	Standard software interface definition (SSID)	126
3.1255	Standards statement	126
3.1256	Standby course	126
3.1257	Star network	126
3.1258	Statement of Work (SOW)	126
3.1259	Step	126
3.1260	Step frame	126
3.1261	Stepped skills	126
3.1262	Still frame	127
3.1263	Still-frame audio	127
3.1264	Stimulation	127
3.1265	Stimulator	127
3.1266	Stimulus	127
3.1267	Stimulus characteristics	127
3.1268	Stock footage	127
3.1269	Storage device	127
3.1270	Storyboard (SB)	127
3.1271	Strategy	127
3.1272	Structured language	128
3.1273	Structured question or structured response	128
3.1274	Student	128
3.1275	Student centered	128
3.1276	Student centered instructional objective	128
3.1277	Student control	128
3.1278	Student flow	128
3.1279	Student guide	128

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1280	Student input	128
3.1281	Student instructions	128
3.1282	Student load	128
3.1283	Student output	128
3.1284	Subject matter expert (SME)	129
3.1285	Sub menu	129
3.1286	Subroutine	129
3.1287	Subsystem	129
3.1288	Subtask	129
3.1289	Summary	129
3.1290	Summative evaluation	129
3.1291	Supercomputer	129
3.1292	Supplemental training material	129
3.1293	Support instructional material	129
3.1294	Supportive relationship	129
3.1295	Surveillance	130
3.1296	Sustainment training	130
3.1297	Synchronizing pulse	130
3.1298	Synchronous transmission	130
3.1299	Sync-locked	130
3.1300	Syntax	130
3.1301	System	130
3.1302	System device	130
3.1303	Systems approach	130
3.1304	Systems approach to training (SAT)	130
3.1305	System training plan (STRAP)	131
3.1306	Tailoring	131
3.1307	Tailoring of data requirements	131
3.1308	Talking head	131
3.1309	Talk-through technique	131
3.1310	Tape	131
3.1311	Tape, lead-in	131
3.1312	Tape, lead-out	131
3.1313	Tape memory	131
3.1314	Target population	131
3.1315	Task	132
3.1316	Task description	132
3.1317	Task description worksheet	132
3.1318	Task fidelity	132
3.1319	Task inventory	132
3.1320	Task learning difficulty	132
3.1321	Task limits	132

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1322	Task standard	132
3.1323	Task statement	132
3.1324	Task-linked functions	132
3.1325	Taxonomy	132
3.1326	Taxonomy of educational objectives	133
3.1327	Teaching point	133
3.1328	Team scheduling	133
3.1329	Team performance	133
3.1330	Team task	133
3.1331	Team teaching	133
3.1332	Team trainer	133
3.1333	Team training	133
3.1334	Technical data	133
3.1335	Technical evaluation of premaster videotape	134
3.1336	Technical manuals (TMs)	134
3.1337	Technical orders (TOs)	134
3.1338	Technical training	134
3.1339	Telecine (or film chain)	134
3.1340	Telecommunications	134
3.1341	Teleconferencing	134
3.1342	Teleprompter	134
3.1343	Teletext	134
3.1344	Template	135
3.1345	Terminal	135
3.1346	Terminal behavior	135
3.1347	Terminal driver	135
3.1348	Terminal interaction	135
3.1349	Terminal learning objective	135
3.1350	Terminal objective	135
3.1351	Terminate-and-stay-resident (TSR) program	135
3.1352	Test	135
3.1352.1	Achievement test	135
3.1352.2	Aptitude test	135
3.1352.3	Comparative test	135
3.1352.4	Criterion-referenced test	136
3.1352.5	Diagnostic test	136
3.1352.6	End-of-course comprehensive test	136
3.1352.7	Entry skills test	136
3.1352.8	Field test	136
3.1352.9	Job performance test	136
3.1352.10	Knowledge test	136
3.1352.11	Non-language test	136

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1352.12	Nonverbal test	136
3.1352.13	Norm-referenced test	136
3.1352.14	Objective test	136
3.1352.15	Performance test	137
3.1352.16	Posttest	137
3.1352.17	Power test	137
3.1352.18	Pretest	137
3.1352.19	Proficiency test	137
3.1352.20	Progress test	137
3.1352.21	Qualifying test	137
3.1352.22	Simulated performance test	137
3.1352.23	Simulation performance test	137
3.1352.24	Speed test	138
3.1352.25	Survey test	138
3.1352.26	Threshold knowledge test (TKT)	138
3.1352.27	True-false test	138
3.1352.28	Verbal test	138
3.1352.29	Within-course tests	138
3.1352.30	Written test	138
3.1353	Test compromise	138
3.1354	Test fidelity	138
3.1355	Testing constraints	138
3.1356	Test security	138
3.1357	Test reliability	138
3.1358	Text	138
3.1359	Text file	139
3.1360	Text overlay	139
3.1361	Third party software	139
3.1362	Three:two (3:2) pull-down	139
3.1363	Time code	139
3.1364	Time code generator	139
3.1365	Time code reader	139
3.1366	Time-share	139
3.1367	Topic	139
3.1368	Topical outline	139
3.1369	Touch input	140
3.1370	Touch screen	140
3.1371	Touch sensitive display	140
3.1372	Touch sensitive screen	140
3.1373	Track	140
3.1374	Trackball	140
3.1375	Trainee	140

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1376	Trainee Guide (TG)	140
3.1377	Trainer	140
3.1378	Trainer's guide (TRG)	140
3.1379	Training	141
3.1380	Training agency	141
3.1381	Training aid	141
3.1382	Training aid equipment	141
3.1383	Training analysis data sheet (TADS)	141
3.1384	Training capabilities analysis	141
3.1385	Training concept	141
3.1386	Training developer	141
3.1387	Training development products	141
3.1388	Training devices	141
3.1389	Training device, simulation, simulator	142
3.1390	Training effectiveness	142
3.1391	Training effectiveness evaluation	142
3.1392	Training efficiency	142
3.1393	Training effort	142
3.1394	Training equipment	143
3.1395	Training evaluation analysis	143
3.1396	Training exercise	143
3.1397	Training facility	143
3.1398	Training feature	143
3.1399	Training fidelity	143
3.1400	Training level assignment (TLA)	143
3.1401	Training logistics support requirements	143
3.1402	Training material outline (TMO)	143
3.1403	Training materials	143
3.1404	Training media	143
3.1405	Training mission	144
3.1406	Training objective statements (TOS)	144
3.1407	Training objective	144
3.1408	Training package	144
3.1409	Training Path System (TPS)	144
3.1410	Training performance measure	144
3.1411	Training pipeline/track	144
3.1412	Training plan	144
3.1413	Training program	145
3.1414	Training proponent	145
3.1415	Training rate	145
3.1416	Training readiness	145
3.1417	Training requirements (TRs)	145

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1418	Training requirements analysis	145
3.1419	Training resource requirements	145
3.1420	Training resources	145
3.1421	Training schedule	145
3.1422	Training site	145
3.1423	Training site selection	145
3.1424	Training situation analysis	145
3.1425	Training specifications	146
3.1426	Training staff	146
3.1427	Training standard	146
3.1428	Training support	146
3.1429	Training support agency	146
3.1430	Training support material	146
3.1431	Training support package	146
3.1432	Training system	146
3.1433	Training System Utilization Handbook	146
3.1434	Training task	147
3.1435	Training task analysis	147
3.1436	Training unique equipment	147
3.1437	Training utilization	147
3.1438	Training week	147
3.1439	Transfer of training (student)	147
3.1440	Transient	147
3.1441	Transistor	147
3.1442	Transition	147
3.1443	Transition screen	147
3.1444	Transition training	147
3.1445	Transmission	147
3.1446	Transmissive disc	147
3.1447	Transmissive optical disc	147
3.1448	Transparent	148
3.1449	Transportability	148
3.1450	Treatment or treatment plan	148
3.1451	Trials	148
3.1452	Tryout, individual	148
3.1453	Tryout, small group	148
3.1454	Tutorial	148
3.1455	Two-dimensional simulation	148
3.1456	Type classified training device	148
3.1457	U-MATIC	148
3.1458	Unified Local Area Network Architecture (ULANA)	148
3.1459	Unit	149

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1460	Unit of instruction	149
3.1461	Unit training	149
3.1462	Universal	149
3.1463	Universal system	149
3.1464	UNIX	149
3.1465	Upgrade training	149
3.1466	Upward compatible	149
3.1467	User-friendly software	149
3.1468	User representative	149
3.1469	User-supported software	149
3.1470	User survey	149
3.1471	Utility	149
3.1472	Validation	150
3.1473	Validation disc	150
3.1474	Validity	150
3.1475	Value engineering	150
3.1476	Variable attributes	150
3.1477	Varied repetition	150
3.1478	Vector graphics	150
3.1479	Vectorscope	150
3.1480	Verification	150
3.1481	Vertical blanking	150
3.1482	Vertical blanking interval (VBI)	151
3.1483	Vertical interval time code (VITC)	151
3.1484	Vertical sync	151
3.1485	Video	151
3.1486	Videodisc	151
3.1487	Videodisc formats	151
3.1488	Videodisc player	151
3.1489	Video display unit	152
3.1490	Video graphics array (VGA)	152
3.1491	Video head	152
3.1492	Video high density (VHD) format	152
3.1493	Video home system (VHS)	152
3.1494	Video levels	152
3.1495	Video player	152
3.1496	Video projection unit	152
3.1497	Video reprocessing	152
3.1498	Video segment	152
3.1499	Video sequence	152
3.1500	Video still	152
3.1501	Videotape	153

MIL-HDBK-284-3

CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
3.1502	Videotape player	153
3.1503	Videotape recorder (VTR)	153
3.1504	Videotext	153
3.1505	Viewdata	153
3.1506	Viewer	153
3.1507	Virtual	153
3.1508	Virtual Device Interface (VDI)	153
3.1509	Virtual Device Interface (VDI) Management	153
3.1510	Visual information (VI)	153
3.1511	Visual information production	153
3.1512	Visual simulation	154
3.1513	Visual spectrum	154
3.1514	Very large scale integration (VLSI)	154
3.1515	Voice-activated	154
3.1516	Voice-frequency	154
3.1517	Voice-grade line	154
3.1518	Voice-over	154
3.1519	Voice recognition	154
3.1520	Volatile memory	154
3.1521	Volatile storage	154
3.1522	Volume unit (VU) meter	154
3.1523	Wide Area Telephone Service (WATS)	154
3.1524	Weapon systems training	155
3.1525	Whole-task practice	155
3.1526	Wideband	155
3.1527	Wildcard	155
3.1528	Winchester disk	155
3.1529	Window	155
3.1530	Windowing	155
3.1531	Wipe	155
3.1532	Word	155
3.1533	Word processor	155
3.1534	Work elements	155
3.1535	Work sample	155
3.1536	Workstation	156
3.1537	Write	156
3.1538	Write-Once-Read-Many (WORM)	156
3.1539	Writing speed (video)	156
3.1540	What you see is what you get (WYSIWYG)	156
3.1541	X Window	156
3.1542	Zoom	156

MIL-HDBK-284-3**CONTENTS**

<u>PARAGRAPH</u>		<u>PAGE</u>
4.	ABBREVIATIONS AND ACRONYMS	157
4.1	Abbreviations and acronyms	157
5.	NOTES	174
5.1	Intended use	174
5.2	Subject term (key word) listing	174
CONCLUDING MATERIAL		175

MIL-HDBK-284-3

CONTENTS

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MIL-HDBK-284-3**1. SCOPE**

1.1 Scope. This glossary contains definitions of all key terms used in MIL-HDBK-284-1 and MIL-HDBK-284-2. Key terms defined in MIL-STD-1379 are repeated herein to provide a single comprehensive glossary of terms and definitions related to military training and interactive courseware (ICW). This glossary also contains up-to-date terms and definitions on training in general, training that uses ICW, computer-based training, computers, and other means of instruction, and that is acquired through the Government acquisition process. It also defines all abbreviations and acronyms used in this handbook, MIL-HDBK-284-1, and MIL-HDBK-284-2. Service peculiar definitions included herein are identified by; (A) for Army, (N) for Navy, (M) for Marine Corps, and (F) for Air Force.

1.2 How to use this handbook.

1.2.1 Definitions. Section 3 of this handbook contains the glossary and is composed as follows.

1.2.1.1 Generic definitions. This glossary lists only definitions of terms as they relate to military training and interactive courseware. The generic definitions for these terms, and definitions for terms not listed herein, can be found in an English language dictionary of choice.

1.2.1.2 Interrelated terms. At the end of the definition of a term, there might be a reference to see another term. If the words "Identical to definition for..." are used, there is another identically defined term. The words "Also called..." are used to refer to another term(s) which have the same meaning as the defined term. If the words "Also, see definition for ..." are used, there is another defined term which relates to the one you are looking at. If the words "Compare with definition for ..." are used, there is an oppositely defined term.

1.2.1.3 Subset terms. If there are terms which are subsets of another defined term, these subset terms are listed and defined below the definition of the overall term (that is, the term "test" has several types of tests defined below it).

1.2.2 Abbreviation and acronyms. Section 4 lists and defines all of the abbreviations and acronyms used in this series of handbooks. Section 4 also provides cross-references to the respective definitions contained in Section 3.

1.3 Parts. MIL-HDBK-284-3 is Part 3 of three parts. Part 1, MIL-HDBK-284-1, Interactive Courseware (ICW) for Military Training, Manager's Guide for Development, Acquisition, and Management of, and Part 2, MIL-HDBK-284-2, Interactive Courseware for Military Training, Portability Practices for, are used with MIL-STD-1379 and this handbook to establish and implement standard ICW portability protocols requirements.

MIL-HDBK-284-3**2. APPLICABLE DOCUMENTS****2.1 Government documents.**

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this handbook to the extent specified herein.

STANDARDS**MILITARY**

MIL-STD-961	Military Specifications and Associated Documents, Preparation of
MIL-STD-962	Military Standards, Hand books, and Bulletins, Preparation of
MIL-STD-963	Data Item Descriptions (DIDs), Preparation of
MIL-STD-1379	Military Training Programs
MIL-STD-1388-1	Logistic Support Analysis

HANDBOOKS**MILITARY**

MIL-HDBK-245	Preparation of Statement of Work (SOW)
MIL-HDBK-248	Acquisition Streamlining
MIL-HDBK-284-1	Interactive Courseware (ICW) for Military Training, Manager's Guide for Development, Acquisition, and Management of (Part 1 of 3 Parts)
MIL-HDBK-284-2	Interactive Courseware (ICW) for Military Training, Portability Practices For (Part 2 of 3 Parts)

(Unless otherwise indicated, copies of military specifications, standards and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this handbook to the extent specified herein.

MIL-HDBK-284-3

PUBLICATIONS

FEDERAL

FEDERAL INFORMATION PROCESSING STANDARDS (FIPS)

FIPS-146	Government Open Systems Interconnection Profile (GOSIP)
FIPS-151-1	Portable Operating System Interface for Computer Environments (POSIX)
FIPS-158	X Window Interface Requirements

(Copies of Federal Information Processing Standards (FIPS) are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

DEPARTMENT OF DEFENSE

DODISS	Department of Defense Index of Specifications and Standards
DOD 4000.19-R	Defense Regional Interservice Support (DRIS) Regulation
DOD 5010.12-L	DOD Acquisition Management Systems and Data Requirements Control List (AMSDL)

(Copies of the DODISS are available on a yearly subscription basis either from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402-0001 for hard copy, or from the Director, Navy Publications and Printing Service Office, 700 Robbins Avenue, Philadelphia, PA 19111-5093 for microfiche copy. Copies of DOD 5010.12-L, (on a subscription basis) and DOD 4000.19-R are available from the Naval Aviation Supply Office, Physical Distribution Division, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

DEPARTMENT OF THE ARMY

DA PAM 350-9	Index and Description of Army Training Devices
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(Copies of DA PAM 350-9 are available from the U. S. Army Publications Distribution Center, 2800 Eastern Blvd., Baltimore, MD 21220-2896.)

MIL-HDBK-284-3

3. DEFINITIONS

3.1 Ability grouping. Arrangement whereby trainees are assigned to groups on the basis of aptitude testing.

3.2 Ablation. Optical memory data writing technique where a laser burns holes, or pits, in thin metal film.

3.3 A-B rolls. A technique by which audio/video information is played back from two videotape machines rolled sequentially, often for the purpose of dubbing the sequential information onto a third tape, usually a composite master. Required to achieve special effects or dissolves between scenes when editing.

3.4 Academic Review Board. A board which evaluates a trainee's progress and recommends a course of action when the trainee has failed to achieve learning objectives or when the trainee is qualified to accelerate his/her training.

3.5 Accelerated Training. A program which permits well-qualified personnel to complete the training prescribed in a course of instruction in less than the normal length of time or prior to the normal stage of the career.

3.6 Access time. A term used to denote any one of the following:

- a. The time required by a computer to find, retrieve, and display data after initiation of a retrieval command.
- b. The maximum time required by a video player to locate and display a requested frame.
- c. The time required to locate and display a specific location on the media.
- d. The amount of time between an input and the availability of output from a system.

3.7 Achievement Grouping. Arrangement whereby trainees are assigned to groups according to their performance on pre-tests of units of the course.

3.8 Acquisition. The acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated.

3.9 Acquisition Management Systems and Data Requirements Control List (AMSDL). A listing of Source Documents and Data Item Descriptions (DIDs) which have been approved for repetitive contractual application in DoD acquisitions and those that have been cancelled or superseded. The AMSDL is identified as DOD 5010.12-L.

MIL-HDBK-284-3

3.10 Acquisition Management Systems Control (AMSC) Number. A control number assigned by the DoD AMSDL Control Officer, for Type I and Type II DID's and source documents (see definition for DoD AMSDL Control Officer).

3.11 Acquisition Plan (AP). A document which records program decisions; contains the user's requirements; provides appropriate analysis of technical options; and includes life cycle plans for development, testing, production, training, and logistic support of material items.

3.12 Acquisition Streamlining. Any action that results in more efficient and effective use of resources to develop, produce, and deploy quality defense systems and products. This includes ensuring that only cost-effective requirements are included, at the most appropriate time, in system and equipment solicitations and contracts.

3.13 Active graphics. The portion of the screen where graphics can appear.

3.14 Active Program. A term used to denote any one of the following:

- a. The length of audio and video program material on the master videotape not to exceed the one-side capacity of a videodisc.
- b. The computer program in RAM which is currently being run.

3.15 Active video. The portion of the screen where video can appear. This is the portion of horizontal and vertical video not blanked by horizontal and vertical blanking.

3.16 Active video lines. All video lines not occurring in the horizontal and vertical blanking intervals.

3.17 Actual equipment trainer. An actual system or subsystem component modified to allow for training of personnel.

3.18 Ada (not an acronym). A structured programming language based on a PASCAL-like structure (see definition for "PASCAL"). The standard DoD language designed for mission critical systems.

3.19 Adaptive technique. Any of several techniques used in scheduling to accommodate individual differences. It may permit the trainee to bypass material he/she already knows or may provide him/her additional instruction as needed. Also called "adjustive devices".

3.20 Additional Training. (N) Refresher, optional, or advanced training given to a previously training trainee that results in the trainee regaining or improving his/her knowledge/proficiency.

3.21 Address. A term used to denote any one of the following:

MIL-HDBK-284-3

- a. The place in a computer program, videotape, or disc, at which a given piece of information is stored.
- b. Location of video or audio material on videodisc or videotape, expressed in time code or frame number.
- c. Usually an alphanumeric or numeric label identifying a location where information is stored in memory.

3.22 Address Code. A term used to denote any one of the following:

- a. Time code, indicating each video frame by reel, hour, minutes, seconds, and frame number.
- b. The picture, chapter, or still cue code inserted in the vertical interval of the videodisc frame and read by the disc player.

3.23 Addressing. Methods for locating a particular piece of data.

3.24 Adjunct scheduling. A scheduling method in which the instructional program supplements a handbook, technical order, technical manual regulation, or other source of information. The program is intended to instruct the trainee in the use of material it supplements or to expand upon the content of the material it supplements.

3.25 Adjunctive materials. Reference materials used in conjunction with lesson materials to teach/learn a given objective. Written material, such as a regulation, operator handbook, or other documents, that has well prepared material to support the objectives. Material that supports a Plan of Instruction (POI)/Program of Instruction (POI) and must be used by trainees to learn the tasks being taught in the POI. Also, see definition for "supplemental training materials".

3.26 Adjustive devices. Identical to definition for "adaptive technique".

3.27 Affective domain. A classification of educational objectives which focus on the development of attitudes, beliefs, and values.

3.28 Affective learning. A domain of learning that is concerned with the acquisition of desired perceptions by the trainee; that is, the order and discipline required within the military. That part of trainee learning objectives which require the acquisition of perceptions in the trainees, promoting for example, self-confidence, responsibility, respect, dependability, and personal relations.

3.29 Air Force specialty (AFS). (F) A grouping of positions which require common qualifications. An AFS is identified by a title and a code.

MIL-HDBK-284-3

3.30 Aliasing. Undesirable effects (sometimes called artifacts) in computer-generated images, caused by inadequate sampling techniques. The stair-step effect on a display screen that lacks the resolution to reproduce diagonals or circles as smooth images. Jagged edges along curved or diagonal images. Also called "jaggies".

3.31 Alphageometric. A videotext graphics format where shapes are defined by geometric elements such as points and lines.

3.32 Alphamosaic graphics. A videotext graphics format where pictures are composed of small character-size blocks resulting in low resolution graphics.

3.33 Alphaphotographic. A videotext graphics format where images appear similar to still photos and each point on the screen is separately addressable.

3.34 Alternate character set. A set of user-defined characters that can be loaded in place of the standard characters provided.

3.35 Alternate input. Devices other than keyboards which may be used to author/deliver a course. (Common devices such as mouse, light pen, touch screen and track ball).

3.36 American Standard Code for Information Interchange (ASCII). The standardized, eight-bit data character code system used internationally to code alphabetic, numerical, and other symbols into the binary values used in computer applications.

3.37 American Standard Code for Information Interchange (ASCII) interface. An interface between ICW or authoring systems and Virtual Device Interface (VDI) Management that accepts commands and returns responses in the form of standard ASCII strings.

3.38 Analog. The representation of quantities that vary continuously. Information which steadily flows and changes. The representation of numerical values by physical variables such as temperature, current, and voltage.

3.39 Analysis. A term used to denote any one of the following:

- a. Examining system requirements.
- b. Separation of a whole into its component parts for detailed study or examination; for example, a job is broken down into all its observable components, duties, tasks, task elements, and skills.
- c. A level of cognitive domain in which people are able to break down complex organizational structures into their component parts.
- d. Assembling a complete data bank of information.

MIL-HDBK-284-3

- e. A process which provides an accurate description of and determines collective and individual tasks to be trained.

3.40 Ancillary materials. Documents that integrate the use of instructional media materials by directing the instructor and trainee use of the materials and providing supplemental information. Ancillary materials may be a self-study workbook, lecture guide, trainee guide, exercise controller guide, or instructor utilization handbook.

3.41 Ancillary training. Refers to training in subjects which pertain to the duty performance of personnel but are separate from the individual's primary job. Included is training in those subjects not identified in the individual's job description. A program identified as ancillary training may not necessarily be ancillary training to all personnel who receive it.

3.42 Animation. Perceived movement achieved by a succession of visuals.

3.43 Anti-aliasing. Software adjustment to make diagonal or curved lines appear smooth and continuous in computer generated images.

3.44 Anticipated responses. Answers expected from trainees in reply to planned questions.

3.45 Anticipated right answer. An author-defined acceptable correct answer.

3.46 Anticipated wrong answer. An author-defined incorrect answer.

3.47 Application. A term used to denote any one of the following:

- a. The way in which technology is used.
- b. A level of cognitive domain in which trainees are able to use learned material in new and concrete situations.
- c. Application software.
- d. The process of reviewing and selecting from available specifications, standards and related documents those which have application to particular material acquisitions, and contractually invoking them wholly, or in part, at the most advantageous time in the acquisition cycle. Also, see definition for "acquisition streamlining".

3.48 Application layer. The highest partition in the portability practices architecture.

3.49 Application software. A computer program designed to do one specific job or perform a specific task. Any software that is part of the application layer.

MIL-HDBK-284-3

3.50 Architecture. A term used to denote any one of the following:

- a. In computing, the design philosophy of computer hardware. Open architecture allows for addition of peripherals and enhancements from third party hardware vendors. Closed architecture denotes a turn-key computer system where adding of peripherals or enhancements is discouraged or impossible.
- b. The design organization or structure of a system or of a system component.

3.51 Archive. A term used to denote any one of the following:

- a. To compress computer files so they take up less space on a storage medium.
- b. A backup for an original computer program.

3.52 Array. The designation of a location of points by coordinates. A 2-D array is described with X-Y coordinates, while a 3-D array is described with X-Y-Z coordinates. An array is also an arrangement of a series of terms in some geometric pattern.

3.53 Artificial intelligence (AI). A term used to denote any one of the following:

- a. Programming a computer to imitate human cognitive processes.
- b. The development or capability of a machine that can perform functions that are normally associated with human intelligence such as learning, adapting, reasoning, self-correction, and automatic improvement. A capability which gives a computer some degree of thinking ability.

3.54 Artwork. The still illustrations or graphics prepared for printed work, film, or video. It includes artwork such as sketches, drawings, captions, titles, photos, maps, graphs, and charts.

3.55 Aspect ratio. The measurement of a film or television viewing area in terms of its relative width and height values. The width-to-height ratio of a single frame of film (three-to-two) or video (four-to-three).

3.56 Assembly. In computing, the conversion of instructions and data written in a computer language or in everyday terms, into the machine code which the computer understands.

3.57 Assembly language. A low level language (one level above machine code) that uses mnemonics for instructions, computational operations, and pseudo operations.

MIL-HDBK-284-3

3.58 Asynchronous. A system in which stages of a program are set up so the completion of one operation initiates the next. A mode of communication in which the next command is started and stopped by special signals, referred to as start and stop bits.

3.59 Asynchronous transmission. Transmission in which time intervals between transmitted characters may be of unequal length. Transmission controlled by start and stop bits at the beginning and end of each character.

3.60 Attention step. A segment of a lesson introduction in which the presenter gains the attention of the trainee and focuses upon the subject to be taught.

3.61 Attenuation. The decrease in magnitude of a signal.

3.62 Attitude measure. An instrument designed to gather information about a person's disposition toward something. This could include, for example, liking or disliking subject matter or usefulness of a medium.

3.63 Attitudinal traits. Any observable trait that can be included in the affective domain.

3.64 Attribute. A quality or trait of a task, objective, or learner which is amenable to communication through a defined sensory mode. Examples of attributes include tactile, olfactory, visual, aural, color, motion, and interactivity. These attributes may be refined to include detail related to the specific operational system or to task performance within the operational environment. For example, the attribute visual may be refined to include characteristics such as night vision, or electro-optically aided night vision.

3.65 Attrition rate. The rate at which trainees are disenrolled from a course or fail to complete a course satisfactorily.

3.66 Audio Compression. Identical to "still frame audio".

3.67 Audio track. The section of a videodisc or tape which contains the sound signal that accompanies the video signal. The audio track usually runs along the edge of the videotape, and beside the video track on a disc.

3.68 Audiovisual aid. Any static or dynamic device utilized to facilitate and reinforce learning through one or both of the physical senses of sight and hearing.

3.69 Audiovisual equipment. Equipment used for producing, processing, recording, and showing audiovisual products.

3.70 Audiovisual medium. Any delivery device or system which provides both audio and visual presentations.

MIL-HDBK-284-3

3.71 Audiovisual products. Material containing sound or imagery for conveying a message. Refers to still photography, graphics arts, still projections such as overhead transparencies, slides or film strips, motion pictures such as film, videotape, or videodisc, audio recordings (tape and disc), and combinations of such media.

3.72 Audiovisual services. Those functions performed in the production, manipulation, distribution, and storage of audiovisual materials such as scripting, video storyboarding, photography, sound or television recording, film processing, film or tape editing, animation, graphic arts, audiovisual media depository and record center operations, reproduction and distribution of products, loan of audiovisual products or equipment, presentation of television, audio, still, or motion picture information; and design of consulting support for audiovisual users.

3.73 Audit trail. A documented record of the process and procedures used to analyze a job or rating, and to design, develop, implement, and evaluate resident and non-resident instruction materials and courses.

3.74 Authoring. A structured approach to developing all elements of a unit of interactive courseware with emphasis on preproduction.

3.75 Authoring language. A specialized, high-level, plain-English, language-like computer program (often based on another computer language like BASIC or PASCAL) with codes specifically designed for developing interactive courseware instructional units and handling major courseware needs such as response judging. The instructional logic and instructional content are contained in one program. A set of words, notation, syntax, and semantics used by an author to specify the logic and content of instruction to be delivered by a computer. A high-level language designed to be easily learned and read by people who are concerned with instructional application.

3.76 Authoring system. Prepackaged prompted authoring aides, courseware templates, or menu driven editors designed to help authors (without formal computer programming skills) create interactive courseware without elaborate programming. A high level interface and structured approach to developing and editing interactive courseware. The instructional logic and instructional content are separate.

3.77 Automated task analysis. A computer assisted environment which prompts the analyst to input the required information and stores the results in a computer-managed database.

3.78 Auto-stop. A pre-programmed instruction telling the video player to stop automatically on a designated frame.

3.79 Average awaiting instruction. Sum of the number of trainees awaiting instruction (entry into class) each calendar day (including weekends and holidays) divided by the total number of days in the given time period to be analyzed. Awaiting instruction includes trainees arriving prior to class convening date and trainees in excess of available

MIL-HDBK-284-3

seats on convening date (backlogged). Average awaiting instruction for a training activity is the sum of the averages awaiting instruction for each of the individual courses conducted at the training activity.

3.80 Background training. The training that provides basic technical knowledge and skills required to prepare for further specialized training or a first assignment.

3.81 Back up. To go back to an earlier frame or sequence in an interactive courseware program.

3.82 Backup. A duplicate copy of computer software or data recorded on a removable computer storage medium for the purpose of having a safe extra copy.

3.83 Bandwidth. A term used to denote any one of the following:

- a. The range of signal frequencies that a piece of audio or video equipment can record or reproduce.
- b. The range of frequencies available for signals.

3.84 Bar code. A block of optically-coded parallel lines or bars of varying width which are read horizontally across by a scanner or wand which transmits a coded message to a microprocessor or computer. Also, see definition for "bar code reader".

3.85 Bar code reader. An optic device which interprets bar code. Also see definition for "bar code".

3.86 Baseband MODEM. Identical to definitions for "line driver" or "limited distance MODEM".

3.87 Base memory. RAM from the 0 byte memory address up to the 640 KB DOS limit, in an IBM compatible personal computer using the "DOS" operating system. This memory area is usable by DOS for programs and data. Also called "convention memory".

3.88 Baseline data. Valid and reliable information about the current level of performance of the intended trainee population. This data can be used to confirm the need to develop new instruction or can be used as a comparison in ascertaining differences between trainee's performance before and after instruction.

3.89 Basic Input/Output System (BIOS). The computer hardware and software which describes the conventions of input/output for a particular computer.

3.90 Batch file. A text file (denoted with the file extension name ".BAT") that contains a collection of "DOS" commands. When the filename is typed, each DOS command in the file will be executed sequentially as if each "DOS" command had been typed separately.

MIL-HDBK-284-3

3.91 Behavior. Any activity, overt or covert, capable of being measured.

3.92 Behavior analysis. The process by which a complex behavior is broken down into teachable components. The analysis of each task or subject area to determine what the trainee must do upon completion of instruction, how and how well he must be able to do it, and what skills and knowledge he must be taught in order for him to meet the end of instruction.

3.93 Behavior attributes. Qualities or activities that characterize an object or process. Behavior attributes characterize each category of learning.

3.94 Behavior indicators. Identical to "samples of behavior".

3.95 Behavior modification. Methods of influencing behavior, mainly through application of reinforcement and modeling principles.

3.96 Behavioral objective. Identical to definition for "learning objective".

3.97 Bezel. Frame or housing around a monitor screen often associated with touch screens which frequently require an extra bezel to accommodate the infrared "LEDs" or controlling electronics.

3.98 Bias. A systematic and pervasive error in measurement, not attributable to chance or random effects.

3.99 Billet. A specific manpower space which is assigned qualifiers that define the duties, tasks, and functions to be performed and the specific skills and skill level required to perform the delineated functions.

3.100 Binaries. The actual computer program, in machine language format, which drives the lesson of instruction.

3.101 Binary code. A code in which every element has only one of two possible values, which may be the presence or absence of a pulse, a one or a zero, or a high or low condition for a voltage or current.

3.102 Binary digit. A numeral in the binary system of notation. The smallest unit of information in a binary system. One piece of information equal to one binary decision and represented either by a 0 or 1. All the memory locations in a computer are identified by a binary number address. It takes several bits to store a character or make up a byte.

3.103 Binary interface. An interface between ICW or authoring systems and VDI Management that accepts commands and returns responses in the form of command and response codes and pointers to parameter packets containing parameter token numbers and associated values.

MIL-HDBK-284-3

3.104 Binary notation. A numbering system with a base of two (as opposed to decimal with a base of 10) and using only two numerals: one and zero. The numbering system used by computers. In computing, a "1" is represented by an "on" condition and a "0" is represented by an "off" condition.

3.105 Bit density. The number of bits of digital data that can occupy a given volume or area of storage medium.

3.106 Bit error rate (BER). A unit of measurement equal to the number of bit writing errors in a given volume or area of storage medium.

3.107 Bit location. A storage position capable of storing one bit; the position of a specific digit in a binary number.

3.108 Bit map. A whole or partial computer graphic image which is stored in a digital format that can be displayed instantly on a screen.

3.109 Bit mapping. A method of saving graphics in a digitized format so a graphic image or parts of the image can be displayed instantly on the screen.

3.110 Bit pad. A flat, tablet device used with a stylus or mouse, which, when activated, creates an X-Y input, giving the points which make up an image, to the computer. A sensitive board which acts as a canvas through which computer-generated graphics can be drawn. Also, identical to definition for "graphics input device". Also called "graphic tablet".

3.111 Bit planning. A build-up of graphics behind a display being shown to reduce or eliminate graphic build-up of following displays. The display appears quickly on the screen similar in speed to video displays.

3.112 Bit stream transmission. The method of transmitting characters at fixed time intervals. No stop and start elements are used, and the bits which form the characters follow each other without pause.

3.113 Black box. An assembly or subassembly that can be isolated from a system. It usually performs a specific function such as data encoding/decoding or peripheral control. Users are involved with its inputs and outputs, but not its internal elements.

3.114 Blanking. A term used to denote any one of the following:

- a. The period of time in which no video image is displayed, because the video image is being refreshed. Also, see definitions for "horizontal blanking", "horizontal blanking interval", "vertical blanking", and "vertical blanking interval".

MIL-HDBK-284-3

- b. The information-free waiting period built into each field of a video signal to allow the picture-forming beam of a CRT to be re-aimed for the start of the next field. The suppression of the video portion of a television signal.
- c. The search interval between sequences when the video image is turned off, during the time it takes for a videodisc player to search from one sequence to another.

3.115 Blanking pulse. The portion of a video signal used to suppress the video during the re-aiming of the electron beam.

3.116 Block of instruction. A group of related instructional units or modules covering a major subject area.

3.117 Boot. Short for "bootstrap." Identical to definition for "bootstrap".

3.118 Bootstrap. Initialization of a computer which includes loading of the operating system into the computer. Also called "boot".

3.119 Border. The portion of active video not covered by active graphics.

3.120 Branch. A departure from the normal sequential line-by-line flow of a program. To jump from one sequence in a program to another. An interactive courseware segment selected on the basis of user response. A branch may be either conditional (based upon the outcome of a test) or unconditional (absolute). Also called "jump".

3.121 Branching. A term used to denote any one of the following:

- a. A computer operation where a selection is made between two or more possible courses of action depending upon some related fact or condition or user response. Two or more directions from a decision point at which a program path can go. Alternative tracks or paths in the interactive courseware.
- b. An instructional technique in which the trainee's next step of instruction is determined by his response.

3.122 Branching strategies. Previously determined paths developed by the designer and influenced by the user's input.

3.123 Broadcast quality. A level of quality for audio and video which can both be acceptably transmitted by radio or television. National Television Standards Committee (NTSC) (see definition) is the broadcast quality standard in the U.S.

MIL-HDBK-284-3

3.124 Bubble Memory. A memory technology that makes use of magnetic bubbles generated from a single-crystal sheet. Memory is nonvolatile (not lost when power is removed).

3.125 Buffer. An temporary storage device for data, usually used to compensate for a difference in data rate and data flow between two devices (for example, a computer and a printer).

3.126 Bug. An error in a computer program or system.

3.127 Bulletin board. A computer information service through which computers can communicate, via transmission mediums, with each other and with a central information database.

3.128 Burst. A term used to denote any one of the following:

- a. In color TV reception, the signal that serves as the reference for the 3.58 Mhz oscillator; it occurs during video blanking.
- b. Computer program packed into a brief audio tone.

3.129 Burst transmission. The process of messages being stored for a while, then released at a much faster rate of transmission; the received signals are recorded and then slowed down for the user.

3.130 Bust shot. Framing of a person from the upper torso to the top of the head.

3.131 Busy picture. An overly cluttered image.

3.132 Bypassing. In programmed instruction, a technique which permits a trainee to skip certain portions of the material because of prior knowledge. A criterion item may be inserted in a linear program and, if the trainee passes it, he/she is sent forward several items (bypassing); if he/she fails the criterion item, he/she takes an intervening sequence of review or remedial items.

