

STATEMENT OF CASE FOR WHITELISTING MOODLE LEARNING MANAGEMENT SYSTEM FOR MCEME

INTRODUCTION

1. Military College of Electronics and Mechanical Engineering (MCEME) is a premier training institute imparting technical training to Officers and NCOs. Over a period of time, the landscape of education and training has witnessed a paradigm shift with the increasing integration of technology into academic and administrative processes. Learning Management Systems (LMS) have become pivotal in enabling to meet modern educational demands, facilitating efficient course delivery, resource sharing and collaboration. There is a need for an adaptable, scalable and secure platform with robust systems for maintaining high standards of training and education.

2. Moodle (Modular Object-Oriented Dynamic Learning Environment) LMS, being a highly suitable platform for the college, has been implemented in MCEME. It is an open-source comprehensive solution used to meet academic requirements by digitising workflows, streamlining processes and enhancing the quality of training. The Moodle offers structured curriculum delivery by standardised training modules with centralized resource management for course material, assignments and assessment records. It is modular and scalable in design with customisability as per requirement of the training institute.

3. Moodle was whitelisted as a part of **ETab based e-learning Sys by MCEME vide Dte Gen of Info Sys (DGIS), IHQ of MoD (Army) letter No 05353/Auto/IT/Info Sys dt 08 Feb 2022** (attached as **Appendix A**). A hardened standalone ETab configured with Moodle for uploading training content was developed and implemented initially. The training in MCEME thus was a combination of manual and semi-digital processes for managing academic activities. Presently, a customised hardened ETab based solution has been implemented with Post Quantum Cryptography based Quantum secure campus wide WiFi across MCEME for extending the access of Moodle wirelessly to trainees dynamically over College Wide Network (CWN). There is a requirement to whitelist the latest version of Moodle (Version 4.5 released on 07 Oct 2024) for implementation in MCEME. Being a universal open source software, the same can be implemented at any training institutes within Indian Army.

AIM

4. The aim of Moodle LMS is to create a secure, centralized platform for e-learning, academic administration and collaborative learning within MCEME.

SCOPE

5. The scope of Moodle LMS implementation within MCEME is as below:-

(a) **Integration across Departments / Faculties.** Moodle LMS will serve as the central repository for academic content, enabling uniformity and accessibility.

(b) **Training and Education.** The platform will be used for conducting regular courses, special training modules and examinations.

- (c) **Resource Management.** Moodle streamlines the management of teaching materials, course schedules and student assessments.
- (d) **Hybrid Learning.** Facilitates online, offline and blended learning modes, ensuring flexibility in training.
- (e) **Future Scalability.** The platform can be expanded to include additional users, courses or functionalities as needed.
- (f) **Standardization.** Ensures all departments and faculties operate on a unified digital platform, minimizing discrepancies and inefficiencies.

DESCRIPTION

6. Purpose.

- (a) **Unified Learning Platform.** Centralized access to course materials, assignments, grades and communication tools.
 - (i) **Collaboration and Communication.** Forums, messaging and video conferencing tools for enhanced interaction.
 - (ii) **Streamlined Administration.** Automation of processes such as attendance, grading and reporting, reducing administrative burden.
 - (ii) **Analytics and Insights.** Real-time data on student engagement, performance and course effectiveness for informed decision-making.

7. Beneficiaries. Students, faculty and administrative staff of the college.

8. Target User Base.

- (a) **Students.** 800 (approx).
- (b) **Faculty/ Staff.** 40(approx).
- (c) **Administrative Staff.** 20(approx).
- (d) **Total Users.** 860(approx).

9. Features.

- (a) **Comprehensive Course Management.** Create, edit and deliver courses with options for assignments, quiz and feedback.
- (b) **Customisability.** Fully adaptable to meet institutional requirements.
- (c) **Accessibility.** Web based solution optimised for desktop PC / ETab use, ensuring availability on multiple devices.
- (d) **Assessment and Feedback.** Online tools for exams, grading and generating feedback reports.

(e) **Security and Compliance.** Adheres to international security standards, with strong encryption protocols. The vulnerability scan report obtained from **Moodle India office** is attached alongwith as **Appendix 'B'**.

(f) **Offline Accessibility.** Enables download and offline access to course material for all staff and trainees.

10. **Requirements for Hosting Environment.**

(a) **Hosting Environment.** The proposed software will be hosted on CWN to address local training requirements of MCEME.

(b) **Hardware/Virtual Machine (VM).**

(i) **Processor.** Quad-Core 2.5 GHz or higher.

(ii) **Memory.** Minimum 16 GB RAM.

(iii) **Storage.** 500 GB SSD with redundancy and backup capabilities.

(iv) **Operating System.** Linux (Ubuntu 24.04.1 LTS - Latest version).