3.133 C Programming language. A computer programming language which allows for computations to be made quickly.

3.134 C-Format videotape. Broadcast standard one-inch helical scan recording system developed by Ampex. A standard for one-inch videotape and one-inch videotape recorders and players that establish world wide compatibility.

3.135 Cable. Wires and cords used to give power to or transmit signals between different pieces of equipment.

3.136 Cache. Temporary, volatile storage for data requiring quick access.

MIL-HDBK-284-3

3.137 Cadre training. Training of an initial (nucleus) group of personnel, such as instructors.

3.138 Camera-ready copy (CRC). Original typed, letter quality, text copy with final art in place ready for presentation and photographically ready to be shot by a camera. Also called "reproducible copy".

3.139 Capacitance electronic disc (CED). Grooved medium with encoded information formed by capacitance signals embedded on the disc, read by a stylus in physical contact with the disc surface. Information is encoded in a series of shallow pits running along a spiral groove. The CED is read by a metal electrode mounted in a diamond or sapphire stylus. Variations in capacitance between the disc and the electrode are converted into audio and video signals. A CED in the NTSC format runs at 450 rotations per minute, with four complete frames per revolution. The CED is made of polyvinyl chloride (PVC) and is housed in a case which protects it from damage, pollution, and wear. The CED was developed for the consumer marketplace by Radio Corporation of America (RCA) under the trade name "Selectivision" (discontinued by RCA in 1984).

3.140 Caption. A heading, explanatory comment, or designation accompanying a pictorial illustration. Usually important pieces of information such as names or people and things appearing on the screen.

3.141 Career management fields. Career management fields, hereby referred to as Career Fields (CF) are groupings of related occupational specialties. CFs are basically self-renewing and can be managed in terms of both manpower and personnel considerations. They provide visible and logical progression from entry into the training base to completion of training requirements. CFs are provided for use in development and management of personnel. The structure of each CF is graphically presented. Also, see definition for "Training Path System".

3.142 Carrel. A desk, operating position, or working space used by trainees in an individualized learning program. A semi-enclosed booth which functions as a study station with a desk-like work area, often containing interactive video hardware, a monitor, an audio headset, a microcomputer, and reference or work books. A type of workstation.

3.143 Case Study. A learning experience in which trainees encounter a real-life situation under the guidance of an instructor/computer in order to achieve an instructional objective.

3.144 Categories of interactive courseware presentation. The potential for student interaction in interactive courseware instruction determined by hardware capability and courseware design (see "interactivity"). A term used to denote one of the following:

- a. **CATEGORY 1 - Baseline Presentation.** This is the lowest category of interactive courseware development. It is basically a knowledge or familiarization lesson, in linear format (one idea after another), used mainly

MIL-HDBK-284-3

for introducing an idea or concept. The trainee has little control of what is seen (minimum trainee interactivity). The two types of baseline presentations are; (1) Video and minor text presentation; (2) Graphics and minor text presentation.

- b. **CATEGORY 2 - Medium Simulation Presentation.** This presentation category involves the recall of more information than a baseline Category 1 presentation and allows the trainee to have increased control over the lesson presentation (for example, use of touch screen or light pen to rotate switch). A moderate degree of simulation is used in the presentation. This presentation provides the following:
 - (1) Combined information and skills lessons.
 - (2) Requires moderate degree of programming.
 - (3) Trainee interactivity with various I/O devices.
 - (4) CMI to track and analyze student performance.
 - (5) Normally combines video and graphics presentations.
- c. **CATEGORY 3 - High Simulation Presentation.** This is the highest category and entails aspects of both Category 1 and Category 2 while using the full capabilities of interactive courseware. Every possible subtask is analyzed and presented for full, on-screen interaction, similar to that used in aircraft simulator technology. The trainee can determine areas in which further training is desired. This presentation provides the following:
 - (1) Is primarily used for procedural tasks/skills.
 - (2) A high level of student interactivity.
 - (3) Extensive branching capability (falls short of artificial intelligence).
 - (4) Maximum remediation opportunity (for example, multiple responses measure degree of error and provide relevant responses).
 - (5) Real time event simulation with minor equipment limitations (for example, timing sequences of start-up, switch changes, emergency procedures).
 - (6) Capability to interface with other output devices.
 - (7) Exhaustive CMI capability.

3.145 Cathode-ray tube (CRT). A type of graphic/video display device which produces an image by scanning a phosphor-coated surface in a vacuum tube with a beam of electrons. A vacuum tube containing an electron gun and a luminescent screen. A device which reconstitutes a series of electrical signals into light and color to form a picture. The picture tube of any television or monitor. A television-like screen or picture tube, used in a terminal, on which computer data is displayed.

3.146 Central memory. Organized collection of storage elements in the central processing unit of a computer into which instruction and data consisting of binary digits

MIL-HDBK-284-3

can be deposited and from which information can be retrieved. Compare with mass storage and off-line storage.

3.147 Central processing unit (CPU). The central processor or brain of a computer system in charge of fetching, decoding, and executing instructions. The computer unit or chip, where all calculations, instructions, and data manipulations are performed. The portion of a computer that directs the sequence of operations and initiates the proper commands for execution. It contains the main storage, arithmetic unit, and special register group.

3.148 Certification. A term used to denote any one of the following:

- a. Verification of proficiency in a given task or tasks.
- b. The process of verifying the specific task or events can be effectively trained in a training device and credited toward training requirements.

3.149 Chaining. The linking together of a series of discriminable responses in a particular order. The completion of each response provides the stimulus for the next response. May involve chains of verbal responses (reciting a list of numbers) or chains of motor responses (following a procedure).

3.150 Chapter. One independent, self-contained segment of a videodisc program.

3.151 Chapter code/stop. A code embedded in a videodisc to signal a break between two separate chapters, so the program can start at the beginning and stop at the end of any one.

3.152 Chapter number. A number displayed on the screen which identifies the individual chapter on a videodisc.

3.153 Chapter window. A segment at the start and end of each chapter that allows the user to scan forward or backward without missing the chapter stop.

3.154 Character generator. A device that electronically produces alphanumeric and graphic characters for reproduction on a video display.

3.155 Check disc. A videodisc containing premaster audiovisuals, produced prior to quantity replication to check video material, material content, programming, branching, and disc operability. Least expensive and often lower visual quality videodisc. Also called "validation disc".

3.156 Chrominance. An analogue measure of a color signal, consisting of red-, green-, and blue- primary information.

MIL-HDBK-284-3

3.157 Clarification support. Type of instructional material used during the body of a lesson to develop understanding and clarify ideas; may include definitions, examples, comparisons, statistics, or testimony from experts and trustworthy sources. Also, see definition for "proof support" and "support instructional material".

3.158 Class capacity. The number of trainees that may be trained per class. Expressed in terms of three constraining factors:

- a. **Personnel Allowance.** The number of trainees that may be trained per class based on the number of instructor and noninstructor billets/authorizations contained in the manpower authorization and used locally to support the course. Personnel equipment are available.
- b. **Equipment.** The number of trainees that may be trained per class based on the amount of equipment available per scheduled class period. Assumes that unlimited personnel and space are available.
- c. **Classroom Space -** The number of trainees that may be trained per class based on the availability of classroom space for a specific class. Classroom/training space includes laboratory, shop, hangar, or any other space configured for training purposes. Assumes that unlimited personnel and equipment are available.

3.159 Class frequency. The number of times a course will convene during a fiscal year.

3.160 Clone. An IBM compatible personal computer manufactured by a company other than IBM.

3.161 Close-up. An object or any part of it seen at close range and framed tightly.

3.162 Cognitive domain. A classification of educational objectives characterized by their dependence upon the manipulation of language symbols (thinking) mental process.

3.163 Collective analysis. The initial part of performance analysis that examines missions, identifies collective tasks, and analyzes the critical collective tasks.

3.164 Collective task. A unit of work or action requiring interaction between two or more individuals for its accomplishment (for example, operate an artillery piece). It may also be a mission requirement, such as secure a beachhead, that can be broken down into individual tasks. A collective task has identifiable start and end points and results in measurable accomplishment or product. Some parts of a collective task may be achievable by an individual, in which case they constitute individual tasks in their own right.

MIL-HDBK-284-3

3.165 Collective training. Instruction and applied exercises that prepare an organizational team (such as a squad, crew, battalion, or multi-service task force) to accomplish required military tasks as a unit.

3.166 Collocated school or course. A school or course that is used by one or more service on another service's installation, and shares classroom facilities and equipment. Training policies, directives, and materials will be determined by mutual agreement between the services involved.

3.167 Color bars. A color standard used by the television industry for the alignment of cameras and videotape recordings.

3.168 Color black. A high frequency transient caused by a surface quality defect in the medium (for example, videodisc).

3.169 Color graphics adapter (CGA). An expansion card for IBM compatible personal computers, inserted into the computer's expansion slot to enable the computer to process and display color graphics and text at a resolution of 320x200 pixels.

3.170 Color look-up table (CLUT). Selection of colors assigned a digital value and held in a table. The program decodes a color picture for display by matching the code stored for each pixel with the associated color value in the look-up table.

3.171 Color standard. The way in which a color picture is composed and transmitted. There are three distinct, incompatible color standards; "PAL", "NTSC", and "SECAM" (see definitions herein).

3.172 Combat developer. (A) Command or agency responsible for formulating concepts, doctrines, organization (excluding Army wholesale logistics) and material objectives, and requirements for employment and support of U.S. Army forces in a theater of operations, and controlling civil disturbances. The combat developer formulates Army management systems (in logistics, personnel, administration, training, and other functional areas as designated) that impact directly on or extend into a theater of operations; also formulates the Army structure. U.S. Army Training and Doctrine Command (TRADOC) is the Army's principal combat developer.

3.173 Combat readiness. A unit's ability to perform in combat. Combat readiness considers the status of personnel, logistics, morale, and training.

3.174 Commercial Off-the-shelf (COTS) manuals. Manuals available off-the-shelf from a commercial source that include operation, maintenance, and other instructions for commercial equipment. Commercial manuals are prepared to support the equipment in the commercial market. Also, see definitions for "off-the-shelf", "technical manuals" and "training unique equipment".

MIL-HDBK-284-3

3.175 Common core. Certain basic principles or instruction common to two or more training courses.

3.176 Common element objective (CEO). An objective written for a task element (supporting skill or knowledge) that is common to two or more tasks.

3.177 Common task. A task which may be common to more than one job, skill level, or specialty.

3.178 Communications program. A program used to transmit and receive information through a MODEM over telephone lines.

3.179 Communications protocol. In a data communication network, the code standard that governs the priority and sequencing of data transmission. The rules governing the exchange of information between devices on a data link.

3.180 Communicative education training system (CETS). Delivery of information for education and training via an electronic medium.

3.181 Compact disc (CD). A term used to denote any one of the following:

- a. A 4.75-inch, laser read, optical memory, high density storage disc medium with a constant linear velocity format for read-only (nonwritable) digital data. A medium for high density storage of digital data, currently used for storing computer data and audiovisual information (audio, video, and electronic signals). A 4.75-inch optical disc with information recorded in a pattern of microscopic pits on the disc's reflective surface sandwiched between layers of plastic; a low power laser in a player shines on the surface, and an optical sensor reads the pits by noting changes in the beam's reflection. Also, see definition for "optical disc".
- b. Often used to refer to a CD-DA (compact disc, digital audio). See definition for "CD-DA".

3.182 Compact disc, digital audio (CD-DA). A CD-ROM disc that contains up to one hour of audio (usually music) information digitally encoded in the CLV format. A consumer oriented, high density storage of digital audio information. Also, see definition for "CD".

3.183 Compact disc, digital video interactive (CD-DVI). A standard developed by GE/RCA. A CD used to produce full-screen, full-motion interactive video, audio, and still graphics or text. A CD which utilizes DVI technology. A CD-DVI can store more than one hour of video playing time, and it can recreate and display 30 video frames per second. Also, see definition for "DVI".

3.184 Compact disc, interactive (CD-I). A SONY-Philips developed consumer oriented CD based video and audio system combining hardware and software. A home

MIL-HDBK-284-3

consumer version of CD-ROM, with music, pictures, and partial-screen motion video that plugs into a TV set and stereo. CD-I gives a variety of high quality digital pictures, including still photographs, graphics, and animation; and it delivers four grades of sound from AM quality for narration to CD digital audio style high-fidelity for music. However, moving video is currently only possible on 40 percent of the screen. CD-I is designed to deliver interactive entertainment (anything from encyclopedias to games). CD-I offers ease of use by having a microprocessor built into the CD-I player, which hooks up to a TV set and stereo system and plays audio and video Cds as well as CD-I specific applications (no microcomputer is required). The user interacts with the program using a pointing device such as a joystick or mouse. Also, see definition for "CD".

3.185 Compact disc, read only memory (CD-ROM). A CD which can store more than one-half gigabyte (greater than 500 MB) of read-only (nonwritable) data and has a constant linear velocity format. A medium for digitally storing and delivering large volumes of information. Also, see definition for "CD".

3.186 Compact disc, read only memory, extended architecture (CD-ROM XA). A CD that is a hybrid of CD-ROM and CD-I proposed by Philips, Sony, and Microsoft. This technology requires a microcomputer and gives CD-ROM users the ability to access some of CD-I's audio and video features, and CD-I users the ability to play some (but not all) CD-ROM XA discs. Also, see definition for "CD".

3.187 Compact Disc, Read Only Memory (CD-ROM) player. A device that reads and retrieves data from a "CD-ROM".

3.188 Compact disc, video (CD-V). A SONY-Philips designed consumer product that delivers TV-style, full-motion, full-screen video as five-minute, noninteractive video singles that play on expensive CD-LaserDisk systems that connect to any TV set. Also, see definition for "CD".

3.189 Compatible. A term used to denote any one of the following:

- a. The capability to use elements of different systems either in combination or interchangeably.
- b. A term used to describe devices that can share software without modification.

3.190 Competency-based instruction. Instruction which is derived from and organized around an agreed-upon set of competencies and which provides learning experiences designed to lead to the attainment of these competencies.

3.191 Compiler. A computer program that translates a high-level language into a sequence of machine-language instructions that is executable by the computer.

MIL-HDBK-284-3

3.192 Completion item. A test component requiring the completion of a statement, phrase, or concept. A constructed response item.

3.193 Component video. A video signal in RGB format which is a type of computer display output signal comprised of separately controllable red, green, and blue signals. Compare with definition for "composite video".

3.194 Composed SMPTE. The SMPTE number for each frame of video made of character-generated text, video, and special effects.

3.195 Composite video. The complete visual wave form of the color video signal composed of chromatic and luminance picture information; blanking pedestal; field, line, color sync pulses; and field equalizing pulses. Compare with definition for "component video".

3.196 Comprehension-level summary. A segment of a comprehension-level lesson during which the presenter reviews and expands on key material and develops relationships which lead to a generalization which is or supports the instructional objective.

3.197 Comprehension verification. An interactive technique whereby the trainee's comprehension of what has been seen is tested before the trainee may proceed through the courseware. If the trainee is wrong, he is looped back through the same material or branched off to a different set of materials. If correct, the trainee may proceed through the courseware.

3.198 Comprehensive plan for training devices. (A) Five-year projection of the Army's requirement and acquisition plans for training devices. It projects that status of requirements, priorities, funding, and development for all training devices. It includes those currently being procured and fielded and those under various phases of development or planned for future development; includes plans for the training device technology base. DA PAM 350-9 lists devices currently in the inventory.

3.199 Comprehensiveness. A characteristic of evaluation which requires that the stated objectives of instruction be liberally tested or rated.

3.200 Compressed audio. Identical to definition for "still frame audio".

3.201 Computer-aided Drafting (CAD). A type of computer program that easily allows a person to create and display a wide variety of drawings, schematics, and other data, as a design tool.

3.202 Computer-aided Design and Computer Aided Manufacturing (CAD/CAM). Software that allows engineers to graphically create systems and components, then manipulate and analyze those designs to evaluate them against certain criteria.

3.203 Computer-aided Learning (CAL). Identical to definition for "CAI".

MIL-HDBK-284-3

3.204 Computer-aided Manufacturing (CAM). A type of computer program that stores engineering specifications, product requirements, process control data, and other data, as a manufacturing aid.

3.205 Computer assisted instruction (CAI). The use of computers to aid in the delivery of instruction. Also, called "computer-aided learning".

3.206 Computer-assisted video instruction (CAVI). The application of computer technology with either videodisc or videotape technology.

3.207 Computer-based education (CBE). Identical to definition for "CBI".

3.208 Computer-based instruction (CBI). All use of computers to aid in the delivery or management of instruction. Also, called "computer-based education" and "computer-based learning".

3.209 Computer-based interactive video (CBIV). The application of computer technology with either videodisc or videotape technology.

3.210 Computer-based learning (CBL). Identical to definition for "CBI".

3.211 Computer-based support (CBS). The component of CBT which includes functions that are not instruction or managerial in nature. These functions include authoring, word processing, research and evaluation, and computer-based communications networks.

3.212 Computer-based training (CBT). Instruction delivered by a computer which includes CAI, CMI, as well as computer simulation and part-task training. Use of computer systems in a primary or direct support role in the development, delivery, and management of instruction. An instructional methodology where students interact individually to instruction presented through a variety of media controlled and monitored by a computer.

3.213 Computer-based training system (CBTS). A training system which consists of computers that provide instruction. An automated, integrated instructional system which includes the design and development of instructional materials (authoring system), the management and administration of training, and the delivery of that instruction.

3.214 Computer editing system. A video-editing system controlled by a computer and interfaced with field-accurate playback and record machines to make precise field-accurate edits.

3.215 Computer generated. Information, in the form of text and graphics, which is created, stored, and produced entirely by a computer.

3.216 Computer graphics. Identical to definition for "graphic".

MIL-HDBK-284-3

3.217 Computer image generation. The technology for generating visual images by digital computation systems.

3.218 Computer language. A programming language a computer can understand. A formal system of signs and symbols, including rules for the information and transformation of expressions, which all communicate information a computer can understand.

3.219 Computer managed instruction (CMI). The use of computers to manage the instructional process, generally including registration, pre-testing, diagnostic counselling, prescription of learning experiences, progress testing, post-testing, determination of student mastery of objectives, and disenrollment.

3.220 Computer modeling technique. A procedure employed during the simulation of an operational system; involves computer simulation of the major operations of the system under a variety of conditions.

3.221 Computer storage medium. A medium used to store computer data (for example, floppy disk, hard disk, tape).

3.222 Computer supported learning aid. The use of a computer as a supportive tool in the learning process.

3.223 Condition. That portion of the learning objective that describes the situation/environment in which the trainees write/express/perform the specified behavior. Conditions include any pertinent influence upon task performance, including any or all of the following: location of performance, environment, equipment, manuals, or supervision required.

3.224 Condition statement. Part of a criterion objective which describes the testing environment including those problems, materials, and supplies which will be given (included) or specifically excluded from a measurement situation.

3.225 Conditional branching. Branching which occurs when a specified condition or set of conditions is satisfied.

3.226 Configuration control/management. A systems management process used to ensure that modifications made in either hardware or software are in accordance with system standards and are compatible with the operation of other system components.

3.227 Confirmation. The knowledge of results provided trainees on each exercise throughout the instructional process. The principal underlying confirmation is reinforcement or rewarding of trainee achievement during the entire learning situation.

3.228 Consensus group. A group of personnel, such as a jury of experts, selected for their experience and knowledge of the job, brought together to organize and record the required job analysis task.

MIL-HDBK-284-3

3.229 Console. A keyboard and display screen unit used by an operator to monitor or control computer, system, or network performance.

3.230 Constant angular velocity (CAV). A mode of videodisc playback where a disc rotates at a constant speed, regardless of the position of the reading head or stylus, making each frame separately addressable. A videodisc with information configured in concentric circles in order to provide rapid and discrete access. Individual frames can be identified and retrieved quickly and easily--the rapid, random access which is a basic requirement for an interactive videodisc (IVD). A CAV videodisc revolves at a continuous speed of 1,800 rotations per minute, contains 54,000 frames per side, and assigns a variable track length to each frame. One revolution generates one video frame. Compare with definition for "CLV".

3.231 Constant linear velocity (CLV). An extended-play videodisc with information configured in a spiral, similar to a record, to provide continuous, linear play. A consistent length for each frame is maintained, thus enabling longer playing time per side. CLV videodiscs assign a fixed track length to each frame and spin at a speed which gradually decreases as the disc plays. CLV discs allow twice as much playing time per side than CAV discs, but many user control capabilities of the CAV format are forfeited. The CLV disc can be read in linear play only, but can provide chapter search capability. A CAV videodisc contains 108,000 frames per side but restricts access in terms of chronological time. They are usually used for entertainment such as movies. Compare with definition for "CAV".

3.232 Constructed response test item. An answer requiring recall or completion as opposed to recognition--for example, drawing a diagram; filling in a form; labeling the parts of a piece of equipment; writing a sentence, paragraph, or essay.

3.233 Content. A term used to denote any one of the following:

- a. The information which is presented by training materials to develop knowledge, skills, and attitudes.
- b. The desired subject(s), topic(s), or element(s) which constitutes the data product described in Block 10 of the DID (for example, plan, report, list, manual or drawing) under general topics or subject matter which may be further defined into sub-topics.

3.234 Content screens. Individual units of information that may consist of a motion sequence, a still picture, a graphic, or a text only screen. A single content screen might be a step in a procedure which might require a small segment of motion video or a still frame to convey the information.

3.235 Contiguity. In learning, the principle, in which events that occur closely together, become associated by the trainee.

MIL-HDBK-284-3

3.236 Contingency management. The establishment of a set of procedures by which trainees are required to perform a certain amount of work or to achieve certain objectives before engaging in activities that are preferred by the trainee (for example, recreation, a break, or a more desirable training event). Also, described as reward stimulus procedures (that is, systematically scheduling the consequences of behavior).

3.237 Continuing education. Any extension of opportunities for education and training available to individuals following their completion of or withdrawal from full-time school and college programs.

3.238 Continuous branching. A feature of computational videodiscs in which digital data and video material are combined on the same disc, enabling the trainee to modify the presentation at any point rather than at specific branching points.

3.239 Continuous motion video. Identical to definition for "full motion video".

3.240 Contract. A mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the buyer to pay for them. It includes all types of commitments that obligate the Government to an expenditure of appropriated funds and that, except as otherwise authorized, are in writing. In addition to bilateral instruments, contracts include (but are not limited to) awards and notices of awards; job orders or task letters issued under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications.

3.241 Contract Data Requirements List (CDRL), DD Form 1423. A list of the data requirements that are authorized to be acquired for a specific acquisition, which is made a part of the contract.

3.242 Contract deliverables. Materials delivered by a contractor. Examples of contract deliverables are Lesson Plans, Trainee Guides, and Test Packages.

3.243 Contracting activity. An element of an agency designated by the agency head and delegated broad authority regarding acquisition functions.

3.244 Contractor. An individual or organization outside the U.S. Government which has accepted any type of agreement or order for providing research, supplies, or services to a U.S. Government Agency.

3.245 Contractor-acquired property (CAP). Property acquired or otherwise provided by the contractor for performing a contract and to which the Government has title. Also see definitions for "contractor-furnished equipment", and "Government property".

3.246 Contractor-furnished equipment (CFE). Items manufactured or purchased by the contractor for inclusion in or support of contract work. Also, see definition for "contractor-acquired property".

MIL-HDBK-284-3

3.247 Contractor plant service (CPS). Identical to definition for "factory training".

3.248 Contractor specialized training. Identical to definition for "factory training".

3.249 Contractual data requirement. A data requirement which applies by virtue of the terms of a contract.

3.250 Control program for microcomputer (CP/M). A computer operating system that can operate on a number of different computers, is able to support a variety of mass storage devices, and can be used with more than one computer language. It is generally used on 8-bit computers. CP/M is a trademark of Digital Research Incorporated.

3.251 Control track. A defined area which runs along a narrow band on the bottom edge of videotape, where the field sync pulse is recorded and replayed by a separate audio head. It acts as a reference which controls the heads to accurately trace the recorded information.

3.252 Controlled testing. A controlled study to test or evaluate an item or subject, used for such things as obtaining validation data.

3.253 Controller. A specialized computer or processor used to control the flow of data between a computer and one or more mass memory devices (for example, tape, floppy disk, or optical disc drives). Controllers sometimes also perform channel and error correction coding and decoding.

3.254 Convention. A guideline, rule, or practice based on general consent or acceptance. It is not binding in all cases, but should be followed to the full extent possible.

3.255 Conventional memory. Identical to definition for "base memory".

3.256 Conversion. A term used to denote any one of the following:

- a. (Courseware) Changing traditional courseware to computer-based training, using the validation, production, and implementation process.
- b. (Software) To convert data from one system so it can be used on another.

3.257 Copy protect. A software or hardware system placed on a program to prevent its being copied.

3.258 Core command. A command that must be implemented for the service group in which it is contained to be compliant. Core commands within a given service group furnish the general functionality required by ICW applications.

MIL-HDBK-284-3

3.259 Core curriculum. The central part of the total educational program involving the development of essential skills required for desired trainee performance.

3.260 Core parameter. A parameter that must be implemented to the command that uses it to be compliant.

3.261 Core storage. The main memory of a computer. Properly, the term refers to ferrite rings or cores, used for magnetic storage in older computers.

3.262 Corrective maintenance. The actions performed, as a result of failure, to restore an item to a specified condition.

3.263 Correspondence course. A self-study course consisting of instructional material and an assignment booklet (or lessons) for administration to nonresident trainees. Also, see definition for "extension training".

3.264 Cost/benefit tradeoff analysis. An analytic approach to solving problems of choice. It requires the definition of objectives, identification of alternative ways of achieving each objective and the identification -- for each objective -- of that alternative that yields the greatest benefit for a given cost or produces the required level of benefits at the lowest cost. When the benefits or outputs of the alternatives cannot be quantified in terms of dollars, this process is referred to as cost-effectiveness analysis.

3.265 Cost-effectiveness analysis (CEA). A comparative evaluation of potential instruction methods and media to determine the most efficient alternative.

3.266 Counseling. A process involving a helping relationship directed toward improvement or change in trainee behavior.

3.267 Course. A term used to denote any one of the following:

- a. Logically grouped instruction on a subject, designed to achieve predefined learning objectives. Usually concerns a single job or task (job skills type training) or a section of organized knowledge (information type training). A course consists of one or more modules. Also, see definitions for "curriculum", "module" and "lesson".
- b. A complete series of instructional units identified by a common title or number.
- c. An ordered arrangement of subject matter designed to instruct personnel in the knowledge, skills, or techniques required in the performance of tasks in a designated area of specialization.

MIL-HDBK-284-3

3.268 Course chart. A qualitative course control document that states the course identity, length, and security classification, lists major items of training equipment, and summarizes the subject matter covered.

3.269 Course documentation. Information describing the current content of a course (instructional materials, tests, instructor's guide, evaluation plan, trainee guide) and its developmental history (job analysis, criteria for selecting tasks for training, previous revisions).

3.270 Course evaluation. A critique of the course to include course effectiveness, instructor effectiveness, technical documentation effectiveness, and effectiveness of training media.

3.271 Course identification. Alpha-numeric designator used to identify a training course.

3.272 Course identification number (CIN). (N) Alphanumeric number assigned to identify a course of instruction.

3.273 Course map. A chart which identifies tasks to be learned, sequences them in desirable order for learning, and indicates possible routes for learning when bottlenecks develop.

3.274 Course mission. A description of the ultimate purpose of the course including a statement of who is to be trained, what is to be trained, the degree of qualification brought about by the training, and where and under what general conditions the graduate will perform on the job.

3.275 Course training standard (CTS). (F) Identifies the most common tasks/knowledge requiring advanced training of specific equipment or systems, within an Air Force Specialty.

3.276 Courseware. Paper-based, audiovisual, and electronically stored instructional material necessary to deliver a lesson, instructional module, or course. For purposes of this document, courseware also includes the special applications programs and other software necessary to present instruction.

3.277 Courseware integration. Mixing interactive courseware with other training media, (for example, classroom, laboratory, simulators, OJT).

3.278 Courseware maintenance. Revision of curriculum after implementation. Repairing, changing, replacing, or any other manipulation of implemented courseware after a customer has accepted it, or after it is determined to be correct in accordance with the Statement of Work (SOW).

MIL-HDBK-284-3

3.279 Courseware portability. The capability to transfer courseware across various computer hardware or operating systems and have the courseware correctly function without modifications.

3.280 Cover shot. A wide-angle shot giving basic orientation of place and action.

3.281 Covert behavior. Behavior that is not directly observable. It may be a mental activity, such as making a decision. Compare with definition for "overt behavior".

3.282 Crash. A hardware or software malfunction that renders the system inoperative.

3.283 Crawl. Alphanumeric text that moves across a screen, horizontally or vertically. A steady controlled text movement, such as the display of credits.

3.284 Creativity. (A) The imaginative recombination of known elements into something new and useful.

3.285 Crew Training. Identical to definition for "team training".

3.286 Criterion. A term used to denote any one of the following:

- a. The standard by which something is measured.
- b. In test validation, it is the standard against which test instruments are correlated to indicate that accuracy with which they predict human performance in some specified area.
- c. In evaluation, it is the measure used to determine the adequacy of a product, process, behavior, and other conditions.

3.287 Criterion behavior. Performance required of the course graduate, which is described by the terminal objective(s) and measured by the criterion test. Terminal behavior, final behavior, full-task behavior, baseline behavior.

3.288 Criterion-reference instruction. A term used to denote any one of the following:

- a. A way of organizing and managing instruction in which pre-specified performance criteria are achieved by each qualified trainee.
- b. Instruction which is designed to teach only those performances which are specified as critical to the successful accomplishment of a defined task.

Compare with definition for "performance-oriented training".

MIL-HDBK-284-3

3.289 Criterion-referenced measurement. The process of determining, as objectively as possible, a student's achievement in relation to a fixed standard which is based on objectives.

3.290 Criterion-referenced objective (CRO). Performance-oriented tool identifying criteria and actions required to demonstrate mastery of a task. An objective with prescribed levels of performance. Each CRO contains a behavior (task statement), condition (available equipment, checklists, and governing directives, or the situation requiring the task), and a standard (regulation, operating instruction) for the task.

3.291 Critical incident analysis. A method of determining key factors of a task through the use of experience provided by a job holder. Used for tasks having many diverse activities or a loose flow.

3.292 Critical sequence. In training development, sequencing of topics or objectives according to their importance.

3.293 Critical task. (A) A task which, if not accomplished to the specified standard, results in a serious adverse effect upon mission accomplishment, survivability, or safety.

3.294 Criticality standard. A standard which reflects the importance of a learning objective. Expressed as a percentage, the standard specifies the number of service members who must pass the objective the first time after completing the lesson to validate the instructional materials.

3.295 Cross talk. A term used to denote any one of the following:

- a. The laser head's pick-up of information from a track adjacent to the one it is reading. In laser videodiscs, cross-talk appears as a mesh of transparent, wormy lines that drift across the picture, caused by inaccurate focusing of the laser beam on the disc surface due to disc warpage, dirt, or other defects.
- b. The unwanted transmission of a signal on a channel that interferes with another adjacent channel.

3.296 Cross training. (A) The systematic training of the soldier on tasks related to a secondary MOS within the same skill level.

3.297 Cue. A term used to denote any one of the following:

- a. A word, situation, or other signal for action.
- b. A pulse entered onto one of the lines of the vertical interval that results in frame numbers, picture codes, chapter codes, closed captions, white flags, or other identities, on the master tape or videodisc.

MIL-HDBK-284-3

3.298 Cue inserter. The device which places cues on lines of the vertical interval of the master tape to tell the videodisc-mastering equipment in which field it should put the frame identification code on the disc.

3.299 Cue track. A narrow area, along a narrow band on the outer edge of videotape, which records signals, codes, and verbal memoranda used in editing.

3.300 Cues (chapter). A set of nine pulses placed in the vertical interval of the master videotape which identify a tape frame as the first frame of a new chapter. When the disc-mastering equipment reads a chapter cue, it encodes a chapter stop command on the vertical interval of the corresponding disc frame. Chapter cues cannot be used independently of picture cues.

3.301 Cues (picture). The first set of nine pulses in the vertical interval of the master tape which identify the start of a complete frame. Each time one of these picture cues passes through the mastering equipment, it triggers a frame counter, and the disc-mastering equipment encodes the frame number on the disc's vertical interval.

3.302 Cues (still). A third set of nine pulses in the vertical interval of the master videotape which identify the coming frame and tells the disc-mastering equipment to place a code on the disc to automatically switch the disc player to freeze frame mode. Like the chapter cue, it cannot be used independently of the picture cue. Chapter cues and still cues may be used independently of each other.

3.303 Curriculum. A set of courses constituting an area of specialization. All training conducted within a school, outlined into specific topics, along with detailed training objectives, to include behavior, conditions, and standards. Also, see definition for "course".

3.304 Curriculum materials. All materials required for the presentation of information and the development of skills in formal training. A collection of various visual, printed (that is, instructor and trainee guides), and audiovisual materials (that is, instructional media materials), including interactive courseware, used in direct support of a curriculum.

3.305 Curriculum outline. A detailed chronological listing of units/modules and lesson topics with estimated times of coverage in sequential order with the learning objectives they support.

3.306 Cut. A term used to denote any one of the following:

- a. A director's signal to interrupt action.
- b. Instantaneous change from one shot to another.

3.307 Cut-off score. Minimum passing score.

MIL-HDBK-284-3

3.308 Daisy chain. Linking of several peripherals to a single CPU.

3.309 Data. A term used to denote any one of the following:

- a. Recorded information, regardless of form or characteristics.
- b. Basic elements of information which can be processed, stored or produced by a computer.
- c. Facts or numerical values resulting from measurement (observations) of situations, objects, people, or other events.

3.310 Database. Collection of information, having one or more common elements, organized for sorting and quick retrieval. A program that files information. Systematically organized computer data files for central access, sorting, quick searching, retrieval, and update.

3.311 Data capture. A speed-saving data input technique whereby input data is read by an optical scanning device and sent to a computer to be processed.

3.312 Data channel. The bi-directional data path between the input/output devices and the main memory in a digital computer that permits one or more input/output operations to happen concurrently with computation.

3.313 Data collection plan. The procedures and techniques that will be used to gather information for any specific purpose.

3.314 Data communications equipment (DCE). Devices that provide the functions required to establish, maintain, and terminate a data transmission connection (for example, MODEM).

3.315 Data file. A term used to denote interactive courseware lesson content, sequencing, trainee response requirements, provisions for evaluating trainee responses, and logic for altering the lesson presentation sequence based upon the trainee's response. When installed on an interactive courseware training system with the appropriate authoring system or language, it presents and administers the interactive courseware lesson to the trainee according to the instructional design.

3.316 Data frame. A videodisc frame that contains digitally stored data.

3.317 Data functional area. An area which has a defined scope based on the functional use of the data. The data functional area designations and scopes are defined in the "AMSDL".

MIL-HDBK-284-3

3.318 Data Item Description (DID), DD Form 1664. A completed form that defines the data required of a contractor. The form specifically defines the data content, preparation instructions, format, and intended use (see MIL-STD-963).

3.319 Data packets. A collection of data bits transmitted as a single unit in a communications network.

3.320 Data product. Information which is inherently generated as the result of work tasks described in a Source Document or contract. Such information is treated as a separate entity (for example, drawing, specification, manual, report, records, or parts list).

3.321 Data rate. The speed at which data is transmitted.

3.322 Debug. To locate and correct any errors ("bugs") in a computer program or the computer itself.

3.323 Decibel (Db). A unit for expressing the relative intensity of sounds on a scale from zero for the average least audible sound to about 130 for an audio level which causes pain.

3.324 Decision point. A term used to denote any one of the following:

- a. A point at which a program path can go in two or more directions.
- b. A point at which there are two or more options.

3.325 Decision screen. A screen display which expects the trainee to make a decision by giving an input.

3.326 Decision Support System (DSS). The Joint Service ISD/LSAR Decision Support System is a set of software tools that provides training decision support analysis for front-end instructional system development analysis (task selection for training, learning objectives analysis, instructional setting selection, instructional sequencing, media selection, and training equipment requirements analysis).

3.327 Decision tree. A flowchart or graphic representation of the sequence of a specific activity or operation. A system based on the premise that decisions spawn outcomes that require other decisions. Choices feed into a network of other decisions (usually represented by branches).

3.328 Decoder. A device which converts a digital signal into an analog signal. A device which converts a composite video signal (luminance and chrominance signals) into a component video signal (for example, "RGB").

3.329 Dedicated. A device or system which performs one special job or function and cannot be used in any other way. Compare with definition for "universal".

MIL-HDBK-284-3

3.330 Dedicated lines. A dedicated telephone line of voice grade that has been "conditioned" to limit distortion and noise. An unconditioned line is one which provides only the normal bandwidth necessary for voice transmission. Also called "dedicated telephone lines".

3.331 Dedicated system. An integrated hardware and software system used exclusively for a special application. Compare with definition for "universal system".

3.332 Dedicated telephone lines. Identical to definition for "dedicated lines".

3.333 Deductive design. A design where rules are presented followed by examples. The emphasis is on application of concepts (rules).

3.334 Deductive reasoning. A term used to denote any one of the following:

- a. The application of a law, principle, or other form of rule to develop conclusions.
- b. A mental process in which we start with a principle to be taught and then apply this principle in specific instances to form supporting main points.

3.335 Default. A standard characteristic, parameter, or value which will be assumed by a computer program if there is no manual intervention.

3.336 Defense audiovisual support activity. An organization designated by the Department of Defense to produce and acquire audiovisual products and to provide audiovisual support for all Department of Defense components in a specified geographic area.

3.337 Defense Automated Visual Information System (DAVIS). A standard, DoD-wide automated data processing system for managing visual information (VI) at the DoD Component and major command levels. DAVIS includes a production database covering production, acquisitions, inventory, distribution, product status and archival control of audiovisual productions and VI materials, and a VI facilities database that includes activities, facilities, personnel, and fund.

3.338 Defense Instructional Technology Information System (DITIS). A standard, DoD-wide database designed to facilitate ICW resource sharing within the DoD Components by providing a central source of ICW information. The DITIS database provides information on all DoD-owned ICW programs, whether fielded or under development, including information on delivery system, operating software, authoring tools and courseware for both planned and fielded ICW systems.

3.339 Defense school or course. A school or course used by two or more military services that is administered by a coordinating service/agency and that presents a

MIL-HDBK-284-3

curriculum developed under the policy guidance and approval authority of an element of the Office of the Secretary of Defense.

3.340 Defense Technical Information Center (DTIC). The organization that acquires, stores, retrieves, disseminates, and enhances technical information for research and development for government and industry.

3.341 Definition. The visual quality of individual pixel reproduction.

3.342 Deliverables. Identical to definition for "deliverable data".

3.343 Deliverable data. For purposes of this handbook, a term used to denote the task outputs/data items identified in MIL-STD-1379 for acquisition. These outputs/data items are identified and defined by DIDs and are intended to be cited on the CDRL for delivery by the contractor. Also, see definition for "contract deliverables".

3.344 Delivery format. The media used to present instruction to trainees. Examples include text, charts, audio tape, videotape, slide/tape, videodisc, stand-up instructor, and interactive courseware.

3.345 Delivery system. A term used to denote any one of the following:

- a. The way in which information is presented.
- b. The computer equipment, including peripherals and video equipment, used to present the interactive courseware.

3.346 Demodulation. The process of retrieving digital data from a modulated analogue signal.

3.347 Demonstration aid. An aid which supports knowledge and skill instruction and appeals to the senses of sight, hearing, or smell.

3.348 Demonstration-performance method. A learning experience in which trainees observe and then participate in a sequence of events designed to teach a procedure, a technique, or an operation, frequently combining oral explanation with the operation or handling of systems, equipment, or materials.

3.349 Demonstration phase. A phase of the demonstration-performance teaching method during which the instructor shows trainees how to perform the skill to be learned.

3.350 Density. The closeness of space or data distribution on a storage medium.

3.351 Dependent relationship. In instructional systems development, skills and knowledge in one learning objective which are related to those in another learning

MIL-HDBK-284-3

objective. In order to master one of the learning objectives, it is first necessary to learn the other.

3.352 Dependent testing. Requiring trainee mastery of skills and knowledge in one learning objective before testing skills and knowledge in another learning objective. The skills and knowledge in one learning objective are closely related to those in the other learning objective.

3.353 Design. A phase of the instructional system development process which defines the educational/training requirements to determine the course structure and sequence.

3.354 Design strategy. The critical strategy elements required to design interactive courseware modules, lessons, or tests. A methodology for how the interactive courseware will be produced and look as an end product.

3.355 Developmental testing. The initial stage in which the material is tried out with individuals and small groups of trainees to determine if the product teaches the subject and to locate portions of the instructional materials that need to be revised. Also called "formative evaluation".

3.356 Device. A mechanism designed to serve a special purpose or perform a special function. A device has a name/nomenclature and reference designator and can be operated and maintained. Commonly referred to as "hardware."

3.357 Device driver. Software that tells the computer how to talk to the peripheral device.

3.358 Diagram sheet. An instructional sheet that provides the trainee with a diagram, schematic, illustration, or definitions used during the course of instruction.

3.359 Didactic design. Instructional design in which the trainee is presented information and asked to respond to questions.

3.360 Differential feedback. Test response feedback specific to the multiple choice answer selected by the student.

3.361 Digital. Numerical representation of information. Data which is generated or translated into a pattern of discrete, fixed values such as digits or other concrete characters. Information stored as a series of "1"s and "0"s.

3.362 Digital audio. Audio which has been digitized and is stored on and can be played from a single videodisc frame, optical disc, hard disk, floppy disk, tape media, or other media.

MIL-HDBK-284-3

3.363 Digital data. Information transmitted in a coded form represented by discrete signals.

3.364 Digital dump. The loading of a computer program, which has been encoded into a videodisc as read-only memory, into the random access memory resident in a videodisc player.

3.365 Digital video interactive (DVI). A technology developed by GE/RCA. A standard for storing a large amount of digital data and producing full-screen, full-motion interactive video, audio, and still graphics or text. The interactive portion of DVI allows the viewer to manipulate, modify, twist, or otherwise control every aspect of the picture and sound. DVI works by utilizing heavy-duty data compression to store a large amount of digital data and unpacking the data when it is needed. DVI products can be stored on any medium that records digital signals, including CD-ROM discs. The technology requires a personal computer, typically an AT-command compatible machine, and uses a two chip custom video display processor (VDP) that lets users process and display images either on a computer monitor or on a television set. A DVI compact disc can store more than one hour of video playing time, and can recreate and display 30 video frames per second. Also, see definition for "CD-DVI".

3.366 Digitize. To convert analog data or code to digital data or code.

3.367 Digitizer. A device which converts an analogue signal to a digital signal.

3.368 Direct connect MODEM. A MODEM which can be directly connected to the RS-232C input/output port of a terminal or computer.

3.369 Directory. Headings that provide an alphabetical index of related files.

3.370 Direct question. A presenter-initiated question addressed to a particular trainee to elicit involvement, to seek an opinion, or to draw out support.

3.371 Direct-Read-After-Write (DRAW). A record-once optical disc technology which allows an optical disc to be read many times but not erased. Primarily used for mass storage of digital data.

3.372 Direct-Read-After-Write (DRAW) Videodisc. A videodisc created by having a videodisc blank recorded in real-time from a videotape.

3.373 Disc mastering facility. The factory where the disc manufacturing process takes place. A company's or organization's location where postproduction occurs by utilizing the master edit tape (or pre-master) to manufacture discs. Also called "mastering facility".

3.374 Discing. Identical to definition for "mastering".

MIL-HDBK-284-3

3.375 Discovery design. Design of training in which learning conditions are created and trainees reach their own conclusions and insights.

3.376 Discrete skill. Individually distinct skills or tasks that comprise each primary skill. They are determined after all primary skills have been identified.

3.377 Discrimination. The mental ability to identify a nonexample of a concept which shares some but not all the critical attributes of that concept.

3.378 Disk drive. A memory storage device used by a computer to allow data to be written onto and read from that disk. It operates somewhat as a record player by spinning the media in order to read from it and write to it. The drive may be fixed or not, meaning whether or not the disk itself can or can't be removed for external storage.

3.379 Disk Operating System (DOS). An essential program that controls the operations of a computer, including how all information is stored on and retrieved from a disk.

3.380 Dissolve. A video term which refers to a slow change from one picture (screen) directly to another picture (screen).

3.381 Distributed system configuration. A computer system configuration where terminals can operate in a stand-alone mode as well as being able to share the processing and storage capabilities of a central processor in the network. Distributed systems have the capability of supporting remote stand-alone terminals in addition to supporting local stand-alone terminals. The distributed system must have software which integrates all the terminals into central CMI and system management.

3.382 DoD AMSDL Control Officer. The individual representing the Secretary of Defense who has been assigned the DoD-wide responsibility for developing and implementing DoD policy for controlling and approving data requirements applied in defense contracts.

3.383 DoD Index of Specifications and Standards (DODISS). The publication that lists Federal and military specifications, standards, and related standardization documents and non-Government documents that are used by the military departments and agencies.

3.384 Domain of learning. A generic classification of learning outcomes into one of three primary but not necessarily materially exclusive categories: cognitive (thinking, understanding), affective (attitudes, values), and psychomotor (physical skills).

3.385 Dot matrix. A pattern of dots in a two-dimensional array; one type of computer printer that uses pins to impress tiny dots upon the paper. These dots form characters or other graphic information.

MIL-HDBK-284-3

3.386 Dot matrix printer. A high speed printing device whose characters or graphic shapes are formed by a print head with pins that impress a pattern of tiny dots on paper.

3.387 Download. To transmit data from one computer to another or from the central processor to a peripheral device. The process of sending data from a central source to remote stations.

3.388 Downtime. A term used to denote any one of the following:

- a. Period of time during which the central processor of a computer is inoperable or the operating system software of a computer is not functioning properly.
- b. The period of time equipment is inoperable.

3.389 Downtime, scheduled. The determined or required idle time necessary for normal servicing of computer equipment/software during which such equipment is unavailable for operations.

3.390 Downtime, unscheduled. The idle machine time during which the system is being repaired because of failures or unforeseen circumstances other than normal servicing or maintenance time.

3.391 Drill. A standardized technique or procedure that prepares trainees to execute critical collective tasks in an instinctive and spontaneous manner. The drill includes the method(s) by which it is trained.

3.392 Drill and practice. Ungraded verifications of comprehension of enabling objectives (for example, questions, exercises, and problems). A method of instruction characterized by systematic repetition of concepts, examples, and practice problems. An ungraded practice quiz.

3.393 Drive. That part of a computer-based system (such as a personal computer) into which floppy disks, tapes, CD-ROMs, videodiscs, or other optical or magnetic media are inserted when they are being used to input, process, or output information.

3.394 Driver. A program that controls (or drives) a device.

3.395 Dropout. A term used to denote any one of the following:

- a. A loss of signal.
- b. Loss of video for four microseconds or longer.
- c. Permanent loss of data from a storage medium.

MIL-HDBK-284-3

3.396 Dual channel audio. The capability to play two audio channels either simultaneously or independently. Also called "dual track audio".

3.397 Dual track audio. Identical to definition for "dual channel audio".

3.398 Dub. A term used to denote any one of the following:

- a. A transfer to tape from tape or another medium such as film. To replicate a video or audio recording on an audiovisual medium.
- b. The copying and combining of visual and audio elements to produce a composite, properly balanced (mixed) master tape.
- c. Sometimes, to lay a new or additional audio track onto an audiotape or videotape recording.

3.399 Dumb terminal. A terminal that acts as an input/output device only.

3.400 Dummy record. A computer program, used in defining a process such as a test, that has no visual display and automatically advances to the next record in the program as indicated in the forward response field.

3.401 Dump. To transfer information from one medium to another; to remove, stop, or empty. A computer operation in which the contents of one memory level are recorded to another or to a disk or printer.

3.402 Duty. A duty (primary skill) consists of one or more tasks performed in one functional area. A duty is the major subdivision of the work performed by one individual. It is recognized as being one of the position incumbent's principal responsibilities. A set of operationally related tasks within a given job (for example, weapons servicing, driving communicating, target detection, self protection, operator maintenance).

3.403 Duty assignment. Identical to definition for "duty position".

3.404 Duty position. A group of closely related tasks and responsibilities which normally are assumed by one individual assigned to a given position in a military unit. A "military occupational specialty". Also called "duty assignment".

3.405 Duty position task. A task identified with and related to a particular duty position (job) at a given skill level within a specified occupational specialty.

3.406 Dynamic demonstrator. An aid which demonstrates movement in time or space, steps of a procedure, or changes in condition.

3.407 Edit. A term used to denote any one of the following:

MIL-HDBK-284-3

- a. The modification of format or data or the correction of a computer program.
- b. To link one piece of audio or videotape to another, or to create a master tape of a video program, usually from a variety of media. To assemble all the segments of a video program to produce a final product.

3.408 Editor. A term used to denote any one of the following:

- a. A computer program which provides a means of entering and modifying text.
- b. An individual who modifies data, information, video, and other forms of communication.

3.409 Edit suite. The location in which all the video program elements are put together to produce the final program.

3.410 Effectiveness. The degree to which a training product or program meets its stated training objectives.

3.411 Efficiency. Identical to definition for "training efficiency".

3.412 Electronically Erasable Programmable Read-only Memory (EEPROM). Type of programmable read-only memory that can be erased via electric current and reprogrammable.

3.413 Electronic Information Delivery System (EIDS). The Army standard, stand-alone computer based instruction and interactive videodisc system for delivering information, documentation, and training.

3.414 Electronic Information Delivery System Authoring Software System for Interactive Simulation and Training (EIDS ASSIST). The Army standard authoring software used for developing interactive courseware for delivery on EIDS.

3.415 Electronic mail. Text/graphics messages exchanged through linked or networked computers, using a central file server.

3.416 Electronic media. Devices utilized in the application of computer and communications technologies to automate and support the free exchange of digitized technical data in support of the development, delivery, and maintenance of training materials.

3.417 Electronic still store. A computer-controlled device that can store and duplicate still frames in real time. A television production computer system that records, stores, and plays back individual video frames.

MIL-HDBK-284-3

3.418 Element. In training developments, the smallest unit of behavior that has practical meaning to instructional analysts/designers. Elements are basic motions, movements, and mental processes that compose the procedural steps of task performance.

3.419 Embedded training. Training involving simulation or stimulation of operational equipment performance in addition to the equipment's primary operational function(s). Training provided by capabilities not specifically required for mission completion, but that are built into or added onto operational systems, subsystems or equipment to enhance or maintain user's skill proficiency.

3.420 Emulation. A term used to denote any one of the following:

- a. Mimicking the operation or characteristics of another system.
- b. A simulation of the operation of an interactive videodisc, using a computer-controlled medium (such as videotape or direct-read-after-write discs), prior to mastering.
- c. The imitation of a computer system, performed by a combination of hardware and software, that allows programs to run between incompatible systems.

3.421 Enabling objective. A learning objective describing what is expected of the trainee in demonstrating mastery of the skills and knowledge necessary for achievement of a terminal objective or another enabling objective.

3.422 Encode. A term used to denote any one of the following:

- a. To convert information to machine or computer readable format (frequently binary numbers) representing individual characters or groups of characters in a message. Encoding is a step in the process of converting an analogue signal into a digital signal. The three steps are sampling, quantizing, and encoding.
- b. To change component RGB (three color signals) to composite video.

3.423 Encoded program. Control instructions for playback included on the videodisc during the mastering process.

3.424 Encoder. A device which converts an analog signal into a digital signal. A device which converts a component video signal (for example, RGB) into a composite video signal (luminance and chrominance signals).

MIL-HDBK-284-3

3.425 Encrypton. A procedure for encoding data that makes it difficult to decode without proprietary software or hardware. This procedure protects data or software from unauthorized access or use.

3.426 Enhanced graphics adapter (EGA). An expansion card for IBM compatible personal computers, inserted into the computer's expansion slot to enable the computer to process and display color graphics and text at a resolution of 640x350 Pixels.

3.427 Enrichment instruction. Special instruction designed and delivered to enhance a student's high level of achievement of some learning objective of an instructional program. Enrichment courses are primarily for those students who excel over and above the standard lesson material.

3.428 Entry behavior. The skills and knowledge a trainee has when he/she enters a course of instruction. Includes information about school performance, school completion, type of training received, instruction patterns, and test scores. Sometimes includes other information which may be relevant to development plans such as social or economic status, ethnic or racial background, and physical or psychological deviations.

3.429 Entry level training. The introductory and indoctrination training given to individuals upon initial entry into a new job.

3.430 Entry skills. Specific, measurable behaviors that have been determined through the process of analysis of learning requirements to be basic to subsequent knowledge or skill in the course. Also, see definition for "entry skills test".

3.431 Environment. The physical conditions and surroundings in which a job is performed, or in which learning takes place, including tools, equipment, and job aids.

3.432 Equipment. Any device that supports any system or subsystem. A major unit of a subsystem for which operation and maintenance can be performed. Equipment is made up of various components.

3.433 Erasable Programmable Read-only Memory (EPROM). Read-only, non-volatile, semi-conductor memory that is erasable via ultraviolet light and reprogrammable.

3.434 Error code. A code that a computer system uses to inform the user of errors found in a program or in general system operation.

3.435 Evaluation. A judgement expressed as a measurement or ranking of trainee achievement, instructor performance, job performance, process, application, training material, and other factors.

3.436 Evaluation phase. A phase of the demonstration-performance teaching method during which the presenter conducts criterion-referenced testing to determine the extent to which trainees have mastered the instructional objectives.

MIL-HDBK-284-3

3.437 Evaluation plan. A method or outline of a set of procedures which will be used to gather data and information for the purpose of assessing a course of instruction or other training product.

3.438 Evaluation program. A schedule for the coordinated, systematic, and continuous assessment of the efficiency and effectiveness of the training system, its processes and products.

3.439 Evaluation information. That information collected for the purpose of assessing performance of trainees, conduct of instruction, support of instruction, or any other aspect of the instructional process.

3.440 Execution. Viewing or running a program. In computing, carrying out commands.

3.441 Exercise. A term used to denote any one of the following:

- a. The total instruction that a trainee receives from a training experience.
- b. An act that is performed or practiced in; the learning experience to develop, improve, or display a specific knowledge, skill, or aptitude.

3.442 Expanded memory. Bank-switchable RAM above 640 KB, which can be addressed in chunks by software that recognizes it, in any IBM compatible personal computer using the DOS operating system in an 8088 or higher microprocessor. It allows for chunks of RAM, each no greater than 640 KB, to be addressed one group at a time by one program, speeding up the execution and data handling of the program. This memory specification was developed by a joint project of LOTUS, Intel, and Microsoft. Also, see definition for "extended memory".

3.443 Expansion slot. A slot for a card in a computer or device. One or more spaces in a computer that holds circuit boards (cards) that enhance computer operation.

3.444 Experimental learning. A learning activity having a behavioral based hierarchy which allows the trainee to experience and practice job related tasks and functions during a training session.

3.445 Expert opinion. Those opinions, impressions, or judgments of individuals considered to be well qualified in relation to the item under evaluation. Also see definition for "subject matter expert".

3.446 Expert system. A computer tool that attempts to emulate the procedure used by an expert to solve a problem. A computer technology which relies on a database of expertise compiled from acknowledged experts within that field. It relies on an analysis of what human experts think and do when performing similar activities.

MIL-HDBK-284-3

3.447 Explanation phase. A phase of the demonstration-performance teaching method during which the presenter tells the trainees how to perform the skill to be learned.

3.448 Exportable. A term used to denote any one of the following:

- a. A training or software package which can be used on another system.
- b. A training or software package which can be used at more than one location.

3.449 Extended command. An optional command that does not have to be implemented for the service group in which it is contained to be compliant.

3.450 Extended memory. RAM greater than 640 KB, which can be fully addressed by software that recognizes it, in a 286-based or higher IBM compatible personal computer using the DOS operating system. The software puts the personal computer in protected mode to address the RAM in one chunk (including the RAM above 640 KB). When making a system call to the DOS operating system, the software must put the computer in unprotected mode and cannot address more than 640 KB of RAM. The software often toggles the computer between protected and unprotected mode in order to effectively use the RAM above 640 KB and make system calls to DOS. Also, see definition for "expanded memory".

3.451 Extended parameter. An optional parameter that does not have to be implemented for the command that uses it to be compliant.

3.452 Extension training. Training, either individual or collective, which is usually conducted at locations other than service schools or training centers. Also, see definition for "correspondence course".

3.453 Extension training material. A term used to describe all exportable training products. It includes materials that are exported from one resident school to another as well as units.

3.454 External cues. Signals for actions that exist outside of the trainee (conditions, features, or characteristics of the job environment that trigger action).

3.455 External memory. Memory storage which is not part of the central processing unit of a computer (for example, floppy disk, hard disk, CD-ROM).

3.456 External storage. Peripheral device for storage (for example, tape or disk).

3.457 Extrapolation. (A) A sub-level of the comprehension level of learning in which trainees develop sufficient understanding to estimate trends or predict outcomes based upon the subject matter under study.

MIL-HDBK-284-3

3.458 Factory training. Training or instruction provided by a vendor or manufacturer on how to maintain/operate a specific piece of equipment. Also called "contractor plant services (CPS)" and "contractor specialized training".

3.459 Fade. To slowly change a video image (screen) to black.

3.460 Familiarization training. Field training to acquaint personnel with a specific system or to keep personnel abreast of changing concepts and requirements.

3.461 Fault. A malfunction of equipment/firmware/software.

3.462 Fault insertion devices. Designed equipment malfunctions to be used as training aids to support training in corrective maintenance skills on systems, subsystems and equipment.

3.463 Feedback. A term used to denote any one of the following:

- a. Computer response to trainee input.
- b. The return of information. Information on trainee performance is "fed" back: to the trainee so he/she can improve that performance; to the instructional designer so he/she can improve materials and procedures on the basis of trainee needs; to the management system so it can monitor the internal and external integrity of the instruction and make appropriate revisions.
- c. Refers to the flow of data or information from one step in the SAT/ISD model to others.

Also, see definition for "remediation".

3.464 Fidelity. A term used to denote any one of the following:

- a. The degree to which a training/testing situation truthfully and accurately reflects the job/operational situation.
- b. The accuracy of presentation of audio or video signals.

3.465 Field (video). One-half of a video frame. A raster scan of 262.5 alternate lines on a screen at 1/60 second. Two fields combine to make a 525 line video frame. Also, see definition for "interface".

3.466 Field dominance. The order of the video fields established on the videotape during edits or transfers for the videodisc mastering process. The field, even or odd, on which a new picture begins.

MIL-HDBK-284-3

3.467 Field exercise. An exercise conducted outside the classroom in the field under simulated conditions.

3.468 Field/frame synchronization. The elimination of video and film frame ambiguity by using the full-frame ID process during film-to-tape transfer.

3.469 Field frequency. The rate at which a complete field is scanned or displayed (59.94 times per second in NTSC).

3.470 Field standard. The video production standard which effectively describes the running speed of the video program. Field standard is related to the mains power supply frequency. Where the power supply is 60 Hz, the field standard is 60 fields (or 30 frames) per second; this is the standard employed by NTSC systems.

3.471 Field Training. Technical, operator or other training conducted at operational locations on specific systems and associated direct-support equipment.

3.472 Field validation. The point in training product development where the product is administered to a representative sample of job incumbents. The intent is to exercise the product in a realistic environment to determine the administrative feasibility and the appropriateness of the product for the target population; determination that tasks taught in residence and extension are, in fact, applicable to the trainee's job.

3.473 File. An organized collection of related records or data stored in memory. A unit of storage for holding records or programming instructions to the computer.

3.474 File management capability. A software capability within the operating system of a computer which allows for the creation and manipulation of data files on an external storage medium.

3.475 Filename. A string of characters used to identify a file.

3.476 Filename extension. The last part of a filename after the "." that indicates the type of file.

3.477 Film chain. An equipment set up consisting of one or two film projectors, a slide projector, a multiplexer, and a television film or telecine camera.

3.478 Final flow chart. The complete, detailed layout of all frames and branching, including unit/file names.

3.479 Firmware. A computer program or software permanently stored in PROM, ROM, or semi-permanently stored in EPROM.

3.480 Fixed disk or drive. Identical to definition for "hard disk".

MIL-HDBK-284-3

3.481 Fixed repetition. The design element which repeats a segment of training material in the same way to increase learning.

3.482 Fixed sample. In testing the effectiveness of a lesson, a preset sample of trainees is selected in advance. Decisions are based on the outcome of that preset sample.

3.483 Fixed sequence. In training developments, elements that are always done in the same order.

3.484 Fixed sequence task. A task which follows the same steps each time that it is performed.

3.485 Flat panel. A display device using the excitation of a gas or crystal matrix to produce an image rather than the scanning of a phosphorous coating by an electron beam. Referred to as flat panel display technology because the depth of the display device itself is usually no more than 1 or 2 inches. Also called "liquid crystal display".

3.486 Flicker. A term used to denote any one of the following:

- a. The shaky or shivering effects (usually unwanted) on a video still or freeze frame caused when both fields of a video picture frame are not identically matched (fields from adjacent frames are displayed), thus creating two different pictures alternating every 1/60 second. Also called "jitter" and "judder".
- b. The subtle yet perceptible flashes of light between frames of moving footage.

3.487 Flight simulator. A generic term which refers to a group of synthetic training devices that range from simple procedures trainers to high fidelity devices, all capable of simulating various aspects of flight.

3.488 Flight training. Training in the art and skill of operating an aircraft, its navigation equipment, and offensive/defensive weapons systems.

3.489 Flowchart. A term used to denote any one of the following:

- a. A programming guide that is a graphic representation of all branching and data processing required for the interactive courseware. A diagram that depicts the events or actions and their sequence in the program. A map of interactive logic, representing the possible paths a user can take in the courseware, and comprising standard symbols for program segments, decision points, clues, responses, and logic flow.
- b. Documentation of the courseware instructional strategy.

MIL-HDBK-284-3

- c. A diagram representing the logic flow of a computer program, using standard graphic shapes and symbols joined by straight lines and representing program segments, decision points, execution flow, and other information.
- d. A visual method of indicating the many relationships of the sub parts of a process, including steps and decision points.

3.490 Flow diagram. A graphic representation of actions/events required in accomplishment of task (for example, lesson development). Frequently accompanied by a narrative description, the flow diagram provides specific instructions and precise sequencing for task/goal accomplishment.

3.491 Flying spot scanner. A device that uses a moving spot of light to scan a sample space, with the intensity of the transmitted or reflected light being sensed by a photoelectric transducer. Used to transfer slides or film to videotape.

3.492 Follow-on training. Training conducted after initial training.

3.493 Follow up question. An instructor/computer initiated question to a particular trainee or group of trainees designed to guide the lesson progression by supplying sub-ideas and promoting reasoning.

3.494 Formal lecture. A structured and often rehearsed teaching session with no verbal participation by trainees. Compare with definition for "informal lecture".

3.495 Formal on-the-job training (FOJT). Formal training which takes place in the actual work situation.

3.496 Formal training. Training (including special training) in an officially designated course conducted or administered in accordance with appropriate course outline and training objectives.

3.497 Formal validation. The process of determining if the instructional and learning objectives of the interactive courseware are being met.

3.498 Format. A term used to denote any one of the following:

- a. To organize data in a specific way to meet an established system standard.
- b. The process of readying a new floppy or hard disk by having a computer program write file mark and track mark codes on the floppy or hard disk. To magnetically arrange a disk into areas, or sectors so it is able to receive and store data from the operating system that formatted the disk.

MIL-HDBK-284-3

- c. The desired organization, structure, or arrangement of the content of the data product described by the DID. This term relates to the shape, size, makeup, style, physical organization, or arrangement of the data product described in Block 10 of the DID.
- d. In print and audiovisual, the distinctive and recurring treatment, shape, size, and style of a publication's page(s) or sections achieved through stylized composition and typographic make-up (for example, line length, type face, and size).

3.499 Formative evaluation. An evaluation that provides information about the effectiveness of training materials to meet the training objectives and the trainee acceptance of training materials as they are being developed. Identical to definition for "developmental testing".

3.500 Forth. A structured, high-level programming language.

3.501 Frame. A term used to denote any one of the following:

- a. A screen display.
- b. In programmed instruction, each portion of material to which the trainee makes a response. A frame is also called an exercise, a step, or an item of information. A frame may vary in size from a single incomplete sentence, question, or instruction to perform some response, up to a sizable paragraph.

3.502 Frame address. A code which indicates the location of a frame on either a videotape or videodisc. Each frame has a frame address. A frame address is put on each disc or tape in the form of a frame address code.

3.503 Frame address code. A code located in the vertical interval of a video frame.

3.504 Frame buffer. A term used to denote any one of the following:

- a. An apparatus capable of storing all 525 lines of a television frame and functioning as a time base corrector.
- b. A memory device which stores the contents of an image pixel by pixel. Frame buffers are used to refresh a raster image. Sometimes they incorporate local processing ability. The "depth" of the frame buffer is the number of bits per pixel, which determines the number of colors or intensities which can be displayed.

3.505 Frame (film). A single, complete projected image from photographic film, running at 1/24 second.

MIL-HDBK-284-3

3.506 Frame grabber. A device that stores one complete video frame.

3.507 Frame number. A number which indicates the frame address.

3.508 Frame oriented. A method in which a designer/developer works directly on designing the screens which comprise the basis of the finished interactive courseware. Compare with definition for "line-oriented".

3.509 Frame rate. The speed at which frames are scanned: 30 frames per second for NTSC and 24 frames per second for film.

3.510 Frame storer. A device that stores one complete video frame.

3.511 Frame (video). A single, complete video picture composed of two interlaced fields totalling 525 lines (NTSC), running at 1/30 second. A single frame is a CAV videodisc reference point.

3.512 Freeware. Software that is distributed by its author without charge. A general term for software that is made available to users on terms other than conventional sales. Also called "open software".

3.513 Freeze frame. A single stopped frame from a motion sequence. A single frame from a motion sequence displayed as a still image. Unlike a still frame, a freeze frame is not a picture originally shot to appear on its own; but is one frame taken from a longer moving sequence.

3.514 Front-end analysis (FEA). A systematic process in which: (1) A job is analyzed to determine its component tasks and the knowledge, skills and attitudes (KSAs) necessary to perform these tasks; (2) tasks are selected for training based on the determination of which KSAs are not already in the trainees' repertoire; and (3) job-related performance criteria are developed to measure trainees' ability to satisfy job requirements.

3.515 Full duplex. Simultaneous, two-way independent transmission in both directions.

3.516 Full-frame identification. The process during film-to-tape transfer whereby picture cues are inserted in the vertical interval of the master tape to identify the first video field that corresponds to a new film frame.

3.517 Full-frame time code. Identical to definition for "SMPTE time code".

3.518 Full-motion video. Video which is displayed such that on-screen motion appears to be smooth and continuous. Also called "continuous motion video".

3.519 Full scale simulator. A device that allows simulation of tasks related to applicable crew members for a given operational requirement. It is capable of simulating

MIL-HDBK-284-3

the operational environment (audio, visual, and tactile) to achieve maximum realism and training effectiveness.

3.520 Function. A broad category of activity performed by a system (for example, transportation).

3.521 Functional. Capable of producing the work for which it was designed.

3.522 Functional area. A named category, descriptive of a subject under which tasks are listed. The title given a functional area is descriptive of a subject in which the assigned proponent is recognized as the technical expert.

3.523 Functional grouping. Organizing instruction such that tasks which relate to the same procedures or equipment are presented together.

3.524 Function key. A key that is redefined by software commands to perform a specified function.

3.525 Gain. The level of amplification of a signal.

3.526 Game. A highly interactive instructional program which presents situations involving choice and risks using some level of competition to assist in the transfer of previously learned knowledge to new skills.

3.527 Gaming. A technique in which the trainee is presented situations involving choice and risks. The choices and the consequences resemble real-life situations, and the players are reinforced for various decisions. Gaming is typically an enjoyable learning method for the trainee.

3.528 Gantt chart. A visual representation of project tasks; shows the duration of each task along a timeline.

3.529 Gender changer. A hardware connecting device used to change a male/female device to female/male.

3.530 General purpose trainer. A trainer which can be configured through hardware or software changes to represent more than one operation system. Compare with definition for "generic trainer".

3.531 General skill. A skill having wide application and transferability.

3.532 Generation. A term used to denote any one of the following:

- a. The major evolutionary stages when significant improvements are made in specific products or product areas.

MIL-HDBK-284-3

- b. The number of times a reproduction is removed from the original source. A copy of the original is a first generation, a copy of that is a second generation, and so forth. In videotape technology, each generation results in a lower signal-to-noise ratio of the recorded information.

3.533 Generator. In computer-based technology, a device or system that facilitates some task, such as text, graphics, or program design.

3.534 Generic courseware. Courseware that is not specific to one organization and appeals to a broader market.

3.535 Generic software. Computer software that is not specific to one organization and appeals to a broader market.

3.536 Generic trainer. A trainer designed to provide training on a type or class of equipment as opposed to a specific system. Compare with definition for "general purpose trainer".

3.537 Generic videodisc. Videodisc material that can be used with courseware developed by more than one organization; discs associated with the subject matter but not with a particular course.

3.538 Genlocking. Aligning the data rate of a video image with that of a digital device, to digitize the image and enter it into computer memory. The device that performs this function is a genlock.

3.539 Gigabyte (GB). One billion bytes.

3.540 Global key. A key dedicated to some specific function, which performs that function and no other, every time it is pressed.

3.541 Goal analysis. A method of analyzing the affective requirements of an instructional program.

3.542 Go and no-go--pass or fail. The evaluation criterion whereby a student cannot partially pass. He either passes (go: meets the standard) or fails (no-go: does not meet the standard).

3.543 Go to. A specific branch instruction in a program.

3.544 Government-furnished equipment (GFE). Equipment(s) which has/have been selected to be furnished by the Government to a contractor or Government activity for installation in, or for use with, or in support of the system/equipment during production, conversion, or modification. Also, see definition for "Government property".

MIL-HDBK-284-3

3.545 Government-furnished information (GFI). Information which is to be furnished by the Government to a contractor. Also, see definitions for "Government-furnished equipment", "Government-furnished material", "Government-furnished property" and "Government property".

3.546 Government-furnished material (GFM). Documents, equipment, facilities, and services supplied to a contractor before and during the execution of a contract. Also, see definitions for "Government-furnished equipment", "Government-furnished information", "Government-furnished property", and "Government property".

3.547 Government-furnished property (GFP). Property (real and personal, including facilities, material, special tooling, special test equipment, and agency-peculiar property) in the possession of or directly acquired by the Government and subsequently made available to the contractor. Documents, equipment, facilities, and services supplied to a contractor before and during the execution of a contract. Also, see definitions for "Government-furnished equipment", "Government-furnished information", "Government-furnished material", and "Government property".

3.548 Government/Industry Data Exchange Program (GIDEP). A cooperative data interchange among Government and industry participants seeking to reduce or eliminate expenditures of time and money by making maximum use of existing knowledge. GIDEP provides a means to exchange certain types of data essential during the life cycle of systems and equipment.

3.549 Government Open Systems Interconnection Profile (GOSIP). GOSIP is an applications portability profile interface definition for data communication network services in an open systems environment (OSE). GOSIP is a Federal Information Processing Standard (FIPS 146) that requires agencies to buy data communication products and services complying with a set of international standards called the Open Systems Interconnectivity.

3.550 Government property (GP). All property (real and personal, including facilities, material, special tooling, special test equipment, and agency-peculiar property) owned by or leased to the Government or acquired by the Government under the terms of the contract. It includes "contractor-acquired property", "Government-furnished equipment", "Government-furnished information", "Government-furnished material", and "Government-furnished property".

3.551 Graphic. A term used to denote any one of the following:

- a. A visual representation of an idea, object, or other factors, shown by means of lines, marks, shapes, and symbols. A still picture, illustration, symbol, shape, or other visual images.
- b. A simple graphic is a graphic equal to line drawings and outlines.

MIL-HDBK-284-3

- c. A complex graphic is a visual expression that more closely represents a photograph.
- d. A visual image (graphics) generated by a computer. A computer display (symbols, shapes, and other images). Examples: charts, graphs, line drawings, illustrations, equipment panels, animation, 3-D.
- e. A visual or artwork prepared for a production.
- f. Any pictorial representation such as drawings, patterns, graphs, charts, or borders.

Also called "computer graphics".

3.552 Graphic overlay. Identical to definition for "overlay".

3.553 Graphics card. A peripheral device that allows a computer to process and display graphics.

3.554 Graphics input device. A unit such as a digitizer which gives the computer the points which make up an image so it can be stored, reconstructed, displayed, or manipulated. Also, identical to definition for "bit pad".

3.555 Graphics library. The storage and documentation of graphics that are built within the units of interactive courseware. Graphics can be pulled from the library and be inserted into other units of interactive courseware.

3.556 Graphics output device. A device used to display or output an image.

3.557 Graphics tablet. Identical to definition for "bit pad".

3.558 Group-paced instruction. Instructor centered training with fixed periods of instruction. All class members or small groups are instructed on the same task at the same time.

3.559 Group trial. Tryout of a training course on a representative sample of the target population to gather data on the effectiveness of instruction in regard to error rates, criterion test performance and time to complete the course.

3.560 Guard tracks or guard bands. The protective bands sometimes inserted between tracks of recorded material on audio or video tape to prevent crosstalk between unrelated tracks.

3.561 Guided discussion method. A learning experience in which students participate in an instructor-controlled, interactive process of sharing information and experiences related to achieving an instructional objective.

MIL-HDBK-284-3

3.562 Half duplex. Transmission which can occur in either direction, but not simultaneously.

3.563 Handbook. A document prepared specifically to provide guidance information used in design, engineering, production, acquisition, and supply management operations. Military handbooks are documents issued within the Department of Defense in accordance with the basic policy of the Defense Standardization Program. Military handbooks are used for the presentation of general information, procedural and technical use data, or design information related to commodities, processes, practices and services. Military handbooks also provides industry with reference material that will serve the standardization program. The use of handbooks as references is optional (see MIL-STD-962).

3.564 Hands-on. Student practice on actual equipment, simulators, or training aids.

3.565 Hang-up. An unwanted repetition of an audio/video sequence, program, or courseware due to a hardware malfunction, control software error, or media problem.

3.566 Hard copy. Computer output printed on paper. Paper or other tangible copy of an image, report, document, or other data, from a computer.

3.567 Hard data. Data acquired through precise and accurate measurement. Compare with definition for "soft data".

3.568 Hard disk. A memory storage device using a magnetically coated, rigid disk. An inflexible magnetic disk with greater storage capacity than a floppy disk, used as a mass storage medium. Also called "fixed disk or drive" and "Winchester disk".

3.569 Hard skills. Skills to perform where job requirements are well-defined in terms of actions to be taken and expected outcomes. Compare with definition for "soft skills".

3.570 Hardware. A term used to denote any one of the following:

- a. The physical components and equipment which actually makes up a computer system (everything except the programs or software). Physical equipment or peripheral devices. The mechanical, electrical, or electronic equipment used for processing data. The various devices of a computer system, including the machine itself, printers, disk drives, monitors, MODEMs, and allied accessories such as cables. Hardware is tangible, whereas software is not.
- b. The physical components of a system.