(c) **Architecture.** Centralised web based deployment.

(d) **Public Key Infra.** Implemented over CWN.

(e) All abovementioned hardware is available within data centre of MCEME for hosting Moodle within CWN with adequate bandwidth.

11. **Security and Access Control.**

(a) **Role-based Access.** Provides differentiated access to students, faculty/ staff and administrators.

(b) **Authentication Mechanisms.** Integration feasibility with LDAP or Single Sign-On (SSO) for secure user authentication if necessary.

(c) **Data Security.**

(i) All communication encrypted via HTTPS/SSL.

(ii) Regular data backups with disaster recovery plans.

(iii) **Compliance Standards.** Fully adheres to data protection norms.

12. **Cost.** Being open-source, Moodle significantly reduces the financial burden associated with proprietary LMS solutions. The availability of extensive community support further minimizes operational costs.

13. **Risk Mitigation.**

(a) Deployment on secured servers in isolated on-premise CWN ensures data protection and operational continuity.

(b) Regular updates and monitoring safeguards available against evolving cyber threats.

14. **Date of Completion.** Installed post whitelisting in Feb 2022.
15. **Architecture.** Web based.
16. **Upgrade Mechanism.** Carried out on release of new versions.

CONCLUSION AND RECOMMENDATIONS

17. Deploying Moodle LMS within MCEME or any training institute will bring transformative improvements to training delivery and administrative efficiency. It aligns with the broader goal of integrating digital solutions in institutional frameworks, ensuring readiness for future challenges.

18. Given its proven capabilities, cost-effectiveness and compatibility with existing systems, it is recommended that latest version of Moodle LMS (**Version 4.5**) be whitelisted for deployment and use on CWN and through ETab based Quantum secure WiFi network in MCEME. Necessary provisioning of hardware, bandwidth and security measures has been addressed by MCEME to ensure optimal functionality.

HQ OF MOD (ARMY): DTE GEN OF INFO SYS

MINUTES OF 9TH STEERING AUTOMATION COMMITTEE (SAC)
MTG HELD AT DGIS ON 02 FEB 2022

The 9TH SAC mtg was held on 02 Feb 2022 at DGIS Conf Hall. The mtg was chaired by
Maj Gen S S Birdie, ADG IS. The fwg were present: -

(a) Members

- (i) Brig Yogesh Kaura, Brig MO (IW), DGIW
- (ii) Brig SS Soin, VSM, Brig Telecom, DG Sigs
- (iii) Brig Raja Bhattacharjee, Brig IT, DGIS

(b) Invitees

- (i) Brig Vikas Bharadwaj, Brig DIAV
 - (ii) Col Santosh Prasad, Col (Ops & Plg), DGIS
 - (iii) Col Vivek Sharma, Col CPW, ACG
 - (iv) Lt Col Kamaljit Singh, GSO-1 (Sys), ST-15
 - (v) Brig Shivendra Kumar, Dean FEL, MCEME
 - (vi) Lt Col DK Singh, CRO, Records The Mech Inf Regt
 - (vii) Maj Vipul, ASC Centre & College (S)
 - (viii) Maj Aakash Sinha, 9 Corps Sig Regt
- } - Attended through Video Conf.

(c) Other Attendees

- (i) Lt Col GS Patiyal, GSO-1, ACG
- (ii) Maj Deepak Bhushan, AAG, DIAV

2. The pts discussed and decisions taken are as follows: -

S No	Agenda Pt	Decision	Action
(a)	<u>Mob Appl.</u>	(a) ACG highlighted the security concerns related to use of mob apps by serving/ ret'd army personnel incl veernaris.	MO-12/ DGMO
	(i) <u>Veernari Android Mob Appl</u> - 9 Corps Sig Regt has proposed whitelisting of Veernari Android Mob Appl. A single platform for Veernaris to access info on health care, post-retirement & scholarship benefits, vaccination services, mechanism to records grievances and integration of links to imp websites (AWHO, AAWA Hostel, Veteran Portal etc).	(b) Brig MO (IW) approved the committee that as per the new IA Internet Governing Policy, use of mob apps need to be controlled. (c) Chairman SAC requested Brig MO (IW) to review & approve the devp of mob appl. Pending issue of this policy involving IA and under consideration of HQ.	DDG IT