3.571 Hardware transportability. The capability to transfer any terminal or peripheral device between installation sites without obtaining support from the original equipment manufacturer or system integrator and have the transferred item(s) correctly function without modifications.

MIL-HDBK-284-3

3.572 Helical. A type of videotape recorder in which the tape wraps around the head drum in a spiral or helical configuration. The videotape system employs two or more video heads mounted on opposite sides of a revolving drum. The video head drum spins at one frame per revolution, so each head scans one field per revolution. Helical scan achieves the high head-to-tape speeds needed for video recording by moving both the tape and the video heads.

3.573 Help. Assistance available to a student. On a computer, it is a display accessed optionally by the student which gives assistance for a current problem.

3.574 Helping relationship. Face-to-face interactions in which an instructor applies effective human relations skills to help a student or group of students attain a goal or goals.

3.575 Hercules graphics. Identical to definition for "monochrome graphics adapter".

3.576 Hertz (Hz). The standard unit of frequency. A measure of frequency or bandwidth. Cycles per second. One Hz is equal to one cycle per second.

3.577 Heuristic routine. A routine by which the computer attacks a problem, not by a direct algorithmic procedure, but by a trial-and-error approach frequently involving the act of learning.

3.578 Hexadecimal. A base-16 number system used sometimes for computer functions.

3.579 High definition television (HDTV). Any variety of video formats offering higher resolution than current NTSC broadcast standard.

3.580 Higher levels of learning. Those levels of learning above the comprehension level which may be considered as the practical application of concepts and principles to complex real problems.

3.581 Higher order language (HOL). A computer language that permits an action actually requiring several steps inside the computer to be specified by a single command. Higher order languages (for example, COBOL, PASCAL, Ada) permit the programmer to be more productive than do the lower order languages (for example, "assembly language" or "machine language". Also, see definition for "high-level language".

3.582 High-level language. A user-friendly computer programming language which uses English-like commands. A computer programming language which closely resembles everyday language. One high-level language statement can be translated to many assembly language or machine code instructions. "Authoring languages" are a type of high-level languages. Examples of high-level languages are BASIC, "PASCAL", and FORTRAN. Also, see definition for "HOL".

MIL-HDBK-284-3

3.583 Highlighting. Bringing attention to something by accentuating it through a variety of means such as color, and inverse mode.

3.584 High risk tasks. Critical operation or maintenance procedures which have a high potential for performance shortfall and a corresponding adverse impact on overall system performance if personnel are not trained to perform them to standard. These tasks are typically difficult to train because they are exceptionally complex and require a high degree of skill, have either a high frequency of inadequate performances, or any combination of the above.

3.585 Hologram. A three-dimensional image produced by a system that uses lasers.

3.586 Horizontal blanking. The time period during which the video monitor display is blank for horizontal retracement. Also, see definition for "blanking".

3.587 Horizontal blanking interval. The time required for the picture-forming beam of a CRT to return from the end of a scan line to the start of the next scan line. Also, see definition for "blanking".

3.588 Horizontal sync. The pulse used to synchronize the horizontal scan of the video monitor.

3.589 Host computer. The central computer that is the primary information source and provides the computational power for terminals and peripheral devices that are connected to it.

3.590 Hue. Tint. The particular characteristics of a specific color that allow it to be assigned a definite position in the color spectrum. Hue is improperly adjusted if a picture is bluish, greenish, or reddish.

3.591 Hung-up program. The case in which the computer program will not respond to any user input. A program that will not run.

3.592 Icon. Symbolic, pictorial representation of a particular function or task.

3.593 Ignorable words. Words in a string that will be ignored by the computer when a student response is judged.

3.594 Illustration. The use of graphics, animation, or any kind of visual demonstration within a lesson.

3.595 Image enhancement. A display technique that improves details or contrast between display elements.

3.596 Image processing. A computer transformation of machine data to produce a display on a monitor.

MIL-HDBK-284-3

3.597 Implementation. Conducting and evaluating training.

3.598 Independent learning. Usually, learning outside the classroom environment. Similar to learning from homework. Not to be confused with "individualized instruction" or with "criterion-referenced instruction".

3.599 Independent relationship. In instructional systems development, skills and knowledge in one learning objective which are unrelated to those in another learning objective. Mastering one of the objectives does not simplify the other.

3.600 Independent study. Typically, a special project or assignment of selected readings for students seeking more information on a course topic. Not to be confused with "individualized instruction" or with "criterion-referenced instruction".

3.601 Index. A term used to denote any one of the following:

- a. A list of topics in a published work that gives the page number where that subject can be found.
- b. Reference information that can be superimposed over video images, displaying frame numbers, segment numbers, mode status, or time.

3.602 Indicator behavior. The behavior that indicates the presence of a specific attitude.

3.603 Individual-paced instruction. Identical to definition for "self-paced instruction".

3.604 Individual Task Training Package (ITTP). A training package that provides commanders, trainers, and soldiers with critical task performance requirements associated with a specific job.

3.605 Individual Training Plan (ITP). (A) This document is prepared immediately after identification of a requirement for new or revised training, and generally consists of a narrative description, a milestone schedule, a resource estimate, a resource summary supplement, a list of ammunition requirements, and an analysis plan, when available.

3.606 Individual Training Standards (ITSs). The standards used to specify individual training proficiency requirements (tasks) that support unit mission performance. They include a task (behavior), conditions, proficiency standards (often steps), and references. ITSs are generally derived from mission performance standards.

3.607 Individualized instruction. Instruction that attends to the individual needs of and differences among students. A method of training where the subject, content, presentation rate, and presentation media are tailored to the needs of the individual student. A lesson design that accommodates diverse ability levels or desires. Training that allows each student to determine the pace, start time, amount, and kind of instruction

MIL-HDBK-284-3

based on individual goals or objectives, entry-level skills, choice of learning media, and criterion-referenced measures for determining mastery. Individualized instruction is characterized by multi-level instruction, multi-media instruction, and self-paced instruction techniques.

3.608 Inductive design. A design where examples are presented followed by the rule. The emphasis is on discovery of concepts.

3.609 Inductive reasoning. The student is provided training and given examples to determine what all have in common. A mental process in which students are asked to examine pieces of evidence to form a related pattern and then draw a conclusion from the evidence.

3.610 Industrial quality. That level of quality which is higher than typical consumer or home applications and is meant for the rigorous professional environment.

3.611 Infinite loop. A sequence of instructions which endlessly repeats.

3.612 Informal lecture. An often conversational teaching method with considerable verbal interaction between instructor and student in the form of both questions and discussion. Compare with definition for "formal lecture".

3.613 Informal training. A term used to denote any one of the following:

- a. Training accomplished by actions for which structuring ("programming") is not specifically planned beforehand.
- b. "On-the-job training" or "on-board training" by which skills or knowledge are acquired or improved while assigned productive tasks.
- c. Training effort which takes place in the work environment during the normal day to day contacts between a supervisor and subordinates.
- d. Training accomplished by self-instruction, as contrasted to supervised or instructor-led training.

3.614 Information processing. The processing of data representing information and the determination of the meaning of the processed data.

3.615 Information resources management. The planning, budgeting, organizing, directing, training, promoting, controlling and management activities associated with the burden, collection, creation, use and dissemination of information, including the management of information and related resources, such as personnel, funds and information technology.

MIL-HDBK-284-3

3.616 Information retrieval. The ability to interactively choose any data segment, and have a computer find it instantly.

3.617 In-house. Actions performed entirely within the given activity, company, or organization, using its own resources, facilities, and expertise.

3.618 Initial design. The first basic concept, usually expressed as a flowchart and treatment, that deals with a block of information and the manner in which the blocks will interact, rather than with portions of a lesson or procedure.

3.619 Initial qualification training. Initial training which qualifies a student to a certain knowledge and skill level required before the student can take additional, more advanced training.

3.620 Initialize. The process of restarting or resetting a system to the beginning (for example, starting a computer program at the beginning, creating a new database, starting a computer).

3.621 In-process review (IPR). A term used to denote any one of the following:

- a. A joint meeting between the Government and contractor personnel to review program status. Periodic evaluations/assessments held at specific points in the stages of contractual work.
- b. A scheduled formative evaluation conducted during or at the completion of the different production sequences to ensure that the product or development process meets the acquisition requirements.

3.622 Input. A term used to denote any one of the following:

- a. Information fed into or transferred from any source to a computer or processing system.
- b. Data or information fed or entered into a computer via such devices as keyboards, keypads, and light pens.

3.623 Input and output (I/O). Information exchanged between a computer and peripheral equipment.

3.624 Input device. A mechanism used to feed or transfer information into a computer or processing system (for example, keyboard, keypad, light pen, trackball, mouse, joystick, and touch screen).

3.625 Inquiry. User-controlled computer interaction or dialogue that allows the user to get what he or she needs or wants to learn.

MIL-HDBK-284-3.

3.626 Insert edit. The type of edit in which new video /audio material is inserted into any point of a preexisting material (or block) already recorded on the master tape. No new time code or control track is recorded.

3.627 Inspection. The action of determining whether a process or product is in compliance with established regulatory standards and procedures.

3.628 Instant jump. The feature of some videodisc players that allows branching at imperceptible speeds without any screen blanking between frames within certain minimum distances, usually one to 200 frames away.

3.629 Institutional training. Individual training conducted in a school or training center of a centralized training organization.

3.630 Instruction. The delivery of information to enable learning. The process by which knowledge and skills are transferred to students. Instruction applies to both training and education.

3.631 Instruction sheet. A generic term for any of a variety of single-purpose, single-page, or multiple-page guide sheets designed to give the student certain detailed information or instruction about a task to be performed or a learning activity to be undertaken (for example, assignment, diagram, information, job, outline, note taking, and problem).

3.632 Instructional aid equipment. Identical to definition for "training aid equipment".

3.633 Instructional conditions. Instructional atmosphere including environmental, physical, and psychological factors. The amount of participation which the instruction requires of the trainee. Instructional conditions may be active (the trainee produces or practices) or passive (the trainee sits and listens).

3.634 Instructional delivery system. Any method or training system containing plans, procedures, hardware, and other materials, for presentation of instruction. Interactive courseware training system, platform instruction, television, formal on-the-job training, and standard test equipment procedures are all delivery systems.

3.635 Instructional design. The philosophy, methodology, and approach used to deliver information. Some interactive courseware aspects include question strategy, level of interaction, reinforcement, and branching complexity.

3.636 Instructional hour. An hour in the instructional day consisting of 50 minutes of contact time followed normally with a 10 minute break.

MIL-HDBK-284-3

3.637 Instructional literature. Printed material used in the learning process, including that developed for a specific purpose and other printed matter procured, such as tests and training manuals.

3.638 Instructional material. All items of material prepared, procured, and used in a course or programs as part of the teaching or general learning process.

3.639 Instructional media. The means used to present information to the trainee.

3.640 Instructional media materials (IMM). Instructional materials that present a body of information and are largely self-supporting rather than supplementary in the teaching-learning process. These materials have applications for independent study/skill acquisition.

3.641 Instructional module. A self-contained instructional unit which includes one or more learning objectives, the appropriate learning materials and methods, and associated criterion-reference measures.

3.642 Instructional program. A course of study, designed and validated within the context of an approved SAT/ISD model, which meets a training requirement.

3.643 Instructional requirements. Those knowledges, skills and attitudes that are necessary to satisfy job performance.

3.644 Instructional setting. The location and physical characteristics of the area in which instruction takes place. The setting can be in a classroom, a laboratory, a field, or workplace location. An example is: a clean, well lighted, temperature controlled classroom equipped with individual desks, chairs, and individual video monitors.

3.645 Instructional software. The actual instructional presentation including both content and technique delivered by a computer driven system.

3.646 Instructional strategy. The general concept and methodology by which instruction is to be delivered to the student. Such methodologies include tutorial, drill and practice, simulation, and gaming.

3.647 Instructional support. Learning resources; different kinds of material, number of instructors, amount of time, and other resources, which will contribute to the completion of the learning process.

3.648 Instructional Support Systems (ISS). A personal computer or mainframe-based authoring system developed by the Air Force Human Resources Laboratory and available to all Government agencies.

3.649 Instructional system development (ISD). Identical to definition for "system approach to training".

MIL-HDBK-284-3

3.650 Instructional technique. A means of instruction which complements a method, such as questioning.

3.651 Instructional technology. A term used to denote any one of the following:

- a. The study of instruction and its techniques for the purpose of enhancing its systematic organization and dependability.
- b. A systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and non-human resources to bring about more effective instruction.

3.652 Instructional unit. Identical to definition for "unit of instruction".

3.653 Instructor. The personnel, military and civilian, tasked with teaching.

3.654 Instructor control console. A console which provides an instructor the capability for monitoring and evaluating the actions of trainees and controlling various functions of the training device.

3.655 Instructor managed instruction. An instructional method which uses the instructor vice a computer, to manage the students' use of a variety of learning resources.

3.656 Instrument. In testing and evaluation, a test or other measuring device used to determine achievement (go and no-go) or the relative standing of an individual or group or a test objective (that is, attitude, behavior, performance objective, and other attributes). Tests, rating forms, inventories, and standard interviews are all evaluation instruments.

3.657 Integrated circuit. A complete electronic circuit (the path along which an electronic current travels) chemically printed on the surface of a single chip of semiconductor material (such as silicon).

3.658 Integrated logistics support (ILS). A disciplined approach to the activities necessary to: (a) cause support considerations to be integrated into system and equipment design, (b) develop support requirements that are consistently related to design and to each other, (c) acquire the required support and (d) provide the required support during the operational phase at minimum cost.

3.659 Integrated system. A collection of computer hardware and software sold as a single unit by a system integrator.

3.660 Intelligent computer-assisted instruction (ICAI). Computer-based instructional dialogue based upon techniques in artificial intelligence.

MIL-HDBK-284-3

3.661 Intelligent terminal. Identical to definition for "smart terminal".

3.662 Intelligent videodisc player. A videodisc player with processing power and memory capability built into it.

3.663 Interactive. Two-way, immediate communication between a computer and a user. It involves the active participation of the user in directing the flow of the computer or video program. Interactive is a system that exchanges information with the viewer, processing the viewer's input in order to generate the appropriate response within the context of the instruction.

3.664 Interactive courseware (ICW). A term used to denote any one of the following:

- a. A computer program controlled instruction that relies on trainee input to determine the order and pace of instruction delivery. The trainee advances through the sequence of instructional events by making decisions and selections. The instruction branches according to the trainee's responses.
- b. A term referring to any type of computerized instruction characterized by the ability of a trainee to respond through an input device. ICW may be an integral part of computer-based instruction (CBI), computer assisted instruction (CAI), and computer-based training (CBT).

3.665 Interactive courseware (ICW) support software. Software that supports application unique ICW requirements (for example; simulation models, unique device drivers and course management features not supported by "authoring systems").

3.666 Interactive learning. Instruction characterized by some kind of interchange taking place between the user and the material. The user learns the instruction through this interchange with the material.

3.667 Interactive media. A term used to denote any one of the following:

- a. Media which involves the viewer as a source of input to determine the content and duration of a message, permitting individualized program material.
- b. A philosophy of media production designed to take maximum advantage of random access, computer or equipment controlled videotape and videodisc players.

3.668 Interactive Multimedia Association (IMA). An association of organizations, institutions, individuals actively involved in the production and use of interactive technology and optical media systems, and those who provide services to the industry. (Formerly, "Interactive Video Industry Association (IVIA)").

MIL-HDBK-284-3

3.669 Interactive training system. An instructional system which requires a student to interact with it through the learning process.

3.670 Interactive video. Interactive video uses analog and digital video data bases to present instructional material in the ICW environment.

3.671 Interactive Video Industry Association (IVIA). See definition for "Interactive Multimedia Associations (IMA)".

3.672 Interactivity. The ability of the user to respond to a program of instruction with an input device such as a light pen, keyboard, keypad, trackball, mouse, joystick, and touch-sensitive screen. The interchange occurs as the user advances through a sequence by making decisions and selections. The program branches or advances according to a predetermined plan based on user responses. A reciprocal dialogue between the user and the system.

3.673 Interchangeability. The requirement that information be readable on consumer, industrial, and computer-controlled videodisc systems.

3.674 Interface. A term used to denote any one of the following:

- a. The link between two pieces of dissimilar equipment, allowing them to communicate with each other. A physical or functional connection between two or more devices or systems.
- b. The device or circuit that provides the communicating transition between different systems. The hardware and software for connecting a device to a system or one system to another.
- c. A software interface.

3.675 Interfield frames. A product of the 3:2 pull-down film-to-tape transfer process, whereby the video frame is composed of two fields, each of a different film frame. These mixed fields do not interfere with normal viewing, but on a videodisc - where a viewer can freeze on any single frame - an interfield frame might produce unwanted flicker. Also, see definition for "three:two (3:2) pull-down".

3.676 Interim summary. A screen or segment that recapitulates recent learning in the interactive courseware and used to reinforce prior information.

3.677 Interlace. The process of laying down the even numbered lines of video between the previously scanned odd numbered lines of video to form a single, complete frame and reducing flicker. The pattern described by the two separate video field scans when they join to form a complete video frame. Also, see definition for "field (video)".

3.678 Interleaving. A term used to denote any one of the following:

MIL-HDBK-284-3

- a. A method of storing audiovisual sequences in alternating series of frames and playing the sequences using instant jump capabilities to achieve continuous play of a cohesive segment. (This procedure allows instant branching between different linear segments.)
- b. A method of storing information sequences in alternating sectors on a hard disk.

3.679 Intermediate material. All media selected for assembly onto the videodisc premaster such as 16-mm film, videotape, and 35-mm slides.

3.680 Internal evaluation. The quality control process of conducting a thorough review of the instructional process by appraising student progress, delivery technique, materials effectiveness, and testing procedures for the purpose of identifying internal deficiencies requiring correction, and recommending specific changes.

3.681 Internal storage. Addressable memory directly controlled by the central processing unit of a computer. Also, see definition for "RAM".

3.682 International Business Machines (IBM) Compatible. A personal computer which is 100 percent compatible in form and function with the IBM PC family of personal computers.

3.683 International Business Machines Personal Computer (IBM PC). A term used to denote any one of the following:

- a. A term used to denote a family of personal computers manufactured by IBM. This series of computers was commercially available but still widely used in the business world. The family includes the IBM PC, XT, and AT.
- b. The original commercially available IBM 8-bit microprocessor-based microcomputer, which used the Intel 8088 chip as its central processing unit. It came standard with the DOS operating system and two 360 kilobytes 5.25 inch floppy disk drives, and a hard disk.

3.684 International Business Machines Personal Computer Advanced Technology (IBM PC-AT). The original commercially available IBM 16-bit microprocessor-based microcomputer, which used the Intel 80286 chip as its central processing unit. It came standard with the DOS operating system, a 1.2 megabyte 5.25-inch floppy disk drive, and a hard disk.

3.685 International Business Machines Personal Computer Extended (IBM PC-XT). An IBM PC with a hard disk and one or more 360 kilobytes 5.25-inch floppy disk drives.

3.686 International Business Machines (IBM) PS/2. A term used to denote a family of personal computers manufactured by IBM as a follow-on to the IBM PC series. These

MIL-HDBK-284-3

commercially available, microprocessor-based microcomputers, use the microchannel architecture. It comes standard with the OS 2 operating system, 3.5-inch floppy disk drives, and a hard disk. The family includes Models 30, 50, 70, and 80.

3.687 Interoperability. A term used to denote any one of the following:

- a. The ability to interchange hardware components having the same form, fit, and function, across hardware platforms, without affecting the functionality of the system.
- b. The ability to have application software operating on heterogeneous hardware/software platforms cooperate in performing some user function.

3.688 Interpretation. A sub-level of the comprehension level of learning in which students develop sufficient understanding to see relationships between various aspects of a communication and are able to perform such activities as making inferences, generalization, and summations.

3.689 Interpreter. A computer program which converts human input into data that is understood and usable by a computer.

3.690 Interrupt. An instruction which temporarily stops the normal operation of a routine by a special signal from the computer. Normal operation can be resumed from that point at a later time.

3.691 Interservice school or course. A school or course that presents a curriculum developed and approved by two or more military services to meet the specified training requirements of those services. The school or course is administered by the host service and the facility may be multiservice.

3.692 Interservice support. Support provided by one federal agency or subdivision thereof to another federal agency or subdivision thereof when at least one of the participating agencies or subdivisions is the Department of Defense or a DoD Component. DOD 4000.19-R provides guidance and procedures for the implementation of this support.

3.693 Interservice training review organization (ITRO). An organization of uniformed services established to improve the cost effectiveness of service training consistent with individual service requirements without impairing the quality of the training.

3.694 Intrinsic programming. A programming method, characterized by relatively lengthy items, multiple-choice responses, and consistent use of branching. If, after reading the information section of each item, the student selects the correct response, he/she is sent to an item presenting new information. If he/she selects an incorrect alternative, he/she is sent to an item which provides information as to why his/her choice was incorrect.

MIL-HDBK-284-3

3.695 Introduction. A major section of a lesson designed to establish a common ground between the presenter and students, to capture and hold attention, to outline the lesson and relate it to the overall course, to point out benefits to the student, and to lead the student into the body of the lesson; usually contains attention step, motivation step, and overview. A segment that provides a general statement of the course content, target population, why the student is studying the material, and appropriate motivation to gain the student's attention.

3.696 Inverse mode. A method of operation which is the opposite of the normal method of operation.

3.697 Investment items. (A) Costs associated with the acquisition of equipment real property.

3.698 Item analysis. The process of evaluating single test items by any of several methods. This usually involves the determination of how well an individual item separates examinees, its relative difficulty value, and its correlation with some criterion of measurement.

3.699 Jaggies. Identical to definition for "aliasing".

3.700 Jitter. Identical to definition for "flicker".

3.701 Job. The duties, tasks, and task elements performed by one individual that constitutes his/her job. The job is the basic unit used in carrying out the personnel actions of selection, training, classification, and assignment.

3.702 Job aid (JA). A checklist, procedural guide, decision table, worksheet, algorithm, or other device used by job incumbent to aid in task performance. Job aids reduce the amount of information that personnel must recall or retain.

3.703 Job analysis. The basic method used to obtain salient facts about a job, involving observation of workers, conversations with those who know the job, analysis questionnaires completed by job incumbents, or study of documents involved in performances of the job.

3.704 Job book (JB). (A) The Job Book lists, by task number and title, the common, shared, and MOS-specific tasks for Skill Level 1 and 2 soldiers in a given MOS. The JB gives the NCO trainer a means to record Skill Level 1 or 2 soldier's proficiency on these tasks based on standardized training objectives contained in a Soldier's Manual.

3.705 Job expert. An individual who has had recent experience in job performance/supervision. (Not synonymous with "subject matter expert").

3.706 Job performance measure. An instrument used to evaluate proficiency of a job holder on each task performed. Also, see definition for "performance measure".

MIL-HDBK-284-3

3.707 Job performance requirements (JPRs). (F) The tasks required of the human component of a system, the conditions under which these tasks must be performed, and the quality standards for acceptable performance. JPRs describe what people must do to perform their jobs. Also, see definition for "personal performance standards".

3.708 Job sheet. An instruction sheet which provides the individual student with a list of the principal steps to be taken in doing a job in the order in which they are to be done. Job sheets also provide the student with the objective(s) to be accomplished and list the references, equipment, and materials required.

3.709 Job task analysis. A process of examining a specific job to identify all the duties and tasks that are performed by the job incumbent at a given skill level.

3.710 Job task inventory (JTI). (F/A/M) Results of information gathering in job analysis. Lists of duties and tasks, varying in refinement from basic input data to duties and tasks which constitute the job performed by incumbents within a rating/MOS/AFS. Also called "task inventory".

3.711 Joint school or course. A school or course used by two or more military services that has a joint faculty and an appointed director (commandant) who is responsible, under the direction of the Joint Chiefs of Staff, for developing and administering the curriculum.

3.712 Joystick. A device which consists of a control lever that when tilted in various directions, provides positional information. The lever has its motion and direction of movement transformed into X-Y values or coordinates for the display cursor. Also, see definitions for "mouse", "light pen", "keyboard", "keypad", "touch screen", and "trackball".

3.713 Judder. Identical to definition for "flicker".

3.714 Jump. Identical to definition for "branch".

3.715 Jump cut. Cutting between shots that are identical in subject yet slightly different in screen location. Through the cut, the subject seems to "jump" from one screen location to another for no apparent reason.

3.716 Jury of experts. Refers to a group of subject matter experts selected to record, organize, and pass judgment on data and other matters related to the specific field or area of expertise.

3.717 Key. A button on a keyboard device that transmits control characters or information to the computer.

3.718 Keyboard. A panel containing alphanumeric and other keys used to create text and convey instructions to a computer. A group of keys, similar to a typewriter, on a

MIL-HDBK-284-3

board, that are manually pressed to enter information into a computer. Also, see definition for "joystick".

3.719 Key elements. Elements which represent the most important part of a task. Key elements are those which have been identified as being the most common sources of failure in performance of a task or as having serious consequences of failure. Also, see definition for "element".

3.720 Keyer. Signal processing device which cuts a hole in the background video and fills in the hole from a different video source, for example, computer-generated text and graphics keyed over NTSC video.

3.721 Keying. A term used to denote any one of the following:

- a. To input data into a processing device by pushing buttons or keys on a pad or keyboard attached to the processing device.
- b. An electronic effect which cuts an image from one video source into a background image from another video source.

3.722 Keypad. A small keyboard or keyboard section containing a small number of keys dedicated to specific functions and used as an input device. Also, see definition for "joystick".

3.723 Key words. Words which the computer recognizes. Words, written in a high-level computing language, often used as short-cuts in computer programming and in specific applications such as training. These words can also be used in judging a student's free form response.

3.724 Kilobytes (KB). The standard unit of the memory. A term indicating 1,024 bytes of data storage capacity.

3.725 Kilohertz (KHz). One thousand hertz per second.

3.726 Knob turn. A sequence of still frames that depicts a dial or knob being turned by increments.

3.727 Knowledge. Information required to develop the skills and attitudes for effective accomplishment of the jobs, duties, and tasks.

3.728 Knowledge-level summary. A reiteration of key points of content in a knowledge-level lesson designed to enhance a student's ability to remember facts.

3.729 Knowledge of results. Feedback information provided to the student indicating the correctness of his/her response. Valuable knowledge of results indicates what a student is doing right and what he/she is doing wrong. Comparative knowledge of

MIL-HDBK-284-3

results indicates how the student's response compares to the objective or standard established by the instructor.

3.730 Landing pad. A term used to denote any one of the following:

- a. A range of frames within which a player can locate a frame or frame sequence.
- b. A command that modifies the number of times a player attempts to locate a frame following an unsuccessful search.

3.731 Laser (Light Amplification by Stimulated Emission of Radiation). An amplifier and generator of coherent energy in the electromagnetic spectrum. In the laser videodisc system, a laser is used to read the micropits on the videodisc which contain the picture and sound information.

3.732 Laser card. Credit card sized optical storage medium developed by Drexler Technology Corporation. Each card can hold several megabytes of data.

3.733 Laser disc. Common name for "reflective optical videodisc." Laser Disc is a trade name of Pioneer Electronics for its reflective optical videodisc products.

3.734 Laser printer. A high-resolution printer that uses laser optics to produce images on paper.

3.735 Layer. A group of related functions that make up one level of a layered architecture.

3.736 Layered architecture. A software architecture in which components are grouped in a hierarchical arrangement in such a way that each layer provides functions and services to adjacent layers.

3.737 Leadoff question. A presenter initiated question usually directed to a group of students at the beginning of a lesson or main point and designed to generate discussion.

3.738 Learner. Identical to definitions for "student" and "trainee".

3.739 Learner-centered instruction (LCI). An instructional process in which the content is determined by the learner's needs, the instructional materials are geared to the learner's abilities, and the instructional design makes the learners active participants. The instructional system development process produces learner-centered instruction.

3.740 Learner characteristics. The knowledge, skills, background, and attitudes of the people who will be using the instruction. Learner characteristics might include age, intelligence quotient (IQ), educational background, reading level, prior training in related

MIL-HDBK-284-3

areas, and other related characteristics. The traits possessed by learners that could affect their ability to learn.

3.741 Learner control. The means by which the learner determines (or helps to determine) learning activities.

3.742 Learner-controlled instruction. An instructional environment in which the student can choose from a variety of instructional options for achievement of the terminal objectives. Students can vary their rate of learning, the media used, and other such learning factors.

3.743 Learning. A change in the behavior of the student as a result of stimulus or experience. The behavior can be physical and overt, or it can be intellectual or attitudinal or both.

3.744 Learning activities. Events intended to promote student learning; those activities that, along with the media used, create or stimulate the desired learning.

3.745 Learning analysis. A procedure to identify task sub-elements and their related skills/knowledge that must be learned before a person can achieve mastery of the task itself.

3.746 Learning center. A facility especially equipped to accommodate groups of students in a classroom, individualized, or self-paced instructional mode. A learning environment which has been specifically developed to foster individualized instruction and which emphasizes employment of instructional media to augment textbooks and manuals. Also, see definition for "learning resource center".

3.747 Learning decay. A decrease of learned skills over a period of time if not practiced frequently. Decay can be retarded by the conduct of sustainment training.

3.748 Learning hierarchy. A graphic display of the relationships among tasks in which some tasks must be mastered before others can be learned.

3.749 Learning objective. A statement of the behavior or performance expected of a trainee as a result of a learning experience, expressed in terms of the behavior, the conditions under which it is to be exhibited, and the standards to which it will be performed or demonstrated. Also called "training objective". Also, see definition for "objective".

3.750 Learning resource center. A library containing instructional materials and areas for viewing and studying. Also, see definition for "learning center".

3.751 Learning station. A physical location such as a study carrel, which contains special materials and equipment for use by a student to learn.

MIL-HDBK-284-3

3.752 Learning step. A subunit of a learning objective derived when the latter is analyzed into its component parts.

3.753 Lecture. See definitions for "formal lecture" and "informal lecture".

3.754 Lecture guide (LG). A data sheet and an outline of major sections, key topics, learning objectives and discussion points which are numerically keyed to the instructional media being used.

3.755 Legibility. The clarity of an image. The minimum readability of alphanumeric characters in a video display.

3.756 Lesson. A segment of instruction that contains an objective, information (to be imparted to the student), and an evaluation instrument (test). A segment of instruction that covers a specific maintenance task, procedure, or idea. That element of a module that is designed to teach one or more learning objectives. Also, see definitions for "course" and "module".

3.757 Lesson guide. An organized outline of a single lesson topic taken from the course of study and serving as a blueprint of what is to be accomplished in class. It is complete in detail and states all objectives, topics, subtopics, references, training aids, methods, procedures, and other supplemental information as needed. In general, the lesson guide is the formal lesson plan.

3.758 Lesson plan. An approved plan for instruction that provides specific definition and direction to the instructor on learning objectives, equipment, instructional media material requirements, and conduct of training. Lesson plans are the principal component of curriculum materials in that they sequence the presentation of learning experiences and program the use of supporting instructional material.

3.759 Level of interactivity. The potential for interaction in instruction determined by hardware compatibility and courseware design.

3.760 Levels of interactive videodisc systems (hardware). The degree of interactive design features prescribed by the capabilities of videodisc hardware. The levels are:

- a. **LEVEL 0* - Linear play of a videodisc without interruption.** Level Zero essentially describes such videodisc usage as entertainment discs for training presentations that are viewed from beginning to end without stopping.
- b. **LEVEL 1* - A videodisc player with still/freeze frame, picture stop, frame and chapter search, dual channel audio, but no programmable memory.** All functions are initiated by manual inputs from the player's keypad. Picture stop and chapter stop codes are read from the videodisc. Such codes are put on the disc during videodisc mastering.

MIL-HDBK-284-3

- c. **LEVEL 2*** - A videodisc player with on-board, programmable memory. The player's memory is programmed from "digital dumps" contained in audio channel two of a Level Two encoded videodisc or is programmed manually from the player's keypad. Inputs are made from the keypad or a device that emulates the keypad.
- d. **LEVEL 3*** - Any videodisc player interfaced to an external computer. The videodisc player in a Level Three system is essentially a computer peripheral with its functions fully under the computer's control.
- e. **LEVEL 4*** - A videodisc/computer system in which the videodisc is used to store computer-readable digital data as well as analog video and sound information. The videodisc player functions as an optical storage device to the computer as well as the source of analog picture and sound.

* As defined by the Nebraska Videodisc Design/Production Group.

3.761 Level of learning. The degree to which a student is expected to develop knowledge or understanding of a subject, internalize a set of values, or display proficiency in a psychomotor skill.

3.762 Life cycle management. The process for administering a system from the time it is initially developed until it is terminated, with emphasis on strengthening early decisions that shape costs and effectiveness.

3.763 Light emitting diode (LED). A semiconductor light source that emits visible light or invisible infrared radiation.

3.764 Light pen. A hand-held stylus with a light detecting mechanism used as an input device or user interface device to identify position on a monitor. A very sensitive photo-electric stylus which allows a user to write or draw on the screen of a monitor, "read" the surface of the screen, input information, or modify recorded data. An input device which the user touches to a point on the screen to interact with interactive courseware. Also, see definition for "joystick".

3.765 Limited distance MODEM. A signal converter which conditions and boosts a digital signal so it can be transmitted further than a standard RS-232 signal. Also called "baseband MODEM".

3.766 Linear. A term used to denote any one of the following:

- a. Sequential in nature.
- b. A motion sequence designed to be played straight through from beginning to end without interruption, stops, or branching, like a film.

MIL-HDBK-284-3

3.767 Linear design. A type of lesson design in which a student is presented with sequential material. Remediation uses the same material already presented to the student.

3.768 Linear program. A program, either motion or text, that plays sequentially (such as videotape) rather than branching.

3.769 Linear programming. A programming method in which set sequences of frames require a response from the student at each step. The steps are so designed that errors will be minimal for even the slower students in the target population. Each student does each frame in the program, his/her progress differing from that of other students going through the same program only in the rate at which he/she proceeds through the sequence.

3.770 Linear video. More than one sequenced video frame, normally involving motion.

3.771 Line driver. A signal converter that conditions a digital signal to ensure reliable transmission over an extended distance. Also called "baseband MODEM".

3.772 Line monitor. The monitor that shows only the "line-out" pictures that are to be used in the final edited production. Also called "master monitor".

3.773 Line oriented. An authoring system in which the author designs a program, including screens of text or graphics, as a long string of commands to the computer. Compare with definition for "frame oriented".

3.774 Line standard. The video production standard which describes the number of scan lines used by a given television system to make up one screen. NTSC uses a 525 line standard.

3.775 Liquid crystal display (LCD). Identical to definition for "flat panel".

3.776 Lisp. From List Processing. A high-level computer language designed to teach programming, and now used for artificial intelligence applications. The first computer language to concentrate on working with symbols instead of numbers.

3.777 Live action. A record on film or video of something happening, naturally or spontaneously, in the real world, as it was seen and heard from the perspective of the people with the camera and sound equipment.

3.778 Load. The act of transferring data from mass memory to a register or a program from storage to the place where it is to be executed.

3.779 Local Area Network (LAN). All physical hardware and software which drives a data communications computer system confined to a limited geographic area. The area served may consist of a single building, a cluster of buildings, or a campus type

MIL-HDBK-284-3

arrangement. The network uses a switching technology, does not use common carrier lines and circuits within itself, and has moderate to high data rates. Also, see definition for "Unified Local Area Network Architecture".

3.780 Local production and fabrication. (A) Products produced in an installation Training Aids Support Center (TASC) for use by units or activities at the same installation or within an assigned area of responsibility. Normally, not mass produced or distributed Army wide.

3.781 Local workstation/terminal. A terminal with direct communication to the mainframe computer.

3.782 Location. A term used to denote any one of the following:

- a. In computing, the place where data can be recorded or found, usually discussed in terms of address.
- b. In video and film production, a place where audiovisual material is recorded or filmed.

3.783 Logic. The basic principles and applications of truth tables, the relationships of propositions, the connection of on-off circuit elements, and other factors, for mathematical computation in a computer.

3.784 Logical colors. The number of colors that can be displayed simultaneously by a graphics adapter is the number of available logical colors. For example, an adapter might support 16 logical colors from a palette of 4096 "physical colors".

3.785 Logical device. A conceptual device synthesized from the characteristics of several peripherals.

3.786 Logistic support. Resources required to support instructional delivery.

3.787 Logistic support analysis (LSA). The selective application of scientific and engineering efforts undertaken during the acquisition process, as part of the system engineering and design process, to assist in complying with supportability and other ILS objectives. LSA task descriptions and data item descriptions are prescribed by MIL-STD-1388-1.

3.788 Long shot. An object seen from far away or framed very loosely. An extreme long shot shows the object from a great distance.

3.789 Longitudinal time code. Time code recorded as an audio signal, usually on linear track two or three of the videotape.

3.790 Loop. The repeated execution of a series of instructions.

MIL-HDBK-284-3

3.791 Low-level language. A computer programming language in which each statement is translated into a single machine instruction (for example, assembly language). A computer programming language which is closely related to the computer's own binary machine code.

3.792 Lumen. A measurement equivalent to the light emitted in a solid angle from a uniform point source of one candle intensity.

3.793 Luminance. Brightness. A measure of relative brightness of different spectral stimuli. An analogue measure of the distribution of brightness levels associated with monochrome (black and white) information in a picture.

3.794 Lux. A measurement of illumination. The metric equivalent of "Footcandle."

3.795 Machine code. Identical to definition for "machine language".

3.796 Machine language. The binary code which is the computer's native language. A set of binary codes used to express computer instructions and data in a directly executable form. The internal language of a computer by which its hardware is able to function. No further translation to a lower level language is required to execute. Also called "machine code".

3.797 Machine readable. Data stored in such a way it can be retrieved by a computer but not necessarily by a user.

3.798 Macro. A group of user-definable instructions that can be activated together when needed.

3.799 Magnetic storage. Any medium (generally tape or disc) upon which information is encoded as variations in magnetic polarity.

3.800 Magnetic tape. A thin, strong, nonelastic tape coated with a ferromagnetic emulsion, which can record, store and play back information of various kinds. Audio tape records sound, videotape records sound and pictures as well as electrical signals used in editing and in interactive videodisc productions, and computer tape is used as a computer information storage medium.

3.801 Magnetic videodisc. A videodisc storage medium that stores data by using a laser to heat a microscopic spot on the medium, changing the polarity at that spot. Information is read by using a laser to read the polarity at microscopic spots on the disc. Also, see definition for "videodisc".

3.802 Magneto-optics. An information storage medium that is magnetically sensitive only at high temperatures, while stable at normal temperatures. A laser is used to heat a small spot on the medium, changing the polarity at that spot - thereby storing data.

MIL-HDBK-284-3

3.803 Mainframe. Largest, fastest, and most expensive class of computers. Large capacity computer capable of processing large amounts of data at very fast speeds with access to vary large quantities of data. A large capacity computer which is connected to multiple users. Also, see definitions for "personal computer", "microcomputer", "microprocessor", and "minicomputer".

3.804 Main memory. That memory which is directly accessible by the computer. Main memory is referred to as random access memory (RAM) or read-only memory (ROM). Also, see definitions for "RAM" and "ROM".

3.805 Main points. The logical breakdown of subject matter in support of an instructional objective.

3.806 Maintenance. The physical act of preventing, determining, and correcting equipment or software faults. It includes all actions taken to retain system/equipment/product in a useful serviceable condition or to restore it to usefulness/serviceability. Maintenance includes inspection, testing, servicing, classification as to serviceability, repair, rebuilding, and reclamation.

3.807 Maintenance concept. The planned or envisioned methods that will be employed to sustain the system/equipment/product at a defined level of readiness, useability, or in a specified condition in support of the operational requirement. The maintenance concept is initially stated by the government for design and support planning purposes and provides the basis or point of departure for development of the plan to maintain.

3.808 Maintenance trainer. A trainer on which individuals learn the methods and procedures necessary to maintain a specific system, subsystem, or equipment.

3.809 Maintenance training simulator. A device, usually computer-controlled, that simulates operational equipment and allows trainees to practice maintenance tasks or procedures.

3.810 Main trunk. The principal course or line of direction of a program or interactive courseware.

3.811 Major Army Command (MACOM) peculiar requirements. (A) Training devices determined by the training developer (TRADOC) to have application at only one MACOM or TRADOC service school.

3.812 Management information systems (MIS). Includes training databases/database networks for the management of training-related data. The database may encompass an organization's administration of personnel training data, training resource data, and training research data.

MIL-HDBK-284-3

3.813 Management materials. Materials which define training requirements and provide an overall plan for the accomplishment of these requirements.

3.814 Management plan. A program for the assignment, monitoring, and assessment of the personnel, materials, and resources dedicated to a specific mission, operation, or function.

3.815 Manning. The specific inventory of people at an activity in terms of numbers, grades, and occupational groups.

3.816 Manpower. The requirements or billets needed in an organization, to accomplish a task or service. Compare with definition for "personnel".

3.817 Manpower, personnel, and training (MPT) analysis. Manpower analysis consists of identification of tasks and man-hours required to perform a job or function. Personnel analysis consists of identification of ratings and occupational specialties and skill levels required to perform the job or function. Training analysis consists of identification of training tasks or functions required for personnel to obtain skill levels necessary to operate and maintain the system, subsystem, or equipment.

3.818 Manual playback. Viewer operation without use of programmed control instructions.

3.819 Mark-up. The computer capability to write marks on the screen, indicating incorrect or unacceptable student responses to a question.

3.820 Master. A term used to denote any one of the following:

- a. An original of something.
- b. An original audio tape, videotape, or film.
- c. The final edited version of a production. Used for broadcast or to make distribution copies.
- d. The process of producing a stamper (usually a glass master videodisc) from which all videodiscs are replicated.
- e. An individual with advanced qualifications. A senior member.

3.821 Master courseware program. The logic used in an interactive courseware lesson that was used to program the graphics menus, branchings, text, videodisc, and other lesson elements.

3.822 Master edit tape. Identical to definition for "premaster".

MIL-HDBK-284-3

3.823 Mastering. A term used to denote any one of the following:

- a. A process in which the premaster videotape is used to modulate a laser onto a photosensitive, glass master disc; the manufacturing process that creates a glass master, and then a metal mold disc, from which others (plastic substrate) are replicated.
- b. A stage in the production of a videodisc in which the master disc (from which all subsequent discs will be ultimately pressed) is cut.

Also called "discing".

3.824 Mastering facility. Identical to definition for "disc mastering facility".

3.825 Master monitor. Identical to definition for "line monitor".

3.826 Master schedule. A schedule of instruction, prepared by the training activity, to indicate the period-by-period program for each day and week of the course.

3.827 Master tape. The videotape of the final edited version of a video production (generally on 1-inch Type C NTSC master helical videotape for videodisc productions). Also called "master videotape".

3.828 Master videodisc. A glass-master videodisc. A disc of polished glass encoded from a videotape. The metal mold made from the glass master is used to stamp out replicated videodiscs.

3.829 Master videotape. Identical to definition for "master tape".

3.830 Mastery. The achievement of all the prescribed learning objectives in an instructional program.

3.831 Mastery learning. An approach to curriculum development in which students progress from learning experience to learning experience based upon achievement of instructional objectives rather than other factors such as age, effort, or time of year.

3.832 Materiel developer. (A) Command or agency responsible for research, development, and production of a system (to include the means for its logistic support) that responds to Headquarters, Department of the Army (HQDA) objectives and requirements. U.S. Army Materiel Command (AMC) is the primary Army materiel developer for training devices.

3.833 Materials preparing activity (MPA). An organization that develops training materials, prepares major changes or revisions, and produces training materials as directed by the contracting activity. MPAs may be either contractors or training facilities.

MIL-HDBK-284-3

3.834 Matt. The keying of two scenes; the electronic laying in of a background image behind a foreground scene.

3.835 Mean deviation. The arithmetic mean (average) of the absolute differences between the arithmetic mean of the values and the individual values. Also called the "standard deviation".

3.836 Mean time between failure (MTBF). The average length of time that a system or component works without failure.

3.837 Mean time to repair (MTTR). The average time it takes between system failure and repair.

3.838 Measurement, criterion-referenced. See definition for "criterion-referenced measurement".

3.839 Measurement errors. Errors which occur due to unreliability of the measurement process. These errors are random and are never completely absent. In addition, these may be systematic (non-random) errors due to some fault in the measurement process.

3.840 Measurement, norm-referenced. See definition for "norm-referenced measurement".

3.841 Measurement process. The operations involved in determining the amount of an attribute (for example, skill, knowledge, or attribute) possessed by a student.

3.842 Media. The delivery vehicle for presenting instructional material or the basic communication stimuli presented to a student to induce learning. Examples include: text, pictorial, tactile, aural, motion, color, odor, and taste.

3.843 Media alternative. A substitute means for presenting materials.

3.844 Media mix. A combination of different media used to present a unit of instruction.

3.845 Media selection. The process of selecting the most effective means of delivering instruction.

3.846 Medium shot. An object as seen from a medium distance. Covers any framing between long shot and close-up.

3.847 Megabyte (MB). One million bytes or one thousand kilobytes.

3.848 Megahertz (MHz). One million hertz per second.

MIL-HDBK-284-3

3.849 Memorandum of Understanding (MOU). A jointly prepared and authenticated document between participants in a joint project.

3.850 Memory. A term used to denote any one of the following:

- a. The capability of a computer to store data. Usually measured in kilobytes or megabytes.
- b. The location in which computer-based equipment stores information, either permanently or temporarily.

3.851 Memory chip. A small electronic device in which digital data are stored as electrical charges.

3.852 Mental skills. Those processes of identifying, classifying, using rules, and solving problems that involve active mental processing. Mental skills include such functions as thinking, reasoning, analyzing, judging, and inferring. Compare with definition for "physical skills".

3.853 Menu. A term used to denote any one of the following:

- a. A list of program options available to a user shown on the display of a computer; a user can select the operation the computer is to perform. A "table of contents" listing options (like applications, operations, programs, and other options) available to the user of a computer system for some purpose.
- b. A "table of contents" locating each category of information on a storage medium such as a videodisc.

3.854 Menu-driven. A program which is built around a series of menus, or tables of contents, which guide users through the options available to them. A user-friendly procedure listing the various functional operations. The menu prompts the user to identify the selected operation within a given application.

3.855 Merger training. (A) Training that prepares an NCO to supervise one or more different MOS at lower skill levels when the soldier advances in skill level in his career management field.

3.856 Method of instruction. The means, techniques, procedures, and other provisions, for the delivery of instruction. There are many methods appropriate for use. Included may be such processes as lecture, recitation, laboratory, examination, study periods, demonstrations, use of training aids, group discussions, role playing, case studies, craftsman, programmed instruction, and coach and pupil methods.

MIL-HDBK-284-3

3.857 Microcomputer. Smallest and least expensive class of computers performing microprocessor tasks. A complete, small, desktop-size computer containing a microprocessor, input/output interfaces, display device, power supply, and memory all in one unit. It may or may not be connected to a host computer/peripheral devices. Microcomputers tend to be miniaturized, are often dedicated to performing simple computational tasks, and usually have a lot of flexibility in the way they are used. A personal computer. Also, see definitions for "personal computer", "microprocessor", "minicomputer", and "mainframe".

3.858 Microprocessor. The electronic components of an entire central processing unit contained on a single chip. A miniaturized central processor. One of the principal components of a microcomputer. A device which offers specialized, but limited, computer power and storage in equipment which is self-contained (for example, videodisc player) -- not necessarily part of a complete computer system. For the purpose of this handbook, an Intel microprocessor with the numeric designation 8086, 8088, 80186, 80188, 80286, 386 SX, 386 DX, or i486, or a functionally equivalent non-Intel microprocessor. Also, see definitions for "personal computer", "microcomputer", "minicomputer", and "mainframe".

3.859 Microsecond. One-millionth of a second.

3.860 Microsoft Disc Operating System (MS-DOS). A general purpose computer disk operating system developed by Microsoft and used on microcomputers. This term is used generically for operating systems including Microsoft MS-DOS versions 2.0 and higher and compatible operating systems such as IBM PC-DOS versions 2.0 and higher. Also, see definition for "PC-DOS".

3.861 Milestone. A major point in the development of a project.

3.862 Millisecond. One-thousandth of a second.

3.863 Military education. The systematic instruction of individuals in subjects which will enhance their knowledge of the science and art of war.

3.864 Military occupational specialty (MOS). (A, M) A term used to identify a grouping of duty positions possessing such close occupational or functional relationship that an optimal degree of interchangeability among persons so classified exists at any given level of skill.

3.865 Military qualification standards (MQS). (A) The system for establishing the standards and responsibilities for the professional development, training, and education of Army officers at appropriate levels/grades in order to execute our warfighting doctrine.

3.866 Military service school or course. A school or course which presents a curriculum developed and approved by a military service to meet a specified training requirement of that service.

MIL-HDBK-284-3

- b. **MEDIUM** - Approximately five to ten content screens, with normal prompting, between simulated performance/practice or question screens and feedback.
- c. **HIGH** - Fewer than five content screens, with frequent prompting, between simulated performance/practice or practice question screens and feedback.

3.890 Motivation step. A segment of a lesson introduction in which a presenter provides specific reasons why students need to learn whatever they are about to learn.

3.891 Mouse. A hand-sized, movable input device which, when moved about a flat surface, has its motion and direction of movement transformed into positional information (X-Y values or coordinates) for the display cursor. Buttons located on the mouse also return inputs to the computer. Also, see definition for "joystick".

3.892 Multilevel instruction. Training which has various degrees of difficulty and strategy.

3.893 Multimedia. Use of more than one medium to convey the content of instruction. Media available for use may include, but need not be limited to: text, programmed instruction, audio and video tapes/discs, slides, film, television, and computers.

3.894 Multimedia package. A self-contained instructional unit in more than one presentation medium.

3.895 Multiple-choice test. A type of selection test in which the student is asked to choose for each item the one or more correct or best answer(s) from several alternatives.

3.896 Multiple screen. Use of more than one display screen, simultaneously or alternately.

3.897 Multiplexer. A device which allows several devices to share on channel of communication.

3.898 Multiprocessing. The use of a computer's central processor which permits the simultaneous processing of more than a single program.

3.899 Multitasking. The ability to permit simultaneous processing of more than one task.

3.900 Multitasking (computer) operating system. The control software of a computer's central processing unit which permits the simultaneous processing of more than a single program.

MIL-HDBK-284-3

3.901 Multitrack audio tape recorder. An audio recording machine equipped with a special tape head and associated electronics capable of recording several discrete audio tracks onto audiotape.

3.902 Multitrack course. A course which employs more than one track or channel of instruction. Course goals are the same on all channels, but course content, degree of instruction, and presentation all vary to accommodate students of different aptitudes and levels of previously acquired cognitive and psychomotor skills.

3.903 Multi-user. A computer system that can simultaneously support more than one terminal.

3.904 Mutable. The capability of the software, instructor, or trainee to silence the audio material.

3.905 Nanosecond. One-billionth of a second.

3.906 Narration. Spoken commentary that occurs when the speaker only appears briefly on the screen (talking head) or does not appear at all (voice-over).

3.907 Narrative script. A report that describes audio and video requirements for all video shots containing audio. and knowledge

3.908 National Television Standards Committee (NTSC). A term used to denote any one of the following:

- a. **National Television Standards Committee.** A committee of the Electronics Industries Association (EIA) that prepared the standard specifications approved by the FCC.
- b. **An acronym for referring to the American television standards set by the National Television Standards Committee.** The American color television standard having 525 scan lines, a field frequency of 60 Hz, a broadcast bandwidth of 4 MHz, line frequency of 15.75 KHz, frame frequency of 1/30 of a second, field frequency of 1/60 of a second, and a color subcarrier frequency of 3.58 MHz.

3.909 Navy enlisted classification (NEC). Codes that reflect special knowledge and skills that identify personnel and requirements when the rating structure is insufficient by itself for manpower management purposes. Completion of an advanced school is often a requirement for awarding an NEC.

3.910 Needs analysis. Systematic in-depth analysis and verification of training discrepancies identified by a needs assessment--the results of which are the definition of performance deficiencies and the isolation of potential solutions; integral to front-end analysis. This analytical process addresses the specific nature of the deficiency.

MIL-HDBK-284-3

3.911 Needs assessment. The systematic process for identifying the causes of discrepancies between what exists and what is currently required, and for identifying the causes of potential discrepancies between current and future requirements. The process in which performance discrepancies are focused upon to determine where the discrepancies exist (for example, environmental, training, instruction, personnel, equipment).

3.912 Negative reinforcement. A term used to denote any one of the following:

- a. Aversive or unpleasant feedback to an incorrect response.
- b. Reward of a performance through removal of an aversive or unpleasant event or stimulus.

3.913 Nest. To embed a subroutine or block of data into a larger routine or block of data.

3.914 Network. Two or more interconnected computers capable of transmitting and receiving data to and from each other. A system that uses a communication net to link a number of computers and peripheral devices.

3.915 Neutral language. The language used in publications that cannot be construed to discriminate on the basis of sex (that is, the use of the term "service member" instead of "serviceman" or "servicewoman").

3.916 New equipment training (NET). (A) Training to transfer knowledge gained during materiel development to trainers, users, and support personnel during development and fielding of new equipment. Numbers and types of personnel units to be trained are determined on a system-by-system basis during the new equipment training planning process. Supports development of normal training base and unit training programs which, when established, supplant NET.

3.917 Node. A point of interconnection to a network. Normally, a point at which a number of terminals or circuits connect to the network.

3.918 Noise. Any unwanted signal present in the total recorded signal. One signal interfering with another. Random spurts of electrical energy or interference. In video, noise may produce a random salt-and-pepper pattern over the picture.

3.919 Nonacademic drop or attrite. A student who is disenrolled from the course for reasons not related to the academic requirements prescribed in the course curriculum; that is, medical, legal, and other nonacademic requirements.

3.920 Nondevelopmental training device. (A) Item determined to be available for acquisition to satisfy an approved material requirement without expenditure of Army

MIL-HDBK-284-3

Research, Development, Test and Evaluation (RDT&E) funds for development, modification, or improvement.

3.921 Nondrop frame time code. Identical to definition for "SMPTE time code".

3.922 Non-Government standard. A standardization document developed by a private sector association, organization, or technical society which plans, develops, establishes, or coordinates standards, specifications, handbooks, or related documents. Non-Government standards adopted by the DoD are listed in the DODISS.

3.923 Non-Government standards body. A non-Government standards body is a private sector association, organization, or technical society which plans, develops, establishes, or coordinates non-Government standards.

3.924 Noninterfering basis. Without disturbing regularly scheduled activities or equipment usage.

3.925 Nonlinear. Not proceeding in a straight line or uninterrupted form. In interactive courseware, using branching strategies.

3.926 Nonperformer. An individual who cannot meet a specified performance standard for a designated task.

3.927 Nonprocedural task. A task whose composition does not lend itself to only one specified sequence of actions.

3.928 Nonresident training. Training which takes place outside the institutional (resident) training location.

3.929 Non-system training device. A training simulator or device not supporting a single, specific, parent defense system.

3.930 Nontype classified training device. (A) Device not normally associated with specific commodity command for management. Publications and nonstandard repair parts support of Army wide devices remain the responsibility of Program Manager, Training Devices (PM TRADE).

3.931 Norm referenced. Student performance is measured against statistical norms established by the performance of the group.

3.932 Norm-referenced measurement. The process of determining a student's achievement in relation to other students. Grading "on the curve" involves norm-referenced measurement since an individual's position of the curve (grade) depends on the performance of other students.

MIL-HDBK-284-3

3.933 Null MODEM. A device that connects two data devices directly by emulating the physical connections of a data communications device.

3.934 Objective. Statements that specify precisely what behavior is to be exhibited, the conditions under which behavior will be accomplished, and the minimum standard of performance. Objectives describe only the behaviors that directly lead to or specifically satisfy a job performance requirement. Many terms have been used to describe the various levels of objectives, but basically they are all objectives and should describe behavior, conditions, and standards. An objective is a statement of instructional intent. Also, see definition for "learning objectives".

3.935 Objectivity. A term used to denote any one of the following:

- a. The degree to which something is evaluated the same by two or more evaluators acting independently.
- b. In testing, the degree to which a test is scored the same by two or more scorers acting independently.
- c. A characteristic of evaluation which requires that measurement in an educational environment be correct and factual and be free from instructor bias.

3.936 Occupational analysis. Relates to data interpretation regarding an occupational designator (AFSC, MOS, rating or NEC) to determine what jobs are performed within the occupation and which tasks are performed within these jobs. Also may be used to assess the accuracy of classification and training documents.

3.937 Occupational specialty. A group of duty positions that require closely related knowledge and skills.

3.938 Occupational survey. The procedure for the identification of the duties and tasks which comprise one or more shred-outs, prefixes, specialties, career field ladders, or utilization fields; for the collection, collation, and analysis of information concerning such duties and tasks.

3.939 Off camera. Performance or action that is not seen on the camera, during a shot, such as narration over film or videotape recording.

3.940 Office of primary responsibility (OPR). A term used to denote any one of the following:

- a. The office that serves as the primary point of contact and is responsible for something.
- b. The DoD component activity having the responsibility for the preparation and coordination of DIDs. An OPR may also be a "Preparing Activity".

MIL-HDBK-284-3

3.941 Off-line. Not in operation or not under control of a central processing unit. Description for not being under control of or in direct interactive communication with a computer, occurring independently or not ready for use.

3.942 Off-line editing. A video production technique in which a part or all the video is edited on equipment that is not directly connected to the studio main line equipment.

3.943 Off-the-shelf. A product which is commercially available. Also, see definitions for "COTS manuals" and "training unique equipment".

3.944 On-board training (OBT). (N) Training used by a command to provide permanently assigned personnel the necessary individual operator and maintenance technical training, individual watch station qualification and watch team training, and training in general military subjects. The training may be formal or informal.

3.945 On-board maintenance training. (N) Training courses which are available to the unit commander for use by his assigned personnel to improve maintenance skills.

3.946 On camera. Performance or action captured by a camera on film or videotape.

3.947 On-line. In operation or under control of a central processing unit. Description for being under control of or in direct interactive communication with a computer and ready for use.

3.948 On-line editing. A video production technique in which all the video is edited on equipment that is directly connected to the studio main line equipment.

3.949 On-the-job training (OJT). Training in designated job skills provided at the job sites.

3.950 Open-ended test item or open-ended response. A question that can be answered in a variety of ways. A question that can be answered in the trainee's own words (for example, an essay).

3.951 Open entry and exit. A course of instruction that has no fixed start or completion date. A course of instruction commences without waiting for additional students to form a class. The student can enter the course whenever he is available. The student will be able to exit upon successful completion of the course without waiting for a fixed schedule completion date.

3.952 Open software. Identical to definition for "freeware".

3.953 Open system architecture. A computer system designed with industry standard interface structure to allow for the addition of peripherals and internal cards for hardware and software upgrade and enhancement. A computer system designed to

MIL-HDBK-284-3

enable processors and input/output devices from different manufactures to exchange information.

3.954 Operating system (OS). A set of programs that facilitates computer system operation. A set of programs which control the running of a computer and its peripherals. The fundamental instructions by which a computer can store, process, and retrieve information. Software which controls the execution of computer programs and which may provide scheduling, debugging, input/output control, accounting, compilation, storage assignment, data management, data transfer, and related services.

3.955 Operational equipment. Equipment designed for use in functional applications in the field as distinguished from that designed for training purposes.

3.956 Operational training. Training which exercises previously acquired functional knowledge and system employment (operational) skills, to enhance proficiency and to identify deficiencies within a systematic training structure in the operational environment or in the simulated operational environment such as at a trainer.

3.957 Operator trainer. A trainer on which individuals learn the methods and procedures necessary to operate specific equipment (for example, radar trainer, operational flight trainer).

3.958 Operator training. Instruction in which students are taught the methods, procedures, and skills necessary to manipulate the controls of specific system/equipment.

3.959 Optical digital data disc. A catch-all reference for any optical disc used for storing digital information.

3.960 Optical disc. A disc whose information is read by a laser beam. Also, see definitions for "compact disc" and "videodisc".

3.961 Optical disc player. A playback device for an "optical videodisc".

3.962 Optical memory. Digital data stored on an optical disc used for mass storage data. A generic term for technology that deals with information storage devices using light (usually laser-based) to record, read, or decode data.

3.963 Optical read-only memory. A laser-encoded optical memory storage medium, featuring a concentric circular format and constant angular velocity (CAV).

3.964 Optical reflective videodisc. Identical to definition for "reflective videodisc".

3.965 Optical videodisc. A storage format that uses lasers to write (record) and read (play back) information on a videodisc. A thin circular plate composed of translucent layered plastic sandwiching a metal layer on which analog and digital information is encoded and stored along a circular or spiral track for playback on a television monitor.

MIL-HDBK-284-3

Two types of optical videodiscs are reflective and transmissive. Also, see definitions for "optical disc player", "reflective videodisc", and "videodisc".

3.966 Orientation. The lesson's ability to make students feel comfortable at each point in the lesson by giving them a sense of where they are and what they are doing.

3.967 Original equipment manufacturer (OEM). The first prime manufacturer of the equipment. Items are purchased from the original equipment manufacturer (usually at a substantial discount under retail) and often resold or repackaged under a different brand name.

3.968 Outline sheet. An instruction sheet that provides the student with an outline of the major teaching points in the topic.

3.969 Output. Information fed out by a computer or system. Material generated by a computer from its memory for display on a screen, or for transfer to some other medium such as paper (via printer) or magnetic storage.

3.970 Output device. Hardware that handles output operations.

3.971 Overlay. Computer generated text/graphics superimposed onto video (moving or still). Also called "graphic overlay". Also, see definition for "video reprocessing".

3.972 Overt behavior. Behavior which is observable/measurable. Compare with definition for "covert behavior".

3.973 Overview. A description of content, basic structure, learning objectives, and other fundamentals, of the next portion of interactive courseware to be presented. A segment of a lesson introduction in which the presenter provides a clear and concise presentation of the objective, the key ideas or main points of the lesson, and an indication of the teaching method to be employed.

3.974 Package. A set of compatible, interlinked equipment designed to make up a complete delivery system, or a set of computer programs needed to handle one specific job, such as videodisc to computer interface, or software application.

3.975 Package switching. The transfer of data by means of addressed packets whereby a channel is occupied only for the duration of transmission of the packet. The channel is then available for the transfer of other packets. The data network determines the routing during, rather than prior to, the transfer of a packet.

3.976 Packet. A group of bits, including data and call control signals, transmitted as a whole. Usually smaller than a transmission block.

3.977 Page. A term used to denote any one of the following:

MIL-HDBK-284-3

- a. A single screen display of text or graphics.
- b. A format equal to a single hard copy sheet.

3.978 Pan. A term used to denote any one of the following:

- a. To move the camera horizontally to give a panoramic effect or follow a moving object.
- b. (F) Production Assignment Number. Alphanumeric number assigned to identify a course of instruction.
- c. Production Approval Number. Alphanumeric number assigned to designate approval for the creation of a production.

3.979 Paper validation. The process of stepping through the interactive courseware using storyboards/scripts on the actual delivery system.

3.980 Parallel. A term used to denote any one of the following:

- a. A mode where a number of bits of information are transmitted simultaneously.
- b. Simultaneous data processing of the individual parts of a whole.

3.981 Parity. The determination of the total number of "1" bits in a data field as even or odd. Used to detect transmission errors.

3.982 Parity bit. A bit that is set at "0" or "1" in a data field to ensure that the total number of "1" bits in the data field is either even or odd.

3.983 Parity check. The addition of noninformation bits that make up a transmission block to ensure that the total number of "1" bits is always either even (even parity) or odd (odd parity). Used to detect transmission errors.

3.984 Partial screen display. The computer's ability to erase a section of the screen at a time.

3.985 Part-task training. Subordinate skills training (operations/procedures) that resembles portions, or subtasks, and response of the actual system operation. A type of two-dimensional simulation.

3.986 Part-task training device. A device that permits selected aspects of a task to be practiced independently of other elements of the task. Its purpose is to provide economical training on certain elements requiring special practice but that are not dependent upon the total equipment.

MIL-HDBK-284-3

3.987 Part-time training. Participation by personnel in training programs which occupy a part of the normal duty period, or are available outside the normal duty period, for participation on a basis less than would be expected of a full-time student.

3.988 PASCAL. A structured, high-level programming language. A language designed to aid in the teaching of programming as a systematic discipline, emphasizing aspects of structured programming. Often used in artificial intelligence programming.

3.989 Passive learning. Learning where no feedback is provided to a user's response.

3.990 Paste up. A technique used to prepare artwork by pasting various elements onto a background, either electronically or in hard copy format.

3.991 Path. A defined route or programming sequence that users follow in interactive courseware.

3.992 Peer instruction. A method of instruction in which a student who has completed training acts as an instructor to another student in the skill or process to be learned.

3.993 Performance. Part of a criterion objective that describes the observable student behavior (or the product of that behavior) that is acceptable to the instructor as proof that learning has occurred.

3.994 Performance checklist. The breakdown of a task into elements that must be correctly performed to determine whether each student satisfactorily meets the performance standards described in the objective.

3.995 Performance criteria/standard. The portion of an objective which indicates proficiency, or mastery has been achieved. Also, see definition for "standard of performance".

3.996 Performance evaluation. A process of data collection and analysis to determine the success of students on a specific individual or collective task as a result of a training program.

3.997 Performance evaluation tools. Competency tests that allow the trainer to profile the student's proficiency and identify weak areas so that training can be efficiently planned for the areas of most critical need.

3.998 Performance exercise. A proficiency (criterion-referenced) test used to evaluate mastery of a task as specified by the criterion-referenced objective.

3.999 Performance gap. An operationally significant discrepancy between design effectiveness and actual effectiveness indicative of system performance ineffectiveness.

MIL-HDBK-284-3

A performance gap is indicative of training subsystem, hardware subsystem, trainee characteristics, trainer characteristics, and training environment problems which must be identified and corrected.

3.1000 Performance measure. The absolute standard by which job performance is judged. It includes behaviors, results, and characteristics that can be observed and scored to determine if a trainee has performed a task correctly. Also, see definition for "job performance measure".

3.1001 Performance objective. A precise statement of the performance expected of a trainee as the result of instruction, expressed in terms of the standards to which it will be performed or demonstrated. Also, see definition for "objective".

3.1002 Performance-oriented training. A term used to denote any one of the following:

- a. Training which emphasizes the skills and knowledge that are needed to perform a task or job through individual practice and constant evaluation.
- b. The conduct of individual or collective training in which one or more tasks are performed under specified conditions to a specified standard. Differs from traditional practical exercises in that performance is measured against a specific standard. Compare with definition for "criterion-referenced instruction".

3.1003 Performance requirements. The identification of the separate acts which are required to satisfactorily complete an individual's performance on the job. It includes the act (behavior), the conditions under which the behavior is performed and the standard of performance required by the incumbent.

3.1004 Performance-supervision phase. A phase of the demonstration-performance teaching method during which students practice the skill to be learned under the supervision of the instructor.

3.1005 Peripheral. An auxiliary device used with a computer (for example, printer, keyboard, tape memory, MODEM, videodisc player, videotape player, bitpad, mouse, digitizing camera). A hardware device attached to and used in conjunction with a computer system. Equipment controlled by a computer, but physically independent of it.

3.1006 Personal computer (PC). A microcomputer. An relatively inexpensive, somewhat portable computer for business and home use. Also, see definitions for "microcomputer", "microprocessor", "minicomputer", and "mainframe".

3.1007 Personal Computer-Disk Operating System (PC-DOS). A computer operating system developed by IBM and used on IBM PC class microcomputers. Similar to "MS-DOS".

MIL-HDBK-284-3

3.1008 Personal computer (PC) compatible. Refers to computers compatible with the IBM Personal Computer standard.

3.1009 Personal observations. Direct observation of an individual being evaluated.

3.1010 Personal performance standards. The specific behaviors which must be exhibited as the minimum acceptable by personnel in specified billets, jobs, or tasks, under specified conditions, in order that the unit to which personnel are assigned may (if all other functional entities perform to standards) achieve its identified purpose. Also, see definition for "job performance requirements".

3.1011 Personalization. (N) Act of annotating the standard curriculum by the individual instructor, as required, to aid in the presentation of the prescribed subject matter.

3.1012 Personnel. The individuals who accomplish specific tasks. Personnel connotes individuals whereas "manpower" connotes requirements or billets. Compare with definition for "manpower".

3.1013 Personnel Performance Profile (PPP) Tables. A document that provides a minimum requirements listing of all knowledge and skills required to operate and maintain a system, subsystem or equipment, or to perform a task or function. PPPs are a basic element in the design, development, and management of training. The five types of PPPs are:

- a. **System.** The System PPP table identifies the knowledge and skills required to operate and maintain a system. The System PPP identifies the interrelationship of subsystem functions within the system.
- b. **Subsystem.** The Subsystem PPP table identifies the knowledge and skills required to operate and maintain a subsystem in sufficient detail to allow the user to identify the equipment integration.
- c. **Equipment.** The Equipment PPP table identifies the knowledge and skills required to operate and maintain an individual equipment, or equipment assemblage, including software-related activities.
- d. **Task/Function.** The Task/Function PPP table identifies the occupational specialty knowledge and skills that are either operational, maintenance, administrative/managerial, or specialized in nature and purpose, or that describe a mission that is broader in scope and importance than that of individual equipments being operated/maintained simultaneously or over time.

MIL-HDBK-284-3

- e. **Background.** The Background PPP table identifies the prerequisite knowledge and skills required to learn the operation and maintenance of a system, subsystem, equipment, or the performance of a task or function.

3.1014 Personnel qualification standard (PQS). (N) The PQS program is a method for qualifying officer and enlisted personnel to perform assigned duties. A Personnel Qualification Standard is a written compilation of knowledge and skills derived from task analysis, required to qualify for a specific watch-station, maintain a specific equipment or system, or perform as a team member within the assigned unit.

3.1015 Phase Alternation by Line (PAL). The 625 line, 50 field, color TV standard of western Europe (excluding France), Africa, Australia, and South America.

3.1016 Phases of interactive courseware (ICW) development. The various steps in the systematic development of interactive courseware.

- a. **ANALYSIS** - Analyze system requirements.
- b. **DESIGN** - Define education/training requirements.
- c. **DEVELOPMENT** - Produce audio-visual materials, develop objectives and tests, write storyboards and scripts.
- d. **VALIDATION** - Verify the operation and technical accuracy of an interactive courseware unit of instruction in meeting its objectives.
- e. **IMPLEMENTATION** - Conduct and evaluate instruction.

3.1017 Phosphors. Individual dots of color that make up a pixel (picture element).

3.1018 Photodiode. A device used in an industrial standard laser videodisc player to translate variations in the light reflected off the pitted surface of the disc into the electronic signals which comprises the audio, video, and control tracks of the program.

3.1019 Physical colors. The total possible colors that can be displayed, not necessarily simultaneously, by a graphics adapter is the number of available physical colors - this is also commonly called the palette size. For example, an adapter might support 16 logical colors from a palette of 4096 physical colors.

3.1020 Physical device. Any physical device that is distinct from a computer's main processor. An auxiliary hardware device attached to and used in conjunction with a computer system.

3.1021 Physical fidelity. The degree of structural or dynamic correspondence of a training device to the operational system/equipment it represents.

MIL-HDBK-284-3

3.1022 Physical Picture Element (PIXEL). An abbreviation of picture element. A single point of illumination on a display device. One of the thousands of points of light and color which make up a screen. The minimum raster display element, represented as a point with a specified color and intensity level. The smallest dot that can be displayed on a monitor. A discrete element dot in a screen of information.

3.1023 Physical skills. Specified muscular activities for accomplishing a goal. Skills that require physical movement related activities. Compare with definition of "mental skills". Also called "psychomotor skills".

3.1024 Picture stop. A term used to denote any one of the following:

- a. A function of some videodisc systems which allows the player to stop automatically on a specific frame during play.
- b. An instruction encoded in the vertical interval on the disc to stop on a predetermined frame.

3.1025 Pilot course. A full length course conducted in a target environment (facilities, instructors and trainees) using the curriculum and supporting training material prepared for that course. It has as its purpose the "shaking down" or "validating" of the curriculum and materials in a classroom situation to determine their effectiveness in attaining the approved learning objectives or training goals.

3.1026 Pipeline. The total time involved in training personnel once they are designated as trainees; includes time traveling to the training activity, time awaiting instruction, time of actual training, time from termination of training until reporting to the ultimate duty station; may include more than one training activity.

3.1027 Pit. The microscopic physical indentation or hole found in the information layer of a videodisc. Pits on reflective optical discs modulate the reflected beam. Pits in transmissive discs block the beam or allow it to pass through the disc. Pits on VHD (Very High Density) discs cause a detectable change in electrical capacitance. In all cases, variations in the pits carry the information.

3.1028 Plan of instruction (POI). (F) A qualitative course control document designed for use primarily within a school for course planning, organization, and operation. Generally, for every block of instruction within a course, criterion objectives, duration of instruction, and support materials/guidance factors are listed. Also called a syllabus. Also, see definition for "program of instruction".

3.1029 Plotter. A graphic hardcopy output device which can use any number of technologies to plot (graph) an image. An output device that prints graphs, bar charts, drawings, or other data, on paper with high resolution. Examples are: pen plotters, electrostatic plotters, photo plotters, ink-jet plotters, and laser plotters.

MIL-HDBK-284-3

3.1030 Plot time. The time from keypress to draw completion (presentation).

3.1031 Polymethyl methacrylate (PMMA). A rigid, transparent acrylic plastic used to manufacture many laser videodiscs.

3.1032 Population. A well-defined group of subjects, things, or characteristics from which measurements are taken (for example, all students 6 feet or taller).

3.1033 Port. A term used to denote any one of the following:

- a. The socket at which cables connecting the computer and its peripherals are attached.
- b. The electronic door through which information is transferred between sections of a computer and between separate computers.

3.1034 Portability. The capability to run courseware and associated application programs without modification on a delivery system other than the one for which they were originally designed. Also called "transportability".

3.1035 Portable Courseware (PORTCO). A project developed by the Navy Personnel Research and Development Center (NPRDC) which seeks to present an alternative approach to hardware-based standards of interactive videodisc training systems. The approach is based on the virtual machine concept which achieves standardization in terms of the essential functional requirements of the authoring task and instructional delivery system.

3.1036 Portable Operating System Interface for Computer Environments (POSIX). An application portability profile interface definition for open systems environment (OSE) operating system services kernel operations. POSIX is a UNIX-derived operating system environment documented in FIPS 151-1.

3.1037 Positive consequence. An activity or event desired by, or pleasing to, the recipient.

3.1038 Positive reinforcement. Reward of performance through the application of an event likely to increase the recurrence of that performance.

3.1039 Postproduction. The stage in the preparation of an audiovisual program, after the original footage has been shot. The editing and assembling process of combining new video, resource video, character-generated text, video still frames, and special effects into frames of composed video. Can include editing, encoding, computer programming, and other functions.

MIL-HDBK-284-3

3.1040 Practical exercise. A technique used during a training session which permits trainees to acquire and practice the cognitive and psychomotor skills necessary to perform successfully one or more training objectives.