S No	Agenda Pt	Decision	Action
	<p>(ii) <u>Banned Mob Appl Scanner (B-MAS)</u>. 9 Corps Sig Regt has proposed whitelisting of B-MAS Android Mob Appl. The appl auto scans all installed apps on the android mob (both hidden as well as visible) and check for any unauth/ banned app installed on the mob phone, which can then be removed instantaneously.</p>		
(b)	<p><u>Devp of Appls for Veterans.</u></p>	<p>(i) Devp of appl for Verangana Seva Kendra by DIAV was approved by SAC.</p>	DDG IT
	<p>(i) <u>Veerangana Seva Kendra (DIAV)</u>. Case fwd by DIAV for proc of <i>web based customer relationship mgt Sw appl</i> to facilitate resolution of grievances of Veernaris / NOKs. DIAV was advised by DDGIT to coord with Mech Inf Records with regards to the web appl already devp by them, to explore the feasibility of bldg up on same and thereby avoid dupl of efforts/ economise efforts.</p>	<p>(ii) Chairman SAC also recom that the reqmt of the ROs' and fd fmns for efficient mgt of veterans and veernaris be incorporated in this appl.</p>	DIAV
	<p>(ii) <u>Veterans' Sahayata Portal (Mech Inf Records) Internet Based web appl</u> for same purpose has already been devp by Mech Inf Records. The case was processed as a <i>website</i> by Mech Inf Dte for IPA of DCOAS (IS&C) which has been accorded. The web appl was also processed with MO-12 whose remarks are as follows:-</p>	<p>(iii) Whitelisting of Veterans' Sahayata Portal is not approved.</p>	
	<p>(aa) Unregulated footprints of IA over internet are a maj cause of loss of data wrt serving pers and veterans.</p> <p>(ab) If approved by other agencies, the proposed <i>website</i> may be hosted as a sublink to the Indian Army Veterans Portal already been launched by Deptt of ESM Welfare, and NOT as an indl website over internet.</p>		

S No	Agenda Pt	Decision	Action
(c)	<p><u>Whitelisting of Eklavya Civilian Recruitment Auto Sw appl.</u></p> <p>ASC Centre & College (South) has proposed whitelisting of Eklavya Civilian Recruitment Auto Sw for direct rect to various tech and non tech Gp 'C' posts of Defence Civ Employees, to be carried out centrally. The Sw appl will run on LAN. However, a web page will need to be uploaded on <i>internet</i> to receive applications from various applicants all over the country and the same data will then be processed on LAN with the help of ibid Sw appl. The estimated cost incl AMC is Rs 12,37,499/- incl GST.</p>	<p>(i) SAC granted IPA for the proc of the appl.</p> <p>(ii) <u>Whitelisting of Appl.</u> User to follow the procedure for whitelisting of the appl as defined in Whitelisting Policy.</p>	<p>DDG IT</p> <p>ACG</p> <p>Sig</p> <p>DG</p>
(d)	<p><u>Whitelisting of Moodle for Tab Based e-Learning Sys by MCEME.</u></p> <p>(i) MCEME has been nominated as the nodal institution to impl Tab Based e-learning Sys.</p> <p>(ii) The ibid sys has been vetted by ACG vide their letter ref at para 1(a) above, subject to whitelisting of Moodle.</p> <p>(iii) <u>Suggested Way Fwd.</u></p> <p>(aa) <u>Option I.</u> Whitelisting of Moodle.</p> <p>(ab) <u>Option II.</u> Grant of one time waiver for use of Moodle for Tab Based e-Learning Sys of MCEME.</p>	<p>(i) SAC has granted one time waiver for use of Moodle for Tab Based e-Learning Sys of MCEME. Separate whitelisting approval need not be obtained while incorporating addl tabs.</p> <p>(ii) User to follow the instrs given vide ACG Letter No B/51106/ArCyGp/T-3/MCEME (TEE) dt 06 Oct 2021.</p>	<p>DDG IT</p> <p>ACG</p>
(e)	<p><u>Electromagnetic Spectrum and National Security.</u> DCOAS (IS & C) Sectt proposed the fwg to be discussed in IA Auto Committee :-</p> <p>(i) Forums (at National, DMA, HQ IDS and within Service) for taking up proposals along with proposed Nodal Dtes.</p>	<p>The members recom that the issue be discussed in the OAC.</p>	

S No	Agenda Pt	Decision	Action
	(ii) Topics for utilising Tech/ Mgt forums for prog use cases proposed in niche tech fds. (iii) Recoms for HR and org changes for giving due impetus.		
(f)	<u>Permission for Devp of IT Inv Mgt Sw by HQ Central Comd.</u> HQ Central Comd seek permission for devp of IT Inv Mgt Sw.	The IT Asset Module has been devp by MISO and is under ACG vetting. Hence the permission for devp of similar kind of appl by fmn is not granted by SAC.	MO-12/ DGMO

3. This is for info and necessary action pl.



Brig MO (IW), DG MO

DIAM (R & W)

Copy to: -

DCOAS (IS & C) Sectt

DCOAS (Strat) Sectt

DCOAS (CD & S) Sectt

Internal: -

DDGIT

Brig T, DG Sigs

DGST (ST-15)

- for info pl.

(Santosh Prasad)
Col
Col (Ops & Plg)
for Chairman

ACG