3.1041 Practice. Repeated and systematic performance to gain proficiency using the psychomotor, cognitive and effective skills, acquired in the training phase. Practice enables the trainee to do the job proficiently. Initial practice occurs while the trainee is acquiring skills; proficiency practice occurs at intervals after training so that the skills may be refreshed.

3.1042 Practice effect. The influence of previous experience in taking a test for the second time or more. Familiarity with directions, types of items, and questions when taking a test again usually helps the examinee to score higher. Practice effect is greatest when the time interval between the test and retest is short and when the same form is administered.

3.1043 Predictive validity. The ability of a test score to accurately forecast future performance.

3.1044 Preliminary validation. The interactive courseware is tested on a sample population to ensure accuracy of program flow and visuals.

3.1045 Premaster. The fully coded videotape used in the videodisc mastering process to make a videodisc through direct transfer of its information onto the master disc, from which all discs will be pressed. Also called "master edit tape".

3.1046 Premastering. A term used to denote any one of the following:

- a. The process of assembling, evaluating, revising, and coding intermediate audiovisual materials into a fully coded videotape used for the videodisc mastering process.
- b. The stage in the production of a videodisc when the master tape is checked and prepared for transfer onto the master disc from which replicated discs will be pressed.

3.1047 Premaster materials. All training material needed to start and complete production to include adjunctive materials, final script-storyboard, and flowchart to be used for production of stock footage.

3.1048 Premaster SMPTE. The SMPTE time code from the videotape sent to be mastered into a videodisc. Also, see definition for "production SMPTE".

3.1049 Preparing activity. The DoD component activity or the federal civil agency (for federal documents only) responsible for preparation and maintenance of

MIL-HDBK-284-3

standardization documents or the conduct of study projects. Also, see definition for "office of primary responsibility".

3.1050 Preproduction. All design tasks (for example, flowcharting, storyboarding, scriptwriting, and software design, prior to video production. All tasks part of the production schedule leading up to the actual shooting of material on video or film.

3.1051 Prerequisite. A needed requirement the student must possess before being able to take training. It covers what a student must know before taking a lesson of instruction.

3.1052 Prerequisite training. That training which personnel must have previously completed successfully in order to be qualified for entry into training for which they are now being considered.

3.1053 Presentation media. Different media used to convey or communicate information to individuals engaged in learning. These media may include printed materials, audio-visual devices, hardware simulators, or stimulators.

3.1054 Preventative maintenance. The actions performed in an attempt to keep an item in a specific condition by providing systematic inspection, detection, and prevention of failure.

3.1055 Preview monitor. A monitor that shows the director the picture he/she intends to use as the next shot.

3.1056 Primary menu. The first menu. This menu has no menu levels above it.

3.1057 Primary skill. A major segment of work which, when combined with all other primary skills, equal the task, function, or background material.

3.1058 Prime time for training. An established period of time (hours, days, or weeks) devoted entirely to mission-related training.

3.1059 Primitive. Basic display element, point segment, segment, alphanumeric character, or marker.

3.1060 Procedural analysis. A method for analyzing tasks which lend themselves to flowcharting.

3.1061 Procedural task. A task for which there is a set procedure for performing the task, for which, if one follows that procedure, the desired results will occur every time, and for which if one does not follow the procedure, the desired results will not usually occur. This may be either unitary (that is, "linear") or multiple (that is, "branching").

MIL-HDBK-284-3

3.1062 Procedures trainer. A non dynamic system that allows procedural training to be accomplished. It could take the form of a mockup or a weapon system procedures trainer.

3.1063 Process evaluation. An early stage in ISD that identifies which steps in the model will be used for the course under development. The purpose of the process evaluation is to describe and document the actual developmental process for this particular instruction.

3.1064 Processing. A term used to denote any one of the following:

- a. A term referring to the internal operations of a computer processor. The manipulation of data from one state to another, usually at the request of an operator or user.
- b. The photographic development of film.

3.1065 Processing time. The amount of time it takes a computer's central processing unit to operate on a specified number of instructions (units of computer code).

3.1066 Processor. The computer component which controls the basic operations of the computer.

3.1067 Production. A term used to denote any one of the following:

- a. The stage of an audiovisual production when video or film footage is actually recorded. The process of making resource footage to be used in a videodisc.
- b. A work presented to an audience. A video show. An organized presentation of information such as a training course.

3.1068 Production Identification Number (PIN). (A) Alphanumeric number assigned to identify a course of instruction.

3.1069 Production list. Identical to definition for "shot list".

3.1070 Production schedule. A report describing each required video frame or sequence in an efficient shooting order.

3.1071 Production SMPTE. The video ID from the resource videotapes. Also, see definition for "Premaster SMPTE".

3.1072 Production task. A task which terminates in a discrete product or outcome which is observable and measurable. The task is evaluated by looking at the product or outcome in terms of completeness, accuracy, tolerance, clarity, error, or quantity.

MIL-HDBK-284-3

3.1073 Professional military education (PME) training. The systematic acquisition of theoretical and applied knowledge and the development of command and staff skills which are of particular significance to the profession of arms.

3.1074 Proficiency. A specific standard of performance in which the trainee demonstrates a predetermined skill ability or expertise.

3.1075 Proficiency codes. A series of letters and numbers which will indicate the level of proficiency a student is expected to reach upon mastery of a given learning objective.

3.1076 Proficiency training. Training conducted to improve or maintain the capability of individuals and teams to perform in a specified manner. Training to develop and maintain a given level of skill in the individual or team performance of a particular task.

3.1077 Profile item-to-topic learning objectives assignment chart. An administrative tool designed to reflect the coverage of PPP line items within a curriculum.

3.1078 Program. A term used to denote any one of the following:

- a. A series of instructions that directs the computer to perform certain operations. A coded set of instructions in a computer language.
- b. To plan a computation or process for computer operations, such as coding, numerical analysis, and specification of printing formats.
- c. Material on a tape, disc, or film which can be viewed.

3.1079 Program element. A basic component of the planning, programming, and budgeting system, which represents an integrated combination of personnel, equipment, and facilities, which together constitute an identifiable capability or support activity.

3.1080 Program Evaluation Review Technique (PERT). A visual representation of the tasks of a project; shows the relationship between the tasks and defines the critical path. A planning technique that arranges events and their duration into a flow graph to examine the entire program and to aid in decision making (determine sequencing priorities, total time for plan completion, preparation (lead) time for specific events, and other determinations).

3.1081 Program-linked functions. Computer program features such as back up, suspend, and marginal notes that, once chosen by the designer, may be active throughout an interactive courseware program.

3.1082 Program management document. (A) Collection of documents depicting how the requirement will be satisfied through the acquisition process.

MIL-HDBK-284-3 .

3.1083 Program validation. One aspect of post-production where the premaster tape is reviewed to verify the content for completeness.

3.1084 Programmable Read-Only Memory (PROM). Write once read-only memory on a chip that allows a program to reside in a piece of hardware.

3.1085 Programmed instruction (PI). A student-centered method of instruction which presents the information in planned steps or increments, with an appropriate response immediately following each step. The student is guided step-by-step to the successful completion of the assigned task or training exercise.

3.1086 Programmed instructional package (PIP). All the components of a specific unit of programmed instruction, including the programmed instructional materials, learning aids, instructor guide or manual, pretests and post tests, validation data, description of intended student population, and objectives.

3.1087 Programmed Logic for Automated Teaching Operations (PLATO). A computer-based training system that uses the Tutor language.

3.1088 Programmed text. A publication prepared in one or more of the programmed instruction formats, and which applies the concepts of programmed instruction.

3.1089 Programming script. A detailed plan of the computer program information for each frame of interactive courseware.

3.1090 Programming System in Logic Language (PROLOG). A specialized language developed for artificial intelligence applications and for decision making processes.

3.1091 Program of instruction. (A) A formal course record that identifies and describes the course content, course material, type of instruction, the major learning objectives, trainee information, and resources required to conduct training in an institutional setting. Also called a syllabus. Also, see definition for "plan of instruction".

3.1092 Projected operational environment (POE). The environment in which a piece of equipment, system, or personnel is expected to operate.

3.1093 Prompt. A term used to denote any one of the following:

- a. A symbol or character used to indicate that a response is expected and where that response will appear on the computer screen.
- b. A word or other signal that initiates or guides behavior; a cue.

3.1094 Prompted authoring aids. Computer program prompts which step an author through the process of creating an interactive courseware unit of instruction without requiring the author to program.

MIL-HDBK-284-3

3.1095 Prompted simulation. Student performance of a simulated procedure under controlled circumstances. The student is prompted, guided through the procedure, provided necessary remediation, given explanations, and provided help. It usually consists of video or graphic still frames.

3.1096 Proof disc. A check disc produced from an optical glass master.

3.1097 Proof support. A type of instructional material used during the body of a lesson which provides hard data or expert testimony in support of an assertion. Also, see definitions for "clarification support", and "support instruction material".

3.1098 Props. Furniture, displays, backdrops, and other objects used for set decorations and by actors or performers.

3.1099 Protocol. A set of rules or conventions governing the communication between devices or software modules. A formal set of conventions governing the formatting and relative timing of message exchanges between communicating systems.

3.1100 Prototype section. A first sample section of interactive courseware developed as a model.

3.1101 Psychomotor domain. A major area of learning which deals with acquiring physical skills requiring dexterity, coordination, and muscular activity. Also, see definition for "psychomotor skills".

3.1102 Psychomotor skills. Identical to definition for "physical skills". Also, see definition for "psychomotor domain".

3.1103 Public domain. A term used to denote any one of the following:

- a. The condition of being free of copyright or patent.
- b. Software which can be used by anyone free of charge.

3.1104 Pull-down/pull-down menu. Generally referring to menus that are accessed by highlighting a keyword, often by use of a mouse, which then "unfolds" to provide additional menu options associated with that keyword.

3.1105 Pulse code or pulse. A signal which, when recorded on every frame of a videotape, facilitates editing and access by making individual frames easier to identify.

3.1106 Quadruplex. A 2-inch videotape recorder with four rotating heads to record and play back video. An industrial videotape system, developed by Ampex, which uses four video heads mounted 90 degrees apart on a drum which spins at 240 revolutions per second (NTSC).

MIL-HDBK-284-3

3.1107 Quality assurance (QA). Those actions taken by the Government to assure that services meet the requirements in the Statement of Work (SOW).

3.1108 Quality control (QC). A term used to denote any one of the following:

- a. Those actions taken by a contractor to control the production of goods or services so that they will meet the requirements of the Statement of Work (SOW).
- b. In training development, a process of measurement and evaluation used in order to maintain standards through adjustments in instructional materials or procedures.

3.1109 Quantize. A step in the process of converting an analogue signal into a digital signal. This step measures a sample to determine a representative numerical value that is then encoded. The three steps are sampling, quantizing, and encoding.

3.1110 Quiz. Graded verification of objective accomplishments which are temporarily posted to a student's record for short-term remediations. A short test administered by the instructor to measure achievement on material recently taught or on any small, newly completed unit of work.

3.1111 Quota. A term used to denote any one of the following:

- a. A space in a course for a trainee.
- b. A proportional share of promotions.
- c. A proportional share of personnel accessions.
- d. The number or amount constituting a proportional share.

3.1112 Random access.

- a. Access to any video address at any time.
- b. The ability to access memory circuits directly without going through a fixed sequence.

3.1113 Random Access Memory (RAM). Addressable memory directly controlled by the central processing unit of a computer. That part of a computer's internal memory which can both read (find and display) and write (record) information, and which can be updated or amended by the user. The memory used by the computer in its everyday operations. Memory that is lost when power is removed from a computer. A type of storage on a chip in which data can be written and be read. Also, see definitions for "internal storage" and "main memory". Compare with definition for "ROM".

MIL-HDBK-284-3

3.1114 Random Access Memory (RAM) disc. Use of a computer's RAM to simulate a disk drive to allow for quick access of data at a rate faster than access of a magnetic disk.

3.1115 Random sample. A sample selected in such a way as to guarantee equal probability of selection to all possible samples of this size that could be formed from the members of the universe involved; if the universe is large, a sample selected in such a way as to guarantee to each member an equal probability of selection.

3.1116 Random selection. A process for selecting people or objects at random rather than by some systematic plan.

3.1117 Raster. The closely spaced parallel lines produced on a display device. An image is formed by modulating the intensity of the individual pixels. A binary representation, "raster form," of the pixels can be used to digitally represent an image.

3.1118 Raw score. A score obtained on a test as determined by the performance itself, to which no correction or modification of any kind has been applied other than the possible addition or subtraction of a constant score.

3.1119 Raw video. Video that has been shot but has not yet been edited.

3.1120 Read. In information processing, to transfer from one storage medium to another. For example, to transfer data from a floppy disk to a computer screen, or pictures and sound from a videotape to a monitor.

3.1121 Read Only Memory (ROM). A term used to denote any one of the following:

- a. A type of internal computer memory in which data can be read but cannot be altered. Non-changeable computer memory with permanently stored data that is retained when power is removed from a computer. The smaller part of a computer's memory in which essential operating information is recorded in a form which can be recalled and used (read) but not amended or recorded (written). Also, see definition of "main memory". Compare with definition for "RAM".
- b. A computer storage medium which allows the user to use information (read) but not record or amend (write).

3.1122 Reading grade level (RGL). A person's ability to read and comprehend what they are reading, represented by a numeral equating to a given level of schooling in which a student should be capable of reading and comprehend written matter. (that is, A RGL of 7 is representative of an individual being able to read/comprehend 7th grade subject matter.)

MIL-HDBK-284-3

3.1123 Ready for use (RFU). When a new acquisition is available for use either operationally or in a support function.

3.1124 Real estate. In video technology, the space available on a videodisc or tape.

3.1125 Realism. The extent to which an operator's experience in a training device corresponds to experiences as they actually would occur in/on the operational system/equipment under a given set of conditions.

3.1126 Real time. The actual time in which a program or event takes place. The normal clock time at which events occur. Continuous playing time.

3.1127 Rear screen. Translucent screen onto which images are projected from the rear and photographed or viewed from the front.

3.1128 Record. A unit of logical storage or set of data forming the basic elements of a file.

3.1129 Recycling. The process by which students are afforded additional opportunities to complete a training course (or cycle) either through repetition of training previously not completed satisfactorily or makeup of extensive training which was missed because of medical or other absences.

3.1130 Red, Green, Blue (RGB). Stands for the separate input of the three signals corresponding to the primary color "guns" in a color cathode ray tube, or color monitor. Computer color display output signal comprised of separately controllable red, green, and blue signals.

3.1131 Red-lining. A process used to record recommended change actions necessary before the Government will approve a delivered document or drawing. The markings (red lines) are made by Government personnel during their review of the document.

3.1132 Red-lined document. A version of a document which has been delivered by a contractor for review and approval by the Government, reviewed by Government personnel, and annotated (red-lined) to provide guidance to the contractor for document revision. When the contractor is tasked to provide minutes of a meeting in which the Government participated, and during which a document was reviewed and red-lined, a copy of the red-lined document may be attached as a portion of the minutes.

3.1133 Re-enactment. A reconstruction of something that has really happened, possible using the same people and places, but quite likely edited and polished with the wisdom of hindsight.

3.1134 Reflective videodisc. An optically read videodisc which contains its information imbedded as shallow microscopic pits or holes along circular or spiral tracks in

MIL-HDBK-284-3

reflective surfaces, usually reflective aluminum film, sandwiched between layers of polymethyl methacrylate (PMMA). An optically read information storage medium for analog/digital (for example, video, audio, and control signals) data. A circular disc spins at 1800 RPM (NTSC), while a laser light reflects off the shiny surface into a mirror which in turn reflects it to a decoder that converts variations in reflected light into electronic signals from which data is derived. This format uses a laser light instead of a stylus to retrieve information, so there is no physical contact between the reading mechanism and the disc itself; hence, no wear or degradation during playback. See definition for "optical videodisc". Also called "optical reflective videodisc".

3.1135 Regenerative design. A lesson style which allows for a different set of questions to be presented for each student or for each time a student tries a lesson.

3.1136 Register. An internal circuit in a microprocessor used for holding and manipulating data and memory addresses. Specific registers referenced in Appendix D of MIL-STD-1379 include the Intel 80x86 microprocessor 16-bit AX, BX, ES, and DI registers.

3.1137 Reliability. A term used to note any one of the following:

- a. A characteristic of evaluation which requires that testing instruments yield consistent results. The degree to which a test instrument can be expected to yield the same result upon repeated administrations to the same population.
- b. The characteristic that a device, equipment, or system will operate effectively for a period of time without a failure or breakdown.

3.1138 Remediation. Corrective teaching. A form of feedback which re-teaches information which the trainee has demonstrated a lack of understanding. Supplemental instruction designed to correct student nonunderstanding of course material or a student learning deficiency. A sequence that provides an alternative, more basic approach to meeting the same instructional objective. A remedy. Also, see definition for "feedback".

- a. New remediation - Instructional material, meant for remediation, that is not presented to a student in the normal track of instruction.
- b. Old remediation - Instructional material, meant for remediation, that has already been presented to the student as part of the normal track of instruction.

3.1139 Remote control. Command of a computer or interactive videodisc program through an electronic device independent of the computer or disc player (for example, keypad, touch screen, joy stick, mouse).

3.1140 Remote operations. Events conducted away from the normal local area of operations.

MIL-HDBK-284-3

3.1141 Remote terminal. A terminal physically located so far away that it must communicate with the mainframe computer through a MODEM.

3.1142 Remote workstation. A self contained microcomputer which can compute in a stand-alone operation or input/output information to/from a larger computer with a larger central processing unit (for example, mainframe).

3.1143 Remotivation step. A segment of a lesson conclusion during which the presenter reminds students why the information presented is important to the student as an individual so that student will have a desire to retain and use what they have learned.

3.1144 Replicated videodiscs. Videodisc copies made from the master videodisc.

3.1145 Replication. The process of making optical disc replicates.

3.1146 Reproducible copy. Identical to definition for "camera-ready copy".

3.1147 Required operational capabilities (ROC). Statements prepared by mission and force function sponsors which detail the capabilities required of equipment, systems, and personnel in various operational situations. The level of detail sets forth which systems will be ready at varying degrees of readiness.

3.1148 Resident training course. A course conducted at a training location where the trainee is a full time student, as compared to training conducted at the trainee's duty location.

3.1149 Resolution. A measure of picture clarity, sharpness, or fineness of detail. It is directly related to the number of visible scanning lines per frame, in video, or the number of pixels (picture elements or discrete element dots) per unit of area, in nonvideo applications. The higher the number of scanning lines or the pixel density, the higher the resolution. Clarity or level of detail that can be reproduced.

3.1150 Resource requirements list. An overall list that identifies the texts, references, equipment, films, graphics, and instructional media materials required to support the curriculum.

3.1151 Responding. A level of affective domain in which students act or comply by performing an act and obtain satisfaction from it.

3.1152 Response bias. Tendency to favor a certain response over others.

3.1153 Response-paced. Interactive courseware that prompts the student to comprehension of learning points at the optimum comprehension speed.

3.1154 Response time. The time between the user input and seeing data begin to appear on the screen. The time between the end of an input and the start of an output.

MIL-HDBK-284-3

3.1155 Ring network. A configuration of computers and peripherals serially connected such that any unit can directly communicate with any other unit.

3.1156 Routine. A part of a computer program that does a limited, specific task.

3.1157 Routing. The branching of a student through a lesson based on his responses.

3.1158 RS-232C. A standard serial data interface between a computer and its peripherals. Various peripherals (including some videodisc players) equipped with an RS-232C computer port can be plugged directly into a compatible computer.

3.1159 Rule-based system. A system in which knowledge is stored in the form of simple "if-then" or "condition-action" statements.

3.1160 Run. To start the operation of a program.

3.1161 Run time. A term used to denote any one of the following:

- a. The time a computer program takes to run without any interactive input from the user.
- b. The length of time required to run a linear video segment.
- c. A piece of software that allows a personal computer to emulate a terminal so it can operate with a mainframe computer.
- d. A piece of software that allows a computer to emulate another computer so it can operate other software (also referred to as "run time software").
- e. Execution of a compiled program (as opposed to writing or compiling the program).

3.1162 Safe area. That area in the center of a screen which is sure to be displayed on all receivers and monitors. The outer edge of a screen (about 10 percent of the total picture) is not represented in the same way on all televisions and monitors.

3.1163 Sample. A portion or small segment of a population (that is, a sample of students for whom instruction is designed).

3.1164 Samples of behavior. Student behaviors which the instructor will accept as evidence of learning; the specific behavior in each sample is the variable, the taxonomy level (cognitive, affective, or psychomotor) of the set of samples is the constant and serves as the common denominator of each sample. Also called "behavior indicators".

MIL-HDBK-284-3

3.1165 Sampling. The process of taking measurable slices of an analog signal at periodic intervals. Obtaining the values of a usually analog function by making automatic measurements of the function at periodic intervals. A step in the process of converting an analog signal into a digital. The three steps are sampling, quantizing, and encoding.

3.1166 Sampling plan. Specified procedures for selecting a small but representative group (sample) from a population.

3.1167 Sampling rate. A term used to denote any one of the following:

- a. Rate at which slices are taken from analog signals when converting to digital.
- b. Frequency at which points are recorded in digitizing an image. Sampling errors can cause aliasing effects.

3.1168 Saturated colors. Strong, bright colors (particularly reds and oranges) which do not reproduce well on video, but tend to saturate the screen with color or bleed around the edges, producing a grayish, unclear image.

3.1169 Saturation. The degree of purity in a given color, measured by its freedom from mixture with white.

3.1170 Scalability. The ability to use the same application software on many different classes of hardware/software, from personal computer to super computers.

3.1171 Scan. A term used to denote any one of the following:

- a. In basic television and video transmission, the rapid journey of the scanning spot back and forth across the scan lines on the inside of the screen.
- b. In interactive videodisc technology, the facility to move quickly backwards or forwards through the program. A mode of play where the player quickly traverses the surface of the disc by skipping several disc tracks at a time, displaying only a fraction of the frames it passes.
- c. The capability to move rapidly, at the fastest speed, backwards or forwards through information to quickly locate something.
- d. In data capture, the process by which a document or hard copy image is converted to machine-storable image format (digitized).

3.1172 Scan conversion. The process of putting data into grid format for display on a raster device.

MIL-HDBK-284-3

3.1173 Scan lines. The parallel lines sloping across the video screen from upper left to lower right, along which the scanning spot travels in picking up and laying down the video information which makes up the picture on the monitor. NTSC systems use 525 scan lines to a screen.

3.1174 Scanning. The process of reading data in regular horizontal sweeps to cover the entire image or screen.

3.1175 Scanning spot. The intense beam generated by the electron gun in a cathode ray tube (CRT), which travels rapidly back and forth across the screen, picking up and laying down information which makes up the picture on the monitor.

3.1176 Scenario. A term used to denote any one of the following:

- a. An account or synopsis of a projected course of action or events.
- b. The programmed events in a training device which requires trainees to respond as they would to real world settings.

3.1177 Screen. A visual, output display platform such as a computer monitor for displaying computer output or a large, white, stretched cloth for displaying photographs from film. Also, see definition for "monitor".

3.1178 Screenprint. A printout of a screen display.

3.1179 Script. The detailed plan, including a numbered list of each scene or frame showing description, talent, props, audio, narration, sound effects, camera angle, image size, and all that is necessary to produce an audiovisual program. It is a printed narration with instructions and cues used to develop video presentations for programs or program segments. Also, see definition for "programming script".

3.1180 Script-storyboard (SSB). A combination storyboard and audiovisual script. It is a detailed description of an individual or series of frames containing important script features of scene description, reference information, text displayed, audio content, camera directions, special effects, program flow, programming function information, production information, post-production information, props needed, graphics needed, and special notes. Also, see definition for "storyboard".

3.1181 Scrolling. Movement of the screen display up or down.

3.1182 Search. In interactive video, the process of rapidly accessing a specific frame, identified by its unique sequential reference number, on disc or tape, by instructing the player to move directly to that frame, forwards or backwards, from any other point on the same side of the disc or tape.

MIL-HDBK-284-3

3.1183 Search time. The amount of time required by a computer or disc player to locate specific data in a storage medium.

3.1184 Segment. A term used to denote any one of the following:

- a. A portion of interactive courseware.
- b. A basic unit of interactive courseware, with a fixed duration, containing enough information to enable a viewer to absorb, comprehend, and respond.

3.1185 Segmented training. Modification of existing formal courses into discrete portions appropriate for conducting required training.

3.1186 Selective erase. Refers to the ability to erase part of a screen display without affecting other portions of the same screen display. Also called "mode erase".

3.1187 Self-diagnostic. A procedure by which a system checks its own operations and identifies error conditions.

3.1188 Self-paced instruction. Instruction that permits progress at the individual student's own desired rate of learning. Mode of instruction whereby each student works through the instructional materials at his/her own speed. Also called "individual-paced instruction".

3.1189 Self-study. Individual study by which a person learns new skills or knowledge or reinforces skills or knowledge already learned.

3.1190 Self-study workbook/guide. A document containing a series of lessons arranged in discrete steps with self-test questions which allow the instructor to monitor the students' progress. It is used to guide the student through a controlled path of study and specific job tasks with a minimum amount of supervision. An instructional document that provides the student study material in support of objectives. This document contains the objectives, sub objectives, subject matter content, reference to adjunct reading or study material, review exercises with feedback, and directions to interact with training media including an instructor.

3.1191 Semiconductor. An electrical conductor which allows a small current to pass in one direction. Semiconductors are used to carry the pattern of electrical signals (off/on) which represent the 0s and 1s of computing's binary notation.

3.1192 Sequence. Two or more frames forming one visual unit (for example, motion sequence, still-frame sequence).

3.1193 Sequencing. The order of presentation. Arranging the objectives, teaching point, teaching steps, and criterion steps into the most appropriate sequence for effective learning.

MIL-HDBK-284-3

3.1194 Sequential Color with Memory (SECAM). The color TV standard (Sequential Couleur A Memorie (SECAM)) developed by France, and subsequently adopted by the former USSR and its former satellite states, and in some parts of the Middle East and North Africa. It involves sending the three primary color signals sequentially, rather than nearly simultaneously (as the "NTSC" and "PAL" systems do).

3.1195 Serial. A term used to denote any one of the following:

- a. The time-sequential handling of individual items.
- b. The sequential transmission of information, unit by unit, on a single channel.

3.1196 Serial memory. A memory to which access occurs in a set sequence, not randomly.

3.1197 Service group. A segregated set of commands that relate to a specific functional area. For example, the videodisc (vd) service group contains commands for controlling videodisc players.

3.1198 Servo control. A device which converts a small mechanical force into a larger one--particularly in a control mechanism.

3.1199 Shielding. Protective covering that eliminates electromagnetic and radio frequency interference.

3.1200 Short haul MODEM. A signal converter which conditions a digital signal to ensure reliable transmission over direct current continuous private line metallic circuits without interfering with adjacent pairs in the same telephone cable.

3.1201 Shot list. A list that specifies the video segments (video sequences and still shots) and sound tracks that will be produced, including instructions about the interface with the following shot. Shot lists are organized in a way to save production time. They are usually compiled from the storyboards. Also called "production list".

3.1202 Shot sequence. A video production term which identifies the order in which the video will be shot.

3.1203 Shot sheet. A list of every shot a particular camera has to take.

3.1204 Signal. A term used to denote any one of the following:

- a. A cue that initiates and directs activity.
- b. A carrier used to transmit and convey information.

MIL-HDBK-284-3

3.1205 Signal-to-noise-ratio (S/N). The strength of video /audio signal in relation to the interference (noise) it has picked up passing through electrical circuitry. The higher the S/N, the better the quality of the signal.

3.1206 Simulated performance. Interaction between the student and the computer whereby the student selects the correct procedure to achieve a stated objective or result in a simulated real-world situation.

3.1207 Simulation. A term used to denote any one of the following:

- a. Representation of a system, sub-system, situation, or device, with a degree of realism. Training that resembles portions, or sub-tasks, of the actual system operation. A representation of reality or any imitation of reality for training purposes. The representation of the functioning of one system or process by means of the functioning of another. Presentation of a set of relationships or sequence of events illustrating an actual device, situation, or system. A model of a real-world event or device. Carrying out the steps or computations of a model in order to determine what will happen in a given set of circumstances.
- b. A learn-by-doing educational strategy, where the trainee sees the result of a decision or action. Suitable where judgement (not recall) is emphasized.

3.1208 Simulation fidelity. The degree of correspondence of an aspect(s) or element(s) of the model embedded in a trainer to those analogous characteristics of reality.

3.1209 Simulation sequence. A video production term which identifies the order in which the video will be presented to the trainee in the interactive courseware.

3.1210 Simulation/stimulation. A hybrid process where the training system may stimulate part or all of the system and simulates the remainder of the system and the environment.

3.1211 Simulator. A training device which substitutes for, by emulation, the functions and environment of actual equipments or systems. Any training device, machine, or apparatus that reproduces a desired condition or set of conditions synthetically. Specifically for training, a relatively complex item or training equipment, using electronic/mechanical means to reproduce conditions necessary for an individual, or a crew, to practice operational tasks in accordance with training objectives. It represents the operational equipment physically and functionally to varying degrees and follows the mathematical equations which describe performance.

3.1212 Simulator software. The software (computer programs) necessary to enable the training device to perform the various functions. Simulator software includes all realtime programs necessary for student operation as a training device, diagnostic or other maintenance or support programs, debug, or software development tools to be used in

MIL-HDBK-284-3

correction of errors in the present programs or in future modifications. All other programs or material necessary to recreate, copy, maintain, support, and update any of the simulation software as well as any other applicable software or software procedures developed or produced during the period of the contract shall also be included. All computer vendor programs and commercially marketed programs as well as those programs developed, modified, or otherwise produced or provided by the manufacturer and the documentation are included in the simulator software.

3.1213 Skill. The ability to perform a job related activity that contributes to the effective performance of a task.

3.1214 Skill level. A list of proficiency requirements for performance of a specific job, and the level of proficiency at which an individual qualifies in that occupational specialty.

3.1215 Skills profiles. Concise listings of skills currently taught in a course.

3.1216 Skills transfer. The ability or lack of ability to which training or training devices "carries over" or is manifested in the ability to operate or maintain the operational equipment.

3.1217 Slide-tape. A combination of visual slides and an audio tape, synchronized so that the audio describes the content of the slides.

3.1218 Slow motion. A mode allowing the user to move forward or backward through a video sequence at an exaggeratedly slow speed. In videodisc technology, the controlled laser reading of a videodisc from frame to frame at rates less than 30 frames per second.

3.1219 Small computer systems interface (SCSI). A device independent interface used for a wide variety of computer peripherals.

3.1220 Small group trail. In training developments, the effectiveness of lesson material based on performance of a small representative sample of the target population.

3.1221 Smart terminal. A terminal that has the capability to function as a computer and process data in addition to being an input/output device for a mainframe computer. Also called "intelligent terminal".

3.1222 Snow. A large amount of video noise--so called because of the apparent snowy pattern of the image.

3.1223 Society for Motion Picture and Television Engineers (SMPTE) time code. A standard SMPTE method of address-coding a videotape that gives an accurate frame count, retaining all frame numbers in a chronological order, rather than an accurate clock

MIL-HDBK-284-3

time. See definition for "time code". Also called "full-frame time code" and "nondrop frame time code".

3.1224 Soft data. Information obtained from attitude or opinion surveys. This data is not as reliable as hard data. Compare with definition for "hard data".

3.1225 Soft skills. A term used to denote any one of the following:

- a. Skills needed to perform jobs where job requirements are defined in terms of expected outcomes, but the process(es) to achieve the outcomes may vary widely.
- b. An area of performance that does not have a definite beginning and end (that is, counseling, supervising, and managing).

Compare with definition for "hard skills".

3.1226 Software. A term used to denote any one of the following:

- a. The programs and routines that tell the computer and its peripherals what to do. Any system of instructions that direct computer operation. Category of computer components which is restricted to instructions to the equipment (hardware). The programs for the computer. Typically, software can be divided into operating systems, computer languages including authoring tools, and application programs.
- b. The media which stores software, such as floppy disks, flowcharts, manuals, and other computer programming documentation.
- c. Non-equipment training material, such as pamphlets, handouts, schematics, charts, audiovisual products, and guide sheets.

3.1227 Software interface. The boundary between two or more software modules, or a protocol that defines how two software modules communicate.

3.1228 Software module. A named collection of software instructions and data.

3.1229 Soldier's manual (SM). (A) A soldier training publication which lists the critical task summaries for a specific military occupational specialty and skill level. It provides the conditions, personnel and funds.

3.1230 Soldier training publication (STP). (A) Task specific publications which support individual training and evaluation of critical tasks. This group of publications consists of soldier's manuals, trainer's guides, job books, and military qualification standards.

MIL-HDBK-284-3

3.1231 Sound effects. Sounds artificially recreated to simulate a real-world situation to convey aural information in interactive courseware.

3.1232 Sound instructional design. The philosophy, methodology, and approach used to deliver information in a manner that achieves the properly level of learning. Some sound instructionally designed interactive courseware aspects include good question strategy, level of interaction, reinforcement, and branching complexity.

3.1233 Sound slide program. A training aid consisting of a set of 35mm slides and a reel or cartridge of magnetic audio tape. The narration from the audio tape and pictures from the 35mm slides are run together to present the program.

3.1234 Source code. The uncompiled written language for a computer program. The program text for a program.

3.1235 Source document. A document listed in the AMSDL and DODISS that is applied in a solicitation or contract and establishes a data requirement which requires a Data Item Description to define the preparation requirements for data content and format.

3.1236 Source file. The file created from grouped source code.

3.1237 Special effects generator. An electronic image creation device that produces a variety of special effects wipe patterns.

3.1238 Special training. A term used to denote any one of the following:

- a. (F) Formal training to qualify skilled level or supervisory/technician level personnel in maintaining and operating new or special equipment, or in new operational techniques and procedures.
- b. (N) Any additional training which is required in order for the particular specialist to perform the maintenance on the system and assemblies concerned. This presumes the indicated specialist is fully qualified in his/her career field and is experienced on similar systems, assemblies, and support equipment.

3.1239 Specialty training standard (STS). (F) A standard which identifies the most common tasks of an enlisted Air Force Specialty (AFS) that requires training.

3.1240 Specification. A document prepared specifically to support acquisition which clearly and accurately describes essential technical requirements for purchasing materiel. Procedures necessary to determine that the requirements for the materiel covered by the specification have been met are also included. Military specifications are documents issued within the Department of Defense in accordance with the basic policy of the Defense Standardization Program. A military specification covers systems, subsystems, components, items, materials, or products that are intrinsically military in character or are

MIL-HDBK-284-3

used in, or in support of, weapons systems and involve an essential system function of interface (see MIL-STD-961).

3.1241 Speech recognition. Identical to definition for "voice recognition".

3.1242 Speech synthesis. Approximation of human speech produced by a computer and provided to the user as an interactive output.

3.1243 Speech synthesizer. A device that produces human speech sounds from input in another form.

3.1244 Spiral design. A lesson design in which all logic flows through a spiral, dwelling each pass on a different aspect of the material.

3.1245 Split-screen. The ability of a screen to be halved, quartered, or divided into virtually any shape or proportion with separate material displayed on each part.

3.1246 Spooler. A buffer between a computer and printer that allows continued computer processing while the printer is printing. It stores an output print file used by the printer to print.

3.1247 Stair-stepping. Jagged raster representation of diagonals or curves; corrected by anti-aliasing.

3.1248 Stamper. A metal reverse mold disc made from a glass master disc which is used to produce final replicated discs.

3.1249 Stand-alone. Self-contained, independent equipment which does not communicate with any outside device and is independent of any larger network.

3.1250 Stand-alone computer. A self-contained computer system consisting of at least a central processor, central memory, display device, and input device. Typically refers to a single-user, self-contained microcomputer system.

3.1251 Standard. A document that establishes engineering and technical requirements for items, equipments, processes, procedures, practices, and methods that have been adopted as standard. Standards may also establish requirements for selection, application, and design criteria for materiel. Military standards are documents issued within the Department of Defense in accordance with the basic policy of the Defense Standardization Program (see MIL-STD-962).

3.1252 Standard deviation. Identical to definition for "mean deviation".

3.1253 Standard of performance. A statement which establishes a criteria for how well a task or learning objective must be performed. The standard specifies how well, completely or accurately, a process must be performed or product produced. The standard

MIL-HDBK-284-3

reflects task requirements on the job or learning requirement in the classroom. A product standard is expressed in terms of accuracy, tolerance, completeness, format, clarity, errors, or quantity. A process standard is expressed in terms of sequence, completeness, accuracy or speed. Both product and process must be observable and measurable. Also, see definitions for "standards statement" and "task standard".

3.1254 Standard software interface definition (SSID). An effort by the IVIA to standardize calls for software for videodisc systems. This standardization would render hardware transparent to the courseware. Courseware authors would write it into the header of their courseware.

3.1255 Standards statement. A part of a criterion objective which describes the qualitative and quantitative criteria against which student performance or the product of that performance will be measured to determine successful learning. Also, see definitions for "standard of performance" and "task standard".

3.1256 Standby course. A course in which a capability for training exists, but entries have been discontinued temporarily. Training will resume when new requirements are established.

3.1257 Star network. A configuration of computers/peripherals in which a single computer controls the communication and data flow to the other units.

3.1258 Statement of Work (SOW). A document which establishes and defines all non-specification requirements for contractor efforts either directly or with the use of specific cited documents (see MIL-HDBK-245).

3.1259 Step. A term used to denote any one of the following:

- a. To advance or reverse one frame.
- b. A portion of material to which the student makes a response. It is a stage in the instructional process that represents progress in the student's mastery. A subject to be taught is broken down into frames, items, or segments (steps). It is assumed that students cannot take later steps in a given sequence before taking the earlier step and that each segment or item represents a step forward.

3.1260 Step frame. The facility to move through a video sequence frame-by-frame, forward or backward, either automatically or using a remote control device. This can be used to examine a sequence of moving footage in close detail, or to employ a set of stills which have been recorded as single, static frames.

3.1261 Stepped skills. Still frames selected to show a process, such as raising an antenna, at different points of completion.

MIL-HDBK-284-3

3.1262 Still frame. A term used to denote any one of the following:

- a. A video image intended to be retrieved and displayed as a single motionless image.
- b. A video image of any kind which is represented as a single, static image rather than as moving footage.
- c. A single video screen display.

Also called "video still".

3.1263 Still-frame audio. A method of digitally recording and transmitting several seconds of voice-quality audio per individual disc frame, resulting in a potential for several hours of audio per disc. A buffer is used to store the audio information in order to deliver a limited amount of audio from each digitally encoded still-frame. Also called "audio compression" and "compressed audio".

3.1264 Stimulation. An excitation to activity caused by an event, situation, condition, signal, or cue to which a response must be made. A physiological excitation.

3.1265 Stimulator. A training device designed for inter-connection with operational equipment, and which will create synthetically, conditions that replicate to some degree those encountered in the operational environment. Also insertable or inducible faults for trainers and simulators.

3.1266 Stimulus. The event, situation, condition, signal, or cue to which a response must be made.

3.1267 Stimulus characteristics. Those basic qualities or capabilities of a medium that are required to carry out the intent of the learning activity (that is, visual images, motion, color, and sound).

3.1268 Stock footage. Resource film or video already shot and usually available for sale by the producers.

3.1269 Storage device. Any device that stores information such as on disc or tape.

3.1270 Storyboard (SB). A layout and detailed graphic description of a single frame or series of frames, arranged sequentially, that describe the action and content of the interactive courseware and specifies all details such as graphics, text, visuals, video, audio, special effects. It is a graphic depiction that visually shows the interactive courseware presentation on paper. Also, see definition for "script-storyboard".

3.1271 Strategy. An outline of the overall interactive courseware programs. The logical arrangement of course content within a pattern or organization which will likely

MIL-HDBK-284-3

cause the most learning to occur. It includes the interactive courseware purpose, target audience, content outline, level of interaction, feedback, remediation, testing, type of branching to be used, audiovisual options, and programming and hardware requirements.

3.1272 Structured language. Any programming language that permits repositioning of information within a program in the order selected, allowing for modular construction.

3.1273 Structured question or structured response. A question that can only be answered in a certain way.

3.1274 Student. The term includes the individual being trained, the individual learning from the interactive courseware, or an individual who has been placed in a learning situation in order to acquire knowledge and skills required for accomplishment of specific tasks. Also called "trainee".

3.1275 Student centered. Instruction that employs all the principles of criterion-referenced instruction to meet the needs of the student.

3.1276 Student centered instructional objective. A desired outcome of learning described in terms of student skill, knowledge, or attitude; proof of learning may be obtained through direct measurement of limited, precise student behavior (criterion objective) or general evidence of learning may be inferred from measurements of a sampling of student behaviors (level of learning objectives).

3.1277 Student control. The student has input to pace/content/depth of training.

3.1278 Student flow. The average input and output of students to a course during a given period of time.

3.1279 Student guide. A generic term for the various printed materials developed for student use. A publication which provides each student with the supplementary material (in addition to technical manuals) judged to be required for successful completion of a course of study.

3.1280 Student input. The number of students actually enrolled at the beginning of a course.

3.1281 Student instructions. Directions for students on how to achieve the objectives of each lesson.

3.1282 Student load. The average number of students enrolled in a course of instruction over a specified time period.

3.1283 Student output. The number of students who successfully graduate from a course.

MIL-HDBK-284-3

3.1284 Subject matter expert (SME). A term used to denote any one of the following:

- a. An individual who has a thorough knowledge of a job, duties/tasks, or a particular topic, which qualifies him to assist in the training development process (for example, consultation, review, analysis, advise, critique).
- b. A person who has high level knowledge and skill in the performance of a job.

Also, see definition for "expert opinion" and "job expert".

3.1285 Sub menu. A menu under a main menu which allows a user to branch to new information without returning to the main menu.

3.1286 Subroutine. A definable portion of a program to be used many times.

3.1287 Subsystem. A grouping of functionally related equipment that together perform particular functions contributing to the overall system function.

3.1288 Subtask. Activities (perceptions, decisions, and responses) that fill a portion of the immediate purpose within a task (for example, remove a lug nut).

3.1289 Summary. A segment of a lesson conclusion during which the presenter reiterates key points of lesson content (knowledge level) or reviews and expands on key material and develops relationships which lead to generalizations (comprehension level).

3.1290 Summative evaluation. The overall assessment of a program at the completion of the developmental process.

3.1291 Supercomputer. The most powerful, the fastest, and the most expensive class of mainframe computers, capable of processing large amounts of data at very fast speeds with access to billions of characters of data.

3.1292 Supplemental training material. Any material which cannot be included in the interactive courseware but is educationally necessary to support the lesson. Also, see definition for "adjunctive materials".

3.1293 Support instructional material. A type of instructional material used during the body of a lesson to support an assertion or to develop understanding. Also, see definitions for "clarification support" and "proof support".

3.1294 Supportive relationship. In instructional systems development, skills and knowledge in one learning objective which have some relationship to those in another learning objective. The learning involved in mastery of one learning objective transfers to the other, making learning involved in the mastery of the other easier.

MIL-HDBK-284-3

3.1295 Surveillance. A process that provides on-going evaluation of training or training materials to insure continued effectiveness and currency of content to meet the training requirements as dictated by the operational systems, support systems, mission, and threats.

3.1296 Sustainment training. (A) The provision of instruction and opportunities for practice to ensure that individual or collective task proficiency is maintained at a requisite level. The frequency will vary with individual and collective tasks, the role, location, and personnel fill of the unit, and the desires of the commander.

3.1297 Synchronizing pulse. An audio or inaudible sound used to coordinate the audio and video portions of an audiovisual program so that audio and video (that is, slide and narration) are coordinated.

3.1298 Synchronous transmission. Transmission in which data bits are sent at a fixed rate with the transmitter and receiver synchronized. This form of transmission eliminates the need for start and stop bits.

3.1299 Sync-locked. The precise coincidence of two pulses or signals (for example, as in the sync pulses of a videotape recorder locked in with the sync pulses of a camera).

3.1300 Syntax. The grammar rules of a computer language.

3.1301 System. A term used to denote any one of the following:

- a. An organized set of related components established to perform certain tasks.
- b. A grouping of functionally related subsystems operating together to support a major function.

3.1302 System device. A device developed in support of a specific item or system. It is designed for use with only that system or item of equipment, including subassemblies and components.

3.1303 Systems approach. A process which synthesizes and interrelates the components of a process within a conceptual framework, ensuring continuous, orderly, and effective progress toward a stated goal.

3.1304 Systems approach to training (SAT). A generic term referring to the orderly process of analysis, design, development, implementation, evaluation, revision, and operation of a collection of interrelated training elements. A logical process for effectively and efficiently determining what, where, when, and how tasks should be taught. A process for effectively and efficiently achieving a required outcome based on documented needs. It consists of the five interrelated phases of analysis, design, development, implementation, and evaluation. It is a process that synthesizes and interrelates the

MIL-HDBK-284-3

components of a process within a conceptual framework, ensuring continuous, orderly, and effective progress toward a stated goal. A process in which performance requirements are explicitly defined from an analysis which occurs in a training development effort; includes a subsequent specification of performance requirements in terms of behavior objectives; is followed by the development of criterion tests which match job performance; and, with the appropriate curriculum development efforts supporting training on specified objectives. The entire process undergoes extensive evaluation to ensure the validity of the process. Also, called "instructional system development".

3.1305 System training plan (STRAP). (A) Plan developed to detail all training support required for newly developing weapon and equipment systems. It describes training required (individual and collective) for each military occupational specialty (MOS) associated with the weapon equipment systems.

3.1306 Tailoring. The process by which individual requirements (sections, paragraphs or sentences) of specifications, standards and related documents are evaluated to determine the extent to which they are most suitable for a specific acquisition, and the modification of these requirements to ensure that each achieves an optimal balance between operational needs and cost. The tailoring of data product standards and DIDs should be limited to the exclusion of information requirement provisions (see MIL-HDBK-248).

3.1307 Tailoring of data requirements. The deletion of data requirements, from an approved Data Item Description or source document, that are unnecessary to meet the needs of a specific contract.

3.1308 Talking head. A sequence showing a head and shoulders shot of the presenter talking directly to the camera.

3.1309 Talk-through technique. The technique used during simulation of an operational system; involves talking through each operation in the new system to determine decisions and contingencies.

3.1310 Tape. A metallically coated plastic, thin-stripped, rolled medium used for storage of a variety of data.

3.1311 Tape, lead-in. In videodisc programs, the 40 seconds of video black preceding the active program.

3.1312 Tape, lead-out. In videodisc programs, a minimum of 30 seconds of video black with no audio following the active program.

3.1313 Tape memory. Data stored on magnetic recording tape.

3.1314 Target population. A term used to denote any one of the following:

MIL-HDBK-284-3

- a. The audience for which a presentation is directed.
- b. The persons for whom the instructional or training materials are designed.

3.1315 Task. A single unit of specific work behavior with clear beginning and ending points and directly observable or otherwise measurable process, frequently but not always resulting in a product that can be evaluated for quantity, quality, accuracy, or fitness in the work environment. A task is performed for its own sake, that is, it is not dependent upon other tasks, although it may fall in a sequence with other tasks in a duty or job array.

3.1316 Task description. Verbal description, in column, outline, decision table, or timeline format which describes the required job behavior at the highest level of generality. Intended to provide an overview of the total performance.

3.1317 Task description worksheet. A tool used to document specific task factors including training factors, stimuli, subtasks, steps and activities, standards of performance, and job aids.

3.1318 Task fidelity. The degree of correspondence of cues and responses accompanying task performance on a training device to those characteristics of analogous performance on the operational system/equipment.

3.1319 Task inventory. Identical to definition for "job task inventory".

3.1320 Task learning difficulty. Refers to time, effort, and assistance required by a student to achieve performance proficiency.

3.1321 Task limits. The cues in a job situation which mark the beginning and ending points of the task (known as limits or boundaries).

3.1322 Task standard. A statement of how well a task must be performed. Also, see definitions for "standard of performance" and "standards statement".

3.1323 Task statement. A written description of task performance that contains an action verb, an object, and must express the conditions under which the task is performed and the standard that the performance must meet.

3.1324 Task-linked functions. Functions that must be entered in relation to the procedure to which they are linked. They require either two records to bracket the procedure such as time performance and turning off a program-linked function for a particular segment or only one record such as a branch to a particular lesson, depending on an earlier user input.

3.1325 Taxonomy. A system for categorizing things in a hierarchial order.

MIL-HDBK-284-3

3.1326 Taxonomy of educational objectives. A systematic classification scheme for sorting learning outcomes into three broad categories (cognitive, affective, and psychomotor) and rank ordering these outcomes in a developmental hierarchy from least complex to most complex.

3.1327 Teaching point. The smallest increment of information to which a student may be expected to respond; a statement of fact or a procedural step in the performance of a task; the precise information you want the student to know or to which he/she should respond.

3.1328 Team scheduling. The ability to form teams of students (two or more) at any time in the learning sequence when the required number of individuals are ready to perform a team task.

3.1329 Team performance. The result of team training.

3.1330 Team task. Those tasks that require two or more students performing separate functions simultaneously.

3.1331 Team teaching. The coordinated efforts of two or more instructors working together in an instructional situation.

3.1332 Team trainer. A training device which takes personnel trained and qualified in their individual skill specialties and trains them together to perform as a team (for example, aircraft weapon system trainer, artillery unit, and satellite crew).

3.1333 Team training. Training of a group of personnel to perform related or integrated functions as a team. Training designed for all members of a team to perform simultaneously. Training of a group of personnel on many student training stations interacting with each other on the same courseware to teach performance of related or integrated functions as a team. Also called "crew training".

3.1334 Technical data. Recorded information, regardless of forms or characteristics, of a scientific or technical nature. It may, for example, document research, experimental, developmental, or engineering work. It may be used to define a design or process or to acquire, support, maintain or operate material. The data may be graphic or pictorial delineations in media such as drawings or photographs, text in specifications, related performance or design type documents, or computer printouts. For purposes of this document, examples of technical data include research and engineering data, engineering drawings and associated lists, specifications, standards, process sheets, technical reports, catalog item identifications and related information, documentation related to computer software, and computer-generated data bases. Technical data does not include computer software or financial, administrative, cost and pricing, and management data, or other information incidental to contract administration.

MIL-HDBK-284-3

3.1335 Technical evaluation of premaster videotape. A standard evaluation of the premaster videotape to insure it meets the minimum specifications required to produce an effective videodisc.

3.1336 Technical manuals (TMs). Publications that contain instructions for the installation, operation, maintenance, training, and support of a weapon system, weapon system component, and support equipment. TM information may be presented in any form or characteristic, including but not limited to hard printed copy, audio and visual displays, magnetic tape, discs, and other electronic devices. They normally include operational and maintenance instructions, parts lists or parts breakdown, and related technical information or procedures exclusive of administrative procedures. TMs that meet the criteria of this definition may also be classified as Tms. Also, see definitions for "commercial off-the-shelf (COTS) manuals" and "technical orders".

3.1337 Technical orders (TOs). (F) Classified as "technical manuals" when they meet the criteria of the definition for technical manuals.

3.1338 Technical training. Training in specific skills and knowledge essential to performance of those tasks and duties related to a technical specialty.

3.1339 Telecine (or film chain). The total grouping of equipment used to transfer slide or sound motion picture film frames to electronic picture frames--usually consists of film and slide projectors, a multiplexer, and a television camera.

3.1340 Telecommunications. A term used to denote any one of the following:

- a. Communications between two or more parties via a transmission medium.
- b. Communications between two physically separated computers via a transmission medium such as telephone lines.

3.1341 Teleconferencing. A general term for meetings not held in person. A multi-party conversation between three or more individuals in different physical locations, using a telecommunications medium.

3.1342 Teleprompter. A combination of devices that allow on-screen talent to apparently address the audience without a script. This is accomplished by first placing a piece of flat, particularly reflective, glass in front of the camera lens at a 45 degree angle. A special camera is focused on a script which is sent to a monitor directly below the reflective glass in front of the camera. As the on-camera person looks into the lens, they actually can read the script from the monitor.

3.1343 Teletext. The generic term used to describe systems which uses broadcast television signals to transmit digitally-coded information.

MIL-HDBK-284-3

3.1344 Template. A reusable, electronic form, previously developed for specific applications.

3.1345 Terminal. A term used to denote any one of the following:

- a. A remote device for computer input/output, usually consisting of a keyboard and a monitor all connected to a central processing unit. An input/output device which communicates directly to a larger computer.
- b. The point of communication between the user and an interactive courseware training system, through which information can be input and output.

3.1346 Terminal behavior. The output performance for a system; graduate performance. Criterion behavior, baseline behavior, whole task behavior, summative behavior.

3.1347 Terminal driver. A software program which governs the communication of a computer with a particular terminal or class of terminals.

3.1348 Terminal interaction. Simultaneous activities involving several terminals accessing/modifying information in a shared data base. When a segment of the data base information is modified during the team interaction, the changes must be apparent in the displays at each terminal participating in the team interaction.

3.1349 Terminal learning objective. Identical to definition for "terminal objective".

3.1350 Terminal objective. A learning objective describing what is expected of the trainee upon completion of a lesson, topic, major portion of a course, or course completion. Also called "terminal learning objective".

3.1351 Terminate-and-stay-resident (TSR) program. An MS-DOS terminate-and-stay-resident program.

3.1352 Test. Any device/technique used to measure the performance, skill level and knowledge of an individual. See appropriate types listed below.

3.1352.1 Achievement test. A test for measuring an individual's attainment of knowledge/skill as the result of specific teaching or training.

3.1352.2 Aptitude test. A test or battery of tests designed to show a person's capacity for a particular type of behavior in a single field or in several related fields.

3.1352.3 Comparative test. A test given at the completion of a major section of a course and, as required, at completion of a course to measure whether the student has mastered the course learning objectives.

MIL-HDBK-284-3

3.1352.4 Criterion-referenced test. A test which measures what an individual must be able to do or must know, in order to successfully perform a task. An individual's test performance is compared to an external criterion/pre-specified performance standard which is derived from an analysis of what is required to do a particular task. Compare with definition for "norm-referenced test".

3.1352.5 Diagnostic test. A valutive instrument used to measure performance against a criterion and to identify specific areas of weakness or strength in individual knowledge and skills.

3.1352.6 End-of-course comprehensive test. An end-of-course test, administered to all initial entry trainees prior to graduation, designed to insure a high probability that trainees can perform all critical tasks taught in the course. It provides feedback on the need for both reinforcement training and course revisions.

3.1352.7 Entry skills test. A test designed to determine if a trainee already possesses certain skills or knowledge needed as a prerequisite before undertaking new instruction. Also, see definition for "entry skills".

3.1352.8 Field test. Tryout of any training course on a representative sample of the target population to gather data on the effectiveness of instruction in regard to error rates, criterion test performance, and time to complete the course.

3.1352.9 Job performance test. A test used to determine whether or how well an individual can perform a job. It may include all job performance measures for a job or a subset of the job performance measures. Compare with definition for "performance test".

3.1352.10 Knowledge test. A test that measures the achievement of theory supporting skill through the use of test items written at the appropriate knowledge and training levels.

3.1352.11 Non-language test. Identical to definition for "Nonverbal test".

3.1352.12 Nonverbal test. A test that requires little or no speaking, reading, or understanding of language on the part of the examinee either in connection with comprehending directions or making responses. Directions may be given pictorially or in pantomime. Also called "non-language test". Compare with definition for "verbal test".

3.1352.13 Norm-referenced test. A test which ranks a student in relation to the performance of other students in contrast to criterion-referenced testing wherein a student is measured against a prescribed performance standard. Compare with definition for "criterion-referenced test".

3.1352.14 Objective test. A test whose scoring requires no human judgement and is scored the same by two or more scorers acting independently.

MIL-HDBK-284-3

3.1352.15 Performance test. A sample work situation which tests how well the student has mastered the psychomotor and cognitive skills required for job performance. A test in which the performance of a task is the criterion of skill mastery. Such a test is prepared in terms of the specific task to be performed, conditions under which it will be performed, and the absolute standards for acceptable performance. A test which measures the skills and knowledge that are needed to perform the terminal learning objective against specific standards. For some circumstances, this could be a written test if designed as a job sample for personnel whose responsibilities involve only paper procedures. Compare with definitions for "job performance test" and "proficiency test".

3.1352.16 Posttest. A test administered to a student upon completion of a course or unit of instruction to measure learning achieved and to assess whether a student has mastered the objectives of the course or unit of instruction.

3.1352.17 Power test. A test in which items are usually arranged in order of increasing difficulty and in which examinees are given all the time they need to complete as many items as they possibly can. Compare with definition for "speed test".

3.1352.18 Pretest. A test administered to a student prior to entry into a course or unit of instruction to determine the technical skills (entering behaviors) he/she already possesses in a given subject. Often used to identify portions of the instruction the student can bypass.

3.1352.19 Proficiency test. A test designed to measure a trainee's capabilities in terms of the job. It measures both psychomotor and cognitive skills. A performance test is sometimes understood to mean a skill demonstration, while a proficiency test is understood to be a comprehensive procedure used to examine the trainee's capability to do what the job requires. Compare with definition for "performance test".

3.1352.20 Progress test. A short test administered throughout a course to evaluate student progress. It is administered at strategic points in a course to determine the degree to which students are accomplishing the learning or enabling objectives.

3.1352.21 Qualifying test. A test administered to determine whether a student is qualified for a task for which he/she has been selected or trained, or for which he/she is being considered. A qualifying test may also be applied to tests used for selecting personnel for training, although the usage is not so common.

3.1352.22 Simulated performance test. A performance-based two dimensional simulation of the job performance required.

3.1352.23 Simulation performance test. A test that measures the trainee's ability to meet training objectives by performing whole tasks or parts of tasks using simulators or simulations.

MIL-HDBK-284-3

3.1352.24 Speed test. An test in which the time limit is set so that almost no one can finish all the items or tasks making up the test. Compare with definition for "power test".

3.1352.25 Survey test. A criterion-referenced test used prior to the development of an instructional system. It is administered to a sample of prospective students to determine what skills and knowledge should be put into the course of instruction. Also called "threshold knowledge test".

3.1352.26 Threshold knowledge test (TKT). Identical to definition for "survey test".

3.1352.27 True-false test. A type of selection or alternate-response test in which the student indicates whether each of a number of statements is true or false.

3.1352.28 Verbal test. Any test involving language. In general usage, the term is restricted to those tests in which the questions and responses are mainly expressed in language or which use language to a substantial degree. Compare with definition for "nonverbal test".

3.1352.29 Within-course tests. Tests administered during a course of instruction to assure that all students are "keeping up" with the learning objectives.

3.1352.30 Written test. A test in which an individual demonstrates his/her capabilities by responding to written test items. It is not usually a performance test, and hence is usually a measure of supporting knowledge rather than skills.

3.1353 Test compromise. Unauthorized disclosure of a test or of test items, with the likelihood that prospective examinees will benefit from the disclosure, thereby distorting the results of the test.

3.1354 Test fidelity. The degree to which the test resembles the actual task performed. The closer the resemblance, the higher the fidelity of the test.

3.1355 Testing constraints. Limitations such as time, money, personnel, facilities, and other resources which prohibit tests from being reliable measures of the items (that is, job tasks) they measure.

3.1356 Test security. The process of ensuring interactive courseware tests are not compromised.

3.1357 Test reliability. The degree to which a test consistently measures what it is designed to measure. The degree to which a test truthfully and accurately reflects the degree to which a student has learned the instruction.

3.1358 Text. A term used to denote any one of the following:

MIL-HDBK-284-3

- a. Alphanumeric characters, words, sentences, paragraphs, et cetera.
- b. Characters generated by a computer.

3.1359 Text file. A grouping of letters/numbers that can be called as a single entity by a computer for displaying its contents in the form of conventional words/numbers without graphics for reading.

3.1360 Text overlay. Computer generated text placed over a video image.

3.1361 Third party software. Software developed by an outside organization/company not connected with the Government or prime contractor.

3.1362 Three:two (3:2) pull-down. A method for overcoming the incompatibility of film and video frames rates when converting or transferring film shot at 24 frames per second to video, which is recorded at 30 frames per second. The first film frame is actually exposed on three video fields, and the next film frame is exposed on two fields, the next film frame on three fields, the next two fields, and so on. Thus, two of every five video frames will consist of fields that contain information from two different film frames. This technique will produce unedited video which appears as a normal video picture when viewed linearly; however, only selected frames can be used as still or freeze frames. All other frames will show interfield jitter. Also, see definition for "interfield frames".

3.1363 Time code. A frame-by-frame address code time reference recorded on the spare track of a videotape or inserted in the vertical blanking interval. It is an eight digit number, including time in hours, minutes, seconds, and video frames. Also, see definition for "SMPTE time code".

3.1364 Time code generator. A signal generator designed to generate and transmit "SMPTE time code"

3.1365 Time code reader. A counter that reads and displays "SMPTE time code".

3.1366 Time-share. A method of computer operation that allows several interactive terminals to use one computer. The terminals are served in sequence, but the high speed of the computer makes it appear as though all the terminals are being served simultaneously.

3.1367 Topic. The basic organizational unit of instruction covering one or more closely related learning objectives.

3.1368 Topical outline. An outline of the topics to be included in the instructor guide. It provides course learning objectives, a listing of part, section, and topic titles and statements of rationale to explain or justify the training. It is used by the curriculum designer to develop the instructor guides.

MIL-HDBK-284-3

3.1369 Touch input. The computer's capability to accept input when a user presses programmed areas on a touch-sensitive screen.

3.1370 Touch screen. A device, normally attached to the front of a CRT which, when pressed in programmed areas, creates an X-Y (plus Z on some) input to the computer. In a program of interactive courseware, the monitor screen acts as an input device which, when touched, branches the program to a developer defined location. Also, see definition for "joystick". Also called "touch sensitive display" and "touch sensitive screen".

3.1371 Touch sensitive display. Identical to definition for "touch screen".

3.1372 Touch sensitive screen. Identical to definition for "touch screen".

3.1373 Track. A term used to denote any one of the following:

- a. A path of instruction.
- b. A series of courses/instruction a trainee takes to learn/be certified in a particular job.
- c. A specific area of audiotape, videotape, or videodisc which contains program information or technical control information.

3.1374 Trackball. A device that positions the cursor or locator by means of a rotating ball mounted in a box equipped with position sensors. The trackball has its motion and direction of movement transformed into positional information (X-Y values or coordinates) for the display cursor. Also, see definition for "joystick".

3.1375 Trainee. Identical to definition for "student".

3.1376 Trainee Guide (TG). A generic term for the various printed materials developed for trainee use. A publication that provides each trainee with the supplementary material (in addition to technical manuals) judged to be required for his/her successful completion of a course of study. The trainee guide includes instruction sheets that contain material such as homework assignments and homework study questions, problem analysis exercises, job performance sequences and performance evaluation criteria, special instructor handouts, and special units of additional or amplifying information.

3.1377 Trainer. Manipulative aids or devices used in the development and transfer of skills instruction to performance on the job. Identical to definition for "training device".

3.1378 Trainer's guide (TRG). (A) A document which lists all critical tasks (for instance, MOS-specific and shared tasks) for all skill levels of an MOS. The TRG given commanders and trainers information needed to plan individual training in units for soldiers

MIL-HDBK-284-3.

in a specific MOS. It also explains the commander's and trainer's responsibilities for conducting soldier MOS training and evaluations.

3.1379 Training. Instruction and applied exercises for the attainment and retention of skills, knowledge, and attitudes required to accomplish military tasks.

3.1380 Training agency. An office, command, or headquarters exercising command of and providing support to some major portion of a formalized training effort.

3.1381 Training aid. A generic term referring to any item developed, procured, or fabricated for the purpose of assisting in the conduct of training and the process of learning, such as models, mockups, interactive courseware, audiovisual aids, displays, slides, books, pictures, and magnetic/optical recordings.

3.1382 Training aid equipment. A category of logistic support equipment. Equipment used to display training aids but which is not itself the subject of instruction. It includes items such as motion picture projectors, slide projectors, tape recorders and playback units, sound film readers, record players, sound/slide projectors, overhead projectors, and opaque projectors. It also includes secondary items such as easels and projector stands. Also called "instructional aid equipment".

3.1383 Training analysis data sheet (TADS). A document which defines a task (unit of work) hierarchically in terms of subject, task, subtask, element, subelement. The level of indenture is developed to the level required by the using service or agency. It also includes information related to level of activity, occupational skill level, material system with which used, and level of skill or knowledge at which used.

3.1384 Training capabilities analysis. An analysis that provides information about what the training material or training equipment could train.

3.1385 Training concept. How the required training is to be accomplished in terms of: type of training, presentation environment, presentation techniques, presentation media, pipeline, location, and other considerations.

3.1386 Training developer. (A) Agency responsible for developing training strategy and requirements for institutional and unit training. TRADOC is the Army's principal training developer.

3.1387 Training development products. Products of the training development process that enable training programs to be formulated and implemented. They include items such as critical task lists, terminal learning objectives, lesson plans, and population description.

3.1388 Training devices. Hardware and software designed or modified exclusively for training purposes involving simulation or stimulation in its construction or operation to demonstrate or illustrate a concept or simulate an operational circumstance or

MIL-HDBK-284-3

environment. Training simulators and devices are considered part of an overall training system that may or may not be identified as part of a parent defense system. The term training device applies to training simulators and devices. Also, see definitions for "trainer" and "training unique equipment".

3.1389 Training device, simulation, simulator. (A) Three-dimensional object and associated computer software developed, fabricated, or procured specifically for improving the learning process. Justified, developed, and acquired to support designated tasks in developmental or approved individual or collective training programs, soldiers' manuals, military qualification standards, or Army Training and Evaluation Program (ARTEP). Categorized as either system or nonsystem device; these are discussed below.

- a. A system device is designed for use with one system or item of equipment, including subassemblies and components (for example, training devices for the M1 Tank, AH-64 Helicopter).
- b. A nonsystem device is designed to support general military training or for use with more than one system or item of equipment, including subassemblies and components.

3.1390 Training effectiveness. The training benefit gained in terms of operational readiness. Also, the thoroughness with which training objectives have been achieved, regardless of training efficiency.

3.1391 Training effectiveness evaluation. The systematic process of measuring the training benefit gained through a course of instruction in terms of operational readiness. Also, the process of determining the thoroughness with which training objectives have been achieved, regardless of training efficiency.

3.1392 Training efficiency. The extent to which training resources (including time) are used economically while achieving training effectiveness. Refers to resource investments required to achieve specific training objectives or requirements. Resources may include time, instructor assets, training device assets, equipment assets, and costs. (Training efficiency is directly related to training effectiveness. There can be no efficiency if there is no effectiveness, because effectiveness implies a benefit from the resources invested). See definition for "training effectiveness". Also called "efficiency".

3.1393 Training effort. A term used to denote any one of the following:

- a. The sum of actions taken to establish and operate training activities, provide training programs, or otherwise contribute positively to the overall posture of training.
- b. The man-hours and dollars expended to provide for trained personnel, training services and instructional materials.

MIL-HDBK-284-3

3.1394 Training equipment. Materiel used in training.

3.1395 Training evaluation analysis. The study of the major factors which impact on individual or unit proficiency, including trainees, trainers, training and command environments, training subsystems, and hardware subsystems.

3.1396 Training exercise. A "practice problem" conducted in the field, for example, a simulation of the real situation (operational situation), and conducted in an environment approximating the significant features of the real (operational) environment. A series of training scenarios whose purpose is to increase the level of expertise within a particular area.

3.1397 Training facility. A permanent or semi-permanent military real property or contractor property, used for the purposes of conducting training.

3.1398 Training feature. An element of the training medium which provides sensory inputs to the learner or receives sensory outputs from the learner. The sensory inputs and outputs may be utilized as stimulus and feedback for the purpose of training. Training features correspond to the attributes defined for a given task, objective, or learner for which the training medium is designed. Examples of training features include motion, level of fidelity, G-forces, visual imagery, cue enhancement, and response rate control.

3.1399 Training fidelity. The extent to which cue and response capabilities in training allow for the learning and practice of specific tasks so that what is learned will enhance performance of the tasks in the operational environment.

3.1400 Training level assignment (TLA). (N) A tabular listing in a personnel performance profile (PPP) table number sequence that imposes training levels for the PPP items and identifies the environment where training for a particular PPP item will take place.

3.1401 Training logistics support requirements. Logistics support necessary to establish a training capability. This includes technical training equipment, training devices, test equipment, special tools, training services, curricula materials, training aids, technical manuals, and facility support requirements.

3.1402 Training material outline (TMO). (N) A document which defines in detail the training package content in relation to each lesson in the outline. It is the second stage of instruction media material development.

3.1403 Training materials. A general term covering plans, control documents, and instructional materials.

3.1404 Training media. The configuration of training features and their supporting systems designed to provide stimuli in a learning situation. Training media may be as simple as a book or as complex as a high fidelity simulator. The complexity of the training

MIL-HDBK-284-3

media is defined by the set of training features required to support the attributes of the training task, objective, or learner. The complexity may also be defined by the requirements of the training situation, such as monitoring student behavior, or automated recording of performance. The final complexity of the training media are defined by a cost-effectiveness equation.

3.1405 Training mission. The stated objective and purpose of an activity whose principal role is to provide training.

3.1406 Training objective statements (TOS). (N) A group of statements which describe the system, subsystem, equipment, or task/function depths and skill levels to be attained in support of coordinating, directing, or performing operation and maintenance. They define depth and level of training for personnel performance profile items.

3.1407 Training objective. Identical to definition for "learning objective".

3.1408 Training package. A term used to denote any one of the following:

- a. A set of instructional literature, aids, and equipments circulated as a unit (package) to provide a training capability on a given subject.
- b. A programmed assortment of exercises and instructions consisting of related material.
- c. A segment of a school course available as a unit for training of personnel.

3.1409 Training Path System (TPS). A coordinated system for identifying the training requirements for categories of personnel in a training program. The trainee must obtain the knowledge and skills necessary to coordinate, direct, or perform operation and maintenance of a system, subsystem, or equipment or perform task/functions. It is based on the knowledge and skill items set forth in personnel performance profiles (PPPs), and upon an orderly categorization of these items.

3.1410 Training performance measure. An instrument used to evaluate the proficiency of a job holder on a given task he/she performed in training.

3.1411 Training pipeline/track. Sequence of training courses covering training for an occupational group.

3.1412 Training plan. A document which includes program information and data concerning the system or equipment program, event, or situation that originated the training requirement, and describes the training required and the training program(s) to satisfy the requirement. Training plans are designed to provide for planning and implementation of training and to ensure that all resources and supporting actions required for establishment and support are considered.

MIL-HDBK-284-3

3.1413 Training program. An assembly or series of courses or other requirements that have been organized to fulfill a broad overall training objective.

3.1414 Training proponent. (A) Command or agency, normally a service school, that has primary responsibility for life-cycle management of a training device from time of concept formulation through classification as obsolete.

3.1415 Training rate. The number of personnel trained in a specific course in a given period of time.

3.1416 Training readiness. A term used to denote any one of the following:

- a. The quality of being up-to-date (that is, able to provide training on the very latest model, device, version, technique, information, and other essentials).
- b. The capability to train (that is, has the means to train in a specified area of content).
- c. The quality of being ready to undertake the training for which scheduled (that is, ready to be instructed and to benefit from the instruction).

3.1417 Training requirements (TRs). Those skills which are required for satisfying the job performance requirements and not already in the trainee's incoming repertoire.

3.1418 Training requirements analysis. A determination of the requirements to resolve a training deficiency.

3.1419 Training resource requirements. The training staff and student billets, training equipment and devices, test equipment and spare parts, training services and materials, construction for (or modification of) training facilities, technical services, and other resources necessary to conduct required training.

3.1420 Training resources. The manpower, equipment, material, facilities, funds, and other resources, required for the conduct and support of training.

3.1421 Training Schedule. The planned use of instructors, students, facilities and equipment within a school.

3.1422 Training site. The geographic location(s) at which a course or training is conducted.

3.1423 Training site selection. In training analysis and design, the decision regarding where a task should be trained (that is, resident or institution versus unit or job site).

3.1424 Training situation analysis. An analytic procedure for determining the nature of the tasks to be accomplished in work performance, and classifying these tasks in a

MIL-HDBK-284-3

framework of frequency, difficulty, and criticality. The results of the analysis form the basis for recommendations for training device concepts and functional characteristics.

3.1425 Training specifications. A detailed description for the development of the job task analysis (job analysis), instructional materials, and the conducting of courses designed for preparing personnel to perform assigned tasks within their occupational fields.

3.1426 Training staff. The administrators and instructors assigned to a training activity.

3.1427 Training standard. A quantitative or qualitative measure for the determination of a level of competence or readiness. A standardized procedure or exercise.

3.1428 Training support. The providing of resources, such as billets, personnel, funds, facilities, hardware, course materials, and services, for the use of the training activity.

3.1429 Training support agency. A bureau, command, office, headquarters, or other organization responsible for supporting the training agencies by providing material and other forms of support within the cognizance of the bureau, command, office, headquarters, or other organization involved.

3.1430 Training support material. A term used to denote any one of the following:

- a. (A) Those materials used in conjunction with resident institutional training or to support individual and collective training in units.
- b. (N) Those materials used as instructor aids for presenting information in a lecture or discussion and as trainee aids in an individualized training course or some other self-learning process.

3.1431 Training support package. (A) A complete lesson plan supporting a specific common or shared critical task designed and developed by the proponent for use by other schools. Nonproponent schools use the training support package as written or integrate the training, but all trainees must be trained to perform the critical task to the delineated standard.

3.1432 Training system. An integrated combination of all elements (such as; training material and equipment, personnel and logistic support) necessary to conduct training.

3.1433 Training System Utilization Handbook. A document that is designed for User personnel to aid them in operating and achieving full utilization of a specific training system during the presentation of a course(s) of instruction, training exercise(s) or mission(s).

MIL-HDBK-284-3

3.1434 Training task. A task selected for training.

3.1435 Training task analysis. The process of examining each unique unit of work from job task analysis to derive descriptive information (for example; procedural steps, elements, task conditions, standards, and other information) used in the design, development and testing of training products.

3.1436 Training unique equipment. Commercial Off-the-shelf (COTS) equipment, modified operational equipment, and equipment specifically designed for a training system as an integral part of the training system. Also, see definitions for "COTS manuals", "off-the-shelf", and "training devices".

3.1437 Training utilization. The extent to which the capacity of a training activity, school, device, or course is being used.

3.1438 Training week. The number of hours in the standard workweek which must be devoted to actual instruction of personnel (that is, the minimum number of hours per week of instruction which any given student must receive).

3.1439 Transfer of training (student). Ability of the trainee to apply old (familiar) concepts to new situations. Transfer of training is most effective when the learning situation is so organized as to facilitate generalization and the recognition of relationships.

3.1440 Transient. An abrupt change in voltage that is of short duration.

3.1441 Transistor. A semiconductor switching device which can amplify signals passing through it.

3.1442 Transition. A logical flow from one section of interactive courseware to another.

3.1443 Transition screen. A screen that provides a smooth instructional flow from one section of interactive courseware to another.

3.1444 Transition training. Training provided to personnel who are qualified on one system or equipment to the point of qualification on a replacement system or equipment.

3.1445 Transmission. The electronic transfer of a signal, message, or other data from one location to another.

3.1446 Transmissive disc. An optical videodisc which has its encoded data read by a laser beam that passes through the transparent surface of the disc to a detector. Also called "transmissive optical disc".

3.1447 Transmissive optical disc. Identical to definition for "transmissive disc".

MIL-HDBK-284-3

3.1448 Transparent. Reduction of the user's perception of the delivery system in the process of interacting with the system. The user's ability to readily understand-- uninhibited by lack of mechanical or programming skills.

3.1449 Transportability. Identical to definition for "portability".

3.1450 Treatment or treatment plan. A design document which describes in general terms the scope and sequence of the instruction. A description of the subject, the audience, the interactive features, and other salient information regarding an interactive courseware project. An initial outline of an interactive courseware unit of instruction, including an initial flowchart depicting major branching design.

3.1451 Trials. The process of trying-out instructional material on a small sample of students (three to five) from the target population.

3.1452 Tryout, individual. Testing the effectiveness of a unit of instruction on individual students who are representative of the intended target population and revising these materials as necessary.

3.1453 Tryout, small group. Testing the effectiveness of a unit of instruction on small groups of 6 to 10 students to determine how that portion of the instructional system works under conditions approximating the actual classroom situation and revising as necessary.

3.1454 Tutorial. An instructional program which presents new information to the trainee in an efficient manner and provides practice exercises based on that information. A lesson design used to teach an entire concept. Interactive instruction which asks questions based on the information presented, requests trainee responses, and evaluates trainee responses. It is self-paced, accommodates a variety of users, and generally involves some questioning, branching, and options for review.

3.1455 Two-dimensional simulation. Simulations which are viewed in a horizontal and vertical nature (no physical depth).

3.1456 Type classified training device. (A) Device that has been transitioned to a particular commodity command or management, fielding, and subsequent part support.

3.1457 U-MATIC. Three-quarter-inch recording format sponsored by Sony.

3.1458 Unified Local Area Network Architecture (ULANA). An architecture which provides a standard requirement contract for a group of local area network (LAN) components. ULANA does not provide the vehicle to acquire a complete LAN. It provides only the components (hardware and communications software) that provide interconnectivity. (This contract is the mandatory source of supply for LAN components within the Air Force.) Also, see definition for "Local Area Network".

MIL-HDBK-284-3

3.1459 Unit. A section of an interactive courseware lesson which performs a single function (usually one screen or a functional routine).

3.1460 Unit of instruction. An assembly of lessons which have been integrated either to complete a usable bit of knowledge or skill or to aid in scheduling a course or program. The basic components of courses. Also called "instructional unit".

3.1461 Unit training. Individual, collective, and joint or combined training conducted at the unit level.

3.1462 Universal. A multi-purpose device or machine which can address a number of different functions or tasks. Compare with definition for "dedicated".

3.1463 Universal system. A multi-purpose machine which can address a number of different tasks given the proper software. Compare with definition for "dedicated system".

3.1464 UNIX. A computer operating system developed by AT&T. It is a multiuser operating system.

3.1465 Upgrade training. Training administered for the purpose of upgrading skill level.

3.1466 Upward compatible. Programs written on a low level of system configuration for a particular processor which will operate without change on higher level configurations using the same processor.

3.1467 User-friendly software. Computer programs or systems designed for simplicity of operation by non-technical users. The ease of use of software designed to facilitate data entry, screen formatting, database definition, inquiry, report generation, and other applications. This software must be of such sophistication that a user may learn to use it with a minimum of formal training.

3.1468 User representative. (A) Combat developer designated to represent the user in combat development of material. TRADOC is the combat developer for all Army developed systems for employment at corps and below.

3.1469 User-supported software. Any software that is financially supported by its users.

3.1470 User survey. A collection of information from users on the subject of the evaluation.

3.1471 Utility. A specialized program that allows an operator to modify or extract data from a program.

MIL-HDBK-284-3

3.1472 Validation. The process by which the curriculum materials and instruction media materials are reviewed by the contractor for instructional accuracy and adequacy, suitability for presentation, and effectiveness in providing for the trainees' accomplishment of the learning objectives. Validation is normally accomplished in tryouts with a representative target population. The materials are revised as necessary as a result of the validation process.

3.1473 Validation disc. Identical to definition for "check disk".

3.1474 Validity. The degree to which a test measures what it was designed to measure.

3.1475 Value engineering. Refers to the process of designing equipment or instruction to meet but not exceed the required outcomes. Generally, it refers to the elimination of features or instructional objectives that have not been demonstrated to be positively necessary.

3.1476 Variable attributes. Characteristics shared by some but not all members of a class of people, objects, events, ideas, or actions which are grouped together on the basis of shared critical attributes and called by the same concept name.

3.1477 Varied repetition. Design elements that repeat a segment of a lesson differently to enhance learning.

3.1478 Vector graphics. Images which are stored and displayed as line segments identified by the X-Y coordinates of their end points.

3.1479 Vectorscope. An electronic display device, similar to an oscilloscope, through which the colors from the camera or videotape can be quantitatively defined.

3.1480 Verification. A term used to denote any one of the following:

- a. The process by which previously validated curriculum materials and instructional media materials are proved to be adequate in the actual training environment. Verification is usually accomplished during the pilot course. The materials are revised as necessary as a result of the verification.
- b. A review of the tape, videodisc, and software to ensure that the content is correct.

Also, see definition for "validation".

3.1481 Vertical blanking. The period of time during which the video monitor display is blank for vertical retracement. Also, see definition for "blanking".

MIL-HDBK-284-3

3.1482 Vertical blanking interval (VBI). The time required for the picture-forming beam of a CRT to return from the bottom to the top of the screen. Lines 1-21 of video field one and lines 263-284 of field two, wherein frame numbers, picture stops, chapter stops, white flags, closed captions, and other references, may be encoded. These lines do not appear on the display screen but maintain image stability and enhance image access. Also, see definition for "blanking".

3.1483 Vertical interval time code (VITC). A derivative of the "SMPTE time code" inserted in the vertical interval between the two fields of a tape frame. This method eliminates errors that occur from tape stretch when using longitudinal time code.

3.1484 Vertical sync. The pulse used to synchronize the vertical scan of the video monitor.

3.1485 Video. A term used to denote any one of the following:

- a. Pictorial images on a monitor produced by sources external to the computer, such as videodisc and videotape and digital video.
- b. A system of recording and transmitting information which is primarily visual, by translating moving or still images into electrical signals. These signals can be broadcast (live or prerecorded) using high frequency carrier waves or sent through cable on a closed circuit.

NOTE: "Video" properly refers only to the picture, but as a generic term usually embraces audio and other signals which are part of a complete program. Video now encompasses not only broadcast television, but many non-broadcast applications, including corporate communications, marketing, home entertainment, games, teletext, surveillance and security, and visual displays in computer technology.

3.1486 Videodisc. A generic term used to describe a medium of audiovisual information storage. A thin circular plate composed of translucent layered plastics sandwiching a metal layer on which video, audio, and digital information is encoded as a series of shallow microscopic pits along a circular or spiral track for playback on a television monitor. Videodisc is an information storage medium for analog/digital (for example, video, audio, and control signals) data. There are many types of videodisc formats. Also, see definitions for "optical disc", "reflective videodisc", "optical videodisc", "transmissive disc", "magnetic videodisc", and "capacitance electronic disc".

3.1487 Videodisc formats. The different forms and organization of data on a videodisc, such as: reflective optical videodisc (laser), transmissive optical videodisc (Laser Film), capacitive electronic disc (CED), magnetic videodisc, and video high density (VHD).

3.1488 Videodisc player. A device used to read (play) a videodisc.

MIL-HDBK-284-3

3.1489 Video display unit. Television-type CRT (raster format) which decodes and displays information from a video source signal. A "monitor".

3.1490 Video graphics array (VGA). An expansion card for IBM personal computers that is inserted into the computer's expansion slot to enable the computer to process and display color graphics and text at a resolution of 640x480 PIXELs.

3.1491 Video head. The unit within a videotape player/recorder which reads video signals recorded on tape.

3.1492 Video high density (VHD) format. A grooveless capacitance videodisc system which uses a broad stylus to pick up data. VHD discs rotate at a constant 900 rpm, contain four video fields per revolution, and can accommodate one hour of material per side without loss of special features. The discs are housed in a jacket which is inserted into the player and then removed, leaving the disc in the player. The format was developed by Matsushita/JVC.

3.1493 Video home system (VHS). A consumer one-half inch videotape format developed by JVC. It employs 1/2 inch (12.65 mm) videotape in a 7 1/2 inch x 4 inch (190 mm x 105 mm) cassette.

3.1494 Video levels. Chrominance and luminance (color and brightness) levels measured on a scope.

3.1495 Video player. A device which reads video information from media such as videodisc or videotape.

3.1496 Video projection unit. A piece of equipment which shines a video image on a flat surface such as a screen in a similar manner as an overhead projector or 35 mm projector does with slides.

3.1497 Video reprocessing. The process of keying video from the computer over the video. See definition for "overlay".

3.1498 Video segment. Identical to definitions for "video sequence" and "video still".

3.1499 Video sequence. A segment of video which is intended to be displayed such that an on-screen display appears to be in smooth and continuous motion. A series of individual stills intended to be played sequentially to show motion of images. Two or more video frames forming one visual unit. Also called "video segment".

3.1500 Video still. One nonmoving video frame. Identical to definition for "still frame". Compare with definition for "full motion video". Also called "video segment".

MIL-HDBK-284-3

3.1501 Videotape. A magnetic tape which can record and play back audio (sound) and video (pictures). It can also hold electrical signals used in editing and in interactive video applications. The tape is made of polyester film, which is strong and flexible, but not elastic. A carbon backing reduces the build-up of static electricity when the tape is in use. A magnetically sensitive emulsion, which commonly contains a magnetic oxide powder, a binder and a lubricant, forms the recording surface. A neutral topcoat helps to protect the emulsion against dirt and damage. Audio signals are usually recorded in a narrow band along one edge of the tape, in closely-packed vertical tracks. Audio signals are recorded and replayed by a separate audio head. A control track runs along a narrow band on the outer edge. This is where the field sync pulse is recorded; it regulates the running speed of the tape. A narrow cue track, which records signals, often contains codes and verbal memoranda used in editing. The video signal and the line sync pulse are recorded in shallow diagonal tracks on the wide band in the center of the tape.

3.1502 Videotape player. A device used to read (play) a videotape.

3.1503 Videotape recorder (VTR). Any machine which records and plays back videotape.

3.1504 Videotex. The generic term used to describe various systems which use telephone lines or television signals to transmit digitally coded information. Also called "viewdata".

3.1505 Viewdata. Identical to definition for "videotex".

3.1506 Viewer. The person observing information on a monitor. A viewer can be a student, instructor, or passive observer.

3.1507 Virtual. Existing or resulting in effect though not in actual fact. In computing, a virtual device may reside only in memory while representing a hardware peripheral. Virtual devices may help programmers avoid hardware incompatibilities.

3.1508 Virtual Device Interface (VDI). This term is used interchangeably with VDI Management.

3.1509 Virtual Device Interface (VDI) Management. The system-level software that is responsible for executing and responding to core and extended commands received from ICW or authoring systems via the ASCII or binary interface.

3.1510 Visual information (VI). Use of one or more of the various visual media with or without sound. VI includes still photography, motion picture photography, video recording with or without sound, graphic arts, visual aids, models, displays, visual presentation services and the support processes.

3.1511 Visual information production. The process of combining or arranging any separate audio or visual product(s) in continuity in a self-contained, complete presentation

MIL-HDBK-284-3

that is developed according to a plan or script for conveying information to, or communicating with, an audience. A VI product is also the end item of the production process. Used collectively, VI production refers to the functions of procurement, production, or adoption from all sources; that is, in-house or contract production, off-the-shelf purchase, or adopting from another Federal agency.

3.1512 Visual simulation. The simulation of relevant parts of a place or object as seen by the eye, often as seen through an optical system. For a training simulator, usually the presentation of the external, out-the-window or through-the-periscope visual environment of a training program.

3.1513 Visual spectrum. The type of color required of instructional materials. Some must be with full color, some with reduced color pallets, others with black and white or shades of gray.

3.1514 Very large scale integration (VLSI). Generally incorporates over 10,000 command processes per integrated circuit chip.

3.1515 Voice-activated. Hardware or equipment activated by the sound of the human voice.

3.1516 Voice-frequency. That frequency in the part of the audio frequency range essential for the transmission of commercial quality speech.

3.1517 Voice-grade line. A channel that is capable of carrying voice frequency signals but is not conditioned to carry digital data.

3.1518 Voice-over. Typically, live action with the original soundtrack replaced by scripted or spontaneous commentary delivered by a speaker who may or may not appear before the camera.

3.1519 Voice recognition. A capability that allows for computer recognition and response to inputs provided by the human voice. A human utterance is recognized by a computer and then converted into machine-usable binary code. Also called "speech recognition".

3.1520 Volatile memory. Identical to definition for "volatile storage".

3.1521 Volatile storage. A storage medium in which stored data is lost when operating power is removed. Also called "volatile memory".

3.1522 Volume unit (VU) meter. Volume unit meter used to measure signal levels.

3.1523 Wide Area Telephone Service (WATS). A service provided by telephone companies in the United States that allows a caller to make calls to or from telephones in specific zones for a flat monthly charge.

MIL-HDBK-284-3

3.1524 Weapon systems training. That organized training conducted in a formal situation on weapons, weapon systems, and related equipments for both operator and maintenance personnel.

3.1525 Whole-task practice. An exercise, performed with or without a training device, which allows students to practice an entire task at one time.

3.1526 Wideband. A communications channel that has a greater bandwidth than voice-grade lines.

3.1527 Wildcard. A representation of all possible variables. A command that can represent one or more characters, numbers, or symbols.

3.1528 Winchester disk. Identical to definition for "hard disk".

3.1529 Window. A term used to denote any one of the following:

- a. A defined portion of a display screen in which a video image or other information may be shown.
- b. A segment into which the interactive videodisc user may enter at any point without missing the chapter stop.

3.1530 Windowing. The practice of not completely clearing or changing to a new display screen in order to present new information. A small portion of the screen is defined, activated, and used to display the new information. When this window is removed, the original screen display remains.

3.1531 Wipe. A visual effect created by a special effects generator where one picture replaces another by sliding in from the edge of the screen.

3.1532 Word. A character string or a bit string considered as an entity.

3.1533 Word processor. A term used to denote any one of the following:

- a. A computer program for creating, editing, manipulating, formatting, storing, and printing text.
- b. A computer-based system, including hardware and software, for inputting, editing, storing, and printing documents.

3.1534 Work elements. The smallest component in the structure of a job. Elements combine to form a task.

3.1535 Work sample. A sample problem representative of the job as a whole, chosen and adapted for the purpose of testing performance on important operations of the

MIL-HDBK-284-3

job as nearly under normal conditions as possible apart from an actual tryout on the job. Performance on a work sample is frequently used as a criterion against which prediction devices in evaluation are validated.

3.1536 Workstation. A physical location which contains equipment that allows a user to develop or execute interactive courseware lessons. A display console with input devices.

3.1537 Write. To transcribe recorded data from one place to another, or from one medium to another.

3.1538 Write-Once-Read-Many (WORM). A technology that will allow data to be written only once to an optical disk and read many times. A type of permanent optical storage that allows the user to record information on a blank disc but does not allow erasure or change of that information, once recorded. A type of non-volatile, semiconductor read-only memory that can be programmed once, and thereafter only read.

3.1539 Writing speed (video). The speed at which the video heads on a quadruplex or helical scan video recorders revolve in relation to the videotape passing across the video head drum. For instance, a VHS tape with a linear speed of 2.34 cm/s has a writing speed of 4.85 m/s.

3.1540 What you see is what you get (WYSIWYG). Refers to a graphic display mode in which the page on the screen shows exactly how the printed page will appear.

3.1541 X Window. An application portability profile established to support standard user interface requirements of the OSE. X Windows supports OSE user interface services by providing a standard interface for client-server operations, and object definition and management. X Window interface requirements are established in FIPS 158.

3.1542 Zoom. To scale a display so that it is magnified or reduced on the screen.

MIL-HDBK-284-3**4. ABBREVIATIONS AND ACRONYMS**

4.1 Abbreviations and acronyms. The abbreviations and acronyms used in this handbook, MIL-HDBK-284-1, and MIL-HDBK-284-2 are defined as follows (terms with cross-references are defined in Section 3 of this handbook):

A	- Army (see 1.1)
A	- Technically Acceptable
AAVS	- Air Force Audio Visual Service
A-B ROLLS	- A technique for audio/video information playback (see 3.3)
Ada	- A structured programming language (see 3.18)
ADJUNC	- Adjunctive
ADPE	- Automated Data Processing Equipment
AFO	- Accounting and Finance Officer
AFS	- Air Force Specialty (see 3.29)
AFSC	- Air Force Specialty Code
AI	- Artificial Intelligence (see 3.53)
AM	- Amplitude Modulation
am	- Audio Management (referring to service group and as command prefix in Appendix F of MIL-HDBK-284-2)
AMC	- Army Material Command
AMSC	- Acquisition Management Systems Control (see 3.10)
AMSDL	- Acquisition Management Systems and Data Requirements Control List (see 3.9)
AP	- Acquisition Plan (see 3.11)
APP	- Appendix
ARTEP	- Army Training and Evaluation Program

MIL-HDBK-284-3

ASCII	- American Standard Code for Information Interchange (see 3.36)
ASTM	- American Society for Testing & Materials
AT&T	- American Telephone and Telegraph
BAFO	- Best and Final Offer
BASIC	- Beginner's All-purpose Symbolic Instruction Code
BER	- Bit Error Rate (see 3.106)
BIOS	- Basic Input/output System (see 3.89)
BNF	- Backus Naur Form
BTF	- Bench Test Facilities
C Programming	- A computer program language (see 3.133)
C-Format	- A broadcast standard for videotape (see 3.134)
CAD	- Computer-aided Design (see 3.202)
CAD	- Computer-aided Drafting (see 3.201)
CAD/CAM	- Computer-aided Design and Computer-Aided Manufacturing (see 3.202)
CAI	- Computer-assisted Instruction (see 3.205)
CAL	- Computer-aided Learning (see 3.203)
CALS	- Computer-aided Acquisition and Logistic Support
CAM	- Computer-aided Manufacturing (see 3.204)
CAP	- Contractor-acquired Property (see 3.245)
CAV	- Constant Angular Velocity (see 3.230)
CAVI	- Computer-assisted Video Instruction (see 3.206)
CBD	- Commerce Business Daily

MIL-HDBK-284-3

CBE	-	Computer-based Education (see 3.207)
CBESS	-	Computer Based Education Software System
CBI	-	Computer-based Instruction (see 3.208)
CBIV	-	Computer-based Interactive Video (see 3.209)
CBL	-	Computer-based Learning (see 3.210)
CBS	-	Computer-based Support (see 3.211)
CBT	-	Computer-based Training (see 3.212)
CBTS	-	Computer-based Training System (see 3.213)
CD	-	Compact Disc (see 3.181)
CD-DA	-	Compact Disc, Digital Audio (see 3.182)
CD-DVI	-	Compact Disc, Digital Video Interactive (see 3.183)
CD-I	-	Compact Disc, Interactive (see 3.184)
CDR	-	Critical Design Review
CDRL	-	Contract Data Requirements List (see 3.241)
CD-ROM	-	Compact Disc, Read Only Memory (see 3.185)
CD-ROM XA	-	Compact Disc, Read Only Memory, Extended Architecture (see 3.186)
CD-V	-	Compact Disc, Video (see 3.188)
CEA	-	Cost Effectiveness Analysis (see 3.265)
CED	-	Capacitance Electronic Disc (see 3.139)
CEO	-	Common Element Objective (see 3.176)
CETS	-	Communicative Education Training System (see 3.180)
CF	-	Career Fields (see 3.141)

MIL-HDBK-284-3

CFE	- Contractor-furnished Equipment (see 3.246)
CGA	- Color Graphics Adapter (see 3.169)
CIN	- Course Identification Number (see 3.272)
CLIN	- Contract Line Item Numbers
CLUT	- Color Look-up Table (see 3.170)
CLV	- Constant Linear Velocity (see 3.231)
CMI	- Computer-managed Instruction (see 3.219)
CM/S	- Centimeters per Second
COBOL	- Common Business Oriented Language (see 3.581)
CONF	- Configuration
COTS	- Commercial Off-the-shelf (see 3.174)
CPAF	- Cost-plus-award-fee
CPFF	- Cost-plus-fixed-fee Contract
CP/M	- Control Program for Microcomputer (see 3.250)
CPS	- Contractor Plant Service (see 3.247)
CPU	- Central Processing Unit (see 3.147)
CR	- Carriage Return (ASCII character code 0DH)
CR/LF	- Carriage Return/Line Feed
CRC	- Camera-ready Copy (see 3.138)
CRO	- Criterion-referenced Objective (see 3.290)
CRS	- Course
CRT	- Cathode-ray Tube (see 3.145)
CTS	- Course Training Standard (see 3.275)

MIL-HDBK-284-3

da	- Digital Audio (referring to service group and as command prefix in Appendix E of MIL-HDBK-284-2)
DA	- Department of the Army
DAC	- Digital-to-analog Converter
DA PAM	- Department of the Army Pamphlet
DAVIS	- Defense Automated Visual Information System (see 3.337)
Db	- Decibel (see 3.323)
DBMS	- Data Base Management System
DCE	- Data Communications Equipment (see 3.314)
DD/I	- Design, Development and Implementation
D&F	- Determination(s) & Finding(s)
DFARS	- DOD Federal Acquisition Regulation Supplement
DID	- Data Item Description (see 3.318)
DITIS	- Defense Instructional Technology Information System (see 3.338)
DMA	- Direct Memory Access
DOC	- Document(s)
DODISS	- DoD Index of Specifications and Standards (see 3.383)
DoD or DOD	- Department of Defense
DOS	- Disk Operating System (see 3.379)
DRAW	- Direct-Read-After-Write (see 3.371)
DSS	- Decision Support System (see 3.326)
DTIC	- Defense Technical Information Center (see 3.340)

MIL-HDBK-284-3

DVI	- Digital Video Interactive (see 3.365)
EEPROM	- Electrically Erasable Programmable Read-only Memory (see 3.412)
EGA	- Enhanced Graphics Adapter (see 3.426)
EIA	- Electronics Industries Association
EIDS	- Electronic Information Delivery System (see 3.413)
EIDS ASSIST	- Electronic Information Delivery System Authoring Software System for Interactive Simulation and Training (see 3.414)
EISA	- Enhanced Industry Standard Architecture
ELIN	- Exhibit Line Item Number
ELO	- Enabling Learning Objectives
EOF	- End Of File (ASCII character code 1AH under MS-DOS)
EPROM	- Erasable Programmable Read-only Memory (see 3.433)
F	- Air Force (see 1.1)
FAR	- Federal Acquisition Regulation
FCC	- Federal Communication Commission
FD	- Flow Diagram
FEA	- Front-end Analysis (see 3.514)
FFP	- Firm-Fixed-Price
FIG	- Figure
FIPS	- Federal Information Processing Standard
FOJT	- Formal On-the-job Training (see 3.495)

MIL-HDBK-284-3

FORTTRAN	- Formula Translation. A high-level computer programming language (see 3.582)
FPIF	- Firm Target
FPIS	- Successive Targets
FPS or fps	- Frames per Second
GB	- Gigabyte (see 3.539)
GE	- General Electric
GFE	- Government-furnished Equipment (see 3.544)
GFI	- Government-furnished Information (see 3.545)
GFM	- Government-furnished Material (see 3.546)
GFP	- Government-furnished Property (see 3.547)
GFS	- Government-furnished Support
GIDEP	- Government/Industry Data Exchange Program (see 3.548)
GOSIP	- Government Open Systems Interconnection Profile (see 3.549)
GP	- Government Property (see 3.550)
GSA	- General Services Administration
H	- Highly Acceptable
HDTV	- High Definition Television (see 3.579)
HOL	- Higher Order Language (see 3.581)
HQDA	- Headquarters, Department of the Army
HT	- Horizontal Tab (ASCII character code 09H)
Hz	- Hertz (see 3.576)
IAW	- In accordance with

MIL-HDBK-284-3

IBM	- International Business Machines Incorporated
IBM-PC	- IBM Personal Computer (see 3.683)
IBM PC-AT	- IBM PC-Advanced Technology (see 3.684)
IBM PC-XT	- IBM PC-Extended (see 3.685)
IBM PS/2	- (see 3.686)
ICAI	- Intelligent Computer-assisted Instruction (see 3.660)
ICW	- Interactive Courseware (see 3.664)
ICWTS	- ICW Training Systems
ID	- Identification or Identified
IGES	- Initial Graphics Exchange Specification
ILS	- Integrated Logistic Support (see 3.658)
ILSMT	- ILS Management Team
ILSP	- Integrated Logistics Support Plan
IMA	- Interactive Multimedia Association (see 3.668)
IMM	- Instructional Media Materials (see 3.640)
INSTR	- Instruction or Instructional
Int	- Interrupt (referring to specific MS-DOS interrupt functions)
Intel	- Intel Corporation
I/O	- Input and Output (see 3.623)
IOCTL	- Input and Output Control
IPR	- In-process Review (see 3.621)
IQ	- Intelligence Quotient
IQC	- Indefinite Quantity Contract

MIL-HDBK-284-3

ISD	- Instructional System Development (see 3.649)
ISS	- Instructional Support Systems (see 3.648)
ITP	- Individual Training Plan (see 3.605)
ITS	- Individual Training Standard (see 3.606)
ITRO	- Interservice Training Review Organization (see 3.693)
ITTP	- Individual Task Training Package (see 3.604)
IVD	- Interactive Videodisc
IVDL	- Interactive Videodisc Language
IVIA	- Interactive Video Industry Association (see 3.671)
JA	- Job Aid (see 3.702)
JB	- Job Book (see 3.704)
JPR	- Job Performance Requirement (see 3.707)
JSAG	- Joint Service Action Group
JTI	- Job Task Inventory (see 3.710)
JVI	- Japanese Victor Corporation
KB	- Kilobytes (see 3.724)
KHz	- Kilohertz (see 3.725)
KSAs	- Knowledge, Skills and Attitudes
LAC	- Lateral Action Contract
LAN	- Local Area Network (see 3.779)
Laser	- Light Amplification by Stimulated Emission of Radiation (see 3.731)
LCD	- Liquid Crystal Display (see 3.775)
LCI	- Learner-centered Instruction (see 3.739)

MIL-HDBK-284-3

LCM	-	Life Cycle Manager
LD	-	Live Demonstration
LED	-	Light Emitting Diode (see 3.763)
LF	-	Line Feed (ASCII character 0AH)
LG	-	Lecture Guide (see 3.754)
LOTUS	-	LOTUS Development Corporation
LSA	-	Logistic Support Analysis (see 3.787)
LSAR	-	Logistic Support Analysis Record
LTD	-	Live Test Demonstrations
M	-	Marine Corps (see 1.1)
MACOM	-	Major Army Command (see 3.811)
MB	-	Megabyte (see 3.847)
MGA	-	Monochrome Graphics Adapter (see 3.884)
MHz	-	Megahertz (see 3.848)
Microsoft	-	Microsoft Corporation
MILCON	-	Military Construction
MIPR	-	Military Interdepartmental Purchase Request
MIS	-	Management Information Systems (see 3.812)
mm	-	Millimeter(s)
MOD	-	Modification
MODEM	-	Motivational Device Multiplexer (see 3.888)
MOS	-	Military Occupational Specialty (see 3.864)
MOU	-	Memorandum of Understanding (see 3.849)

MIL-HDBK-284-3

MPA	- Materials Preparing Activity (see 3.833)
MPS	- Mission Performance Standard (see 3.870)
MPT	- Manpower, Personnel, and Training (see 3.817)
MQS	- Military Qualification Standards (see 3.865)
MS or ms	- Milliseconds
m/s	- Meters per Second
MS-DOS	- Microsoft Disc Operating System (see 3.860)
MTBF	- Mean Time Between Failure (see 3.836)
MTT	- Mobile Training Team (see 3.872)
MTTR	- Mean Time to Repair (see 3.837)
N	- Navy (see 1.1)
NCO	- Noncommissioned Officer
NEC	- Navy Enlisted Classification (see 3.909)
NET	- New Equipment Training (see 3.916)
NTSC	- National Television Standards Committee (see 3.908)
NUL	- Null (ASCII character code 00H)
OASD (FM&P)	- Office of the Assistant Secretary of Defense (Force Management and Personnel)
OBT	- On-board Training (see 3.944)
OEM	- Original Equipment Manufacturer (see 3.967)
OFPP	- Office of Federal Procurement Policy
OJT	- On-the-job Training (see 3.949)
OPM	- Office of Personnel Management
OPR	- Office of Primary Responsibility (see 3.940)

MIL-HDBK-284-3

OS	-	Operating System (see 3.954)
OSE	-	Open Systems Environment
OSHA	-	Occupational Safety and Health Act
OTDID	-	One-time Data Item Description (DID)
PAL	-	Phase Alteration by Line (see 3.1015)
PASCAL	-	A structured high-level computer programming language (see 3.988)
PC	-	Personal Computer (see 3.1006)
PC-DOS	-	Personal Computer - Disc Operating System (see 3.1007)
PDR	-	Preliminary Design Review
PDR/CDR	-	Preliminary and Critical Design Reviews
PERT	-	Program Evaluation Review Technique (see 3.1080)
PI	-	Programmed Instruction (see 3.1085)
PIN	-	Production Identification Number (see 3.1068)
PIP	-	Programmed Instructional Package (see 3.1086)
Pixel or PIXEL	-	Physical picture element (see 3.1022)
PLATO	-	Programmed Logic for Automated Teaching Operations (see 3.1087)
PME	-	Professional Military Education (see 3.1073)
PMMA	-	Polymethyl Methacrylate (see 3.1031)
PM TRADE	-	Program Manager, Training Devices
POE	-	Projected Operational Environment (see 3.1092)
POI	-	Plan of Instruction (see 3.1028)
POI	-	Program of Instruction

MIL-HDBK-284-3

PORTCO	- Portable Courseware (see 3.1035)
POSIX	- Portable Operating System Interface for Computer Environments (see 3.1036)
PPP	- Personnel Performance Profile (see 3.1013)
PQS	- Personnel Qualification Standard (see 3.1014)
PR	- Purchase Request
PROLOG	- Programming System in Logic Language (see 3.1090)
PROM	- Programmable Read-only Memory (see 3.1084)
PVC	- Polyvinyl Chloride
QA	- Quality Assurance (see 3.1107)
QC	- Quality Control (see 3.1108)
RAM	- Random Access Memory (see 3.1113)
RCA	- Radio Corporation of America
R&D	- Research and Development
RDT&E	- Research, Development, Test and Evaluation
REQT	- Requirement(s)
RFI/RFQ	- Request for Information/Quotes
RFP	- Request for Proposal or Request for Pricing
RFU	- Ready for Use (see 3.1123)
RGB	- Red, Green, Blue (see 3.1130)
RGL	- Reading Grade Level (see 3.1122)
R&M	- Reliability and Maintainability
ROC	- Required Operational Capabilities (see 3.1147)
ROM	- Read Only Memory (see 3.1121)

MIL-HDBK-284-3

ROM BIOS	- Read Only Memory Basic Input-Output System
RPM	- Revolutions per Minute
RS-232C	- A standard serial data interface (see 3.1158)
S	- Susceptible to being made acceptable
SALT	- Society for Applied Learning Technology
SAT	- Systems Approach to Training (see 3.1304)
SB	- Storyboard (see 3.1270)
SBA	- Small Business Administration
SCSI	- Small Computer Systems Interface (see 3.1219)
SDB	- Small Disadvantaged Business
SECAM	- Sequential Color with Memory (see 3.1194)
SFA	- Still Frame Audio
SGML	- Standard Generalized Markup Language
SM	- Soldier's manual (see 3.1229)
SME	- Subject Matter Expert (see 3.1284)
SMPTE	- Society for Motion Picture and Television Engineers (see 3.1223)
S/N	- Signal-to-noise-ratio (see 3.1205)
SOW	- Statement of Work (see 3.1258)
SPEC	- Specification(s)
SSA	- Source Selection Authority
SSB	- Script-storyboard(s) (see 3.1180)
SSID	- Standard Software Interface Definition (see 3.1254)
STP	- Soldier Training Publication (see 3.1230)

MIL-HDBK-284-3

STRAP	- Systems Training Plan (see 3.1305)
STS	- Specialty Training Standard (see 3.1239)
sy	- System (referring to service group and as command prefix in Appendix A of MIL-HDBK-284-2)
SYS	- System(s)
TADS	- Training Analysis Data Sheet (see 3.1383)
TASC	- Training Aids Support Center
TDSP	- Technical Data Support Package
TEB	- Technical Evaluation Board
TEE	- Training Effectiveness Evaluation
TG	- Trainee Guide (see 3.1376)
TKT	- Threshold Knowledge Test (see 3.1352.26)
TLA	- Training Level Assignment (see 3.1400)
TLO	- Terminal Learning Objectives
TM	- Technical Manual (see 3.1336)
T/M	- Time and Materials
TMO	- Training Material Outline (see 3.1402)
TO	- Technical Order (see 3.1337)
TOS	- Training Objective Statements (see 3.1406)
TPS	- Training Path System (see 3.1409)
TR	- Training Requirement (see 3.1417)
TRADOC	- Army Training and Doctrine Command
TRG	- Trainer's Guide (see 3.1378)
TRNG	- Training

MIL-HDBK-284-3

TSA	- Training Situation Analysis
TSR Program	- Terminate-and-stay-resident Program (see 3.1351)
TSP	- Training Support Package
TV	- Television
UA	- Unacceptable
UCF	- Uniform Contract Format
ULANA	- Unified Local Area Network Architecture (see 3.1458)
U-MATIC	- Recording format (see 3.1457)
UNIX	- A computer operating system (see 3.1464)
U.S. or US	- United States
USSR	- Union of Soviet Socialist Republics
VBI	- Vertical Blanking Interval (see 3.1482)
vd	- Videodisc (referring to service group and as command prefix in Appendix C of MIL-HDBK-284-2)
VDI	- Virtual Device Interface (see 3.1508)
VDP	- Video Display Processor
VGA	- Video Graphics Array (see 3.1490)
VHD	- Very High Density (see 3.1492)
VHS	- Video Home System (see 3.1493)
VI	- Visual Information (see 3.1510)
VITC	- Vertical Interval Time Code (see 3.1483)
VLSI	- Very Large Scale Integration (see 3.1514)
vm	- Visual Management (referring to service group and as command prefix in Appendix B of MIL-HDBK-284-2)

MIL-HDBK-284-3

VTR	- Videotape Recorder (see 3.1503)
VU	- Volume Unit (see 3.1522)
WATS	- Wide Area Telephone Service (see 3.1523)
WORM	- Write-once-read-many (see 3.1538)
WYSIWYG	- What you see is what you get (see 3.1540)
X Window	- An application portability profile (see 3.1541)
xy	- XY-Input (referring to service group and as command prefix in Appendix D of MIL-HDBK-284-2)
X-Y	- Coordinates (see 3.52)
X-Y-Z	- Coordinates (see 3.52)
2-D	- Two-dimensional (see 3.52)
3-D	- Three-dimensional (see 3.52)
3:2 Pull-down	- Three:Two Pull-down (see 3.1362)
80 x 86	- An Intel microprocessor (see 3.858)

MIL-HDBK-284-3**5. NOTES**

5.1 Intended use. This handbook is intended to be used in conjunction with MIL-HDBK-284-1 and MIL-HDBK-284-2 to aid in the application of MI-STD-1379 for ICW for military training programs.

5.2 Subject term (key word) listing.

Acquisition Manager
Acquisition Plan
Acquisition Strategy
Application
Array
ASCII interface
Audio Management (am) service group
Binary interface
Command string
Configuration Management
Core command
Core parameter
Digital audio (da) service group
Extended command
Extended parameter
ICW Design Strategy
ICW Portability Practices
IMA Recommended Practices
Instructional media
Instructional media data files
Lesson Data Files
Parameter packet
Requirements Definition
Response string
Service group
Source Selection
System (sy) service group
Token numbers
VDI management
Videodisc (vd) service group
Virtual device interface (VDI)
Visual management (vm) service group
XY-Input (xy) service group

MIL-HDBK-284-3

CONCLUDING MATERIAL

Custodians:

Army - AV

Navy - SH

Air Force - 11

Preparing activity:

Navy - SH

Agent:

Navy - OS

(Project ILSS-0052-03)

Review activities:

Army - TM

Navy - AS, EC, MC, TD

Air Force - 13, 94

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3. DOCUMENT TITLE Interactive Courseware (ICW) for Military Training, Glossary for (Part 3 of 3 Parts)					
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)					
5. REASON FOR RECOMMENDATION					
6. SUBMITTER					
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NOTICE OF CANCELLATION

MIL-HDBK-284/3
NOTICE 1
3 September 1999

MILITARY HANDBOOK

INTERACTIVE COURSEWARE (ICW) FOR MILITARY TRAINING,
GLOSSARY FOR
(PART 3 OF 3 PARTS)

MIL-HDBK-284/3, dated 22 July 1992, is hereby canceled. Glossary for training is now contained in MIL-HDBK-1379/4, "Glossary for Training (Part 4 of 4 Parts)."

(Copies of MIL-HDBK-1379/4 are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

Custodians:

Army-AV
Navy-SH
Air Force-11

Preparing activity:

Navy-SH
(Project ALSS-0072)

Review activities:

Army-TM2
Navy-AS, EC, MC, TD
Air Force-13, 94

AMSC N/A

AREA ALSS

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